

# HOW TO BECOME DENTALLY SELF-SUFFICIENT

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PO Box 496, Elmira, NY 14902

[http:OraMedia.home.ml.org](http://OraMedia.home.ml.org)

OraMedia@aol.com

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## **Foreword**

**Why become dentally self-sufficient?**

**What's in it for me?**

**What must I do to become dentally self-sufficient?**

**Physiology--the anatomy of the mouth**

**A summary of odontosis**

**Materials & equipment**

**Oral self-help medicine**

**Your personal oral health maintenance program**

**Special-purpose hygiene methods**

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**Saving orthodontic dollars**

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## Diet, nutrition and oral health

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From now on

### Catalog of publications

## Foreword

Knowledge is the key to health. Knowing what to do, how to do it, and why to do it can help you and your family live sensibly. You can enjoy not just freedom from dental disease, but freedom from the expense and futility of dentistry itself.

Because knowledge is such an essential ingredient, it would be to your advantage to have, in addition to this book, two other OraMedia publications; **Research Advocates Oramedics** and **Money By The Mouthful**.

The information contained in these two books will be included in this book, but not in as extensive detail. Most people who obtain this book will do so because they were introduced to Oramedics via these other books, and this one is written more for the "advanced" reader...it is a natural extension of what they've already learned.

In these pages you will find all the information needed to become self-reliant in caring for your oral health. You'll understand the cause of dental disease, you'll learn how to avoid it; you'll learn what to do for infants, older children and adults. You'll discover what natural resources are available to help you maintain a healthy oral environment as well as what effective materials are easily obtainable through any well-stocked drugstore.

You will find that as with virtually anything in the health spectrum, the first and best "medicine" is prevention, but we realize that there will be problems in spite of your preventive efforts...and we will help you understand these problems and what to do about them: A sort of "dental first aid" approach.

If you haven't encountered the term "frame of reference" by now --or if you have, but don't fully understand it --you should be aware of its importance to your use of the information in this book. A frame of reference is the way you view any given subject, based on preconceived ideas... on all of the concepts and misconceptions you've acquired relative to the subject at hand.

The typical frame of reference to oral health is woefully incorrect; but it is nearly impossible to understand and to use correct information unless the old frame of reference is changed. Whenever you encounter that phrase in this book, think of it as a reminder that the information you are reading at that point is something that is contrary to "popular belief", and that you should perhaps slow down at that point and give it extra attention.

Why are you about to read this book? --isn't it because you're convinced you haven't been getting the whole truth from the dental profession? You're quite sure that if you only knew how, you could take excellent care of your health, and your family's health, without encountering the backbreaking (and rising) medical and dental costs of our time.

You're not alone. In fact, pollster Louis Harris wanted to find out how many people think like you do, and so the famous Harris Poll went out and dug up an interesting fact: More than nine out of ten Americans share your growing belief that simply living sensibly will do more good than any doctor or medicine.

That same poll showed that perhaps seventy percent of the public believes doctors could be good sources of help --information --on how to stay healthy... but only forty-seven percent believe doctors will give them the advice they need.

Nine out of ten suspect that something's not quite right with what they're told. Seven out of

ten think professionals could help them. Less than half believe the professionals will help them.

No, you're not alone; and that perhaps accounts for the mushrooming acceptance of Oramedics: Americans, now more than ever before, are ready to recognize and to use common sense approaches to health care. We think that's why you are about to read this book. We know that's why it was written...

## Chapter One - *Why Become Dentally Self-Sufficient?*

In early April, 1979, authors Dr. Nara and Steven Mariner attended a conference in Milwaukee, Wisconsin. The purpose of the conference was so that National Aeronautics & Space Administration (NASA) bio-medical engineering experts and highly-placed members of the American Dental Association (ADA) could compare notes on the "state of the art" of dental techniques.

It was intended to be an exposition of how to bring the best of dentistry to people in remote, inaccessible areas --perhaps as a fore-runner to populations in space; certainly in response to areas of the world where dental offices are impossible and dentists are scarce.

It was, from the viewpoint of most of those present, a smashing success. As far as Oramedics is concerned, it was a discouraging failure --except that it underlined the crying need, now... today... for the public to have access to the kind of oral health approaches Oramedics has developed.

The crowning achievement of American technology was to bring space-age materials and techniques to bear on equipment. The conference's high point was when people learned that we can now take all of the archaic devices from a dentist's office... the barber chair, the drilling equipment... the works... and put them into a back pack weighing in at just under 100 pounds.

Now a dentist can hire a porter to lug his office up a mountain, or through a jungle --or into a space vehicle --and, once he's arrived at his destination, he can set up shop and... right. Drill holes in someone's teeth, or yank them out.

It is discouraging and frustrating to see such an enormous expenditure of money and technology just to keep alive the fiction that diseased teeth are inevitable; and that the only person who can do anything about disease damage is a dentist with his mechanical tools. It makes no difference whether the office is up a flight of stairs over the dime store... or on someone's back, at a miracle of only 97 pounds.

What on earth --or in space --is that person doing with holes in his teeth to begin with?

### **Dental disease doesn't have to happen!**

We might as well imagine the spectacle of doctors lugging iron lungs around with them, looking for victims of polio in remote areas... so they can keep the victims alive for just a little while longer... but without taking along any Salk vaccine to prevent the disease in folks not already stricken.

Dental disease --odontosis --is the result of an invasion of germs into the oral environment. It can be stopped at any stage of its development, simply and economically. It can be prevented. If odontosis is inactive, there won't be any more holes in the teeth. If it's stopped before it progresses too far, there won't be any "yanked" teeth... or, as is predictable with the current "state of the art" for conventional dentistry, the ultimate loss of all the teeth.

Nobody can "blame" NASA for spinning its wheels on product development: The only source of information about dentistry is organized dentistry... and organized dentistry is still practicing "drill, spit and fill" techniques given up decades ago by the town barber.

It comes down to this: There's only one way for people in remote areas to avoid the pain and danger of disease-damaged teeth: *They must learn to avoid the disease.* There is no other sensible way for people in "remote areas" --and that covers a lot more territory than on the moon.

People in ghettos are in "remote areas" --how many dentists practice in such places? Where would people get the money to pay them?

People in rural America are in isolated places: Who can afford to lose a day's work; to drive many miles to a dentist's office, often only to be told to come back again in a few days' time?

Being isolated is as much a function of economics as it is geography: A person earning \$140 per week take-home pay is as isolated as an astronaut as far as dentistry is concerned, even if he lives and works within walking distance of an office.

People are "isolated" from dentistry by distance, by economics, by misconceptions as to what dentists do (or don't do). People can be intentionally isolated from dentistry; especially the growing number of Americans who simply do not trust the medical / dental establishment to tell them the truth about self help methods.

The Harris Poll discovered in 1979 that 92% of all Americans believe simply living sensibly will do more good than any doctor or medicine.

They are correct in that assumption, as far as oral health is concerned! It isn't too surprising, given the somewhat astonishing "track record" of the American Public, that people seem to come up with the correct attitude in spite of the "official" attitudes handed them by the establishment.

In that same poll, less than half of the people interviewed believed they would get the right kind of advice from their doctors. When you stop to realize that those "doctors" are the same sort who are encouraging NASA to spend millions of dollars to develop back-pack dental offices, it is refreshing to realize how difficult it really is to fool the American Public indefinitely.

Organized dentistry has been able to fool "all of the people some of the time; and some of the people all of the time" --but, fortunately, the era is over when they could fool all of the people, all of the time.

Those who have read **Money By The Mouthful** are aware of the resistance Oramedics has encountered in its attempt to tell people that dental disease is unnecessary. In **Money By The Mouthful** it was made clear that organized dentistry responds to symptoms, not disease. Those who read that book --many thousands of people --asked Oramedics to publish another; one that told them how, in simple terms, to become dentally self-sufficient.

That's what this book is all about. A suggested method of using it would be to read it right through, cover to cover, without stopping to "study" any part of it. You'll find that your understanding of dental disease (which we'll call odontosis from now on) will increase as you go along. You'll notice several reference chapters which you can use as guides, or to refresh your memory, when specific needs arise later.

You'll come to view this book as a sort of "home medical advisor," but with a total emphasis on oral health. There are chapters on how to care for infants and for youngsters as well as adults. There are some relatively technical chapters which discuss disease mechanisms. These are necessary for your understanding and --while technically accurate --they are written in plain language.

This book will not qualify the average person to be a Doctor of Dental Surgery (dentist); any more than a medical or first-aid book would qualify a layman to be a physician, an M.D. Situations can arise which are simply beyond the scope of this book or which require training and skills beyond the reach of a lay person. An accident which breaks teeth or severely cuts gum tissue, for instance, would obviously require medical / dental attention.

It's possible that severe disease symptoms could arise, causing intolerable pain or systemic poisoning. It is no comfort, at that point, to realize that it could have been avoided. If the situation exists, it must be dealt with.

In the event of any condition which isn't clearly understood, or where there is evident potential for serious difficulty, the intelligent person will seek help from a professional.

One of the purposes of this book, in addition to helping people become self-sufficient for a major percentage of their oral health needs, is to give them greater competence in deciding when and where to seek medical assistance... when that assistance is available.

Of course the emphasis throughout will be on prevention of odontosis: The primary goal of Oramedics International is to help people achieve freedom from disease. When the oral

environment is disease-free, the person will have become totally self-sufficient.

The reader is encouraged to write to Oramedics International if there are any questions. Every inquiry receives the personal attention of a staff member and more often than not will be referred to an Oramedics Fellow, a practicing Doctor of Dental Surgery. All inquiries are answered. Mail should be addressed to:

**Oramedia**  
**PO Box 496, Elmira, NY 14902**  
**E-mail: OraMedia@aol.com**

So...read on; join the ever-increasing number of Americans who are achieving freedom from dental disease. We think you deserve better than inventions which allow conventional dentistry to bring an office into your living room --or in a mobile van --or on the moon --in order to plug holes or pull teeth that shouldn't have been sick to start with. We rather like the idea of a much earlier inventor, **Thomas A. Edison**, who said:

*"The doctor of the future will give no medicine but will interest his patients in the care of the human frame, in diet, and in the cause and prevention of disease."*

...Welcome to the dentistry of the future --**today**.

## Chapter Two - *What's in it for me?*

Even if Madison Avenue hadn't taught us to be aware of "what's in it for me?" we would still, sooner or later, evaluate the cost-effectiveness of anything we do, in order to decide if it's "worth it."

There cannot be any real effort --and therefore no progress --without incentive of some sort. This is as true with oral health as with anything else; and there is no way you or your family will invest the money (although it is very little), or the time and effort to overcome odontosis and become self-sufficient, unless you are first convinced there is something of real value to gain.

Organized dentistry is betting that you can't do it, and they are more than willing to provide repair services for a fee when this self-fulfilling prophecy comes to pass.

This attitude is well expressed by the author of an article in *Journal of the American Dental Association* (V. 95 {1159}12/77), entitled, *Patient Susceptibility Limits to the Effectiveness of Preventive Oral Health Education*:

*Prevention is preferable to repair of damage. During the past few years the most significant development in the prevention of dental disease has been the movement to incorporate patient oral health education as a service routinely offered by many private practitioners. The goal of such programs is to develop in patients a self-maintaining habit of daily mechanical disruption of plaque.*

*From the perspective of behavioral science, little evidence supports the hope that such behaviorally-based preventive programs will be a significant deterrent to dental disease...Home care prevention is not for everyone; in fact the number of people who could benefit from such instruction may be no more than several hundred per dentist... (emphasis added)*

The *JADA* editors introduced this article with a boxed lead-in which flatly stated, "A preventive oral health care regimen will not succeed for every dental patient." There's no purpose in belaboring the point, although there are probably hundreds --if not thousands --of dental articles describing why patients are "too dumb" to take care of their own oral health. Since dentists are exposed to these attitudes when they enter dental college, and the pressure never lets up after they enter private practice, it's no wonder most dentists have a defeatist attitude about your capability to learn commonsense approaches, and then do them.

Contrast this to the thousands of case histories in the files of just one Oramedics practice. The *JADA* article said "...the number...who could benefit... may be no more than several hundred per dentist." This article is talking about people just like you...it might even be talking about you.

Oramedics patients, also, are people just like you. Is there any reason to believe that "only several hundred" have benefited from that one practice? To prove the effectiveness of the Oramedics program, a sample of 1,000 records was selected at random from a total of over 10,000 patient files.

The average condition at the time of initial patient examination showed an average U.S. Navy Plaque Index count of over 17; and an average *lactobacillus acidophilus* germ count of 483,000 per milliliter of saliva, and with an approximate average of one half billion *streptococcus mutans* germs per milliliter.

The sampling included patients from ages three through 84; covering a period from 1962

through 1978 (17 years). Because of the *average* condition upon initial examination, as described above:

**92% had evidence of active decay:  
98% showed definite evidence of inflamed  
or otherwise diseased gum tissue at the time of initial examination.**

The sampling showed that some four percent of the records were incomplete, since the patients had refused the Oramedics program and had left the practice. Another five percent of the patients had moved away, or for some other reason could not be evaluated as part of this survey. Aside from these "incompletes" or "no longer actives" --which comprised only nine percent of the overall sample group --did the results prove anything about the effectiveness of Oramedics? Here are the results:

Upon final examination on whatever date their six-month re-examination fell closest to 15 February 1978, the results were as follows:

**Average US Navy Plaque Index --2.2  
Average Lactobacillus count --720/ml.**

*Not one patient* was found to be experiencing any active decay or any evidence that the decay process was occurring. *Not one patient* was found to be experiencing any active gum tissue disease.

Why do you suppose that patients in this one dentist's practice were able to consistently "beat the odds" against disease? The *Journal of the American Dental Association* article seemed to pretty well conclude that most folks simply can't get it together as far as their oral health is concerned. What makes the difference...?

Let's take a look at three letters, all written in 1978:

*I was Dr. Nara's chair-side (Registered Nurse) assistant for over 10 years (1964 to 1975). Being a nurse I suppose that I paid even closer attention to my boss's work than an average assistant. During the ten years I never saw a single patient who required a filling whose routine Navy Plaque Index was below 3, and whose lacto count routinely registered below 8,000! In my opinion Oramedics will stop dental disease for anyone who follows the concept.*

*--Patricia J. Salani, R.N.*

*I worked for Dr. Nara during 1972 and 1973 as an assistant, both in the office and in the treatment rooms. During that time my attitude towards dentistry improved 200%.*

*All patients on the Oramedics plan kept their mouths in great shape. It was always a "team effort" --Dr. Nara, his staff, and the patient. The whole concept makes sense...Oramedics works.*

*--Peg LaBissoniere*

*I have been involved with Oramedics for roughly one year. As a hygienist, I have had the opportunity to personally examine hundreds of Dr. Nara's patients.*

*In the majority of these patients I observed the routine standards of Oramedics: Navy Plaque Index below 3 and the lactobacillus count below 8,000.*

*Where the mouth was enjoying the Oramedics 'safe zone' I never observed a single area of new decay, nor did I detect anything but perfectly healthy gum tissue.*

*It is my professional opinion that as long as the patient maintains the Oramedics standard it*

*is practically impossible for them to develop any dental disease.*

*-Alice T. Rauschkolb, Registered Dental Hygienist*

The point we are not trying to make is that when the Navy Plaque Index is below three and the *lacto* count below 8,000/mi there won't be any disease. That's been proven so incontrovertibly it needs no further argument. The point of this survey, and those letters from professional dental assistants, is this: In this practice, every active patient went from oral disaster to disease-free health. All of them... except the four percent who chose to remain diseased and the five percent who were registered as "incompletes."

We've already stated that Oramedics offers no "secret medicine," no mythical pill or inoculation which wards off odontosis. To date, there is no such medication (although Oramedics is working on it).

What, then, makes the difference? It is so simple that the entire point can be missed "in the wink of an eyelash." One of the most difficult adjustments to the typical frame of reference is involved here, and the statement is so deceptively simple that you *must pay careful attention*:

Conventional dentists really don't tell their patients how. Oramedics Fellows do. Conventional dentists really don't tell their patients why. Oramedics Fellows do. Conventional dentists haven't discovered a means of motivating people to care for their own oral health. Why, how and motive are what Oramedics is all about.

The answer to "what's in it for me," as far as oral health is concerned, is the key to your becoming orally self sufficient. Comedian George Carlin once said, "You gotta wanna." Isn't this true of everything in your own life with any value? In order to achieve, to acquire, to overcome... to do... *You have to want to.*

But there's another side to this, equally important to the human psychological makeup. Wanting to do anything is never enough, *as long as the person remains convinced that what he or she wants is out of reach.* That's the critical factor in the war against odontosis: Most people, dentists and laymen alike, may want to do something about this disease...but they don't *really* believe anything *can* be done!

It took years of effort and research before the principles of Oramedics were developed to the point that the average person could *believe* odontosis was preventable; that the average, ordinary citizen could defeat this disease forever. Until this becomes the governing frame of reference, there's little hope that the personal attempt at freedom from disease will be effective.

You have to want to, sure...but that's not enough. You also have to *believe* you can!

That's the whole point of telling you about the survey of Dr. Nara's patients...and sharing those letters with you, letters written by oral health professionals. That's the point of **Money By The Mouthful**, the companion to this book...and it is the point of much of what you'll read from here on.

Once more, for effect: Your frame of reference about odontosis now must become that all dental disease is wholly preventable today --and that ordinary folks, using ordinary materials, are able consistently to achieve freedom from that disease.

Once you become wholly convinced that this is an achievable goal, you're halfway to the right frame of reference. The other half, of course: You have to want to. What's in it for you and for your family almost goes without saying, but there are a few statistics you may find interesting:

Take a look at illustration 1, a graph of oral health costs. While it's obvious that we are talking about an average --your own case will be either less costly or more costly than \$16,500 over a lifetime the ratio would still be fairly applicable. The cost of reparative and replacement dentistry is something on the order of seventeen times as expensive as preventive oral health care.

The comparison of financial outlay, as revealing as it is, misses one point completely: Many families or individuals simply cannot and do not invest anywhere near this much money in their dental health. In many cases, at around age 40 (when the graph takes a sharp upward curve, financially) the person simply "gives up," electing for dentures rather than the burdensome investment needed for bridgework, root canals, etc.

*Your money or your teeth*, fate seems to be demanding when we hit early middle age...you apparently aren't allowed to keep both. And that's *wrong!*

What other incentives are there to become dentally self-sufficient, besides financial gain and the "right" to keep your teeth for a lifetime? -What about freedom from pain? Anyone who has ever experienced a toothache will be able to see the incentive in not suffering another. Anyone who has ever had an abscessed tooth, or undergone a painful extraction, or who remembers the maddening sounds and sensations of having a tooth drilled and filled, will fully understand the incentive of not going through these things again.

There's more: Anyone who has paid the price of having a child's crooked teeth braced, and who learns that this, too, could probably have been avoided ...will understand the incentive of good oral health. Parents who love their children and who want to help them avoid the social problems of diseased or crooked, unsightly teeth will understand the incentives involved.

Incentive...? *This whole book* should help you with your incentive to become dentally self-sufficient; and that's good, because *we can't do it without you*. Becoming self-sufficient implies that you are going to make a self-investment. If you are content to let others do things for you, you have no reason to continue with this book, or this program...because it *won't work* for you unless *you* work for it.

We can't make you dentally self-sufficient unless you do your part. For our part, we can prove to you that it *will* work; and we can show you how. We can even give you all the information necessary to prove to you that *you* can do it; just like thousands of other "ordinary people" before you. We can help you understand *why* and *how*. That's our part.

--What's your part? ...Easy: You have to want to.

Remember the old saying, "Where there's a will, there's a way." Your will, and Oramedics way, can lead you to freedom from dental disease and help you become dentally self-sufficient.

## Chapter Three - *What must I do to be dentally self-sufficient?*

In its simplest form, the answer to that question is: You must get rid of active disease in your mouth; you must make sure you prevent any recurrence, and you must ultimately make some decisions about having present disease damage repaired.

### Step One

Let's take these steps one at a time. First and most important, there is active disease in your mouth; there is active disease in the mouths of members of your family. Unless you fall into the category of those who are naturally immune, odontosis is at war against your oral health right now. Who is immune? --Statistically, some two percent of the world's population has a high degree of immunity from odontosis; some of them even seem to have a total immunity.

We don't know for sure why this is, but there's a good way for you to determine whether you fall into that category. You can go through the first step, the *Lactobacillus Saliva Test*, the same as everyone else. If you've never done anything in particular to keep your oral health ship-shape, and have never suffered cavities or any other oral disease symptom, and if your *lacto* count is under 8,000 *naturally* --you are probably immune. The odds against you are 50 to 1: If you were gambling something besides your oral health, you probably would not bet against those odds, so it's a "safe bet" that you have odontosis.

Most of us have no problem concluding that we have active disease. Instead, the question is: "What do I do about it?"

Before you can begin any response to this disease, you should first be aware of the extent of the problem. Don't expect your old frame of reference to work, now. This is nothing like having a dentist tell you, "Yep...you have two cavities..." (or whatever).

We want you to begin thinking of odontosis as you would expect to think of disease elsewhere in your body. In other words, you should know what causes it and how it operates; and you should begin to think in terms of diagnosis, clinical tests and individualized approaches to therapy.

In Chapter Five you'll find a step-by-step explanation of odontosis and its three most easily recognized forms; *cariosis*, *gingivosis* and *periodontosis*. You needn't take the time now to study that chapter --just remember it is there as a reference for your use later. At present all you need to be reminded of is that odontosis, like so many other diseases, is caused by germs: *Lactobacillus acidophilus* and *streptococcus mutans*, to name the principal bad actors.

These germs create a waste by-product that makes a film on your teeth --and particularly between your teeth --in which the germs colonize. Now another by-product...acid...begins to "insult" tooth enamel, resulting in cavities.

The disease process continues, ultimately causing other symptoms which you recognize as gum problems. *Frame of reference*: Cavities, gum problems, sore gums --often bleeding --toothaches, abscessed teeth... all of these are *symptoms*. We've been trained since childhood to think of these things as the sources of our troubles. They are not the source (cause). They are all *effects* (symptoms) of a *hidden cause* --disease.

Now, obviously: If the disease is caused by germs, all we have to do is get rid of the germs and we're home free, right?

--Well, in a manner of speaking, that's right. But we can't "have a shot" to get rid of these

germs; and there are no pills which will make them "go away." If we did have such an injection or medicine, you'd simply end up "catching" these same kinds of germs all over again, sooner or later.

We have to get rid of them, and keep them absent, in order to be free of odontosis. And so, like so many other diseases, we begin our war on germs with a test; one which will determine the extent of the present involvement and become a point of departure for our therapy.

This test is called the "Lactobacillus Saliva Culture" or, more simply, the *Ora-medics Saliva Test*. It is performed at a laboratory, using a sample of your saliva which you mailed, yourself, in a special container.

Technicians at the lab will use special equipment which enables them to actually count the number of lactobacillus in a given amount of saliva to come up with the germ count per milliliter of saliva. There is a well-established mathematical relationship of the number of strep mutans germs present for a given number of lacto germs, and so the technicians can determine the extent of both microorganisms from this one test.

When a saliva test is below 8,000 lacto per ml. of saliva (consistently), that mouth is probably --almost certainly --without cariosis. Anything over 8,000 is moving into the danger zone. It is not unusual for the average person to have a lacto count in the tens or hundreds of thousands per milliliter.

This would be true even alter a visit to a dentist; perhaps *especially* after a trip to a dentist. Why? Colonized germs would have been disturbed by the exploring, drilling or scraping. The number of germs present in "free" saliva would be increased. This wouldn't invalidate the test in terms of establishing the presence of disease, it would simply give an incorrect "reading" of the oral environment.

It is not unusual to encounter a saliva test result of 500,000 lactobacillus per ml. of saliva. This would mean --incredibly --that there are *500 million* strep mutans germs per milliliter.

Now, even when you're talking about things as tiny as germs, anybody will recognize that a half billion of *anything* is a "whole bunch" of 'em. Considering that the only "safe" level of these germs is less than 8,000...the saliva test instantly tells us:

1. Whether disease is present (confirming your suspicion);
2. What *extent* the germs have set up housekeeping;
3. What logical steps to take from here on out.

For an analogy --although admittedly it's like comparing oranges to tangerines, which aren't quite the same --think of a doctor being almost sure, from symptoms, that you have diabetes. Would he immediately start you on insulin therapy without making any tests, without analyzing your individual, personal situation? --What if he was wrong; the symptoms seemed like diabetes, but that wasn't really the disease? Or...what if he was right? Should he prescribe oral insulin, or injections? How much? How often? What about your diet: Would he simply suggest that you "avoid sugar, and visit your doctor every six months for a check-up?"

No, of course he would do none of these things. He would use a well-established, definitive clinical testing approach so that he was sure; and so that he knew what you need, as an individual. Then --and only then --would he discuss things like medicine, therapy, diet control, and your own responsibilities in achieving personal freedom from disease.

To take the saliva test, you first obtain a specimen bottle and instructions. Oramedics offers this through the mail. As with many other things, Oramedics is not the only place, or organization, which offers saliva tests...but they are hard to locate even for conventional dentists, who usually don't bother with them. Finding a laboratory which would deal directly with the public would be extremely difficult.

If you can obtain satisfactory testing elsewhere, and want to, of course you should. If not, you may obtain the saliva specimen bottle and instructions from Oramedics.

Once you have this, you will, upon rising in the morning, chew a small piece of sterile wax provided in the test kit, then spit in the special bottle, seal it tightly, and drop it in the mail. It is pre-addressed to the laboratory.

The laboratory will return its findings to the doctor or agency sponsoring your test and, together with the other personal history you've given, it can be used to establish a diagnosis about the present state of your oral environment, and suggest a course of action to correct it, individualized for your personal condition.

A second benefit of the saliva test is that after you have begun the recommended corrective "treatment" you can check your progress by re-testing at appropriate intervals. Obviously, secondary testing can reassure you that you are progressing...and it can also disclose any continuing problem.

You may have unsuspected nutritional difficulties. You may have a severe dietary problem. You may have need for closer supervision or additional instruction. For whatever reason, if you are embarked on a program of becoming self sufficient, the tests will show you absolutely whether your program is working --or whether you need additional help.

"To test is to know...not to test is to guess." For those who are enrolled in the full through-the mail Oramedics self-help program, the testing is mandatory...and for a very good reason. Oramedics doctors refuse to guess, on a matter as important as a patient's oral health, when it is so easy and virtually foolproof to test.

## Step Two

After testing, the next step in your program of oral self sufficiency is to learn about oral hygiene. Be careful of your present frame of reference on this point. because there are hundreds of thousands of Americans wandering around out there, convinced they are taking good care of their mouths...and they are not.

More than ten years ago, writing for other dentists, Dr. Basil G. Bibby, D.M.D., wrote an article, "Do we Tell the Truth About Preventing Caries?" in the *Journal of Dentistry for Children*, Vol. 33, 1966. Let's "drop in" on that article, shall we?

*There have been few more successful educational programs than the one which has convinced the American people of the desirability of tooth brushing as an adjunct to oral hygiene. It now rates close to motherhood in respectability. Its promotion gives the dentist something to talk about and the dentifrice manufacturer good advertising angles. Commerce being what it is, the manufacturer cannot be blamed if he oversells oral hygiene for the purpose for which he is in business. The same cannot be said of the dentist, whose very title of Doctor suggests that he should be teaching the most up-to-date information on the subject.*

Dr. Bibby then asks *other* dentists:

*Is it correct to say that brushing the teeth will prevent dental decay, or have we repeated this statement so often that, as the ultimate victims of propaganda, we have become incapable of questioning it? One does not have to be against brushing the teeth to question its value in preventing dental decay...*

*Emphasis added*

No, Oramedics is not "against" tooth brushing. (We're not "against" motherhood, either...) What Oramedics wants the world to know, even if the profession doesn't (yet), is that tooth brushing alone won't do the job; and tooth brushing ineffectively is --aside from making you feel good cosmetically --probably a waste of time.

Worse than that: If you are a conscientious tooth brusher, and have believed the toothpaste commercials, you are with dentists as far as Dr. Bibby would be concerned: You are an "ultimate victim of propaganda." You are a victim, in this case, because you've come to believe (*frame of reference*) in your efforts at oral hygiene: You feel that you're doing all you can and should do. That attitude leads, almost inevitably, to odontosis...no matter what you *think* your tooth brushing is doing for you.

You will need to learn a great deal more about oral hygiene; and you will, in this book...after you've learned more about the way your mouth is put together, and what the chemistry is like in there, and so on.

For now, please understand that for the rest of your odontosis-free life the one single most important thing you will personally be involved in is oral hygiene. This one area is yours, exclusively and individually: You can be shown how, but only you can provide the initiative and the persistence it will require.

Understand, also, that we are *not* going to ask you to go to extraordinary lengths, to become so involved in oral hygiene it becomes oppressive. In fact many folks have discovered that the *right* approach to oral hygiene is less time-consuming, less restrictive and easier to maintain than their former hit-and-miss, guilt-laden routine of alternate frenzy and lapse; self satisfaction and despair.

### **Step Three**

The next stage of oral health self sufficiency is to become knowledgeable about teaching others in your family; caring for babies, infants and children. You should (and will) also come to know about how to respond to toothache pain and what to do in emergencies: Oral / dental "first aid."

In order to help you with this, we will take you in easy steps through the necessary technical information. You won't be deluged with big words and abstract concepts, although we'll make a point of telling you what some of those big words mean; and what some of those concepts imply. It is during this phase of your reading and doing that you will become familiar with the chapters of this book that, later on, you can use for your reference library.

## Step Four

Sooner or later, you will probably require the services of a dentist. You've had odontosis long enough now, probably, that there is irreversible damage to your teeth. We are speaking of damage which nature cannot repair without assistance, when we mention irreversible damage: The kind we are *now* talking about is *repairable* damage.

In a sense, the distinction is that you will need to have some things *fixed* that can't be *healed*. For those problems, the only solution is reparative dentistry: The kind of dentistry that any competent Doctor of Dental Surgery is prepared to perform.

This is not a contradiction, in a book about becoming *self* sufficient, when we suggest that you will ultimately have to obtain corrective help from a doctor. Only a doctor has the requisite thousands of hours of education, the skill and experience, the equipment, and the legal *right* to actually "operate" on your teeth.

While it should be the *last* time you require this kind of help, the odds are that you will have to have it at least once more after you've become self sufficient. For that, we will help you understand what is needed and how to go about getting it done properly. In brief, you will first achieve freedom from disease; then freedom from earlier symptoms... and then remain free of both the disease and the symptoms.

## Chapter Four - *Physiology - the anatomy of the mouth*

We could have titled this chapter *What goes on in your mouth*, to avoid using words that create images of musty classrooms and dull subjects. However, your understanding of your oral health depends to some extent on your knowledge of --well --what goes on in your mouth; and to convey that understanding, we need to go into some accurate details.

To take some of the negative connotations from those two words, let's look at how one dictionary defines them:

*Physiology --The science dealing with the functions of living organisms or their parts.*

*Anatomy --The science dealing with the structure of animals and plants.*

In this chapter we are going to look at the structure of your mouth (anatomy); and we're going to go into how those parts work together in natural harmony when your oral health is good; and how those parts sometimes come into conflict when your oral health is bad (physiology).

If that isn't "what goes on in your mouth," it will do until better definitions come along. Before now, if you are like most people, you've always thought of your mouth as one part of the body that "just is," without any rhyme or reason. When it works, it's okay; when you "get bad teeth," it's unavoidable --and when, after middle age, your teeth fall out or get pulled out to make way for 2500 worth of plastic junk, that's the way nature planned it...right?

**--Wrong!**

As with every other part and process of the human body, we are learning more and more that everything nature puts into the package has a value. When these parts are working together as nature planned it, good health is almost invariably the result.

What can prevent the proper operation of these parts? What actually causes ill health? A fair generalization would be that we have only two enemies fighting against our natural health

--Natural enemies, and

--*Ourselves.*

It seems odd, upon reflection, that all of us don't know a lot more about our oral health than we do. After all, we are an educated people. Why is common knowledge so lacking when it comes to our mouths? Why is oral health such a mystery?

Perhaps it has something to do with the time lapse between professional, scientific understanding; and the "trickle down" process whereby that understanding reaches public schools and "general knowledge."

Science hasn't known much of the truth about the mouth until comparatively recent times. To begin with, it is a fact that dental science has not kept pace with other physical and medical sciences. The store of dependable, factual knowledge about oral health is just now beginning to play catch-up with other medicine. This makes it even more interesting to note what one authority in medical research had to say:

*...in the age-old struggle to promote medicine from a craft to a science there has been more progress in the past thirty years than in the previous two thousand. This progress is not as sudden as it seems. What is happening is that earlier discoveries about the natural history of health and disease are now being applied in the actual diagnosis and treatment of illness...*

*Many of the newer methods of treating and preventing illness depend on the patient's understanding and co-operation. Hippocrates, 24 centuries ago, said that a doctor must teach his patients to care for their own health, but until recently most doctors seem to have thought it was bad for patients to know too much...--Wingate, 1412 (emphasis added)*

Two comments on Wingate's statement are in order. First: "Earlier discoveries about natural health and disease history are now being applied." In the library at Oramedics International there is a copy of an extremely rare antique book written in 1819 by Dr. Levi S. Parmly. He wrote, "The brush should at first be but gently applied, and then particular care taken to pass the waxed silk in the interstices, and round the necks of the teeth, where lodgements of the food (the causes of disease) are usually formed."

More than a century and a half ago, this dentist made an accurate, brilliant deduction from his discovery, and for the first time, ever, told people what to do to prevent oral disease. His findings were not based on scientific research but upon simply and thoughtfully observing the natural order of things and using his brain to come up with some solutions.

The other noteworthy thing about Dr. Wingate's comments is that he freely admits the medical profession has all but ignored Hippocrates' 24-centuries old admonition that doctors should "teach patients to care for their own health."

Given these prevailing attitudes in the professions; and the fact that most of the significant research advances have taken place within three or four decades at the most, it becomes understandable why "common knowledge" about oral health is still somewhere in the dark ages of superstition. There is no way the public would know about these things until the profession first understood them and then, secondly, was willing and able to tell patients about them.

We will begin our quest for knowledge about the physiology and anatomy of the mouth by first outlining the boundaries: We are talking about everything from just inside the lips to the rear extremity of the tongue; and will include a look at teeth, bone, tissue, muscle, glands, nerves and blood vessels.

Teeth fit into the jawbone in what we commonly call sockets, and which are correctly termed *alveoli*; small cavities or sockets in the body. The singular term is an *alveolus*, and the words describe any body cavity--such as, for example, the air pockets inside the lung where the carbon dioxide-oxygen transfer takes place.

The development of teeth in children is of concern to all parents and it is important to realize how critical diet and nutrition are to healthy teeth. In a child, while the baby teeth are all visible, the permanent teeth are forming... in many cases, are nearly completely formed... and are waiting in *alveoli beneath* the baby-teeth sockets. While we can't see them --and the child can't "feel" them --they are there. At one point during the dental development, there are 52 teeth competing for space in the oral structure.

Actually, the first activity in the formation of teeth commences sometime during about the seventh week of the mother's pregnancy.

It is totally incorrect to assume that we have no concern for oral health in children until their teeth begin to appear. In Chapter Nine we will go into ways of caring for infants and young children; for now we need to understand that dental and oral health first begins in the embryo.

After birth, long before any teeth have broken through the gum (*erupted*), physical processes having much to do with ultimate dental health are active .

*Calcification* of the permanent teeth begins shortly after birth and begins to accelerate at about the time the baby teeth begin to erupt. It becomes apparent that proper care for mothers' nutrition during pregnancy, and for the infant's nutrition during the early months and years of life, will have a far-reaching effect on that child's adult dental health.

Children's teeth begin to appear, and continue to erupt, approximately on this schedule:

<b>lower central incisors</b>	<b>six to nine months</b>
<b>upper incisors</b>	<b>eight to ten months</b>
<b>lower lateral incisors/first molars</b>	<b>fifteen to 21 months</b>
<b>canines</b>	<b>10 to 20 months</b>
<b>second molars</b>	<b>20 to 21 months</b>

Permanent teeth will replace the baby teeth; ordinarily with those in the lower jaw slightly preceding teeth in the upper jaw. The schedule for permanent teeth is approximately:

<b>6-1/2 years</b>	<b>first molars</b>
<b>7th year</b>	<b>two middle incisors</b>
<b>8th year</b>	<b>two lateral incisors</b>
<b>9th year</b>	<b>first bicuspid</b>
<b>10th year</b>	<b>second bicuspid</b>
<b>11th to 12th year</b>	<b>canine</b>
<b>12th to 13th year</b>	<b>second molars</b>
<b>17th to 21st year</b>	<b>third molars</b>

### **C. S. Tomes, Gray's Anatomy**

Illustration 2 is a cross section of a typical tooth, showing the principal elements of its structure. Note that the entire exterior of the tooth which protrudes from the gum is covered with *enamel*. This is a barrier tissue: More about that later in this chapter. Beneath the enamel is a layer of dentin which surrounds the *nerve chamber*. The roots of the tooth of course are part of the system which anchors teeth to the jawbone; notice that they also contain passageway for the nerve and circulatory system serving that tooth. (The tooth in Illustration 2 also shows development of odontosis; see explanation accompanying that illustration.)

The outer covering of the roots is a material some what similar to enamel but softer and less resistant to attacks by acids and/or microbes. It is called *cementum*.

Not shown in the illustration --because it would be virtually impossible to draw them anywhere near actual scale --are the thousands of microscopic *connective tissues* which help anchor the tooth to gum and jawbone. These are *extremely important* to oral health. Compare them to the guy wires that hold telephone poles upright against lateral strain.

These tiny and individually quite fragile connective tissues completely surround the tooth, anchoring it to the adjacent gum and jawbone. Performing a role very similar to guy wires, they

hold the tooth in place and prevent it from becoming "loosened" in its socket; they also act as shock absorbers when chewing or "grinding the teeth." Studies show that teeth withstand pressures upwards of 30,000 pounds per square inch during these activities, much of it coming from an infinite variety of angles.

Under such pressures, coming from every direction, the bone of the jaw and teeth would simply crack or shatter if it weren't for the anchoring and shock absorbing capability of the connective tissue.

The gums cover the jawbone and the lower portion of the teeth...or the upper portion, in the case of the upper teeth. Gums do not adhere to the tooth completely; at the gumline (the edge of the gum from which the teeth protrude) there is no adhesion. A popcorn kernel "stuck in there" is all the proof needed. Near-adhesion occurs further down inside the gum --the connective tissues create what is, for all practical purposes, a bond between tooth and gum.

Gums are covered with an outer layer of *epithelium* --the same kind of body cell structure which makes up "skin." In the case of the gums, however, this "skin" is only *one cell thick*. Some authorities refer to it as a *mucous membrane*. In trying to understand how thin one cell of thickness is, imagine taking a square sheet of this skin about the size of a postage stamp and curing it so that it was stiff and flat. Now, turn it so that you are viewing this "stamp" directly from the edge-onward: *It would disappear*. Unaided human vision is not capable of seeing something this thin.

The outer tissue of the gum is also a barrier tissue, as is the enamel of the teeth. Before we go into this, let's include the other oral barrier tissues:

Beginning with the interior of the lips, the "skin" inside the entire oral cavity is only one cell thick. This includes the covering of the tongue, the walls of the cheek, the bottom and top of the mouth... everything. The change from "skin" as we ordinarily think of it, to this unimaginably thin membrane in the mouth, occurs with the lips at a point called the *vermilion border*. From outer cheek, progressing inward, the thickness of *epithelium* decreases. As we pass the border where the lips become part of the interior of the mouth, the decrease to single-cell thickness takes place.

In spite of its delicate structure, this layer of membrane has the unique property of being a barrier tissue. What this means is that germs and a host of other dangerous or detrimental substances or organisms can't get through it...and it is, ordinarily, not affected by them.

This is very much *not* the case with internal tissue. Muscle tissue, bone marrow, nerve tissue, tooth dentin... and more inside parts of the human system... have no protection from biological warfare.

Perhaps the best way to understand this is to think of how you've always known to be careful with a "cut" so it does not become infected. Why is that? --Simply because whatever "infects" has no effect on skin; you simply wash it off and forget it. But --in a cut --*whammo!* --Infection,

Why does a tooth "decay" if it gets a cavity... and not decay in the absence of cavities? Again: The enamel is not affected by microbiological attack; it "ignores" germs. When you get a hole in this barrier tissue it creates an avenue of access for decay-causing *pathogens*, and these attack the unprotected interior of the tooth.

Thus, the shining, unbroken enamel of teeth and the healthy pink glow of good gums is far more important to your health than to your cosmetic welfare. The further from peak health these barrier tissues stray, the more likely they are to break down and admit disease-bearing organisms into the bone and tissue beneath them.

## Salivary Glands

The unsung heroes of dental health are the salivary glands. Because our society has long considered "spit" to be inelegant, most of us remain blissfully unaware of where spit comes from and what it does for us. Where it comes from is simple: At the rear of the jaw, near the ear, there's a large salivary gland on each side of your head. There are smaller glands at the side of the lower jawbone and in front, under the tongue. (Did you ever wonder why a dill pickle caused an odd, tight or tingling sensation way at the back of your jaw, almost at the ear?... Now you know: The salivary glands react to stimuli and "do their thing" --they make saliva.)

What it does for us is a long story. First, of course, saliva lubricates the interior of the mouth and keeps the fragile membranes from drying out; from cracking and splitting.

This wetting function also serves to help process food as we chew; creating the right consistency and beginning the chemical process of digestion.

The almost constant flow of saliva throughout the mouth continually washes the teeth and tissue surfaces, carrying debris into the *alimentary canal* "pipeline" through the body. The alimentary canal, incidentally, originates with the mouth and includes in order the mouth, the pharynx, the esophagus, the stomach and the intestines.

Saliva contains many *chemicals* created by the body for the specific purpose of caring for the teeth. Among these are chemicals which enhance healing of cavities, retard the bad effects of germ by-products, alleviate the damage of acid and... believe it or not... can "confuse" germs and actually convince them to stop producing acid.

On the minus side of the ledger: Part of the chemical composition of saliva which helps to restore the calcium of teeth is also indicated as responsible for deposits of *calculus* at the gumline. These deposits are the forerunner of gum disease; part of the lineup of "bad guys" in oral health.

Of course, if we are properly caring for our oral hygiene these deposits never get a chance to build up; so there's no problem.

There is little that an individual can do, or avoid doing, to influence the production of saliva or to modify its chemical composition. We simply wanted you to know that the presence of saliva is vital to your oral health; and to observe two points of interest which *are* under your control:

1. Production of saliva falls off during sleep; most of us are mouth-breathers or partially mouth-breathers during sleep. All of the benefits of saliva decrease during this period. What can you do about that? --Avoid going to sleep routinely without first preparing your mouth, through hygiene, for the forthcoming "dry spell."

2. Production of saliva *and* the content of saliva are definitely affected by nutrition and medication. In Chapter Seven this will be more thoroughly discussed. If, for example, you take prescription drugs for weight loss or sleeplessness or "nervous tension," (or if you just like to pop "uppers" and "downers" for the fun of it), you are probably seriously interfering with the natural processes of your saliva.

### *If it fits...*

Teeth come in during youth and many people suspect there is nothing on earth that will decide whether they come in crooked or "pretty." Not so: The muscles of the tongue and cheek, the shape and musculature of the jawbone, the location of the alveoli... all of these make a difference.

Chapter Eleven describes something called a *Mixed Dentition Analysis* which can be performed early in life and which will accurately predict any developing space shortage and alignment problems. If these are detected early enough, the correction is often quite easy and inexpensive. Left to themselves such problems lead to orthodontic correction (braces) with a steep price in both money and cosmetic (personality) problems.

Special problems aside, most of us find that our teeth come in fairly well in alignment; they do a good job of biting and grinding and we seldom think of how they "fit" together. We should think about it more often!

Adjacent teeth are meant to be close together. It is unusual for the teeth to be spaced throughout the mouth so as to leave visible gaps between them. A few teeth may be distinctly separated, but usually many more of them are so close together as to be thought of as touching each other. In some cases, adjacent teeth *do* contact over at least part of their surface.

This touching or near touching relationship between teeth has a naturally beneficial purpose, obviously --or nature would not have used this construction. But it is also adverse to oral health when hygiene is misunderstood or improperly employed. Why?

In the section on *pathology* (the science of the development and mechanisms of disease), Chapter Five, you will learn much more about how odontosis operates. For now, you should know that the confined spaces between the teeth are, from a germ's viewpoint, the size of metropolitan cities.

Most of us follow the dentist's advice to brush our teeth with at least some regularity. Some of us even believe in the fable that we are to brush after every meal if we want to be free of disease. --Not that it's bad to brush often; the fable is that this, alone, will prevent disease. Of course, it doesn't.

Very few of us ever learn that one of the most important aspects of competent oral hygiene is to *clean between* adjacent teeth; and not just so as to make the enamel surfaces cosmetically clean... they must become, and remain, *hygienically* clean.

Finally, in discussing the teeth themselves, we should be aware of something dentists call pits and fissures. No amount of verbal explanation could do a better job of describing and defining these surfaces than you can do for yourself, with the tip of your tongue. Touch your tongue to the chewing surfaces of your "big" teeth: The molars, the bicuspids...the food grinders, as opposed to biters. Feel the complex patterns of ups and downs, the hills and valleys (pits and fissures).

Some of these hollows are narrow, deep and with interior surfaces which trap food particles and debris. More importantly, they are harbors for the colonization of germs. Here again, we encounter a part of the oral anatomy that most people take woefully for granted; a part that you must forever after remain aware of. The pits and fissures are places where you and your children have gotten cavities before...and will again, unless you successfully overcome odontosis.

With this expanded understanding of "what goes on in your mouth" you should be able to continue reading, and understanding, the disease called odontosis; its effects, its prevention and what to do about the leftover damage symptoms of former disease. This is, of course, a minimum knowledge and you are strongly encouraged to read, if you have not already, *Money By The Mouthful* and *Research Advocates Oramedics*, which are companions to this book. Another book well worth having in your home medical library, and which is available in paperback, is the near-legendary *Gray's Anatomy*.

*Gray's* will tell you virtually anything you wish to know about the human body. For our purposes, the section describing the composition and function of the mouth is an outstanding study, to which we wholeheartedly commend you.

Please refer back to this chapter as often as necessary when you embark on subsequent chapters dealing with the mechanics and function of the disease, or with the elements of personal hygiene. No one part of this book is intended to stand completely by itself, and so you will find more information on physiology and anatomy elsewhere. This chapter, aside from becoming a reference, was intended to assist you in that later reading.

Hopefully, you are now aware that your mouth and teeth didn't "just happen," any more than disease or its prevention just happens. All of the parts in your mouth work in a natural harmony and when they are working right, with your help, they should last for longer than your lifetime.

Maybe that's why Dr. Parmlly said, in the forward to his book 150-odd years ago, "The great distress which usually accompanies, and the inconvenience which follows the loss of the teeth, makes the discovery of some mode of prevention of caries very desirable."

*Right on, Levi! --That's what it's all about...*

## Chapter Five - *A summary of odontosis*

Odontosis...dental disease...is *pathogenic*: It is caused by germs. Its most apparent symptoms are *infections*. We are all familiar with this relationship elsewhere in the body. What seems obvious at first glance is a critical adjustment to the frame of reference, so remember: We are now discussing dental disease. Bring your old familiarities with you to this "new" part of your body. We're looking at a disease mechanism... *in the mouth*.

### Cariosis

*Cavities* are holes through tooth enamel into the soft interior, usually with decay (infection) involved. These cavities are *symptoms*; they are effects, not causes. Dentists often refer to any stage of this process as caries, although properly speaking there is no infection at first.

The process is initiated by a *carious lesion*, the early assault on the tooth enamel itself. Oramedics has named this particular member of the odontosis family *cariosis* because its most apparent *symptom* is the presence of cavities.

If cariosis is brought under control the disease process is halted. Even if there has been massive damage, the teeth can usually be repaired. In fact, research in the past few years tells us that teeth with early cavity damage *can heal themselves* once the disease is eliminated from the oral environment.

### Gingivitis

Puffy, tender, "off-color" gums are symptoms of odontosis in its next stage after cariosis. Dentists frequently refer to this disease as gingivitis. Oramedics calls it *gingivitis*. Infection and damage are present, but probably no irreversible harm has been done. Oral bone and tissue have an amazing self-restorative ability once disease has been eliminated.

The relatively mild symptoms of gingivitis are deceptively dangerous, however, because the mildness often encourages neglect. Almost inevitably, this results in odontosis moving into its ultimate and most critical stage:

### Periodontitis

This is the gravest disease problem in the oral health field; and it is America's most prevalent health disorder. Conventional dentists refer to *periodontitis* as "periodontal disease," "periodontitis" or "pyorrhea." It is a disease characterized by the formation of pus in the pockets between the root of the tooth and surrounding tissues and is frequently --in fact, almost invariably --accompanied by the loss of teeth.

Although *cariosis* is considered the gravest childhood problem, *gingivitis* and *periodontitis* also commence early in life and become the arch destroyer of adult oral health. The American Medical Association blames a huge share of all physical health disorders on these oral health problems.

## The mechanism of odontosis

The germs which cause odontosis, principally, are *streptococcus mutans* and *lactobacillus acidophilus*. These germs are frequently (ordinarily) found in the mouth and, unless they can be controlled, odontosis will be present to some degree when the numbers of these germs reach a certain level. They are always present in mouths with active odontosis.

Most research agrees that when these germs are free floating, in a disorganized condition, they are not particularly harmful. Lactobacillus may even have a beneficial role in whole-body health elsewhere in the digestive system.

There is no evidence that lactobacillus has any beneficial function in the mouth, however; and no evidence exists, which gives streptococcus mutans a beneficial role *anywhere* in the system.

The key to whether these germs are doing harm is to find out how many there are in the oral environment. A simple test can provide that answer, and that will determine whether the germs are organized.

If they are, there's active disease. It is as simple as that. There is no evidence that the severity of the disease has anything to do with virulence of the germs: There is apparently no degree of virulence involved. It isn't how *strong* the germs are... it is a question of *how many* there are.

The germs feed on food wastes and then excrete their own wastes. One of their products is called *dextrans*. Combined with other debris in the mouth, this sticky substance forms a film called plaque in the mouth, which is then deposited on the teeth. Germs settle in the plaque and form organized and swiftly-growing colonies; making even more plaque in a vicious cycle.

When enough plaque has built up, germs get between it and tooth enamel, where they are shielded from air. In this *anaerobic* environment they not only thrive, they are now able to do damage.

The germs convert sugar into acid. In fact, within seconds after you eat sugar the acid production increases enormously and doesn't taper off for hours. The acid is trapped, by the plaque, "dammed up" against the tooth enamel. It is important to note that "sugar" doesn't necessarily mean raw sugar, such as candy. Sugar in this case means any food the germs recognize as sugar, or that the body can break down into sugar. Carbohydrates are "sugar" as far as this disease mechanism is concerned; the soft white bread so prevalent in supermarkets today is worse for you than *caramel candy!*

Remember, however, it is not the sugar that causes the acid; it is a *disease mechanism*. If the germs were not organized and shielded by plaque, sugar would be relatively insignificant in odontosis.

When odontosis is present, however, the acids attack tooth enamel, causing carious lesions until the enamel is perforated. The enamel performs an important function: It prevents germs from reaching the softer "insides" of the teeth, which have no defense against infection.

Since the inside of the tooth has little protection from decay-producing germs, any hole through the enamel gives strep mutans, lacto and any other germs in the mouth a doorway into vulnerable tissue. Result: Decay and eventual nerve chamber infection ... the agony and extreme health danger we call an abscess.

While the acids are eating at enamel, plaque continues its dirty work. A buildup of plaque at and slightly below the gumline begins to harden into mineral-like deposits called *tartar* or *calculus*. In effect, small dams are built at the base of the teeth, backing up still more debris and plaque, which in turn hardens into place. Germs --and not only strep and lacto --colonize in these "swamps" where the trapped and decaying oral debris provides food for explosive growth.

Tartar and calculus are rough; the sandpaper effect can soon wear through the outer membrane of gum tissue. That external layer is only one cell thick. Like enamel, it is a germ barrier. When that barrier is disabled, the waiting germs have access to inner tissues.

Once again, infection is the result: Gingivitis. Also... any germ which reaches unprotected inner body tissue can be transported by the blood stream. Many diseases in other parts of the body have their first "breakthrough" inside a mouth suffering from odontosis.

Teeth are held in place by numerous tiny, filament like *connective tissues* which anchor teeth and gum together, in a manner suggestive of telephone pole guy wires. They allow teeth to flex enough to absorb the shock and torque of chewing, yet hold them firmly in their proper place, snugged into their sockets in the jawbone.

When these miniature marvels of nature's construction are attacked by infection, abraded by rough deposits, insulted by acids; they begin to "let go" as they are destroyed.

This is the work of periodontitis, the destroyer. As connective tissues fail the gum begins to pull away from the tooth, and this widening gap forms "pockets" below the gumline. If the stagnant pools of gingivitis are swamps, then the pockets of periodontitis are cesspools. Ever widening, ever deepening, these pockets can accelerate the destruction of connective tissue; they give germs access to the bone support of the teeth. Infection --bone infection --often results.

The teeth, of course, have lost both connective tissue and bone support. They get loose and, if unchecked, periodontitis will ultimately claim all of the teeth.

## Chapter Six - *Materials and Equipment*

Before we begin a discussion of personal oral hygiene it's appropriate to take a look at some of the materials and equipment you'll need, or perhaps want, to help you with the job. In the following chapter we'll discuss some chemicals (medicines) you should know about; this chapter is more of an outline for your home dental care supply cabinet.

You should have, at minimum:

- One or more toothbrushes for every family member**
- Dental tape**
- Disclosing tablets**
- Interdental stimulators**
- Dentifrice**

In addition to these items, you may want to have these materials or devices:

- Toothdrops, N.F. (National Formulary). This is *zinc oxide--eugenol*, and will be discussed more fully in this chapter.**
- "Cavit" (a ready-mixed temporary filling material)**
- A hydraulic cleaning device (oral irrigator) such as a "WaterPik" or "Ora-Jet"**
- A tooth polishing device such as a "Porta-Pro"**
- An electric toothbrush such as the "Sonic-Quad Pacer"**
- A special lighted mirror, such as the "Floxite"**

Before we continue, a word about trade marked items mentioned in this book: Whenever appropriate to help the reader understand what we are talking about, we will use the brand name of a common product or device. This does not necessarily imply that the manufacturer of that product endorses Oramedics. It does imply that Oramedics considers that trade marked item or brand...or manufacturer ...to be reliable. However, no actual endorsement is to be construed unless, in context, specific endorsement is made.

Such, for example, would be the case with the "Floxite" mirror. This product is available at some first-rate dental offices or drugstores and is highly regarded by Oramedics practitioners. Oramedics endorses the product; there is no agreement whatever with the manufacturer regarding mention of either company or product in this book.

Now, let's go over that minimum list of supplies, one at a time. First of all: The toothbrush.

Rule Number One of toothbrushes is *don't buy cheap*. The usual frame of reference regarding toothbrushes seems to be that they are all alike; people will cheerfully spend more for a bar of bath soap than they will for a toothbrush. Why is "smelling pretty" more important than oral health? --Nobody knows.

There is a significant difference in the quality of toothbrushes and while it isn't directly related to cost, it stands to reason that to a certain extent you get what you pay for. An example of very good quality name brand brushes would be the "Reach" brush and those made by Butler, and the "Oral B" brand.

Each member of the family should have at least one brush; and it should be selected with a few guidelines in mind.

**First:** If the oral health is not good, especially if the person has not been a frequent tooth brusher in the past, begin with a *soft bristle* brush. It's a common misconception that the better brushes are stiff; that they'll clean more thoroughly. What they will do, if the person has bad oral health, is make the gums bleed and possibly damage barrier tissues --an open invitation to infection.

**Second:** The relative "stiffness" of the brush can be increased as oral health improves. A somewhat stiffer brush of high quality is preferred for advanced health hygiene use. Avoid carefully using a cheapie labeled *stiff or firm*. It will very probably damage tissues.

**Third:** The shape of a toothbrush has some bearing on how well it works. Any reputable, high quality brush manufactured by a competent supply house will have a better design than a cheapie, unless the cheapie is an imitation of a name-brand brush. Even then, the "economy" brush will not have the bristle quality your oral health deserves.

The next item in your cabinet should be dental tape. This is a product similar to dental floss, but it is wider. Comparing tape to floss is, for our purposes, like comparing ribbon to thread. This is one of the few items available directly from Oramedics: It is manufactured for Oramedics to critical specifications and is marketed as Oramedics Clean-Between.\*

In many drugstores, *J&J Company's "Dentotape"* is available and this, also, is a flat, wider tape.

Dental floss may be used and if tape is temporarily unavailable, should be used rather than to go without. In the chapter dealing with hygiene, the comparative uses of floss and tape will be more thoroughly explained.

*Disclosing tablets* are a "must" for your supply cabinet. These are tablets slightly larger than an ordinary aspirin, made of chewable food dye. For those just starting an oral hygiene program...or even for advanced users...and especially for children, the use of disclosing tablets is highly recommended. We'll discuss this more fully when we take a closer look at hygiene. For now: The dye in the tablet will stain the film (plaque) generated by germs and deposited on tooth surfaces. It will not stain clean enamel. Therefore, the disclosing dye will tell the user whether any spots have been "missed" in cleaning the teeth.

*Interdental stimulators* such as "*Stim-U-Dent*" are specially-shaped, soft wood devices, sometimes flavored. They are not "just toothpicks," although the ends may be pointed and can be used in this manner. One of the purposes of these stimulators is that they may be carried in pocket or purse and used when toothbrush and tape are not readily available. They also have a beneficial role in the full hygiene program, as will be explained in that chapter.

*Dentifrice* comes in many forms, under many brand names. It is colored, flavored, irradiated, chlorinated, fluoridated; it promises better sex life, kissable breath and movie-star-white teeth. It's called paste, or powder, or drops...

*What's a mother to do....?*

The only absolute purpose a dentifrice serves is to aid in cleaning the teeth. Given the controls wielded by the US government food and drug people and the limits imposed on advertising, it's not likely that you will find a product offered for sale that will actually *harm* your oral health. But which one *helps* it the most?

Well --that depends on what you expect from your dentifrice. If you are simply looking for something convenient, cheap and dependable: Mix up some baking soda and salt and use it as a tooth powder. It will help clean your teeth, the soda will counteract acidity in the mouth and the salt will give you a fresh, clean taste afterward. If the combination of salt and soda is a little bit tough on germs...that's tough, right?

There are many, many brands of tooth powder available. As a general rule, they cost less and tend to do a better job than tooth pastes. One thing: While you aren't likely to encounter a

commercially-available powder with abrasives in it, this is something to watch for. Abrasives, such as pumice, are used to clean and polish the teeth; but almost always in a situation where professional supervision is available. If you encounter an off-brand powder, which makes strong claims as a "brightener" or stain remover, be sure you ask what's in it. If there are abrasives, avoid it.

How about fluoride in tooth pastes? True; sodium fluoride is a powerful weapon against odontosis. We'll discuss it fully in the next chapter. However, any fluoride-containing product you can buy without a prescription will be limited by law to .05% fluoride content. It won't hurt you, used as directed; it has been proved that such preparations can have a beneficial effect in reducing cavities.

Fluoride dentifrices and rinses sold over the counter are not bad; Oramedics certainly doesn't recommend against them. Our sole objection to these products is in the way they are advertised: People may become convinced that such products can be substituted for proper oral hygiene *methods* because the fluoride "helps reduce cavities." Not true! --It *will* "help reduce cavities"; but it is *not* a substitute for proper care.

There are two dentifrices presently on the market which, because of their special-purpose chemistry, you should know about.

One of these, "*Sensodyne*", is for people with tooth hypersensitivity. An estimated one out of seven persons have hypersensitive teeth; the number rising to as many as one out of four in persons over 35.

As you probably guessed, hypersensitivity is a condition wherein the teeth "feel pain" or are sensitive to temperature extremes or touch, as in brushing, etc. This condition has led some people to avoid brushing, or to brush improperly, to escape unpleasantness or outright pain.

*Sensodyne* publications state, "Sensodyne contains strontium chloride which, by virtue of its apparent biocolloidal binding and blocking actions, interrupts transmission of neural impulses--from tooth surfaces through dental tubes or connective tissue--to the dental pulp where pain is perceived. Sensodyne has also been shown to be an excellent choice for preventive home care. With good cleaning and foaming attributes, it is readily substituted as a routine replacement for previously used cosmetic tooth pastes."

The other specialty dentifrice is "*Chloresium*". It works well as a typical routine dentifrice, and it contains chlorophyll, the natural ingredient used by nature in trees and plants as part of the natural environmental "cleaning program." *Chloresium* has been recommended in the past, particularly for patients with stubborn halitosis (bad breath) conditions.

### Additional recommended items

You may encounter some difficulty obtaining *tooth drops, NF*. (national formulary) from your local drugstore. If you can, discuss with your pharmacist your need for this preparation, which he should recognize as *zinc oxide-eugenol*. Zinc oxide is a white powder and eugenol a colorless liquid with the consistency of light engine oil.

These two, when mixed together as instructed, will combine to form the material for a temporary filling (see Chapter Twelve). The eugenol is an *obtundent*, which means that it has a beneficial effect in "quieting" inflammation and helping to bring relief from toothache pain when used as a temporary filling.

A prescription is *not* required for zinc oxide-eugenol preparations, so if your druggist wishes to cooperate with you, this can be made available. At minimum, you should try to obtain the eugenol. If you cannot get zinc oxide, or if you prefer to use a premixed temporary filling material, ask your druggist to get you some "*Cavit*"; distributed by Premier Dental Products Co., Norristown, PA 19401.\*

This preparation comes ready-to-use, with instructions, as a temporary filling. It does not

contain eugenol, and its manufacturer recommends that before using *Cavit*, the cavity be swabbed with eugenol...so, either way, you should make an effort through druggists to obtain eugenol.

If, for any reason, you cannot obtain eugenol or *Cavit* locally, write Oramedics.\* While Oramedics is not set up as a product retailer, the staff constantly monitors products available, or as new products come on the market...and sometimes people have been advised how to obtain products when they are not locally available.

### **Hydraulic cleaning devices**

Perhaps the best known brand name for such devices is the "Water Pik", manufactured by a division of Teledyne, Inc. The concept used involves pumping water, plain or with chemicals added, through the machine in such a way that impulses or bursts of water are delivered to the teeth through small nozzles at the end of a flexible tube. Incidentally, the Water Pik brand is specifically endorsed by Oramedics.

We discuss the use of these appliances more thoroughly in Chapters Nine and Ten, especially as related to prevention of gum disease in adults. By arrangement with Water Pik company, a special tip has been designed to Oramedics specifications for use in a hygienic approach to aid in the correction of periodontosis.

### **Electric tooth polishers**

These home care devices are a wand-like, hand-held device which when used properly, can give you the ability to "shine" your teeth to a degree approaching the quality of prophylaxis (cleaning) done by dental hygienists.

The wand, or handle, contains a small electric battery-driven motor (re-chargeable). The motor drives a rotary-action cleaning head with a replaceable small rubber cup at the "business end." This rubber or plastic cup is shaped to fit tooth surfaces and is flexible enough to conform to the shapes of various teeth while in use.

The spinning rubber cup, in which the user deposits a small quantity of cleaning paste, is then moved over the exterior of the teeth to remove stains, plaque and calculus. (Complete removal of calculus will probably require a professional cleaning). Ordinarily, such devices come with a number of color-coded, interchangeable heads, so that each family member has his or her personal device, using the same motor-handle.

*Note:* In Chapter Ten, discussing the use of this device in your personal hygiene program, you will find a special mention of the potential for helping your child remain cavity-free through every-second week (not daily) use of the polisher. You might want to compare the cost of this device against the cost of two or three sessions at the dentist's office for fillings in teeth which that child will, naturally, ultimately lose when replaced by permanent teeth.

## Electric toothbrushes

Electric toothbrushes seem to be helpful, if only for one reason: There is reason to believe that children will brush longer, and on a more consistent schedule, with electric toothbrushes as opposed to the old-fashioned "one-arm power" brush. Perhaps this holds true for adults, as well. If this is true for you or for members of your family, this appliance might be a good investment.

Aside from this, there is no reason to believe that you can't do equally as good a job with a standard (high quality) toothbrush, properly used.

## Special mirrors

Inexpensive "dentist's" mirrors are available in many drugstores; some of these mirrors have small, battery powered lights. Others provide a degree of magnification and illumination. The ability to see what you are doing...or missing...inside your mouth is important and your efforts to obtain a satisfactory mirror or mirrors can help contribute a great deal to your overall hygiene program. Once again: The mirror of choice with Oramedics doctors is the "*Floxite*"\* mirror.

There you have it: Two shopping lists; one of them including must items (A) and one of them with convenience items (B).

### List A

<b>Toothbrushes</b>	<b>Interdental stimulators</b>
<b>Disclosing tablets</b>	<b>Dental tape</b>
<b>Toothpaste or powder</b>	<b>Mouth rinse (optional)</b>

### List B

- Zinc oxide-eugenol and / or *Cavit*.**
- A hydraulic cleaning device such as a *Water Pik* or *Ora-Jet*\***
- An electric polishing device (Not a cheapie)**
- An electric toothbrush with personalized brushes**
- A special mirror or mirrors; preferably illuminated and capable of magnification**

Before ending this chapter and moving on to a discussion of medicines, let's be honest about something: Money. The items in list **A**... the necessities... cost less per family member than the average person is likely to spend this month on cosmetics or beverages.

The items from list **B** are a bit more expensive, but the total cash outlay for these items, many of which will last for years, is probably a lot less than you'll spend on your automobile this month.

It's a common misconception that the average American "can't afford good dental health." The items mentioned in this chapter, used properly, will virtually guarantee good dental health. *Can't afford it?*

--When you think about it, how could anybody afford not to be "choosy" and buy the very best available when it comes to oral hygiene products or devices? The cost, in relation to ultimate

savings, is one of today's best buys.

***Editor's Note:*** While this book was written nearly twenty years ago and the facts remain as valid today as they did then, the products mentioned in this book are no longer available by Oramedics International since 1983. OraMedia, however has and is making efforts to provide these products and pick up where Oramedics left off. OraMedia also provides some products, such as TheraSol non-prescription anti microbial rinse, not available when this book was written. OraMedia also endorses the Ora-Jet 7500 irrigation device over the Water Pik, and although many people may already own a Water Pik, we do provide the special cannulae tips for that product as well. Oramedics' Clean-Between dental tape is also no longer available and we suggest Oral-B's dental tape, available at most pharmacies or supermarkets.

*Please refer to the product list at the end of this book for more information on available products.*

## Chapter Seven - *Oral self-help medicine*

The chemicals used in becoming dentally self sufficient generally fall into one of two categories: There are those used for hygienic purposes, in the actual prevention of odontosis; and there are those used to relieve problems and pain brought on by symptoms of existing or previous disease.

In Chapter Six we mentioned one tooth paste specifically: "*Sensodyne*". This is for use when the teeth, themselves, display a sensitivity to temperature or touch stimulus and this hypersensitivity tends to cause a person to avoid regular or effective brushing.

The other formulation we discussed in that chapter was dentifrice or mouthwash containing fluoride. Are these beneficial? To answer that, let's repeat that federal law prohibits selling any preparation for use in the mouth, which contains more than point zero five percent (.05%) fluoride. There is no longer any question whether this chemical is effective against odontosis. The questions seem to involve how effective, and what is the best method of using it?

Any company manufacturing a toothpaste or rinse containing fluoride will cheerfully provide statistics on effectiveness. One such company (a rinse, in this case) reports a 50% reduction in cavities in a two year study of 222 children, beginning at age 10, using a .05% sodium fluoride rinse daily, a 10 milliliter dose.

The same rinse used on 434 children age 11 and 12 over a three-year study, resulted in a 36% caries reduction; the significant difference apparently the amount used (7.5 ml) and the "use time" --two minutes daily.

Oramedics doesn't argue the figures of any such reports. There simply is no longer a question about the effect of fluoride on odontosis. It's a powerful weapon against disease, and has other beneficial properties also.

In fact, fluoride seems to work no matter how we get it to the oral cavity: In pastes, in rinses, through the drinking water, by taking pills or painting it on the teeth or --you name it --it works.

Whether it is proper to put it into drinking water when it is readily available in other forms, all elective with the user, is a philosophical question...not a medical question.

Oramedics wishes only to point out that while all the research reports agree that fluoride has some degree of effectiveness against cavities no matter how it's used and in what concentration, there is no research claiming that it is 100% effective in concentrations available to the general public.

And therein lies the problem. If the public is led to think of fluoride-formula dentifrices or rinses or water supplies or pills as a panacea against odontosis, they are the victims of a grave mis-service. Fluoride is not a panacea. By itself, fluoride will probably not bring wholesale relief from this disease --certainly it won't do it in .05% concentrations --and therefore, if people think of it as "the answer" they are perhaps going to get slipshod in their own hygiene and remiss in supervision of their children.

People who are enrolled in the Oramedics program ...either in the practice of an Oramedics Fellow or through the mail... may be put on fluoride rinses at one time or another. The concentration may vary, depending upon the individual case after clinical testing and study of oral and medical history; in many cases the concentration will be at about a point two percent (.2% to .25%) level, or in difficult cases up to .5%. The rinse used by Oramedics is manufactured to rigid specifications and is available (only with prescription) as Oramedics Phase III rinse.

Every individual has different needs and so any discussion of fluoride rinsing must consider this variety of applications. Generally speaking, however: When a person's saliva test count

stubbornly refuses to drop below 8,000 per mi., and there is reason to believe that person is doing all of his or her personal hygienic "exercises," Oramedics will sometimes prescribe use of .2% to .5% fluoride rinse for a specific term --for example, one month --used once or twice daily, depending on individual case conditions.

After the germ count has been brought within tolerance, the habitual, frequent use of fluoride rinse in concentrations of more than the legal consumer maximum,.05%, is not recommended. For one thing: Fluoride, no matter how beneficial to our oral health when used properly, is a deadly poison if misused. What are the potential hazardous side effects of long-term, indiscriminate use? --We don't know; and Oramedics doesn't want to find out "the hard way," by advocating unnecessary use of fluorides.

For another thing: Although it may be beyond "reason" in purely scientific thinking, there's a "what if" involved in using fluoride: "What if lactobacillus acidophilus and or streptococcus mutans --or a mutated variant of either or both --developed an affinity for, or a resistance, to fluoride?"

--Highly improbable; perhaps downright ridiculous... but there are a number of age-old diseases now coming back strong, haunting the medical profession which, a few years back, used antibiotics like a scattergun against infectious germs. Some of those mutated disease-bearers thrive on penicillin, now...

Thus, Oramedics' use of fluoride would be more comparable to the "rifle technique." We take aim and fire, with a concentrated blast of fluoride rinse, intended to utterly destroy existing odontosis pathogens. We don't scattergun, hoping to maim or cripple some of them. We want them all --and then, when the germs no longer cause a saliva test above tolerance levels, we stop using fluoride. It is very rare to have to resort to its use again, later; ordinarily the person's continuing oral hygiene program is adequate to maintain a disease-free environment without medical assistance.

Should you use commercially available fluoride products? --That's up to you. The facts are evident: Such preparations can and do bring some statistical relief from cavities. There is not a shred of evidence ...today... that daily use of .05% concentrations in rinses or dentifrices has any harmful effect. If you are aware, and remain aware, that this by itself is only partially effective against odontosis... that you still have a personal responsibility to your own hygiene and that of your children... commercially prepared fluoride products then become largely a matter of personal preference.

Dentists may use still another approach involving fluoride: The *topical* application. In this, a much higher percentile concentration of fluoride in paste or gel form is applied directly to the teeth. Again, statistics prove a beneficial effect. This may be offset by the infrequency or irregularity of the treatment and, of course, by the expense involved, since it requires an office call.

## Medicine in your kitchen

Two substances have been handed down for generations as folk medicines: Baking soda and common table salt. Claims for the properties of these familiar chemicals range from the ridiculous to the sublime: They've probably been "known" to cure almost anything, at one time or another.

In your oral health medicine cabinet, these two can be used for hygienic purposes as well as dental first aid. The first use, hygiene, simply has both soda and salt double as a dentifrice.

As a youngster, you probably experimented at one time or another by mixing baking soda and vinegar. Remember the reaction? The solution bubbled and boiled and fitted: *Something* was happening. Apparently vinegar and soda are not overly compatible. Why is that? Well --vinegar is acidic, and soda is alkaline. Acid and alkali are at separate ends of a scale...they truly "don't get along."

In Chapter Five, you learned that part of the disease process of odontosis takes place when the germs ingest sugar and begin excreting acid. It is this acid which begins the *insult* to tooth enamel which will become, eventually, a cavity.

If you use soda as a dentifrice, you will no doubt create that "soda-vinegar" reaction; except on a scale so small as to escape observance. In this, there aren't any research figures we can supply; no weighty documentation. It is, instead, plain commonsense. Soda and acid are not compatible. Soda won't hurt your teeth and gums... it won't hurt you if you swallow a teaspoonful (makes you burp)... but it isn't going to do acid a whole lot of good when it comes in contact with it. Conversely: Acid will hurt you in the teeth and gums "--it'll rot yer teeth."

Salt is *sodium chloride* and it is a significant element of the physical makeup of the human body. The "saline solution" used in many medical applications is generally about point nine percent (.9%) salt in water. It is used, for example, as a base solution for injections: It balances the osmotic action of the body fluids so the injection does not disturb the normal balance of water inside the body's cells at the area of the injection.

Saline solution (salt water) in any concentration where the salt can be tasted will be a *hypertonic* solution: It will draw water from the cells of tissue bathed in it. A hypertonic condition in the mouth will instantly and automatically cause the salivary glands to go into overtime production. This is something to remember if you are frequently in places where water is not available for "normal" tooth brushing. A dry mixture of soda and salt is not inconvenient to take along on a camping trip, for example. Using this "dentifrice" without water is easy: The mouth's water fountains will provide more than enough.

This capacity of salt --to act as a *hypertonic* and draw water (fluids) from tissues --should be kept in mind for another reason, which will be more fully discussed in the chapter on dental pain and first aid. For now: When teeth "act up" and pain sets in, there is often (perhaps usually) a buildup of fluids in the area of the affected tooth. Wouldn't it make sense to use a "medicine" which helped reduce this fluid pressure? ...Hand me the salt, please --I'm getting a toothache...

## Pain relievers

Most pain relievers require prescriptions, and for very good reason. Often they are: narcotic, or habit-forming; often they can cause harmful side effects. Of those available without prescription, the two most effective and least problematic are:

***Benzocaine:*** A topical analgesic (pain killer) for use in direct application to the affected area. Benzocaine, for example, is an ingredient of several lotions used for relief from pain and itching of sunburn.

***Aspirin:*** An ingested analgesic which acts against pain only after it enters the bloodstream through the digestive tract.

Benzocaine is available in certain commercial preparations for toothache. One such preparation is trade-named "*Dent's Toothache Gum*". Another typical over-the-counter preparation, "*Red Cross Toothache Drops*", utilizes a different chemical, eugenol, to help relieve distress. Eugenol is not typically considered an analgesic, it is an *obtundent*. More about this chemical and its effect shortly.

*Aspirin* is the generic name for *acetylsalicylic acid USP* (U.S. Pure grade). It is marketed under a host of brand names and often is compounded with other ingredients usually intended to offset the side effects of the aspirin itself. Aspirin is not, as many assume, a harmless drug; particularly if misused or taken in quantities above those recommended on the label.

The person who seriously overdoses on aspirin may find himself with a buzzing or ringing in the ears, and the sensation of dizziness. More than one person has been surprised upon sufficient aspirin overdose to find himself at a hospital emergency room, where his condition was not taken lightly by the attending physician. Severe acidosis is dangerous.

Nor is aspirin "harmless" in small quantities, if used for prolonged periods. Cases of internal bleeding have been traced to prolonged use of as little as two or three aspirin tablets daily. Loss of a teaspoonful of blood daily would probably go without notice but in time it would produce dangerous anemia.

*Aspirin works*, and it works as a depressant of pain symptoms. It can also help in reduction of inflammation, but this effect is not pronounced enough to be a major consideration in self-dental care applications. Aspirin *does not* correct the *cause* of the pain, nor will it work in any way other than by being swallowed and introduced naturally to the bloodstream. Most emphatically, *aspirin is not a topical analgesic*: It should never be used in direct contact with the source of pain such as packed into a cavity. Chapter Thirteen tells more about why aspirin can be dangerous used in this way.

If aspirin, taken in recommended quantity, does not completely relieve the pain --whether headache, toothache, or you name it --it is quite likely that nothing short of a prescription item or anesthesia would bring relief. Increasing the aspirin dosage many times will not be much more effective as an analgesic, and the danger of acidosis becomes significant.

The easiest way to manufacture, store, sell and administer aspirin may not be the best way for you to use it. Obviously, the small, hard "aspirin tablet" is ideal for all of the above reasons, including administration when you consider that each tablet is a pre-measured and accurate unit of dosage. One other reason why tablet-form administration works well is that aspirin without additives has a foul taste: Many people cannot dissolve an aspirin tablet in the mouth, or chew on one, without triggering a vomiting reflex --they either gag, or throw up, or both.

However: *If* aspirin could be accurately measured as to dosage, then administered in solution, two things would happen:

1. The aspirin would be able to enter the bloodstream much, much faster; bringing relief sooner than the same dosage in tablet form; and

2. The harmful side effects of the acid... damage to the tissues of the stomach... would be

greatly decreased.

Thus, when you find yourself in a situation at home where you or a family member needs to take aspirin to offset dental pain, you can "concoct" your own remedy. Take the proper number of aspirin tablets according to label instructions given by the manufacturer and crush them into powder. A cup or dish and teaspoon makes a good "mortar and pestle" for this.

Then dissolve the powder into a flavoring drink, which can be virtually anything to mask the taste of the aspirin. The amount isn't important, so long as it isn't too much to comfortably drink down at one time. It would be better to avoid using a sugar-sweetened solution --there are numerous prepared beverages available which are sweetened without sugar. It might be well to avoid using a citrus juice as the base for your mixture, since this would have the effect of adding more acid.

The objective is to get the aspirin into solution so as to disperse its acid effect instead of concentrating it in one area of the stomach lining as a tablet does; and to enhance absorption through the stomach into the bloodstream, getting the aspirin on the job quicker... and, finally, to make the solution palatable, so the user doesn't spit it out or gag or simply "lose it" through becoming sick to the stomach.

## Eugenol

This chemical is a plant extract which the U.S. Pharmacopoeia has listed as *eugenol*, U.S.P. It is usually available in well stocked drugstores and pharmacists will generally know what you are talking about when you ask for eugenol to use in a cavity. Whether the particular drugstore stocks commercial preparations of eugenol will depend on whether dentists in his trade area buy through him, or directly from their own chemical and equipment suppliers.

Eugenol is an *obtundent*; when applied directly to an inflamed nerve chamber it has the ability to "quiet" the nerve and help reduce inflammation.

It is *not* an analgesic --it doesn't specifically kill pain --but it can relieve the symptomatic cause of some pain, and, indirectly, bring relief.

As mentioned earlier, eugenol is sometimes part of the composition of trademarked toothache remedies. If you can't obtain eugenol itself from your drugstore, look for the over-the-counter toothache remedies and read the labels. If any of them have eugenol in them, the label will say so. It may not be unmixed, "straight" eugenol... but it will usually be a whole lot better than nothing.

Eugenol should be used in a cavity as a preparation to, or part of the chemistry of, a temporary filling. When used as part of the compound itself, it must be mixed with a powdered substance:

## Zinc oxide

This substance resembles powdered or confectioners' sugar in texture and is a bit darker in color. When mixed with eugenol it becomes putty-like in consistency and can be shaped, formed and packed into a cavity. Once there, the mixture hardens without shrinking. If properly packed into a cavity, it will completely fill the hollow portion of the tooth. (More on the use of this and other temporary fillings in the chapter on dental first aid.)

## Commercially prepared temporary filling materials

In Chapter Six we discussed a product called "*Cavit*". This material has an advantage in that it is already mixed; you simply snip the top off a small tube and use the contents. It hardens under saliva and makes an acceptable temporary filling. It has a disadvantage in that it does not specifically contain an obtundent ingredient (see eugenol, above).

The advantages of this material can be employed, and the disadvantage overcome, by using eugenol to swab the cavity preparatory to filling with "*Cavit*". Again, if eugenol is not available, use of a commercial toothache drop containing eugenol and, perhaps, Benzocaine, would be indicated prior to filling the tooth.

## Medicines that affect oral health

Obviously, we are not going to be able to discuss each and every medication that has a bearing on oral health. The human body is a closed system and anything which affects one part of the system can have side effects elsewhere in the system; sometimes good, sometimes bad.

The few that most directly affect the everyday life of ordinary people and have a bearing on oral health are these: Stimulants, depressants, tranquilizers, diet pills, alcohol and vitamins. Taking them in order:

Stimulants are part of everyday life. Coffee and some soft drinks, for example, contain caffeine; tea has a nearly identical substance called *theine*. It is an alkaloid drug usually identified as a "pickerupper," it is a stimulant. It also interferes with sleep, whether you want it to or not. It is used sometimes in compounds with aspirin, because it dilates blood vessels and stimulates the heart, thereby making the aspirin available more quickly through the bloodstream.

Stimulants are not particularly useful in oral health; nor are they particularly harmful. One point worth considering: part of the home treatment for toothache is for the sufferer to remain as quiet as possible and reduce the "throb" of heartbeat. Stimulants, in such a case, work against you.

Depressants obtainable over the counter have little relationship to oral health. When they cross over the borderline and become prescription tranquilizers, however, they can be bad for you.

Tranquilizers affect the production of saliva, sometimes seriously. If you are being treated for nervous tension or have a prescription tranquilizer for any reason, be sure you discuss this carefully with your druggist and doctor.

Diet pills are frequently a form of amphetamine... the "speed" so beloved of dope addicts. Again, these compounds can seriously --even dangerously --upset the chemical environment of your mouth. If you are taking such medicines, either legally for weight loss, or illegally for kicks --because they seem to speed you up and make you more effective --you may be in dental trouble. If you're legal, ask your doctor about this. If you're illegal...ask your pusher, perhaps --but be aware that you are seriously impairing your oral health. Of course, these chemicals are stimulants, but for the purposes of this book we've separated them from the more easily obtainable...and far less harmful...stimulants such as coffee or tea or soft drinks.

Alcohol is a depressant and contains a high carbohydrate content; it is high in sugar. In moderation, alcohol is probably not overly bad for oral health. It has one side effect, however, which is the main reason people drink it: It tends to lower inhibitions; to make people forgetful, and generally promote a feeling of expansive wellbeing. In other words: We'll get half in the bag tonight and to hell with brushing our teeth... In which case, of course, alcohol is bad for your oral health.

Vitamins are necessary for general health. A well-rounded diet with adequate nutrition is all that's necessary to maintain oral health. In the young in particular, and in the case of pregnant women, the mineral intake is important; particularly in the case of calcium, the building block of teeth.

By definition, a vitamin is something which the body cannot synthesize (manufacture), but must recover in ready made form from the foods we eat. Vitamin C --*ascorbic acid* is a true vitamin: It cannot be produced in the body and comes from our foods, notably fruits, vegetables, rose hips, currants, and so on.

When the system is lacking in vitamin C the connective tissues and small capillaries (tiny blood vessels) either do not form or begin to degrade.

That is why lack of vitamin C was identified centuries ago as a disease called scurvy: The blood loss and destruction of connective tissues was most apparent in the loss of teeth...they simply fell out.

Obviously, then, vitamin C is necessary for good oral health as well as overall whole-body health. The normal diet supplies plenty of vitamin C but if there is any question, it is available as a supplement and is quite economical. Most scientific evidence agrees that excess vitamin C is simply passed off harmlessly, so within reason there is little danger of overdose.

One final point about vitamin C: It is *not* a vitamin to many animals in that they are able to synthesize it internally, while humans cannot. Thus, milk obtained from cows is low in vitamin C since a calf would not need it from this outside source. The milk of a human mother is much higher in vitamin C, because the human infant has no other source and cannot manufacture it.

For mothers who choose not to breast-feed infants, some care should be taken that the formula for bottle feeding, whether a commercially prepared formula or home brew, has adequate vitamin C for the infant.

Your oral medicine cabinet should also include something called, generically, dental paste, USP. You will probably find it difficult to locate a generic product and one of the best trade marked products is "*Orabase*". This can be purchased without a prescription (as "*Orabase*" with or without Benzocaine) or with a prescription as "*Kenalog*" in "*Orabase*". For oral health first aid, the non-prescription variety is probably equally as beneficial as the one requiring a prescription.

Chapter Twelve describes the use of *Orabase* for home treatment of lesions or cuts inside the mouth, for example as relief from the herpes simplex virus lesion commonly called a canker sore.

## Chapter Eight - *Your personal oral health maintenance program*

In this and the following chapter we will discuss your personal contribution to a disease-free, relatively problem free oral health environment. This takes in much, much more than oral hygiene, although you should by now realize that hygiene is the cornerstone of any realistic approach to oral health.

Oral health maintenance, properly achieved, should help accomplish many things; the important ones being:

*We will dynamically reduce, and probably eliminate, cavities.*

*We will achieve an environment which will not support periodontosis (advanced gum disorder).*

*We will create a healthy gateway to the physical system, keeping in mind that the A.D.A. considers that a huge proportion of all disease and body disorder originates in the mouth.*

*Obviously we will improve the cosmetic, the esthetic value of the mouth; thereby aiding in an overall self image, virtually a psychological necessity in our society.*

*We will help prevent or at least reduce oral health problems such as tooth-grinding, misalignment, and others.*

In order to perform the necessary level of health maintenance activities, you will have to know how to:

*Clean all tooth surfaces.*

*Establish a regimen suitable to your lifestyle and time schedules, and stay with it.*

*Keep alert: Obtain tests when in doubt, be on the lookout for any disease symptom, particularly in the young, and use everything at your disposal to constantly help monitor the environment in your mouth, or your children's.*

*Understand and use diet and nutrition to your oral health advantage.*

*Make use of products and devices designed to enhance oral health care, to achieve maximum benefit and advantage.*

### **The elements of oral hygiene**

Essentially, oral hygiene can be summed up in one expression: *Keep 'em clean!* Hundreds of separate research projects have established beyond a doubt that clean teeth and gums don't get odontosis: Clean means healthy. A frame of reference is involved here...so be careful how you understand that concept.

If it's scientifically proven that clean teeth don't get sick, how come so many people (98 out of 100) have odontosis? They can't all be slipshod in their oral hygiene, can they?

No, of course not. However, so few people truly know how to care for their teeth adequately that their best efforts are simply not good enough. Even the few who have been told how, by dentists or through extensive self-research, have not been told why... and once again, motivation enters the picture.

Human psychology being what it is, if a person is told how to do something, but not why; and especially if he is not given any encouragement that his efforts will be truly productive, the

investment of time and attention becomes burdensome.

Far too many Americans have been sold the concept that basic oral hygiene is this: *Brush after meals, use floss, avoid sweets, and see your dentist twice a year.*

Hardly anyone brushes after every meal. Unfortunately, society views tooth brushing as something to be done in private. A recent article in a metropolitan newspaper, in a discussion of etiquette, recommended in fact that using a toothpick in public was vulgar: The person should go to the rest room if he or she felt the need to "pick the teeth," so as not to offend others.

What are you supposed to do, carry a tube of toothpaste and your brush around in your purse, looking for rest rooms? -What if you don't carry a purse? Picture an executive, male, dressed for the day's business, with a tube of *Supershine* and a toothbrush peeking out of his suit coat pocket. Incongruous? Childish? --Perhaps, but it makes the point: Until our social attitudes change with respect to oral hygiene, we simply are not going to have, or create, opportunities to "brush after meals." *If you can*, it's a good idea. If you "can't" --join the club.

Using floss is another of those almost-good ideas. The proper use of dental floss has been the very best individual hygiene element for more than 150 years. Three strikes against dental floss have more or less taken it out of the game, as three strikes does to a baseball player:

- (1) *Floss is not the best material for this use, tape is much better...but most people don't know that.*
- (2) *Most people have never even tried flossing; many who have tried it don't like it.*
- (3) *In all of the publicity generated in an attempt to get people to floss their teeth, very little is ever said about why, or what good it does. Without motivation, people won't usually do something they don't particularly like to do.*

The admonition to avoid sweets is downright asinine. In American diet, avoiding sweets is just not possible. Sure...you can avoid candy and reduce your intake of raw sugar, but to modify your diet enough to "avoid sweets" to the point where active odontosis went into remission, you'd have to almost literally starve. You'd hurt yourself more than you'd hurt the odontosis germs.

Finally: How about those semi-annual checkups? Do you faithfully visit a dentist every six months? Probably not. Few people in our society do. If you do, you've probably discovered during those visits that there is additional evidence of disease since your last trip. What was done, then, to prevent it? Is there any way the dentist *could have* done something during your last checkup to ensure you'd be free from disease damage at the next checkup?

No. Dentists have no magic formula, no medicine and no equipment that can bring you freedom from odontosis without your active, continuing participation. *As it matter of fact, those who visit their dentist often have fewer teeth than those who avoid visiting dentists...*

The dentist cannot prevent odontosis without your help. You *can* prevent odontosis without a dentist's help. How is this done?

## Brushing the teeth

Professionals have disputed for years over the best way to brush the teeth. What is accepted as normal this year may be swept away on the winds of professional fashion next year. Is it better to brush with up and down strokes or with side to side strokes? Should you brush hard, vigorously --or would it be better to be gentle, to take it easy?

It isn't altogether strange that most people have no really definite understanding of how to brush the teeth; the profession that should be telling people how can't agree among themselves.

Some preventive practitioners have learned that you can get people's attention by telling them, after looking in their mouths, whether they are right or left-handed. Even though the person believes he or she has been genuinely faithful to do a thorough tooth brushing job, there will usually be more evidence of odontosis damage on the side of the mouth corresponding to the hand they principally use.

Maybe all that proves is that it's easier to reach the "off side" of the mouth than the side that matches the hand you use. We think it proves that people have the wrong frame of reference about tooth brushing: If they do a better job on one side of the mouth than the other, it's obvious that they are not doing the *whole* job adequately.

In a study made in Minnesota, people were asked to brush their teeth in the office and to give it their best effort. The people were not informed that the brushing would be timed. The test turned up a surprising fact:

Only one out of every 40 or 50 people brushed for as long as one minute! *Most people brushed for 20 to 30 seconds* and one standout person, who claimed to be an excellent and faithful brusher, went at it so vigorously she was overheard in the adjacent room --*for a total of 15 seconds flat!*

When many people seem to spend about the same amount of time brushing their teeth, it follows that there must be some common reason for that specific length of time to be "enough." Upon examination, you'll learn that it takes between 20 and 30 seconds for your mouth to fill with foam...saliva and dentifrice ...so that it's awkward and uncomfortable to continue brushing. Then what? --Then you spit in the sink, rinse the brush, swish some mouthwash around in your mouth for a few seconds...and you're done.

Can you do an adequate brushing job in 20 or 30 seconds? It's virtually impossible. Question: When the mouth fills to an uncomfortable level, why not spit out the excess and keep on brushing? There's still plenty of dentifrice remaining. So: Adopt, if you will, a new frame of reference. Tooth brushing is not timed by how long it takes to fill the mouth with foam. It's timed by when you've finished brushing the teeth.

And how long is that? When you've developed a degree of familiarity with your new brushing technique and are able to do it the same way time after time, the average excellent job will take you two minutes. In fact, it's a good idea to actually time your tooth brushing so there's no tendency to rush it. Two minutes is not very long --unless you're brushing your teeth! Then, apparently, it "seems like forever." --Use a clock, please.

The more difficult-to-reach teeth always get the least brushing care. It's not surprising that these "orphans" are the teeth that also suffer the most disease damage. Most people have little trouble getting the visible (front) teeth clean. These are the teeth that make or break your cosmetic appearance. This is social brushing, and it doesn't really do the job as far as disease prevention is concerned. Those teeth in back are more prone to odontosis than the front teeth. By virtue of shape alone, the back teeth can harbor more plaque and germs. Aside from this, the front teeth are the "biters," and they typically will be cleaned while biting through foods.

One study indicates that the teeth in the under-brushed sectors receive less than 20% of the total brushing effort. The teeth that need it most get five times less attention than the ones which need it least.

If you go to the full two-minute brushing regimen, you'll find yourself almost automatically giving the danger zone more attention. It stands to reason that when you've done the front teeth, and the clock says you still have a minute and a half to go --you'll be "looking" for something else to brush. Good! ...Do the ones in back, now!

There is no perfect set pattern for tooth brushing. The only thing you should understand is that there are, for practical purposes, about eight areas you should concentrate on. Not in any particular order, you should brush so that you do one sector at a time; finish it, and then go on to the next. These sectors are, more or less:

*The external front teeth, top and bottom, to the eye teeth.*

*The external back teeth on one side of the mouth. The external back teeth on the other side of the mouth. (Give both sides the same attention: Don't let right-handedness cheat the health of your right side teeth, please... or vice-versa.)*

*The internal surfaces of the front teeth.*

*The internal surfaces of the back teeth on one side.*

*The internal surfaces of the back teeth on the other side.*

*The chewing surfaces of the teeth, both sides, top and bottom (This last might be considered two separate "zones," for instance, first the top teeth, then the bottom teeth.)*

The objective is to get all of these surfaces really clean. Aside from the dentifrice you use, or the type of brush, there's only one way to guarantee that all tooth surfaces which can be cleaned with a brush get a thorough going-over: You have to take each section one at a time and scrub until you've got them all. This can be done quite well in two minutes; it obviously can't be accomplished in 20 or 30 seconds.

Up and down, back and forth...or circles...what's the right way to brush the teeth? Again: This has been the subject of discussion since dentists first learned how to argue. You will find that your own habit patterns develop fairly naturally and anything which seems awkward or unwieldy to you will probably cause you to do a less thorough job.

For those who want some suggestions: The brush is held at about a 45-degree angle to the gum line and moved gently back and forth. Use short strokes - remember, you are only trying to clean one or two teeth at a time. Change the angle slightly, move the brush handle in and out, toward and away from your face, as you brush, so that the bristles have a better chance to contact all of the curves and planes of the tooth surfaces.

Remember: You aren't trying to do a "fast" job, or a "vigorous" job, or a "hard" job of scrubbing... just a thorough job.

One final point: Toothbrushes wear out. There is objective data available which indicates that a well used toothbrush begins to lose efficiency after one month of service.

How long your brush will last depends on how much use it gets and how good it was when new. Naturally a better quality brush will outlast a cheapie. At any rate, before you can see noticeable signs of wear, your toothbrush is not doing as good as it did when you bought it.

How expensive can a new toothbrush every month or six weeks be! If this is within your financial "comfort zone," a new (good) brush every month is an investment that can contribute toward freedom from disease --and that will save you a lot of money.

## Flossing or taping

This is the vital element of oral hygiene; equal in importance, if not more important, than tooth brushing. Yet, time and again studies disclose that people simply do not use floss with any regularity. Moreover, many people are not aware that there are different kinds of dental floss; that there is a product similar to floss (tape) which is superior to floss in many respects.

Dentists and hygienists have known "forever" that the surfaces between teeth are the most critical disease areas. In the chapter dealing with the anatomy of the mouth, and again when we discussed the process of odontosis, it was emphasized that this between-the-teeth space... so tight as far as we are concerned... is the size of New York City as far as germs are concerned.

Keeping this in mind, recall that the beginning of odontosis is when germs excrete and form plaque; and then use that film for explosive colonization, creating more plaque. Many authorities agree, and research clearly indicates, that the most damaging effects of cariosis occur where there are heavy layers of plaque. Remembering that "heavy" is a relative term, and that dangerous plaque accumulations can remain invisible or escape notice, we can understand why *any* undisturbed plaque is a troublemaker.

Brushing properly and regularly is generally adequate to prevent formation of plaque buildup on the outer surfaces of the teeth. Brushing cannot reach the plaque deposits between closely-spaced teeth. Teeth that are, in fact, touching each other as far as we are concerned will still have a microscopic space between them; germs can colonize there and your brush cannot get at them.

What can get in these spaces and do a thorough cleaning job is floss or tape. Either will work: If you for some reason cannot get tape, use floss that is more universally available in drugstores and supermarkets.

The disadvantages of floss lie principally in its very fine diameter. It is threadlike, with most well known brands not even as heavy as common string. This makes it more difficult to handle and increases the likelihood of cutting gum tissue with it. Moreover, if it only contacts a small surface area at any one time, it takes longer to use or misses spots.

These disadvantages are overcome by using dental tape which, while no "thicker" than floss, is wider: It is more like tape or ribbon than string-like; it is "flat" instead of "round." There are schools of thought which maintain that un-waxed floss or tape is better, others which proclaim the merit of waxed products .

Oramedics International's product, *Oramedics Clean Between\**, is a waxed tape. Since the Oramedics name does not appear on any floss, or on any un-waxed tape products, this obviously is the recommendation of Oramedics Fellows: Waxed dental tape --not exclusively *Clean Between*, but something as similar as possible.

Using tape (or floss) is simple, once you get the hang of it. About 18 inches is removed from

the container-dispenser, which will have a small cut-off device. The tape is wrapped around the middle finger of each hand with the bulk of it on one hand or the other. About six inches (more or less) is left stretched between the hands.

The tape is then brought to the surface of the teeth, between any two, and inserted into the space between teeth with a gentle back-and-forth motion. Once the tape is between the teeth, the sides of both teeth are "buffed" from top to gum line. It is generally easier to stretch the tape across two un-busy fingers, using the middle fingers only as the reservoir for unused tape and to take up the part you have used.

When working on the upper teeth, guide the tape across your thumbs; when working on the lower teeth, use the first finger of each hand. As you 'use' the tape, unwrap one turn from the side where you are storing it and wrap one turn on the side where you are taking up the used tape.

How long does it take to tape the teeth? If you have a full set of teeth --32 of them --there are obviously 28 spaces between teeth. After you have gained confidence that you can tape your teeth without clumsiness, it should take no more than five or six seconds to tape any one space. If it took six seconds each for 28 spaces, that's 168 seconds...less than three minutes.

How long does it take to shave? How long does it take to put on eye makeup? How long does it take for a shower, or to shampoo the hair?

Most people have no idea, in absolute, objective time, how long these things take. They take however long is necessary, *because the person wants to do them.*

Three minutes to tape the teeth is only a "long time" when it's something you'd rather not do: A pain in the neck. We believe this is something people don't want to do because most people are convinced it is a waste of time: There's no way they can avoid dental disease. By now, you *know* that's a lie.

People don't tape their teeth because the teeth are just going to get dirty in there again tomorrow, anyway...what's the use? Why don't people feel that way about taking a bath, or caring for the hair, or shaving? -You're just going to get dirty or sweaty again tomorrow anyway, right?

--People want to take care of themselves because if they don't, *other people will notice and that's embarrassing!* We are conditioned by society; it is drummed into us by our parents that hygiene is a necessary social function first, and a health function second.

In other words, people don't tape their teeth because nobody will know whether they did or didn't ...they can get away with being slipshod in this department in a way they could never manage with other personal hygiene.

We're not asking you to tape your teeth --to "clean between" --for social reasons. You're right: Nobody will know tomorrow whether you did it tonight, or not... unless they get close enough to smell your breath. We're asking you to realize that your oral health hinges on whether you do this or not. If you do it, and do it right, it will save you pain, money, embarrassment, time and health.

Maybe nobody else will know...but you will.

## Disclosing tablets

If ever there was a secret weapon in the war on odontosis, these little tablets would be an excellent candidate for that title. Disclosing tablets are so simple, so inexpensive, and so foolproof they're almost hard to believe.

All they are, no matter who makes them or sells them, is compressed food dye in some kind of base. They work on an amazingly simple principle: They cannot stain clean enamel; they always stain plaque ...even invisible plaque.

If you were to chew a tablet, swish it around, spit out the excess and then look in the mirror *before* brushing your teeth, you'd think you were looking at something off the late night TV horror show. Any plaque in your mouth would be stained a shocking red. Rinsing your mouth vigorously with water might reduce the paint job somewhat, but not enough so you were "back to normal."

The use of disclosing tablets is apparent. After brushing and taping between the teeth, a tablet is chewed and swished through the teeth. After you spit out the excess, one look in the mirror will instantly spot any areas of plaque which you missed in your cleaning program. To get rid of the stains you simply re-brush those areas, or use tape if it's between teeth. The stain goes away...and so does the plaque.

This virtually foolproof method of checking your thoroughness is not "kid stuff" for adults who are sincere in their efforts to prevent oral disease. Especially for those who are trying to change frames of reference...from a former slipshod hygiene to a new, effective system...the disclosing tablet is extremely helpful.

It can be "kid stuff," however, when there are children involved. It's a little bit more difficult to motivate kids; they don't respond to technical information and aren't overly concerned about what's going to happen to their mouths in 15 or 20 years down the road.

Getting those little rascals to brush properly and use tape is more of an exercise in applied behavioral psychology than in "telling it like it is." When you consider that one of today's most effective educators is the use of fun and games such as TV's famous *Sesame Street* program, the use of the disclosing tablet becomes apparent.

The kids will think you're just having fun with them, helping them make "monster faces" at each other and in the mirror. Being able to paint the inside of the mouth a ghastly red is fun!

In the meantime, you can be planting the seeds of oral health knowledge and technical expertise that will help guarantee a lifetime of oral health for your children.

## Inter-dental stimulators

One of the success symbols which is disappearing from the American social scene is the solid-gold toothpick. Executives who had it made in yesteryear frequently displayed their position in life by digging this status symbol from the vest pocket after a meal and going to work on the food stuck in their teeth.

As far as oral health is concerned, the idea is "solid gold," and it doesn't particularly matter what the toothpick is made of or how it's flavored. *Inter-dental stimulators* can be wood or plastic; flavored, colored or "natural." It makes no difference. What they do, and what you do with them, is what counts.

The inter-dental stimulator is a toothpick on one end (it's pointed) and usually a flat blade or paddle at the other. It can be conveniently carried in pocket or purse... one or a packet... and is usually disposable. As with most appliances for oral health maintenance, the cost is so small as to be insignificant in comparison to the benefits.

When you can't carry a brush or dentifrice, or when for some reason you can't "stash" these items in your desk or the office restroom, the inter-dental stimulator can take the place of "brushing after meals." It may not be quite as effective as a complete brushing and flossing, but it is a whole lot better than nothing. It can be done in a restroom, as you drive a car, as you ride an elevator... there are many private or semiprivate minutes throughout your day... or it can be done right in front of people, if you begin to lose your inhibitions about taking care of your oral health where others can see you.

Using the inter-dental stimulator is simplicity itself. You simply hold it by the flattened portion, between the thumb and finger; however it seems most comfortable and least awkward. The tip is inserted between the teeth at an angle away from the gums (more or less 45 degrees), and then gently moved in and out between adjacent teeth. Do this four, or five times, then move on to the next space.

The flat, or paddle, end of the stimulator may be used to gently scrape the outer surfaces of the teeth, removing or disrupting any plaque which may have begun forming.

One final point about inter-dental stimulators: If you happen to run out of them or leave the house and forget to put them in your pocket or purse... pick up some wooden toothpicks on your way out of the restaurant. Even a device as common and humble as a toothpick becomes an ally in our war against odontosis, once we change another frame of reference: The toothpick is much more than something to remove debris from between one or two pairs of teeth... it is, when nothing else is available, a portable back-up device for the toothbrush and dental tape.

## Mouth rinses

Mouth rinsing after a full session of brushing and flossing and disclosing is a good idea. You will have loosened up debris and scattered thousands of germs during your hygienic session; there will be remnants of the disclosing dye and some dentifrice floating around in your mouth. Particularly in the case of marginal or poor initial oral health, there may be light bleeding from some gum surfaces.

All in all, this mixture is not one you'd be comfortable with; and there is no reason for you to not rinse it out. If you wish to use a commercially available rinse, go ahead. These contain flavoring which will leave you with a pleasant after-taste (important especially where children are involved: the "reward system" for doing a good job).

Many commercial preparations contain an astringent that tends to cause a slight shrinkage and drying of surface membranes, perhaps a help in the case of gum tissue which is insulted during the brushing and flossing process.

Some preparations contain fluoride in weak concentration and these have been scientifically proven to be of some value against cavities. In addition, fluoride is known to enhance the natural re-calcification process by which nature actually heals very early cavity damage and continually replaces tooth enamel. Fluoride bonds atomically, through ion exchange, with the molecular structure of the enamel. In any case: There is no scientific research at present which indicates that use of fluoride rinses in .05% concentrations is harmful; there is a good deal of evidence that it has decided advantages.

Oramedics Phase III\* mouth rinse has a much stronger concentration of fluoride and therefore must be prescribed and used under a doctor's supervision. This rinse is used only for a specified term (for example, one month) and the times-per-day of use, and concentration of fluoride, is based on that individual's clinical reports.

***\*Editor's Note: The Phase III rinse is no longer available, although we do have an excellent over-the-counter rinse called TheraSol that we highly recommend. TheraSol is an anti-microbial rinse that will actually kill off damaging microbes and does contain a safe amount of fluoride beneficial for remineralization.***

Another excellent mouth rinse is a home-brew mixture: A teaspoon of baking soda and a teaspoon of salt in one cup of water will give you a rinse of genuine value. The salt will help draw fluids from the tissues while it stimulates saliva production. The soda will react against any acid present in the mouth while it helps remove any odor. The combination is not an unpleasant taste... just a bit "different" and one easy to become familiar with.

If you can't use any kind of rinse because of your circumstances --in a car, on a bus, in an office or whatever --you can still do a fairly thorough job of rinsing your mouth simply by swishing nature's own mouth rinse (saliva) through your teeth. If you are for any reason unable to spit, don't worry about it --swallow. Why not? You swallow saliva all day and night, naturally and without even noticing it. It is part of the automatic natural oral hygiene system and it will go on whether you like it or not. So...what's the difference, whether you do it unconsciously, automatically...or "on purpose," because you're in a situation where you can't spit?

## Appliances

The three most common oral hygiene appliances are the electric toothbrush, the home tooth polisher, and the hydraulic irrigation device. All three are recommended by Oramedics, especially the polisher and irrigation appliances. In the next chapter we will discuss very specific uses for the tooth polisher as an advantage for your children's health; and the irrigator as an advantage for older people whose problems tend to be gum disorders more than cavities.

The electric toothbrush probably cannot do a better job than the old-fashioned Armstrong Brush... the one-arm power toothbrush... but that holds true only if the toothbrush is used properly, for long enough, to actually complete the job. The electric toothbrush obviously makes many more strokes per minute than you are capable of with your hand and arm. It just makes sense that you will do more brushing in two minutes with an electric brush than you will with a hand brush. The question is whether you will do more effective brushing. If the electric brush is only used in the comfort zone... the outer top and bottom front teeth... it is no better for you than a hand brush.

An advantage, with children, is that they tend to want to brush more with an electric than a hand brush because the electric brush is fun to use. There's a psychological disadvantage, both for adults and children: What if you or the kids become so accustomed to the electric brush you forget, or never learn, how to properly use a hand brush?

If you wish to use electrics, you owe it to yourself and your children to have on hand the old-fashioned Armstrongs for every family member... and, from time to time, conduct "toothbrush drills" with the family to ensure that they'll know how to use the hand brush when, as, and if they can't use the electric.

*The electric tooth polisher* is called a prophylaxis device --because that's what dentists and hygienists call a thorough tooth cleaning: *Prophylaxis*. This device was described in the chapter on materials. What it will do for you and the family is to allow you to give your teeth a near-professional "shine" whenever you want to, at home and without expense other than the initial purchase.

There's no question but that the principal benefit of this device is cosmetic. You can do a hygienic cleaning without "polishing" your teeth. Even at that, the advantages are still perhaps worth the investment. So many of us will continue to place a premium on how our teeth look --as opposed to how they feel and their actual health status --that the psychological advantages of the prophylaxis machine are obvious.

For families with teenage children, this can help make all the difference in the world as to the kids' attitude toward a total oral hygiene program. In their world, the social benefits play a major role. As they learn to function in interpersonal relationships at school... going through the

popularity contests, the girl/boy relationships... anything which enhances their cosmetic appearance is going to contribute to their psychological wellbeing. If that, in turn, helps instill lifetime oral health principles into their habit patterns...it can't be a bad idea.

Another use of this device relates to the oral health of children between the ages, approximately, of one year to age nine or ten. During this span the child will have its "baby teeth," later undergoing a transition to permanent teeth. In the next chapter, we'll discuss use of the prophylaxis machine as a parent's method of helping to reduce odontosis activity in the cavity prone years. Since this is the age group which is most difficult to entice or motivate regarding effective oral hygiene, having a twice-monthly method of parental "insurance" care may be something of interest to you.

Oral irrigators are interesting appliances. Millions of Americans use them daily although they are relatively new on the self-care scene. As more people become aware of the advantages of these machines, we think they will become even more popular. In essence, the oral irrigator is a device which has a water-holding tank, a pump, and some method of interrupting the flow of water so it is delivered in "bursts" or pulses. The better models are constructed so that the pressure is variable from soft to quite firm in impact. This water is delivered to the mouth through a length of plastic hose and, finally, a nozzle tip, shaped for convenient use inside the mouth.

The jet of water, coming in bursts, does a remarkable job of cleaning between teeth, around and under bridges and braces, and even reaches into cavities. While the machine is not intended to be a replacement for brushing and flossing, it is an excellent follow up for these and could probably be a near-acceptable substitute from time to time if need arose.

Teledyne corporation's brand of irrigation device, the Water Pik, is excellent. Oramedics International worked with the Water Pik people to develop specially made tips to fit their machine. These tips are used as part of the Oramedics approach to self-treatment of periodontitis; more on this in the next chapter.

How do you use an irrigator? --Fill the tank, put the tip in your mouth, and turn it on. Follow the manufacturer's advice if the machine has variable pressure: They are capable of delivering a "punch" that would have little or no ill effect in a healthy mouth...but could cause bleeding and problems in a mouth with severe odontosis symptoms.

When the water begins jetting through the tip, lean over the sink with your mouth slightly open, let the excess water simply run out into the sink, and... hose out your mouth: Skin, tongue, teeth, between the teeth, at the gum line, below the gum line...it works. Some people, after using such a device for the first time, have remarked that their mouth never before felt so completely clean.

One last thought about irrigators: Some of them are made so that you can use the small water reservoir to contain a mixture of water and powdered ingredients which, when blended, become a mouth rinse. Using this feature will give you the final step in your cleaning job and your mouth rinsing all at once. What's also good about it is that, when and if you run out of the little packets of rinse chemicals, all you have to do is step into the kitchen for a teaspoonful of soda and one of salt, and you're back in business.

## A combination of ingredients

There we have the ingredients of oral hygiene --your personal oral health maintenance program. Recapping them, we have tooth brushing (manually or electrically), taping (or, if need be, flossing), using inter-dental stimulators (or toothpicks), disclosing (checking) and rinsing; with additional use of tooth polishers (prophylaxis machines) and irrigators as an option. When do you do all of these things?

--There's nothing wrong with brushing after every meal, and if you can, you should. Think carefully, after throwing out your old frames of reference, about all of the times and places during the day when you could spend two minutes with a brush, without disrupting your schedule. One thing you will discover is that as your oral health improves, you will enjoy the clean-tasting, healthy "glow" of your mouth to the point that caring for it ceases to be a burden --You'll *want* to do it more often.

If, however, you can't brush after meals, all the evidence of research together with thousands of case history experiences has demonstrated that one thorough cleaning daily is enough to ensure freedom from odontosis for most people.

In an earlier chapter we discussed the beneficial role saliva plays in the oral environment; and how the flow of this natural disease fighter decreases during sleep. Also, the tendency for mouth breathing while sleeping further acts to dry out the mouth. During the hours when the natural cleaning and rejuvenating processes are most dormant is the time when odontosis germs are busy building colonies. Not that they ever rest, as far as disease is concerned --but the mouth is perhaps most vulnerable while we are resting.

Therefore, it stands to reason that your efforts in hygiene should be concentrated at some time just before retiring. There are other good reasons for selecting just before bedtime for your major hygienic approaches: Usually all of the snacking is done by this time, so there won't be additional germ-food added after the oral cleanup.

This time is also the most free from distraction; and it is a time when you can have the personal privacy most of us seem to prefer; whether showering, shaving, or caring for the teeth.

It makes little difference whether you brush first, then tape, or vice-versa. One point worth considering is that you can use the tape --especially after you've "gotten the hang of it" -without a mirror. This means you could easily use the tape while finishing up a TV program before bedtime... or while reading a book (maybe this would take some practice)... or at the end-of-day conversation with your spouse.

Why not? One of you uses the tape while the other talks for a while; then switch roles. Not only would you be able to take time to do a thorough job, you just might discover that this improves your capacity to listen to each other. For sure, you won't interrupt while using tape: One thing you can't do at the same time is talk intelligibly.

Humor aside, find the time during the evening after you're done snacking or drinking to tape the teeth thoroughly. Give it an honest three, four or five minutes... whatever it takes to make several passes between each tooth.

Brush the teeth, for at least two minutes. Pay attention to what you're doing so that you're sure you cover every surface of every tooth.

At first, and from time to time after you've become more expert at brushing and taping, use a disclosing tablet to make sure you got all the plaque from the teeth...particularly from the surfaces between teeth.

Follow this with a final rinse --use your oral irrigator, if you have one --and then "hit the sack." The feel and taste in your mouth as you drift off to sleep... and again when you first wake up... will make it all worth while to begin with; freedom from disease makes it worthwhile for a

lifetime.

## Chapter Nine - *Special-purpose hygiene methods*

Oral health maintenance approaches differ with age, and for good reason. In the infant through very young adult (teen) years the most significant problem will be cavities (cariosis). The child is less open to regimentation of any sort; motivation is difficult and forming hygiene habits can be a real chore for parents.

Sometime in the late teens the emphasis begins a subtle shift: Cavities begin to appear less frequently, often lulling people into the belief that odontosis has been overcome. At this "dental health middle age," the person begins his battle with gum disorders: gingivitis and odontosis.

As the person gets into full dental adulthood, on an average sometime around age 30 plus or minus several years, gum disorders become the major problem. There is another kind of problem associated with older people, also: These folks often have some amount of mechanical dentistry in their mouths. This can be bridgework, partials... whatever, and such items create a special requirement for hygiene maintenance. This is the case, also, with the young people who wear orthodontic appliances (braces). The preceding chapter was a general discussion of the basics of oral health maintenance... the "minimum daily requirement," so to speak, for a disease-free oral environment.

This chapter will address specific problems... and some solutions... for people in various age groups. We will discuss the general oral health of these age groups, as well as some difficulties experienced by those with special needs. In this chapter:

### ***Protect the Precious***

The critical year from birth to age one.

### ***The Trying Years***

Children from one through four.

### ***The Transition Years***

Youth four through twelve.

### ***Your "Permanent" Teeth***

Teenage through young adult.

### ***For a Lifetime***

Young middle-age onward.

### ***Watch those Appliances***

For those with braces, bridges, etc.

### ***Perio-Don't-Itis***

Don't suffer from periodontitis.

## **Protect the Precious**

If you asked someone when he thought disease first begins in the human mouth, he'd probably assume sometime after four years of age... when there are some teeth in the mouth for the germs to play with. That's a woefully incorrect frame of reference. Statistics indicate that at least half of all two-year-olds have evidence of tooth decay.

When does odontosis actually start? Knowing that this disease is caused by germs, it is logical to expect that the process begins well in advance of any visible symptom, decay. In a newborn infant the mouth is, for all practical purposes, essentially sterile. Somehow, before the first teeth appear, this sterile environment is invaded by strep mutans and lacto germs.

We believe the most critical year in the dental health lifetime is the year from birth to age one. During this time the mouth goes from *safe* (sterile) to *condition red* (many thousands of germs per milliliter of saliva).

The germs which cause odontosis are *ubiquitous* --they seem to be everywhere in the environment. Its doubtful that we will ever completely avoid contact with them. However, it makes a lot of sense to avoid deliberate contact; and even more sense to do something to counterattack... rather than just sit back and let it happen.

Basically, there are four areas of infant oral health the parent can control: Don't introduce germs... don't feed the germs... keep the environment clean ... and use medication.

Nutrition is vital to the infant, both for whole body health and oral health. There are many authorities on proper diet for infants: We only want to make two points regarding your baby's diet. First: Lighten up on the sugar, please. Many prepared formulas have excess sugar; as do many canned baby food products on the market. The taste for sweets is created at a very young age; statistics show that the average person now consumes 120 pounds of sugar yearly. The pioneer consumed only 10 pounds. Is a tenfold increase really necessary?

Remember: Odontosis pathogens eat sugar; it is one of the bugs' basic dietary requirements. Feeding your baby with an over-sweet bottle, or baby food, actually bathes those germs in the diet they love the most. The growth of these bacteria can be explosive --exponential --in an oral environment rich in food-sugar.

A common error mothers make is to put the baby to bed with a bottle as a "pacifier." The child falls quietly asleep with its mouth coated with milk, juice or some other highly sweetened liquid. The environment in the mouth becomes a bacteria-generator... an incubator... providing a perfect setting for high levels of decay-producing bacteria before the teeth ever appear. From the moment the teeth begin to erupt through the gum they are exposed to an extremely hostile environment, often leading to cavities before the infant really gets a chance to "use" his teeth for any length of time.

Another mistake, and a critical one, comes just before the child is fed "baby food." Prior to this, when mama wants to test the temperature of baby's formula before feeding a bottle, she shakes a few drops onto her inner elbow where the nerves are sensitive enough to check the temperature.

Now, for some reason, that's no longer good enough. Instead, she dips baby's spoon into the food and tastes it herself to check temperature... then she puts that same spoonful of food into baby's mouth.

Maybe the infant isn't all that interested in today's menu, so mama --hoping to "con" the kid into eating --takes a bite herself, saying, "ummmm --good!" She cleans the spoon so the baby will see how much mama liked the stuff.

Okay...and every time she does that, she very probably inoculates the baby with germs from her own mouth. Now, she wouldn't dream of doing that if she had a cold or some other problem she might pass along to the infant. Why on earth is it wrong to give your child a cold, but okay to give it bad teeth?

Oramedics, as you know by now, is very conservative in its endorsement of fluorides for internal use. Oramedics Fellows will prescribe fluoride tablets or fluoride-containing vitamin

formulas for infants, but only on a case-by-case basis, and only after careful consultation with the child's parents.

For the infant from birth to age one, it is probably very beneficial to include traces of fluoride in the diet. This can be through public fluoridation of the water supply, or through specially formulated nursing supplements, or baby vitamins. In this instance, if you have serious questions about ingested fluorides, you may want to discuss it with someone in the health care field. It is provably beneficial; nobody --yet --has proved that there is danger in ingesting fluorides in concentrations of one part per million. In this case, the baby is yours; so the decision is yours.

Before the baby's teeth come in, the parent should make it a habit to swab out the child's mouth after each feeding and most definitely before any lengthy sleep. A simple tool for this job is the ordinary two inch square gauze pad available at any drugstore. There is a product in limited availability, in some drugstores, called the "Toothette". This is a small, sponge-like swab on a cardboard "stick," much like a small sucker. If you can obtain some *Toothettes*, they are ideal for infant hygiene.

When baby's teeth arrive you should begin brushing them after meals and before bed. Use a small, soft-bristled brush designed especially for infants. When the spacing of the teeth is such that the brush can no longer guarantee a thorough cleaning on all surfaces, it's time to begin using dental tape.

Daily, preferably before bedtime, you can sit with the baby's head on your lap; with a light shining from over your shoulder. Starting with the farthest tooth back on one side, work your way around the mouth with the tape in a gentle back-and-forth motion, as if you were gently polishing shoes. Continue until you've cleaned in the spaces between each tooth, top and bottom.

Protect the precious...and for a lifetime, you will have given your baby one of nature's most important gifts: Oral health. Psychologists today are, more and more, delving into the likelihood that many habit patterns, many elements of lifestyle, are begun in earliest infancy. To the infant, there is probably nothing in the world more comfortable, trustworthy, more pleasant, than the sights and sounds and feelings of mama. Think what an impact this may have on your child's future acceptance of oral hygiene!

If the baby's growing, developing relationship with the world around it includes... almost from birth... pleasant sensations connected with oral hygiene, it perhaps could produce deep, hidden gratification motives that will be "stroked" in later years when the child (and adult!) takes care of his or her oral hygiene.

For virtually zero dollar investment and remarkably little time and effort you can substantially decrease the infant's exposure to odontosis, while creating a solid foundation for future oral health care. So, during that first year... protect the precious!

## The trying years

As your child grows through years one to four, these will be the trying years in many ways. Now the infant is mobile; one moment in the kitchen, the next --Gone! His curiosity is unending and nothing is safe from those tiny fingers... which, unfortunately, more often than not will "test" anything they grasp by putting it in the mouth.

Exasperating? --You bet! Supervision is the name of this game and mothers in particular shortly grow accustomed to the constant attention the child requires. She becomes an expert in cleaning noses and bottoms, administering baths and shampooing hair.

Very few mothers are negligent in these tasks, simply because they love the infant and that's the way nature planned it. The human takes longer to develop from helpless to self sufficient than almost any other resident of the earth.

And yet, these same non-negligent mothers practically ignore the child's oral health and

hygiene. Why? --Probably because nobody ever told them this is a vital, essential part of parental care. Frame of reference, again: "There's nothing you can do about oral health except hope;" while it's perfectly natural to be concerned about baths, exercise, nutrition...

On the contrary, there is a great deal you can do about oral health during the trying years. What not to do is wait until the child is about two years old, when ordinarily all 20 baby teeth are in place.

*By the time all 20 teeth have arrived, over half of all American children already have cavities and tooth decay.*

It is downright unfair to expect a child under two to be adept... even to care... when it comes to oral hygiene. They are just not ready for it. Given that half the babies born this month will have "bad teeth" within the next two years, who should be responsible?

Helping the older infant care for his hygiene is really just an extension of the care begun during the first year. Now, however, it's possible that other family members can be pressed into service. In fact, it is distinctly to your advantage if older brothers and sisters can become part of the team, caring for the child. This vastly reinforces their own motivation to care for personal hygiene.

Using the position described in protect the precious, with the toddler lying across your lap and a light behind you, gently brush and tape the mouth. Brushing should be done after meals whenever possible; complete brushing and taping should be done preparatory to bedtime.

Individual children will develop at a different pace, and there is no set time when the child will begin wanting to try helping himself. Just as youngsters sooner or later want to take over their own hygiene in the bathtub; they will also attempt to strike out on their own with oral hygiene. The similarity doesn't end there: When your youngster first begins trying to bathe, you let him or her... but you stand by to supervise, to teach, to encourage and to "finish up" what the child did incorrectly.

It is no different with brushing and taping. If the child shows an interest, super! By all means, encourage him or her to begin caring for himself... but don't just turn your back, thinking, "Thank heaven that's in the past!" Stay with the child until habits develop correctly, affording a lifetime of attitude and aptitude that will result in good health.

While brushing and taping, or supervising the child's efforts, be on the lookout for brownish colored spots, discoloration or any other evidence of "problems" with the teeth. If you see things that concern you; which you suspect may be early cavity activity, it would be a good idea to have the child's saliva tested. If you've cared for the child from birth through age two as outlined above, there shouldn't be any odontosis. A saliva test will verify the presence or absence of disease-causing germs and, if there is some previously unknown condition or problem, the test will act as a warning signal.

## **The transition years**

From age four to twelve your child undergoes massive changes --the transition years --from infancy to the beginnings of adulthood. There are physiological changes and psychological changes... the person is part baby and part "grown up." For example, at one point during this period there will be 52 teeth competing for space in that little mouth!

It is a transition in yet another way: During this time, responsibility for, and performance of, oral health maintenance will shift from parent to child. This should be a gradual thing, so that the transition is made smoothly. Now perhaps more than ever you will be guiding and teaching and motivating the child in a way that will directly affect the remainder of his or her lifetime.

The practice of brushing after meals and especially of brushing and taping before bed should

continue without letup. We want this habit so deeply ingrained in this youngster that it simply becomes part of his or her second nature. Now another element is added: Disclosing tablets. The preceding chapter explained how these work and mentioned the motivating power they have upon young people.

For your purposes, they also serve as an excellent spot check on the child's developing skills and will almost immediately indicate any developing lack of interest or loss of skill.

The first permanent teeth to appear in the mouth will be the six year molars, sometimes called the first permanent molars. They grow into the mouth immediately behind the existing baby teeth. Often parents mistake these for still more baby teeth, because their eruption is not associated with any loss of earlier teeth. Instead, these teeth grow into place somewhat later than the baby teeth, using available space behind the real baby teeth.

Now there are 24 teeth visible in the mouth; 20 of them baby teeth and the four larger teeth furthest in the back, which are permanent. Of these, the 20 baby teeth will eventually exfoliate -- they'll fall out or come loose and be easily pulled out. It is important that you make the distinction between these teeth. Many parents have been more or less unconcerned over decay or damage to the six-year molars because they mistakenly believed they'd be replaced like the other baby teeth. Not so: The molars should --and can last for a lifetime. They'd better... there won't be any natural replacements for them.

About this same time the front baby teeth will begin to loosen. Permanent teeth erupting from below usually cause the roots of baby teeth to *resorb* (become naturally dissolved), causing them to either fall out or become so loose they can be taken out with the fingers.

It is important to know that in the eruption of the front teeth, particularly the lower ones, the permanent teeth often tend to grow in behind existing baby teeth. This sometimes concerns parents because the permanent teeth seem to be coming in crooked or misplaced. Generally speaking, this is not something to cause alarm: The baby teeth normally come out when nature gets ready for them to come out, making space for the permanent teeth to grow forward into proper position.

This is the time of life hall marked by the toothless, awkward grin; it's theme song, *All I want for Christmas is my two front teeth*. This is the most evident phase of the transition years, and shortly it is over as the permanent teeth take their places up front.

Now the youngster has eight permanent front teeth... four on top and four below... and four permanent six year molars; one in each quadrant in the back. Nestled between these permanent teeth are three baby teeth in each quadrant; so that the youngster of 8, 9 or 10 will have 24 teeth, split right down the middle between 12 permanent and 12 baby teeth.

During the next four or five years... generally, through about age 12... the remaining baby teeth will slowly loosen up and come out to make way for the full complement of permanent teeth. During this time the baby teeth can play host to disease problems such as cavities, and this is particularly dangerous when we remember that half of the teeth in that mouth are not baby teeth. It is far too easy to adopt the attitude that since the child will lose the baby teeth anyway... soon, we need not be overly concerned about developing problems in those teeth.

This is a serious mistake, because any disease which is active in the baby teeth can spread and affect the newly erupting permanent teeth. When diseased baby teeth are shed, all that goes with them is disease symptoms; The germs will remain behind to haunt the replacement teeth. We're talking about transition years --and the one thing we must avoid is simply allowing odontosis to make the transition from temporary teeth to permanent teeth.

The child will have its first set of teeth for only a few years; the next set is the only one nature will issue the youngster for the rest of his days.

About halfway through the transition years, depending on the child's own developmental pace, he or she will begin to take on more personal responsibility for oral health maintenance.

Remember, however, that this is a transitional phase; the responsibility remains with the parents or older family members until the developing child is fully capable of accepting it. The child will do more and more of the performing, but the checking... making sure... is up to mom and dad, sister or brother.

One excellent method is to select a day of the week when evening activities are generally quiet and relaxed --perhaps a Sunday evening, for example --and make that "oral health evening" for the entire family.

Family participation in such a weekly event is an excellent way to make oral health maintenance an integral and important element of family togetherness. This will contribute heavily toward creating lifetime good habits in the youngsters... and it's not an all-bad way of helping mom and dad develop a new set of habits to replace the bad ones they learned earlier in life.

Thus the older family members spot-check during the week as the developing youngster goes through nightly hygiene: "Okay, Cowboy...let's see how you use that tape, now..." And then, on the "family night," it's time for disclosing tablets and family show-and-tell. How well did the child do throughout the week? The once-weekly "hygiene drill" with its disclosing tablet time will tell the story.

If the youngster is not passing the weekly checkpoints with flying colors, it's high time for the older family members to step in and reinforce either motivation or technique... attitude or aptitude... until the child once again begins to pass the weekly parade and review with the teeth thoroughly; hygienically clean on all surfaces, every night before bedtime.

Another problem which can develop during the transition years is the often heartbreaking, generally expensive proposition of crooked, mis-aligned teeth. This is such an important topic that it will be treated separately in Chapter Ten, and it is mentioned here only because it is so much a part of the age group's dental lifestyle.

Periodic saliva testing is highly recommended during years 4 through 12, since this is the most dentally active time of life. If the child's grasp of hygienic maintenance is good, and the parents have reason to be confident, testing on an annual basis may be enough to reassure you that all is well... or to catch any developing problems in plenty of time. If you have a "problem" child and want to make sure, it would be good to test on a more frequent schedule; semi-annually or perhaps every three months.

Since the saliva tests are available at a cost essentially just enough to cover expenses, if using the test during the transition years helps avoid costly dental repair bills, it is certainly economically feasible. In terms of what it can mean to parental peace of mind, and to the child's dental future, it's easy to see why Oramedics recommends it so highly.

In previous chapters you've been exposed to the concept of using a dental mirror at home, to enhance your capability to do a thorough cleaning job. During your child's transition years, this is a perfect time to "break him or her in" on this idea and we urge parents to obtain a lighted mirror for the family's use, preferably the "Floxite" mirror.

The fact that these young minds are not totally able to process what they see in the mirror and turn it into useful information... not as well as adults, anyway... is more than offset by the powerful motivation at work. Using a light and mirror "like a doctor" is fun, and it gives the child an opportunity to feel self-important.

One of America's more articulate proponents of self improvement is Dr. Maxwell Maltz. In his book, *Psycho-Cybernetics*, Dr. Maltz suggests that people of all ages can "act their way to a new feeling." In other words, we are generally capable of growing into attitudes and capabilities which, at first, we perform only through role playing... yes, even through nearly wishful thinking.

The more we can contribute to younger people during the transition years, allowing them to

act or role play under adult supervision, the more we firm up what they will become later on. Let the kids "play dentist;" give them every opportunity to turn oral hygiene from a chore to an important aspect of their daily life.

If there is any one most important message for parents in these sections on protecting the precious, the trying years and the transition years, it is the underlying element of parental responsibility; coupled with the fact that parents can help their children avoid all disease-related dental problems. There are many young adults, folks in their late teens and early twenties, who grew up in Oramedics guided families. All of them share two things in common: They have all of their permanent teeth --except in some cases where teeth were purposely removed to correct alignment problems... see next chapter... and none of them have ever had a cavity. Not one. *Not ever!*

Let's take a look at two advertisements. One of them you probably never saw, because it appeared in a trade magazine for the dental profession. The other is famous, and although it has nothing to do with health, the message should come through loud and clear. Ready...?

First Ad: "The average American child starts school with a new pair of shoes, a kiss from mother, and 3.7 decayed teeth,"

Second Ad: "Only you can prevent forest fires."

Think about it, Mom and Dad. It is up to you.

## Your permanent teeth

Why do we call the second and last set of teeth permanent, given the prevailing frame of reference toward them? If, like most people, you still think of your permanent teeth as something you'll have from age 12 until about age 35, when it's time to trade them in for dentures... that's not really all that permanent, is it?

The truth is that teeth are genuinely meant to last beyond a lifetime. In the absence of disease, these small marvels of natural health are virtually indestructible: They are, in every sense of the word, *permanent*.

Oral health maintenance during the early adult years continues to be an extension of what was learned during the formative years. At least once daily (bedtime) brushing, taping and rinsing each and every tooth surface remains the primary element of hygiene maintenance.

During these years the teeth will undergo a slow and very subtle change, as will the environment in the mouth itself. At the beginning, the principal symptom of disease will be cavities. Toward the end of this period the emphasis will shift from cavity damage to gum disorders. This will take place over such a span of time there will be nothing obvious to mark the changeover.

The progression into gum disorder does not have to happen... it shouldn't happen... and it won't happen if the health maintenance program continues properly through these years.

There are a few "special problems" for this age group, and the two most universal are diet; and a more personal interpersonal involvement one toothpaste manufacturer emphasized by advertising, "*How's your love life?*"

Dentists insist upon telling us, over and over again, to "avoid sweets." You know that what we really want to do is avoid disease --and if we do, sweets won't hurt our teeth. However, it is also a plain fact that re-inoculation with the germs of odontosis will haunt us all our lives. No matter how you slice it, there will be strep and lacto present in the environment, ready to invade at the slightest opportunity.

Sugar in any form will feed the free-floating, comparatively harmless germs, triggering overtime production of dextrans --they'll generate excessive plaque. They'll also reproduce faster in a food-rich environment.

Research has proven beyond question that it is not the kind of sugar we eat, or the amount, which is most critical: How frequently we eat... anything ... is the key factor. Teenagers and those in their early twenties are notorious for their snacks and treats. Probably there is no way ever to avoid a lot of this, since it is part of their social structure.

What we want parents and young adults to know is that frequent snacking and heavy sugar intake modifies the oral environment so that it favors rapid development of odontosis.

The other social element of early adulthood is the boy-girl relationship. Not even the ADA is so obsessed with oral health they'd suggest doing without dates and foregoing necking. No way! Boys are going to find girls, and vice-versa; and they are going to kiss each other. More than that: They are going to kiss long and intensely... young love, itself, is pretty intense.

If mama can inoculate a baby with germs simply by tasting a spoonful of food, what would you think happens during a passionate kiss? Right on: ...love me; love my germs...right?

Kissing and eating... first you get the germs, special delivery --then you feed them, lavishly and frequently. Is there any way to avoid this?

...Nope. Not for young people, anyway; not without seriously depriving them of many of the things being young is all about.

Instead, the solution is to constantly remain faithful and thorough in the minimum daily requirement of oral hygiene maintenance: Before bed, the teeth get cleaned...not just a lick and a promise, but super clean, squeaky clean.

Even if it's been a late date, and the young man or woman is really "dragging," the nightly program has to take precedence. (Maybe *especially* if it's been a late date, right?) Remember, it doesn't take much more than five or six minutes to do an adequate job, once the person is adept. If the child has been properly guided through the formative years, this will be no real trick at all. Mostly what's involved here is motivation and attitude: The young adult needs to know why it's dangerous to skip "just this once," especially if his or her hygiene has been so good for so long that there just hasn't been any disease experience.

The reason, and one which any young adult can cheerfully accept once it's understood, is that he or she probably "catches" odontosis... and "pours gasoline on the fire"... almost every day. And so, every night, it's once again necessary to "put out the fire."

One final word of advice to people in this age group: If your family has a home prophylaxis device (an electric tooth polisher), you should read the information in the next chapter related to twice monthly use of this machine. Your benefits will be two-fold: The cosmetic (social) value of your teeth will be enhanced; and the medical (hygienic) contribution can be important in guarding against that subtle shifting from cavity-danger to gum disorder.

## **For a Lifetime**

Now you've made it all the way to your early thirties. Obviously, most of those years were spent without any idea that you could prevent odontosis, so you have some problems with both teeth and gums. Your situation is probably not critical, but there isn't much hope that you can avoid at least one more session with conventional dentistry. The damage done to your teeth is at

least partly irreversible; although natural healing processes will help, mechanical dentistry probably lies ahead.

For right now, the most important things you can do all revolve around stopping the disease. The damage, as you know, is *symptoms*. Your best response is to avoid any further development of symptom damage and as much as possible, to prevent existing problems from getting any worse.

You probably have cavities, some of which may be filled. Once there is a hole through the enamel of a tooth, the danger of decay and infection will always be there. Even when your oral health maintenance program has "done the number" on odontosis, you will always run the risk of infection or inflammation... because, as you now understand, there is a defective germ barrier in your mouth.

It will pay you to become very familiar with the chapters on first aid (12) and oral pain (13). There are two reasons for this: It's likely that you may need to know how to counter toothache, even though the disease which caused the original problem may be long gone. Also: You may find that your particular situation can be corrected, at least on a temporary basis, through the use of self-placed fillings .

Another typical problem of people who came into the Oramedics concept later in life is that there are "gadgets" in the mouth...bridges, partials, etc. The special needs of such people are addressed later in this chapter under the subtitle *watch those appliances*.

Many older people suffer from some stage of gum disease. This is, in fact, the most prevalent disease in the U.S. This subject is also important enough to rate its own subsection, *perio-don't-itis*, later in the chapter.

Older people have an advantage over children in that they are capable of understanding concepts the kids can't handle. Adults can be motivated through understanding; the promise of heretofore un-experienced freedom from oral disease is enough to help most adults through the difficult period of adjusting reference frames, changing attitudes and creating new habits.

There is a disadvantage, however: The kids, if they are started properly in life, grow up believing in oral health care. The adults have to unlearn a lifetime of misinformation and learn a "whole new ballgame."

So for those in this category, one of the most challenging things will be to overcome both the enemy "outside," being odontosis; and the enemy inside, meaning ourselves. It's true that people can often be their own worst enemies. In becoming dentally self-sufficient, this is crucial.

You have, in this book, the elements of an oral health maintenance program that can relieve you of odontosis... but it isn't going to be easy for you. It could be; but, all things being equal, you will probably suffer the relapses and the loss of either confidence or motivation that are a legacy from a lifetime of "doing it wrong."

Don't promise yourself too much, too soon: Please don't start out like a house a-fire, buying up appliances and medicines and doing an entire therapeutic hygiene session four times a day. The outcome, for anyone but a fanatic, would be foregone: You'd soon lose the initial enthusiasm and after that, trying to continue your hyperactive program would become just too burdensome.

You can begin an effective self-help program with a new tooth brush, some dental tape and disclosing tablets... and the information contained in this book. The other things will help, and they'll help make it easier; but keep in mind that you are dealing with an adult human psychological machine...the most complicated and contrary thing on the face of the earth, your mind and personality.

One of the first things a young reporter learns after he or she goes to work is the KISS theory. Some gnarled old editor hands back a beautiful piece of prose the youngster wrote...a Pulitzer Prize, for sure...and says, "Keep it simple, stupid!"

Perhaps a modified KISS theory would be of some benefit for older people learning

Oramedics ideas for the first time: Keep 'em clean, kid! Just concentrate on this one element; keeping the teeth clean night after night after night, until it is second nature. All of the refinements, the add-ons in this book, can and will follow once you have mastered that one technique.

## Watch those appliances

Many people of all ages are carrying around some combination of metal or plastic in their mouths, in addition to natural teeth. These things may range from the picket-fence braces used by orthodontists to correct misalignment, through fixed bridges and splints to partials...whatever.

All of these have one thing in common: At some point, touching living enamel, there is a metal or plastic anchor. The appliance is in tight contact with enamel or gum. In a mouth harboring odontosis germs, this is the setting for serious disorders to develop.

If the appliance is removable... it's designed so the user can readily remove it or replace it... it should always be removed during the once-nightly hygiene performance. The appliance can and should be thoroughly cleaned outside of the mouth, and the living surfaces that are contacted by the appliance when in place can be thoroughly cleaned inside the mouth.

This is very important, since when appliances are left in place during hygiene activities, often the oral surfaces covered up by the wire, etc., do not get properly cleaned.

These areas are ideal for the formation of plaque and, once the plaque sets in, active disease process can commence totally undisturbed by efforts to clean the mouth.

In many cases, the appliances are not removable: Braces, fixed bridges, splints, etc. When this is the case, the affected area of the tooth should receive scrupulous care. If there is any way to get dental tape between the device and tooth enamel, do so. You may find the answer to be using a threading device to help feed the tape over, under or around an appliance.

Two such products, generally available, are J&J Company's "*ZON Dental Bridge Cleaner*" and Butler Company's "*EEZ-Thru Floss Threader*". Both of these companies offer brochures describing use of these products and, if your drugstore doesn't have them on hand, you could get the company address from the pharmacist and write for instructions.

Especially for families with members wearing braces, the oral irrigator becomes more than a luxury; it's a virtual necessity.

Often orthodontic braces are so tightly fitted it is impossible to use floss, tape or brush to clean behind the metal. Time and again, braces have been removed after the alignment problem was corrected only to uncover a horror story of rampant cavities and decay in the newly...and expensively ...adjusted teeth.

The oral irrigator, if one of quality, will force a stream of cleansing water pulses between the appliance and tooth enamel. For those with braces, nightly use of an oral irrigator --prolonged, thorough use --is almost a necessity if disease damage is to be avoided.

Whatever kind of gadgetry is present in the oral environment, it will create hygiene problems. It is vital to the health of the whole mouth that these problems be solved, and the affected areas kept clean.

## Perio-don't-itis

Gingivitis and its insidious traveling companion, periodontosis, can be overcome with

hygiene. Many people, facing multiple-thousand-dollar surgery as a corrective approach to periodontosis, have discovered that proper hygienic approaches brought the disorder under control and the operation wasn't needed.

If you've forgotten the nature of advanced gum disease, it may help to review Chapter Five. The symptoms of this disease, if you'll recall, are deep pockets between tooth and gum, often with infection present. The gum is pulling away from the tooth and connective tissues are being destroyed.

The typical conventional response to this is to operate, surgically removing the loosened portion of the gum. The idea is to get rid of diseased tissue and open up the pockets to give the remaining healthy gum tissue a chance to throw off the infection.

Oramedics Fellows have discovered that the use of an oral irrigator --in this case, specifically the "Water Pik", with a specially-designed nozzle tip, will usually do at least as good a job as the surgery ...and, in some cases, better.

The special tip is more or less an extension of the standard "Water Pik" tip: The orifice of the conventional tip is replaced by a short length of surgical steel tubing... the same thing as the hollow needle of a hypodermic syringe.

This tip will actually reach below the gum line and into periodontal pockets. It directs an extremely accurate pulsing flow of water, bathing the diseased areas that simply cannot be reached by any other hygienic method.

Of course, it is beneficial if the infection can be countered with antibiotics; once again, prescription laws make cooperation of someone in the health care field mandatory. Even without antibiotics, however, response to irrigation treatment is often startling. The irrigation removes pus, debris, germs and other irritants. At the same time, the pulsation massages remaining healthy tissue to improve circulation.

Time and again, the body proves that natural defenses can cope with infection... healing can take place... if we will only keep the battlefield as clean as possible. Once disease gets the upper hand, the natural defenses are hard-pressed just to contain the disease, let alone to overcome it.

If the damage and the continuing disease process are quite severe, often the victim will find that he or she cannot use a toothbrush or even tape without further irritating the already-weakened gum tissue. It then becomes a vicious cycle of disease-generating-disease, with the sufferer only able to fight a losing battle ultimately ending in the dentist's chair for expensive surgery... or ending with the loss of all the teeth.

The oral irrigator has been a God-send to many in this situation; if you or someone in your family is in this condition, it is something to consider carefully.

People who are not yet this bad off have little room for relief: Early gum disorder, uncorrected, almost always becomes severe. The only response to this is hygiene. Please remember that the major disease problem with adults is not cariosis... cavities... it is gum disorder, gingivitis and periodontosis.

Have you ever heard someone say, "I don't brush my teeth often because my gums bleed too easily"! The truth is there, it's just in the wrong order. Let's fix it: "My gums bleed too easily because I don't brush my teeth often."

If you presently have these disorders... sure!... your gums are going to bleed when you brush your teeth, even if you are using, as instructed, the softest brush you can buy... and are taking it carefully, easily. Don't give up! Short of truly severe disease, which would be evident by a lot of bleeding, the minor bleeding of early gum disorder will go away fairly soon if you keep at your daily hygiene.

On the other hand, it will probably never go away --just get worse --if you don't. Be especially careful to keep your mouth clean during this period. Try to keep your hands away from your mouth; be on guard for anything and everything that could carry infection into the mouth. When your gums are bleeding, there's barrier tissue damaged, and so watchfulness and caution

are in order.

Once again, however, nature's way is to heal rapidly in a clean environment and, if you'll do your part, those gums will "toughen up" in a short while; a sure sign that you've begun to win the war on odontosis.

## Chapter Ten - *Home Prophylaxis:*

### *an oral health "insurance" policy*

In earlier chapters we've mentioned the home prophylaxis machine, a battery-driven tooth polishing device. Perhaps the best known of these products is the "*Tooth Pro*". The company describes its product as "*The new home dental care center.*"

Anyone who has had a professional prophylaxis, which is nothing more or less than an extremely thorough cleaning of all tooth surfaces done by a dentist or a trained assistant, will know what we are talking about.

For the many who have never had this done by a dentist or a dental hygienist: A prophylaxis includes (if needed) a scaling (scraping) of tooth surfaces to remove built-up deposits of calculus, and a polishing done with mechanical equipment. There is no better way to describe the latter part of this than to say the teeth are "polished." This can also be done manually, but it's slower. Either way, the technician puts prophylaxis paste in a small rubber cup, about as big around as a pencil eraser, and shines the teeth with it.

If the technician uses a machine, the rubber cup whirls rapidly: It is a buffing machine. The edges of the cup are very flexible and will conform to the various shapes encountered as the teeth are cleaned totally free of stains, plaque, etc.

With the advent of home prophylaxis devices, this can now be done by anyone with one of these machines. Manufacturers supply instructions with their product and this is all the average person needs to "have at it."

What this can mean to oral health maintenance ...in particular, for those in the years between four and teenage... is like an oral health insurance policy.

Oramedics has never seriously recommended semi annual prophylaxis at a dentist's office. This twice-a-year trek to get 'em shined up is certainly not bad for oral health; it helps keep the cosmetics of the teeth in good shape, and the social contribution is perhaps worth the money for a professional job.

However, research reported in the *Journal of Preventive Dentistry* effectively summed up the oral health value of this semiannual prophylaxis:

*Analysis of the data revealed that (six month) prophylaxis treatments did not alter the oral hygiene, gingival health, or caries activity of the participating children, nor did the children's participation in the program motivate them to increase their frequency of tooth brushing.*

That's not too hard to translate: It didn't do any good. However, research conducted with several hundred children in Sweden over about the same length of time turned up something remarkable:

In that study, the children were given a prophylaxis every two weeks while no particular emphasis was placed on personal hygiene. The result was a genuine eye-opener: At the conclusion of the study, not one child shouted any evidence of active disease.

A prophylaxis every six months seems to have little health value; a prophylaxis every two weeks, regardless of personal hygiene approaches apparently stops the disease dead in its tracks.

We turn now to an article which appeared in Good Housekeeping magazine in 1966: "New Miracles to Fight Tooth Decay." The article discussed the work of Indiana University's Dr. Joseph C. Muhler, who was then developing new concepts in preventive dentistry for the armed forces. It's important enough to us that it's worth direct quotation:

*...With the total conquest of tooth decay as his goal, the intense, dark-haired scientist has been searching for a means to make obsolete his own achievements with stannous fluoride.*

*Now he believes he has found the key --in a common mineral called zirconium ...dental researchers have always regarded as useless. But Dr. Muhler was intrigued by two seemingly unrelated factors: The magnificent scratch-resistant glaze which zirconium imparts to fine china; and the disclosure that zirconium serves as the innermost coating of nuclear reactor chambers -- a coating so powerful practically nothing can destroy it.*

*Probing further, Dr. Muhler uncovered some more fascinating facts. Unlike most chemicals, zirconium has a special affinity for smooth surfaces. It clings to them tenaciously. Moreover, it spreads so easily that it gets into fine crevices. Finally, and most exciting of all, when it is combined with other minerals --especially fluoride --zirconium makes them penetrate the tooth's surface and become part of its structure.*

*To Dr. Muhler the implications were obvious: Formulate a zirconium paste to clean and polish teeth, and a zirconium fluoride solution to paint cavities --and he might have the mightiest weapons to fight tooth decay so far perfected.*

That article appeared more than ten years ago. It explained to the reader that, at that time, it would be years before such materials became available --if ever. The Federal Drug Administration would have had to be completely satisfied that such preparations had no harmful side effects, for example. A dozen years ago, the zirconium/fluoride dream promised that, one day, we might have "the mightiest weapons to fight tooth decay..."

Today the dream is a reality. Zirconium polishing paste containing 1.23% fluoride is available as Oramedics Tooth Polishing Paste. Because of the concentration of fluoride it is, obviously, a prescription item. It is available to anyone in the health care field able to issue prescriptions; it is also available to individuals under Oramedics' supervision.

### **What does all this mean...?**

It means that with a home tooth polishing device, the average family can administer a very thorough prophylaxis every two weeks, to every member of the family.

Obviously, this will not be 100% as "professional" as the treatment administered in a first-rate dental office, done by a truly competent hygienist. However, it will be extremely effective.

Whether it would duplicate the effectiveness of the study which guaranteed freedom from disease through every-two-week prophylaxis would depend on how well it was done. One key point, however: In the study, no emphasis was placed on any hygienic activity other than the prophylaxis. In your home, a whole bunch of attention will be focused on the day-to-day oral health maintenance of your family, especially your youngsters'.

You'd give the kids a prophylaxis every two weeks (and yourself, too, we hope) --not as a substitute for their own personal efforts, but to reinforce them. Thus, the prophylaxis would become "insurance" over and above the youngsters' best efforts.

Other benefits? --Sure: You'll recall that gum disorders generally begin when there's a buildup of calculus at the base of the teeth, near the gum line. Thorough hygiene maintenance, every evening, backed up with a thorough prophylaxis every two weeks, would all but guarantee that no such buildup could take place.

One thing the home prophylaxis machine can't do that the good hygienist will do is to clean the stains, accumulated plaque (if any...shame on you!) and other deposits from the interproximal tooth surfaces: Those hard-to-reach areas between closely-spaced teeth. The edge of the rubber cup is too thick to fit in there, so how do we get that clean, too?

We do that with dental tape. If you're able to use a prophylaxis paste, it will have a mildly-

abrasive content (zirconium, if you use Oramedics' paste). This will remain in the mouth and on the teeth immediately after you've finished with the tooth polisher. Simply use the dental tape and the left-over polishing agent to "clean between."

Even if you're not using a special cleaning paste, the theory still holds. In that case, the taping would be a very methodical, thorough cleaning of one space at a time, making sure every tooth surface was totally cleaned. It would mean, of course, that for your youngsters, you do it --even though the child is encouraged to do it for him or herself in the nightly program.

## Chapter Eleven - *Saving orthodontic dollars*

Given the choice between two tools, both equally suited to the job at hand, which would you choose? Suppose one of these tools cost five dollars, the other a hundred. That simplifies it, doesn't it? You would naturally select the five-dollar tool.

This is precisely the choice you should have available to you regarding orthodontic care. While this is a book aimed at helping people learn how to avoid unneeded trips to the dentist, in this instance we are recommending that you make it a point to visit a dentist --for a very special purpose.

Most of us know about the expensive braces, wires, etc., involved in typical orthodontic care. Some complicated cases can rip open your billfold for two thousand dollars or more. Many parents have faced such staggering bills rather than permit a child to grow through the psychologically tender years with teeth he or she is ashamed of.

There is another approach, one that will cost perhaps five percent of the \$2,000 "ouch" of conventional orthodontic therapy.

A simple test, utilized by only a small minority of American dentists, can effectively predict orthodontic problems before they occur.

The test is called a Mixed Dentition Analysis (named for the fact that there are both baby teeth and permanent teeth --mixed dentition --in the mouth). By using this test when a child is six to eight years old, the doctor can accurately predict many future problems and take steps to prevent most of them from happening.

To perform the test, the dentist takes an impression of the tooth structure and then, from this, constructs a model that duplicates the "dentition" --the oral alignment and tooth size.

He then studies the model, makes measurements and correlates these with what he saw in his visual examination of the mouth. With this data, he can accurately estimate the amount of space that is required for the remaining permanent teeth to come in correctly.

The most common cause of misalignment is lack of ample space for natural development. Too many teeth, too large for the available space, will create problems. The pattern for the person's dental progression begins forming many months before birth; numerous genetic and other complex factors all affect the child's future dental alignment.

If the doctor's assessment reveals a space shortage, he can take steps to prevent, or limit the scope of, orthodontic problems. By selective removal of baby teeth and, if necessary, permanent teeth, he can assure adequate space for other teeth to enter in proper alignment. If the situation has progressed so that some problems have already developed, minor corrective measures, at an early stage, are usually enough to take care of the trouble.

Except in rare cases the use of complex, extensive (and expensive!) orthodontic appliances is practically eliminated. In all cases, orthodontic care can be greatly simplified and of shorter duration...therefore saving time, money and the child's personal self image.

Aside from the obvious financial advantage gained by using this method, there are other less visible advantages. For one: This method uses (works with, not against) the natural development of the teeth. This permits better anchoring of roots into bone support; any forced movement of teeth can be injurious to the structure below the gum line.

In extensive orthodontic cases, a problem called root resorption can take place; wearing down the naturally sharp points of the roots. In such cases the teeth cannot possibly anchor themselves as well as they would have if allowed to come in naturally --without forcing them to grow in an unnatural posture.

A second advantage is the freedom from hygienic problems invariably associated with orthodontic appliances. When braces and wires are present in the mouth adequate hygienic maintenance is difficult, if not partially impossible. As a direct result, extensive decay is often found beneath the braces when they are removed. In addition to pain to the child, here is yet another expense.

The teen years are a psychologically difficult time. Coming of age is a turning point for all of us; often our personalities are shaped for life by emotional trauma during these years. The pressures created by orthodontic devices, particularly the harassment by peers, is a tragic and often preventable burden for any youngster.

Most of these problems can be avoided, if early action is taken. The simple, painless Mixed Dentition Analysis can lead the way to preventing most of the orthodontic difficulties which can develop if they're ignored for too long.

Talk to a dentist --to several, if necessary --about the *Mixed Dentition Analysis* for your children. When you find a competent dentist, willing to do this and discuss the results with you, the small investment can lead to a lifetime free of orthodontic grief. If a dentist is interested but is unacquainted with the procedure... if he'd like a refresher... he can obtain the Handbook of Orthodontics by Dr. Robert E. Moyers, YearBook Publishers, Inc., 200 E. Illinois St., Chicago, Ill.

## Chapter Twelve - *Oral first aid measures*

Typically, we think of oral first aid as having only to do with toothache. Admittedly, the highest incidence of semi-emergency oral problems will fall into that category, and so an entire chapter (following this one) has been devoted to this subject, "what you should know and do about dental pain."

What other situations call for some kind of first aid? Well, there's

### **Bruxing: Grinding the teeth**

Many authorities believe published estimates on numbers of people who suffer bruxism -- tooth grinding --to be too conservative. Even at that, one out of 20 adults and 3 out of 20 children are far too many when the solution can be so simple. Here again we find a common oral malady which both the profession and "public knowledge" have simply given up on... or address with expensive remedial (surgical) procedures.

Either "there's nothing you can do about it," or "We'll have to re-shape four of the teeth, use orthodontic braces to relocate some of them more favorably, extract two that are 'in the way' and install a bridge on one side, an inlay on the other."

Would that correct the problem? --Who knows?

In fact, authorities are not in harmony as to the underlying cause of bruxism. For years it was assumed that stress and tension caused it: "Just nerves, emotional problems." Perhaps one contributor to this theory was the knowledge that younger people suffer three-to-one in comparison with more mature adults; and everybody knows youngsters are undergoing more transitional emotional stresses.

Well, they're undergoing more transitional dental stresses, too. More recent professional agreement holds that the cause of bruxism is probably a combination of factors: mis-aligned teeth, something dentists know as *malocclusion*; and probably some nervous tension. Of this combination of contributing factors, the physical relationship of the teeth is probably the major cause. Studies have not turned up any significant long term psychiatric or psychological differences between those who grind their teeth and those who don't.

Whatever the cause, tooth grinding can drive others in the family "right up the wall." In the still of the night, this noise can become so loud it seems to fill the house; waking parents or spouse, brothers or sisters from a sound sleep.

It is pointless to wake the grinder up and complain: The grinding stops when he wakes, sure -but it starts again when sleep returns.

Nor is this something which others in the family should try to ignore out of tolerance for the member who suffers from the problem. The individual may not even know he does this, even if it has become a pattern over many, many years. It can cause some pretty serious problems; so ignoring it, tolerating it, is not doing that individual a favor.

Normal teeth can exert excesses of 30,000 pounds per square inch in chewing: Think what this means when a person is grinding the teeth, which selectively puts the full pressure-loading on one or a few of the teeth rather than the full display.

It can chip teeth, or crack them. It can actually loosen them in their sockets: Rocking the tooth back and forth, repeatedly, can cause the jawbone to recede from the root. Any minor infection or irritation related to gum disorders can be aggravated by the constant tooth motion. Periodontal pockets are formed more easily under these conditions.

There's more: The muscular stresses involved cause movement of the muscles controlling the bite, seeking to accommodate a more comfortable jaw position. This, in turn, mis-aligns something else --more bruxing. The muscles and nerves of the oral environment have to live in harmony and concord with those in the face, neck, and head. When there is discord, the symptoms can spread elsewhere and show up as earache, headache, stiff and sore neck, shoulder and back muscles...and more.

The stresses and strains in the inter-related whole-body system will trigger reflexes seeking correction. The most likely neuromuscular reflex to stresses caused by bruxism is...right on: More of the same...grinding the teeth.

What should you do about it? Let's ask the American Medical Association. As it appeared in the A.M.A publication *Today 's Health*:

*Tooth grinding (bruxism) is largely an unconscious habit that can damage teeth, and breaking the habit has often been a frustrating problem for both patient and dentist. Recently a simple, new method has been suggested by Marvin P. Levin, D.D.S., and William Ayer, D.D.S., at the U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.*

*Fourteen bruxism patients were instructed simply to clench their teeth together as hard as possible for five seconds and then relax the jaw for five seconds, to repeat the procedure five times, and to continue the exercise six times daily for two weeks.*

*Within 10 days, 11 of the 14 had successfully eliminated the grinding, and thus far, for six months, have not resumed the habit. (53/1:12,1975)*

Does it work for everybody? Maybe not; there is not enough data available. It works for a number of people who first heard of it through association with Oramedics; there are scientifically-sound reasons why it should work for most people.

If there are family members with bruxism problems in your household, it is easy to institute this simple (and absolutely free) therapy.

It will require follow-through: There's a fairly conscientious effort involved in doing anything six times a day for fourteen consecutive days. Adults will have to make a determined effort (you gotta wanna!) --and parents will have to do a heads-up job of supervising youngsters.

Make an effort...a genuine effort... if this problem affects you or a household member. It's important to oral health and peace of mind, both, to find a solution.

## **Canker sores**

If there is anyone in the country who hasn't suffered from one of these painful little lesions, he or she is most unusual. Sooner or later almost everyone "gets a canker" in the mouth. Some people seem plagued with these little devils; there are some periods during development from youngster to adult when activity seems heightened.

The canker sore itself is bad enough, but it frequently has complications... secondary infections... which make it even more painful and dangerous, and further retard the natural healing process. Remember: The "skin" inside the mouth is a barrier tissue and any breach in this barrier is an open sesame to infectious microorganisms. A canker lesion is most definitely a barrier-tissue breach.

Cankers are caused by a virus; the *Herpes Simplex*. This virus seems to be present in nearly everyone's system and becomes active and evident when something triggers it. Herpes lesions are not limited to the mouth. One type of venereal disease, with increasing incidence in this country, can be traced to the herpes simplex virus.

We don't have any medication in the present arsenal to counteract herpes lesions. Once they appear there's nothing to be done except guard against secondary infection and decrease the

discomfort. And, while there is no specific medication to attack the virus itself, there are preparations that can speed the healing of the lesion. If left alone and not subjected to secondary infection or constant irritation, the lesion will go away naturally; one medication seems to help the natural processes and make it go away sooner.

The medication used against the canker sore is a protective paste that is probably nearly impossible to obtain as a generic item. It is readily available in most drugstores as trademarked products, however. There are two general variations on the basic formulation. These are:

1. "*Orabase*" (*Hoyt Laboratories*): This preparation is available without a prescription. It may contain Benzocaine, a topical analgesic that will relieve much of the discomfort of a canker sore.
2. "*Kenalog*" in "*Orabase*" (*Squibb Co.*): This preparation requires a prescription because in addition to the basic protective paste, it contains *triamcinolone acetonide*, a corticosteroid.

The base, or paste, is compounded of materials that form a protective film over the canker; even on wet tissue, even bathed in saliva. The film helps keep debris and infectious organisms out of the sore and reduces the constant irritation. In itself, that begins aiding the natural healing process.

The discomfort is greatly relieved by this protection, even if it weren't for the analgesic ingredients of the preparation. However, the ingredients of either preparation will help reduce pain and irritation even further.

If you can obtain *Kenalog* in *Orabase* it is capable of relieving canker sores very rapidly. Since it is a prescription item, you may want to use it under the supervision of someone in the health care field.

*Orabase* with *Benzocaine* is the non-prescription preparation and it, too, is very effective in reducing discomfort and promoting natural healing. The results will not be as rapid, perhaps, as with the *Kenalog* preparation, but it will be vastly superior to simply doing nothing; suffering the pain for the full term of the herpes ulcer to run its course, and running the constant risk of secondary infection.

## Trauma and Inflammation

Trauma is something which "happens" to the mouth: It gets hit, or burned, or cut for example; inflammation can be a result of trauma or it can result from irritation.

For minor trauma, you may want to consider *Orabase* with *Benzocaine* (see preceding subsection) as a temporary shield to prevent further irritation and relieve discomfort.

Often, relatively minor trauma in the mouth will "take care of itself" in time. Burns from hot beverages, for example, unless unusually severe, more often than not will cease hurting within a few hours and be completely recovered the next day.

Frequent rinsing with saltwater solutions is an excellent response to minor trauma, also. If swelling and inflammation are present, the salt solution will help reduce these symptoms and bring earlier healing and relief.

More serious trauma will be accompanied, usually, with dental pain. The next chapter discusses this fully.

Sometimes we don't know the source of the trauma; this is particularly true with "mysterious" inflammation that we cannot associate with any blow or burn in the mouth. The response is the same, anyway: With commonsense, determine whether to respond with salt solution baths or by covering the traumatized region with *Orabase* or to do nothing, just keep the situation under close observation until it begins to improve.

Obviously, if severe trauma occurs or if relatively minor inflammation begins to turn ugly, perhaps showing signs of infection, the decision to seek more capable advice is always something worth considering.

## **Broken teeth -- Empty cavities**

These two situations are fairly comparable, in the sense that the enamel barrier surface is obviously defeated. Moreover, particularly in the case of a freshly broken tooth, the nerve(s) will be signaling "bloody murder" to the brain: Translated as pain. Immediate first aid (for either a broken tooth or a lost filling) is to cover the entire affected area with a temporary seal. If there is nothing more sophisticated at hand, use sugarless chewing gum.

As soon as possible, the patch job will have to be replaced with something more permanent. In the case of a broken, cracked or chipped tooth it will probably require the assistance of a dentist. Just as you would turn to the medical profession for help in the case of a compound fracture; so it is with dangerously severe trauma to the teeth or gums.

In the event medical or dental assistance is not available, a more permanent repair for a broken or chipped tooth would be to use the same material as a temporary filling, shaping it with the fingers around the entire affected area of the tooth.

Use of a preparation containing Benzocaine will help reduce the pain; as will aspirin taken internally. The main objective is to cover the area with an airtight seal. This serves two purposes: We want to get the nerve-sensing apparatus away from air and, if possible, shield it from temperature extremes; and we want to replace the barrier surface with some thing to help guard against infection.

## **Tooth completely knocked out**

When teeth are knocked completely out of their sockets through some accident a competent dentist can re-insert them with successful re-implantation virtually assured under the right circumstances. The two most important conditions are outside of the dentist's control, and that's where a well-informed lay person can make all the difference.

Those conditions are the time lapse between the tooth loss and attempted re-insertion; and the extent to which the tooth or teeth have dried out. Of these, the second is the most important.

If it is a fact (and it is) that teeth can be re-implanted --often, if not usually, returning to their former condition; then why is a dentist necessary? There are a number of reasons, but let's consider three:

1. If any infection sets in, the chances of successful healing are practically nullified.
2. The tooth, or teeth have to be fastened, somehow, to give tissues time to knit. Think of this as a cast on a broken bone...but how do you put a cast on a tooth? A dentist should be able to use wire or perhaps moldable materials to firmly brace the teeth in proper alignment.
3. Proper alignment is the name of the game, with teeth; lay persons would find it very difficult to ensure proper "fit" into the alveoli (bone sockets) and proper occlusion (bite fit) when re-implanting teeth.

The meter starts running, so to speak, the moment teeth are knocked out or pulled out of their sockets. Two things begin happening:

- The gum and jawbone begin the natural healing process, and
- The tooth (teeth) begin drying.

You'll recall from the section on anatomy that teeth are anchored in place by connective tissues. It is these, more than anything else, which will "make or break" chances of replacing the tooth. Once the connective tissues have dried out completely while the tooth is out of its place the probability of rejection is greatly increased.

The healing process inside the mouth is somewhat slower, but after too much elapsed time tissues will have scarred, blood vessels will have closed off and the socket will have begun to heal shut.

The most important first-aid measure is to find the teeth which have come out, and keep them moist. Ideally, put the teeth in a cup and cover them with water and a slight amount of salt. If you can't do this, use ingenuity: Come as close as you can to the tooth's natural environment. You could spit into a handkerchief or napkin and wrap the teeth in it; you might even want to put the teeth in your mouth as an emergency measure until you could protect them otherwise. Obviously, the latter measure assumes you... or whomever does this... will remain conscious and calm enough not to accidentally swallow.

Even if all you can do is carry the teeth in your hand, keep them moist... any way you can. Spit on them if there's no other means.

Then, of course, get to a dentist as quickly as possible. The time element is on your side if the teeth are properly cared for. There is one case on record at Oramedics headquarters in which an auto accident victim had teeth replaced several days later. In that case, police officers were sent to the wrecking yard to sift the automobile for teeth and even though drying had become serious, the re-implantation "took."

This information should be shared with everyone in your family and with friends and co-workers. Nobody likes to think about accidents, especially those severe enough to result in tooth loss, but knowing what to do is important. Anyone at the scene of such an accident can do the victim a real service by having the presence of mind to find and preserve any teeth lost in the episode.

## Temporary fillings

We've described two kinds of temporary filling material: The kind you mix yourself out of zinc oxide and eugenol, and the kind you buy ready-mixed, such as "Cavit" There are other preparations on the market which are more easily found in drugstores. These are the *very* temporary fillings called "toothache remedies."

Two such preparations are "*Red Cross*" *toothache remedy* and "*Dent's*" *toothache gum*. Both of these contain eugenol and/or Benzocaine and will, therefore, bring relief from toothache caused by an empty cavity.

The Red Cross type of preparations are a liquid and small sterile cotton pellets. The pellets are soaked in the liquid and then inserted and tamped into place in the cavity. The Dent's gum is not a chewing gum preparation. Instead, it is eugenol and Benzocaine in a base of cotton and wax. A piece large enough to fill the cavity is trimmed off the supplied brick of wax, shaped to fit the cavity, and inserted and tamped into place.

In the event you have some zinc oxide-eugenol or *Cavit* on hand either of which will make a better seal and will allow the user to chew or drink normally --it might still be a good idea to first use one of the less permanent "temporary" fillings. The reason for this is to make sure there isn't active infection in the underlying nerve chamber itself before installing a semi-permanent filling.

If you were to seal off a cavity with nerve chamber infection present, the odds are that you'd begin to build pressure in that tooth. The result would be the opposite of what we are trying for: you'd find the pain and danger increasing instead of diminishing.

By making the filling easily removable, you could "try it" for several hours to see if there was an adverse reaction. If you're using a cotton pellet preparation, you might want to "plug the hole" with sugarless chewing gum after inserting the pellet. This would give you the airtight seal you would need to ascertain whether or not the cavity will accept a filling without flaring up.

To prepare the cavity you must first be absolutely certain it is clean. This means using brush, *Water Pik* if at hand, toothpicks, dental tape... anything ingenuity tells you to employ... to ensure a clean cavity. Then try to make it as dry as possible. An enema syringe or empty atomizer will give you an air-blast that will help with this.

Using the materials provided with the *Red Cross* style or *Dent's* style toothache remedy, pack the cavity according to the manufacturer's instructions. Do it as tightly as you can. Remember: We are trying to seal the cavity.

If, after several hours, the tooth shows no signs of increased discomfort, you may wish to remove the initial filling material and immediately replace it with the *zinc oxide-eugenol* or *Cavit*-style filling.

When the *ZOE* or *Cavit* is placed be sure all excess material is trimmed before it sets up hard. One common mistake is to leave too much material on the biting surface of the tooth, particularly if the cavity being filled is not at the side of the tooth but is more or less "top-downward."

In such cases, remember that the chewing surface of the larger teeth is generally concave or hollowed out. Don't make a little mound of filling material or you'll find that the opposing tooth will impact on the filling before the jaw is fully closed. Now you'll have another problem: You've upset the occlusion; you've created an artificial "bad bite."

This will of course interfere with eating and chewing habits. It will also probably "insult" the cavity you've just filled after a while. Any constant irritation anywhere in the body usually produces a defensive reaction. The result would very likely be inflammation and perhaps hyperemia and yet another kind of toothache problem. (See next chapter for a discussion of hyperemia.)

Such a condition might very well also introduce bruxism --tooth grinding --in an effort to correct the misalignment.

## Chapter Thirteen - *What you should know and do* *about dental pain*

Dental pain will almost certainly affect everyone sooner or later. Even those who are immune to dental disease, or have long ago achieved zero disease levels in the mouth, can experience the excruciating pain of a toothache.

Dental pain is most frequently associated with the process of disease...odontosis...and is normally considered to be the expected result of tooth cavity. While this is not necessarily the only cause of toothache, it is by and large the most usual source of the problem.

Even those who have defeated odontosis through a personal program (Oramedics or other) of hygiene and oral self-help care may suffer from this symptom. Remember: The disease may very likely have produced cavities before it came under control. As long as those cavities remain in the teeth, they may be the potential site of a toothache.

Other sources of toothache can be trauma, the medical term for damage such as caused by an accident, a blow, a fall in which the mouth strikes a hard object or surface. Severe bruxing (tooth grinding) can cause trauma leading to toothache. Refer to Chapter Twelve for more information about bruxing. We can also implicate the nerves, themselves, as the source of pain. While less frequent than pain caused by pressure, infection, inflammation, trauma or other insult to the nerve, this very "real" pain will have the same end result: It hurts. Dentists are familiar with this type of "ghost" toothache, in which the patient insists a particular tooth is hurting --and there is no reason for that tooth to be acting up at all.

Nerve tissue ordinarily cannot regenerate and completely dead nerves do not transmit pain. A damaged nerve can telegraph a variety of false impressions to the brain; insisting it is cold, or hot, or numb, or in pain --when there is no actual stimulus, no reason for that nerve to be sending any message at all.

Illustration 3 shows the network of nerves which are related to the teeth. In passing, notice that the upper trunk-line from the brain has branches serving the cheek and other facial areas. This is the network that is involved in the rare, extremely painful disorder known as *trigeminal neuralgia*, often called "tic douloureux."

In that particular malady the nerve system itself signals intense pain without any apparent reason. The intensity of pain has been so great in some cases as to cause sufferers to suicide rather than endure it.

Notice also that each tooth is served by a "private line" from the tip of the root(s), which ties into the main trunk-line leading to the brain. Almost everyone, using the telephone for long distance calling, has experienced the phenomena of "cross-talk." In this situation you suddenly hear another conversation, separate from your own; sometimes quite clearly. This cross-talk occurs sometimes with the nerve system serving the teeth, also. Since the nerve systems are identical, but mirror images, on each side of the head, cross-talk can take place between teeth either on the same side of the mouth or across from each other.

This means that sometimes there will be tooth pain which the victim will feel very specifically in one tooth... when there is nothing evidently wrong with that tooth. In these cases, the offending tooth can often be found by careful examination.

There can be no pain without involving nerves in one way or another; so take time to become familiar with the illustration of the nerve system and remember that in some exceptional cases, toothache is neuralgia --nerve disorder --without some physical tooth involvement. If you are led to strongly suspect this, after careful elimination of the more ordinary sources of toothache, it

would be appropriate to bring it to the attention of someone in the health care profession. Obviously, if there is nothing you can implicate, yourself, as the source of pain, there is going to be nothing you can do for it other than take aspirin and wait. If the situation gets worse, or shows no improvement, it is beyond the scope of lay diagnosis or treatment.

Generally, toothache is caused by invasion of disease; it is a symptom. The principal proximate causes of pain are infection or inflammation. These are not the same. Inflammation is often seen when infection is present; but inflammation can also be present without infection.

Inflammation will not respond to antibiotic treatment; infection usually will. If the inflammation is the result of infection, antibiotics are indicated.

When infection is present it is caused by invasion of micro organisms (germs). It is therefore a disease process, a disorder; usually best treated by use of antibiotics when available.

## **check symptoms**

### **examine**

### **ask questions**

The first thing to look for is swelling and redness. Start with the suspected tooth and adjacent tissues. Since infection is the more frequent cause of pain, this will be the first thing to look for; it will show up as inflammation (swelling with or without redness). The evident swelling may be in the gum tissue, the cheek or tissue adjacent (proximate) to the tooth. If the infection is in the bone or is inside the tooth, it may manifest itself by pushing the tooth slightly out of its socket.

While not visible, this second kind of swelling is often the easiest to spot because the tooth will feel "high" when biting; it hits the opposing tooth prematurely. While we are talking only about tiny fractions of an inch, the difference is magnified in the sensation of biting and will usually be easily detected. (if you want to test this, bite slightly on the corner of a page of this book...you'll "feel" that contact through your teeth without any mistake.)

With a "high" tooth, when pain is present, this tiny increase in pressure is immediately translated, by the insulted nerve, as magnified pain.

When dealing with someone too young to accurately describe symptoms (or if there is a language barrier, etc.), try pushing down on the suspected tooth with a fingertip and watch for a reflex action indicating increased discomfort.

Since antibiotics are the best treatment for infection, this will almost always involve the immediate supervision of a physician or dentist; or at the very least, a prescription. Oramedics Fellows have learned through experience that the most effective use of antibiotic for oral infection is "*Lincocin*", *I.M.* (*I.M.* means *intra-muscular*: a "shot" in the muscle tissue; an injection.)

The normal adult dose is 2c.c. and may be repeated in two or three days with severe cases... usually not necessary.

The reason the antibiotic is not given orally (pills) is that an injection gets the medicine into the bloodstream... and on the job... much, much faster than pills. Because infection in a tooth is the cause of extreme pain, we want the antibiotic to go to work quickly rather than prolong the discomfort unnecessarily.

In the event medical assistance cannot be obtained to prescribe or administer antibiotics, treatment will involve use of pain reliever and mouth rinsing. There is no better analgesic --pain killer --available without prescription or potential side effects than plain aspirin, U.S.P. This is available under a multitude of trade names and brands, but is always identified somewhere on the container as aspirin.

Aspirin is always taken internally, following dosage instructions given by the manufacturer. Do not attempt to apply aspirin topically... directly to the tooth, cavity or inflamed area. This

common "home remedy" should never be attempted.

There is fairly common knowledge that crushing aspirin and putting it into a cavity can sometimes bring relief from pain (as with most folk remedies, there is an element of truth to it). However Aspirin is an analgesic only when it enters the bloodstream. There is nothing in its chemical composition which would work as a pain reliever when applied topically.

The reason it may sometimes appear to bring relief when used in a cavity is because it is *acid*. Aspirin, U.S.P., is *acetylsalicylic acid* --and the reason your Aunt Maude or Uncle Charlie may have gotten relief from pain by sticking acid into a cavity is because it fried the nerve ends. As much as we wish for you to find relief from pain, it should never be through destruction of healthy tissue.

Let's quote from Dr. Peter Wingate's *Medical Encyclopedia*:

*...but aspirin is not harmless. Very large doses cause a severe and sometimes lethal acidosis. The usual symptoms of mild poisoning are giddiness and buzzing in the ears.*

*Regular doses as small as two or three aspirin tablets a day can cause bleeding in the stomach... The risk may be less with soluble compounds of aspirin, but it is not overcome...*

Before we leave this subject, please remember that there is more about aspirin, and some methods of using it, to be found in Chapter Seven; the section dealing with your own home "medicine chest" for dental self sufficiency.

After administering the proper dose of aspirin to compensate for toothache pain, the sufferer should remain as physically quiet as possible. Since the pain is caused by pressure, any exertion causing the heart to pump more heavily can produce small but noticeable additional pressure --as anyone who has experienced a "throbbing" headache or toothache can verify.

Begin rinsing the mouth frequently with a solution of salt and water, adjusting the temperature for maximum comfort. Note: If the tooth is quite sensitive to extremes of heat or cold; particularly if the pain increases substantially when heat is applied and "feels better" when very cold, it may be symptomatic of nerve degeneration. If this reaction occurs, be sure to read carefully about this condition later in this chapter.

Whether the immediate symptom (infection) is brought under control through antibiotics, or goes into remission by natural physical defenses after bathing in salt solution, the cause of the infection should be determined and steps taken to prevent recurrence.

The most usual cause is a breach in the enamel barrier defense of the tooth; and ordinarily this breach (hole) is produced by a carious lesion --a cavity. This can be a heretofore unsuspected cavity, or one which has been known for some time but which has been dormant. It might be from a filling which has become loose, or is lost altogether. In numerous cases, the area of a "filling" creates a zone in which germs can easily colonize: Often a second cavity will form adjacent to an otherwise efficient filling.

Until more permanent repairs can be made, there are two ways to guard against a recurrence of infection. The first, of course, is hygiene: Being extra careful to keep the problem tooth, and cavity, as clean as possible.

The other approach, which is particularly useful in the case of larger cavities or missing fillings, is to use a temporary filling to seal the area. The method of placing a temporary filling is described in the chapter on *Dental-oral first aid*, Chapter 12.

Localized infection is usually associated with some breach, as we mentioned, in a barrier surface of tooth or gum. For a thorough discussion of this barrier surface, please see Chapter 4, *The anatomy of the mouth*.

For now: The enamel of the tooth and the outer layer of tissue of lips and gums is a defense against germs. When this surface is properly functioning, there is no way for infection-causing microorganisms to get into the tooth or tissues from outside.

Any infection that occurs without any fault in this barrier system must be introduced through

the circulatory system... the blood stream. This occurs elsewhere in the body, and people are more or less familiar with such things as skin boils, pimples, etc. --Familiar in the sense that such things don't seem to cause the same level of fear or dread as they do when it happens "in the mouth."

When infection is introduced to tooth or gum from the blood, there is ordinarily a pathological reason for the germs to invade at that one point. What does that mean? *Pathogenesis* is, simply, "the process by which a disease develops." In this case something provided an affinity for the invading microbes: A deep periodontal pocket... a degenerating nerve... some disorder which provided a focal point for microbial invasion.

You won't always be able to discover the reason for the localized infection. Look for a logical cause, of course, and suspect such things as a cut in the gum tissue, a lesion of some type, such as a canker sore, a hole in the tooth, some disorder of adjacent gum tissue, a periodontal pocket or other visible problem;

Incidentally, there are problems with the health of gum tissues that are not odontosis. As an example of such disorders, scurvy is a "defect of the substance that binds cells together, especially in connective tissue and capillary blood vessels, due to lack of vitamin C." --*Wingate's Encyclopedia*

Any such disorder not attributable to odontosis and which does not respond to hygienic and natural systemic defenses should obviously be brought to the attention of someone in the health care field.

If, as is often the case, the cause of the problem is a cavity, a decision will have to be made as to what to do about it, and when. While it's true that in an oral environment without active odontosis, the cavity won't get any worse... it's equally true that once it has advanced beyond the stage where it could be naturally healed, it will never get completely "better" without help.

Sooner or later, when cavities have broken through the outer enamel into the interior of the tooth, the situation will have to be taken care of. The temporary filling described in Chapter 12 is not meant to be a lifetime solution to the problem.

In the event of significant cavities, after the immediate infection has been countered and the pain relieved; after the temporary filling is installed to guard against recurrence of infection, you may want to consider plans to seek dental repairs when convenient in terms of time and money.

## **When there is no infection**

Inflammation can occur without infection. It is the evidence of the natural defensive reaction to injury or irritation in any part of the body and while it is most obvious as a response to bacterial infection, it may be evoked by anything that damages living tissue.

Think of irritated, inflamed eyelids as an example; or of the swelling and redness of nostrils when you have a "runny nose" and resort to frequent "blowing." The redness and often swelling accompanying inflammation is a sure sign that the body's natural defenses have been called into action by something which has insulted its tissues.

When you see inflammation and can't find any reason to suspect infection, ask questions. "When was the last time I got hit in the mouth...? --Burned my mouth with hot liquid...? --Bit into a pitted prune and found out (ouch!) they left the pit in that one...?"

Inflammation is often the result of insult or trauma: In some way, the teeth or tissues have been abused. If the abuse can be determined, usually there will be no problem in deciding whether the damage will "go away" if the mouth is pampered for a while, allowing nature's defenses time to do their work.

Remember, however: Inflammation is a warning signal, and it may be a warning that a barrier tissue is damaged --cut or broken --or that the nerve or bone has been traumatized. When inflammation is present, exercise caution and watch for signs that infection may be setting in.

## When there is no inflammation

When pain is present and there is no evidence of infection, no swelling and no "high" position of the tooth, it is likely that the tooth is experiencing hyperemia, or congestion, within the nerve chamber itself. In this condition the problem is contained wholly within the tooth and is not pressure exerted at the jawbone and/or gum line.

See illustration 2, a cross-section of a tooth, for a more complete understanding of what is happening. When the nerve chamber has been insulted it can undergo internal inflammation. This can cause a slight swelling; an *edema*: Excessive fluid trapped in a body cavity or tissue.

Since the nerve and circulatory tissues completely fill the confined nerve chamber area, even the slightest edema or swelling can cause excruciating pain.

The quickest test for hyperemia is to check the effect of temperature extremes. If hot coffee or food increases the discomfort; and if cold water, ice cream or even cold winter air also brings more pain, hyperemia of the nerve is quite likely the problem.

When hyperemia is the suspected source of pain, aspirin (internally) may be used to alleviate it. In the absence of visible disorder --trauma, cavity, etc. -try to establish whether that tooth has been insulted by a shock in recent past, or otherwise establish if you can a logical cause for the condition .

When there is no evident cause of hyperemia, very little can be done other than to rest quietly, take aspirin and use salt-solution rinses (being careful to adjust the rinse temperature so as not to create additional pain).

If the probable cause of hyperemia is a visible cavity, or a break caused by injury, refer to the chapter on first aid and attempt to bring the situation under control with a temporary filling.

In the case of hyperemia, one of the components of the temporary filling process, eugenol, helps to quiet the nerve and reduce the inflammation, thereby alleviating the pressure. Often relief from pain will be evident within minutes.

If pain strikes while at work or otherwise away from your medicine cabinet, the test for hyperemia can be made with any convenient hot and cold food or liquid. If the hyperemia is brought on by injury, the test isn't necessary: The victim will know what caused the problem.

As a source of immediate first aid, in order to protect the tooth and bring some relief, the victim should chew a stick of sugarless gum and place it into the cavity or like a "bandage" over the broken tooth. This is, at best, a very temporary repair, but it can often bring enough relief to finish a shift at work, or "buy time" for the victim to return home to effect more lasting first aid measures.

The same "chewing gum trick" can be used if a person suddenly loses a filling or accidentally chips or cracks a tooth, even though there is no immediate pain involved. The "patch" of sugarless chewing gum will help reduce exposure to possible infection; it should help keep germs and debris out of the area, and it will help reduce the tooth's sensitivity to temperature extremes.

## If heat hurts but cold comforts

In testing for hyperemia another situation may turn up; if it does, it is more serious and requires special attention. In this condition, the victim will discover that application of any heat causes immediate, pronounced pain increase while application of cold brings relief. This is evidence of nerve degeneration; the nerve is dying.

Infection may not yet be present but almost always will follow. What is happening is that the nerve is *mortifying* and if it is decaying as it dies, it is *gangrenous*. The protein breakdown associated with decay (gangrene) creates gas. This gas fills the nerve chamber and may spill out into the bone at the root tip.

The gas, of course, pressurizes the nerve chamber and while the nerve remains able to respond to stimulus, this will register as intense pain. Since the pressure is caused by gas, application of heat causes further gaseous expansion and increased pain. Conversely, application of cold will cause the gas to contract, reducing pressure and relieving pain. Sometimes the decrease in pressure is enough to be dramatic: The pain goes away completely. This of course does not mean the nerve degeneration has ceased.

Immediate treatment for this condition is aspirin and saltwater mouth rinses, adjusting the temperature of the rinse as cold as possible to help reduce pain.

Nerve chamber degeneration usually becomes involved with infection in some way. If unchecked, such infection will probably *fistulate* (erupt) through the bone and/or gums and begin to drain into the mouth. Such draining is normally preceded by a gum boil. At first the general area of the affected tooth will be inflamed and swollen; it will be puffy and very tender.

As the combat between natural defenses and invading infection continues, the generalized inflammation will begin to localize into a boil. This usually means a stand-off: The body has managed to contain the invasion to a defined area; the infection has managed to establish a "beach-head" and is not likely to "just go away."

Of course, the pressure from inside the tooth is not helped by this pressure at the root tip or in the gum where the boil is forming. While the application of cold liquid reduces pain from the gaseous expansion, it does very little for the pain associated with the gum boil... or, as it is more commonly identified, the abscess.

In order to relieve this pain, and to help nature in its battle with the infection, the abscess should be opened and drained. (If it isn't, it will very likely burst spontaneously when the buildup of pus and other infection by-products erupts through the gum tissue).

Care should be taken to rinse the mouth thoroughly and often with salt solution, spitting the fluids out: The by-products of this infection can be poisonous, or at least quite capable of inducing nausea.

Anesthesia is usually unnecessary when opening a gum boil, since the outer layer of skin is very thin. Also, the application of cold liquid further desensitizes the area. A swift, small incision in the center of the localized infection will release the trapped fluids and usually bring almost instant relief from pain.

If medical assistance is not available, the same effect can probably be obtained by sterilizing a needle (heat it) and puncturing the gum boil with it. Again, there would be very little pain involved, and relief would be almost instant.

Obviously when there is infection as rampant as is the case of an abscess, antibiotics should be considered the first line of defense. The capacity for natural healing is jeopardized: There wouldn't be a boil if the body was able to overcome the infection by itself. When available, antibiotics should be used.

In any case, the existence of an abscess anywhere in or on the body indicates that physical defenses have localized and contained an area of infection. The best help for Mother Nature,

without or without antibiotics, is to open the boil and drain the pus. The area involved in a boil cannot heal until the "mess" is gone. Natural defenses can sometimes slowly overcome the infection and more slowly do away with the residue of pus and fluids...but it is almost always better to "help nature" by opening and draining the abscess.

### Summing up

Generally: Toothache is caused by *infection*, or by *hyperemia*, or by *nerve chamber degeneration*, or by *abscess*; sometimes with combinations of these present.

*Swelling and redness* mean inflammation: Determine whether caused by trauma or insult; or by infection. In many cases of inflammation of obvious external cause, the problem will go away when the tissues recover from whatever irritated them to begin with. Use aspirin (internally) for pain; use frequent salt solution rinses to keep the area clean. Pamper inflammation, and keep an eye on it. Watch for infection to follow if the cause of inflammation was such that barrier tissues are broken, or if the nerve chamber was insulted to the extent that it begins degenerating.

*Sensitivity to heat, relieved by cold* means degeneration of the nerve or nerve chamber; it is dying and may be decaying. Gangrenous activity is present, creating gas and causing internal pressure. Look for infection to localize itself as a:

*Gum boil (abscess)*: Drain the area by incision or puncture and, if possible, administer antibiotic treatment.

Inasmuch as any infection is potentially dangerous, and because in many cases the fastest relief from dental pain is to eliminate infection, assistance from someone able to administer or prescribe antibiotics can be a wise decision.

In cases where infection is rampant; if the problem seems unusually severe or if the pain continues and is beyond tolerance even after using aspirin ...when there is a real doubt as to the proper course of action... consulting a physician or dentist --if available --is an option worth considering.

## Chapter Fourteen - *Diet, nutrition & oral health*

Generally speaking, what's good for the health of the whole body is also good for oral health. That's not too surprising, considering the way our entire physical being is intended to exist in natural harmony.

Conversely, the principal "problem foods" with respect to oral health are also problem foods elsewhere in the system. Consider sugar: Earlier you read that there has been a staggering increase in the amount of sugar consumed annually by Americans since the pioneer days. As a nation, we are overweight, overtired, undernourished (that's right!), and generally ripe for cancer of the colon, heart attack, sugar diabetes... or, at the very least, an un-enjoyable "tired" retirement.

It doesn't have to be so.

Those who are at all familiar with published materials concerning diet will know about roughage; about the benefits of whole-grain products. Such people will also know that while we need a certain amount of sugar...and sugar can be a most pleasant element of diet...we surely don't need it in the kinds and amounts most people consume.

In the chapters on oral hygiene, and particularly in the section dealing with the care of infants, the impact of sugar was fully discussed. Sufficient to say, here, that while sugar cannot directly damage teeth in a germ-free environment, it is the basic food of those germs. Realizing that we are re-exposed to strep mutans and lacto almost every day of our lives, it just makes good sense to avoid over-feeding any germs that have ideas about setting up housekeeping in our mouths.

Since a reasonable attitude toward sugar is good for us "all over," it isn't as though we are making some sort of sacrifice just for oral health.

When people first set out to achieve freedom from dental problems --odontosis --there will be a period while the disease germs are still active. Although they will decrease; and with the proper hygiene (sometimes with a little help from fluoride mouth rinses), they will eventually no longer be present in numbers of more than 8,000 per mi. of saliva, there is still a period when special care of dietary habits will help.

For the first three weeks when you begin your hygienic efforts, it is best to avoid as much as you possibly can any of the foods from this list:

*LISTA -- (avoid these)*

<b>cake</b>	<b>apple juice</b>
<b>candy</b>	<b>chocolate drinks</b>
<b>cookies</b>	<b>cocoa</b>
<b>donuts</b>	<b>Hi C drink</b>
<b>graham crackers</b>	<b>*Kool Aid</b>
<b>ice cream</b>	<b>malted milk</b>
<b>Jell-O</b>	<b>milk shakes</b>
<b>pies</b>	<b>Ovaltine</b>
<b>sherbet</b>	<b>*soft drinks</b>
<b>sugar</b>	<b>*juice drinks</b>
<b>waffles</b>	<b>pastries</b>
<b>dates</b>	<b>apple sauce</b>
<b>figs</b>	<b>canned fruit</b>
<b>grapes</b>	<b>custard</b>
<b>honey</b>	<b>dry cereal</b>
<b>jam</b>	<b>frozen fruit</b>
<b>jelly</b>	<b>*chewing gum</b>
<b>molasses</b>	<b>marshmallows</b>
<b>pancakes</b>	<b>peanut butter</b>
<b>raisins</b>	<b>pudding</b>
<b>syrup</b>	<b>white bread</b>

*\*with sugar*

As has been pointed out earlier, it is often the frequency of eating rather than what is eaten, that is bad for oral health. (It doesn't do the rest of you much good, either.) Some authorities are now advising a number of light meals throughout the day for persons with specific physical problems, such as hypoglycemia or diabetes. This may be, in some cases, the only solution for a specific physical condition. It is not recommended for oral health purposes and we are not convinced it is good for physical health at all... unless a physician prescribes it as mandatory in response to a disorder.

For our purposes: No snacks between meals for at least the first 21 days of your oral hygiene maintenance program. It would be good for you if you could carry the habit of not snacking with you for the rest of your life. However, since many people simply cannot do without, or haven't the will-power, here is a list of foods which will do you the least harm:

*LIST B -- (snacks)*

<b>nuts</b>	<b>carrots</b>
<b>popcorn</b>	<b>celery</b>
<b>potato chips</b>	<b>cheese</b>
<b>corn chips</b>	<b>Fritos</b>
<b>radishes</b>	<b>milk</b>
<b>oranges</b>	<b>beans</b>
<b>bologna</b>	<b>salami</b>
<b>tomatoes</b>	<b>olives</b>

Balanced, nourishing food that's good for your system is also good for your oral health. The following list will give you an idea of what foods are good for you and not harmful for oral health: You have a wide, pleasant variety.

*LISTC-- (wholesome foods)*

<b>meat</b>	<b>poultry</b>
<b>fish</b>	<b>seafood</b>
<b>buttermilk</b>	<b>popcorn</b>
<b>grapefruit juice*</b>	<b>nuts</b>
<b>soup</b>	<b>macaroni</b>
<b>butter</b>	<b>eggs</b>
<b>nuts</b>	<b>mushrooms</b>
<b>cheese</b>	<b>spaghetti</b>
<b>margarine</b>	<b>cooked cereal</b>
<b>orange juice*</b>	<b>puffed rice</b>
<b>shredded wheat</b>	<b>whole grain bread</b>
<b>rye bread</b>	<b>milk</b>
<b>tomato juice</b>	

*\*unsweetened*

*fresh, frozen & canned vegetables:*

<b>artichokes</b>	<b>beans</b>	<b>Brussels sprouts</b>
<b>cabbage</b>	<b>cauliflower</b>	<b>corn</b>
<b>eggplant</b>	<b>lettuce</b>	<b>onions</b>
<b>peppers</b>	<b>radishes</b>	<b>squash</b>
<b>tomatoes</b>	<b>water cress</b>	<b>asparagus</b>
<b>beets</b>	<b>broccoli</b>	<b>carrots</b>
<b>celery</b>	<b>cucumber</b>	<b>endive</b>
<b>olives</b>	<b>peas</b>	<b>potatoes</b>
<b>sauerkraut</b>	<b>spinach</b>	<b>turnips</b>
<b>zucchini</b>		

During the initial three weeks of your program, it is up to you to avoid sugar as much as

possible. For your information, the following is quoted from **Money by The Mouthful**:

*While you are developing your own personal hygiene; before you've had your clinical tests and have the confidence that you've completely controlled odontosis in your own mouth, you'd be well-advised to limit your use of foods with long sugar-retention times...*

*For your guidance, we are going to give you a table showing the clearance times of various foods. This table will show the comparative times for each of these to "clear;" to reduce sugar-related acid production first to one-half of its immediate impact, and then to "safe" levels.*

	% SAFE	SAFE
boiled potatoes	2.5	9.6
boiled macaroni	2.9	12.2
toffee	2.7	16.8
chocolate cream	2.9	16.1
caramel candy	3.2	18.8
milk chocolate	3.6	12.2
brown rye bread	3.8	18.9
white unsweetened bread.	4.0	20.1
wheat biscuits	4.0	21.1
wheat bread, sweetened	4.4	21.4
white sweetened bread	5.9	25.7
chewing gum w/sugar	7.4	42.2

(time in minutes)

*Source: Journal of Preventive Dentistry*

Obviously, the further down on the list you go. The longer it takes for the sugar-related acid activity to falloff. Avoiding these foods is the best way to avoid the acid. If, however, you are going to eat any of these, you can see that "brushing after meals" in the case of many of the above will be a benefit. It's doubtful that you're going to jump right up from the table and head for a toothbrush, so the elapsed time for acid production to fall to 1/2-safe is a probable loss. You can, however, get to a brush in time to prevent some of the acid damage.

Of course, oral acid production requires the interaction of two things: Sugar, and *germs*. If the germs are not active, if they are free-floating in the oral environment (below 8,000 per mi.) there is no way for them to produce acid damage.

Remember that we are asking you to be extra careful with your diet, particularly with respect to sugar, for the first three weeks of your hygiene program. After you have had at least one successful saliva test, the requirement for such watchfulness is greatly reduced.

Without odontosis in the oral environment, the "rules" for diet and nutrition are the same as for the entire whole-body system. In other words, what's good for a healthy "bed" is good for a healthy mouth.

## Chapter Fifteen – X Rays vs. Saliva Tests: ...which is best?

By now it has become obvious that preventive medicine --or just plain commonsense living -- is good for your whole body, your entire physical health. We're becoming more and more concerned about the effects of unnatural, man-made problems in our environment. Often such synthetic approaches were hailed as "miracle breakthroughs" when discovered... and, today, we are having serious second thoughts about some of them.

For example: Radiation. When we first began unlocking the secrets of the atom; When we developed X Ray machines for use by doctors, these were considered tremendous advances. Now we aren't quite as sure about their benefits as we once were: At least, we've begun to view them with a more cautious eye.

X Rays are a diagnostic tool used by dentists almost as routinely as looking in people's mouths. Years ago, Oramedics Fellows found themselves using fewer X Rays...even before national awareness of radiation accumulation conditions in our environment. Why? --The use of the saliva test as a diagnostic device began to make X Rays more unnecessary. Since they (X Rays) are an expense to both doctor and patient, and since they are largely redundant (who needs them?) as a preventive diagnostic tool, they simply fell out of favor.

Ordinarily if there is remedial dentistry which will have to be done at some point, a full series X Ray examination is made... *once*... and that is usually adequate. Contrast this to the "bite-wing" X Ray used by most conventional dentists which covers only one or a few teeth at a time and is used frequently... sometimes, in some practices, it is used every time the person visits the dentist's office.

Now we know that X Rays aren't necessarily the harmless "wonder" we used to think they were. According to a report released in May 1979, by the *National Academy of Sciences*, there is no minimum level of exposure below which an individual is completely safe from future adverse health effects.

NAS spokesmen added that it may take as long as *30 years* for adverse radiation-induced problems to appear; and that each exposure to radiation increases the danger.

Radiation dangers appear to be more critical with the young, and with women: NAS estimates the danger to be twice as much for women as for men; people under 35 are apparently four times as vulnerable as people over 50.

In early 1979 only nine states had any licensing procedures... *or required any special training*... for people who work with radiation. In one government survey, actual skin-dosage varied by a factor of about 100 in 1,000 X Ray machines examined.

Low-level radiation may well be the coming environmental problem of our time. We used to think in terms of massive doses --such as associated with atomic warfare --but now, many scientists are growing increasingly concerned about low-level accumulations. For example: Recent government estimates (which may be conservative) indicate that as many as ten fatal cancers may result from the Three Mile Island nuclear power plant accident in 1979. X Rays are almost exclusively a *diagnostic* tool; with the exception of massive radiation therapy for cancer. In preventive dental practices, diagnosis is most usually done with a passive test... the saliva test... instead of with X Ray. Conventional dentistry uses the X Ray to diagnose symptom damage so the damage can be mechanically corrected. Preventive dentistry is involved directly with disease diagnosis, not symptom diagnosis... the X Ray is practically useless as a diagnostic tool as to the disease itself instead of its symptoms.

Dr. Arthur Upton, director of the National Cancer Institute, summed up the situation: "With radiation, we have a preview of what's to come with other environmental agents. Radiation is

clearly useful, but we have to learn how to handle it in a way that's socially acceptable."

X Rays are not the harmless, miraculous health "helps" we used to think they were. Instead, X Rays are something many people will want to avoid unless absolutely necessary. In a book about becoming dentally self sufficient, the message is clear: When there's nothing wrong with the teeth, there is no need for X Rays; when we are dealing with the disease instead of its symptoms, X Rays are not the best diagnostic tool.

How much radiation does a person receive in an average dental X Ray? Here's a comparison, measured in millirems; the standard measure of radiation absorption by human cells:

	IN MILLIREMS
<b>Flight from Los Angeles to Paris (cosmic rays)</b>	<b>4.8</b>
<b>Chest X Ray (1 film)</b>	<b>22.0</b>
<b>Contamination 1/2 mile from Three Mile Island during nuclear accident</b>	<b>83.0</b>
<b>Apollo X astronauts on moon flight (cosmic rays)</b>	<b>480.0</b>
<b>Dental X-ray (whole mouth)</b>	<b>910.0</b>
<b>On-site dose at Three Mile Island accident</b>	<b>1100.0</b>
<b>Breast mammography (1 film)</b>	<b>1500.0</b>
<b>Current N.A.S. yearly occupational exposure accumulative limit</b>	<b>5000.0</b>

It becomes questionable whether each visit to a dentist should be almost the equivalent of visiting a nuclear power plant during an "accident," or if it should "use up" almost one-fifth of what the N.A.S. considers a yearly maximum for folks working around radiation.

## Chapter sixteen - ...*From now on*

A famous minister is supposed to have given his son some advice about preaching as the younger man embarked on his career in the pulpit.

He said, "Tell 'em what you're gonna tell 'em. Then tell'em. Then tell 'em what you done told 'em. Then shut up."

At the front of this book we talked about helping you become dentally self-sufficient. It was our intention, we said, to put enough between the two covers of a book that you and your family could achieve freedom from odontosis and have a fairly good idea about how to respond to oral health emergencies as they arise.

Then, through some fifteen chapters, we proceeded to do just that. It is our hope that, with careful reading and... from time to time... returning to the reference chapters, you will have in one book all that's needed to make a dynamic difference in the oral health of your entire family.

We realize that many readers are not quite done with the dental profession. For most, there is existing odontosis-symptom-damage that, sooner or later, will have to be corrected surgically: In other words, a Doctor of Dental Surgery is going to have to fill some teeth, or make some other corrections such as root canals or possibly bridges.

We hope you've "gotten the message" enough that you'll avoid letting any dentist extract any of your teeth; at least not without getting another opinion, hopefully from an Oramedics Fellow.

At least, we are confident that if you follow all of the suggestions we've made in this book, you should be looking at your last trip to the dentist.

We don't rule out accident, or very grave disease problems, as something which you should carefully consider before trying to "go it alone" if medical or dental assistance is available. Some problems are simply beyond the capability of lay people to handle; some even probably beyond the capability of a doctor, without the equipment and medicines he would have in his office.

At any rate, we've completed the assignment: We told you what we were going to say; then we said it, and now we've told you what we just said. It is time, as the preacher so elegantly put it, to shut up.

And yet that's not the easiest thing in the world to do, since it seems there is so much in the health care field that people ought to know...far too much for any one book. We'd like to mention a number of other things; for example that the Kenalog in Orabase you'd use for canker sores will work just as well for herpes simplex virus lesions anywhere else on the body... in fact, Orabase with Benzocaine would be a whole lot better than nothing, in that case...

With the ever-increasing costs of health care and the growing public suspicion that people are not getting a fair shake from the professions, it seems that more books like this one are desperately needed.

Earlier we talked about the frustration at a N.A.S.A. convention where skilled bio-engineering personnel and representatives of the dental profession were ecstatic over equipment which would allow "business as usual" even on the moon.

We don't live on the moon. We live on Planet Earth, and all is not well here: More and more of our people are in isolated circumstances with respect to health care. This is an unfair situation. Given the technology at our disposal, and the delivery systems available to us, we could make first class health care available to everybody.

If this is beginning to sound a bit like a sermon, don't panic. We'll follow the rules; we'll "shut up."

For now --for this book.

But maybe we'll be back...

*Robert O. Nara, D.D.S.  
& Steven A. Mariner*

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# Products...

1. First on the list is the Via-jet, model 7500 oral irrigator. It has a number of features that make ideal for use in anti-infective therapy programs. The Via-jet may be used with any microbial solution and has a large capacity see-through reservoir, fully adjustable pressure control and sleek European styling. Each unit comes with 2 standard tips and 2 sulcus tips.

Two different attachments are available for deep pocket dis-infection/irrigation. The Pocket Tip Adapter is a small Luer Lok adapter which attaches a sub-gingival cannulae directly to the handle. The OraGator II Hand piece is more expensive but easier to use.

<b>Via-Jet, Model 7500</b>	\$69.95
<b>Extra Reservoir</b>	\$14.95
<b>Pocket tip Adapter</b>	\$14.95 (Cannulae Tip for deep cleaning)
<b>OraGator II Hand piece</b>	\$33.95 (MP400)
<b>Replacement Sulcus tips</b>	\$ 3.95 (2)

*Note: The regular tip and the sulcus tip are for cleaning pockets up to 4mm deep. The cannulae tip is for cleansing of deeper pockets.*

<b>WaterPik Adapter</b>	\$14.95 (Cannulae)
<b>OraGator II Hand piece</b>	\$33.95 (MIP300 - for Water Pik)

2. **TheraSol** Anti-microbial Rinse is especially suited for use in home care programs. It is a professional strength, highly substantive, bactericidal agent, but it doesn't stain the teeth like chlorhexidine based products and is less expensive than prescription products. TheraSol may be used right in the reservoir of the Via-Jet or Water Pik and is a superb breath freshener and may be used in place of tooth pastes.

<b>16 oz. Pre mixed</b>	\$15.95/bottle
<b>16 oz. Concentrate</b>	\$35.95/bottle

3. **Merfluan EcoDent** If you prefer all-natural products, EcoDent is your item. EcoDent is based on an old European formula composed of baking soda, tartaric acid, myrrh, sea salt and natural mint flavors. Natural anti-microbial powder.

<b>130ml</b>	\$11.95 (1)
<b>Case</b>	\$86.95 (12)

4. Sonicare Quad Pacer electric toothbrush is the first of a new generation of sonic toothbrushes. The Sonicare uses high frequency vibrations in a way that is completely different from traditional brushes. The Sonicare's bristles move at infrasonic speeds of 31,000 cycles per minute. An electronic 'smart timer' is built into the handle for proper 2-minute brushing. Completely solid state, the Sonicare Quad Pacer comes with a 2-year warranty, 2 brush heads and a 30 day, full return policy.

<b>Quad Pacer</b>	\$159.95
<b>Extra Brush Head</b>	\$ 21.95

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