

AGING IN AMERICA
P. Braun, M.D.

What follows is an overview of where we will be in the next century with aging and the results of aging in America, *barring any changes in the way we approach health care in America.*

The Situation We Face

By 2011 the first baby-boomers will be ready for retirement and by the year 2025, as the baby-boomers finally mature, there will be twice as many people over 65 as there will be teenagers. In that year we will need at least 31,000 geriatricians, compared to the 1,000 we have today. Right now there are over 70,000 centenarians; by 2006 there will be 100,000 and by 2025 there will be two million.

Right now, today, there are 100 million people with degenerative diseases: cancer, cardiovascular disease and arthritis. That number will double early in the next century.

In the next five years we will see a 14% increase in amount of medical care needed. By 2001 Medicare will be completely bankrupt and by 2029 Social Security will be bankrupt. The children and grandchildren of the baby-boomer generation will have to work 12 hour days to support their parents and grandparents. Alternatively, the older generations may be cut loose to survive on their own as best they can, a sort of modern day economic survival of the fittest.

However, increasingly common preventive health practices will dramatically slow the expression of aging in our society. Many more “seniors” are no longer feeling old, do not want to “retire,” and are remaining active and productive. This group will grow dramatically in coming years and this will change the economic equation completely as people who were expected to be recipients continue to be contributors.

The intense research into the causes of aging is reaching the public consciousness. A recent Time Magazine cover story explains part of that research in detail. If Time magazine writes about it even main stream medicine must have heard about it and will have to extend to this new brand of medicine grudging acknowledgment. Even barring any further advances, the upper limits of what is possible in longevity are quite unknown. In the first quartile of the next century we might see people living to 150 or beyond with great vitality.

What is making this possible is a shift in the paradigm of aging. Increasingly, people are no longer willing to roll over and accept an early death as inevitable. What was inevitable in the old paradigm is not even acceptable in the new. Now we see aging as not just one thing, but rather a complex of *diseases*, each of which is treatable and preventable. This is truly the end of aging as we know it. We now believe that these diseases are partially the result of genetic coding expressed at the interface between the genes and the environment with the environment as a full partner in the aging process. The environment includes not only external exposures that enter the body (the air and what it contains), but the food we eat, the nutritional supplements we take, our life styles and relationships.

Help Is On the Way

Geneticists are unraveling the genetic component of aging, and it is not difficult to understand. Chromosomes are the double-helixed, intertwined amino-acid base pairs which encode the instructions for the processes of life. These base pairs are incredibly long, numbering in the millions per chromosome and our species has 46 chromosomes. At the end of each chromosome is a string of base pairs— called telomeres (“tail pieces”) — which do not code for anything, but rather serve to count the numbers of cell divisions. With each cell division an enzyme called telomerase is made which clips off the base pair from the end of the telomere. When the last base telomere is clipped off the cell can no longer divide and the cell line dies of old age. Human cell lines can divide about 100 times before dying of old age.

The newest research in treating AIDS is the development of protease inhibitors. These are enzymes which prevent the formation of protein by HIV cells when they try to replicate. A similar enzyme can be

developed which would be called a telomerase inhibitor. This enzyme would prevent the clipping away of the telomeres and make human cell lines immortal. Maybe you don't want your enemies immortal...? In fact nature has already devised immortal human cell, the gonadal cell. These are the sperm and egg cells and they do not have a telomerase enzyme. Placed in cell culture, these cells divide indefinitely without aging! The solution to human aging will come when all cells in the body can be made immortal as the gonadal cells are already immortal. This development will come within 15-20 years according to conservative estimates of the best geneticists.

It will also be possible to rebuild the telomeres to their original length with enzymes designed for this job, and it will also be possible to do genetic repair of the damage to chromosomes which has accumulated over the years. Brace yourself: what the geneticists are telling us is that not only can aging be halted, it can be reversed! We will be able to choose to grow young instead of grow old, to choose your favorite age, youth to that point and remain there. Dying will not be necessary!

When this happens, the entire philosophical basis of living will have to change. In fact, with the knowledge that this technology is on the way, that change is already beginning. Until now, living rested upon the certainty of dying. If this becomes no longer necessary, the way we live must change in ways that are unforeseeable at this time. Those of you who know me know that I am first a philosopher and secondly a doctor. For me, this is exciting business.

The Job Is To Hang On For Twenty Years

In case you think life is worth living, the job is to last for 20 more years in reasonably good shape and be among the people who have the choice to live on indefinitely or not.

The practice of anti-aging medicine at this time is geared toward successfully negotiating those 20 years by halting, slowing or reversing the aging process right now. The rest of this part of the newsletter is devoted to explaining where we are with present day technology to accomplish this goal.

Current Trends in Anti-aging

The relationship between anti-oxidants and aging is now well-appreciated, even in the lay community and many people are acting on this understanding by loading up on vitamins A, C, E, and other anti-oxidants every day.

What is changing in health care, even at this moment, is the revolution in the approach to the prevention and slowing of aging. The best chance we have to do this lies in the following four areas: lifestyle, diet, nutrients, avoidance of toxins, and total hormone replacement therapy. The first three are well covered in my book, *The Thinking Person's Guide To Perfect Health*. Here I will focus on the fourth: total hormone replacement therapy.

Hormones and Aging

Provided you have made the right lifestyle, dietary and nutrient adjustments, and outside of the genetic changes which happen with age, the gradual decline of the hormone systems of the body determine the rate at which we age *more than any other factor*.

We have known about hormones in medicine for over 100 years. However, because of the philosophical foundation of life, which has rested on the certainty of death, medicine has been very slow to adapt this knowledge to prevent and reverse aging. The unconscious assumption has been that it would be somehow sacrilegious to life itself to interfere with the inevitable decline leading to death. Those bonds of being and thinking are now being broken.

Ask yourself this question: at what age in your life did you feel best, most vital, most optimistic? For most people the answer will be somewhere between 20 and 25. Therefore, why not do a survey of the hormone systems of the body and, by supplementation of orthomolecular human hormones, return each one to the levels you enjoyed at age 20-25. When you do this, within a few weeks you begin to feel

better. Within a few months you feel as you did when you were that age. And within a few years your appearance begins to reflect how young you feel.

Now, no-one is saying that you will appear to be 20 years old again, but the removal of 10-20 years of what you thought were the irreversible changes in appearance of aging is a very attainable goal.

The hormones DHEA, melatonin, pregnenolone, and HGH (human growth hormone) all help regulate the rate at which we age along with the physical and mental expressions of aging, and each of these items are now available. The best use of these items is not being made however, because they are sold over the counter and people have no idea what their levels of these hormones are before or after they start on them. The idea is to supplement exactly to ideal levels enjoyed at age 20, not to simply load up on some hormones you may or may not need. Other hormones, such as the three natural human estrogens (estrone, estriol, and estradiol) and testosterone are now available by prescription. However, to get the best results, all of these hormones should be tested before supplementation and supplementation should be aimed at providing optimal levels, not simply high levels. When it comes to hormones, not enough is bad, but too much can be worse.

Hormone replacement therapy is coming fully into its own and by itself can cut morbidity and mortality statistics in half. If you have not requested to be tested for the adrenal, sex, and thyroid hormones, you are missing the boat and a powerful ticket to good health.

The problem, of course, is finding the right doctor to order these tests. Many doctors are still stuck in the philosophical rut of the past when aging was not considered a disease but an inevitable process. Many people have gone to their doctor with this or that complaint only to be told, "Well, what do you expect? You are getting old. Learn to live with it. We are all going to die!"

It is best if you screen your doctor first before making the appointment. **Better yet, call the American Academy of Anti-aging Medicine for a referral to the doctor nearest you who practices this type of medicine. The number to call is (800)558-1267.**

Human Growth Hormone

In addition to the adrenal, sex, and thyroid hormones, there is one more hormone which is extremely important— *the* most important one—in that it has more to do with the changes of aging than any other, namely human growth hormone, or HGH. HGH is secreted by the pituitary gland of the brain, the master gland which regulates the entire hormone system. In fact, 40% of the anterior pituitary cells are "somatocytes," cells which make HGH. Based on the number of cells devoted to the job, nature seems to think the production of HGH is critically important.

In childhood, HGH causes the growth of long bones and this brings a person to his or her final height. Traditionally, this was all HGH was thought to do. New research shows that *every cell* in the body has HGH receptors and that HGH is doing a host of jobs in human metabolism in every organ in the body. There are even receptors in the brain the activation of which results in the production of endorphins, molecules which keep one's mood even and upbeat. Skin cells respond to HGH with even growth producing the smooth appearance of children's skin. Cells in the brain respond by literally coming back to life (about 10% of the brain cells become non-functional each decade of life). Thus, HGH is the latest and most effective treatment for Alzheimer's disease, although the large double-blind clinical trials have not yet been done. **Because**

One consistent effect of HGH deficiency is irritability and when a person receives replacement therapy this reverts to a profound sense of well-being. Bone cells respond by making new bone and osteoporosis reverses, although this effect requires two or more years for completion. Fat cells respond by giving up their little lives as they are burned for energy. The weight gain around the middle which is so characteristic of HGH deficiency, melts away in a few months. Muscle cells respond by becoming larger and stronger, especially in the upper body. The strength and endurance of youth reappears. Many people are able to read without reading glasses again as the ciliary muscle of the eye becomes stronger again.

Given the many function of HGH, it, more than any other hormone, determines the physical changes which are an expression of aging. Predictably, levels of HGH fall off progressively with age. With what we know about HGH, it really should be renamed to HVH: human vitality hormone.

The Clinical Picture of HGH Deficiency

The results of declining levels of HGH reads like a list of what growing old is all about and the result of replacement therapy of HGH defines the word “rejuvenation.”

Declining levels of HGH are associated with increased incidence of

- cardiovascular disease
- decreased lean body mass and therefore loss of strength
- increased body fat with distribution around the waist area
- decreased cardiac output (the amount of blood the heart can pump out per minute)
- decreased pulmonary capacity (the volume of air you can blow out of your lungs in one breath)
- decreased bone density
- decreased kidney function
- increased total cholesterol with decreased HDL
- increased triglycerides, loss of interest in sex
- impotency, frigidity
- depression
- loss of concentration
- arthritis
- increased insulin resistance
- adult onset diabetes
- decreased heart pumping strength
- thinning of the skin with wrinkling
- thinning and loss of hair
- fatigue with the need for more sleep.

HGH has proven to be an excellent therapy for all of these conditions. Most remarkable are preliminary reports that HGH can actually reverse some of the changes in Alzheimer’s disease by revitalizing cells which are no longer functioning.

Supplementation with HGH reverses every change of aging you can think of. It reduces visceral fat (fat in the abdomen), increases cardiac pumping ability, increases muscular strength, increases pulmonary vital capacity, lowers elevated blood pressure, stops arthritis by allowing the regrowth of degenerated synovial membranes, increases interest and ability in sex, increases mental alertness, lowers cholesterol and triglycerides, raises HDL, remineralizes bone, thickens skin, increases kidney function, helps diabetic patients back to a normal life, lifts depression, and lessens the need for sleep by several hours per night. These many actions reflect the fact that every cell in the body is equipped with HGH receptors.

Cancer cells are equipped also. So you must maintain an anti-cancer lifestyle and diet!

When a doctor familiar with HGH deficiency syndrome does a physical exam, (s)he can see plain evidence of the lack of HGH. The signs which give away this syndrome are some combination of the following: loss of abdominal muscle tone with distention and sometimes “hanging over” of the tummy, sagging breasts in both sexes, hair loss, wrinkles— especially with loose skin over the eyes (sagging upper eyelids) and loose skin hanging in a fold in the anterior neck under the chin, varicose veins, and soft muscles; on exam the skin is easily pulled into folds. Try this test: pull a fold of skin from the back of the hand between the thumb and index finger. It should pop back within one second after release. If it does not, you are deficient in HGH.

The Biochemistry of HGH

The biochemistry of HGH is complex. It seems that we all have plenty of HGH, but as we age it is prevented from being released from the pituitary by deficiency of HGH releasing hormone (HGHRH)

which is made in the hypothalamus of the brain and by a substance called HGHP, a peptide of seven small amino acids. One day it may be possible to supplement with one or both of these two substances and cause the release of your own HGH; however as yet these are not commercially available. For people who want to get the full benefit of HGH, it is necessary to raise plasma levels to those enjoyed by the average person in his or her 20s. We need 30-50% of the amount children have and very few adults produce and release this much on his/her own.

Some of the effect of HGH are immediate: increased energy, ability to concentrate, interest and ability in sex. Others take a few months to a year to show up: increased aerobic capacity and strength, thickening of hair, tightening of wrinkles and loose skin, decrease in visceral fat. One effect takes two years: strengthening of osteoporotic bones.

Those of you who know me know that I prefer to treat illnesses at the most fundamental level and for many of the ailments of "old age" the most fundamental cause is HGH deficiency. The only treatment which fully reverses HGH deficiency is HGH replacement therapy.

At the end of the newsletter is a lab request slip personalized with your name

I have included the following tests:

Somatomedin-C (an HGH measure) DHEA Sulfate Melatonin Pregnenolone Free Testosterone	Fractionated Estrogen Estrone Estriol Estradiol Progesterone
--	--

These are the most important hormones to regulate back to youthful levels if you want to slow, stop, or reverse the effects of aging. If you want to know the results, take this slip to your favorite lab and have a blood draw. When you do this, call and make an appointment with me for about two weeks later so we can review the results and make the proper hormone replacement therapy for you.

You may wonder why progesterone and estrogen tests for men and testosterone levels for women. We all make all of these hormones and they have functions in both sexes, despite popular misconceptions.

Total Hormone Rejuvenation Therapy

I include all the tests above because they are key to the new concept of total hormone rejuvenation therapy. The idea is to bring all your hormone levels back to the level you enjoyed when you were in your early twenties. After that, your hormone levels have been, almost surely, on a downhill course. You may have called it "normal aging," but another term for it would be "multiple system degenerative disease." If it is not necessary to have the problems brought on by the symptoms of the disease called aging, then why put up with it? This is a new age when only masochists and the uninformed put up with the changes of aging, masochists because they like pain and the uninformed because they don't know any better.

