Chapter 2

Putting It All Together: A Look at the Best Combination of Planning, Testing, Supplements, and Follow-Up For the Anti-Aging Clinician

Eric Braverman, M.D.
Medical Director, PATH Medical; President, Total Health Nutrients

ABSTRACT

When considering setting up an anti-aging practice, there are four core principles that need to be taken into account: the brain, the pauses, being able to combine conventional and alternative medicine and provide patients with an effective non-drug alternative, and finally making the decision whether or not to prove diagnostic services. In this chapter, we will also briefly discuss the Brain Electrical Activity Map (BEAM) medical diagnostic technology.

Keywords: brain; organ pauses; pharmacology; nutritional medicine; brain electrical activity mapping

INTRODUCTION

The core principle to remember when considering setting up an anti-aging practice is that the brain is the most important organ. The thyroid can be replaced by a little pill. With parathyroid, one injection and you have replaced the parathyroid. If a man loses his testicles, their function can at least partially be replaced with a little AndroGel cream. If a woman loses her ovaries, one pill of progesterone, estrogen, and testosterone will restore the ovaries' hormonal functions. The heart can be replaced with a donor organ. The function of the adrenal gland can be replaced with two hormones. But if we scoop out the human brain, what is left of the person? Nothing, except a corpse. So dealing with the health of the brain should be central for every doctor.

The second principle is that there are many pauses of the body, that include everything from the menopause of the ovary; adrenopause of the adrenal gland; thymopause of the immune system; somatopause, the loss of growth hormone; pinealpause, the loss of melatonin; vasculopause, the change in blood vessels. The whole human body is going through what is now called geripause.

Pauses have two forms: the ovarian menopause represents complete death of the ovary, whereas the thyroid pause is partial death. Approximately 25% of the thyroid dies as we age. Men with normal testicles have a blood testosterone level of approximately 1,000 when they're 20. This drops to around 300 by the time they reach 70 or 80. If a man were castrated, he would have a blood level of 150 or even 200 because the adrenal gland would still make some testosterone. So the testicles do not decline in

function completely in most men. Roughly 70% to 80% of testicular function diminishes with age. So all these different organs are dying at different rates. Some move into a total pause, and some into a partial pause.

The third principle, which is a cornerstone, is providing a non-drug alternative, and combining conventional medicine and drug alternatives. If you take a look at the study of medicine, every time we know a drug works we know of a nutritional equivalent as well. If we know that calcium channel blocker lowers blood pressure we can imitate a calcium channel blocker with magnesium. If we know diuretics lower blood pressure, we know that primrose oil is a mild diuretic. So we can use herbal diuretics. If we know that all the antidepressants work through dopamine: all the ones that work do, such as Wellbutrin and Effexor, we can imitate them with the amino acid tyrosine. We know that digoxin is an herb. We know that other types of agents used for heart failure are ionotropes. They make the heart pump better; but so does growth hormone, and so does testosterone. We know that steroids are used to treat lupus, and arthralgia. But we also know that natural steroids may improve those conditions. As physicians, we should be looking at how drugs work at the pharmacological level and using our knowledge to select a natural agent.

The fourth principle is a very important one, and a challenging one, because there are two models that people can use to set up an anti-aging practice. The first is a model of cash, where the clinic does not do any tests and does not accept any insurance. That model is problematic basically because it is important to scan people to make a decision on what is the most important thing to treat. One patient may have terrible bone density but their brain might be in great shape; whereas another patient may have good bone density and a somewhat unhealthy brain. The only way that you can take care of a patient properly is to find out exactly what the problem is with blood testing, ultrasound scans, PET scans, CAT scans, DEXA scanning (Dual Energy X-ray Absorptiometry), etc.

DELIVERING HEALTHCARE HEAD-FIRST

The brain is the most important organ in the body. The brain is a central computer, it is the server, and thus it is everything. All the other endocrine systems are very, very simple in comparison. They are all replaceable by simple hormonal replacements. Nobody can replace the brain yet.

Obesity is a metabolic disorder of the brain. Studies on obesity suggest that the metabolism of the brain goes down. Studies on heart disorders suggest that people with brain chemical problems: for example depression, anxiety, and other psychiatric problems, will die faster than other heart patients. So you have patients who die of heart disease with no coronary artery disease, and other patients that will come to see you with 99% blockages and they are still alive. How could that be? The answer is that the brain controls the body. There is a basic principle that attitude, mood, and brain states are the most important issue in aging and quality of life. There is no point in getting people to live to 120, only to see them sit around not knowing who they are and what day it is.

The brain is the core focus of all the different conditions, even cancer. Scientists have now discovered oncogenes in the brain, and that attitude can be enormously powerful in fighting off cancer. Expressions of anger help the cancer patient, while the internalization of anger, as depression, is one of the precursors to cancer. People who suffer from chronic anxiety get more cancer, and they also make the wrong food selections. Everybody knows that they should not be craving fatty foods, but they still eat the fat. Everyone knows that they should not be craving sugar, but they still eat the sugar. The entire selection of diet depends on the brain.

Serotonin-based drugs are looking very promising for the treatment of bowel disorders, and the new drugs being used to treat cardiac arrhythmias are essentially GABA (gamma-aminobutyric acid) agents. Dilantin used to be employed to treat cardiac arrhythmias. Calming the brain calms the heart, and vice versa. Some of the new drugs that are being used in asthma and irritable bowel syndrome are serotonin agents. These are working on the same principle: calming the person down. If the brain is irritated, it can cause irritable lung, irritable bladder, frequent urination and other symptoms. The brain is a component of every aging person and every disease.

THE PAUSES

Another core principle of conventional medicine to consider is that aging itself is really rapid disease acceleration. It is helpful to think of all the pauses of the body as a ladder. All these pauses can be lined up, and they go from life to death. If a patient's brain goes into electropause and short-circuits and he gets Alzheimer's, it is of no importance that you treated him with growth hormone and testosterone, and he had biceps of 18 inches. What good is it if you have great bones, great muscle mass, but forget who you are, or have major psychiatric problems? Brain electrical problems are antecedent to psychiatric disturbances. The same thing goes with patients who are on hormones who cannot achieve a sleep cycle, which is controlled by the pineal gland. The number one predictor of who is going to live or die has nothing to do with taking testosterone, growth hormone, or estrogen. The number one predictor is body weight, and that has to do with brain metabolism. The second predictor is smoking. The treatments of choice for smokers trying to quit are dopaminergic agents; from electrical devices, to Zyban/Wellbutrin, to Effexor, to tyrosine. What are the number one treatments for obesity? Dopamine and adrenaline. According to some studies, the third predictor of who is going to live or die, regardless of body weight or smoking habits, is sleep. What agents are used to aid sleep? Serotonin agents. From this it can be seen why a mastery of the brain is critical.

The pauses really tell you what needs to be measured if you want a complete clinic. Nearly thirty years ago, doctors were beginning to treat thyropause with Armour thyroid. These doctors were considered quacks because they used two forms of thyroid; T-3 and T-4. Psychiatrists had been using T-3 because it improved mood, and T-4 was being used for metabolism. But using both together was simply not done. However, in the year 2000 the *New England Journal of Medicine* carried an article saying that the best form of thyroid supplementation is the natural thyroid that contains T-4 and T-3. This is just one example of how physicians subscribing to the tenets of anti-aging medicine have been medically prophetic on where hormonal supplementation would lead.

The parathyropause is not thought of very often, although at first instance you would think that it would be quite important. The main reason why nobody has really tried to tackle the parathyropause is that it is very difficult to change bone density. When do people start getting short? The average Caucasian has lost a-quarter to a half-inch in height by the time he reaches 40 years old. The majority of people have lost some height by their 40^{th} birthday, and by 50 virtually everyone is a little shorter. By 60, most people have lost somewhere between 1 and 3 inches. When it comes to bone density, there are people with minus-5 standard deviations, minus-4 standard deviations, and minus-3 standard deviations. The ideal deviation for bone density is plus-1.

The pineal gland producing melatonin starts to go into pause at age 5. Thyroid and melatonin are measured in blood: plasma melatonin, TSH (thyroid stimulating hormone), T-4, and T-3. Basically, every patient should have his or her TSH and T-4 levels checked. Now we get to parathyroid. Parathyroid can be measured in blood, and you can follow bone density. If you do not own a bone density machine it can still be followed to some degree. Refer the patient to a clinic for a bone density scan every one to two years, and follow it with urine telopeptides.

The thymus gland also goes into pause. The thymopause is the pause of the immune system. The thymus gland goes into pause at puberty, and the thymopause is the hardest one to fix. Everyone is experimenting with thymic proteins. At New York University, researchers conducted studies on transfer factor. It is suffice to say that exactly how to deal with the failing immune system of aging is debatable. What is certain though, is that the first thing to do when you want to deal with the failing immune system is measure immune function.

An immune function test determines the T-helper/suppressor ratio. A T-helper/suppressor ratio of 0.1 means that the patient has very few helper cells, and probably has AIDS. A ratio of 0.4 is suggestive of ARC, 0.6 of cancer, and a ratio of 0.9 indicates a viral infection. The normal ration is 1.8. A ratio of 2 suggests an autoimmune condition, and a ratio of 3 indicates MS, lupus, or another advancing autoimmune condition. Basically, the immune system function test is your first basic evidence of immune dysfunction. So before you prescribe a patient a pile of pills, check the status of his immune system. A

lot of people get chronic colds because they have sinus problems. There is nothing wrong with their immune system. These people may be taking several pills in an attempt to boost their immune system, yet their immune system is perfectly normal. They have damaged sinuses and allergies. It is an autoimmune problem not an immune deficiency problem. So measure the immune system, and carry out allergy tests.

The next pause to consider is DHEA-pause, or adrenopause. As DHEA levels go down, aldosterone can increase, and the end result is hypertension. Adrenopause is generally treated with 50 mg DHEA for women, and 100 mg DHEA for men (these doses are for people in their sixties). The adrenal gland can be deficient in DHEA in 30 to 40-year olds. Dosages in the medical literature range from 600 mg for advanced lupus, to 5-10 mg for 30 and 40-year-olds. Almost everyone gets pimples when they take too much DHEA, so it has got a nice feedback loop. It is easy to determine whether or not a dose needs adjusting by measuring a patient's blood levels. Remember, with DHEA you have to measure levels of both DHEA and DHEA-sulfate. Furthermore, if a patient has a liver disorder he will not be able to metabolize DHEA.

The next pause is really called nephropause, which is a decline in erythropoietin. Erythropoietin is measurable in blood. Erythropoietin is injectable. It is especially important to people with chronic kidney failure and chronic anemia as it increases the blood count. It may also have a role in the treatment of a patient with a declining blood count. More research needs to be done, but it has promise.

One of the most often talked about pauses in anti-aging medicine is somatopause, the decline in growth hormone levels (GH). When considering somatopause, it is best to measure a patient's IGF-1 levels. GH can be given as people age. GH levels typically drop from 1,000 to 500 between the age of 10 and 20. Acromegaly patients do not get any additional cancer, and children who are treated with GH do not get any additional cancer. Remind every patient that asks about GH that it is a Schedule V drug. It is an insulin derivative. Diabetics are not at an increased risk of cancer from taking insulin. GH makes bone and muscle grow, and when it is being supplemented properly 70 and 80-year-old patients should have levels of 100 or 200. A good dose of GH in the range of 15 mg to 45 mg a month will give IGF-1 increases of 100 to 200 points. Other supplements may raise IGF-1 levels by 10% at best, which is almost trivial.

Everyone who has treated hypothyroid should know that a patient with a TSH of 90 was not treated correctly if after treatment with thyroid his/her TSH levels dropped to 80. TSH needs to be brought down to a level of two or three. Three is probably too high, so two or less is optimal. It turns out that if you are treating someone with GH you need to get his IGF-1 levels into the 300 range at least. The 200 range is just about tolerable, but it is possible to get IGF-1 into the 500 range. The average 80 to 90-year-old's IGF-1 level is in the 70's or 80's. So that provides a nice benchmark.

Therefore, for somatopause, measure IGF-1. GH antibodies can also be measured. Another option is a DEXA scan. A DEXA scan enables you to simultaneously scan bone density and body fat in just 6 minutes. Throw the calipers in the garbage. It is worthwhile investing in evidence-based equipment. By accurately monitoring muscle mass you can see if your treatment for somatopause has been effective.

The medical literature calls somatopause a number of different things. In 2003, *Nutrition Reviews* and *JAMA* called it sarcopause, as in sarcopenia. Somatopause is preferable at it covers what GH preserves in the body: bone and muscle.

Moving on, let us discuss the andropause and how it is treated. Once again, the anti-aging movement has been prophetic. Methyltestosterone used to have black box warnings on it. Everyone knew it caused liver cancer. So now the only testosterone treatment that anyone uses, even conventional doctors, is bioidentical testosterone. Doctors used to have men shaving their scrotum to put testosterone on or using a patch. But now you can get a cream from a compounding pharmacy, or an AndroGel. The important thing is that it is bioidentical. If something is bioidentical, your body is used to having it. This is debated, but it appears that if a transsexual takes estrogen his prostate will shrink. So when treating andropause, men may need a little drop of estrogen to block testosterone from becoming dihydrotestosterone. Time will tell if this theory is correct.

In the case of women, that is most women and not all, because some have polycystic ovaries and some have virilization due to a problem with their adrenal glands, they have to take progesterone,

estradiol, and testosterone. The concept is that women are made, like men, with male parts and female parts, but they are dominantly female. Women need to take a little testosterone to keep their sex drive, so that their brain does not get emotionally labile from the estrogen and anxiety does not increase. They have to take the progesterone so they sleep at night. To offset the effects on the brain, the blood sugar, the mind, the sleep pattern, and the bones you have to make sure a woman takes all three hormones.

Next on the ladder is osteopause. It is vital to take care of bone density. If we don't it puts people at risk of fracture and potentially fatal complications. This is just another reminder that if you fail to treat the entire geripause, your clinic might be profitable for you, but not profitable for your patient.

Dermatopause occurs when the skin begins to lose collagen, and therefore its elasticity. Skin really is skin-deep. A good reminder of this is the fact that facelifts tend to look terrible in 70- and 80-year-old people. Facelifts look bad in seniors because of the muscle loss, and changes in facial bone structure. Skin is easy to repair: it is easy to clip some away. The problem is in what lies underneath. So having really great skin depends on many other factors.

Cardiovasculopause is the rusting and hardening of blood vessels. No anti-aging practice can function without an ultrasound. The ultimate in imaging technology is Doppler imaging. Many patients who come into a practice will have normal carotid arteries. However, approximately 10% of patients that have normal carotids have abnormal transcranial Doppler with changes in blood flow to their brain. These changes can be seen on a MRI of the brain as ischemia and brain atrophy. Now know that the brain literally dries up with age. Galen said that people lose the moist humor as they get older. Today we say that people lose acetylcholine and water as they get older. But the bottom line is that the blood flow is changing everywhere. A person may have a terrible ankle-brachial index, but healthy coronary arteries. However, we can predict that they are still going to have a heart attack because they have got a high coronary calcium score. Another person may think he has got great vasculature, but he actually has circulation problems in his feet. He gets fungal infections, which leads to ulcers, and he dies of an infection.

So you can conduct Doppler ultrasound scans on your patients. Despite the current recognition that you can scan people with CAT scans head-to-toe, if you want to set up an anti-aging clinic you can, more economically, ultrasound people head-to-toe. Either make the decision to charge them and bill insurance for a piecemeal ultrasound, or you can just make a one-package deal, for example an ultrasound of the thyroid, or an ultrasound of the feet. There are two types of ultrasound: the Doppler for the heart, the carotids, the brain, the abdomen, the kidneys, the scrotum, the uterus, ovaries and the prostate, and then there are the machines for ankle-brachial and all the small blood vessels.

The pauses tell us what diagnostics are critical for the anti-aging practice. It is important to remember that they occur at different rates and you have to assess that. The ovary dies on virtually all women by 60, but testicular or andropause in men is a gradual pause. Some people have advanced vasculopause. Some people have an early vasculopause. Your job as an anti-aging clinician is to work out exactly what is going on in the patient's body.

NUTRIENTS AND DIETARY SUPPLEMENTATION

The whole movement of anti-aging began with the recognition that old people do not absorb nutrients. When a baby is born, s/he comes complete with an IV, the umbilical cord and the placenta. I submit that the future of anti-aging is going to include nutritional feedings and supplements given intravenously. The blood of most 60- and 70-year-olds will be deficient in at least one nutrient, so there is no better way to test a person's nutritional status than testing their blood.

People take a hodge-podge of nutrients. There are simply too many supplements to choose from. You can take amino acids, which balance and re-balance your protein. And you are using amino acids to do what? To either treat a condition or supplement a neurotransmitter or a brain function. You can take all the vitamins you want. You can use a vitamin like niacin at 2 g as a therapeutic drug for treating cholesterol, or you could take a B-complex vitamin like folate at 400 mcg as a supplement. So every nutrient choice is either a therapeutic drug use, or a supplement use. All of the amino acids could be

useful therapeutically. Vitamins can be useful therapeutically or as supplements. Fatty acids can be useful therapeutically. There are also all the minerals to consider.

The sheer choice of supplements available often means that people interested in their health end up taking a wide variety of pills. Patients will walk into a practice and say that they have been taking calcium for 40 years. Yet these patients are still osteoporotic. Why? To understand this it is necessary to look at the principle of the pauses. Human beings are a complete integrated system. Like a ladder, the brain is at the top, the higher power, down to the genes. If you do not fix one part, your person dies anyway. So without hormones, the calcium the patient had been taking for the last 40 years was not absorbed. Generally, the least important factor of osteoporosis is calcium intake. Cigarette smoking, menopause, GH loss, estrogen loss, and testosterone loss play a far bigger role in osteoporosis than calcium intake.

You are only as young as your oldest part. Below is a list of the different pauses that occur in the human body during the aging process.:

PAUSE	**DECLINE IN**
Electropause	Brain memory, metabolism and rest
Psychopause	Personality stability and mood, increased anxiety
Pineal Pause	Melatonin, increase in sleep disturbances
Pituitary Pause	Brain - body hormone balance
Sensorypause	Hearing, sight, touch, smell, sensitivity
Thyropause	Thyroid and body metabolism
Parathyropause	Parathormone and bone density
Thymopause	Glandular function and immune system
Cardiopause	Pumping power, valves and blood flow
Pulmonopause	Lung elasticity and function with increase in blood pressure
Gastropause	Nutrient absorption with increase in stomach acidity, gallstones, diverticulosis
Adrenopause	DHEA, fight-or-flight response
Nephropause	Erythropoietin, filtering of toxins
Somatopause	Growth hormone, muscle strength and fibers
Pancreopause	Glucose tolerance and insulin sensitivity
Andropause	Testosterone, sex drive
Menopause	Estrogen, progesterone, testosterone and more
Vasculopause	Blood flow to hands, feet and sexual organs
Osteopause	Bone density
Uropause	Bladder control, infection resistance
Dermopause	Collagen, vitamin D, skin health
Genopause	DNA repair, cell integrity

NON-DRUG ALTERNATIVES

The next step is treating the patient. Here, the important principle is finding a nutrient non-drug alternative to conventional medications. For example, replace statins with red yeast. Statin-like substances can be found in certain herbal supplements. Quinine, N-acetyl cysteine, Gabapentin, tyrosine, phenylalanine, and tryptophan, are all neurotransmitter precursors. Also, don't forget that every medical office uses digoxin, which is an herb. The way anti-aging medicine should start is that the doctor should offer and inform the patient about drugs that can be used to treat their condition. However, a wise anti-aging doctor should also tell the patient that there are a number of nutrients, herbs, and bioidentical hormones that can imitate the effects of these drugs. Thus meaning that the patient will not have to take the drugs, or s/he will have to take less of them. Alternatively, the nutrients will increase the effectiveness

of the drugs. So every medication is either going to get more effective, be reduced, or eliminated, and East meets West at a new path with natural and conventional approaches merging.

Why is this so important? It is not possible to be a doctor and not draw from healing of the conventional. If a person says to you that they will not take any conventional manmade approaches, it suggests that they have resentment towards humanity in general and cannot accept humanity's help. On the other hand, if you get a doctor who thinks that there is nothing natural that will ever help them, they have too much of an attitude that human beings are here on this earth to dominate nature and to take over nature. So, ultimately, our selections of a multimodal approach of spiritual, nutritional, our own internal resources, and manmade chemicals reflect our own internal wellness and balance in life.

One natural agent that should be considered in depth is gabapentin, or Neurontin. The average dose of clonidine is 0.1 mg; Xanax 0.5 mg; Klonopin goes up to 16 mg; Tegretol ranges from 200 mg to 800 mg. Most drugs are in the range of less than 200 mg, so why is the average dose of gabapentin 3,600 mg? Gabapentin is a combination of gamma-aminobutyric acid (GABA) and inositol, which passes freely through the blood brain barrier and raises levels of GABA in the brain. Thus, gabapentin is not really a drug in the conventional sense. You either can fix the brain by adding more neurotransmitter precursors such as tyrosine, phenylalanine, tryptophan, arginine (a precursor of nitric oxide), or gabapentin (a precursor and stimulator of GABA). Or you can use something that blocks the receptors. For example, antidepressants are drugs that block receptors. They preserve the neurotransmitter. Tricyclic antidepressants block one receptor, and Selective Serotonin Reuptake Inhibitors (SSRIs) block the uptake of the neurotransmitter.

DIAGNOSTIC SERVICES

You have to conduct the correct diagnostic tests, and you have to deal with the fact that no one diagnostic system covers everything. To cover absolutely everything you need: a brain map for the brain; an ultrasound for the body; a DEXA scan for bone and muscle; a backup Ultrafast CT for positive stress thalliums; a PET scan for cancer patients; an MRI for MS patients; and blood analysis. The important thing is knowing when and how to use them.

Testing the Brain

Brain function is important in every single condition. As we age, the creative and alert brain starts to decline. Beta and alpha waves diminish, and theta and delta waves increase. As a result, the mind starts to present symptoms of stress, anxiety, and depression.

A variety of instruments and tests are needed to assess the health of the brain:

- A brain map, which can determine a person's likelihood of going senile;
- A Millon profile, which can determine whether or not a patient has a severe psychiatric disorder or if the patient is too anxious, or too blue, or too hysterical to benefit from you
- A Myers-Briggs test, which can tell you whether the patient the type that can handle 49 supplements six times a day and a GH injection daily; or if s/he would be better suited to taking three vitamins, a brain energy supplement, antioxidant, and a multivitamin, and having a GH injection and a testosterone injection once a month. Be mindful that some people are not going to be organized enough to take large numbers of supplements, but some are. Thus, a quick assessment of your patient will help you to determine what sort of regimen they can cope with.
- A Wechsler Memory Scale-III (WMS-III): this test can be done in approximately half-an-hour, and anyone can be trained as a technician to do it. What you may find is that most people who complain of a memory problem actually have an anxiety problem. They are getting irritated, they are getting worried, and they are getting stressed out. That does not mean that they are not going to develop a memory

problem in the future, but the brain has to slow down. Memory is basically a wave and a particle. If the neurons slow down, they keep dropping the biochemical balls of memory. Half of the patients that come for a consultation at my medical practice are suffering from attention loss. Older people miss things and they drop things. Young people become impulsive, and children can be distractible.

Brain waves are the key to life. They are what distinguish the living from the dead. When we measure brain waves we are measuring consciousness, brain speed, brain chemical depression, and brain chemical rhythm. As a doctor, what you are really measuring is whether your treatment worked or not. If a change in brain electricity is the sum result of all of your treatments, the proof that you are successful is the patient saying that their memory is much better. The final end point marker of successful treatment of a patient is a juiced-up, stable, energized, sharp brain. This is why you need to measure the brain with a BEAM (brain electrical activity map).

The Brain Electrical Activity Map (BEAM)

Conventional doctors used to say that EEG was the cornerstone of electrical evaluation of the brain. However, the truth is that EEG is the least valuable thing you could possibly do in terms of gathering information. No sensible doctor would rely solely on the EKG to detect heart disease. They would measure HDL, LDL, and total cholesterol levels, homocysteine levels, C-reactive protein levels, fibrinogen levels, and they would use Holter Monitoring, echocardiography etc. Fortunately, everyone now realizes that if you want to find out a lot about the brain an electrical stress test is required.

The Brain Electrical Activity Map (BEAM) provides us with a way of measuring brain function. The BEAM is the cornerstone because the P-300 voltage tells us about a patient's brain energy, power, and metabolism. If a patient is obese, fatigued, or depressed, it will tell you about the severity of his condition. So, new tools like the BEAM can be used to decide which patient is going to respond to an amino acid, and which patient is going to require treatment with both medications and amino acids.

Thus, the BEAM enables us to discover the root of a brain disorder. This root may be caused by low energy: dopaminergic, low memory processes; acetylcholinergic, arrhythmias; GABAergic; or bad mind-body relaxation, mood, or sleep (serotonergic). The EEG shows almost nothing in cocaine abusers. That is why we use the BEAM. 100% of cocaine-users present with abnormalities the BEAM. In comparison, MRI cannot detect abnormalities caused by cocaine abuse. The issue here is brain chemistry, and electricity. The electrical status of the brain is actually more central than the mix of biochemicals, and the BEAM picks this up.

Basically, every part of the human body has a maximum age of 120. Thus, when it comes to Alzheimer's, the question here should not be "does the patient have Alzheimer's?"; rather, it should be "how far away is this patient from getting Alzheimer's?" Everyone's brain slows down with age. So what a 60-year-old patient needs to know whether he is 40 years away from developing Alzheimer's or 10 years. We will eventually all develop Alzheimer's if we slow down, but new studies suggest that it might be reversible in the early stages. This brings us to another paradigm principle of every anti-aging practice: the early detection of disease. If osteoporosis is detected in the early stages, a patient will not become 3 inches shorter. If muscle cachexia of aging is caught early, a patient will not lose his biceps. If breast cancer or a breast cyst is caught early enough it hopefully will not progress to breast cancer. So, if Alzheimer's is detected in the first stages and it is treated as best as we can, with all our medical resources, the hope is that the patient will not develop full-blown Alzheimer's.

CONCLUSION

In the future, we may have a computer that can say the brain is 20, the bones are 40, the heart is 90, the adrenals are 60, and the genitals are 50. Thus making it possible to fix the 90-year-old part of the patient first, and then work your way through the body and making them younger. That really is all medicine is about. It is finding the oldest, most worn out part, or pause, and fixing it.

However, at present we do not have such a computer, thus we have to rely on blood tests, imaging technology, psychological assessment, and other relevant evaluations. By using the most high-tech devices available, anti-aging clinicians can detect disease in its earliest stages and therefore intervene before serious problems arise.

ABOUT THE AUTHOR

Dr. Eric Braverman is the Director of The Place for Achieving Total Health (PATH Medical), with locations in New York, NY, Penndel, PA (Metro-Philadelphia), and a national network of affiliated medical professionals. Dr. Braverman received his BA Summa Cum Laude from Brandeis University and his M.D. with honors from New York University Medical School, after which he performed postgraduate work in internal medicine with a Yale Medical School affiliate in Greenwich, Connecticut. Dr. Braverman is a recipient of the American Medical Association's Physician Recognition Award.

Dr. Braverman has published and presented more than 90 research papers to the medical community. His lectures include topics on Melatonin, Tryptophan, and Amino Acids (given at Los Alamos National Laboratories), and The Core Neurotransmitters and Hormones and How They Affect the Aging Process (given at Brookhaven National Laboratories). One of his most recent lectures was on P-300 Evoked Response as a Predictor of Alzheimer's Disease at Oxford University in England.

Dr. Braverman is the author of five medical books, including the *PATH Wellness Manual*, which is a user's guide to alternative treatment. He has appeared on CNN (Larry King Live), PBS, AHN, MSNBC, FOX News Channel and local TV stations. Dr Braverman has been quoted in the *New York Post*, *New York Times*, and the *Wall Street Journal*. Dr Braverman's 26 years of medical education, training, and clinical practice have focused on the brain's overall health.