CHAPTER 1

LIVING LONGER, FEELING SICKER

You stand before the mirror. It could be in the morning before you go to work, or in the evening as you get ready to go to bed.

You look at yourself.

The hair is thinner, the waistline bigger. You lean closer to the glass. Have some new wrinkles appeared next to the corners of your eyes? And your teeth—maybe you should get them capped, you think. That would be a big improvement.

Sure, you're not as young as you used to be. Who is? Getting older is a fact of life that people have been dealing with as long as human beings have been capable of thinking about life and death.

People are living longer than ever before, you say to yourself. Life is good—I don't want to complain!

But deep down inside, you don't feel right. You don't feel good.

It's more than just a new wrinkle or a bit of flab where you don't want it. You feel as though something is fundamentally wrong with the direction of your life.

The problem is not necessarily your job or your family. It's your *health* that's got you worried.

You open your medicine cabinet. There they are, lined up like soldiers going into battle: the little plastic bottles of the prescription drugs you take every day. Drugs that your doctor has prescribed for you. You read the labels of these best-selling medications:

- Levothyroxine, a hypothyroid medication
- Lipitor, which lowers cholesterol
- Esomeprazole, a proton-pump inhibitor to help with gastro-esophageal reflux Lexapro, an anti-depressant
- Metformin, to combat high blood sugar from adult onset diabetes mellitus
- Ambien, to help you sleep

Sometimes it's hard to keep track of them all.

You like your doctor. He or she listens patiently as you describe how you feel—tired, anxious and irritable, achy, and not sleeping well. He notes that you could stand to lose a few pounds and get more exercise. He may even have scheduled a battery of tests for you:

- EKG and other heart screening tests
- Bone scans for osteoporosis
- An MRI for low back pain
- Diagnostic tests for suspected allergies
- CT scans and other imaging procedures for headaches

None of these tests have revealed anything terribly wrong. Everything is within normal limits for a person of your age and gender.

Before you leave the examining room, your kindly doctor takes out his prescription pad, scribbles something, and hands it to you. "This will clear up your symptoms," he says. "I'd like to see you again in six weeks for a follow-up."

Yet all of these tests and prescription medications never seem to

do any good. Oh sure, when your doctor prescribed a statin to reduce the level of cholesterol in your blood, after a few weeks your "numbers" got better. Your LDL (the "bad" cholesterol) went down, and HDL (the "good" cholesterol) went up a little bit. Your doctor warned you about the drug's potential side effects, which can include intestinal problems, liver damage, muscle inflammation, memory loss, mental confusion, high blood sugar, and Type 2 diabetes. But it seemed to be worth it, because you know from seeing the ads on television that having high cholesterol is a terrible thing that needs to be corrected at any price.

Sometimes you feel as though you're overmedicated and over-tested, and nothing seems to get better. Is it your imagination? Probably not. If you feel a deep sense of malaise, you are not alone. There are millions of Americans who don't feel well and don't know why. They're endlessly tested and medicated, but still they are sick.

A TSUNAMI OF DRUGS

A 2013 Mayo Clinic study found that nearly seventy percent of Americans are on at least one prescription drug, and more than half take two. Published online in the journal *Mayo Clinic Proceedings*, the study revealed that one of five patients are on five or more prescription medications. Researchers found antibiotics, antidepressants, and painkilling opioids are the most commonly prescribed. Except high blood pressure drugs, which are more often used after the age of thirty, drugs are prescribed to both men and women across all age groups. Overall, women and older adults receive more prescriptions. Women receive more prescriptions than men across several drug groups, especially antidepressants. Nearly one in four women ages fifty to sixty-four are on an antidepressant. Among young and middle-aged adults, antidepressants and opioids are most common. Older adults get cardiovascular drugs, anti-diabetic drugs and drugs to make them sleep.

Is this progress? You think back to the old days. You remember

hearing about your great-grandfather who, at the age of sixty, contracted pneumonia. He took to his bed. A week later he was dead. Just like that. Boom. Here one day, gone the next. That's how it was back then. People tended to get sick and then die much more quickly. To bring perspective to all of you, a century ago menopause and its male counterpart andropause marked the end of the lifespan. Now women and men will live more than thirty years longer.

QUALITY OF LIFE

We live longer, but is our quality of life maintained? No, longevity has won out, but QOL has been continually discounted. Over the past century, breathtaking medical advances have been made. Introduced in the 1950s, polio vaccine has nearly wiped out this crippling disease. Ditto for smallpox. Doctors now perform amazing transplants and other operations that in great-grandpa's day were the stuff of science fiction.

Consequently we have more years, but what kind of years? Are they more time to really live, or more time to feel lousy?

For all of its advances, medicine seems to not work for us. Death still claims us. In the United States, the leading causes of death are heart disease, cancer, chronic lower respiratory diseases, and stroke (cerebrovascular diseases). Many of us die from accidents, and then the next most common causes of death are Alzheimer's disease, diabetes, influenza and pneumonia, and a trio known as nephritis, nephrotic syndrome, and nephrosis, or kidney disease. We are becoming increasingly overweight; over one-third of Americans are obese, and another one-third are overweight. These rates have more than doubled since the nineteen-seventies.

According to the World Health Organization, in 2013 the United States ranked thirty-fifth among nearly two hundred nations in overall life expectancy. Thirty-fifth! With an average of 79.8 years of individual life, we lag behind Japan (84.6), Italy (83.1), France (82.3), Israel (82.1), Germany (81)—practically every

industrialized nation. We are even bested by Slovenia (80). Are you proud of that?

As you stare into the mirror and run your fingers across the plastic pill bottles in your medicine cabinet, you feel as though your doctor and the pharmaceutical companies whose cinema-quality ads flood the airwaves are only treating your symptoms. They are not *healing* you. Deep down inside, you're as sick as you've ever been.

Why? Why are we so sick? Here are some of the reasons.

THE PERSISTENCE OF CARDIOVASCULAR DISEASE

Each year, cardiovascular disease is America's leading health problem, and the leading cause of death. According to the American Heart Association, approximately eighty-four million Americans suffer from some form of cardiovascular disease, causing about 2,200 deaths a day. That's one death every forty seconds. An estimated fifteen million U.S. adults have coronary heart disease, seventy-eight million have high blood pressure, and an estimated twenty million have diabetes. Cardiovascular disease is the cause of more deaths than cancer, chronic lower respiratory diseases, and accidents combined. It's the number one killer of both women and men.

The direct and indirect costs of cardiovascular disease and stroke are about $315 billion, and this figure is increasing every year.

What causes cardiovascular disease? While the term can refer to many different types of heart or blood vessel problems, it's often used to mean damage caused to your heart or blood vessels by *arteriosclerosis*, which is the term for when the blood vessels that carry oxygen and nutrients from your heart to the rest of your body become thick and stiff, restricting blood flow to your organs and tissues.

Atherosclerosis is a specific type of arteriosclerosis that refers to the buildup of fats, cholesterol and other substances in and on your artery walls (plaques), which can restrict blood flow.

Atherosclerosis is the most common cause of cardiovascular disease, and it's often caused by an unhealthy diet, lack of exercise, being overweight or obese, and smoking. All of these are major risk factors for developing atherosclerosis and, in turn, cardiovascular disease.

OBESITY

Even as many parts of the developing world experience persistent food insecurity, its opposite, obesity, is becoming a worldwide epidemic. In the United States, the prevalence of *overweight* (body mass index [BMI] 25 to 29.9) and *obesity* (BMI 30 and above) is over sixty percent. Obesity can also be more simply defined as having a waist circumference of forty inches (102 cm) or more for men and thirty-five inches (89 cm) or more for women, although waist circumference cutoff points can vary by race. Obesity is also on the rise in most other industrialized countries.

But what does this mean? Is it unhealthy to be fat? What are the consequences?

It depends who you ask. Founded in 1969, the National Association to Advance Fat Acceptance (NAAFA) says it is a "non-profit, all volunteer, civil rights organization dedicated to protecting the rights and improving the quality of life for fat people. NAAFA works to eliminate discrimination based on body size and provide fat people with the tools for self-empowerment through advocacy, public education, and support." NAAFA asserts that "our thin-obsessed society firmly believes that fat people are at fault for their size and it is politically correct to stigmatize and ridicule them."

Be that as it may, the actual and measurable health risks of being overweight or obese—for whatever reason—are well documented. Excess weight and obesity are linked to *metabolic syndrome*, which is a cluster of conditions including increased blood pressure, a high blood sugar level, and abnormal cholesterol levels that, when occurring together, increase your

risk of heart disease, stroke, and diabetes.

A central feature of metabolic syndrome is insulin resistance, which results in hyperglycemia and hyperinsulinemia, and can eventually lead to the development of diabetes.

Having just one of these conditions doesn't mean you have metabolic syndrome. However, any of these conditions increase your risk of serious disease. If more than one of these conditions occur in combination, your risk is even greater.

According to the Third National Health and Nutrition Examination Survey (NHANES III), in 2014 the prevalence of metabolic syndrome in the United States was twenty-three percent in persons aged twenty years or older, and over forty percent in those who were aged sixty and older.

If you have metabolic syndrome or any of the components of metabolic syndrome, significant lifestyle changes can delay or even prevent the development of serious health problems.

DIABETES

Hot on the heels of the increase in obesity has come a global increase in diabetes.

Diabetes begins with insulin, a hormone that is produced in the pancreas. Insulin facilitates the transfer of glucose (blood sugar) from the bloodstream into our body's cells. Our cells need glucose as fuel. Without glucose in our cells, they would not be able to function. Without the appropriate levels of insulin, glucose stays in your bloodstream, raising your blood sugar level. High blood sugar, or hyperglycemia, can lead to the signs and symptoms of diabetes.

In *insulin resistance*, muscle, fat, and liver cells do not respond properly to insulin and thus cannot easily absorb glucose from the bloodstream. As a result, the body needs higher levels of insulin to help glucose enter cells. The pancreas tries to keep up with this increased demand for insulin by producing more. Over time,

insulin resistance can lead to Type 2 diabetes and prediabetes because the pancreas fails to keep up with the body's increased need for insulin. Without enough insulin, excess glucose builds up in the bloodstream, leading to diabetes, prediabetes, and other serious health disorders. (Prediabetes is a condition where blood glucose levels are higher than normal but not high enough to be called diabetes.)

There is a clear but as yet undefined causal relationship between obesity and insulin resistance. Although the exact causes of insulin resistance are not completely understood, scientists think the major contributors to insulin resistance are excess weight, hormone imbalance, and physical inactivity. The *location* of your body fat seems to be important. Individuals with greater degrees of central adiposity (the accumulation of fat in the lower torso around the abdominal area) develop this syndrome more frequently than do those with a peripheral body fat distribution.

These circumstances lead to diabetes, which is a group of metabolic diseases in which the individual has high blood glucose (blood sugar), either because the body's cells do not respond properly to insulin, or because insulin production is inadequate, or a combination of both. Patients with high blood sugar will typically experience polyuria (frequent urination), they will become increasingly thirsty (polydipsia) and hungry (polyphagia). Why does this matter to you? For two reasons:

The first reason is that diabetes is a serious disease. According to the World Health Organization (WHO), the consequences of diabetes include:

- Increased risk of heart disease and stroke. Fifty percent of people with diabetes die of cardiovascular disease (primarily heart disease and stroke).
- Combined with reduced blood flow, neuropathy (nerve damage) in the feet increases the chance of foot ulcers, infection and eventual need for limb amputation.
- Diabetic retinopathy is an important cause of blindness,

and occurs as a result of long-term accumulated damage to the small blood vessels in the retina.

- Diabetes is among the leading causes of kidney failure.
- The overall risk of dying among people with diabetes is at least double the risk of their peers without diabetes.

The second reason is that diabetes is becoming epidemic. The number of Americans diagnosed with diabetes rose from 1.5 million in 1958 to 18.8 million in 2010, an increase of alarming proportions. Roughly 79 million adults aged twenty and older have prediabetes. Diabetes is the seventh leading cause of death in the United States, and among people with diabetes, cardiovascular disease is the leading cause of death. It is estimated that one in three Americans living today will eventually develop diabetes, and that the number of cases will increase in this country by 165% by 2050.

Not surprisingly, diabetes has become big business. There are an estimated 370 million people in the world with diabetes. More children are developing the disease and more people are dying from diabetes, and so more and more people are seeking treatment. Standard & Poor's has estimated the annual market will increase from $35 billion in 2014 to $58 billion by 2018. As *The Motley Fool*, an investing website, recently said, "Drugs in this space have the potential to reach blockbuster status, and companies are consequently clamoring for market share. In particular, GLP-1 (glucagon-like peptide-1) agonists mimic an endogenous incretin hormone that spurs the body to produce more of its own insulin; these agents hold the distinct advantage of being either once-a-day or weekly dosing. The field is becoming more crowded, with Novo Nordisk's blockbuster Victoza, AstraZeneca's Byetta and Bydureon, and Sanofi's once-daily Lyxumia."

If you listen carefully, you can almost hear countless pens scratching out more prescriptions on the pads of doctors from sea to shining sea.

IODINE DEFICIENCIES

Iodine? Isn't that the stuff they put in salt? The orange liquid your mom put on your cut when you were a little kid?

Yes, and for good health you need it in your diet. Essential to life, iodine is especially crucial for brain development in children, making its deficiency the number one cause of preventable mental retardation worldwide. It also plays an important role in healthy function of your thyroid gland. This is why the most visible symptom of iodine deficiency is *goiter*—the painful enlargement of the thyroid gland that manifests as an unsightly swelling around the neck and larynx.

The problem is that in nature, iodine is a relatively rare element. While it's found in abundance in the ocean, its presence in soil is very low in many places around the world, including the United States.

Not long ago, this was a problem that was considered solved, at least in industrialized nations. In the 1920s, salt iodization was implemented to counteract the effects of iodine deficiency. Iodine was added first to flour, then to salt, and the problem was considered solved. While goiter was relatively common a few generations ago, nowadays most Americans have never seen it.

Less than a century later, there is an epidemic of iodine deficiency in this country that affects every man, woman and child, and especially vegetarians. Over the last thirty years our iodine intake has declined by fifty percent, while the ingestion of toxic competing halogens such as bromine, fluorine, chlorine, and perchlorate has dramatically increased in food, water, medicines, and the environment.

In the 1960s, iodine was added as an anti-caking agent to bakery products, but because of misplaced fears of iodine toxicity ("iodophobia"), in the 1980s it was replaced with bromine, the gas used to fumigate houses for termites. Bromide is also widely present in soil and crop fumigants as well many foods and drugs.

Perchlorate is a key ingredient in rocket fuel. It continually makes its way up the food chain through ground and drinking water, into feed and edible plants, animal products, milk, and breast milk, and can now be found in virtually all humans tested. Perchlorate blocks the thyroid gland's ability to absorb and utilize dietary iodine, an effect that is of concern when iodine intake drops off.

Research suggests these halides compete with iodide for absorption and uptake in the body. This means they function as *goitrogens*, or substances that suppress thyroid function by interfering with iodine uptake and accumulation.

In addition, because of medical advice to cut our salt intake, we're consuming less table salt, which is generally iodized. We're still eating vast quantities of salt in processed foods, but this salt does not contain iodine. By cutting our salt intake we are also cutting our iodine intake, which is why research has revealed that mean urinary iodine levels (a measure of iodine sufficiency) have dropped by more than half over a twenty-year period.

It is this iodine deficiency that has led to the increased risk of breast cancer, prostate cancer, Hashimoto's thyroiditis, and so many other contemporary health issues. You can take steps to avoid iodine deficiency by consuming foods rich in iodine, including sea vegetables (kelp, dulce, nori), yogurt, cow's milk, eggs, strawberries, mozzarella cheese, iodine-containing multivitamins, iodized table salt, saltwater fish, shellfish, soy milk, and soy sauce. The reality is we need much more iodine than our recommended daily allowance told to you by the federal government.

OVERMEDICATED SENIORS

As we live longer, we're taking more drugs. This is such a common occurrence that it even has a name: Polypharmia. That's the term used to describe older patients who take more drugs than they actually need.

Many Americans with an aging parent have experienced this scenario. Mom or Dad isn't feeling well. They may even seem to be "not themselves." Out of curiosity, you go to their medicine cabinet. Inside you find shelves of pill bottles, all of them prescription. Some may be from multiple doctors. Who can take so many pills and not get sicker?

The problem is so widespread that physicians are now consulting the *Beers Criteria for Potentially Inappropriate Medication Use in Older Adults*, commonly called the *Beers List*, which is a guideline for healthcare professionals' to help improve the safety of prescribing medications for older adults. Originally published in the *Archives of Internal Medicine* in 1991 and since updated, it emphasizes de-prescribing medications which are unnecessary to healthcare.

There were more than fifty-five million prescriptions for opioid painkillers given to people over sixty-five years of age in 2013 alone. It is reprehensible that over 100,000 emergency room visits last year were for misuse of medications by our seniors.

THE END OF HORMONE REPLACEMENT THERAPY

Sometimes, a safe and effective treatment is unfairly maligned by poorly designed studies, leading to its needless discontinuance by people who are benefitting from it.

Pioneered in the 1940s, hormone replacement therapy (HRT) became more widely used in the 1960s, leading to advances in the management of menopause. HRT was prescribed to menopausal women for the relief of symptoms including hot flashes, night sweats, sleep disturbances, psychological and genito-urinary problems, and for the prevention of osteoporosis.

In 2002, a national study asserted that the combination estrogen-progestin regimen used by millions of middle-aged and older women—an estimated six million of them in the United States alone—did more harm than good.

Funded by a National Institutes of Health program called the Women's Health Initiative (W.H.I.), the study was begun in 1993 with over 16,000 participants. Originally scheduled to continue well into 2005, the trial was stopped in 2002 because, after an average 5.2 years of participant follow-up, it was claimed that increased cases of invasive breast cancer were found among those taking the hormone regimen than in women taking a placebo.

Then in 2003, the so-called Million Women Study (MWS) provoked headlines when it said hormone replacement therapy (HRT) led to a rise in breast-cancer incidence. Based on questionnaires returned by more than a million post-menopausal women in Britain, its estimate caused a wave of anxiety and much confusion among regulators and doctors and among women using HRT.

But an assessment published in 2012 in the *Journal of Family Planning and Reproductive Health* revealed the design of the MWS study had so many problems that a safe conclusion could not be drawn. "HRT may or may not increase the risk of breast cancer, but the MWS did not establish that it does," the paper said bluntly.

Today, many so-called "experts" have conceded that for the majority of women who use HRT for the short-term treatment of symptoms of the menopause, the benefits of treatment are considered to outweigh the risks. Unfortunately, these "experts" continue to overlook the numerous published studies on the *long-term* benefits of hormone replacement therapy.

Men and women are not being told that long-term hormone replacement therapy can decrease their risk for heart disease, diabetes, Alzheimer's disease, breast cancer, and osteoporosis.

In 2013, the *American Journal of Public Health* reported that since the flawed data of the Women's Health Initiative was published in 2002 and restated in 2012 by the same physicians who knowingly deceived the public, tens of thousands of women

have died because they stopped their hormones.

So yes we are living longer, too bad the quality of our life is disintegrating. If we want to co-pilot our health on the go forward, we must see who are our friends and who is our foe. Is it possible to change medicine from a business to a profession of healthcare restoring the health and vitality for all of us?

CHAPTER 3

HORMONES—THE FOUNDATION TO GOOD HEALTH

The human body is a complicated machine. You know the basics—our bodies are built with a skeleton, muscles, organs, a brain, and many systems. The building blocks of all of these components are the individual cells. By the most the current estimate published in the *Annals of Human Biology*, an adult human is composed of roughly 37.2 trillion cells. These cells work more or less harmoniously to maintain human life and let you do all the stuff that you do every day. (Your 37.2 trillion cells also provide a happy home for the roughly 100 trillion microorganisms that live in your gut—but that's a subject for another book.) Your cells come in a wide variety of shapes and sizes, which is one reason why it's difficult for scientists to count them. In case you're interested, the largest and smallest cells in the human body are both part of the reproductive system. The largest cell in the human body is the female ovum or egg, which is roughly one millimeter across and barely visible to the naked eye. The smallest is the male equivalent of the female gamete, commonly known as the sperm cell, or spermatozoon, which is only sixty micrometers in length. (A micrometer is 1/1000 of a millimeter.) Sperm cells are not visible to the naked eye, and you need a microscope to examine them.

It's one of the miracles of life that our 37.2 trillion human cells plus our 100 trillion microbial tenants manage to work together to achieve an average life span for someone living in the United States of 78.74 years. The good news is our lifespan is increasing, which is why this book is so important so you know how to "age healthier" and avoid harmful synthetic drugs!

The task of managing and directing the countless activities of our cells—moving, thinking, communicating, eating, reproducing—falls to a number of systems in our bodies. The most obvious, of course, is the brain, which, as the body's chief executive, controls a large proportion of what we do every day.

But there are other systems that work behind the scenes to regulate and manage our bodies' many complex biochemical processes. These systems do not require conscious thought; they just happen naturally as the result of our organic programming. You do not consciously digest your food or make your heart beat; these involuntary actions are controlled by unseen instructions. For example, when you cut your finger, the bloodstream rushes white blood cells to the damaged area to help fight off infection. It's a service that your body provides without conscious direction.

HORMONES AND HEALTH

One of the important regulatory systems embedded in your body's apparatus is your portfolio of hormones. These are chemicals that your body has synthesized. They act as messengers, designed to interact with specific target cells and organs and provoke a change or result. Hormones are found in all multi-cellular organisms and their role is to provide an internal communication system between cells located in distant parts of the body. Hormones are secreted directly into the bloodstream, which carries them to organs and tissues of the body to exert their functions. Some of these functions include:

- Cognitive function and mood.
- Development and growth of the body.
- Digestion and metabolism of food materials.

- Maintenance of body temperature and thirst.
- Reproductive growth and health.

Hormones are secreted from specialized endocrine glands in the body. The glands are ductless, which means that many hormones are secreted directly into the blood stream rather than by way of ducts. Some of the major endocrine glands in the body include:

- Pituitary gland
- Pineal gland
- Thymus
- Thyroid
- Adrenal glands
- Pancreas
- Testes
- Ovaries

For example, the pituitary gland is located in the brain. This gland reaches its maximum size in middle age and then gradually becomes smaller. The front (anterior) portion of the pituitary gland produces hormones that affect the thyroid gland (TSH), adrenal cortex, ovaries, testes, and breasts.

The hypothalamus is also located in the brain. It produces hormones that control the other structures in the endocrine system. While the amount of these regulating hormones stays about the same, as we age the response by the endocrine organs can change.

The thyroid gland is located in the neck. It produces hormones that help control metabolism. Beginning at around age twenty, metabolism begins to slow down.

The parathyroid glands are four small glands located around the thyroid. Parathyroid hormone affects calcium and phosphate levels, which affect the strength of the bones. Parathyroid hormone levels rise with age, which may contribute to osteoporosis.

The pancreas produces insulin, which facilitates the transfer of sugar (glucose) from the blood to the cells, where it can be used for energy.

The adrenal glands are located just above the kidneys. The adrenal cortex, the surface layer, produces the hormones aldosterone and cortisol. Aldosterone regulates fluid and electrolyte balance. Aldosterone release decreases with age, which can contribute to light-headedness and a drop in blood pressure with sudden position changes (orthostatic hypotension). Cortisol is the "stress response" hormone.

The ovaries and testes produce the sex hormones that control secondary sex characteristics, such as breasts and facial hair. They also perform hundreds of other functions, which we will cover in detail later.

Some hormones, such as insulin and growth hormones, are fully active when released into the bloodstream. Others must be activated in specific cells through a series of activation steps that are highly regulated.

While all of the body's cells are exposed to all of the hormones circulating in the bloodstream, not all cells react to them. Hormones affect specific target tissues by binding to receptor proteins to elicit a specified action in the cellular target. Conversely, cells respond to a hormone when they express a specific receptor for that hormone.

CHANGES IN OUR HORMONES

Because it takes very low levels of hormones to bring about major changes in the body, hormones are secreted in microscopic amounts. Either a very slight excess of hormone secretion or the slightest deficiency can lead to disease states.

The levels of various hormones fluctuate on both a short-term basis—hour-by-hour, day-by-day—as well as on a long-term basis over many years and even over our lifetimes. Some of the most significant long-term changes occur as we age from maturity

into what used to be called our "golden years." Change happens at both ends of the hormonal system: Over time, the amount of hormones produced may change, while some target tissues may become less sensitive to their controlling hormone. Blood levels of some hormones increase, some decrease, and some are unchanged. Hormones are also broken down (metabolized) more slowly.

Many of the organs that produce hormones are, in turn, controlled by other hormones. Aging changes this process. For example, an endocrine tissue may produce less of its hormone than it did at a younger age, or it may produce the same amount at a slower rate. In addition, the receptors for these hormones change as we age. They are often affected by the toxins we put in our bodies.

The state of our health is directly related to the state of our hormones. While individual health varies greatly, there are typical ages at which hormones begin to decline. By age thirty, both men and women enter what's called somatopause. This is when the human growth hormone (HGH) begins its decline. Falling about fourteen percent per decade after the age of thirty, by the age of eighty, production of HGH has been reduced to five percent of what it was at the age of twenty.

Typical signs and symptoms of decreasing HGH in your body could include low energy, reduced muscle strength, weight gain or loss, mood swings, sagging skin, poor memory, greying hair, fluctuation in blood pressure, slow wound healing, diminished libido, and sleep difficulties.

Women enter perimenopause. The term means "around menopause," and refers to the time period during which a woman's body begins its transition toward permanent infertility and sex hormone deprivation (menopause). Women start perimenopause at different ages—in their thirties or forties and sometimes sooner. The perimenopause usually commences ten to fifteen years before menopause. During perimenopause, the level of estrogen rises and falls unevenly. A woman's menstrual cycles may lengthen or shorten, and she may begin

having menstrual cycles in which her ovaries don't release an egg. Additionally, a women's testosterone level begins to fall. She may develop symptoms of anxiety, irritability, depression, weight gain, muscle aches, fatigue, reduced sex drive, insomnia, poor memory focus and concentration, and night sweats (not to be confused with the hot flashes of menopause). She may also experience symptoms resembling menopause, such as hot flashes, sleep problems and vaginal dryness. DHEA levels (dehydroepiandrosterone) begin to decrease. This occurs mostly because the adrenal gland is capable of producing testosterone, and in trying to replenish the testosterone levels it becomes overworked. Hence the term "adrenal fatigue." The good news is that the adrenal gland usually recovers after testosterone is replenished.

After age forty, many women enter menopause. This is the age when progesterone, and estrogen begin to decrease. Progesterone begins to fall in the late perimenopause and continues its decline as a women enters menopause. It's defined as having experienced twelve consecutive months without a period. However, it can be diagnosed much earlier, so there's often no need for a woman to suffer for an entire year.

Effects may include aches and pains in the joints, chronic fatigue, depression, sleep disturbances and anxiety. A woman begins losing bone mass and her cholesterol begins increasing. The decreasing amount of progesterone in the body can also be attributed to weight gain (in the form of fat and cellulite around the hips and thigh area), low libido, water retention, and indirectly cause hypertension.

Thyropause is a "season" within the "seasons" of perimenopause, menopause, andropause. The thyroid function begins to decline. This can occur at any age, and often begins in the twenties.

After age thirty-five, men may begin to experience andropause (the male version of menopause). Men, like women, go through a decline in hormones, namely testosterone and to a lesser extent DHEA. Libido and sexual performance may decrease, sleep

and mood is affected, muscles and strength decrease, fatigue, weight gain, and a disturbance of the immune system function may occur. The body's ability to cope with sugar declines, and the insulin resistance or diabetes becomes more prevalent. The typical "middle-age spread" is due to the fact that the hormones no longer protect the body from the negative effects of the peaks and valleys in the sugar levels.

FOCUS ON THE SEASONS OF OUR LIVES

These broad shifts in hormonal production and their effects have often been called "the seasons of our lives," not unlike spring, summer, fall, and winter. There are three fascinating seasons in our lives that are too often overlooked by the medical establishment: perimenopause and menopause in women, and andropause in men. Why is this? Perhaps it's because one hundred year ago, no one cared about these life cycle seasons. People most often died soon after reaching them. They were simply considered to be part of "old age" and a precursor of death. But today, we are living longer, and most of us will spend fully one-half of our lives either enjoying these years or dreading them.

As we age from the summer of our lives into fall and winter, how can we retain the good health and vitality of youth? How can we maintain the intricate functions of our bodies and avoid the onset of disease as we age?

As we've seen in the previous chapters, Big Pharma would have us consume increasing quantities of patented drugs, produced in laboratories and sold on TV, to combat the outward symptoms of the diseases of age: brittle bones, clogged arteries, sleeplessness, low libido, and weight gain. The specialists who staff our hospitals would treat us by fixing this broken part or that one, and sending a hefty bill to our HMO, who would pass the cost onto us, our employers, or the taxpayers.

And yet we still feel sick! Is it any wonder why we still feel unhealthy? Such measures do not treat the underlying changes that are obvious to any first-year medical student. We know

that our hormonal levels change as we age; is it not a matter of common sense to first investigate our hormones to determine if these changes are a cause of disease?

To begin our investigation, let's begin with perimenopause, menopause, and andropause. Let's see how we can regain our lives and make these best seasons of our lives, full of vitality, great personal relationships, and better productivity at work.

For women, the three most important hormones that need to be considered in optimizing an individual's hormones providing longevity with outstanding quality of life and disease prevention are estrogen, testosterone and thyroid. For men, there are two, testosterone and thyroid.

Estrogen

Estrogen is an amazing hormone. It has over four hundred functions in a woman's body. It protects the skin and keeps you looking young. It protects the nerves in the brain, reduces the risk of Alzheimer's disease, and has been shown to reduce the risk of heart disease. Unbeknownst to many, it is necessary to shed that unwanted "belly fat." Estrogen is also very important in properly remodeling your bones and avoiding osteoporosis.

Testosterone

Testosterone is one of the most important hormones in both men and women (yes, women produce a lot of testosterone every day). Women start losing their testosterone production in their twenties, and men start losing theirs in their thirties. In males, low testosterone known as androgen deficiency in the adult male (ADAM) causes a host of problems: Increased risk for Alzheimer's disease, heart disease, osteoporosis (men get osteoporosis too!), prostate cancer, diabetes, and muscle loss. Women with low testosterone have similar issues: Increased risk for Alzheimer's disease, heart disease, osteoporosis and fractures, diabetes and metabolic syndrome, and possible increased risk for breast cancer.

Testosterone deficiency often results in many common complaints including loss of energy, loss of mental clarity, loss of muscle mass, weight gain (especially around the mid-section), difficulty losing weight even while exercising and eating appropriately, decreased exercise tolerance, anxiety, irritability, depression, bone loss, decreased sex drive in women, and loss of erectile ability in males. Optimal levels of testosterone not only allow patients to get in shape more quickly, but stay in shape with much less effort.

Thyroid

The thyroid gland is located in the front lower part of your neck. Hormones released by the gland travel through your bloodstream and affect many parts of your body, including your heart, brain, muscles, and skin.

The thyroid controls how your body's cells use energy from food (also called your metabolism). Your metabolism affects many things including your heartbeat, your body's temperature, and how well you burn calories. If you don't have enough thyroid hormone, your metabolism slows down. That means your body makes less energy and you become sluggish, gain weight, and are less inclined to exercise.

Hypothyroidism, also called underactive thyroid disease, is a common disorder whereby the thyroid gland does not make enough thyroid hormone

As many as forty percent of Americans are hypothyroid. That's nearly fifty-two million people. What kinds of symptoms would you have if your thyroid levels were low? They might include fatigue, lethargy, sleepiness, depression, cold intolerance, dry skin, weight gain, joint pain, constipation, and high cholesterol. These symptoms may resemble those experienced with low testosterone.

Progesterone

For women there is a "bonus hormone." It's not one that everyone recognizes as important and not one everyone thinks about. It's

called progesterone. Not just any progesterone will do; it must be micronized progesterone. Unlike synthetic forms you would find in birth control pills and many forms of synthetic HRT used for menopause, natural micronized progesterone is a form of the hormone progesterone derived from plants, and which matches human progesterone. It's called "micronized" to describe how it's made using oil to encourage absorption through the digestive tract when taking capsules by mouth.

Many women feel micronized progesterone is more calming, helps them sleep, and complements their estrogen therapy very well, especially when compared to the side effects of synthetic progestins like Provera (*medroxyprogesterone acetate*). Natural micronized progesterone has beneficial effects on the heart including reducing atherosclerosis and cholesterol levels, reducing the risk of uterine cancer, reducing the risk of breast cancer, and improving cognitive function. One of its few side effects is somnolence, which can be a good thing because it helps you sleep at night.

Synthetic progesterone, like that used in the Women's Health Initiative, has adverse effects on your HDL cholesterol (the good one), the heart, and the brain. In addition, the synthetics increase swelling, bloating, anxiety, irritability, headaches, food cravings, depression, and muscle aches.

The bottom line is that if your doctor is not familiar with the benefits of micronized natural progesterone and tries to put you on synthetic progesterone, you owe it to yourself to politely but firmly decline.

THE BENEFITS OF HORMONE OPTIMIZATION

Now that we know about the importance of hormones and how they can help people of both genders, let's look at individual parts of our bodies where the most benefits can be derived.

Heart Disease

Heart disease remains the number one killer of both men and

women. One in seven premenopausal women die from heart disease. After menopause that number jumps to one in three. More than 200,000 women die each year from heart attacks, five times as many women as breast cancer. Coronary artery disease is also the number one killer of men.

Pharmaceutical companies would have all of us believe it's our cholesterol. But while statins have climbed the ladder to the number one selling medication in America, the number of heart disease related deaths is not decreasing. If you treated one hundred persons with statins, less than a handful of heart attacks would be prevented.

If we look at what happened after 1990, the picture becomes much clearer. Obesity is on the rise. One-third of the overall population is obese. Some ethnic groups have a higher rate; for example, thirty-six percent of Latin Americans have metabolic syndrome. The incidence of diabetes has doubled from 1990-1998 and continues to increase. As people live longer, more and more people are entering menopause and andropause; and as their hormones are depleted cholesterol goes up, blood pressure increases, and inflammation in their blood vessels goes up. You can see a storm brewing.

If we optimize the hormones that have been depleted in men and women, their weight decreases, their energy increases, and they feel like exercising again, which is a huge benefit to preventing heart disease. Hormone balance will restore blood flow to the coronary arteries, decrease plaque formation, and reduce inflammation in the blood vessels.

Bringing your testosterone in the optimum range reduces cholesterol and triglycerides, and increases HDL cholesterol. This means your lipids are getting back to normal without the harmful and less beneficial statins.

Some sources claim that testosterone causes an increase in heart attacks. It is just the opposite. There have been numerous studies showing that testosterone protects the heart. In 2013 the

Journal of the American Medical Association reported that men on testosterone had more heart attacks. A review of their own data revealed the opposite. There were fewer heart attacks in men taking testosterone, and nearly fifty percent fewer deaths. Most recently, in July 2014, in the *Annals of Phamacotherapy*, researchers from the University of Texas at Galveston performed a large study using testosterone in elderly men. Their results again showed a reduction of heart attacks in men using testosterone. A protective effect, if you will.

For women, not all progesterones are created equal. The micronized natural progesterone is protective to the heart by dilating blood vessels and improving the good HDL cholesterol. Unfortunately, many physicians are still giving patients synthetic progesterone, which has adverse effects on the heart.

Let's not forget the positive benefits of maintaining optimal thyroid balance. Hypothyroidism is a major contributor to heart disease. If your thyroid is optimized, you can prevent many heart attacks because thyroid fortifies your immune system and reduces inflammation, which reduces plaque formation and allows more oxygen rich blood to be pumped to your heart muscle.

There's no reason to take statins that decrease energy, cause muscle pain, decrease cognitive function, and increase the risk for diabetes. In many cases we can avoid using the anti-diabetic drugs that have numerous side effects and only put a band-aid on the problem. We can avoid fad diets and diet pills that are unhealthy for our thyroid and can increase our blood pressure and simply just don't work long term. In the future, we can say that by healthy life choices of exercising, stopping smoking and getting our hormones optimized, we actually have reduced the incidence of heart disease.

The Brain

The number of cases of Alzheimer's disease is projected to triple by 2050. The cost to care for these patients will exceed one trillion dollars. Not to mention the tremendous burden they place on our loved ones who must also continue to care for them.

A very basic way of understanding Alzheimer's disease is that as nerves get stressed, they entangle. Once the nerve fibers get entangled, the brain lays down a substance called beta amyloid, and the degenerative process is now irreversible. Conventional drugs are minimally effective and expensive.

Parkinson's disease is also a neurodegenerative disease that affects millions of Americans. Rather than treating the symptoms, wouldn't you rather *protect* the nerves in your brain from neurodegenerative diseases like Alzheimer's and Parkinson's disease?

You can. When optimized, natural estrogen, natural testosterone, and natural progesterone protect the brain. Synthetics do not. When your hormones are depleted, the neurons of the brain suffer "oxidative stress" and the downward spiral starts. In addition, the nerves of the brain need energy. To make that energy, your body needs thyroid hormone. Not just any thyroid hormone but T3, which is the active thyroid hormone. How can you be sure your thyroid is optimal? Get your free T3 test, and make sure your doctor doesn't treat you with inactive synthetic thyroid hormones that may provide you with sub-optimal protection.

When in balance, the natural bio-identical hormones work as antioxidants. They decrease inflammation around the nerves, improve blood flow to your brain, and they decrease the production of that "bad" substance beta-amyloid. Prevention promotes healthier aging and happier life.

The Bones

Osteoporosis is a major problem. Twenty percent of women over the age of fifty have osteoporosis, and another forty percent have osteopenia. This thinning of the bones is a set-up for hip and vertebral fractures as we age. The National Osteoporosis Foundation have shown that twenty-four percent of people who suffer a hip fracture die within one year. Many of the others wind up living in assisted living centers and can no longer live alone.

Bone mineral density (BMD) can quickly and painlessly tell you whether you have osteopenia or osteoporosis. It is unfortunate

that the American College of Obstetrics and Gynecology doesn't recommend testing until age sixty-five. Women start losing bone in perimenopause and could benefit from strengthening their bones in a very proactive fashion.

It's also unfortunate that the World Health Organization, funded by Big Pharma, defined osteopenia and osteoporosis BMD values such that millions of women would require treatment with expensive drugs that were unsafe and expensive. The bisphosphonates, as they would be called, cause abnormal remodeling, jawbone necrosis, heart arrhythmias, and severe nausea and vomiting. Did patients stay on them? Of course not! Did they change the absolute risk of fractures? Well, if you treated nearly one hundred women with bisphosphonates for four years, you would prevent one fracture. The cost would be more than $250,000!

If you look at data from the National Institute of Health—data not tainted by the pharmaceutical companies—you could prevent more than twice as many hip fractures using moderate exercise than using the high-priced, side-effect-riddled bisphosphonates.

Testosterone, estrogen, and thyroid are necessary for proper bone remodeling so that your risk for fractures is largely reduced. Vitamin D3 and Vitamin K2 are also important. Testosterone is the "bone builder." As will be discussed in the next chapter, hormone replacement therapy in women lacking testosterone will only decrease bone reabsorption, but not stimulate new bone growth. So for years women have been given the wrong hormones, in the wrong doses, and by the wrong route (orally), and they've still developed osteopenia and osteoporosis. Now you know why!

Thyroid helps maintain normal bone architecture by keeping the body from being too acidic. As we age and our bodies become too acidic, we leach calcium from our bones. That's why patients who take calcium alone don't build strong bones and never will. With proper hormone balance, bones remodel year after year, calcium is laid down appropriately thanks to Vitamins D3

and K2, and osteoporosis and osteopenia can be successfully ameliorated. And no harmful drugs are necessary.

The Breasts

Breast cancer is the most common cancer in women. There are more than 400,000 deaths annually worldwide from breast cancer. Seventy-five percent of breast cancers occur in postmenopausal women. For years, women have been told after treatment for their breast cancer they should *not* take hormones.

After the data from the Women's Health Initiative, many women were led to believe that all hormones cause breast cancer. Fifty percent of primary care physicians quit prescribing hormone replacement therapy after that landmark 2002 article in the JAMA. Unfortunately for women, the data from the estrogen-only part of the study wasn't sensational enough to make the headlines. It showed that estrogen does *not* cause breast cancer. It was the synthetic progestin in the PremPro arm of the study where there was an increased risk.

In the *Journal of the National Cancer Institute* in 2001, hormone replacement therapy after a diagnosis of breast cancer was evaluated in relation to recurrence and mortality. Those women on hormone replacement therapy had fewer recurrences and fewer died.

It's time for myth to concede to reality. Natural hormones don't cause breast cancer. In fact, testosterone is breast protective and reduces the risk of breast cancer. Natural progesterone is also breast protective and reduces a women's risk of breast cancer.

Type 2 Diabetes

Americans are in the midst of major health concern that has been growing like wildfire since 1990. Between 1990 and 1998 the number of people with Type 2 diabetes doubled. Over the past decade it has increased more than seventy-five percent. More than one million new cases of Type 2 diabetes are being recorded annually. Type 2 diabetes is the sixth leading cause of death in America. The health concerns are broad reaching, as this

increases your risk for heart disease, kidney disease, vascular problems, and more.

If we look at the Nurses' Health Study published in the *New England Journal of Medicine* in 2001, being overweight, being sedentary, smoking, and having a poor diet were major contributing factors. In the *Journal of Sexual Medicine* in 2013, men with low testosterone were projected to add 1.1 million new cases of Type 2 diabetes.

The medical literature has done little to address prevention. Nearly every year there is a new drug to replace an old drug to treat Type 2 diabetes. The cost of these medications is high and the side effects severe.

As we age, both men and women lose testosterone. As this happens we begin to notice that we begin to gain weight around our midsection. This is because as we lose our testosterone, we develop insulin resistance. That means that it requires more insulin to metabolize our sugars and carbohydrates. The higher insulin levels lead to the increase in belly fat.

We can be proactive in our prevention of Type 2 diabetes by balancing and optimizing our testosterone. Then we can avoid the expensive and harmful drugs that conventional medicine and the pharmaceutical companies are marketing to us because we won't need them.

Clearly, to age healthier and live happier and more productive lives, we need to treat the disease of aging at its source by optimizing our hormones and making better lifestyle choices that include diet and exercise. What we don't need are pills, pills, and more pills fed to us by pharmaceutical marketing predators. Pills have a limited ability to improve our health and a much greater chance of creating further medical problems, leading to more medications, until we are all overmedicated and living unhappy lives.

The next chapter will explain how to optimize your hormones in the safest and most cost effective way possible.

CHAPTER 4

BIO-IDENTICAL HORMONE REPLACEMENT FOR WOMEN —THE POSITIVE ALTERNATIVE

We've seen in previous chapters that even though we may be living longer, we aren't living longer and feeling better. I've shown the vast reach of the pharmaceutical companies, and how the tsunami of drugs that is flowing out of factories around the world and into our medicine cabinets is only adding to the problem, not solving it. Our manufactured society fills our minds with broken promises of treating symptoms, but never really solving the underlying problems. To add to the insanity, instead of addressing why these changes occur, advertising firms are hired by these companies to flood our televisions with countless commercials of middle-aged actors posing as happy life-fulfilled couples strolling on the beach hand-in-hand. It appears to be the perfect life.

It can be. Not with pills, pills, and more pills, but rather with a positive alternative. I have introduced you to your system of hormones, an amazing part of your body that keeps your 37.2 trillion cells working at top efficiency. It is a proven fact that as you age your hormone levels decline, making your body simply not work as well.

- What can you do to maintain and regain your health, vitality, and vigor?
- What can you do to enhance your relationship intimately?
- What can you do to actually age healthier and live happier?

Take drugs? No—that is not a good solution. Is it diet and exercise? Of course it is, but not entirely. We all know we must maintain proper nutrition by eating a variety of well-balanced food groups. And of course we have to exercise to keep our muscles toned and our hearts healthy. We can agree that diet and exercise play an important role in maintaining a healthy lifestyle. However, even the leanest diet and walks around the park cannot replenish what is already lost.

If a change in your hormone levels is the root cause of your feeling lousy, then it makes sense to attack the problem at its source.

Your hormones. How do we do that?

It's amazingly simple: a qualified physician provides you with bio-identical hormones to replace the amounts you've lost.

Why bio-identical? Bio-identical means that the hormone is an *exact molecular match* of your depleted human hormone. Your body cannot tell the difference. Before I get into the details, here's a case study that demonstrates the power of bio-identical hormones.

CAROL AND ANNE

Carol and Anne are identical twins. Twenty-five years ago, when they were each thirty-five years old, they suffered from the same symptoms of depression, anxiety, irritability, mood swings, fatigue, weight gain, low libido, and sleeping difficulties. You might think that because they're twins, Carol and Anne would always do the same things. They'd dress alike, eat the same foods, and even seek the same medical treatment when they were sick.

That may be true to a certain extent, but when Carol and Anne felt chronically lousy, they didn't go to the same doctor. They each sought different treatments. Their choices provide a stark lesson in the problems with some of today's medical opinions and the treatments offered.

To address her health concerns, Carol chose to visit her primary care practitioner.

After a quick consultation, Carol's practitioner prescribed an anti-depressant to address two of her chief complaints, even though this class of drugs has been shown to decrease sex drive and cause weight gain.

Five years later—at age forty—Carol returned to her practitioner. Now addicted to anti-depressants, she had become increasingly overweight, and still had no sex drive and no energy. Concerned about the extra pounds, she asked for help and was prescribed a diet pill. She was worried about her increasing anxiety as well, so her doctor prescribed an anti-anxiety medicine and a sleeping pill for the sleep disturbances.

At age forty-five, Carol returned to her practitioner, still depressed and overweight. He noticed that her cholesterol was up. Rather than counseling her about lifestyle changes and examining her poly-pharmacy, he put her on a cholesterol-lowering drug called a statin, which has been shown to cause liver issues and muscle tissue breakdown. The fatigue and muscle pain discouraged her from pursuing an exercise routine, adding more pounds, which increased her depression.

Carol's exam at fifty years old fared no better. She complained of no menstrual cycle, hot flashes, and night sweats. She was put on an oral synthetic hormone pill, which has been shown in studies to increase risk of blood clots, heart attacks, strokes, and breast cancer. Her hot flashes were likely gone now, but she still had no sex drive or energy and was still overweight.

Carol still felt horrible!

At fifty-five, Carol told her practitioner she had quit taking oral hormones because she didn't like them. She was miserable, and on top of all her other symptoms she thought she was getting early Alzheimer's because she had memory problems. According to her bone density scan, she now had bone loss, and

she was placed on a drug for bone building, which caused her severe nausea and chest pain. Her blood pressure was now high. She developed Type 2 diabetes and was placed on two additional medications.

By the time Carol turned sixty, because her doctor didn't understand how important hormone balance was to improving her mood, mental clarity, anxiety, bone building, heart health, diabetes prevention, weight control, breast cancer protection, and Alzheimer's disease prevention, she was tied to a lifelong ball and chain of medications that merely acted as a band-aid masking her symptoms rather than getting to the root cause of the problems. At age sixty, Carol is still tired, miserable, overweight, depressed, and irritable, can't think, has no sex drive, and is taking over ten different synthetic medications.

The story of her twin sister Anne is very different. Twenty-five years ago, feeling similar symptoms as her twin sister, Anne chose to seek out alternative answers. She felt her symptoms were hormonally related, so instead of following traditional treatments through her primary care physician, she sought the advice of a physician trained and qualified as a hormone balance expert.

After an in-depth consultation, her hormone expert agreed with her suspicions and narrowed down for her the options available to her for treating her hormone imbalances. She too was suffering from pre-menopausal symptoms of testosterone deficiency. Anne was very surprised to learn that women not only make testosterone in their ovaries, but it's a vital hormone for their overall physical and mental health and wellbeing.

After a simple blood test, it determined that Anne's suspicions were accurate. She was deficient in testosterone, low thyroid, and borderline levels of Vitamin D, all revealed by tests that her sister never received. Based on the research Anne had done on the subjects of hormone balance, hormone replacement therapy with bio-identical hormone pellets, and improvement in overall health, she opted to move forward with the therapy.

Two months after beginning hormone treatments, Anne returned to her hormone practitioner for a follow up. She could not believe how amazing she felt! The depression, anxiety, mood swings, and sleep issues were all gone, as well as the fatigue. And wow—what a libido!

Her husband prayed she never stopped this therapy. His wife was back! She was back in her workout routine and looked more like her old self.

At age forty-five, Anne was fit, lean, exercising, was on no extra medications, and her annual check-up was so amazing her primary practitioner (who also treated her twin sister) wanted to know what she was doing to stay in such great shape. She shared with him she was on a natural hormone balance therapy with bio-identical hormone pellet implants. Although he scoffed under his breath, he was intrigued by the differences between Anne and her twin sister.

At fifty-five, Anne's hot flashes and menstrual changes began. Not a problem for Anne! Her hormone balance practitioner simply added a bio-identical estrogen pellet to her testosterone therapy, along with some natural progesterone to balance her estrogen. Anne sailed through the perimenopause and menopause years with minimal, if any, setbacks. She avoided the pharmacy of prescription medications her sister was taking. Moreover, her baseline bone density scan was normal, her cholesterol levels were perfect, and her body mass index (BMI) and blood work were all within range. She showed no indication of diabetes and her blood pressure was normal.

While her primary care practitioner was still skeptical, he was beginning to see with his own eyes how beneficial this therapy had been.

At age sixty Anne feels great, looks great, has energy, mental clarity, sharp focus, and an amazing sex drive!

Anne was tired of being part of a healthcare system of drug

profiteering and disease management. To change this she had a paradigm shift in her mindset regarding her health, and she told herself, "I'm going to co-pilot my health. I'm not going to be overmedicated by the commercial interests of the pharmaceutical companies and physicians that are not on board with preventative healthcare."

Drug companies market drugs to consumers not because a market *exists*, but to *create* one. Reclaiming your life means reclaiming responsibility for your health. I encourage you to understand that drug therapy and disease management is an illusion. See past the illusion, and you will have found the secret to aging healthier.

While we're all going to get older, there are two paths from which to choose. I will show you the path the pharmaceutical companies don't want you to know about.

YOUR HORMONES – CLOSE UP

In the previous chapter I provided an introduction to your hormones. Here's a closer look at testosterone, progesterone, and estrogen.

Testosterone

While the adrenal gland produces some of the testosterone found in women, its primary source is the ovary. As you have learned in the previous chapter, women aged twenty to forty lose fifty percent of their testosterone production. Symptoms of low testosterone may include "brain fog," loss of memory focus and concentration, fatigue, insomnia, and loss of sex drive. Women may experience irritability, anxiety, depression, night sweats, joint pains, and weight gain, especially across the mid-section (belly fat). This can occur even if you are following an exercise regime and following the direction of the newest fad diet on the market.

Testosterone begins to decrease earlier than the other ovarian hormones. Many women do not realize that low testosterone can increase their risk for Alzheimer's disease, heart disease,

breast cancer, osteoporosis, and diabetes. The benefits of bio-identical testosterone are many: improved energy, memory, focus, concentration, and sleep (which, by the way, can improve the choices we make in our eating); enhanced libido or sex drive; and reduced anxiety, irritability, and depression. (Yes, you could possibly get off those anti-depressants.) Women may also experience reduced night sweats, improvement in muscle aches and joint pains, and weight gain, even if you may be following your exercise. Balancing your testosterone with bio-identical testosterone will reduce your cholesterol and triglycerides, allowing you to avoid the side-effect-riddled statins. It will improve bone mineral density and reduce hip fractures, and can reduce your risk of Alzheimer's disease. There is very new information that suggests your risk of breast cancer will be reduced.

Without looking at their patients' lab work, most physicians tend to treat the symptoms of low testosterone in women with antidepressants, diet pills, sleeping pills, pills to improve memory, or tranquilizers. We saw that in the story of Carol and Anne. Using bio-identical hormones that mimic the testosterone made in a woman's ovaries can be a better choice for both short-term symptom relief and long-term protection of the brain, heart, breasts, and bones.

Why doesn't Big Pharma cash in on bio-identical hormone replacement? For two very significant reasons: patents and profits.

Pharmaceutical companies are not willing to support bio-identical testosterone replacement because they cannot patent a bio-identical substance. Instead, they chose to make a synthetic testosterone paired with an oral synthetic estrogen called Estratest. Unfortunately, the synthetic testosterone was poorly absorbed from the GI tract, and women never received the benefits of having their testosterone balanced.

There is no natural testosterone that is absorbed by ingesting it orally. Therefore, bio-identical testosterone hormone replacement must be given sublingually, or topically in a cream

base, or by subcutaneous hormone "pellets," which are actually very tiny—about the size of a grain of rice.

The sublingual troches are very expensive, give high spikes in testosterone, and have not been shown to give long-term benefits.

The topical creams have very erratic absorptions. That means a woman's testosterone levels are unpredictable and often excessively high. In addition, because the cream must be applied daily, patient compliance is a key factor, not to mention that creams are transferable and blood levels shoot up and down like a roller coaster. There have been no studies showing long-term protection of a women's brain, bones, breasts, or heart using this delivery method.

In contrast, subcutaneous hormone pellets give women predictable testosterone levels in the desired range, twenty-four hours a day, seven days a week. These levels remain relatively constant for four to five months. I will discuss the short- and long-term benefits to this delivery method in a subsequent chapter wholly devoted to pellet therapy.

Progesterone

Progesterone is a hormone that is produced in the ovaries and adrenal glands. Premenopausal women need progesterone to mature the lining of the uterus in preparation for the fertilized egg for implantation. In this book, I want to limit our discussion to the value of progesterone to post-menopausal women. In women who have a uterus, progesterone prevents estrogen from over-stimulating the endometrium (the lining of the uterus). This helps protect women from endometrial cancer and from resuming their menstrual periods. This hormone also has many other benefits including improvement in mood swings, enhancing sleep, and protection against breast cancer. It works in conjunction with estrogen to protect the nerves in the brain, and thus helps women lower their risk of Alzheimer's disease.

Everyone reading this book needs to understand that these benefits are derived from using natural *bio-identical* progesterone.

Unfortunately, the synthetic progesterones known as *progestins* have very different effects in a woman's body. How did we come to use synthetic progestins instead of the bio-identical progesterone? It started as a problem of absorption. Progesterone was not able to be absorbed well orally. Physicians began using Upjohn's synthetic progestin Provera to control excess vaginal bleeding in women who had been taking only estrogen for hormonal support. Then the pharmaceutical company Wyeth-Ayerst combined this synthetic progestin with its synthetic estrogen Premarin to make the drug everyone knows as Prempro. This synthetic progestin is known to cause cancer, and it's been banned in most European countries for over fifty years.

The synthetic progestins undo the protective effect of estrogen on the heart and the brain. In an article in the *Proceedings National Academy of Science* in September 2003, the protective effect of estrogen on the nerve cells in the brain was blocked by taking the synthetic progestin (MPA). Synthetic progestins attenuate the beneficial effects that bio-identical estrogen has on your lipid profile. The most important lipid for heart protection gets *reduced* with synthetic progestins and *increased* with bio-identical progesterone.

The synthetics also increase vaso-spasm in the coronary arteries, whereas the bio-identical progesterone increases blood flow to the heart. They increase the risk of breast cancer. This was demonstrated in the Women's Health Initiate, and led to the study being stopped prematurely. The side effects of synthetic progestins—including weight gain, swelling, abdominal bloating, muscle aches, and mood disorders—make them poorly tolerated in nearly half of patients who have tried them.

Often, things happen at the same time, and the benefits of one are overshadowed by the other event. In 1998, the U.S. Food and Drug Administration approved a drug called Prometrium. A bio-identical progesterone, it was special because through the process of micronization (making the drug particles smaller), they found a way to get natural bio-identical progesterone absorbed orally.

It can also be compounded to the clinician's specifications in pills, creams, and gels. Unfortunately, the Women's Health Initiative had started its one-billion-dollar study using PremPro. The benefits of the natural hormone were overshadowed by the devastating side effects of PremPro reported in the *Journal of the American Medical Association* in July 2002. Women were stopping their hormone replacement at an exponential rate when hey should have been using the safer and more beneficial natural progesterone.

It is amazing and ludicrous that the PhRMA-supported FDA has not recalled PremPro from the shelves to help protect women everywhere. The bottom line is women deserve to have hormone replacement with the specific hormone in which their body is deficient. Just like with testosterone, and as you will see with estrogen, we have the natural bio-identical progesterone. Don't accept anything else. In a study in the *Journal of Women's Health & Gender-Based Medicine* in May 2000, when compared to synthetic progesterone (*medroxyprogesterone acetate*), micronized bio-identical progesterone offered the best potential for improving quality of life and improvement of menopausal symptoms. The same conclusion was reached by Dr. Fitzpatrick and his team at the Mayo Clinic, as reported in the Mayo Clinic *Women's Healthsource* in August 1999.

Estrogen

The final hormone to disappear as a woman reaches menopause is estrogen. Estrogen protects against osteoporosis, Alzheimer's disease, colon cancer, strokes, heart disease, and macular degeneration. Estrogen deficiency results in vulvovaginal atrophy, incontinence, increased wrinkles on face, decreasing collagen leading to sagging skin on face, fatigue, depression, mood swings, and decreased sex drive. Women understand that they feel better with estrogen than without it. They understand that to age healthier, look younger, and feel their best, they need estrogen.

In women, the ovaries produce estrogen. Approaching menopause, estrogen levels decrease by as much as eighty percent. This drop

can lead to "hot flashes," vaginal dryness, and problems with urination and incontinence. While these are the most talked about symptoms, in the female body estrogen has over four hundred functions.

After age forty, a woman's progesterone production may have decreased by eighty percent. This drop in progesterone during perimenopause can lead to estrogen dominance with excess bleeding, menstrual, irregularities and mood swings.

The most important of the three estrogen hormones in the pre-menopausal years is estradiol; estrone and estriol are much less important. That is why when we replace women's waning hormones, we replace estrogen loss with estradiol.

So how did the estrogen controversy ignite, and why as physicians have we not ended the "war" over whether estrogen is good or bad? History will help us with this problem. Estrogen was first discovered in the 1930s. In fact, research on subcutaneous hormone pellet therapy also began in the 1930s using estradiol pellets in women undergoing hysterectomy. Unfortunately, the pharmaceutical industry rushed in with its patented candidate for therapy, Premarin, which was conjugated equine estrogen made from the urine of pregnant horses. In 1966 a physician named Robert Wilson wrote *Feminine Forever*, a book that endorsed Premarin, and women everyone wanted this miracle drug to maintain their femininity. Instead of promoting the safer, less expensive natural hormone estradiol, which was bio-identical to a women's ovarian estradiol, commercial interests won out. In other words, *profits* were more important than the health of the patient.

Dr. Joel T. Hargrove, director of the Vanderbilt Menopause Center, Vanderbilt University, demonstrated that natural bio-identical hormones produced better outcomes with fewer side effects than synthetic hormones. He famously said that "natural" should refer to the "structure of the hormone itself, not the source of the hormone. Premarin is a natural hormone if your native food is hay!" In addition, he found that bio-identical hormones

produced better patient compliance. That is an important ingredient for long-term healthy aging.

To make matters worse, as female patients began bleeding profusely, the same pharmaceutical company added a synthetic progesterone known as *medroxyprogesterone acetate* (MPA). Over time, Premarin and Prempro became two of the bestselling drugs. "Blockbuster" is the term used by the pharmaceutical industry for such drugs that rack up huge profits.

There was great consternation regarding blood clots, heart attacks, strokes, and breast cancer from using the two synthetic hormone replacement drugs. So much controversy arose that a group of physicians felt it necessary to spend one billion of your tax dollars to look at these drugs. It is unfortunate for the hundreds of millions of women who benefit from estrogen replacement therapy that no other drugs were evaluated, no other delivery methods were evaluated, no blood levels were evaluated to test balance and optimization, and no natural estradiol products that had been around for over sixty years were even considered.

In the estrogen-only arm (Premarin), there was no increase in risk of breast cancer; in fact, there was a reduction in breast cancer by approximately twenty-five percent. There was, however, increased risk of blood clots, heart attacks, and stroke. The combination of equine estrogen and MPA was covered under the progesterone section. Had these "scientists" considered other natural hormones delivered transdermally or by subcutaneous pellet placement, there would be no increase in blood clots heart or stroke.

The ramifications from this clinical oversight were devastating. In July 2002, on the heels of the Women's Health Initiative data being reported, a *TIME* magazine cover proclaimed "Hormone replacement therapy is riskier than advertised. What's a woman to do?" In less than two years, half of the women who were using systemic hormone therapy stopped the treatment. Compared with 2001, use of oral estrogen-only among women aged 50-59 years with no uterus dropped by almost 60% in 2004, 71% by

2006, and 79% in 2010 and 2011, the authors noted an article published in *Journal of the American Medical Association* in 2011.

Why is this sensationalism a problem? Because women who suffer from estrogen deprivation are likely to suffer from depression and poor quality of life, bone loss, heart disease, dementia, parkinsonism, and all-cause mortality. It was the Women's Health Initiative that got women inappropriately scared.

Analysis of the 2011 WHI-ET (Women's Health Initiative Estrogen-Alone Trial) data, done by a group at Yale University and published in the *American Journal of Public Health* in 2013, showed that a minimum of 18,600 and as many as 91,600 excess deaths occurred between 2002 and 2011 among women aged 50-59 years – who had sustained a hysterectomy due to estrogen therapy avoidance.

An earlier study in the *New England Journal of Medicine* by Dr. Hu showed a 31% decline in coronary artery disease in over 85,000 patients on HRT. This was in conjunction with a 175% increase in the use of HRT. Then two years later, the WHI destroyed the great progress we were making in healthy aging for women.

It is up to physicians to stay up-to-date on the real benefits of estrogen replacement therapy. Too few patients who are estrogen deficient are on ERT. Many physicians are afraid to give prescriptions for it, and mislead patients as to the real benefits and few side effects.

More than fifty percent of women discontinue ERT in the first year. It is paradoxical that women will take birth control pills with little fear, but have a psychological blockade when it comes to taking menopause replacement therapy with hormone doses far less than the levels found in birth control pills. It is the fault of poor education and training on the proper administration of hormones to women in all primary care fields, including

obstetrics and gynecology. As physicians, we must do a better job of staying up on the literature, do a better job of seeing through the 'smoke and mirrors' created by sensationalized studies of little substance, and do a better job of helping our patients age healthier.

TAKING BIO-IDENTICAL ESTROGEN

I want women to know that natural bio-identical estrogens are very safe and very effective as alternatives to synthetic estrogen. They are even safer when not taken orally. Oral estradiol creates a large spike in estradiol levels in the bloodstream. The levels, however, are relatively short lived, and the women are left with the side effects of fluid retention, breast tenderness, vaginal bleeding, and headaches. As the estradiol levels fall, symptoms return before the next dose is due.

There are patches of pure bio-identical estradiol. In eighty-five percent of patients they will help reduce "hot flashes" successfully. In my experience they work well, without increasing risk of blood clots; however, nearly half of patients don't absorb the estradiol adequately. Your physician should be checking your hormones to assure adequate optimization.

You may also choose to use a cream or gel. Many "anti-aging" clinics prescribe Bi-EST Cream. It is a combination of estradiol and estriol. This product must be used twice a day, and does not achieve adequate estradiol levels in the bloodstream. The expense doesn't produce the desired outcome, there are no protective effects, and patient compliance is poor. Estrasorb is another prescription cream. It has reasonable absorption and will reduce hot flashes in most; however, the estradiol levels do not remain constant and are not adequate for brain, heart, and bone protection. Also, in my experience most patients stop this form of therapy within the first year.

I am often asked about herbal preparations from health food stores. These include the phytoestrogens and black cohash. I do not recommend patients using them, because they are only

minimally effective for menopausal symptoms. On a long-term basis they confer no bone, brain or heart protection.

The best option is subcutaneous pellet hormone therapy. These tiny pellets—each is about the size of a grain of rice—are made of pure bio-identical estradiol. They are placed painlessly beneath the skin of the hip, and generally two or three insertions a year give you consistent estradiol levels without the spikes seen with oral therapy and with minimal side effects. My patients have found this method so attractive that 96% stay on them for a minimum of three years. Even more important, 95% get symptom relief of their "hot flashes" and vaginal dryness within first few weeks of therapy.

As I have stated before, I have devoted the majority of my professional career managing women's health. With the help of many patients throughout the years of delivering their babies and then following their health concerns into the "season" of the perimenopause, and hearing thousands of cries for help, I have devoted the last decade to finding those answers.

Later in the book, I'll reveal more about this method in the chapter devoted strictly to pellet therapy.