The Holistic Truth

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Healthy Aging

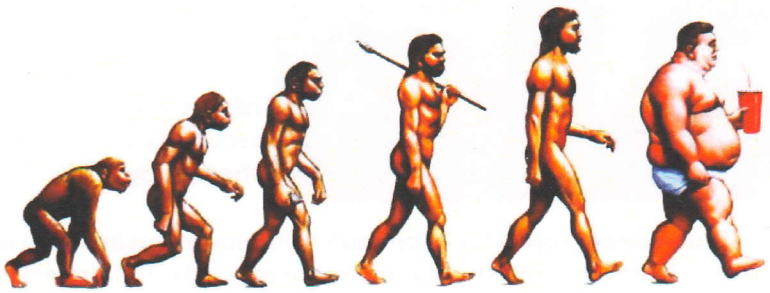
Health Aging is a topic that many of us are interested in, as we hear about the increase in chronic diseases in our society. Gerontology is the study of aging. There are 2 major lines of thought to explain why we age: Programmed Theories, which comes from a strictly biological perspective, vs. Damage Theories (also known as Error Theories), which takes into account environmental insults on our biology. These theories are not mutually exclusive.

There are 3 major Programmed Theories of Aging: Programmed Senescence, Endocrine Theory, and Immunological Theory. With Programmed Senescence, the belief is that aging results from genes switching on and off sequentially. Senescence simply refers to the time when age-associated deficits come to the surface. The Endocrine Theory holds that our biological clocks control aging through hormone release. The Immunological Theory emphasizes the declining role of the immune system as leading to increased vulnerability to infections, aging, and death.

Damage Theories encompass some of the following attempts to explain aging as a result of environmental insults to the organism: wear & tear of cells and tissues; free radical damage; error catastrophe (faulty protein synthesis), genetic mutation; and "rate of living." The "rate of living" describes the relationship between metabolic rate, body size, and longevity. To illustrate, long-lived animals are bigger and expend fewer calories per gram of body mass than smaller, short-lived species. In other words, faster metabolic rate = faster biochemical activity = faster aging.

It is clear that DNA damage plays some type of role in aging; scientists are just not certain what that exact role is. As an extreme example demonstrating that DNA damage certainly must play a role in aging, we can look at progeroid syndromes. Progeria is a rare genetic disease that appears as accelerated aging, often originating in genes that are related to DNA repair/metabolism. What remains unclear is whether DNA damage is cause of or result of aging.

Free radical damage of DNA probably promotes aging. Free radicals are also called ROS (Reactive Oxygen Species). They are so highly reactive they can damage cellular components! ROS originate from normal cell metabolic processes and also exogenous sources like ultraviolet or ionizing radiation and chemicals. Antioxidants protect against oxidation by degrading ROS into inert compounds. Excessive free radicals are associated with many diseases: atherosclerosis, cataracts, cancer, Alzheimer's, osteoarthritis, immune dysfunction, and more.



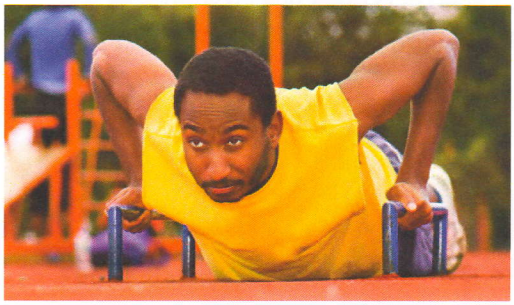
One strategy to promote healthy aging is to reduce environmental and dietary exposure to free

radicals. Don't use tobacco, reduce exposure to pesticides, petroleum based products (aromatic hydrocarbons), solvents (furniture polish, cleaning fluids, paints), and minimize alcohol, fried foods, and barbecued foods. The reason to limit, or carefully cook barbecued meat is that meat, poultry, and fish produce Heterocyclic Amines at high grill temps: HCA's are carcinogenic and they form when amino acids and creatine react at high heat. Polycyclic Aromatic Hydrocarbon, another carcinogen, is formed when animal fat drips onto hot coals, flames up, and then deposits carcinogens on meat. To prevent carcinogens from ruining your barbecue enjoyment, turn down the grill heat and turn the meat often. Don't char! Choose lean cuts of meat, trimming off the fat. Remove the charred areas before eating. Finally, use a pan to catch drippings and utilize tongs to turn the meat rather than fork which spears the flesh and leads to drippings.

Antioxidants can be ingested from our diets as well as through supplementation. Here are examples of food sources of various antioxidants: Vitamin C is found in fruits and vegetables, especially citrus fruits. Vitamin E is found in nuts, seeds, and leafy green vegetables. Selenoproteins are antioxidant enzymes and the amount in food depends on soil content. Brazil nuts, seafood, meat, cereals, and legumes comprise good sources of dietary selenium. Leafy greens, yams, sweet potatoes, and carrots contain ample amounts of beta carotene. Antioxidant flavonoids are plant pigments from citrus, berries, onions, parsley, legumes, green tea, and red wine. Sulfur-containing amino acids include methionine, cysteine, and garlic, onions, fish, liver, eggs, Brewer's yeast, and nuts are rich in these free radical fighters. Finally, the powerful antioxidant and mitochondrial supportive CoQ10 is made endogenously and also found in these dietary sources: oily fish, organ meats, and whole grains.

Caloric restriction is one area of burgeoning research in the field of aging. Caloric restriction refers to diminishing caloric intake while maintaining adequate nutritional intake. Variations include dietary restriction, protein restriction, and intermittent fasting. While not currently recommended by most doctors or other healthcare practitioners, caloric restriction has the potential to delay human aging at least according to some animal studies (rats, dogs, monkeys, mice, fruit flies) and a few human studies which have shown decreases in blood pressure and cholesterol, delayed aging, and preservation of heart function. Why caloric restriction would delay aging is still unclear but it may be because of delayed metabolic rates, shifted metabolic pathways, or reduced production of reactive oxygen species (free radicals).

Regardless of the evidence for or against caloric restriction, the bottom line is that most Americans take in too many calories and burn too few. Eating out has become much more common- families are busier and spend less time cooking. Restaurant and fast food meals generally have less nutrition, more calories, and larger portions than home-made foods. Portion sizes have increased dramatically both at home and eating out. In 1950, the standard soft drink size was 210 mL and the maximum size french fries available at McDonald's contained 210 calories. Today an average soft drink is 1910 mL and a large serving of french fries clocks in at 610 cals! Furthermore, average plate sizes have increased from 10 inch diameter to 12 inches in diameter. The no-fat and low-fat craze of the 1980's and 1990's resulted in increased consumption of sugar and refined carbohydrates. As manufacturers reduced fat in their foods, they felt they had to add in sugar to make up for the change in taste. Junk food consumption continues to increase as our rates of chronic disease skyrocket.



Even though Americans are eating more, they are not exercising more to compensate. Most Americans are very sedentary. An older study from 2002 study found that the highest energy expenditures for most people came from driving a car, watching TV, and office work. About 5% of total energy expended went to moderate or strenuous physical activity. It's never too late to start exercising: according to research from Tufts University, a study of 90 year olds who began weight training increased their strength by 174%!

The Blue Zones Project® is a community improvement initiative whose goal is to make healthy living easier through changes in environment, policy, and social networks. This project began as a National Geographic expedition in 2004

to find the pockets in the world where people live measurably longer and better. They identified areas nicknamed "Blue Zones" where people reach age 100 at rates 10 times greater than in the USA. Scientists went to each location to discern lifestyle characteristics that could explain the longevity and found that Blue Zones' residents shared 9 specific characteristics. The researchers called these the "Power 9® Principles." Pick one or two of these principles to work on at a time. Sustaining a new behavioral pattern for 6 weeks greatly increases your chances of success in maintaining the change for a lifetime.

1) Move naturally- be active without thinking too much about it; identify enjoyable activities and incorporate them into your day. Have fun with physical activity. Walk daily. Shed some modern conveniences like the remote control, garage door opener, leaf-blower. Simple activities like biking, sweeping, raking, and shoveling snow count as physical activity!

2) Know your purpose- knowing why you get up in the morning, is worth up to 7 years of life expectancy! You may want to take inventory of your life and write your own personal mission statement. To start, identify your talents, values, and passions.

3) Shed stress- stress leads to chronic inflammation which leads to age-related diseases. Establish routines to reduce stress. Some examples from people in the Blue Zones are prayer, meditation, and napping!

4) Cut calories by 20%- Okinawans have a practice called "hara hachi bi," a reminder to stop eating once their stomachs are 80% full. Some simple tips in this arena are to serve yourself food, then put the food away, and only then, sit down to eat. Smaller plates, bowls, and glasses encourage reduction in portion sizes. One should sit and eat in a mindful manner, not while in the car or standing in front of the fridge. For those trying to lose weight, this 20% gap of being hungry and feeling full could be the key to success.

5) Blue Zone residents tend to eat a plant-based diet. One doesn't necessarily need to become a vegetarian, but abundant intake of antioxidant-rich fruits and vegetables is key. Beans, rice, tofu, and nuts can anchor your meals. According to the Blue Zones Project, the cornerstone of most centenarian diets is beans, such as lentils, fava, soy, and black beans. Meat should be considered more of a condiment, with portion sizes equivalent to a deck of cards, and frequency kept at a few times a week. A handful of nuts a day may offer an additional 2-3 years of life expectancy!

6) Moderate intake of red wine is another common thread among longer-lived peoples. For women, this means 1 glass of wine per day at most, while men can enjoy 2 glasses. The Blue Zones Project team recommends partaking of wine at a meal with friends to experience the full benefits.

7) Belong- attending faith-based services 4 times a month adds 4 to 14 years of life expectancy! The denomination does not matter, just deepend your existing spiritual commitment or explore a new spiritual or religious tradition.

8) Put loved ones first- keep aging parents and grandparents nearby, commit to a life partner, and invest time and love in your children.

9) Right Tribe- the world's longest lived people were born into or have chosen to identify with social circles that promote healthy behaviors. The people surrounding us greatly influence our health. The Framingham research study revealed that obesity, smoking, loneliness, and happiness are contagious!

Supplement Support

Endocrine Tincture

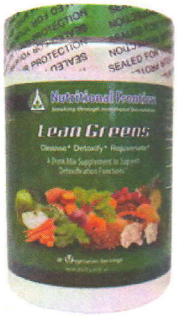
This herbal tincture is specially formulated to support the endocrine organs and balance hormone production. The Endocrine Tincture may improve attention, alleviate depression, and increase tolerance to stress. The synthetic blend of nutrients in this tincture were included to provide the highest potency and best results. The Endocrine System is a key factor in healthy aging!

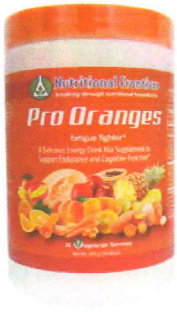
Rad Free

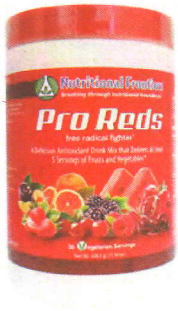
is used to manage free radical damage.*Rad Free may support management of allergies, immune health, energy production, capillary integrity (hemorrhoids, varicose veins), bruising, nose bleeds, and cardiovascular health.* The free radical-fighting ingredients include Activin®, bioflavonoid complex, resveratrol, quercetin, and glutathione.

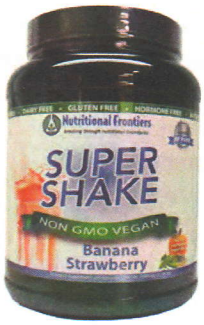
Pro Colors

Nutritional Frontiers offers a variety of powdered fruit and vegetable mixtures that are packed with nutrients and antioxidants. Try Pro Reds, Pro Greens, Pro Purples, and Pro Oranges for delicious ways to boost your micronutrient and antioxidant intake. Pro Oranges is great tasting orange flavored powdered mix and is fantastic for mental energy, endurance and blood sugar support.* Pro Oranges is loaded with fatigue-fighting and fat-burning nutrients plus a blend of fruits and vegetables to maximize energy levels.* Pro Lean Greens is a tasty greens powder that can be mixed in water, juice or added to smoothies. This product combines nutrient-rich vegetables, fruits, and herbs with digestive enzymes, fiber, spirulina, chlorella, and probiotics. With antioxidants, Eleutherococcus, bee pollen and milk thistle, Pro Lean Greens supports the body's immune and detoxification systems. Pro Reds contains 5 servings of fruits and vegetables per scoop. This blend boasts a high ORAC score for superior antioxidant support. Pro Reds also offers specific support for the liver, brain, eyes, cardiovascular system, and immune system. Pro Purples provides more antioxidant support. Some of nature's most powerful foods are darkly colored fruits and vegetables, which contain phenols, vitamin C, proanthocyanidins, ellagic acid, bioflavonoids, and anthocyanins all of which are power antioxidants.







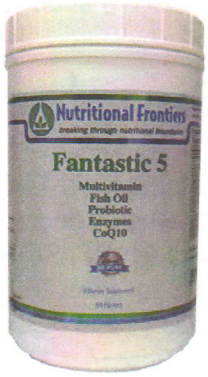


Super Shake

protein powder is a hypoallergenic formulation that comes in various flavors and provides 21 grams of protein per scoop. Super Shake is derived from rice, pumpkin, and pea protein, making it an excellent option during a cleanse or an elimination-challenge diet, or those with multiple food allergies. Super Shake contains medium chain triglycerides (MCTs) which are easily metabolized fatty acids that provide a quick energy source for the body. Fibersol-2™ is included in Super Shake as an easily digestible soluble fiber source to help with bowel regularity and to bind toxins in the gastrointestinal tract.

Fantastic 5

supports brain, heart and digestive health, and daily maintenance of main body systems.



Frontier Multi is a vegetarian multi-vitamin/mineral/anti-oxidant/enzyme/amino acid formula with a full spectrum of nutrients including a whole green food complex.
Prob-Zyme combines five strains of non-dairy probiotics and six beneficial, broad spectrum digestive enzymes in a comprehensive formula that work together to improve and support proper digestion and GI health.
Power Q (CoQ10) is a vital nutrient for the formation of Adenosine Triphosphate, the basic energy molecule used by every cell.
Omega 3D is a blend of non- GMO natural oils (780mg EPA/ DHA plus Vitamin D3) from fish that combines the benefits of Omega 3 and Vitamin D3, that provide a healthy balance of essential fatty acids that are critical to total body health. It is a comprehensive "multi" fatty acid supplement that is rich in EPA, DHA and Vitamin D3.

References

US Department of Agriculture Research Center on Aging at Tufts University
https://www.bluezonesproject.com/power9#power9-5
ibid.

Industry News

To Balance Your Hormones, Address Your Diet FIRST

- The Paleolithic diet, which includes fermented and cultured foods, promotes healthy hormone levels, even as you age.
- Unsprouted grains, sugar or fructose decrease seven of the 12 most important hormones.
- Alcohol decreases your human growth hormone (HGH), one of your most potent built-in anti-aging hormones. Having just one alcoholic drink per day can decrease your HGH by 75 percent.
- Magnesium supplements improve your sex hormone levels, including your testosterone and HGH.
- High-quality protein from meat and fish, as well as healthy fats such as egg yolk, lard, and butter, will improve progesterone and DHEA secretion, as will an otherwise healthy Paleolithic (read: unprocessed, nutrient-rich organic) diet. Progesterone can also be increased by several nutritional supplements, including vitamin A. As a general rule, fat-soluble vitamins will have a beneficial effect on sex hormones.

Estrogen Found to Restore Memory in Aging Brains

Side effects of hormone deficiencies really run the gamut depending on the hormone in question. DHEA deficiency, for example, leads to premature aging and lowers your ability to handle both physical and mental stress.

Common premenopausal challenges include PMS and painful cramps, while the most common menopausal complaints include hot flashes and vaginal dryness. Physical signs of HGH deficiency include droopy eyelids, saggy facial skin, thinning hair, and abdominal fat. Other signs include anxiety and chronic exhaustion.

But as I mentioned at the outset, research suggests that what is typically thought of as "age-related cognitive decline" brought on by atrophy may actually be the result of estrogen deficiency.

Research published late last year shows that the health of your brain's synapses is closely linked to cognitive decline, and that the female hormone *estrogen* actually restores synaptic health, thereby improving memory. As reported by Medical News Today:

"Age-related cognitive decline and changes in the nervous system are closely linked, but up until recently, they were thought to result from the loss of neurons in areas such as the prefrontal cortex, the part of the brain important in working memory. A series of papers have shown that the "loss of neurons" concept is simply not true."

The researchers studied the prefrontal cortex mitochondria of rhesus monkeys, and found that declining memory in aging monkeys was associated with a higher incidence of malformed mitochondria in the animals' presynaptic terminals.

The mitochondria—which are the powerhouses that fuel your body's cells, including your brain cells—were doughnut shaped rather than straight, causing a weaker contact between synapses. Interestingly, estrogen treatment reversed this mitochondrial malformation, and improved working memory. One of the study's authors, John Morrison, PhD, said:

"We are increasingly convinced that maintenance of synaptic health as we age, rather than rescuing cognition later, is critically important in preventing age-related cognitive decline and Alzheimer's disease."

"We were excited to see that the occurrence of these donut-shaped mitochondria could be reversed with estrogen, which has known antioxidant effects," co-author Yuko Hara, PhD added.

Hormone Replacement—A Complex Topic

For all its benefits, hormone replacement is perhaps one of the most challenging areas of medicine. It's a very complex topic, made even more challenging by the fact that medical recommendations have fluctuated back and forth when it comes to replacing hormones like estrogen in women suffering from symptoms of menopause and surgically induced medical menopause following a hysterectomy.

In the past, hormone replacement therapy (HRT) was also widely prescribed for preventive purposes, based in part on early observational studies that had suggested it could help protect women against heart disease, weak bones, as well as dementia, which the study discussed above seems to confirm yet again. However, this analysis was done with non bioidentical human hormones.

All of that changed in 2002, when the 15-year long Women's Health Initiative (WHI) abruptly ended its combination of estrogen and progestin therapy study, three years ahead of schedule. The reason?

Their data revealed higher rates of breast cancer, heart attacks, strokes, and blood clots in the population taking the hormones, compared to those receiving a placebo. By 2003, prescriptions had dropped by 38 percent. Between 2001 and 2011, estrogen replacement therapy in women aged 50-59 dwindled by a whopping 79 percent.

Then, a study published last year suggested that denouncing the use of HRT across the board may have been a mistake, especially for women having undergone a hysterectomy. It found that conjugated estrogen therapy (Premarin) for women in premature surgical menopause was associated with "a decisive reduction in all-cause mortality," primarily by reducing deadly heart attacks and deaths from breast cancer. The researchers estimated that anywhere from 18,600 to as many as 91,600 women in medical menopause may have died prematurely over the last decade as a result of avoiding estrogen replacement.[4,]

There's no one blanket recommendation that will apply to everyone. It's a highly individual situation, where you'd be well advised to work closely with a skilled endocrinologist, and ideally someone well versed in nutrition and complementary strategies. There are several factors to seriously evaluate when considering hormone replacement, including the following:

1. Surgically-induced menopause vs. natural menopause vs. using HRT for preventive purposes
2. Your age
3. The form of hormone you take (bioidentical vs. synthetic)
4. The manner in which you administer the hormone

New Guidelines Issued for Treatment of Menopausal Symptoms

The American Congress of Obstetricians and Gynecologists (ACOG) recently revised its guidelines for the treatment of menopausal symptoms.[6,] The new guidelines address two of the most common consequences of menopause: hot flashes and vaginal atrophy, which can result when your body stops producing estrogen. As reported by the *New York Times:*

"The new bulletin... examines the various claims and scores of studies. It offers treatment recommendations based on the best available evidence for preserving the health and well-being of women experiencing menopausal symptoms... [E]strogen alone, or in combination with a natural or synthetic progesterone (progestin) for women who still have a uterus, is the 'most effective therapy' for curbing hot flushes... 'Data do not support the use of progestin-only medications, testosterone or compounded bioidentical hormones,' the report also said... [T]he guidelines recommend 'against routine discontinuation of systemic estrogen at age 65.'"

Bioidentical Hormones Is Likely an Ideal Choice

It's disappointing to see ACOG rejecting compounded bioidentical hormones, as in my view they are really the *ideal* choice. Your body recognizes these as "normal" as they're virtually identical to the hormones produced in your body. This makes them far safer than synthetic prescription versions. Premarin (the most popular estrogen replacement) comes from horse estrogens and is *not* bioidentical. But I guess it's not surprising that ACOG would promote hormones that will result in the greatest cash flow for the pharmaceutical companies...

There are three types of estrogens commonly used in bio-identical hormone replacement therapy: estrone, estradiol, and estriol. A common mixed formulation known as Tri-est includes 80 percent estriol with 10 percent each of estrone and estradiol.

Estriol is considered the safest of the three and is the most commonly prescribed. It has been used safely for decades, and I believe it's particularly useful when you've had a hysterectomy. I also believe that menopausal hot flashes that do not resolve with phytoestrogens, such as black cohosh, are another valid indication for short-term estrogen use. However, if estrogen is used, it is nearly always wise to use it in conjunction with natural progesterone.

Why I Don't Recommend Synthetic Hormone Replacement

Synthetic progestins (like Provera) are responsible for many, if not most, of the detrimental side effects of HRT. For example, one meta-analysis published in the *British Medical Journal* in January 2005 found that synthetic HRT is linked to an increased risk of stroke, typically ischemic (caused by blockages of blood flow to your brain). In fact, synthetic HRT boosts your risk of stroke by almost one-third, and your risk of fatal or disabling stroke by more than half. One of the trials reviewed in that meta-analysis also linked synthetic HRT with higher risks of both breast cancer and heart attack. The trial (which included almost 17,000 women over 50) also found taking HRT for five years doubled your risk of life-threatening blood clots. Other potential side effects of HRT include:

- Osteoporosis
- High blood pressure
- Vaginal bleeding
- Skin rashes and acne
- Weight gain

How to Administer Bioidentical Hormones for Optimal Results

When it comes to administering bioidentical hormones, some delivery methods are clearly superior to others. Oral supplementation is perhaps your worst option, as your liver processes everything in your digestive tract first, before it enters your bloodstream, which will metabolize most of the swallowed hormones to inactive and potentially harmful derivatives.

Moreover, if you swallow hormones, only 10-15 percent will eventually reach the target tissues and you will need to take an oral dose that is 500 percent higher than you need. Virtually any method that bypasses your liver will therefore be more effective, but even here, there are some methods that stand out as being better than others:

- **Hormone creams administered transdermally** (i.e. applied to your skin) is one common alternative. However, since hormones are fat-soluble, they can build up in your fatty tissues when applied topically. This buildup in turn can disrupt other hormones. It's also near impossible to accurately determine the dose when using a cream.
- **Sublingual drops** can be a good option, as it enters your blood stream directly and will not build up in your tissues like the cream can. It's also much easier to determine the dose you're taking, as each drop is about one milligram.
- **Trans mucosal administration** is a virtually ideal administration system, and the one I generally recommend, as applying the cream to your mucous epithelial membranes that line your vagina allows for more complete absorption.

The Complexities of Hormone Testing and Monitoring

For best results, your hormone levels should be monitored by blood, urine, or saliva, to ensure they reach a target level that corresponds to the reference ranges for healthy young women. Unfortunately, this monitoring is yet another factor that adds rather than detracts from the complexity of HRT.

Recent research indicates that if you apply topical (transdermal) progesterone, saliva testing will register approximately 10-fold greater compared to whole blood serum testing, and capillary blood levels are approximately 100-fold greater than what you find in whole blood.

According to the study, published in the journal *Menopause*, "high capillary blood and saliva levels indicate high absorption and transport of progesterone to tissues." This means that if you rely on *serum levels* of progesterone to monitor your topical dose, you may be *underestimating* your tissue levels, which could lead to *overdosing*. To learn more, please listen to Mark Newman's presentation of the findings below. This information is particularly important for clinicians who prescribe hormones.

Before Taking Hormones, Address Your Diet

Treating hormone imbalances requires a whole-body approach; the best approaches are often preventive and involve diet, exercise and other lifestyle-based strategies, as Dr. Hertoghe discusses. For instance, both estrogen and progesterone are necessary in the female cycle, and their balance is key for optimal health. Many premenopausal women have an imbalance of these hormones. If you have insufficient levels of progesterone to counter excessive estrogen, this imbalance can be further exacerbated by chronic stress. Therefore, your answer might not necessarily lie in taking hormones, but rather addressing your stress levels so that your body can normalize your hormone levels naturally.

A healthful diet, low in processed foods (which are high in health-harming sugars/fructose, grains, genetically engineered ingredients, trans fats, processed salt, and other chemical additives) and high in whole organic foods, along with regular exercise, can also go a long way to keeping your hormones balanced as you age.

It's important to realize that processed foods—all those refined carbohydrates, and processed and heated fats, all serve to raise your estrogen to abnormal levels—as much as twice the normal, which are maintained for the better part of the adult lives of most American women. This is a MAJOR contributing cause of menopausal symptoms in the first place. Processed foods also *decrease* a number of other hormones critical to your health and wellbeing. Here's a quick list of Dr. Hertoghe's dietary recommendations to maintain healthy hormone levels:

Eat a Paleolithic diet, rich in fresh organic vegetables and fermented foods

Eat low-fructose fruits, and avoid ones that are high in fructose

Avoid unsprouted grains. If consuming grains (which are best avoided altogether), make sure they're sprouted

Avoid sugar and fructose, including fresh fruit juice, as the rapid sugar peak effectively blocks hormone secretion

Avoid regular alcohol consumption, as this decreases your growth hormone production

Eat high-quality protein such as fish, red meat, and chicken, but cook them at a lower temperature

Other Alternatives to Consider Before Taking Hormones for Menopause

Natural bioidentical hormones can offer relief from menopausal symptoms, but I recommend not using them as your first go-to option. Addressing your diet should be your first step. Other strategies you can try before resorting to bioidentical hormones include the following:

- **Phytoestrogens**: Consuming plenty of phytoestrogens (plant-estrogens) such as licorice and alfalfa before menopause can also help moderate your day-to-day estrogen levels so that when menopause comes, the drop won't be so dramatic. Just don't make the mistake of using unfermented soy, which can wreak havoc on your health in a number of different ways.
- **Optimize your vitamin D levels**: This is a must for gene regulation and optimal health.
- **Polyphenols**: Certain polyphenols have also been shown to have some HRT-like benefits without the drawbacks, and are associated with a lowered risk of heart disease. Royal Maca seems to be an amazing adaptogenic herbal solution for menopause that has helped many women. Be sure to avoid the inexpensive varieties, as they typically don't work. If you chose this option, make sure to obtain the authentic version from Peru.
- **Animal-based omega-3 fat**: You'll also want to get plenty high-quality animal-based omega-3 fats, such as krill oil.
- **Black cohosh**: While dismissed by ACOG as having no scientific foundation, Black cohosh may indeed help regulate body temperature and hot flashes in some women.