

Chapter 20

Importance of Nutrition and Natural Medicine In Anti-Aging and Aesthetic Practices

*Stephen Holt MD, LLD (Hon.), ChB, PhD, DNM, FRCP (C),
MRCP (UK), FACP, FAGC, FACN, FACAM, OSJ*

Distinguished Professor of Medicine,

New York College of Podiatric Medicine, New York USA;

Scientific Advisor, Natural Clinician LLC, Little Falls, New Jersey USA

ABSTRACT

The aim of this paper is to discuss the role of nutrition and natural medicine in the support of anti-aging medicine, with special focus upon aesthetic procedures. Evidence supporting the use of specific nutrients or botanicals in anti-aging and aesthetic medicine will be reviewed, and the concept of “beauty from within the body” will be introduced.

INTRODUCTION

Physical appearance is merely a function of general body health. Beauty lies within the body, and thus all cosmetic interventions, regardless of the degree of invasiveness, have short to intermediate term benefits only.

Longevity is an interesting word. It implies health retention in the elderly. Living to a ripe old age, but with ill health is not really a good objective. The first line of anti-aging strategies is the prevention of diseases that cause premature disability and/or death, for example diabetes and metabolic syndrome X, cancer, and osteoporosis. Longevity is a legacy of a positive lifestyle, and such a lifestyle results in youthful looks. Several domains of lifestyle medicine exist and attention to each domain is the basis of holistic healthcare. These domains include:

- Psychosocial well-being – understanding the importance of psychosocial well-being is vital. People in loving or caring relationships have better lives, and are more likely to retain their mental and physical health.
- Optimum nutrition – the avoidance of substance abuse is important, by this we do not mean tobacco or drug use (although such things are clearly not going to promote longevity), we mean avoidance of sugar and many of the unhealthy chemicals that are in the food we eat.
- Exercise – the benefits of exercise are, or should be, obvious.
- Sexual health – please do not underestimate the importance of sexual health. Recent studies have demonstrated how beneficial sexual function is for longevity, social, and physical well-being.
- Sleep – our nation is under siege by an epidemic of sleeplessness, approximately 100,000,000 American do not sleep well. Modern medicine has simply failed to realize the importance of sleep.
- Detoxification - over the last few years scientists have begun to understand the importance of environmental toxicity in the progression and advancement of premature aging and the promotion of chronic disease.

Natural medicine appears to be favored by clients of medical spas and anti-aging or recuperative clinics. Indeed, natural medicine must be combined with advanced preventive medicine strategies in the practice of anti-aging or recuperative medicine. The aim of this paper is to discuss the role of nutrition and natural medicine in the support of anti-aging medicine, with special focus upon aesthetic procedures.

THE IMPORTANCE OF NUTRITION AND NATURAL MEDICINE IN ANTI-AGING AND AESTHETIC PRACTICES

This section will introduce specific areas that the anti-aging physician needs to consider when implementing a holistic approach designed to improve a patient's physical appearance and promote longevity.

The Anti-Aging Diet

The anti-aging diet should be low in calories, but nutrient dense. Calorie restriction is of paramount importance to anyone who wants to live a long and healthy life. The diet should contain as little sugar and saturated fat as possible, and be enriched with omega-3 fatty acids. Eating plenty of fiber – at least 25 grams per day – is important, as is eating a modest amount of mixed protein, preferably vegetable and fish protein. Lastly, the diet should be rich in minerals and antioxidants.

Free Radicals and Antioxidants

Oxidative tissue damage is a very important area. The free radical damage theory of aging is, undeniably, the most tenable theory of aging. Unfortunately, there is widespread ignorance among dietary supplement manufacturers about how to formulate and use antioxidants correctly, and therefore antioxidants are usually used incorrectly. Antioxidant support must be given with antioxidants of different redox potential, and with wide tissue distribution. Proper antioxidant support will include a number of antioxidants, some which have hydrophilic properties, some which have lipophilic properties, and some that are amphiphilic. The idea of giving a multivitamin is very passé in today's nutraceutical world. To be effective vitamins must never be presented in isolation; they must be given in combination with cofactors such as minerals and phytochemicals.

In short, skin aging is caused by exposure to sunlight and toxins, which causes oxidative tissue damage. Topical antioxidants are very limited in their value for skin rejuvenation. The idea of using delivery mechanisms to penetrate the skin is a good one, but your average face creams and the like will only have minor short-lived effects upon the skin. In fact, such creams are a very expensive approach to beautification or anti-aging. Oral antioxidants in mixed forms have much greater therapeutic potential for the reversal of skin aging than any topical agent, and perhaps any topical intervention, including laser resurfacing. In fact, the best approach is a combined approach that involves both oral and topical mixed antioxidants. It is important to know that certain antioxidants have tissue or organ-specific effects, for example:

- Ellagic acid, which is found predominantly in raspberries and pomegranates, protects against breast cancer.
- Curcumin, the antioxidant present in the Indian spice turmeric, supports cognition and may even help to prevent Alzheimer's disease. Recent research suggests that curcuminoids may also be potent analgesics.
- Lycopene, which is found in tomatoes, supports the prostate and may protect against prostate cancer. Some research suggests that lycopene may also benefit the retina.
- Alpha-lipoic acid is of great benefit to people with diabetes or metabolic syndrome, as it is an insulin sensitizer. It also plays a major role in the prevention of the neuropathic complications of diabetes.
- Polyphenols, which are found in abundance in green tea and coffee, should not be underestimated. There is a large body of evidence that suggests that catechins, particularly epigallocatechin gallate (EGCG), are very powerful and very versatile biological agents.

Sunlight is a double-edged sword. Sunlight is a wonderful source of vitamin D, however, UVA and UVB are also damaging to the skin. The standard approach to sun protection is to use a topical sunscreen, but what about an oral sunscreen? Could something that is taken orally protect the skin from UVA and UVB? Yes. We have been studying a rather interesting plant called *Polypodium leucotomos*, which has been shown in controlled trials to diminish changes associated with photo-aging by reducing dermal elastosis, mast cell infiltration, and skin fold thickness. So, in the future it is quite likely that all we will need to do to protect our skin from the damaging effects of the sun is to take a photoprotection pill.

Advanced Glycation End Products (AGEs)

Another important factor to consider when thinking about aging is tissue glycation. The undesirable cross-linking of sugar or aldehydes with protein results in the formation of advanced glycation end products (AGEs), which cause proteins to lose their functional integrity. Certain diseases, for example oxidative stress caused by hyperglycemia in people who are diabetic, lead to the formation of high levels of AGEs. However, carnosine and antioxidants may help to inhibit tissue glycation.

Inflammation and How to Control It

Methyl donation is often underestimated as an independent risk factor for disease, most notably cardiovascular disease, stroke, and osteoporosis. Adequate methyl donation helps to maintain the structural and functional integrity of key compounds, including DNA, HDL-cholesterol, and serotonin. Inadequate methyl donation is characterized by elevation of blood homocysteine levels. Homocysteine is, of course, pro-inflammatory, and is thus inextricably linked to my theory of obesity, which is introduced below.

We all know that inflammation is highly undesirable, but what can we do about it? From a nutritional point of view fish oil is the key factor. Eicosapentaenoic acid (EPA) is anti-inflammatory; however docosahexanoic acid (DHA) is not. EPA is readily convertible to DHA, but you cannot go backwards from DHA to EPA. Plant LNA precursors are not reliable sources of EPA or DHA. The only true source of EPA is fish oil. However, it is important to note that not all fish oils are equal. Regular gel capsules and liquids are to some degree obsolete in professional practice, the optimal way to take fish oils is in enteric-coated capsules. Enteric-coated fish oil capsules are better tolerated, and are absorbed with higher bioavailability, which is vital if we are to attain the high-dosage that is required for therapeutic benefit.

Hormones, Hormone Deficiencies, and Hormone Replacement Therapy

The notion that hormone deficiencies explain aging in a comprehensive manner is quite naïve. Hormone therapy has its place; however it requires very careful monitoring. Growth hormone (GH) releasing hormones, such as GH-releasing peptide-2 (GHRP-2) should always be tried before actual GH injections. What we really need to think about are anti-aging strategies, by this I mean strategic interventions, where we begin with first-line interventions and we see what effect those interventions have before we take the next step. Immediately prescribing GH injections left, right, and center, is not the answer.

Trauma and Aesthetic Procedure Recovery

Knowledge of trauma and procedure recovery is important for those in the medical spa and anti-aging industry. There is quite a lot of evidence showing the benefits of the homeopathic remedy Arnica Montana (30x), particularly when used in conjunction with bromelain and bioflavonoids. Together, these will help reduce the bruising and swelling caused by trauma and will accelerate the patient's recovery. Supplementation should begin on the day of surgery and continue for 5 to 7 days.

Skin, Hair, and Nails

Skin, hair, and nail beauty are paramount in aesthetic medicine. There are several natural substances that optimize skin regeneration or repair and support sub-dermal structures. Evidence-based ingredients that could be used in synergistic formulations include: calcium, horsetail (*Equisetum*), olive leaf, antioxidants, DMAE, hyaluronate, MSM, collagen, *Aloe vera*, and etcetera. So, these are fairly obvious evidence-based ingredients using clearly calcium, micronutrients, collagen, and protomorphogenic substances to support beauty expressed with skin, hair, and nails.

Weight Management

Weight management is not just a cosmetic issue; obesity is the #1 preventable cause of premature death and disability. Approximately one-third of US adults fall within the category of obesity and almost 20% of teenagers are overweight. The global epidemic of obesity threatens longevity. Considerable evidence supports the notion that a physically active person of normal body weight lives longer than the overweight, inactive individual. Obesity causes premature morbidity and mortality as a consequence of obesity-related diseases.

Weight gain is of multi-factorial cause, and therefore requires multi-pronged interventions. Integrative medicine can offer the optimal pathway to the management of an overweight status, especially if the modern approach of allopathic medicine is complemented by holistic care. Diets are not the answer to long-term weight loss – they do not work. Yes, people can shed a few pounds of bodyweight in the short-term, but sustained weight control involves many management principles, other than diet alone.

The keys to sustained weight control are continued practitioner contact and the long-term use of supplements together with positive life style change. Without positive lifestyle change, there cannot be a health benefit from any weight control program.

Being overweight is associated with metabolic problems, such as the Metabolic Syndrome X. The association between being overweight and the occurrence of the Metabolic Syndrome X presents a unifying concept of premature aging, because of its attendant morbidity and mortality. Metabolic Syndrome X is characterized by the variable combination of obesity, hypertension, and abnormal blood lipids, linked by resistance to the hormone insulin. The variable constellation of problems encountered in Syndrome X has been associated with many other diseases (Syndrome X, Y, Z...). Metabolic Syndrome X is under-diagnosed and often mistreated by both conventional and alternative medicine.

We know that Metabolic Syndrome X is causally linked with the development of cardiovascular disease, female endocrine disorders, polycystic ovary syndrome (PCOS), non-alcoholic fatty liver disease, gestational diabetes, cancer, compromise of immune function, and changes in eicosanoid status (Syndrome X, Y, and Z...). The commonest cause of endocrine disorder in premenopausal women is metabolic syndrome. The commonest cause of liver disease in society is metabolic syndrome, not viral hepatitis, and not alcohol. Metabolic Syndrome X increases the risk of death from all causes. The fact that Metabolic Syndrome X impairs the immune system and promotes inflammation means that it is also linked to all diseases in which inflammation is now known to play a major role, for example cancer and Alzheimer's disease.

The effective prevention and treatment of Metabolic Syndrome X requires a multifaceted approach to impact all cardinal components of the disorder. Current allopathic treatments have been too focused on individual components of Metabolic Syndrome X, and their focus on drug treatments tends to form a "back-up plan" for management. In contrast, natural approaches with lifestyle modification and nutritional and/or nutraceutical interventions may provide versatile and powerful, first-line management options for Metabolic Syndrome X. In summary, Syndrome X and obesity often "go hand-in-hand" and managing one without the other is "mismanagement."

Obesity and excess body fat can be classified as pro-inflammatory conditions and inflammation is a key factor in the pathophysiology of Metabolic Syndrome X. Fat is a dangerous endocrine organ. Not only does obesity raise the level of pro-inflammatory messenger molecules in the body, it also precipitates or contributes to several disorders of inflammation, including cardiovascular disease, cancer, arthritis, liver disease, and asthma. This inflammatory disease "link" compounds the undesirable effects of insulin resistance.

The hallmarks of Metabolic Syndrome X and many cases of pre-Type II, or early Type II diabetes mellitus involve the presence of insulin resistance. Insulin acts by specific receptor binding which precipitates many intracellular events. Current evidence suggests that insulin resistance is determined partially by chemical mediators that are released from immune competent cells or fat cells. For example, elevated levels of the inflammatory cytokine tumor necrosis factor-alpha (TNF-alpha) are associated with over-nutrition, and reduction of TNF-alpha activity is associated with weight loss or improvements in insulin resistance. An understanding of the many factors that link inflammation and tissue damage have come from recent studies of non-alcoholic fatty liver disease, which is a common component of Metabolic Syndrome X.

Up to one third of blood levels of the inflammatory cytokine, IL-6 may emanate from adipose tissue and weight loss is often associated with reduction in blood markers of inflammation e.g. C-reactive protein (CRP) and IL-18. Popular healthcare authors have attempted to link inflammation with many common diseases, but their interpretation of this important association is limited or naive because only changes in eicosanoid status are emphasized (e.g. The Zone). While correcting eicosanoid precursor pathways with Omega 3 fatty acids is an important anti-inflammatory and insulin-sensitizing maneuver, it is not a comprehensive treatment strategy.

Recent studies have confirmed the anti-inflammatory actions of certain substances found in fat tissue. These substances have been referred to as adipocytokines, and include: leptin, adiponectin, and visfatin. Adiponectin is manufactured by fat cells and blood levels of this protein are reduced in states of obesity, insulin resistance, type II diabetes mellitus, and atheroma. Adiponectin exhibits potent anti-inflammatory effects by suppressing TNF-alpha synthesis and promoting the availability of anti-inflammatory cytokines, e.g. interleukin-10 or interleukin-1-receptor antagonist. The metabolic "plot" thickens in "obesitis" where imbalances of pro-inflammatory and anti-inflammatory cytokines exist.

The final common pathway of tissue damage often involves oxidative damage to the tissues due to the generation of free radicals, which is perhaps exacerbated by a reduction in antioxidant defenses in the body. Of course, the progression of the complications of obesity, Metabolic Syndrome X, and diabetes mellitus is often related to oxidative tissue stress, with the development of advanced glycation end products (AGES). Therefore, the treatment of obesity-related disease seems quite incomplete without supporting antioxidant activity in the clinical management of the obese or overweight person.

To reiterate, diets are not the answer! Sustained weight control involves many management principles, other than diet alone. Research shows that patients are approximately 50% more likely to comply with face-to-face lifestyle advice programs than with internet-based programs and diet books. So, regular face-to-face contact with your patients is important if you want them to succeed with sustained weight control. It is also important that you manage patient expectations. The majority of patients have unrealistic weight loss expectations. A realistic goal for most patients is to lose approximately 10% of their body weight.

Another factor of importance is sleep. Sleep deprivation, overweight status, and Metabolic Syndrome X appear to be inextricably linked in many people. The mechanisms of this association are not yet fully understood. Reduction in sleep duration in healthy young men is associated with major changes in the levels of the hormones ghrelin and leptin, which control hunger and appetite, and these changes promote weight gain. An established association between short sleep duration and obesity has led to the proposition that some individuals need more sleep in order to prevent or treat obesity. If you do not get obese patients to sleep, they will not lose weight with any efficiency.

The keys to sustained weight control are continued practitioner contact and the long-term use of supplements – and drugs if absolutely necessary – together with positive lifestyle change. Without positive lifestyle change, there cannot be a health benefit from any weight control program. It is vital that you manage Metabolic Syndrome X as well as weight loss. There is no miracle weight-loss diet or supplement, weight management is about dietary calorie-control, behavior modification, aerobic exercise, the management of the underlying metabolic disorder, and the clear preemptive management of obesity-related disease and “obesitis.”

CONCLUDING REMARKS

Dietary supplements remain the mainstay of natural approaches for anti-aging. Synergistic formulations address the complex cascade of harmonious biochemical events. The therapeutic use of dietary supplements has emerged into mainstream medical practice. Beauty lies within the body; the physical appearance is merely a function of general body health. Longevity is a legacy of a positive lifestyle, and such a lifestyle results in youthful looks.

ABOUT THE AUTHOR

Dr. Stephen Holt, M.D. is a Distinguished Professor of Medicine and a medical practitioner in New York State. He has published many peer-review papers in medicine and he is a best-selling author with twenty books in national and international distribution. He has received several awards for teaching and research. As a full professor of medicine for 20 years and an adjunct professor of Bioengineering for 10 years, Dr. Holt is a frequent lecturer at scientific meetings and healthcare facilities throughout the world.

