Five Essentials For Optimal Performance

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"That man is a success who has lived well laughed often and loved much; who has gained the respect of intelligent men and the love of children; who has filled his niche and accomplished his task; who leaves the world better than he found it, whether by an improved poppy, a perfect poem or a rescued soul; Who never lacked appreciation of earth's beauty or failed to express it; who looked for the best in others and gave the best he had."—anonymous

For optimal performance in the all things we need: to balance **nervous system control**, adequate **exercise** of involved components, appropriate **nutritional supply**, sufficient and regular **rest**, and a **positive mental and psychological** outlook.

Central nervous system

Within every living thing there is an inherent capacity to heal, to maintain and sustain life. All healthy things living strive to continue with life. The **Central nervous system** is the part of the body that integrates and coordinates all the other body systems to maintain life and to coordinate the healing forces. Interference to that control will compromise health. Major contributors to compromised nervous system control are misaligned and abnormal functioning joints of the body. Since spinal joints have the greatest concentration of motion receptors, they contribute a significant amount of information to the brain for control and feedback about position sense for smooth motion controls. If joints of the spine are not moving properly the resulting decrease in nervous system control will result in decreased health.

Doctors of Chiropractic call these misaligned and abnormal functioning vertebrae Vertebral subluxations. A luxation is a dislocated joint, so a subluxation is a joint that is not completely dislocated as it is a sub or less than, dislocated. Spinal adjustments are used to reestablish the proper motion of joints to restore proper nervous control.

Exercise

Movement through **exercise** is important in the maintenance of our brains, physical frames, muscles, tissues, the health of our bones, and the strength of our immune system.

Our nervous system has primarily two functions: one is to receive information and the other is to transmit it. The information comes into the brain through activation of specific receptors often referred to as the senses: vision, hearing, taste, temperature, chemical changes, mechanoreceptor, (motion, stretch, or touch receptors). The touch receptors are found in the skin in the underlying fascia, in the muscles in the form of muscle spindle receptors, and in the joints of the spine. Exercise is important in maintaining the activation of the central nervous system through the stimulation of

specific movement receptors. [iiiiiiivv] Research into what excites and activates the brain shows that 90% is from the accumulation of movement receptor stimulation. It is helpful when the exercises chosen are pleasant, enjoyable, and effective. It is good to create and experience novel exercises. Changing the exercise program on a regular basis is essential. Ideally, one would change their program routine of repetitions on a monthly basis.

To maintain a lean strong muscle it must be contracted. An important fact is that the half life of muscle protein is 6-10 days. Muscle protein is what makes up the elements associated with the contracting of the muscle. When the muscle protein is reabsorbed due to inactivity, the muscles become weaker, smaller, and less effective. This places more load on the tendons and ligaments and other supportive structures associated with the joints. Unfortunately, this leads to more frequent injuries.

Since this muscle protein has a half life of 6-10 days, inactivity or a significant reduction in the movement in the joint for 6-10 days results in a reduction of half of the protein in that muscle. Hence, when there is inactivity, or a lack of motion, there is a significant reduction in the strength of that muscle ,physical capacity, beauty in the appearance of a fit shape, and maintenance of lean tissue in the form of muscle.

Muscle requires a significant amount of energy in the form of calories to not only grow but to also be maintained. Each pound of muscle requires 100 calories a day for its maintenance. This is useful information in that if an individual gained 5 pounds of muscle through resistance strength training, they would increase the metabolic requirements to 500 calories per day. Five hundred calories per day, 7 days per week, equals 3,500 calories which is equal to 1 pound of fat being burned per week as a consequence to the additional muscle. This is significant when comparing calories burned when running a mile. For most individuals, running a mile burns 100 calories. Therefore, they would require 35 miles of running to burn up 3,500 calories or a pound of fat. This demonstrates how efficient and effective we are burning fat when performing aerobic exercise. We get "good mileage" from our fat. Most people may walk a mile and burn up 80 calories. It would take about 41 miles to burn up 3,500 calories or a pound of fat with walking. Therefore, we are **most effective at fat loss by increasing lean mass** with resistance strength training.

To be fair, after exercising for 30 minutes there is a 2-hour post exercise increased metabolic rate, such that 2 hours after a 30-minute work-out is approximately 2 hours of increased activity and burning 25% more calories. Therefore, the combination of resistance strength training to build muscle and a reasonable aerobic program for increasing metabolic activity would be useful for maintaining cardiovascular health and a lean form. Too many neglect to take advantage of this muscle building benefit.

Incorporating exercises that integrate central neurological activity will further enhance exercise benefits. These exercises should include cross-crawls, cervical extension, special eye exercises, and balance exercises, which promote intrinsic spinal muscle activity.

Studies indicate that women, who average 3 hours of exercise per week, reduced their risk of breast cancer by 30%. Women who exercised 4 hours per week, reduced their risk of breast cancer by 60%. Men who exercised by walking 5 miles per week reduced all cancer by 50%. That would be inclusive of prostate cancer.

Therefore, the combination of aerobic activity and resistance strength training are essential components to fitness. The benefits are: maintenance of lean tissue for purposes of maintaining good core stability, and activation of mechanoreceptor populations to stimulate greater brain function.

Since 90% of the brain is activated by movement receptor input and the greatest concentration of mechanoreceptors are associated with spinal motions, activities which promote greater spinal mobility, are essential. Also, since the paraspinal muscles are richly populated with muscle spindle afferents and muscle protein, activities which would

promote greater spinal mobility and spinal muscle activity, would promote greater levels of activation of movement receptors.[viviviiiix]

Recent studies on brain activity have shown that the brain releases Brain-Derived Growth Factors (BDGF) when presented with novel stimuli and novel activities. Therefore, for most efficient results for a healthy brain, back and body, it is important to incorporate a fitness routine that includes: resistive strength training exercises that are novel, that engage spinal muscles to a high degree, that incorporate postural and balancing activities, and that are relatively fun and enjoyable. Incorporating these aspects with exercise will result in better shape, better stamina, stronger bones, more muscle tissue for strength capacities and calorie consumption. This will provide greater brain activation through the stimulation of mechanoreceptor populations, activation of higher brain centers, and thus a greater sense of well-being through the release of neurotransmitters, and endogenous or naturally found opiates. [x]

Seek out interesting new resistance strength training neurologically integrating exercises. Use exercise programs that incorporate cervical extension, cross-crawl patterning, use of weights, exercise bands, exercise balls in the form of exercise balls for core stabilization, and improved balancing activities. The Brain Back Body Exercise Program is useful tool for quality exercise. It may be seen at www.theneurotechnologies.com .

Nutrition

For performance **adequate nutrition** will sustain the capacity to continue with activity. Consider a well balance diet of sufficient proportions. Think of eating mostly foods from the fruit and vegetable categories. Consume meat sparingly, and avoid refined sugars and grains. Dietary supplementation of: **1.Vitamin D, 2. Omega 3 fatty acids from fish oil or other sources, 3. Probiotics or friendly bacteria, 4. Protandim**.

Vitamin D

The Mayo Clinic reported that **"… overall 93% of 150 schoolchildren and adults" were deficient in Vitamin D**, this in a Minnesota-based study.

Within that same study, the Mayo Clinic found 100% of African-Americans, East Africans, Hispanics and Native Americans were deficient.

This is truly a pandemic of staggering proportions. But it also begs the question…

Why Are We So Deficient in Vitamin D?

Dr. Downing states three reasons for this worldwide deficiency in Vitamin D:

- Lack of sunlight
- Dietary deficiency
- Farming practices

Let's take a quick look at each of these in turn.

Lack of Sunlight

Just listen to most any so-called mainstream health pundit today, and what you hear is this: "Sunlight Kills! Avoid the sun! Slather yourself with chemical tan blockers, cover your body at all times."

This is pure nonsense!

We humans evolved in the sunlight. It's essential for our good health. I bet you didn't know skin melanomas (skin cancers) are more prevalent in people who avoid sunlight. That's right – all the bogus information about sunlight causing cancer is just that: Fantasy. But telling the truth can't sell tanning lotions – can it?

Dietary Deficiency

What our ancestors didn't get from the sun, they consumed in the food they ate. This included Vitamin D. But back when we were hunter/gatherers we weren't burdened with fast and processed food, stuff that is by and large nutritionally bankrupt. Devoid of vitamins and minerals, filled with sugars and trans fats – these "foods" actually deplete our bodies of the nutrients we need.

Instead of being a healthy fuel, the food we're eating is many times the equivalent of industrial farm sludge.

Farming Practices

Modern farming techniques have little to do with nutrition. Do you know what is the one major, overriding factor in today's mega-farm industry?

Time.

How to fatten livestock or grow crops the quickest way possible. If that takes **injecting massive amounts of hormones and antibiotics** into animals – so be it.

If that means **untested gene manipulations** or modifications – both in animals and crops, who cares?

If spreading **tons of chemical fertilizers and pesticides** are needed in keeping the soil "productive" - then spread and spray we will. No matter that each successive year the soil becomes weaker and weaker, less able to give the plants growing in it a full range of essential nutrients. Just as long as the food looks plump and inviting – that's considered enough.

But… it isn't enough. As the **soil grows weaker** and more dependent upon the tons of artificial fertilizers sown into it year after year, **the vitamins we need are slowly but surely dwindling** down to almost nothing.

In the case of Vitamin D, this is especially true.

The fact is, almost no one can get enough Vitamin D just through sunlight and diet anymore.

FDA Recommended Dosage a Joke

The daily recommended dosage (RDA) of Vitamin D is set at 400 IU (international units). Taking this amount of Vitamin D guarantees you one thing: **Deficiency**.

This level of Vitamin D is the absolute minimum the body needs in order to avoid catastrophic health problems. It's starving our nutritional needs, giving our bodies **the barest amount necessary** to function without falling apart.

For me, this isn't health – it's disease just waiting to happen.

Vitamin D Is Safe

Many people confuse Vitamin D with Vitamin A. That's normal, because the two are usually lumped together when buying supplements.

While we do need both vitamins in maintaining good health, Vitamin D doesn't have the toxicity of Vitamin A when taken in larger dosages.

The fear of over-supplementing with Vitamin D3 is a myth – and has been largely debunked by independent research. (Don't go running to Big Pharma for these studies. The last thing they want you doing is taking control of your own health. Healthy people don't need expensive drugs, and that's bad for business.)

The Science of Vitamin D

A careful review of the scientific literature is just now scratching the surface of the **enormous importance of Vitamin D**, revealed in one blockbuster study after another.

Here's just a sample of **serious health issues** people face with chronic Vitamin D deficiency:

- **Cancers** – increased risk and severity of **11 types of cancer, including melanomas**. Vitamin D has been shown to make cancers cells lose their blood supply and thus ability to expand. It also strikingly inhibits cell growth, inducing what's called 'cell apoptosis' (inability to divide) in breast cancer, prostate cancer and osteosarcoma.
- **Inflammation of the body** – such as lupus, **rheumatoid arthritis** and inflammatory bowel disease like Crohn's Disease and Ulcerative Colitis.
- **Heart disease** - increased risk of **both heart attacks** and **strokes**.
- **Pain issues** – everything from **joint pains, back aches, headaches**… even those fleeting phantom pains cropping up seemingly out of nowhere. Vitamin D was recently discovered to inhibit NF-kappaB (a major promoter of inflammation).
- **Weak brittle bones** - especially **dangerous for women** and the elderly.

CAUTION! Not All Vitamin D The Same

There is more than one version of Vitamin D. The **biologically active form** is known as **D3 or cholecalciferol**. (How's that for a tongue twister!)

The terms "Vitamin D" and "D3" can be used interchangeably.

Many inferior supplements contain a cheaper D2 version. But in the human body this D2 is inactive and must be first converted into D3 before it has any effects on health. This is a largely wasteful process – especially when the active D3 is so readily available.

Recommended Dosages

A lecture in Houston presented by Dr. Abbas Qutab in September, 2007, stated the overall general recommendation for **Vitamin D supplementation should be 4000 IU/day, 10 times the paltry current RDA levels**.

For normalizing menstrual periods, the journal *Steroids* recommends **50,000 - 100,000 IU per week** - combined with calcium (1500mg).

New scientific findings have revealed the sweeping multiple functions of Vitamin D - **far above and beyond anything mainstream doctors were (and still are) being taught**.

These latest daily Vitamin D recommendations actually go beyond Dr. Qutab's findings.

5000 IU/day is now seen to be the optimal amount – **over 12 times** what the FDA suggests.

Plus, there appears to be a link between vitamin D deficiency and the brain inflammation that scientists now believe is a key component of memory loss and even Alzheimer's disease.

Vitamin D is crucial for brain development.

Probiotics or friendly Bacteria

Experiments into the benefits of probiotic therapies suggest a range of potentially beneficial medicinal uses for probiotics. For many of the potential benefits, research is limited and only preliminary results are available. It should be noted that the effects described are *not* general effects of probiotics. Recent research on the molecular biology and genomics of*Lactobacillus* has focused on the interaction with the immune system, anti-cancer potential, and potential as a biotherapeutic agent in cases of antibiotic-associated diarrhoea, travellers' diarrhoea, pediatric diarrhoea, inflammatory bowel disease and irritable bowel syndrome.

All effects can only be attributed to the individual strain(s) tested. Testing of a supplement does not indicate benefit from any other strain of the same species, and testing does not indicate benefit from the whole group of LAB (or other probiotics).

Managing lactose intolerance

As lactic acid bacteria actively convert lactose into lactic acid, ingestion of certain active strains may help lactose intolerant individuals tolerate more lactose than what they would have otherwise.

Prevention of colon cancer

In laboratory investigations, some strains of LAB (*Lactobacillus bulgaricus*) have demonstrated anti-mutagenic effects thought to be due to their ability to bind with heterocyclic amines, which are carcinogenic substances formed in cooked meat. Animal studies have demonstrated that some LAB can protect against colon cancer in rodents, though human data is limited and conflicting. Most human trials have found that the strains tested may exert anti-carcinogenic effects by decreasing the activity of an enzyme called β-glucuronidase(which can generate carcinogens

in the digestive system). Lower rates of colon cancer among higher consumers of fermented dairy products have been observed in one population study.

Lowering cholesterol

Animal studies have demonstrated the efficacy of a range of LAB to be able to lower serum cholesterol levels, presumably by breaking down bile in the gut, thus inhibiting its reabsorption (which enters the blood as cholesterol). Some, but not all human trials have shown that dairy foods fermented with specific LAB can produce modest reductions in total and LDLcholesterol levels in those with normal levels to begin with, however trials in hyperlipidemic subjects are needed.

Lowering blood pressure

Several small clinical trials have indicated that consumption of milk fermented with various strains of LAB may result in modest reductions in blood pressure. It is thought that this is due to the ACE inhibitor-like peptides produced during fermentation.

Improving immune function and preventing infections

LAB are thought to have several presumably beneficial effects on immune function. They may protect against pathogens by means of competitive inhibition (i.e., by competing for growth) and there is evidence to suggest that they may improve immune function by increasing the number of IgA-producing plasma cells, increasing or improving phagocytosis as well as increasing the proportion of T lymphocytes and Natural Killer cells. Clinical trials have demonstrated that probiotics may decrease the incidence of respiratory tract infections and dental caries in children. LAB foods and supplements have been shown to aid in the treatment and prevention of acute diarrhea, and in decreasing the severity and duration of rotavirus infections in children and travelers' diarrhea in adults.

A 2010 study suggested that the anecdotal benefits of probiotic therapies as beneficial for preventing secondary infections, a common complication of antibiotic therapy, may be because keeping the immune system primed by eating foods enhanced with "good" bacteria may help counteract the negative effects of sickness and antibiotics. It was thought that antibiotics may turn the immune system "off" while probiotics turns it back on "idle", and more able to quickly react to new infections.

Helicobacter pylori

LAB are also thought to aid in the treatment of *Helicobacter pylori* infections (which cause peptic ulcers) in adults when used in combination with standard medical treatments. However more studies are required into this area.

Antibiotic-associated diarrhea

Antibiotic-associated diarrhea (AAD) results from an imbalance in the colonic microbiota caused by antibiotic therapy. Microbiota alteration changes carbohydrate metabolism with decreased short-chain fatty acid absorption and an osmotic diarrhea as a result. Another consequence of antibiotic therapy leading to diarrhea is overgrowth of potentially pathogenic organisms such as *Clostridium difficile*.

Efficacy of probiotic AAD prevention is dependent on the probiotic strain(s) used and on the dosage. Up to a 50% reduction of AAD occurrence has been found. No side-effects have been reported..

Reducing inflammation

LAB and supplements have been found to modulate inflammatory and hypersensitivity responses, an observation thought to be at least in part due to the regulation of cytokine function. Clinical studies suggest that they can prevent reoccurrences of inflammatory bowel disease in adults, as well as improve milk allergies. They are not effective for treating eczema, a persistent skin inflammation. How probiotics counteract immune system overactivity remains unclear, but a potential mechanism is desensitization of T lymphocytes, an important component of the immune system, towards pro-inflammatory stimuli

Improving mineral absorption

It is hypothesized that probiotic lactobacilli may help correct malabsorption of trace minerals, found particularly in those with diets high in phytate content from whole grains, nuts, and legumes.

Irritable bowel syndrome and colitis

B. infantis 35624, sold as Align, was found to improve some symptoms of irritable bowel syndrome in women. Another probiotic bacterium, *Lactobacillus plantarum*299v, was also found to be effective in reducing IBS symptoms. *Bifidobacterium animalis* DN-173 010 may help for maintenance of remission of ulcerative colitis.

Managing urogenital health

Several studies have revealed probiotics' potential in relieving urinary tract infections[and bacterial vaginosis.

Omega Three Fatty Acids from Fish oil or other sources

Fish oil, made from the tissue of oily fish-such as salmon, tuna, mackerel, herring, lake trout and sardines-has many health benefits. Fish oil contains important **Omega-3 fatty acids** , most notably eicosapentaenoic acid (EPA) and decosahexaenoic acid (DHA). These Omega-3 fatty acids are believed to have health benefits ranging from reducing the risk of heart attack and coronary heart disease to combating depression, bipolar disorder and schizophrenia.

Heart Problems

The intake of the recommended amount of DHA and EPA has been shown to have many **heart healthy benefits**. Consumption of dietary fish or fish oil supplements can **lower triglycerides-a certain type of blood fat-and increase "good" cholesterol**, while slightly thinning the blood. All of these factors help reduce the risk of heart attack. Fish oil also helps to prevent dangerous abnormal heart rhythms that can cause sudden cardiac death, and strokes in people with known cardiovascular disease. In addition to the numerous benefits already mentioned for the heart, fish oil can also slow the hardening of arteries and slightly lower blood pressure-two more important factors of heart health.

Inflammation

Omega-3 fatty acids are not only good for the heart; they also help to reduce inflammation. This is perhaps one of the most valuable benefits of the Omega-3 fatty acids found in fish oil, as inflammation is associated with many serious diseases. **Heart disease**, **cancer**, **autoimmune diseases**, **psoriasis**, and A**lzheimer's**, for example, are characterized by increased levels of pro-inflammatory markers. Omega-3 fatty acids from fish oil reduce inflammation by preventing production of pro-inflammatory signaling molecules. This may help to prevent serious illness associated with inflammation.

Arthritis

The ability of fish oil to reduce inflammation is not only good for preventing serious illnesses, such as heart disease and cancer. Fish oil is also effective in reducing the symptoms and pain of **arthritis**. **Morning stiffness** and **joint tenderness** was shown to decrease with regular intake of fish oil supplements. Fish oil does not act as a painkiller, and it takes regular use before a difference is noticed. However, fish oil is a viable, natural way to reduce the pain and symptoms associated with arthritis if one is dedicated to the long term outcome rather than focused on immediate cessation of symptoms.

Anti-aging

As if the benefits of fish oil on heart health and arthritis were not enough, it is believed that fish oil also helps with **anti-aging** as well. Omega-3 fatty acids slow the rate at which protective caps on the end of chromosomes shorten, thus **increasing the lifespan of cells**. The caps, or telomeres, are made from copied strands of DNA and prevent the chromosomes from becoming damaged. When a cell divides, its telomere gets shorter until it can get no shorter and the DNA becomes damaged. When the DNA is damaged the cell no longer divides. Omega-3 fatty acids found in fish oil slows the deterioration of the telomeres, resulting in longer life of cells.

Age-related macular degeneration - better sight Prolonging the life of cells is not the only anti-aging benefit of fish oil. Fish oil has also been shown to significantly reduce the risk of developing age-related macular degeneration. A major component of the eye's retina is DHA, accounting for 60% of the fatty acids in the retina. **Macular degeneration** is a common cause of **blindness** in the elderly and has no effective treatment. Omega-3 fatty acids help support healthy circulation and blood vessel strength, as well as naturally lowering cholesterol levels-all of which are causes of macular degeneration. Due to the benefits of fish oil, it may prove to be the first effective treatment against macular degeneration.

Fish oil benefits to pregnant women and the unborn children

The benefits of **Omega-3 fatty acids** found in fish oil are not only for the aging or those facing serious medical issues. Fish oil has also been shown to be beneficial to pregnant women and the unborn child. It is recommended that a**pregnant woman have 900 mg of fish oil per day**, which is equivalent to a serving of **salmon per day**. The benefits to the unborn child are numerous and include: a **healthier brain** with increased intelligence; **good nervous system development**; **better eyesight** from retina formation; **fewer behavioral problems** after birth; and **better sleeping patterns** as a new born. The mother also receives benefits from her consumption of fish oil. These benefits include: a lower chance of developing preeclampsia; a decreased chance of preterm labor; and a greatly **reduced incidence of breast cancer**. With benefits such as those, all pregnant women should adhere to the recommended daily dosage of fish oil and thus increase her odds of delivering a happy and healthy child. The reason fish oil is so beneficial to the unborn child is because **70% of a newborn's brain, retina and nervous system are made up of the Omega-3 fatty acids, DHA and EPA**. Therefore, increasing the amount of these fatty acids present in the mother's diet, and therefore being given to her unborn child, aides in the child's development of the brain, retina and nervous system.

Benefits of fish oil to mental health

Not only is fish oil beneficial to physical health, fish oil is also beneficial to **mental health**. **Alzheimer's** is a debilitating disease causing memory loss, dementia, personality change, and eventually death. People with Alzheimer's have a reduced amount of a protein called LR11, which prevents toxic "plaques-deposits" of a protein that are toxic to neurons in the brain. The Omega-3 fatty acid, DHA, increases the production of the protein LR11, thus decreasing the amount of toxic "plaques" and helping to prevent the occurrence of Alzheimer's.

Fish oil and depression, bipolar disorder, and schizophrenia

Fish oil does not only help prevent Alzheimer's. It also helps to prevent mental illnesses such as depression, bipolar disorder, and schizophrenia. Omega-3 fatty acids help maintain the proper functioning of dopamine and serotonin

signaling systems in the brain. Both dopamine and serotonin levels, and the signaling system of those hormones, are believed to contribute to the occurrence of depression, bipolar disorder and schizophrenia. Therefore, Omega-3 fatty acids may help to regulate those hormones and lessen the symptoms of these severe mental illnesses. Combined with typical drug therapy, fish oil high in Omega-3 fatty acids has been shown to help regulate the moods of those suffering from these three illnesses.

Fish oil Omega-3 fatty acids and our bodies

Omega-3 fatty acids found in fish oil are extremely important to the overall health of our minds and bodies. For that reason, it is important to understand how our bodies obtain these important fatty acids. The **human body cannot make Omega-3 fatty acids**, and therefore is **dependent on outside sources** for the essential fatty acids. In all circumstances where these fatty acids are believed to be medically beneficial, we must get it through either food (i.e. eating the recommended 2 servings of fish per week) or through a **fish oil supplement**.

Protandim:

Protandim, taken only once a day, can completely eliminate the age dependent increase in oxidative stress in our bodies."

Protandim is a patented blend of : Tumeric, Milk thistle, ashwaganda, green tea leaf extract, and bacopa.

This powerful statement has been peer-reviewed and scrutinized by review regulatory agencies and continues to be validated by universities around the world as they initiate and fund their own studies of Protandim.

Summary of Peer-Reviewed Science on Protandim

1. **"The Induction of Human Superoxide Dismutase and Catalase in Vivo: A fundamentally New Approach to Antioxidant Therapy,** *Free Radical Biology and Medicine (2006)*

The results of a **University of Colorado** peer-reviewed study in men and women, young and old, showed:

- Protandim completely eliminates the age-related increase in cell aging factors.
- Reduces oxidative stress by a minimum of 40 percent - to the progressive aging rate of a 20 year old.
- Significantly increases activity of SOD and CAT antioxidant enzymes by 54 percent - substantially increasing the body's antioxidant defenses..

2. **"Synergistic Induction of Heme Oxygenase-1 by the Components of an Antioxidant Supplement Protandim",** *Free Radical Biology and Medicine (2008)*

Results of a peer-reviewed study at the **University of Colorado, Denver** clearly demonstrate that:

- Protandim produces a 300 percent increase in glutathione, a key antioxidant and anti-aging factor.
- Protandim's synergistic formulation provides more antioxidant power than any food or supplement.

3. **"Protandim, a Fundamentally New Antioxidant Approach in Chemoprevention Using Mouse Two-Stage Skin Carcinogenesis as a Model",** *PLoS ONE Journal (2009*)

Results of a peer reviewed study from **Louisiana State University** showed Protandim:

- Reduced tumor incidence by 33% and tumor multiplicity by 57%.
- Activates the transcription factor Nrf2, a signaling DNA to regulate a network of protective genes.
- Increased expression of antioxidant and anti-inflammatory enzymes.
- Overall, induction of antioxidant enzymes by Protandim may serve as a practical and potent approach for cancer prevention.

4. **"Chronic Pulmonary Artery Pressure Elevation is Insufficient to Explain Right Heart Failure",** *American Heart Association, Circulation 2009*

Researchers at **Virginia Commonwealth University** concluded that:

- Protandim preserved heart function and demonstrated strong cardio protective effects.
- Osteopontin levels reduced by more than 50%.
- Heart output was preserved and cardiac fibrosis prevented.
- Nrf2 was activated -- a signal to the cell's DNA to regulate a network of protective genes.

5. **"The Chemopreventive Effects of Protandim: Modulation of p53 Mitochondrial Translocation and Apoptosis during Skin Carcinogenesis",** *PLoS ONE Journal (2010*)

Results of a peer reviewed study conducted by researchers at **Louisiana State University** reported:

- Protandim's ability to modulate relationship between superoxide dismutase and tumor suppressor p53 believed responsible for reduction of skin cancers.
- Protandim's ability to increase production of the body's Nrf2-regulated protective genes, sometimes referred to as "survival genes".

6. "**The Dietary Supplement Protandim Decreases Plasma Osteopontin and Improves Markers of Oxidative Stress in Muscular Dystrophy Mdx Mice",** *Journal of Dietary Supplements (2010)*

A peer reviewed study from **Harvard, Mass General Hospital and University of Colorado** documents**:**

- 48% decrease in plasma TBARS, a marker of lipid peroxidation and oxidative stress.
- 57% decrease in plasma Osteopontin, a fibrosis-promoting factor linked to heart failure,
- 35% increase in beneficial, protective plasma PON1 activity, an enzyme that protects against atherosclerosis by preventing the oxidation of low-density lipoprotein (LDL) cholesterol.

7. **"Protandim Attenuates Intimal Hyperplasia in Human Saphenous Veins Cultured ex vivo via a Catalase-Dependent Pathway."** *Free Radical Biology and Medicine (2010))*

The Ohio State University reported on**:**

- Protandim's prevents the proliferation of cells that can cause re-blockage of vessels following coronary artery bypass surgery, stenting, and carotid enarterectomy.

- Treatment with Protandim, reduced intimal proliferation to the level seen in a normal healthy saphenous vein.

Adequate Rest

The power of sleep

Many of us want to sleep as little as possible—or feel like we have to. There are so many things that seem more interesting or important than getting a few more hours of sleep. But just as exercise and nutrition are essential for optimal health and happiness, so is sleep. The quality of your sleep directly affects the quality of your waking life, including your mental sharpness, productivity, emotional balance, creativity, physical vitality, and even your weight. No other activity delivers so many benefits with so little effort!

Understanding sleep

Sleep isn't merely a time when your body and brain shut off. While you rest, your brain stays busy, overseeing a wide variety of biological maintenance tasks that keep you running in top condition and prepare you for the day ahead. Without enough hours of restorative sleep, you're like a car in need of an oil change. You won't be able to work, learn, create, and communicate at a level even close to your true potential. Regularly skimp on "service" and you're headed for a major mental and physical breakdown.

The good news is that you don't have to choose between health and productivity. As you start getting the sleep you need, your energy and efficiency will go up. In fact, you're likely to find that you actually get more done during the day than when you were skimping on shuteye.

Myths and Facts about Sleep

Myth 1: Getting just 1 hour less sleep per night won't effect your daytime functioning. You may not be noticeably sleepy during the day. But even slightly less sleep can affect your ability to think properly and respond quickly, and compromise your cardiovascular health, energy balance, and ability to fight infections.

Myth 2: Your body adjusts quickly to different sleep schedules. Most people can reset their biological clock, but only by appropriately timed cues—and even then, by 1–2 hours per day at best. Consequently, it can take more than a week to adjust after traveling across several time zones or switching to the night shift.

Myth 3: Extra sleep at night can cure you of problems with excessive daytime fatigue. Not only is the quantity of sleep important but also the *quality* of sleep. Some people sleep 8 or 9 hours a night but don't feel well rested when they wake up because the quality of their sleep is poor.

Myth 4: You can make up for lost sleep during the week by sleeping more on the weekends. Although this sleeping pattern will help relieve part of a sleep debt, it will not completely make up for the lack of sleep. Furthermore, sleeping later on the weekends can affect your biological

clock so that it is much harder to go to sleep at the right time on Sunday nights and get up early on Monday mornings.

Adapted from Your Guide to Healthy Sleep (PDF) - The National Institutes of Health

How many hours of sleep do you need?

Average Sleep Needs	
Age	**Hours**
Newborns (0-2 months)	12 - 18
Infants (3 months to 1 year)	14 - 15
Toddlers (1 to 3 years)	12 - 14
Preschoolers (3 to 5 years)	11 - 13
School-aged children (5 to 12 years)	10 - 11
Teens and preteens (12 to 18 years)	8.5 - 10
Adults (18+)	7.5 - 9

According to the National Institutes of Health, the average adult sleeps less than 7 hours per night. In today's fast-paced society, 6 or 7 hours of sleep may sound pretty good. In reality, it's a recipe for chronic sleep deprivation.

While sleep requirements vary slightly from person to person, **most healthy adults need between 7.5 to 9 hours of sleep per night to function at their best.** Children and teens need even more (*see box at right*). And despite the notion that sleep needs decrease with age, older people still need at least 7.5 to 8 hours of sleep. Since older adults often have trouble sleeping this long at night, daytime naps can help fill in the gap.

Sleep needs and peak performance

There is a big difference between the amount of sleep you can get by on and the amount you need to function optimally. Just because you're able to operate on 7 hours of sleep doesn't mean you wouldn't feel a lot better and get more done if you spent an extra hour or two in bed. The best way to figure out if you're meeting your sleep needs is to evaluate how you feel as you go about your day. If you're logging enough hours, you'll feel energetic and alert all day long, from the moment you wake up until your regular bedtime.

Think six hours of sleep is enough?

Think again. Researchers at the University of California, San Francisco discovered that some people have a gene that enables them to do well on 6 hours of sleep a night. But the gene is very rare, appearing in less than 3% of the population. For the other 97% of us, six hours doesn't come close to cutting it.

Signs and symptoms of sleep deprivation and lack of sleep

If you're getting less than eight hours of sleep each night, chances are you're sleep deprived. What's more, you probably have no idea just how much lack of sleep is affecting you.

How is it possible to be sleep deprived without knowing it? Most of the signs of sleep deprivation are much more subtle than falling face first into your dinner plate. Furthermore, if you've made a habit of skimping on sleep, you may not even remember what it feels like to be wide-awake, fully alert, and firing on all cylinders. It feels normal to get sleepy when you're in a boring meeting, struggle through

the afternoon slump, or doze off after dinner. But the truth is that it's only "normal" if you're sleep deprived.

Deep sleep

The most damaging effects of sleep deprivation are from inadequate deep sleep. Deep sleep is a time when the body repairs itself and builds up energy for the day ahead. It plays a major role in maintaining your health, stimulating growth and development, repairing muscles and tissues, and boosting your immune system. In order to wake up energized and refreshed, getting quality deep sleep is key. Factors that can lead to poor or inadequate deep sleep include:

- **Being woken during the night** (by outside noise, for example, or in order to care for a crying baby)
- **Working night shifts or swing shifts**. Getting quality deep sleep during the day can be difficult, due to light and excess noise.
- **Smoking or drinking in the evening.** Substances like alcohol and nicotine can disrupt deep sleep. It's best to limit them before bed.

REM sleep

Just as deep sleep renews the body, REM sleep renews the mind. REM sleep plays a key role in learning and memory. During REM sleep, your brain consolidates and processes the information you've learned during the day, forms neural connections that strengthen memory, and replenishes its supply of neurotransmitters, including feel-good chemicals such as serotonin and dopamine that boost your mood during the day.

To get more mind and mood-boosting REM sleep, try sleeping an extra 30 minutes to an hour in the morning, when REM sleep stages are longer. Improving your overall sleep will also increase your REM sleep. If you aren't getting enough deep sleep, your body will try to make it up first, at the expense of REM sleep.

Tips for getting good sleep, night after night

Do you feel like no matter how much you sleep, you still wake up exhausted? Learn how to maximize your sleep quality and sleep well every night by following a regular sleep-wake schedule, developing a relaxing bedtime routine, and improving your sleep environment.

Paying off your sleep debt

Sleep debt is the difference between the amount of sleep you need and the hours you actually get. Every time you sacrifice on sleep, you add to the debt. Eventually, the debt will have to be repaid. It won't go away on its own. If you lose an hour of sleep, you must make up that extra hour somewhere down the line in order to bring your "account" back into balance.

Sleeping in on the weekends isn't enough!

Many of us try to repay our sleep debt by sleeping in on the weekends. But as it turns out, bouncing back from chronic lack of sleep isn't that easy. One or two solid nights of sleep aren't enough to pay off a long-term debt. While extra sleep can give you a temporary boost (for example, you may feel great on Monday morning after a relaxing weekend), your performance and energy will drop back down as the day wears on.

Tips for getting and staying out of sleep debt

While you can't pay off sleep debt in a night or even a weekend, with a little effort and planning, you can get back on track.

- **Aim for at least 8 hours of sleep every night**. Make sure you don't fall farther in debt by blocking off a minimum of 8 hours for sleep each night. Consistency is the key.
- **Settle short-term sleep debt with an extra hour or two per night.** If you lost 10 hours of sleep, pay the debt back in nightly one or two-hour installments.
- **Keep a sleep diary.** Record when you go to bed, when you get up, your total hours of sleep, and how you feel during the day. As you keep track of your sleep, you'll discover your natural patterns and get to know your sleep needs. Click here to download Help guide's sleep diary.
- **Take a sleep vacation to pay off a long-term sleep debt**. Pick a two-week period when you have a flexible schedule. Go to bed at the same time every night and allow yourself to sleep until you wake up naturally. No alarm clocks! If you continue to keep the same bedtime and wake up naturally, you'll eventually dig your way out of debt and arrive at the sleep schedule that's ideal for you.
- **Make sleep a priority**. Just as you schedule time for work and other commitments, you should schedule enough time for sleep. Instead of cutting back on sleep in order to tackle the rest of your daily tasks, put sleep at the top of your to-do list.

Positive Mental Attitude

"The greatest discovery of my generation is that a human being can alter his life by altering his attitudes of mind."
~ William JamesLe

"Our attitudes control our lives. Attitudes are a secret power working twenty-four hours a day, for good or bad. It is of paramount importance that we know how to harness and control this great force. "
~ Tom Blandi

"I have learned from experience that the greater part of our happiness or misery depends on our dispositions and not on our circumstances."
~ Martha Washington

"Your living is determined not so much by what life brings to you as by the attitude you bring to life; not so much by what happens to you as by the way your mind looks at what happens. "
~ Kahlil Gibran

So how do you change your attitude? You must actively change your thinking. One of my favorite quotes comes from the writings of James Allen in his book As a Man Thinketh.

"Let a man radically alter his thoughts and he will be astonished at the rapid transformation it will have on the material conditions of his life. Men imagine that a thought can be kept secret, but it cannot. It rapidly transforms into habits and habits solidify into circumstances." Associate with people that bring out the best in you. Watch good programming and read good books to increase your associations with positive images. Seek out positive affirmations and repeat them frequently through your day.

"Promise yourself to be so strong that nothing can disturb your peace of mind.
To talk health, happiness, and prosperity to every person you meet.
To make all your friends feel that there is something in them.
To look at the sunny side of everything and make your optimism come true.
To think only of the best, to work only for the best and expect only the best.

To be enthusiastic about the success of others as you are about your own.
To forget the mistakes of the past and press on to greater achievements of the future.
To wear a cheerful countenance at all times and give every living creature you meet a smile.
To give so much time to the improvement of yourself that you have no time to criticize others.
To be too large for worry, too noble for anger, to strong for fear and too happy to permit the presence of trouble."
~ Christian D. Larson

"Ability is what you're capable of doing. Motivation determines what you do. Attitude determines how well you do it. "
~ Lou Holtz

Include regular Chiropractic Care for **nervous system health**, consistent **exercise** for a strong and resilient body, **sound nutrition** for stamina, **appropriate sleep** for recovery, and **a positive mental attitude** to draw the good to you.
The application of these Five Essentials for Optimal Performance will serve to ensure your success, happiness and well being.

Resources:

Exercise:	**www.theneurotechnologies.com**
Fish oil:	**www.metagenics.com**
	Robin Olinto sales representative with Metagenics 800-692-9400
Probiotics:	**www.metagenics.com**
Vitamin D-3	**www.metagenics.com**
	Sedona labs product "I Flora" 800- 282-7809
Protandim	**To purchase:** www.lifevantage.com/oneprotandim
	To become a distributor Contact: michelleskaff@gmail.com
	Or call her 707-815-3621 (She is from whom I obtained Protandim)

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