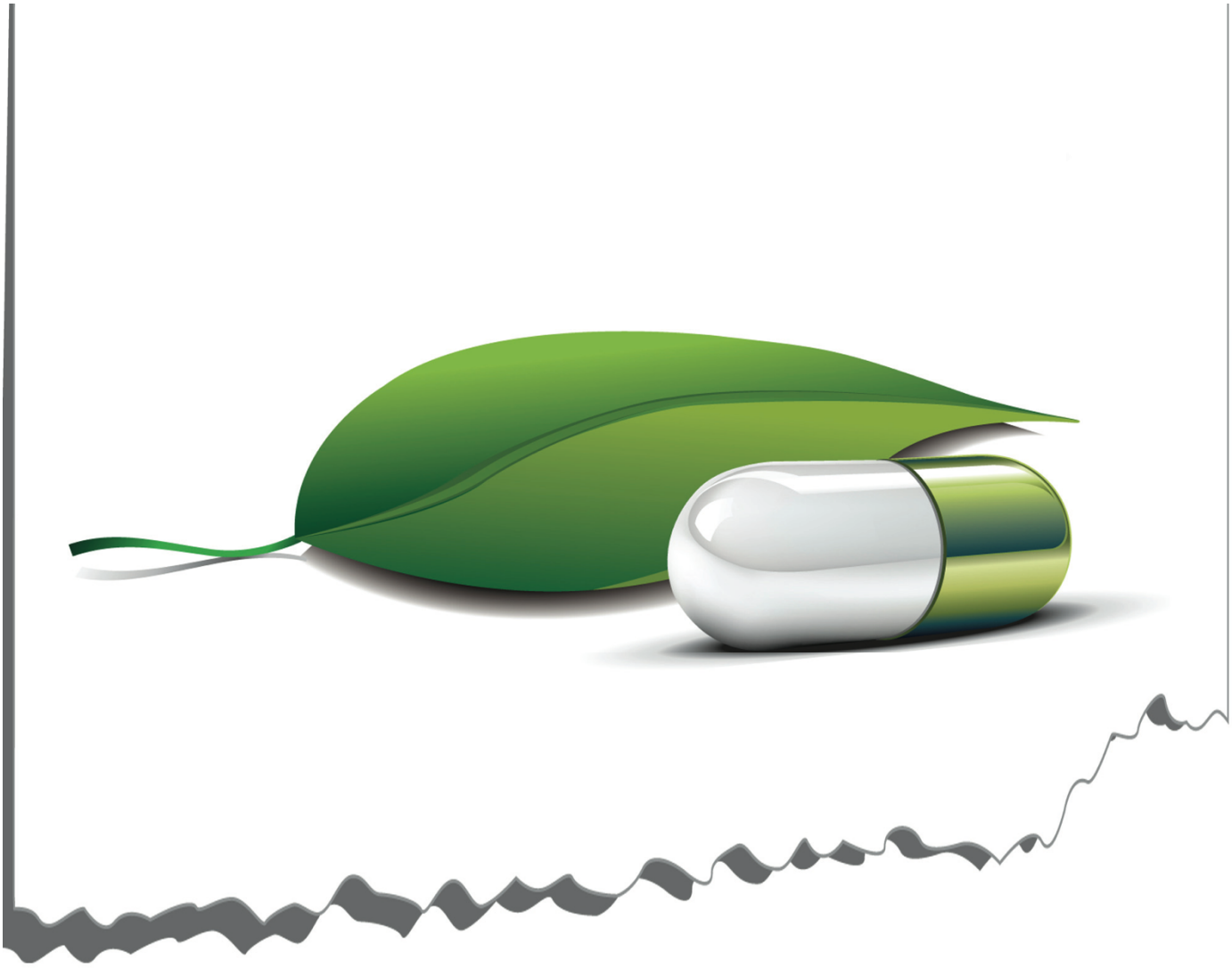
BASIC TREATMENT GUIDELINES

aka

NATURE'S LAWS TO LIVE BY



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BASIC TREATMENT GUIDELINES

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This book has been prepared to facilitate your understanding of the usefulness and effectiveness of the Basic Treatment Guidelines. It is not intended to be a comprehensive work, but simply a guideline in introduction of these important aspects of health. Please use the text only for the purpose for which it was written - as an aid to assist in the understanding of simple yet effective therapies that may benefit a person in their health journey.

This text has been prepared from my clinical experience in working with thousands of patients and from the understanding of Nature's Laws.

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INTRODUCTION

Health is much more than the absence of disease. It is a goal that needs daily effort to achieve. The body is a remarkable regulatory machine that will correct imbalances and pathologies provided it has the raw materials and time. One of the most common obstacles the body must overcome to regain balance (homeostasis) is the removal of the endogenous and exogenous toxins that it is exposed to daily.

Family vacation

The **Basic Treatment Guidelines** (BTG's), as I call them are a series of activities and supplements designed to provide the body with support to return itself to the state of health. They evolved and were updated continually over the last 30 years as I evaluated the clinical results in my patients and from the historical Natural Laws of Nature.

The discussion on some of its components (sunshine, play time, breathing, water, movement, hydrotherapy (water, dry skin brushing, castor oil), sleep hygiene, apple cider vinegar, diet, essential fatty acids, probiotics, various vitamins, phytosterols) will provide insight into why the program works so efficiently at aiding the body in achieving and then maintaining optimal health and performance. To adequately understand how these guidelines work, a brief discussion about toxins is necessary.

But first things first.

What is health?

According to the world health organization, in 1948 they wrote “a state of complete physical mental and social well-being and not merely the absence of disease or infirmity”.
When we look at health from a biological mindset, one must consider health a basic and dynamic force in our daily lives, influenced by our circumstances, beliefs, culture and social, economic and physical environments.

One’s health goal should not simply be to be healthy (which means living well despite inescapable illnesses and diseases) but rather every day to be able to say you are at your optimal performance. This is the balance and integration of physical, intellectual, emotional, and social aspects of the human condition.

The 7 dimensions associated with optimal performance that need to be considered are:

1. Spiritual
2. Intellectual
3. Emotional
4. Social
5. Environmental
6. Occupational
7. Physical

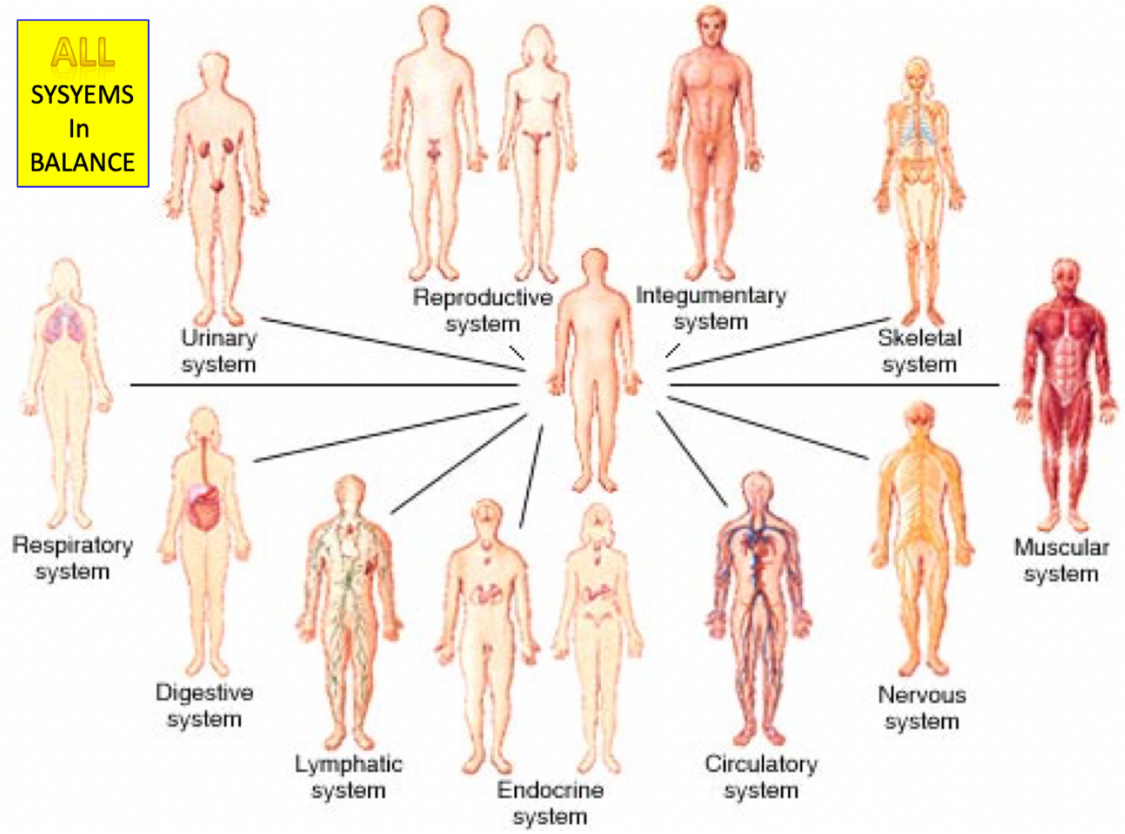
All that said, health is a state of **homeostasis** (balance) on ALL these 7 levels.
But what is homeostasis?
The word was coined by the Father of physiology, Dr. Claude Bernard (1813-1878) when he wrote “All the vital mechanisms, varied as they are, have only one object, that of preserving constant the conditions of life in the internal environment”

In order to accomplish this the body has MANY systems that work as a complicated, interactive team. A few of the internal components to create and maintain homeostasis are:

1. The ideal concentration of oxygen and carbon dioxide
2. The ideal pH of the internal environment
3. Ensuring the correct concentration of nutrients and waste products
4. The correct concentration of salt and other electrolytes
5. The correct volume of fluid inside and outside the cell

Maintaining all the thousands of processes and reactions in the body that happen every second of our life is not something that just happens by itself and "hoping" it will be ok. After all, one's health is a life-long journey and not a must do 12-week plan.

So, the balance of the body is a continual balance of physics, biology and physiology, combined with the spiritual.



So why do get ill?

Typically, in medicine the belief is based on mechanistic causes in nature that can be potentially understood and cured by the application of the scientific method. They include:

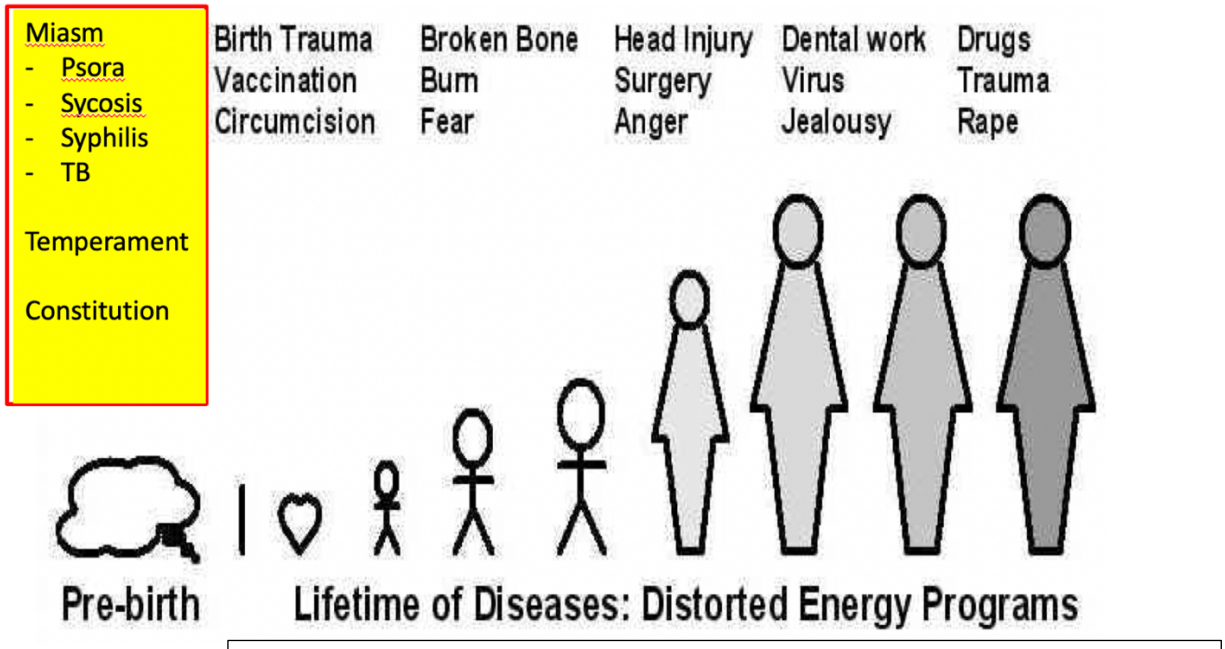
1. Organic breakdown or deterioration (e.g., tooth decay, heart failure, senility)
2. Obstruction (e.g., kidney stones, arterial blockage due to plaque build-up)
3. Injury (e.g., broken bones, bullet wounds)
4. Imbalance (e.g., too much or too little of specific hormones and salts in the blood)
5. Malnutrition (e.g., too much or too little food, not enough proteins, vitamins, or minerals)
6. Microbes (e.g., bacteria, viruses, fungi, amoebas, worms)

7. Toxins
8. Stress
9. Lifestyle – (lack of exercise, smoking, lack of sleep etc.)

But from a Biological perspective are these the real cause or just triggers?

Perhaps closer to the real causes are:

- Emotional imbalances creating chakra-energy disturbances (especially chronic anger, hatred, bitterness, greed, hopelessness, loneliness, and depression often create a "weak" link.)
- Disturbances in the mental and emotional bodies can result in eventual physical manifestation of "dis-ease".
- Meridian imbalances (as in the theory of Chinese medicine)
- Imbalances in a person's miasm, temperament, constitution (known as their terrain)



Modified for Hahnemann Revisited, Luc DeSchepper, MD, Lac, Ac, 1999

But the "real cause" is VIOLATION OF NATURE'S LAWS.

And so, what are some of NATURE'S LAWS in regard to Health?

In 1882, Dr Felix Oswald, MD wrote in "Physical Education: The Health-Laws of Nature" New York: D. Appleton and Company:

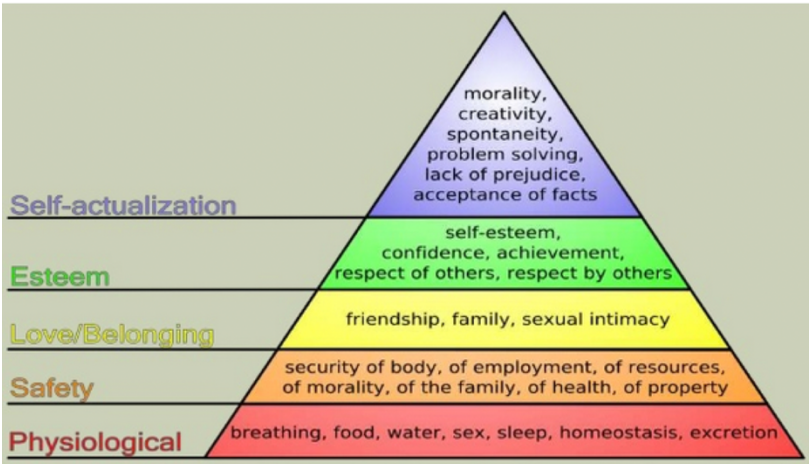
1. Diet
2. In-Door life
3. Out-Door Life
4. Gymnastics
5. Clothing
6. Sleep
7. Recreation
8. Hygiene

BASIC TREATMENT GUIDELINES

And then over a century ago in **Nature Cure**, Henry Lindlahr; The Nature Cure Publishing Co., 1914, Chicago, wrote "Chronic disease is the #1 cause of death of our patients. The **primary cause** of disease is **Violation of Nature's laws** such as excessive eating, too much alcohol, coffee, tea, overwork, night work, fear, worry, poor air quality, lack of exercise, loveless marriages."

And so now in the 21st century, nothing has really changed, despite billions of dollars in research seeking a "magic bullet" to cure everything from Lyme disease, to heart disease, to cancer, to depression to diabetes etc. etc.

But we realize that all people have the same basic needs, however each person's response and reactions to those needs are influenced by the culture with which the person identifies.
1. People meet their own needs relative to their own priorities
2. Although basic needs generally must be met, some needs can be deferred
3. Failure to meet needs results in one or more homeostatic imbalances, which eventually will result in illness.
4. A need can make itself felt by either external or internal stimuli.
5. A person who perceives a need can respond in several ways to meet it.
6. Needs are interrelated



As per Abraham Maslow

Abraham Maslow, *The Farther Reaches of Human Nature*, p. 186 wrote "Man is a hierarchy of needs, with the biological needs at the base of the hierarchy and the spiritual needs at the top."

So why are these basic needs so essential to every Human on the planet.
Simple (not really) The **GREATEST CHALLENGE** that our **PHYSIOLOGY** FACES is the **EFFECTIVE MANAGEMENT** of **TOXINS (physical, mental and emotional)**

But what are toxins from the perspective of the body.
The word "toxin" comes from the Greek "toxikon" = arrow poison and was introduced to medicine in 1888 by the Berlin physician Ludwig Brieger (1849-1909) as a name for poisons made by infectious agents.
MedicineNet.com

Merriam-Webster dictionary states that a toxin is "a poisonous substance that is a specific product of the metabolic activities of a living organism and is usually very unstable, notably toxic when introduced into the tissues, and typically capable of inducing antibody formation."

We must consider that toxins include:

1. Natural – endogenous
    - from cellular metabolism
2. Xenobiotic – exogenous
    - recognized by body and managed by enhancing cellular metabolism
    - not recognized such as heavy metals, pesticides etc. and

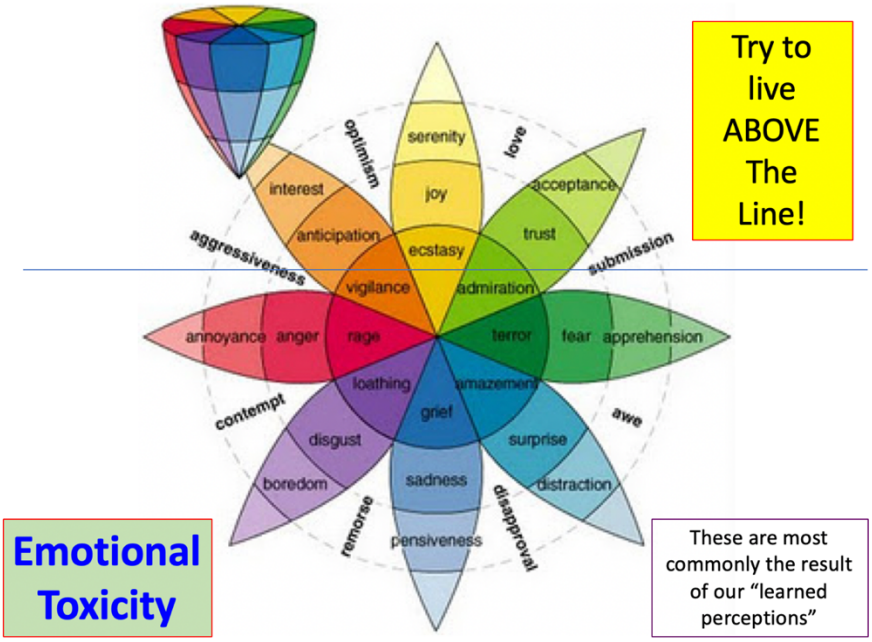
more difficult to manage

- emotional – over stimulus
- mental – dogma, loss of free will and expression
- "learned perceptions"

There are SO many potential toxic contributors. A brief list would include:

- Toxic food storage
- Pesticides, Herbicides & Fungicides
- Toxic, air, water and soil pollution
- Toxic heavy metals (e.g. mercury, lead & aluminum – all *very toxic even in only tiny amounts*): taken in through food we eat, such as fish, water we drink, our environment, anti-perspirants and medical vaccines
- Exposure to cigarette smoke – 1st, 2nd & 3rd hand
- Recreational & prescription drugs including child & adult vaccinations
- Toxic cosmetics, perfumes & personal "care" products
- Toxic solvents & cleaning products
- PCB's (Polychlorinated biphenyls): in plastics, paints, varnishes, inks, wood preservatives & pesticides
- Dioxin's & other organochlorides: in plastics, paper, packaging, pesticides, drinking/breathing heated *chlorinated* water (e.g. your shower!)
- Formaldehydes: In timber products, rubber, paint & plastics
- PAH's (Polycyclic aromatic hydrocarbons): Cigarette smoke, air pollution & charcoaled meats (Bbq)
- Eating low/depleted nutrient natural foods (e.g. commercially mass produced, artificially fertilized, poor soil, non-seasonal, premature-picked, transported & stored)
- Lack of supportive relationships & social connectedness
- Lack of Exercise/Activity

But we must also remember that toxins are NOT just for a "physical" substance but likely the most harmful toxin in regard to health is… **EMOTIONAL TOXINS**



The life cycle of a toxin begins as it enters the body (exogenous) or is made within the body by cellular metabolism (endogenous) and circulates in the bloodstream. The liver (the body's "filter") has a critical role in breaking down the toxin for efficient elimination. When the body is functioning optimally, the primary organs of elimination, called emunctories, include the lungs, skin, kidneys, intestines and nervous system (brain) work quickly to excrete it from

the body. If any of the organ systems are not functioning optimally, that is, not in a place of homeostasis, they are unable to efficiently and completely eliminate the daily toxins, resulting in the deposition of the toxin until (and if) it can be eliminated at a future time. The reservoir for these "shelved" toxins is the connective tissue that comprises every organ in the body. The weakest organ will be selected for the storage because that organ will "complain" the least.

The strategy of placing the toxins in various reservoirs is brilliant if the toxic load decreases enough to allow the body to process the "back-order" of toxins and clear the connective tissue. However, if the eliminatory organs continue to be overwhelmed, the body looks for more storage receptacles. The cell is the next suitable container. The danger is the cell, unlike the connective tissue, contains very sensitive enzyme systems that become disrupted with the foreign material. The eventual result is decreased cellular functioning and alterations in the DNA. As the cells replicate with the altered DNA, they are programmed with the genetic alterations from the previous cellular disruptions.

Considering the cycle, there are different areas that can be targeted to optimize the body's ability to deal with everyday toxins. First, reduce the initial toxic load by eating organically much as is feasible, drinking pure water, not smoking, daily body movement, etc. Second, remove the toxins that have accumulated in the body. There are three areas one can concentrate on to influence the removal of toxins from the body:

1. The cells
2. The connective tissue
3. The interstitial fluid; the fluid medium surrounding every cell in the body.

The cells and the connective tissue are the actual storage receptacles. The interstitial fluid is the "garbage truck" that drops the toxins off, and hopefully, picks them back up when the body has time to remove them. However, if the load on the eliminatory organs is too great, eventually even this fluid becomes too saturated to remove any of the toxins from the tissues or cells. It is a concentration gradient. If fewer toxins are present outside of the cells, then the toxins can flow from the interior of the cell to the external environment. The opposite occurred initially when the toxins in the interstitial fluid were moved to be stored in the cells. However, if the interstitial fluid is full of debris and toxins, the cell will be unable to remove its toxins and stagnation results in the system. This stagnation leads to not only less waste leaving the cell but also less nutrients arriving for cellular uptake.

To visualize this predicament, imagine taking a bath in the same water every day. Your body is a single cell, and the water in the tub is the interstitial fluid. For the first couple of days, the water will be clean enough to enable dirt to leave your body. However, after time, the water in the tub will become so saturated with dirt, that you'll probably be dirtier when you leave than before you began. A portion of the BTG's; lymphatic massage and castor oil, work by opening the drain to the tub. Another BTG, drinking water, introduces clean water in to the tub. Combining these will leave the cell with an environment that is ready to accept nutrients and dispose of the toxins.

As discussed previously, other components of the BTG's: probiotics, flax seeds, evening primrose oil, and apple cider vinegar, work to re-establish the balance that daily toxicity and a stressful lifestyle had disrupted. It will become evident that all of the modalities of the BTG's have multiple roles in aiding the body to return and then to maintain health. It's important to remember that detoxification isn't like a light switch. It is best done over time to allow the body to adjust and make the corrections necessary to dispose of the toxins while still performing its other many functions.

SUNSHINE

Everyone loves the sun. In the winter people seek sunny days even with snow and low temperatures outside. Summer sunshine makes people feel better.

And why do people feel better in the sun?
Because exposure to sunlight is thought to increase the brain’s release of a hormone called serotonin that is associated with boosting mood and helping a person feel good and focused. Without enough sun exposure, your serotonin levels can dip.

Low levels of serotonin are associated with a higher risk of major depression with a season pattern (aka SAD) as this form of depression triggered by the changing seasons.

But in addition to just feeling better, there are many reasons the sun is good for your health. The sun is a giver of life and health for plants and for people.

Some of the many benefits include:

• It helps your body clock function properly, so you sleep better.

• Without sufficient sunlight on your skin there is the risk that vitamin D levels may be so low as to cause some health problems. Sunlight comprises two types of solar radiation: UVA, which causes reddening and burning of the skin, and UVB. The latter increases the production of an inactive form or precursor of vitamin D by the skin, which is then activated by the liver and kidneys.

• Vitamin D helps the body absorb calcium, thus giving you stronger bones and teeth.

• People who don't get enough sunlight have altered cellular defense that predispose them to excessive inflammation, which can result in autoimmune diseases. These include multiple sclerosis, lupus, type 1 diabetes and inflammatory bowel diseases, as well as asthma and skin disorders such as psoriasis and atopic dermatitis.

• UVA can lower blood pressure, increase blood flow and heart rate, all of which are beneficial to the heart and blood vessels. This is probably the result of UVA causing the release of nitric oxide from skin stores, which promotes widening of blood vessels. It also acts as an antioxidant to prevent damage to cells.

• Moderate amounts of sunlight help prevent some cancers such as, colon cancer, ovarian cancer, prostate cancer and pancreatic cancer.

Of course, there is much press and information that the sun also increases the risk of skin cancer, so it is essential to use common sense with sun exposure, most importantly to avoid a sunburn. Don't stay out during the hottest part of the day, between the hours of 10am- 4pm. During this time the sun's rays are more direct, so are more likely to burn you if you stay out too long. Sunscreen is widely advertised if one is out during these hours but before 10:00AM and after 4:00PM are often safer times.

So, the recommendation is 30 minutes of day, minimizing any possibility of sunburn (until you have built up a tan).

PLAY (aka FUN)

Play is an essential part of every child's life and is vital for the enjoyment of childhood as well as social, emotional, intellectual and physical development. So why would we think that the same is not true for adults. Play isn't just about doing nothing of consequence, but it is essential as a means to reduce stress and help with overall well-being.

While play is easy to recognize in children and animals, what does it look like in adults? How we play is as unique to an individual as our fingerprint and could mean doing puzzles, playing sudoku, playing baseball, soccer, skiing, ice hockey or bowling or taking a hike in the wilderness.

Children playing must set the example for EVERYONE to have FUN

Play offers a sense of engagement and pleasure, takes one out of a sense of time and place, and the experience of doing it is more important than the outcome.

Play is part of our evolution as it is believed it primarily evolved to teach children all kinds of skills, and its extension into adulthood may have helped to build cooperation and sharing among hunter-gathers beyond the level that would naturally exist in a dominance-seeking species. So, over all the centuries, play wasn't just about adding fun to their lives, it may have been a way of keeping the peace, which was critical for survival.

Research has suggested that play has been found at work to speed up learning, enhance productivity and increase job satisfaction; and at home, playing together, like going to a movie or a concert, can enhance bonding and communication.

Everyone experiences stress and it is suggested that while highly playful adults feel the same stressors as anyone else, they appear to experience and react to them differently, allowing stressors to roll off more easily than those who are less playful.

So, in summary, play is a basic human need as essential to our well-being as sleep, so when we're low on play, our minds and bodies notice. Play deprivation may result in one being more irritable, rigid, or stuck in a rut. Thus, we need to incorporate it into our everyday lives and not expect a 2-week vacation to correct 50 weeks of play deprivation. What have YOU done today to play and have fun? You MUST do something fun EVERYDAY!

BREATHING

Oxygen is fundamental for life. We take breathing for granted. It is controlled by our autonomic nervous system and thus we don't ever have to consiously think about it. However, we should. Our lungs are one of our primary emunctories (pathways for toxins to be removed from the body). The more we breathe correctly, the more we get rid of the wastes. It is controlled by our nervous system, so it has the power to relieve anxiety and decrease stress all the while it is nourishing our tissues. Just because it is automatic, doesn't mean that we can't override it. We learn when we are younger to stand up straight, hold in our abdomen and breathe up and down so that our bellies don't go in and out. This creates shallow breathing where we are only using part of our lungs. Our lungs are meant to be used.

Physically, as we breathe, oxygen (O_2) is taken into our lungs while carbon dioxide (CO_2) and water are exhaled. The diaphragm moves up and down, the abdomen moves in and out and the lungs fill completely. This creates negative pressure in the lungs and CO_2 is "sucked" out of the blood, increasing blood flow which in turn increases lymph flow and helps to stimulate the immune system. More O_2 is taken into the blood stream and delivered to the cells. Oxygen is the final electron acceptor in the electron transport chain which generates ATP, the main source of energy in every cell. The rhythmic movement of the diaphragm massages the internal abdominal organs improving blood flow and circulation.

The inhale stimulates the sympthetic (fight or flight) nervous system and the exhale stimulates the parasympathetic (rest and digest) nervous system. When our breathing becomes shallow, we also stimulate the sympathetic nervous system. We can decrease stress and anxiety by breathing deeper and making our exhales longer than our inhales. The old saying to take 10 deep breaths before responding to a stressful situation is very good advice.

Here is an example of proper abdominal breathing[1]:

- Place one hand on your chest and the other on your abdomen. With deep “belly” breathing, your abdominal hand will move more than your chest hand. This will make sure that you are breathing deep into the bottom of the lungs.
- Inhale through your nose for a count of 4, hold your breath at the top of inhalation for a count of 4 and exhale through your mouth for a count of 6-8. Do this slowly. Contract your abdominal muscles at the bottom of exhalation to make sure that you have expelled all the air out of your lungs.
- Repeat the cycle four more times for a total of 5 deep breaths and try to breathe at a rate of one breath every 10 seconds (or 6 breaths per minute). At this rate our heart rate variability increases which has a positive effect on cardiac health.
- With daily practice, this breathing will become more second nature and done without thought.
- The goal is a minimum of 100 conscious, deep breaths a day. Considering the average person takes about 12 breathes a minute, 720 breaths an hour and over 17,000 in 24 hours, 100 conscious breaths is a small price to pay every day to improve everything that life saving oxygen provides.

WATER

The most important and miraculous nutrient available today is all around us and is incredibly inexpensive. It does not require a prescription, although one is often needed to persuade an individual to comply. It makes up a high percentage of our bodies yet is an essential nutrient because our bodies don't have the ability to produce a necessary quantity. Using this nutrient alone, without any other lifestyle changes, can dramatically move the body towards health. The nutrient is water.

Adequate hydration is critical to optimal performance

Everyone seems to know that drinking water is important to health. Why then doesn't everyone implement it into his or her daily routine? Is it too inexpensive? Too simple to be effective? Not glamorous enough? How can something so abundant be that healthy? For those individuals who are constantly on the search for the "magic supplement" that will guarantee a long and healthy life, it has been right in front of you all along.

The average adult human body is 50-65% water, averaging around **55-60%**. The percentage of water in infants is much higher, typically around **75-78%** water, dropping to 65% by one year of age. While the average adult male is about 60% water, the average adult woman is about 55% water because women naturally have more fatty tissue than men.

The brain and lungs are 80% water while even the bones are 25%[1]. It fills every space in the cells and between them. Every time a cell duplicates into two daughter cells, 75% or more or its volume must be filled with water[2]. It serves structural roles by incorporating into proteins and glycogen. Your daily energy depends on water because your body's chemical reactions are water-dependent. Through hydrolysis, your two vital cell battery systems: ATP and GTP use the energy generated by your body's water. Proteins and enzymes, the basis for your body's healing capacity, function efficiently only when you have enough water. Digesting nutrients, regulation of body temperature, the youthful appearance and elasticity of the skin - water is the vital component to all of these. Just

as a flower will wilt from a lack of water, so too will the skin. We can live a month without food but no more than a week without water.

Water is the adhesive that bonds your cell architecture. When you get enough water, fluid retention decreases, and gland and hormone functions improve. Water regulates your body temperature, maintains your equilibrium and helps the liver break down and liberate more fat. Water carries every nutrient, mineral, vitamin, protein, hormone and chemical messenger in your body to its destination. It lubricates and flushes wastes and toxins from all cells. It cleanses the internal organs. The kidneys cannot function properly without enough water. When they do not work to capacity, some of their workload is passed onto the liver. However, if the liver has to do some of the kidney's work, it cannot function at optimum efficiency to help eliminate toxins from the bloodstream.

Remember that the goal of the BTG's is to optimize each emunctory (organ of elimination) at performing its processes of detoxification. Therefore, we want to ensure that the organs have all of the materials they need to complete their work.

The capillaries in the cardiovascular system are the vessels responsible for the transport of nutrients to the 60 trillion cells in the human body. Along with the lymphatic capillaries (which will be discussed later) they are also responsible for the removal of the metabolic wastes and toxins, which have accumulated around the cells. Each blood capillary is approximately 1 mm long. If all of the body's capillaries were laid end to end, they would measure 200,000 km. That's more than half the distance from the earth to the moon.

Water is essential to detox

Pure water, not coffee, not soda pop, not even pure organic fruit and vegetable juice, is the only fluid the body can use for these processes. Simply stated, the less water we have in our body, the less the cell's ability to receive the nutrients and dispose of wastes. If you were curious to duplicate what a cell might experience when it doesn't have a clean environment, remember the bathing in dirty bath water example.

The incidence of cancer provides us with some scientific evidence supporting water's role in detoxification. The incidences of certain cancers have a direct correlation with the quantity of fluid consumed. Patients with any urinary tract cancer (bladder, prostate, kidney, testicle, and ureter) have been shown to consume smaller quantities of fluid[4].

Harvard's School of Public Health analyzed the data of nearly 48,000 middle-aged men. Those men who consumed about ten cups of water a day were only half as likely to develop bladder cancer compared with men who drank less than five cups a day. This equated to a 7% reduction in risk for every eight ounces of water consumed[5]. The risk of colon cancer has also been correlated to fluid intake. One study found the women who drank more than 5 glasses of water per day had a 45% decreased risk of colon cancer compared to those who consumed 2 or fewer glasses. Men were found to have a 32% decrease in risk. Water has been found to have a strong inverse relationship with breast cancer risk. Stookey and colleagues conducted a hospital-based, case-controlled pilot study on the protective effects of drinking water on breast cancer risk. When the results were adjusted for age, height, exercise, family history, use of hormone replacement therapy, estrogen exposure through the use of oral contraceptives, coffee, and alcohol, a 79% reduction in risk of developing breast cancer risk was reported. The authors hypothesized that the lack of intracellular water in some way inhibited the cell's metabolic ability to remove the carcinogens[4].

Don't forget you pets!

A common misconception is that we only need water when we are thirsty. The truth is that by the time you are thirsty, your body is already dehydrated. This signal also decreases with age. A 2-3% loss in total

body water is needed before the thirst drive is stimulated[6]. Thus, the threshold for inducing the thirst signal occurs after the person is already dehydrated. This ranges from a level of 0.8% to 2% loss of body weight[4]. Six cups of coffee have been found to decrease total body water by 2.7% in regular coffee drinker's[4]. Even with this substantial loss in body water, only 2 of the 12 healthy volunteers participating in the study experienced thirst.[4] In the absence of perspiration, the normal daily turnover of water is approximately 4% of total body weight in adults and 15% in infants. The urine and the stool account for half of this loss. Amazingly, the skin and lungs are responsible for the remaining portion[4]. These natural losses already place the body into a dehydrated state. Compound this with the regular use of diuretic substances, such as caffeinated beverages and alcohol, and dehydration becomes the norm.[5]

For those individuals consuming large quantities of Ginkgo Biloba looking for that intellectual edge, you may be able to save some money. Mental performance is also compromised when water intake is not adequate. Arithmetic ability, short-term memory, and visulo-motor tracking ***are reduced with as little as a 2% deficit in body fluid***[4] and athletic studies have found that this 2% loss has decreased both physical and mental performance by 20%[4].

The expression, "***my brain is fried***", may be more factual than you think. Mental symptoms such as poor memory, anxiety, insomnia, and depression may also be due to cellular dehydration. Consider the fact that the brain is 80% water when the body is hydrated. When the brain is dehydrated, neurotransmission is impaired[7].

How much water do you drink every day?

To complete the explanation, the anatomy of the brain needs to be reviewed. The cortex is the outer layer and the area of the brain responsible for thinking and motor functions. The limbic system, which is responsible for emotional processing and our primal urges of survival, lies below the cortex. The reptilian brain rests below, and includes, the spinal cord. The reptilian brain is responsible for the homeostatic functions in the body such as breathing, heart rate, and temperature. When the body is dehydrated, the brain must prioritize which segment of the brain will receive the water. These decisions are based on survival first and cognition second. Therefore, the cortex is likely to be dehydrated before the reptilian brain, as clear rational thinking is not biologically necessary for survival. When the cortex is dehydrated, we may be more likely to react more emotionally and are less equipped to handle stress. The ability to perform abstract thinking and concentration is also decreased[7]. *Considering that oxygen is a valued nutrient by the brain, and one third of a glass of water is oxygen, the relationship between hydration and cognition becomes apparent*.

So how much water should you drink every day?
Everyone has been told that 8 glasses a day of water are required to maintain the numerous functions listed above that require water as the key ingredient.

But this generic suggestion does NOT take into account so many factors such as:

• **Exercise:** The more you exercise, the more water you will need to drink to keep hydrated. On top of your minimum requirement, an additional one or two (8-oz) glasses for every hour of exercise would help your body to rehydrate properly.

• **Environment:** In hot and humid weather which causes you more perspiration and urination, drink additional glasses of water to replenish loss of moisture and to keep hydrated.

• **Detoxing/Cleansing:** When doing any form of detox or cleansing, always add another 20-25% to your daily water requirement. When detoxifying, drink more water to help your liver and kidneys flush out the toxins, and also to prevent constipation which can cause the toxins to be reabsorbed into your kidneys.

• **Illnesses or health conditions:** When there is fever, vomiting or diarrhea, your body loses water which needs to be replenished with rehydration solutions. Other health conditions like urinary tract or bladder infections may also require you to drink more.

• **Pregnancy or nursing mothers:** For pregnant women, the formula below applies, to include the weight of her pregnancy. For nursing mothers, endeavor to drink at least two to three glasses (8-oz) more a day, on top of your minimum requirement.

• Certain health conditions like congestive heart failure and kidney failure will dictate that you require LESS than the minimum amount of water daily. For those people they must check with their physician to determine the ideal amount of water required daily.

So, what is the **MINIMUM** amount of water required daily?

For most people (including children), the rule to follow is **ONE half your body weight (pounds) in OUNCES.**
As an example, if a child weighs 80 pounds, they must drink 5 (8 oz) glasses of water, or 40 oz/ 1.2 liters
If one weighs 180 pounds, then 11 glasses, 90 oz. 2.7 liters is the daily requirement.

Got it. Start drinking!!

MOVEMENT

So, this is the one Natural Law that people know a lot about but are SO resistant to "implement".

Why? Because they believe to be healthy, they must join the gym, do vigorous activity and sweat 4x a week. So typically, on January 1, people make resolutions to be healthy, to follow better choices but by January 9, the promise and goal is gone.

What do people think (and likely already know) about exercise? That they should exercise 30 minutes 3-4x a week. When someone is physically fit, they feel and look better. Every promotion to join a gym, purchase exercise equipment, follow a diet, take a cholesterol lowering drugs etc., touts the numerous benefits of physical activity.

This is what most people think exercise is all about

1. It strengthens the heart. Like any muscle, the heart responds becoming stronger and more efficient. Strengthening the heart muscle can help ward off heart disease -- the leading cause of death in the United States.

2. It helps keep arteries and veins clear. Exercise reduces cholesterol and fats, increases the flexibility of the walls of blood vessels, and helps to lower blood pressure.

3. It strengthens the lungs. Working hard increases lung capacity, and as a result, more oxygen is drawn into the body and more carbon dioxide and other waste gases are expelled.

4. It reduces blood sugar levels. Exercise increases sugar (glucose) uptake into muscles, reducing a person's risk of developing diabetes.

5. It controls weight. Physical activity burns more calories than sedentary behavior and thus helps with weight control.

6. It strengthens bones. Exercise increases bone density, which helps prevent osteoporosis.

7. It helps prevent cancer. People who exercise regularly have lower incidences of colon, prostate, uterine, and breast cancers.

8. It regulates blood pressure. Exercise can reduce stress levels, affecting virtually every organ system.

9. It improves energy levels. Regular exercise improves energy, thus allowing you to be more active.

10. It enhances emotional well-being. Most people report that they feel calm and have a sense of well-being after they exercise.

Source: American Academy of Pediatrics; American Medical Association; U.S. Department of Health and Human Services

But it is time to change all that thinking, that the gym, a run, sweating is the only way to achieve the above benefits.

People can get in shape by performing everyday activities in the home. Every time you and your child throw a softball, swim a lap, climb a flight of stairs, walk to the store, or carry packages, your health and fitness levels are improving.

So, what is the best activity for everyone to do every day? The rule of thumb is whatever the activity, it must be sustainable, and the SAME activity can be repeated within 10 minutes after completion of the movement.

Household chores provide helpful functional fitness

So unless you are a professional athlete, are training for the Olympics, have an occupation that requires you to have unusual physical strength, the question you need to ask yourself is what do you want to be able to do when you are 75 years old?

How about getting out bed, walking to the bathroom, sitting on the toilet, getting dressed, putting on your shoes, reaching the top shelf in your kitchen, driving your car, playing on the floor with your grandchildren, enjoying a 2-week cruise etc.

So, movement is NOT about the gym, about increasing your heart rate to 150+, sweating, benching pressing 100 pounds. It is about every day activities that are done every day in your everyday life.

So, the time has come to recognize that “functional fitness” is a natural law. After all, humans did not evolve by going to the gym, they evolved by maintaining fitness with their everyday life activities. So, what is functional fitness?

- Functional fitness is about training your body as an entire unit instead of muscle by muscle.

- It is about training your body to move the way in which you move *in everyday life:* **bending, lifting, throwing, reaching,** and **twisting**.
- Functional fitness is for everyone and it should be used by those who want to stay strong, fit and moving well into their **old age**.
- Movement and activity must be sustainable
- Do it every day and it should NOT take time to recover
- It is not doing this activity for sport, but rather to live life to its fullest
- It should include some contraction of muscles (resistance), (moves the lymph), easy aerobics

The key idea to remember is sustainability. What does that mean? Whatever activity you are doing, say sweeping the floor, climbing a flight of stairs, vacuuming the living room, making the bed, 20-minute yoga/ meditation, jogging 1 mile, you must be able to stop, rest 10 minutes and repeat exactly the same activity. This may seem easy with everyday activities (good) but for those who think they need to be in the gym, or jogging 3 miles, it may be a different story. If you are unable to repeat the same activity within 10 minutes, then you have exceeded your physiology (not good). You must then decrease that activity the next time until you are able to repeat it within 10 minutes. This is how over time (weeks to months and years) you will increase your stamina.

You have then sustainable "functional fitness". So, in addition to your everyday movement, the BEST activity for everyone is WALKING, with a goal of 150+ minutes a week.

No matter which activity you are doing, you should always FINISH the activity with extension of your spine. A large ball or simply arching backwards will work.

Walking the dog is a perfect way to get your 150 minutes a week

I highly encourage you to watch a short 8-minute U-tube presentation by Dr. Mike Evans called "23½ hours". Search for http://www.youtube.com/watch?v=aUaInS6HIGo&list=PL4C1A496623BC60F5&context=C2d078ADOEgsToPDskJgfdQdD732Bkya1U9MbDby

HYDROTHERAPY

We have already written about the importance of water internally in the body, but as truly perhaps the most amazing substance on the planet, it has also been used for ever externally.

The therapeutic use of water has been recorded in ancient Egyptian, Greek and Roman civilizations. Egyptian royalty bathed with essential oils and flowers, while Romans had communal public baths for their citizens. Hippocrates prescribed bathing in spring water for sickness. Other cultures noted for a long history of hydrotherapy include China and Japan, the latter being centered primarily around Japanese hot springs. Many such histories predate the Roman thermal baths.

So, hydrotherapy or water cure are routinely used therapies by many therapists including Naturopathic physicians, physical therapists, occupational therapists, colon therapists, massage therapists, and Biological physicians.

BASIC TREATMENT GUIDELINES

Enjoy a bath like your children

The term encompasses a broad range of approaches and therapeutic methods that take advantage of the physical properties of water, such as temperature and pressure, for therapeutic purposes, to stimulate blood circulation and support natural physiology in the body. Cold water causes superficial blood vessels to constrict, moving blood flow away from the surface of the body to organs. Hot water causes superficial blood vessels to dilate, activating sweat glands, and removing waste from body tissues. Alternating hot and cold water is thought to decrease inflammation and stimulate circulation and lymphatic drainage.
Hydrotherapy is often done at health centers, spas, or at home.

Common types include:

Sitz bath - A sitz bath involves two adjacent tubs of water, one warm and one cool. You sit in one tub with your feet in the other tub, and then alternate. Sitz baths are recommended for many digestive and pelvic related issues including constipation, diarrhea, hemorrhoids, premenstrual syndrome (PMS), and menstruation problems, chronic vaginitis, after delivery, prostatitis, and benign prostatic hypertrophy.

Warm water baths - Soak in warm water for up to 30 minutes, depending on the condition. Epsom salts, mineral mud, aromatherapy oils, ginger, and dead sea salts may be added.

Steam bath or Turkish bath - Steam rooms are filled with warm, humid air to help the body release impurities.

Sauna - The dry, warm air promotes sweating and detox.

Compresses - Towels are soaked in warm and/or cool water and then placed on a particular area on the body. Cool compresses reduce inflammation and swelling, while warm compresses promote blood flow and ease stiff and sore muscles.

Wraps - While lying down, cold wet flannel sheets are used to wrap the body. The person is then covered with dry towels and then blankets. The body warms up in response and dries the wet sheets. It's used for colds, skin disorders, and muscle pain.

Contrast hydrotherapy - At the end of a shower, turn the temperature down to a level you can comfortably tolerate (it shouldn't be icy cold). Turn the water off after 30 seconds (some people alternate between warm and cool water for up to three cycles, always ending with cool water).

Warming socks - Take a pair of cotton socks, wet them thoroughly in cold/ ice water, wring them out and put them on your feet. Then put a dry pair of wool socks over them and go to bed. Remove them in the morning. This treatment will improve circulation in the body and help ease upper body congestion. It is an essential therapy for any type of congestion in the body including a cold, flu, sinus infection, ear infection, strep throat, bronchitis, cough. For babies and children, it is an excellent therapy to use for many problems, including insomnia.

Hot fomentation - For treatment of acute conditions such as chest colds and coughs to relieve symptoms but also decrease the length of the illness.

Mustard Plaster – like a hot fomentation, it is effective for acute conditions such as chest colds and coughs to relieve symptoms but also decrease the length of the illness.

Hydrotherapy pool exercises - Exercising in a warm-water pool. The warm water allows you to exercise without fighting gravity and offers gentle resistance. It's considered helpful for back pain, arthritis, and other musculoskeletal conditions. Unlike water aerobics, hydrotherapy exercises tend to be slow and controlled often done under the guidance of a physiotherapist.

A double head shower is essential

Like any therapy, hydrotherapy may not be appropriate in certain circumstances and one should ask their primary care about its utilization in the following:

- Open wounds
- Active infection
- Altered sensation
- Hydrophobia
- Heat or cold intolerance
- Poor balance
- Cardiovascular disease or high blood pressure - Increased blood flow may put additional stress on the heart
- Kidney disease
- Cancer
- Pregnancy

You are no doubt already using hydrotherapy in your life, whether it's taking a warm bath or shower to unwind or putting an ice pack on a swollen or painful area. There are many types of hydrotherapy, with some being done at home or by a professional to complement your current treatment regime. For at home hydrotherapy it is in everyone's best interest to have a double headed shower for ease of removal with doing any of the alternating hot-cold therapies.

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- Higgins TR, Greene DA, Baker MK. Effects of cold-water immersion and contrast water therapy for recovery from team sport: A systematic review and meta-analysis. J Strength Cond Res. 2017 May;31(5):1443-1460
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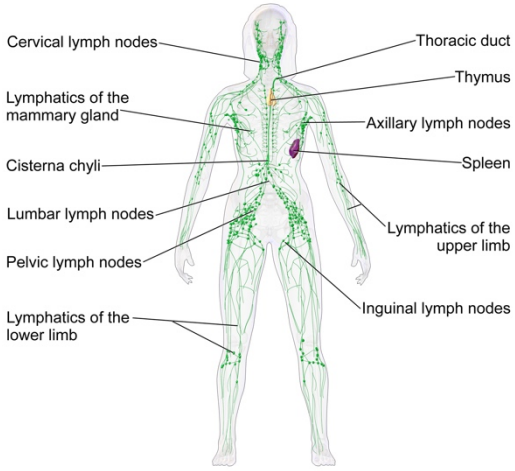
LYMPHATIC SYSTEM

The **lymphatic system** is part of the vascular system and an important part of the immune system comprising a large network of lymphatic vessels and organs that carry a clear fluid called lymph directionally towards the heart. The lymphatics eliminate the chemicals produced by our cells naturally as well as the synthetic toxins (pesticides, hormones, pollution, growth stimulants, etc.), which are unfortunately the norm in today's world. It can be compared to a city's sewer system.



The lymphatic system is often the forgotten system

Lymph is very similar to blood plasma and it contains lymphocytes (white blood cells), waste products and cellular debris together with bacteria and proteins. There are several associated organs composed of **lymphoid tissue** that are the sites of lymphocyte production which are concentrated in the lymph nodes. The spleen, thymus, tonsils, adenoids, and Peyer's patches are the lymphoid organs of the immune system.

There are more than 600 to 700 of these nodes in the human body. Most of these nodes are situated in the head, neck, thorax, abdomen, and groin. These nodes have cavernous sinuses lined with macrophages. The macrophages are responsible for consuming the bacteria, viruses, and cellular debris that enter into the nodes. They also have an important role in the humoral and cellular immune system in the body.

Unlike blood, which flows throughout the body in a continuous loop, lymph flows in only one direction — upward toward the neck. Lymphatic vessels connect to two subclavian veins, which are located on either side of the neck near the collarbones, and the fluid then re-enters the circulatory system. The lymph is moved along the lymphatic vessel network by either intrinsic contractions of the lymphatic passages or by extrinsic compression of the lymphatic vessels via external tissue forces (e.g., the contractions of skeletal muscles).

There are 4 at home ways to continually keep the lymph moving. When one is fighting infection, it is common to feel swollen lymph nodes in the neck under the jaw, and post mastectomy women often will have lymphedema in their arms. To keep the lymph flowing and removing waste regularly, every day one should engage in the following:

- Deep breathing
- Daily movement
- Castor oil packs
- Dry skin brushing

CASTOR OIL

A VERY old therapy with incredible effectiveness

Castor bean seeds (*Ricinus communis*) are thought to date back to 4,000 years ago and they have surfaced in historical documents for millenniums. They were even discovered in Egyptian tombs[1].

The plant has been called various names by different cultures. For example, the ancient Greeks called it Kiki and the Romans referred to it as the Palma Christi (due to the plants resemblance to the palm of a hand).

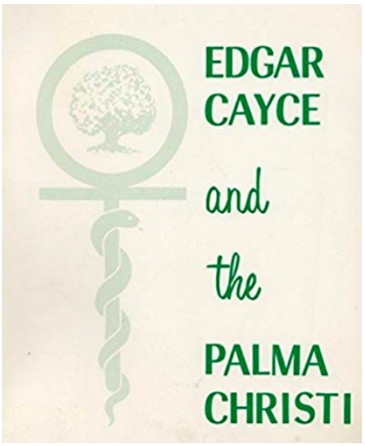
The first medicinal prescription of castor oil may have been in pre-Christian times. The Egyptian physicians instructed to chew the seeds of the plant with beer to relieve constipation[2] while the Aztecs used the oil externally to treat skin lesions and hemorrhoids[3]. The Chinese used it to induce childbirth and expel the placenta[1].

Considering these specific historical uses, how did using this ancient oil topically in the form of a "castor oil pack"

become part of the BTG's? In fact, it never would have without the work of Edgar Cayce - *an ordinary man with an extraordinary gift*.

Edgar Cayce, a native of Kentucky with a ninth-grade education, had the ability to enter into a hypnotic state and accurately diagnose a wide range of diseases for his clients. These hypnotic "readings" were very detailed and used precise medical terminology. Even more interesting was that Cayce had no medical ability when not in the trance.

Out of the 9,000 health related readings, Cayce suggested using castor oil 545 times as the treatment for a variety of ailments[4].



Cayce listed over 30 physiologic functions of castor oil, including:

- Increasing eliminations, lymphatic circulation, relaxation
- Stimulating the liver, gall bladder, lacteal duct circulation, and cecum
- Dissolving and removing adhesions, lesions, and gallstones
- Relieving pain
- Reducing flatulence, inflammation, nausea, swelling
- Improving intestinal assimilation
- Coordinating liver-kidney function

In addition, it has been used clinically for virtually every issue and I recommend its external use anywhere on the body. It is NOT recommended to be taken orally as it may cause severe cramping and diarrhea. It has proven to be particularly effective for dry eyes with a single drop applied at bed time.

How castor oil works is still considered a mystery.

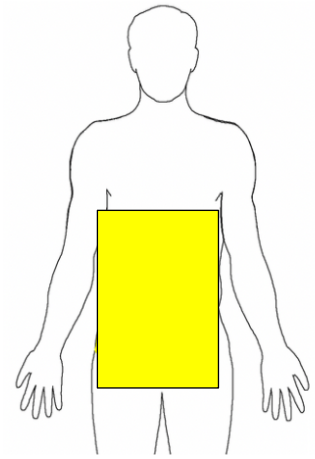
Scientifically, castor oil has demonstrated immune stimulating properties. The oil may also have antiviral properties. The ricin, a substance in the bean, has been shown to kill the HIV virus in test-tube trials. Researchers at the University of Texas Southwestern Medical Center found that the ricin attacks and destroys both the virus as well as the cells in which it resides[3].

Through its influence on the parasympathetic nervous system, or the "rest and digest" system, castor oil may produce a sedative state in the body. Individuals have reported that the castor oil pack relaxes them and helps them sleep when used before bed. One author suggests that this may be the result of placing the packs over the solar plexus, the largest accumulation of autonomic nerve cells in the lower body[3]. Considering the stress of modern living, this could prove to be incredibly beneficial.

The oil is thought to act on the lymphatic system and increase the quantity of lymph, as well as contracting the lymphatic vessels. This increase in lymphatic flow is likely the result of the oil stimulating the parasympathetic nerves that innervate the lymphatic vessels. The increase in the quantity of lymph may result from hepatic stimulation, as the liver produces one-third to one-half of the lymph in the human body[3].

Castor oil packs have been scientifically proven to increase lymphocyte production and activity of T-cell lymphocytes, a type of white blood cells[1]. Increasing lymphocyte 'traffic' throughout the body initiates and perpetuates the immune response[1]. *This equates to the body producing more antibodies as well as killing viruses, fungi, bacteria and cancer cells*. This increase in T-cells peaks at seven hours after the treatment and declines to normal within 24 hours (exemplifying the importance of daily use).

The skin, being the primary barrier in the body, has an active role in immune functioning. T-lymphocytes reside in the skin's epidermis and dermis[1]. Castor oil may trigger the T-cells in the skin to activate a general immune system reaction throughout the lymphatics. The messengers for this systemic reaction may be prostaglandins. The body's production of prostaglandins may be stimulated by the chemical similarity of the castor oil to immune stimulating prostaglandins.



The amazing COP!

If indeed castor oil did replicate prostaglandins, many of the oil's effects, controlling inflammation, stimulating smooth muscle, contracting vasculature, and stimulating the B and T lymphocytes, may be explained. Castor oil has been shown to produce prostanoids, which are precursors to prostaglandins[1]. A further discussion of prostaglandins can be found in the flax/evening primrose section of this guide.

Another possible explanation for the increased lymphocyte count may involve a series of aggregated lymphatic nodules known as ***Peyer's patches***, which vary in length from two to ten centimeters[3]. Twenty to thirty of these patches exist with the largest and greatest concentration residing in the ileum. Each patch is a group of aggregated lymphatic nodules encapsulated in mucous membrane. They are most easily observed in younger individuals and may disappear with age[3].

They are considered to be important to the development of the immune system in children.

According to Edgar Cayce, the Peyer's patches produce a substance that facilitates electrical contact between the autonomic and the cerebrospinal nervous system when it reaches those areas via the bloodstream. His readings suggested that the patches secrete substances that balance the sympathetic and parasympathetic nervous systems.

Cayce further believed that the health of the entire nervous system is, to an extent, maintained through the substances produced by the Peyer's patches when they are in good health. Although the Peyer's patches were discovered in 1677, *it is only recently that medical science has begun to recognize them as constituents of the body's immune system*.

In his last reading in 1944, Cayce stated, "***when there is over exercise physically, or especially the mental forces as of worry or anxiety, to be sure it calls on the necessity of castor oil treatment***".

In 63% of Cayce's readings the liver was the target organ for a castor oil pack and in 90% of his readings he suggested *the pack be positioned to include the liver*. The prescription of treatment was most commonly one hour three times a week over a cycle of three weeks with a one-week break.

This was thought to evoke the body into developing its own functioning while adding additional tonification. However, with the considerable toxicity of today's world, daily use is often preferred, and the most efficacious method is to cover the entire abdomen with cotton flannel. This will maximize the oil's positive healing influence on all the digestive organs.

A double-blind study, described by Harvey Grady in a report entitled "*Immunomodulation through Castor Oil Packs*" published in the Journal of Naturopathic Medicine, examined lymphocyte values of 36 healthy subjects before and after topical castor oil application. This study identified castor oil as an anti-toxin, and as having impact on the lymphatic system, enhancing immunological function.

The study found that castor oil pack therapy, of minimal two-hour duration, produced an increase in the number of T-11 cells within a 24-hour period following treatment, with a concomitant increase in the number of total lymphocytes. This T-11 cell increase represents a general boost in the body's specific defense status, since lymphocytes actively defend the health of the body by forming antibodies against pathogens and their toxins. T-cells identify and kill viruses, fungi, bacteria, and cancer cells.

In general, I have found using the castor oil pack a minimum of 30-40 minutes on 3 consecutive days is effective. In time many people have found wearing the castor oil pack all night provides an excellent therapeutic response.

DRY SKIN BRUSHING

When discussing detoxification, there is usually one organ whose incredible impact is overlooked. It is on the "front-line" constantly defending our internal environment from the foreign outside world. If size mattered, this would be the premiere organ of elimination. Unlike any other organ of elimination, we have the ability to physically manipulate this organ to amplify its detoxification ability. What is this massive organ that is so crucial in the eliminatory processes of the body? It's the skin.

The skin is much more than a "container". It is the largest organ in the body (although the small intestine has a larger surface area). It functions in respiration, excretion, blood and lymph circulation, and immunity. Embedded in the approximately 17 square feet of skin are millions of sweat glands which provide the "vents" for the toxins in the blood and tissue to surface. When fully dilated, the skin's capillaries have six times the capillary surface area of the lungs[1]. All things considered; it could be concluded that the skin can eliminate six times more material than the lungs! To maximize this elimination, one must take advantage of a network of incredibly fragile vessels lying beneath the skin's surface.

A brush or sponge works effectively

As previously discussed, lymph, unlike blood, does not circulate through the body via a pump. It moves due to a combination of the hydrostatic pressure in the tissues, general muscular contraction, elastic changes in the vessels, and breathing. The sum of these forces is enough to gently convey the lymph through the one-way valves. About 1.5 to 2 liters of lymph per day circulate throughout the whole body[3]. Efficient activation of the lymphatic circulation can increase this number to 10-30 liters per day. The superficial lymphatic circulation, just under the dermo-epidermis junction (about 70% of lymph flow), is not directly stimulated by exercise. The deep circulation of the muscles, below the fascia, and the very deep circulation of the viscera, is increased by muscular contractions.

Breathing has a tremendous effect on the circulation of lymph.
This is one reason why deep breathing exercises are a component of the Basic Treatment Guidelines (BTG's).

Contracting skeletal muscles, intrinsic movement and massage are other methods of advancing the lymph. During exercise, lymph flow may increase as much as 10-15 times. Very small, involuntary muscles contract with rhythmic ripples in one direction, pushing the lymph past the one-way valves. The other major method for propulsion, and the one we can tremendously affect, is massage.

The form of lymphatic massage in the Basic Treatment Guidelines is "Dry Skin Brushing" and utilizes a soft brush or natural sponge.

The technique for the brushing is rapid and very light. The goal of the massage is to exert force on the very sensitive interstitial fluid. Creating a difference in pressure will move the fluid, and its components, from the interstitial space and into the unidirectional lymphatic capillaries.

The lymphatic capillaries will preferentially accept the fluid due to their degree of permeability. The lightness of the pressure can't be overemphasized. Lymphatic vessels operate under extremely minimal pressure differences. **Feather-like** continuous stroking works with this sensitive system to propel the lymph in the vessels. Heavy or sudden pressure can collapse the vessels, inhibiting flow. Even rigorous muscular contraction causes a cessation in the lymphatic flow.

It is almost impossible to apply too light a pressure. If done correctly, a thin film of interstitial fluid should surface to the skin. Begin the massage at the extremities. Due to the valves, the only direction the lymph can flow is towards the heart. Remember that the thoracic duct will drain the lymph from not only the left side of the body,

but also the inferior right side. Therefore, it is important to approximate this path and cross at the midline at the umbilicus when massaging from the right leg to the heart. It is also preferential to slowly and gently flex each joint while you are massaging that particular limb. This flexing provides additional lymphatic pumping.

It is critical to monitor your breathing to maximize the results of the lymphatic massage. As discussed previously, the movement of the diaphragm results in pressure differences, which propel the lymph. Furthermore, it provides physical massage to the internal lymphatic vessels that manual massage can't affect. Ensure that you feel the inhaled breath at the back of your throat. The air actually provides a massage to the tonsillar lymph nodes. These nodes are terminal nodes (rather than capillaries) which produce a greater volume of flow than anywhere in the body! This volume will stimulate the flow through the internal nodes of the respiratory system. Obviously, this is another area where manual massage can't affect.

The most appropriate time to do the lymphatic massage, or dry skin brushing, is before bed as it is critical to rest the body. The massage acts to mobilize the toxins from the confines of the organ's connective tissue into the circulatory system. It is then the responsibility of the liver and kidneys to ensure that these toxins are extracted from the circulation and eliminated from the body. This will be optimized when the general metabolic processes of the body (which produce waste) are operating at a minimum (which is during the night).

SLEEP HYGIENE

There is so much written about the necessity of sleep and the numerous health problems associated with sleep deprivation. It is very obvious why this is a critical component of the BTGs.

So cute to be able to sleep like a baby

Good, adequate, refreshing sleep is not a luxury, it is an absolute necessity as it is an active period in which a lot of important processing, restoration, and strengthening occurs throughout every organ system in our body.

There are too many functions to discuss here but one of the most vital roles of sleep is to help solidify and consolidate memories. As we go about our day, our brains take in an incredible amount of information which must be processed and stored; and many of these steps happen while we sleep. During sleep, this information is transferred from short-term memory to long-term memory - a process called "consolidation." It has long been known that college students who cram for exams and do not sleep the nights before the exams, do not remember what they just studied a few days later. So, when people sleep well, they tend to retain information and perform better on memory tasks. Everyone requires long periods of sleep in order to restore and rejuvenate, to grow muscle, repair tissue, and synthesize hormones.

The concept of consolidation of information is likely the reason children who acquire language, social, and motor skills at a breathtaking pace throughout their development need more sleep than adults. Thus one-year-olds need roughly 11 to 14 hours, school age children between 9 and 11, and teenagers between 8 and 10 with adults requiring 7-9 hours of sleep per night.

And the basic facts are that many people, no matter what their age, do not receive the minimum required hours of sleep. Every time the clocks change with day-light saving time, there are numerous issues related to an hour of less sleep. And that is only 1 hour of missing sleep. Imagine the long term affects with inadequate number of hours night after night and year after year.

BASIC TREATMENT GUIDELINES

Unfortunately, a person can't just accumulate sleep deprivation and then log many hours of sleep to make up for it. The best sleep habits are consistent, healthy routines that allow all of us, regardless of our age, to meet our sleep needs every night, and keep on top of life's challenges every day.

To ensure that you're getting good quality sleep every night, follow the guidelines below:

- Engage in relaxing rituals before bed, such as a warm bath or shower, aroma therapy, castor oil pack, deep breathing, or meditation.

- Clear your mind before bed by writing down tasks for the next day. Once these items are on paper, you'll be better able to relax and fall asleep easily.

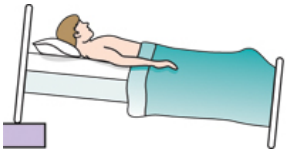
- Maintain a regular schedule. Go to bed at the same time every day and wake up at the same time every day. Don't be tempted to alter your schedule on off days or weekends. The ideal time (to support the body's physiology) is between 10:00-11:00PM. If you work nights, make appointments outside of your sleep period, and insist that your family and friends leave you alone while you sleep.

Darkness is important to ensure deep sleep

• Sleep in a cool, pitch black room. Cover all windows and turn off or remove all sources of light, including electronics (cell phones, computers, clocks, televisions, etc.). NO Wi-fi in the room is preferred. Wear an eye mask if necessary. If noise bothers you, wear earplugs or use a fan to create white noise.

• Eat your last meal 3 hours or more before bedtime, and avoid caffeine, smoking, and alcohol for 2-3 hours prior to bedtime. If you work at night and need to sleep from morning until afternoon, avoid caffeine after midnight.

- Raising the head of your bed about 4-6" will improve blood flow into your head, give you a more relaxing sleep and help decongest the sinus, throat and chest for starters.



- Time your exercise so as not to disrupt your bed time. If exercise energizes you, do it early in the day. If it relaxes you, you can complete it later in the day (3-4 hours before bed time).

While effective, it is not necessary to sit in a lotus position to create effective meditation

MEDITATION

"The mind is everything, what you think you become" Buddha

Meditation can be defined as a set of techniques that are intended to encourage a heightened state of awareness and focused attention, a means of transforming the mind. The Cambridge dictionary defines meditation as "the act of giving your attention to only one thing, either as a religions activity or as a way of becoming calm and relaxed," or "serious thought or study, or the product of this activity."

Meditation is awareness and so when one meditates, they are dedicating a certain amount of time and effort to being as mindful as possible. To do this, they choose a meditation object – the breath, for example – and pay attention to it.

Sitting in a relaxed position, remaining upright and still, the focus in the mind is on the breath. Breathe in, we're aware that we're breathing in. Breathe out, we're aware that we're breathing out.

Some key things to note about meditation:

- Meditation has been practiced in cultures all over the world for thousands of years
- Nearly every religion, including Buddhism, Hinduism, Christianity, Judaism, and Islam, has a tradition of using meditative practices
- While meditation is often used for religious purposes, many people practice it independently of any religious or spiritual practices
- Meditation can also be used as a psychotherapeutic technique
- There any many different types of meditation

While we may not fully understand exactly how meditation works, research has clearly demonstrated that meditative techniques can have a range of positive effects on overall health and psychological well-being. A few include:

Meditation can (and should) be done anywhere

• a lowered state of physical arousal
• reduced respiration rate
• decreased heart rate
• changes in brain wave patterns
• lowered stress with better stress management skills
• Increased self-awareness
• Improved emotional well-being
• Better management of symptoms of conditions including anxiety disorders, depression, sleep disorders, pain issues and high blood pressure
• Improvement in working memory

So, the BTG suggestion is to spend a few minutes daily in quiet reflection, no matter how busy your life may seem to be.

WHAT YOU CHOOSE TO EAT, aka DIET

Nothing can be more individualized in the BTG's than what chooses to eat on a daily basis. There are more than 101 diets that have been proposed in more than 1001 diet books. They all offer the cure, the solution, a panacea, but of course none is possible.

It is impossible in any text to customize a diet to person's personal situation. So many factors must be taken into account before the ideal food choices can be followed. Some of these factors include age, gender, metabolic type, miasm, temperament, constitution, cultural upbringing, spiritual following, occupation, education level, financial position, living situation, level of physical activity, peers, social network, food availability, where you live, family eating habits, taste preferences, and cooking skills, etc. Of course, there are more factors involved and so this tells us why a single diet book cannot be written for the masses.

What we do realize that there are unprecedented opportunities that exist for expanded use of foods and components to achieve genetic potential, to increase productivity and decrease the risk of disease.

On February 23, 2017 a study published by the International Journal of Epidemiology suggests that "eating 10 portions of fruit and vegetables a day could significantly reduce the risk of heart attack, stroke, cancer and early death." Specifically, consuming about 800 grams of fruit and vegetables daily, twice the World Health Organization's current recommendation, "was associated with a **24% reduced risk of heart disease**, a **33% reduced risk of stroke**, a **28% reduced risk of cardiovascular disease**, a **13% reduced risk of total cancer,** and a **31% reduction in dying prematurely**," compared to not eating fruits and vegetables at all.

Eat a rainbow of colors everyday

The following offers sound advice for your diet.

1. Apple Cider vinegar ½-1 tsp in a glass of water 15 minutes before meals
2. Smell the food cooking
3. Think about the food you are about to eat
4. Chew extremely well (31 times for eat bite is preferred)
5. Put down your fork between each bite of food
6. Do not drink with meals, NEVER drink anything cold
7. Give thanks before eating.
8. Eat is a peaceful place, no outside distractions, no TV, play relaxing music if possible
9. After eating, sit and relax for 10-15 minutes

That said, the following section offers many recommendations that can (and should) be included in everyone's individual diet plan because they tried and proven and have been eaten for centuries.

APPLE CIDER VINEGAR

Apple cider vinegar (ACV) has been used for centuries to cure a remarkable number of ailments. Its mechanisms of action are unknown and likely to remain that way considering its cost and availability (not attractive qualities for companies spending their research dollars). Thus, it may forever remain a "*folk remedy*". One can be sure that if it didn't have any healing qualities, it wouldn't have survived the last 7,000 years in medicine[1].

Approximately 10,000 years ago, it was discovered that if you let some foods ferment for a long enough period of time, a bitter fluid will result. Conceivably these were probably men who were too lazy to discard the rotting fruit. As luck would have it, the rotting fruit produced alcohol. It was then discovered that if you allowed the fluid to sit even longer, the result was vinegar. To their probable disappointment, this sour fluid was very different from the alcohol. Thus, the production of vinegar is a natural sequence of chemical reactions involving two sets of bacteria. First, simple sugars from fruit are converted to alcohol by bacteria. If allowed to ferment longer, another subset of bacteria will ingest the alcohol and produce acetic acid (or vinegar).

The first record of the medicinal use of vinegar was in Babylonia some 7,000 years ago. The Roman army used vinegar to survive their rigorous journeys. Cloths soaked in vinegar were placed over the mouth during the Black Plague utilizing vinegar's antiseptic properties. Early Greek, Roman and Asian physicians treated scurvy, indigestion, and bile reduction with vinegar and Christopher Columbus carried barrels of vinegar to prevent scurvy on his voyages in 1492. The ancient Samurai warrior drank it for strength and power.

If you were to analyze ACV, you would leave the experiment unimpressed.

Eight ounces of ACV contains:

- 98.8% water
- 34 calories
- No fat and only a trace of protein
- Trace of pectin fiber
- 14.2 grams of carbohydrate
- 14 mg of calcium (less than 2 % of USRDA)
- 22 mg of phosphorus
- 1.4 mg of iron
- 2 mg of sodium
- 240 mg potassium (half of what is in a banana)

Apple cider vinegar - so simple, yet so effective

In his classic book "**Folk Medicine**" Dr. Doug Jarvis claims that most of the medicinal properties of apple cider vinegar result from its potassium. He found that when apple cider vinegar was fed to livestock, they grew much faster, had better coats and less illness[2].

Dr. Paul Bragg, another famous holistic doctor, also agreed that the potassium was the important medicinal ingredient. Dr. Bragg refers to it as the "mineral of youthfulness"[2]. When you look at the actual potassium content of ACV, you may conclude that if potassium was the ingredient behind the remedy's success, bananas would be a "wonder drug".

Dr. Patrick Quillin provides a more feasible explanation for ACV's medicinal purpose. He believes that the pH, active bacteria, and bacterial by-products are responsible for its success in medicine[1].

From a pH standpoint, ACV plays a dual role in the body. It acts initially in the mouth to stimulate the secretion of saliva that not only has the capacity to do most of carbohydrate digestion, but also primes the stomach and the remainder of the digestive tract to intensify their activity and secretion. Although its acidic pH is mild compared to hydrochloric acid (HCL), ACV does result in making the stomach mildly acidic. Many clinical observations have been made with regards to ACV's ability to eliminate indigestion (most likely the result of a lack of acid instead of the conventional thinking of too much).

Furthermore, ACV's acidity imparts antiseptic properties that provide additional protection against the constant influx of bacteria and viruses into the gut. As it leaves the stomach, ACV stimulates bicarbonate secretion from the pancreas into the bloodstream. This alkalinity buffers the acidity in the bloodstream produced by such things as stress, meat, shallow breathing, and lack of exercise. Water also serves to reverse the body's acidity.

Another possible explanation for the healing qualities of ACV may stem from the bacterial activity. The bacteria produce thousands of substances during their metabolism in the fermentation process. Could one of these by-products be the "secret ingredient"? Even if not, it is important to purchase ACV that is not distilled. This extra processing vaporizes the vinegar destroying its nutritive properties (both the bacteria and their enzymes). Although the unfiltered apple cider vinegar may look unappealing, it is the most medicinal. The "spider webs" often found suspended in the bottle are the bacterial colony responsible for all of the ACV medicinal properties. Louis Pasteur spent his entire career killing bacteria only to concede on his deathbed that it was the terrain and not the germ that determined disease. Unfortunately, his final revelation never received the same popularity as his original hypothesis.

Regardless of its mystical properties, ACV does stimulate digestion . . . and optimal digestion equates to optimal health. If the continual use of ACV does nothing more than evoke a Pavlovian response in the body to cue the digestive processes of the body, it would be an indispensable remedy. The typical dosing is ½ -1 tsp in 4-6 oz of water 10-15 minutes before meals

ESSENTIAL FATTY ACIDS

Essential fatty acids, or **EFAs**, are fatty acids that humans must ingest because the body requires them for good health, and it cannot synthesize them. The term "essential fatty acid" refers to fatty acids required for biological processes, and not those that only act as fuel. Only two essential EFAs are known for humans: alpha-linolenic acid (LNA, an omega-3 fatty acid - ω-3) and linoleic acid (LA, an omega-6 fatty acid- ω-6). There is also omega -9- ω-9 EFAs that are considered non-essential because the body can make them.

Essential fatty acids play a part in many metabolic processes and there is evidence to suggest that low levels of essential fatty acids, or the wrong balance of types among the essential fatty acids, are a factor in a number of illnesses, including osteoporosis.

Linoleic acid (LA) and alpha linolenic acid (ALA), are the two families of essential fatty acids. These fats are essential to obtain from the diet because the body is unable to synthesize them. They make up every cellular membrane, insulate the nerves, provide energy, regulate smooth muscle response, dilate and constrict blood vessels, regulate inflammation, protect the tissues, and provide precursors to short-lived regulating molecules known as the prostaglandins (PGE).

These cellular regulators (PGE) were initially discovered by a Swiss scientist in seminal fluid in the 1930's. He assumed they were from the prostate gland and hence the name. Each prostaglandin has a very specific effect in each tissue. They have been implicated in the regulation of the central nervous system, water-electrolytes balance, gastrointestinal function and uterine contractility[24]. In general, there are three categories of prostaglandins: PGE1, PGE2, and PGE3. For simplicity, PGE1 and PGE 3 have antispasmodic and anti-inflammatory properties. EPO will supply the PGE1 while the flax seeds provide the PGE3. PGE 2 has the opposite effects.

Oily fish are an excellent source

Almost all the polyunsaturated fat in the human diet is from EFA. Some of the food sources of ω-3 and ω-6 fatty acids are fish and shellfish, flaxseed, hemp oil, soya oil, canola oil, chia seeds, pumpkin seeds, sunflower seeds, leafy vegetables and walnuts.

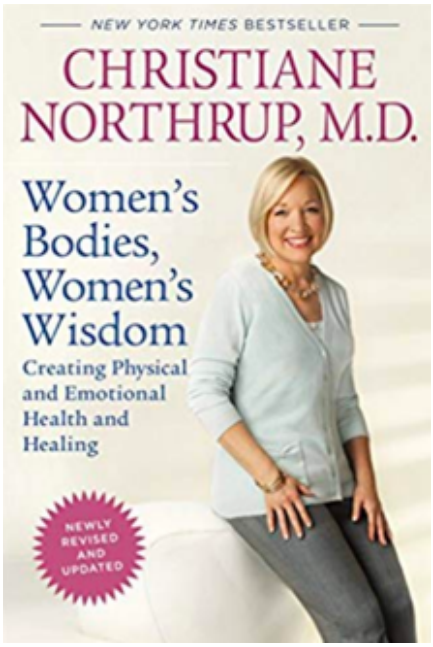
Sunflower and flax seed snack

The benefits and requirements for EFAs are many and include:

- Formation of healthy cell membranes
- Proper development and functioning of the brain and nervous system
- Proper thyroid and adrenal activity
- Hormone production
- Regulation of blood pressure, liver function, immune and inflammatory responses
- Regulation of blood clotting: Omega-6 FAs encourage blood clot formation, whereas Omega-3 oil reduces clotting. The ideal is to achieve a balance between omega-6 and omega-3 FAs
- Crucial for the transport and breakdown of cholesterol
- Support healthy skin and hair
- The BTG's utilize **Flax Seeds, Chia Seeds, Pumpkin Seeds, Sesame Seeds, Sunflower Seeds, Fish Oil, Hemp Seed Oil and Evening Primrose Oil,** to encourage the body to develop an appropriate hormonal balance. In addition to their hormonal effects, these dietary supplements positively affect the body in a number of ways.

Seed Cycling

Experience has shown that the utilization of appropriate EFA foods and supplements has been extremely beneficial for the proper balancing of several of the hormones in the body. The proper balance of these hormones is critical for optimal functioning of the body as they affect virtually every metabolic process in the body. In women for example, an imbalance between estrogen and progesterone can lead to symptoms ranging from bloating to an increased incidence of cancer. Estrogen dominance has become the modern theme.



Everyone should read her book

Many years ago, Dr. Christiane Northrup published Women's Bodies, Women's Wisdom that offered many ideas for women to maximize their potential for living well. Included in her text is the support of regular, uneventful menstrual cycles. This means that every 26-30 days, a woman should experience a menses without distress, meaning no PMS, no significant cramping, 4-5 days of moderate bleeding. As this is NOT the experience of many women, Dr. Northrup recommends the use of flax seeds and evening primrose oil.

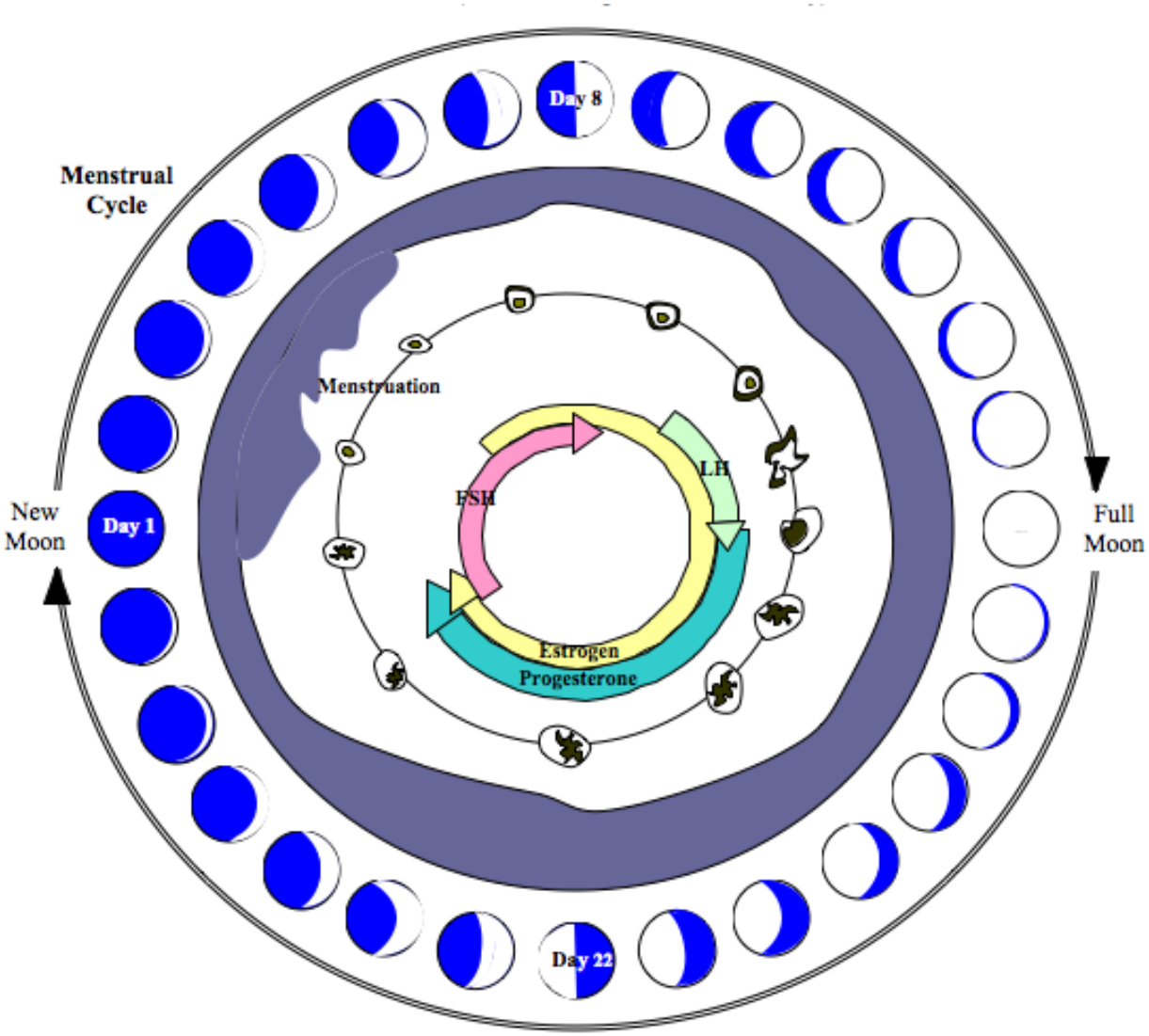
As a result of her wisdom, I recommended this protocol to thousands of women and in time made some additions and modifications.

The BTG's alternate the use of flax, chia and hemp seeds, fish and hemp oil with sesame, sunflower and pumpkin seeds, evening primrose oil (EPO) or borage oil. The first half of the moon phase, new to full moon, or the first half of the menstrual cycle (day 1 -14), involves the ingestion of ground flax, chia or hemp seeds and fish or hemp oils. This is thought to influence the follicular phase (estrogenic phase). Sesame, sunflower and pumpkin seeds and evening primrose oil or borage oil are utilized the second half of the cycle, from full moon to new moon or day 15 to menses. The regular addition of flax seeds to the diet positively impacts the menstrual cycle, and thus clinically it has proven to be very beneficial. As with most of the BTG's, the therapy extends far beyond just one organ system. Why it works is perhaps less important, but clinical relevance has proven important in the management of patient care.

And while we are speaking mostly about women, men will also benefit from the regular ingestion of seeds in their diet, as they are providing essential fatty acids as discussed above.

CYCLING SEEDS PER MENSES OR THE MOON
Lunar Chart for the Menstrual Cycle

FLAX, CHIA or HEMP SEEDS (ground)
FISH OIL (1500-2000 mg of EPA/ DHA daily)



HEMP OIL

SUNFLOWER, SESAME or PUMPKIN SEEDS (ground)
EVENING PRIMROSE OIL or BORAGE OIL (500 mg GLA daily)
FISH OIL may also be added

Flax Seeds

Tofu is a source of phytoestrogens

To understand the rationale for flax seeds, a brief discussion of plant chemistry is necessary. Phytoestrogens are substances that promote actions commonly defined as estrogenic[1]. These phytoestrogens are about 100 to 1000 times weaker than 17 B-estradiol; however, they can be present in concentrations 100 times higher than endogenous estrogens[2]. Generally, there are three main groups of plant phytoestrogens: **isoflavones**, **lignans**, and **coumestans**[1]. Interestingly, phytoestrogens can act in deficient situations to stimulate the estrogen receptors or as inhibitors to block the more potent estrogens at the receptor sites.

The first recorded use of flax is in Cayonu in southeastern Turkey about 9,000 years ago[3]. The first evidence of human ingestion was revealed with the discovery of the "bog man". Apparently 2,000 years ago, the people in England buried those individuals they deemed as important in bogs. The tannic acid perfectly preserved the bodies so that even their fingerprints are readable today. Autopsy reports revealed that the man had eaten barley, flax seed, and other cultivated plants[3].

Lignans, a component of the flax seed, are attracting attention for many health-promoting qualities. Lignans are a group of phytochemicals shown to have mild estrogenic and anti-estrogenic properties. If there is little estrogen in the body, after menopause for example, lignans may act like a weak estrogen. If natural estrogen is abundant in the body, lignans may instead reduce estrogen's effects by displacing it from the cell's receptors[4]. This displacement of the hormone may help prevent those cancers, such as breast cancer, that depend on estrogen to start and develop.

Flax seed fiber is by far nature's richest source of plant lignans. Other sources of lignans such as rye, buckwheat, millet, soya, oat and barley yield approximately 2-6 micrograms of lignans per gram (mcg/g) of grain. Flax seed fiber yields an extraordinary 800 mcg/g[5]. The production of these lignans requires a series of bacterial transformations. Secoisolariciresinol, a precursor to the lignans, is metabolized by bacteria in our intestines into two lignans: enterolactone and enterodiol. Once in the colon, the lignans are absorbed, conjugated in the liver, excreted into the bile duct, deconjugated by the bacteria again, and reabsorbed. A portion of the lignans will be excreted in the urine and feces.

One area for lignan study has been for the treatment of menstrual cycle irregularities. Women are constantly looking for supplements or drugs that will provide relief from the myriad of symptoms. Although the exact mechanisms for PMS and menstrual irregularities are relatively a mystery, balancing the estrogen/progesterone ratio is often a target of therapy. Since flax seeds act as phytoestrogens, could the ingestion of flax seeds modulate the menstrual cycle? One balanced randomized crossover design study evaluated the effects of flax seed ingestion on the menstrual cycle in 18 normally cycling women[6]. Each subject consumed her usual omnivorous, low fiber (control) diet for 3 cycles and her usual diet supplemented with flax seed for another 3 cycles. The second and third flax cycles were compared to the second and third control cycles. Three anovulatory cycles occurred during the 36 control cycles, compared to none during the 36 flax seed cycles.
Compared to the ovulatory control cycles, the ovulatory flax cycles were consistently associated with longer luteal phase lengths. Interestingly, there were no significant differences between flax and control cycles for concentrations of either estradiol or estrone during the early follicular phase, mid-follicular phase, or luteal phase. Although flax seed ingestion had no significant effect on luteal phase progesterone concentrations, the luteal phase progesterone/estradiol ratios were significantly higher during the flax cycles. It has been suggested that since the length and quality of the luteal phase relies primarily on the action of progesterone in the endometrium, the increased luteal phase length may have been due to increased progesterone/estradiol ratio[6]. The increased luteal

phase length and increased progesterone/estradiol ratio equates to not only less ovarian dysfunction, but also a possible mechanism for cancer prevention. The increased luteal phase with flax seed use has been shown to be similar to the effects of tamoxifen (an estrogen antagonist used for cancer prevention)[7].

The anticancer effects of flax seeds may extend well beyond their hormonal action. The interest in the link between lignans and cancer began in the mid -1980's with the publication of a Finnish report on breast cancer[8]. This pivotal study showed that women with breast cancer and those who had a higher risk for breast and colon cancer, excreted lower levels of lignans in their urine, compared with the general population (low urinary levels of lignans usually indicate a low dietary intake). Retrospective studies have shown a lower incidence of colon and mammary cancer where the diets tend toward vegetarianism[9]. Lignans are excreted in significantly lower quantities in the urine of non-vegetarians compared with vegetarian people[9]. People in the U.S., Finland, and Japan that have a low risk of breast cancer excrete more lignans than high-risk individuals. Vegetarians excrete in excess of 110 micro ml/24 hour; thus, lignans may inhibit the production of carcinogens in the gastrointestinal tract. Colon and breast cancer cells have estrogen receptors and the presence of lignans with anti-estrogenic activity may reduce the stimulatory effect of estrogen on cancer cells. Several studies showed that lignan-rich foods or lignans found in flax inhibited breast and colon cancer in animals[10, 11, 12].

Another way in which flax may help prevent colon cancer is by increasing the production of short chain fatty acids in the colon. Three short chain fatty acids (butyrate, acetate, and propionate) are produced from the bacterial fermentation of soluble fiber. Butyrate is one of the major metabolites formed from soluble fiber and has been shown to suppress the neoplastic state of Syrian hamster cells[13]. The fiber from the flax seeds interacts with the beneficial bacteria in the intestines (see probiotics) which also have anti-cancerous qualities. Thus, a reciprocal relationship is fostered when the BTG's are implemented.

Flax also provides protection against cardiovascular disease, which remains the #1 cause of death in Western society. Flax is nature's richest and safest source of omega-3 fatty acids. Flax contains 18 to 24% omega-3's compared to fish at 0 to 2%[14]. One heaping tablespoon of whole or ground flax contains about four grams of omega-3 fatty acids. The omega-3 from flax is also metabolized more slowly so that a nutritional imbalance is prevented, and flax does not contain any undesirable fats such as cholesterol or trans fatty acids. One study evaluated what effects the ingestion of 50 grams of ground, raw flax seeds per day would have on blood lipid levels in healthy female subjects[15]. After 4 weeks flax seed raised alpha-linolenic acid and long-chain n-3 fatty acids in both plasma and erythrocyte lipids. Flax seed also lowered serum total cholesterol by 9% and low-density-lipoprotein-cholesterol by 18%.

Another beneficial finding was that flax seed had a positive role in controlling blood glucose. The flax seed decreased postprandial blood glucose responses by 27%. Studies in rabbits found that both flax seed and one of its lignans, secoisolariciresinol diglucoside, were able to decrease atherosclerosis[16]. Other human studies have validated the results finding that flax seed lowered both total cholesterol and low-density lipoproteins (LDL, or "bad") cholesterol[17,18]. However, it is entirely possible that other flax seed components such as its fiber, oil, or proteins, rather than the lignans alone, contributed to the drop in cholesterol.

The benefits of flax seeds for hormonal control may extend beyond the menopausal years. One of the major concerns for menopausal women is osteoporosis. It is estimated that 50% of women over age 45 and possibly 90% of women over age 75 have this common skeletal disorder[19]. A major risk factor, along with heredity, in the development of osteoporosis in postmenopausal women is known to be ovarian hormone deficiency[20]. Thus, a commonly used therapy is hormone replacement therapy. Lignans may provide a suitable alternative or adjunct to drug therapy. They have been found to reduce the degree of bone loss[21]. Additionally, the polyunsaturated fatty acid alpha-linolenic acid may decrease the rate of bone resorption by inhibiting the production of certain prostaglandins (something that evening primrose oil is also speculated to do)[22].
One study evaluated if flax seed ingestion could influence bone metabolism in postmenopausal women[22]. In a

double-blind study, 38 postmenopausal women were randomly assigned to either a flax seed or sunflower seed treatment group. The only alteration in the women's diets was the addition of 38 g of either seed. Blood samples at the 6, 8, and 14th week revealed some very interesting results. The flax seed group had a lower serum tartrate-resistant acid phosphatase activity (a marker of bone resorption), as well as a decrease in urinary excretion of hydroxyproline (by 29%) and calcium. Similar to other studies, flax seed had no effect on serum follicle stimulating hormone or serum estradiol levels. Although the flax seed had no effect on serum bone-specific and total alkaline phosphatase activities (markers of bone formation), the significant decrease in markers of bone resorption is worthy of great consideration.

Chia Seeds

Chia Seeds come from the Salvia hispanica plant. They are rich in Omega 3's - Alpha Linolenic Acid (ALA), fiber, antioxidants, lignans and minerals such as calcium, potassium, magnesium and iron. In just 1 tablespoon of chia seeds there are 5 g of fiber, 2282 mg of omega 3, 752 mg of omega 6 fatty acids and 3 grams of protein[1]. It is said that the Aztec warriors used these seeds to sustain their energy in battle and long journeys as well as to relieve joint and muscle pains[2].

Chia seeds are very stable. Unlike many other sources of essential fatty acids, chia seeds can stand around for years without oxidizing or turning rancid[1,3]. Antioxidants that are abundant in chia seeds include: chlorogenic acid, caffeic acid, quercetin and kaempferol. Antioxidants scavenge the body for pro oxidant species thus reducing inflammation, stress and damage to the tissues and cells[1].

Chia seeds have many similar health benefits to flax seeds: hormone regulation, cardio vascular benefits, cancer fighting, intestinal nourishing, and cholesterol lowering effects[3,4,5,6]. They can be eaten whole without having to be ground up like flax seeds do. When added to water they create a gelatinous textured treat that can be a nice afternoon energy boost. They provide a nutrient dense food that decreases appetite by making the body sense that it is full sooner[5].

Hemp Seeds/ Oil

Commercially available hemp seed oil comes from the Cannabis sativa plant which does not contain Delta-9-Tetrahydrocannabinol (THC) the active constituent in medical marijuana. Hemp seed oil is a highly nutritious food, and contains anti-oxidants, protein, beta-carotene, phytosterols, and many minerals including calcium, magnesium, sulfur, potassium, iron, zinc, and phosphorus. Hemp seed oil is also considered a complete protein containing all 20 amino acids[1].

Greens, hemp seed and hemp oil

Of note with hemp seed oil is it's natural 3:1 ratio of omega 6: omega 3 in the forms of linoleic to linolenic acid[2]. It also contains Gamma Linolenic Acid (GLA) that will be discussed in the evening primrose oil section. Hemp seed oil is a good alternative for those patients who are vegan or prefer not using animal products such as fish oil.

Fish Oil

Oil from fish is an excellent source of omega 3 fatty acids, most importantly Docosahexaenoic acid (DHA) and Eicosapentaenoic acid (EPA). DHA is the most abundant fat in our brains. When DHA levels drop our brains suffer which can manifest in multiple ways such as: depression, anxiety, aggression, cognitive decline, dementia, addictive tendencies, lower IQ and many more[3,4,5]. Unfortunately, this can lead to a vicious cycle of continued decrease in levels. The more depressed someone is, the lower the likelihood that they will eat better or take their supplements leading to a further decline in DHA levels and in mood. Alcohol, smoking, stress, infections, inflammation and a poor-quality diet all decrease the DHA levels in the body.

EPA is a strong anti-inflammatory agent. It reduces the synthesis of prostaglandins thereby halting the inflammatory process[6].

Salmon makes an excellent dinner

There is strong evidence to support that daily fish oil can help with: coronary heart disease, hyperlipidemia (especially lowering triglycerides), hypertension, rheumatoid arthritis and secondary cardio vascular disease prevention[1]. Cardiovascular disease prevention works by decreasing triglycerides, blood pressure, inflammation, and platelet aggregation while improving the vascular response mechanisms[2].

Adequate levels of essential fatty acids have been studied to improve: eczema, dysmenorrhea, depression, cystic fibrosis, coronary heart disease, exercise tolerance, pulmonary function, infant tissue development, inflammatory bowel disease, multiple sclerosis, migraines, osteoarthritis, menopausal symptoms, peripheral vascular disease, lupus erythematosus, prostate disorders, psoriasis, Raynaud's, rheumatoid arthritis, stroke and many more. Fatty acids make up the membranes of all cells. If they aren't built with the proper building blocks they can fall apart, die or become rigid, all of which can lead to larger problems in our bodies.

Sesame Seeds

Toasted sesame seeds

Sesame use dates back thousands of years and is known throughout the world for its medicinal properties; from helping with childbirth in Africa, treating liver diseases and diabetes in Ayurvedic Medicine and to wound healing in South America. Sesame is a rich source of Vitamin E and lignans (sesamin and sesamolin)[1].

Research has shown that it is the combination of the vitamin E with these lignans that created an inhibitory action on delta-5-desaturase leading to lowering cholesterol, suppression of fatty acid synthesis, controlling the ratio of omega 3:6, antihypertensive activity, anticarcinogenic activity, improving liver function in breaking down alcohol and many others[1,2]. These lignans and their precursors have also shown to be chemo preventive agents in colon cancer[2].

Sesame has powerful antioxidant effects. It is often added to other vegetable oils to make them more stable and resistant to oxidation[3]. Sesame has also been proven to be an effective protector against acetaminophen-induced acute oxidative hepatic damage. It is believed that the sesame oil decreased the levels of reactive oxygen species, inhibited lipid peroxidation and preserved the intracellular glutathione levels[4].

In a study of post-menopausal women, sesame ingestion reduced blood lipids, improved antioxidant status and increased sex hormone binding globulin[5].

Sunflower Seeds

Sunflower seeds come from the sun loving plant Helianthus annuus. Sunflower seeds are rich in minerals such as potassium, phosphorus, calcium, magnesium, iron, zinc, copper and selenium and vitamins B1, B6, folate and E[1].

The many health benefits of sunflower seeds include:

- They are high in energy, as 100 g seeds consists of 584 calories. Nonetheless, they are incredible sources of many health benefiting nutrients, minerals, antioxidants and vitamins.
- Much of their calories come from fatty acids. The seeds are especially rich in poly-unsaturated *linoleic acid*, which comprise more 50% fatty acids in them. They are also good in mono-unsaturated *oleic acid* that helps lower LDL or "bad cholesterol" and increase HDL or "good cholesterol".
- 100 g of seeds provide about 21 g of protein.
- In addition, the sunflower seeds contain many health benefiting poly-phenol compounds such as chlorgenic acid, quinic acid, and caffeic acids. These are natural anti-oxidants which help remove harmful oxidant molecules from the body. Further, chlorgenic acid help reduce blood sugar levels by reducing breakdown of glycogen in the liver.
- They are a very rich source of vitamin E, a powerful lipid soluble antioxidant, required for maintaining the integrity of cell membrane of mucus membranes and skin by protecting it from harmful oxygen free radicals.
- They are very good sources of B-complex vitamins such as niacin, folic acid, thiamin (vitamin B1), pyridoxine (vitamin B6), pantothenic acid, and riboflavin. They are also an incredible source of folic acid with 100 g of containing 227 mcg of folic acid. When given in expectant mothers during peri-conception period, it may prevent neural tube defects in the baby.
- Niacin and pyridoxine are other B-complex vitamins found abundantly in sunflower seeds. About 8.35 mg or 52% of daily-required levels of niacin is provided by just 100 g of seeds. Niacin help reduce LDL-cholesterol levels in the blood. In addition, it enhances GABA activity inside the brain, which in turn helps reduce anxiety and neurosis.
- The seeds are also rich sources of many essential minerals. Calcium, iron, manganese, zinc, magnesium, selenium, and copper are especially concentrated in sunflower. Many of these minerals have vital role in bone mineralization, red blood cell production, enzyme synthesis, hormone production, as well as regulation of cardiac and skeletal muscle activities.
- It has one of the highest levels of phytosterols of “typical” American snack foods[2]. Phytosterols will be discussed later on.

Pumpkin Seeds

Pumpkin seeds were originally cultivated by the Native Americans but quickly caught on throughout the rest of the world. They are the freshest in the fall when they are naturally harvested but can be found throughout the year. They are a rich source of nutrients. In just 3 tablespoons of pumpkin seeds there are 9 grams of protein and 15 grams fats most of which are made up of omega 3 and 6 essential fatty acids. They are high in minerals such as: manganese, magnesium, phosphorus, copper, zinc and iron and vitamins such as: beta carotene, B's, E and K. They are also a rich source of phytosterols[3] (will be discussed later in this document) which make them ideal for cardio vascular support, decreasing cholesterol and regulating blood sugar.

Pumpkin seeds have been shown to help lower blood glucose levels due to the D-chiro-inositol. D-chiro-inositol has been shown to make the cells more sensitive to insulin in both type II diabetes and in Poly Cystic Ovarian Syndrome (PCOS)[1]. A study in the New England Journal of Medicine states that D-chiro-inositol improves ovulatory function, decreases blood pressure, androgen levels and plasma triglyceride concentrations in women with PCOS[2].

In animal studies, it has been shown that a diet rich in pumpkin seeds inhibits the induction of Benign Prostatic Hyperplasia (BPH) by increasing the testosterone/estrogen ratio and decreasing the size of the prostate gland[5].

Pumpkin seeds have also been shown to be anti-inflammatory, have tumor inhibiting activity of lung, colon, breast and CNS cancers, and also provide lipid peroxidation inhibition[4].

Evening Primrose Oil

Evening primrose is a Native American wildflower, named for the late afternoon opening of its delicate flowers. It grows wild along roadsides, railway sidings, and sand dunes. The American Indians were probably the first to use the plant for medicinal purposes. The Flambeau Ojibwe used to soak the whole plant in warm water to make poultices for bruises, skin problems and asthma[23]. Its seeds are considered the best natural source of cis-gamma-linolenic acid (GLA).

Evening primrose oil (EPO) is the primary source of gamma-linolenic acid (GLA), a conversion product of linoleic acid. In a healthy environment, linoleic acid is converted to GLA by an enzyme. The chain of events continues until GLA is converted to prostaglandin E-1 (PGE1). PGE1 then acts to influence various bodily functions such as increasing blood flow, decreasing blood clotting, and reducing inflammation.

EPO contains 74% LA, 11% oleic acid, 6% palmitic acid, 2% stearic acid, and 9% GLA[25].

Borage and black currant oil are also used to supply GLA, but because they contain even more complex mixes of fatty acids, EPO is sometimes regarded as superior[26]. A rate-limiting enzyme, delta-6-desaturase, converts the LA into GLA. An elongase enzyme then creates dihomo-gamma-linolenic acid, which can be converted to subscript 1-series prostaglandins and subscript 3-series leukotrienes. In the relative absence of omega-3 fatty acids, delta-5-desaturase converts dihomo-gamma-linolenic acid to arachidonic acid, with its subsequent "unfavorable" prostaglandin and leukotriene metabolites. This has been addressed with the supplementation of flax seeds.

The rate-limiting conversion of LA to GLA may be impaired in numerous conditions including: advanced age, diabetes, high alcohol intake, eczema, cyclic mastitis, viral infections, excessive saturated fat intake, elevated cholesterol levels, excessive dietary intake of trans and positional isomers of linoleic acid, and deficiencies of

pyridoxine, zinc, magnesium, biotin, or calcium[27]. In these conditions, GLA may be useful as a "downstream" supplement to avoid the need for conversion.

How does EPO help with the menstrual cycle? Women with PMS may have a reduced ability to produce PGE1 in the central nervous system and various other tissues including the breasts[25]. Supplementation of EPO may correct the prostaglandin imbalance resulting in a reduction in numerous symptoms. Since prostaglandins have so many effects, in many different organs, the implications of an imbalance are infinite. Supplementation with EPO has significantly improved premenstrual depression, irritability, bloating, and breast pain and tenderness[25]. The precise mechanism for why EPO helps relieve PMS in unknown. It has been demonstrated that EPO decreases the capacity of platelets to release inflammatory products[24]. It has also been postulated that changes in PGE biosynthesis may result in excessive responsiveness to prolactin and luteal phase hormones. A deficiency in essential fatty acids can apparently lead to an excess of prolactin[23]. Prolactin does produce changes in mood and fluid metabolism.

Further evidence supporting EPO's effect on hormonal dysregulation can be found in cyclical mastitis studies. Fatty acid metabolism is known to be disturbed in women with cyclical mastitis[29]. In open studies performed at the Cardiff Mastalgia Clinic in the UK, EPO has been found to produce positive effects in 44% of women with cyclical mastalgia[30]. In a double-blind placebo-controlled study, 73 patients with mastalgia with or without palpable nodularity randomly received evening primrose oil 3 grams per day or placebo for 3 months.

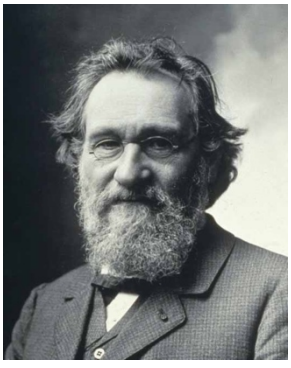
Discomfort was significantly reduced in women with either cyclical or noncyclical mastalgia, while no significant improvement was seen in the control. Nodularity improved only in the cyclic group[31].

PROBIOTICS: THE KEY TO LONGEVITY, VITALITY AND IMMUNE FUNCTION

What are probiotics? To address this question, some definitions are required. "Dys" mean `faulty' and “bios” mean `life and growth'. Generally, the term, “dysbiosis” refers to the imbalance in the bacteria flora of the intestine. A condition without any dysbiosis is known as eubiosis. However, this would more appropriately termed utopia. Reduction of the dysbiosis is known as probiosis. We finally arrive at probiotics. Probiotic means, "to promote life". The ingestion of the probiotic living organism will improve microbial balance in the intestine.

Significant numbers of scientific reports are being written by doctors, professors and researchers linking the benefits of probiotic bacteria (friendly bacteria) in the defense against many common, rare and even mysterious maladies such as **SARS** and **West Nile** disease. The vast majority of contemporary microbiologists and medical researchers agree that a shortage of probiotic bacteria in the gastro-intestinal tract is the underlying cause of ***premature aging*** and ***upwards of 90% of all diseases***.

The Discovery of Probiotics



In the Old Testament (Genesis 18:8), it states "***Abraham owed his longevity to the consumption of sour milk***". How could consuming sour milk possibly contain materials that encouraged long life?

In 1908, Russian born bacteriologist **Ilya Metchnikov** (15 May 1845 - 15 July 1916) won the Nobel Prize in medicine for answering that very question.
In his groundbreaking book **Prolongation of Life**, Mechnikov documented in detail the ***unusually lengthy life spans*** of several societies that practiced eating fermented foods and special bacterial cultures called **kefirs**. He made consistent observations of ***100+ year-old men and women who were still playing polo*** **and leading highly active and healthy lives!** It was Metchnikov that coined the term “probiotic” and his research made a direct link between human longevity and the necessity of

maintaining a healthy balance of probiotics in the gut.

TODAY . . . OVER A CENTURY LATER . . . Brilliant medical researchers from all over the world are refocused on the importance of probiotics in the diet, quietly reshaping the way medical science views health!

Building on Mechnikov's early research, their vital new discoveries are bringing more and more evidence and credence to this startling medical dilemma:

"Up to 90% of all known human illness and disease can be traced back to an unhealthy colon!"

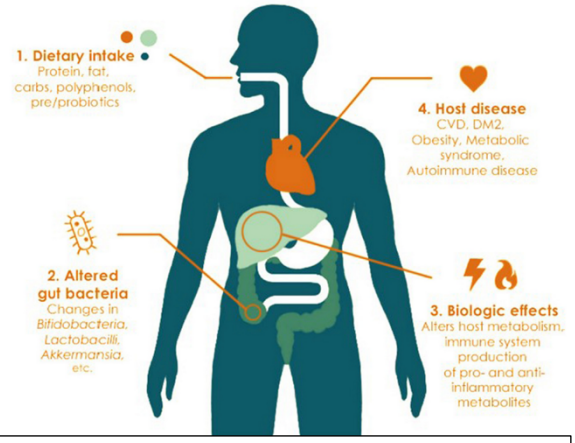
Dr. Michael McCann, acclaimed physician, researcher and lecturer is quoted throughout published medical circles as saying: **"Probiotics will be to medicine in the 21st century as antibiotics and microbiology were in the 20th century."** Dr. McCann has published copious articles linking a lack of probiotic bacteria to disease, and some of his most recent works link lack of probiotics to maladies as diverse as autism and attention deficit disorder (ADD).

Bacteria are at the base of all life on this planet. They were the original life and they most certainly will be the last, for absolutely no living thing on earth can exist without them! Understanding how bacteria operates and rules the body is often times the missing link in understanding the demise of our first line of defense: the immune system.

Clearly, as the general public learns more about probiotics, and our health practitioners acknowledge their importance in the maintenance of our health, we will have connected the dots between a healthy colon, sound health and increased life span!

The Magic Probiotic Cycle

Bacteria produce enzymes, which in turn identify, digest and deliver nutrients where they are needed. The body has tens of trillions of cells, each of which needs over 100,000 enzymes to function correctly. It is enzymes that are responsible for every metabolic process in your body!
If there is a deficit of friendly (probiotic) bacteria in the human gut, then there is a deficit of enzymes.



Singh RK et al./J Trans Med 2017

Without these vital enzymes, nutrients do not get assimilated. This lack of uptake of nutrients is at the heart of what causes most of the disorders in the human body. You can consume the best nutrients in the world, but if you cannot digest and assimilate them, then everything is lost. Today, many people have lost their ability to digest nutrients.

This is largely due to the fact that the "anti-probiotic" things they are exposed to have killed off the friendly bacteria necessary to produce the enzymes that digest these nutrients. Enzymes are responsible for all building and repairs in the body, and they need amino acids to get these jobs done. It is crucial to good health to have amino acids floating in the body - available at a moment's notice - so that enzymes can utilize them when needed.

Common Things That Kill Bacteria in the Body

There are many common things that may destroy/ alter the bacteria balance in the body: antibiotics, birth control pills, steroidal/hormonal drugs, fluoride, chlorine, coffee/tea, carbonated drinks, man-made vitamins, synthetic ascorbic acid (vitamin C), radiation, stress, preservatives, additives, pesticides and fertilizers to name a few.

We are exposed to **BILLIONS OF METRIC TONS OF POLLUTANTS** in our everyday lives.

Lead, mercury, cadmium (plus over 4500 other toxic heavy metals), drugs, immunizations, vaccines, and a host of other dangers are creating havoc in our bodies! As our toxin levels rise and go unchecked, our immune system and other critical processes of the body become dangerously compromised and begin to fail!

Common Warning Signs of a Bacterial Imbalance

Once harmful toxin producing bacteria and fungi take over in the gastrointestinal tract, the immune system has become severely compromised. Given our exposure to stress, toxic chemicals, antibiotics, steroidal drugs and carcinogenic substances, it is a must that we proactively guard the health of the gut and supplement or consciously eat probiotics every day! Without the correct balance of 85% probiotic bacteria to 15% pathogenic bacteria, some form of physical disease will likely manifest itself. Maintaining this critical ratio is an important factor to ensure good health and longevity.

Of all the polite topics of conversation, the state of one's intestines is probably at the bottom of most people's lists.

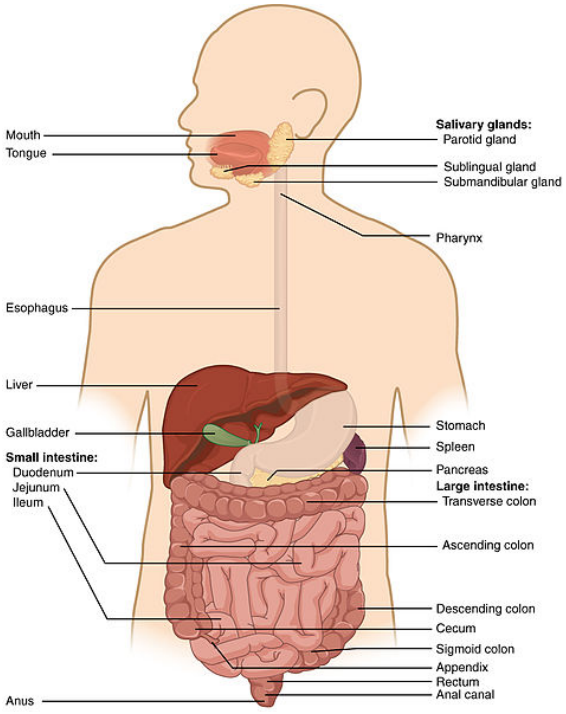
Irritable bowel syndrome, constipation, gas, diverticulitis and colon cancer are simply not things we like to discuss.

And yet, as the old expression goes, **death begins in the colon**. Don't believe it? **Ask any coroner**. Autopsies often reveal **colons that are 80% plugged** with waste."

Vegetarian Times, March, 1998

A severely depleted probiotic population may manifest as the following:

- Difficulty losing weight, sugar/carbohydrate cravings
- Frequent fatigue, poor concentration
- Frequent constipation or diarrhea
- Faulty digestion, acid reflux and other gut disorders
- Sleeping poorly, possible night sweats
- Painful joint inflammations/stiffness
- Bad breath, gum disease & dental problems
- Frequent colds, flu or infections
- Chronic yeast problems, candida
- Acne, eczema, skin and foot fungus
- Extreme menstrual or menopausal symptoms
- Allergies and food sensitivities



A healthy Digestive system is essential

Conversely, a healthy gastrointestinal tract is the gateway to optimal health. It is both a fueling station as well as a water-management system for the body. It is much like a garden. When the soil is fertile, and the weeds are plucked, then beautiful, healthy plants prosper. Without proper maintenance, weeds flourish and suffocate the soil. The gardener must do their best to optimize the favorable conditions. What are the plants and what are the weeds in our gastrointestinal systems?

The plants are the natural indigenous bacteria that take up residence in our GI tracts starting shortly after birth. The weeds are the pathogenic bacteria that attain residence when the opportunity exits. How tough can it be to maintain a garden you ask? After all, the abdominal area is only about the size of a basketball. The answer is sure to surprise you.

The GI tract starts in the mouth and ends in the colon. The actual size of the small intestine and large intestine is

approximately 4.6 meters long and the internal surface area of the intestinal tract is approximately 200m^2 (the size of a tennis court)[1].
The GI tract mucosa is the largest surface that interacts with the external environment. The mucosa needs to absorb nutrients but exclude infectious, toxic and immunogenic material from entering the systemic environment. Interacting with the mucosa are hundreds of species of microorganisms weighing an astounding 2-4 pounds! Forty percent of our dry fecal matter is composed of bacteria[2]. To quantify this further, the total number of bacteria in the intestinal tract is approximately 100,000 billion. This means that there are ten times more bacteria than human cells! Even the saliva contains an assortment of microorganisms. Each milliliter of saliva contains between 10,000 to one billion microorganisms[1].

Bacteria are single-celled organisms occurring singly or in short chains.

They are ubiquitous on the skin, mouth, digestive system and vaginal mucosa. The only area that is considered sterile in the human body is the stomach. However, even in this acidic tank, some bacteria are able to survive. Some of these bacteria are beneficial; others are not so friendly. When the pathogenic bacteria establish themselves in the GI tract it is termed “dysbiosis”. To correct this imbalance, the environment must be altered so that the beneficial bacteria can flourish. To do this, we need to ensure that the "weeds" are plucked, and the "flowers" planted. The fresh "flowers" we use are known as “probiotics”.

What is the primary cause of dysbiosis?

COMMON CONDITIONS LINKED WITH DYSBIOSIS

acne, acid reflux, allergies, arthritis, asthma, attention deficit disorder, autism, candida, colitis, chronic yeast infections, Crohn’s disease, constipation, eczema, Epstein-Barr, diarrhea, diverticulitis, fatigue, fibromyalgia, gastritis, halitosis, heartburn, inflammatory bowel disease, irritable bowel syndrome, joint inflammation, leaky gut syndrome, lupus, multiple sclerosis, psoriasis, sinusitis, skin disorders, spastic colon

The most prevalent cause of dysbiosis is the use of antibiotics. In one year, there were an estimated 270 million prescriptions for antibiotics written in 2015, amounting to 838 antibiotic prescriptions for every 100 people[4]. More than 50 million pounds of antibiotics are produced for people, animals, and agriculture in a single year.

Researchers at the *Centers for Disease Control (CDC)* estimate that 90 million of the 270 million outpatient prescriptions every year are unnecessary[4]. Since antibiotics are distributed to many tissues, they can alter the bacterial ecology globally. They wipe out good and bad bacteria in the human body indiscriminately and the number of bacteria killed is largely dependent upon whether they are narrow-spectrum or wide-spectrum antibiotics. Even chlorinated water can act as an antibiotic in the body. ***Without probiotic supplementation, opportunistic pathogenic bacteria will quickly colonize in the defenseless intestine***.

The second largest factor is *STRESS*. Stress, and especially on-going emotional stress, affects beneficial bacteria in a profoundly negative way. Emotional reactions trigger changes in intestinal motility, enzymes, and mucin production, which intestinal microorganisms use as a substrate[5]. The first defense of the body against pathogenic bacteria is the stomach's acid, which is greatly reduced during stress. Thus, the terrain is defenseless and open to being plundered by pathogenic bacteria and numerous arterioles spasm and cramp. Digestion halts as the body diverts the blood to the muscles for what is perceived as a fight for survival.

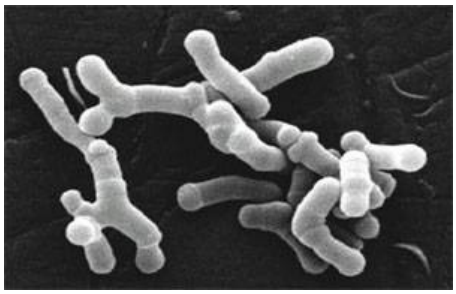
The body doesn't have the ability to distinguish positive stress from negative stress. It is “hard-wired” to view all stress as a need to either run or fight (this was necessary to protect the evolutionary man from his wild environment). Continued stress without the proper response leads to a constant level of circulatory imbalance, lack of acidity in the stomach, and a lack of nutritious and protective secretions in the bowel. These factors prime the intestines for dysbiosis thus creating a caustic and extremely unhealthy environment.

With antibiotics being so common and stress being an inevitable part of living, what can be done to ensure that our inner ecology is in optimal health? The answer is to eat fermented foods and/or supplement with probiotic bacteria. The main bacteria supplemented in most probiotic formulations belong to the Lactobacillus family.

Some of the common strains are:

Lactobacillus acidophilus

L. acidophilus is the predominant friendly bacteria in the upper GI. It is also present in the mouth and vagina. The prefix lacto (Latin for "milk') is used because these bacteria prefer a milk-based growing medium. They also produce the enzyme lactase. Acidophilus means "acid-loving". For these beneficial organisms to thrive, the colon must be slightly acidic. Coincidentally, the Lactobacillus will produce this environment through their metabolic processes. Their acidic byproducts further aid the gastrointestinal health by stimulating peristalsis. This equates to less exposure time to the daily toxins, which are excreted in the feces. Lactobacillus is thought to attach itself to the intestinal wall and prevent the attachment of undesirable organisms. They are involved in the production of B vitamins (niacin, folic acid, and pyridoxine). Although we are born without them, acidophilus will soon establish itself in our intestines and helps prevent intestinal infections.



L. Acidophilus is found throughout the digestive system

L. bifidus (bifidum)

L. bifidus is the primary friendly bacteria in the large intestine. They protect the large intestine from bacteria and yeast, manufacture B vitamins, and help with several detoxification processes that occur in the colon[6]. Similar to lactobacilli, bifidus produce lactic acids and other acidic products from the fermentation of carbohydrates. These bacteria inhibit the pathogenic bacteria that alter nitrates into harmful nitrites in the colon[6]. A high complex carbohydrate diet of fats, vegetables and whole grains encourages the growth of bifidobacteria. A heavy meat diet encourages the putrefactive bacteriodes to proliferate in the colon. Thus, the colon is always reacting to the food we ingest.

L. bulgaricus

L. bulgaricus and Streptococcus L. thermophilus are the starter cultures found in yogurt. They are only transient in the human digestive tract[6]. However, they also produce an acidic environment, which encourages the growth of the other beneficial bacteria. They also synthesize natural antibiotics that defend against pathogenic bacteria[6].

The other key members of the Lactobacillus family are:

*** L. brevis** *** L. casei** *** L. causasicus** *** L. delbruekeii** *** L. fermenti**
*** L. heleveticus** *** L. lactis** *** L. leichmannii** *** L. plantarum**

One of the most important functions of the beneficial bacteria is to colonize and coat the intestinal mucosa. Colonizing performs two important functions with the first being that the beneficial bacteria compete with pathogenic bacteria for available nutrients. Secondly, the bacteria attach to the mucosa and prevent digestive by-products and pathogenic bacteria and their toxins from entering the circulatory system. This is known as competitive exclusion[1].

When beneficial strains employ competitive exclusion, the immune system is spared from hyperactivity due to bacterial translocation. The greater the population of beneficial bacteria, the less chance the pathogenic bacteria have to inhabit the area. If the pathogenic bacteria are permitted to make invasive attachments, intestinal microsepsis is the result. This microsepsis equates to continual inflammation, and inevitably a diseased state.

The lactobacillus bacteria ensure their future by secreting a number of substances that inhibit the pathogenic bacteria from coexisting. These pathogenic bacteria prefer an environment that is alkaline.

L. acidophilus, L. bifidus and L. bulgaricus produce anti-microbial compounds, volatile fatty acids and modified bile acids that create a local acidic environment that is unfavorable for pathogenic bacteria[8]. Acidolin, acidophilin, lactobacilin, bulgarican and lactocidin are examples of the antibiotic substances the beneficial bacteria produce[2]. The acidophilin and bulgarican are powerful inhibitors of various strains of Salmonella, Clostridium, Staphylococcus, and E. coli[2].

These natural antibiotics target the pathogenic organisms while preserving the beneficial species. However, this is not the case for synthetic antibiotics. The acidic environment also acts to stimulate peristalsis. This reduction in bowel transit time reduces the time the mucosa is exposed to potential toxins and allergens.

Bacteria play an essential role in the development of the immune system.

The Gut Associated Lymphoid Tissue (GALT) is the largest lymphoid organ in the body. It comprises 80% of the immunoglobulin producing cells in the body and most of the GALT is comprised of Peyer's Patches[1]. There are approximately 250 of these lymphoid follicles in the GI tract[1]. Deeper in the intestinal tissue reside the intraepithelial and lamina propria lymphoid tissue. This is all intertwined with the lymphatic vessels that are directed towards the lymph nodes.

The importance of the normal flora on the intestinal immune system has been exhibited in animal experiments. Immature Peyer's patches develop rapidly upon first contact with the normal flora following birth. This does not happen in germ free animals[1]. Germ-free and antibiotic-treated animals have less lymphatic and reticuloendothelial tissue. When the germ-free animals are inoculated with fecal bacteria, these tissues developed rapidly[1]. Sterilization of the GI tracts in mice has been shown to induce a significant atrophy of the thymus and spleen[1]. Mice supplemented with acidophilus have shown a three to four-fold increase in macrophage activity compared to controls[9].

Bacteria will produce butyrate, the principal energy source for the distal bowel's epithelial cells, from complex carbohydrates. The colonic epithelial cells derive about 50% of their energy requirements from butyrate produced by the bacteria.

Short chain fatty acids produced in the human colon have been estimated to contribute 10 to 30% of the body's metabolized energy requirements[10]. Additionally, these fatty acids stimulate the absorption of calcium, magnesium and iron from the colon. Butyrate has also been shown to have anti-carcinogenic properties[7].

Carcinogenic substances are those that have the ability to disrupt DNA and alter the cell. For simplicity, we'll discuss the metabolic processes of the colon as being either fermentation or putrefaction. The bifidobacteria split food by fermentation. Fermentation produces lactic acid, acetic acid and butyric acid and thus an acidic environment in the colon[9]. Bacteroides, which are a less beneficial inhabitant of the colon, digest food through putrefaction. This process results in nitrogenous wastes that may have harmful local and systemic implications. Some of the beneficial bacteria seem to possess the ability to switch off the carcinogenic enzymes produced by the pathogenic bacteria. This

inhibition ultimately leads to less carcinogenic compounds.
Possibly the most dangerous result of dysbiosis is the number of carcinogenic chemicals produced when the pathogenic bacteria digest meat and fat. Coliform putrefactive bacteria such as clostridia and bacteroides produce enzymes such as b-glucuronidase, b-glucosidase, and nitroreductase[11]. When these enzymes act on protein, a variety of nitrogen waste products are produced such as ammonia, urea, phenols, nitrites, and nitrosamines[9].

Lactobacilli work in two ways to inhibit the production of these harmful chemicals. They not only deactivate the enzymes but also eliminate the bacteria that produce the enzymes. L. acidophilus has been shown to suppress the production of ammonia, indole and hydrogen sulfide[9].

Acidophilus bacteria decompose nitrosamines and can also suppress the production of nitrosamines in the intestines[7]. This suppressing effect may help to decrease the amount of toxins going to the liver and injuring it[9]. The gut bacteria "recycle" toxins such as ammonia for their own protein synthesis during their growth phase[12].

As previously mentioned, individuals who consume red meat on a regular basis have considerably higher levels of b-glucuronidase, nitro-reductase and azo-reductase. One study evaluated whether stopping meat entirely, eating fiber with the meat consumption, or continuing the meat while adding **L. acidophilus** could reduce the levels of these carcinogenic enzymes. It was found that supplementing fiber and even removing red meat had no effect on the levels of these enzymes. However, with the addition of L. acidophilus, a marked reduction in the enzymes was recorded despite the continuation of red meat consumption[9].

L. bulgaricus has been shown to have a tremendous effect for treating existing carcinomas. Strains of these bacteria synthesize an anti-cancer substance, which destroys tumor cells while being non-toxic to healthy tissue.

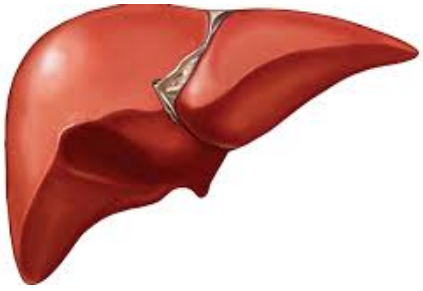
Research has linked this amazing ability to a component of the cell's wall. This component is present in the cell walls on possibly all lactobacilli. The substance extracted was termed "**anabol"** and was used in clinical trials. A 45-person study was conducted over several years to evaluate the clinical efficacy of "anabol" and it included individuals with Hodgkin's disease and various cancers including: pancreatic, thyroid, bladder, laryngeal, breast, stomach, lung, rectal, uterine, ovarian, brain, malignant melanoma, sarcoma and multiple myeloma.
In the majority treated with "anabol' as the only intervention, no harmful side-effects were found, and a wide range of improvements were observed with some subjects achieving complete regression.[9] The benefits continued even after six years of ongoing use.

Other research found that extracts from L. acidophilus and L. bulgaricus slowed the growth of tumors in mice. When the mice were fed yogurt for seven days there was a 35% reduction in the numbers of tumor cells[9]. Interestingly, the yogurt cells showed no potential against tumor cells when they were isolated in a laboratory dish.

It has been scientifically shown for many years that the mucus membranes of the GI tract are permeable to many substances of varying sizes. Large protein molecules have been shown to reach the bloodstream and provoke antigenic responses[9]. If these large proteins escape into the bloodstream, it is inevitable that toxins, bacterial proteins, and partially digested food particles will also permeate this barrier. Compounding the effects of these toxic products are the toxic by-products, such as ammonia and phenol, which are normally transported to the liver.

The liver has the responsibility of altering these harmful products for either recycling or excretion. The liver does so by conjugating these compounds with glucuronic acid.

Ammonia (a by-product of protein digestion) is a substance produced by the bacteria, which needs to be detoxified by the liver. A healthy liver will convert the ammonia either into useful amino acids or urea (both of which are non-toxic). If ammonia levels rise in the body, as they do in advanced liver cirrhosis, the CNS eventually becomes overloaded with toxins and coma results.



The liver is one of our most important organs

It has been found that by supplying beneficial bacteria, especially bifidobacteria, the pH of the large intestine is reduced. When acidity predominates, ammonia remains in the ionized form and is unable to enter the bloodstream.

A study was conducted to evaluate what effect the supplementation of bifidus milk would have on the blood of 8 patients with cirrhosis and 12 patients with chronic hepatitis. Within 7 to 10 days, blood ammonia and serum phenol levels were within normal levels. No dietary adjustments of protein restriction were employed in this study[9].

Further studies have validated these results[9]. ***The bacteria act as an organ of elimination by themselves***. If they have the ability to do such remarkable things in severe disease, imagine the work they can do from a detoxification standpoint with daily use. Through their role of detoxifying substances locally in the gut, the beneficial bacteria lessen the toxic load on the other emunctories (organs of elimination).

As probiotics are not drugs, but rather living organisms that must be introduced to the digestive tract, it is necessary to take them regularly. Each time you do, you reinforce the beneficial bacterial colonies in your body, which may gradually push out harmful bacteria and yeast. The downside of using a living organism is that probiotics may die on the shelf. In fact, a study reported in 1990 found that most acidophilus capsules on the market contained no living acidophilus[13]. Therefore, before purchasing a supplement, try to obtain an assay of the product. If the company doesn't have an assay, it's because they don't do them. The assay is the only way to guarantee that what's on the label is actually in the bottle. The container label should guarantee living organisms at the time of purchase, not just at the time of manufacture.

Another approach is to eat acidophilus-rich foods such as yogurt, kefir, sauerkraut, miso, kimchee and fermented pickles, where the bacteria are most likely still alive.

Prebiotics, such as FOS (FructoOligoSaccharides) are used by the beneficial bacteria residing in the colon as a food source, promoting the growth of beneficial bacteria, which suppress harmful organisms.

FOS is a pure natural extract of chicory. It provides many health benefits similar to soluble dietary fiber. Being a non-digestible carbohydrate, it is not broken down by the digestive tract and therefore does not raise blood glucose levels in the body. No fermentation of sugar is used during the extraction of FOS, as it is a plant extract.

Many probiotic supplements contain FOS that can promote thriving colonies of helpful bacteria in the digestive tract.

Prebiotic and Probiotic foods are essential for a healthy digestive tract

Probiotic Bacteria Counts and Their Credibility

A jumble of product misinformation and disinformation is wrongfully misleading consumers when it comes to knowing and promoting the actual numbers of viable probiotic bacteria in any given product.

Due to the global recognition and support that "probiotic supplementation" is now receiving from the scientific community, many manufacturers are taking shortcuts to market by creating products that appear to offer fantastic bacteria counts to an uneducated public and the problem is threefold.
First, in order for any manufacturer to obtain these mind-boggling probiotic bacteria counts, they must culture their probiotic strains in bioreactors and grow them. Furthermore, if they have a patent, a trademark, or a registered term in place to describe their probiotic bacteria, that is ***a dead give-away that their organisms have been genetically modified***.
No government in the world will issue a trademark or patent for something that occurs naturally, and nature has

always proven itself to be perfect. Those who think they can tamper with nature, usually end up being nature's fool. In nature's infinite wisdom, it intended for us to obtain our daily bacteria requirements from plants versus the vast majority of probiotic supplements sourced from fecal matter.

Secondly, bacteria grow in colonies and are one of nature's perfect examples of fractals. In scientific terms these colonies are called, "Colony-Forming Units" (CFU's). The efficacy of the bacteria relies on them staying in these colonies so they can "shake hands" (work together) to form multiple sub-strains of themselves and subsequently created hundreds of thousands of digestive enzymes. Some companies that provide a high bacteria count have intentionally shaken the colonies apart to make a label claim. This separates the CFU's and makes for a seriously less effective product. ***In this case MORE IS TRULY LESS***.

Thirdly, the reproduction ability of the bacteria once it is ingested and reaches the gut - is the single most important factor in a probiotic product. The bacteria must be alive in their natural state so that once they arrive in the gut they can multiply and reproduce all the sub-strains necessary to maintain a healthy intestinal flora.

The Sober Truth About Probiotic Deficiency

People are becoming predisposed to serious illness largely due to a malfunctioning gut, which in turn leads to a severely compromised immune system. The lack of widespread education and public awareness on the subject of "tummy health," probiotics and the effects of probiotic shortages is actually costing people their lives!

In a few short years, probiotics have become one of the most discussed topics on the planet, but right now people don't know what they don't know. So, we continue to respond with shock and terror to ever-increasing headlines about everything from diseased beef, to mysterious deaths from contaminated public water supplies, to new super bugs that don't respond to antibiotics . . . And you wonder what's next and who's next, as you watch the mysterious demise of health in your family, your friends and yourself . . . **All the while failing through no fault of your own to connect the "probiotic" dots**.

Probiotic supplements should be a part of your daily regime

Why are diseases mysteriously stacking up faster than cures, statistically verifying that the majority of people will become premature mortality statistics? This is the question begged when you consider that:

1. 90% of all the scientists that have ever lived are alive now

2. Americans ingest more food supplements per capita than any other educated population in the world

One out of two North Americans is dying due to either heart disease or cancer; with diabetes and side effects from pharmaceutical drugs respectively stepping in as the third and fourth most prevalent causes of death.

In 1936, the US government declared our soils nutritionally bankrupt. Our environment bombards us with nuclear accident fall out and 5,000 other toxic chemicals and heavy metals. Our homes and schools continue to be built next to power transformers and our foodstuffs are being chemically engineered, altered and preserved.
People have become desensitized and ambivalent about the use of man-made vitamins and minerals, birth control pills, immunizations, antibiotics, genetically altered seeds, herbicides, insecticides, fertilizers, food additives and preservatives – each of which play a role in the reduced effectiveness of our immune system.

Considering all the cultural, dietary and lifestyle changes that have occurred over the past century, it's no mystery why chronic disease is so prevalent today. In the present day, the average Western diet includes the consumption of over 100 pounds of refined sugar per person per year, a ten-fold increase in sodium consumption, a four-fold increase in consumption of saturated fat; a considerable reduction in vegetable fibers, potassium, magnesium, calcium and chromium; as well as a considerable reduction in consumption of omega-3 fatty acids, membrane lipids,

vitamins and antioxidants[7].

When compared to our ancestral diet, ***the modern Western diet is virtually absent of dietary beneficial bacteria***. It has been mistakenly taught that all bacterial growth must be prevented through refrigeration, ultra-filtration and various other methods of sanitation and preservation.

It should be very clear why probiotics are the integral backbone of the BTG's.

VITAMINS

Vitamin B Complex

The B vitamins are a complex of water-soluble vitamins made up of several different nutrients that play a huge role in the body. Together, the B-complex which consists of thiamine (B1), riboflavin (B2), niacin (B3), pantothenic acid (B5), pyridoxine (B6), folic acid (B9), cyanocobalamin (B12) and biotin, make up a group of essential nutrients that aid cell growth and detoxification, fight aging (anti-stressors), depression and fatigue, and keep the mind and body healthy.

The S.A.D. is seriously devoid of many nutrients including B vitamins

The vitamin B-complex is essential to the body because its constituents are involved in so much of the body's metabolism.

The B vitamins are responsible for cellular differentiation, transmission of nerve electricity, health of nerve cells, heart pulse rate, muscular contraction, digestion, brain function, thought processes, energy production, metabolism, maintenance of skin and muscle tone, enhancement of the immune and nervous system functions, promotion of cell growth and division, and DNA synthesis.

Without B vitamins, red blood cell growth, the function of the heart and nervous system, and even food digestion would not be possible. Thiamine, for instance, aids in the digestion of carbohydrates while riboflavin helps the body metabolize carbohydrates, fats, and proteins. Folic acid metabolizes amino acids, the building blocks of protein, which are necessary for growth and reproduction of all body cells.

During the detoxification process the vitamin B-complex is both the doctor and patient's best ally as each member of the complex is an antioxidant. In fact, niacin (B3) can flush toxins out through the skin mere minutes after it is ingested.

Thiamine (B1)

Thiamine is critically important for proper nerve function acting as a coenzyme in the production of the chemical messengers between nerve fibers (neurotransmitters). It is also essential to overall energy production in terms of metabolism of carbohydrates into the simple sugar glucose.

Riboflavin (B2)

Like thiamine, vitamin B2 acts as a coenzyme in the breakdown of carbohydrates, fats and proteins. Riboflavin also acts as a coenzyme for oxidation-reduction reactions throughout the body. **Oxidation-reduction reactions** involve the addition of either oxygen or hydrogen to a substance. One important consequence of this process is when it acts to inhibit chemical reactions with oxygen or highly reactive free radicals. These oxidation reactions can cause damage to our cells.

Niacin (B3)

Vitamin B3 is needed for the metabolism of food (energy), regulating blood sugar and the maintenance of healthy skin, nerves and the gastrointestinal tract. Niacin is also used in those all-important oxidation-reduction reactions. There have also been studies showing that niacin has benefit as an anti-inflammatory for conditions such as rheumatoid arthritis and osteoarthritis. B3 has also proven its benefits for lowering cholesterol and triglycerides (lipids).

Pantothenic Acid (B5)

Vitamin B5 plays an important role in energy production, the manufacturing of certain hormones and lowering cholesterol. It is essential to the breakdown of carbohydrates, lipids and some amino acids. The body also uses B5 for the synthesis of coenzyme A, which is fundamental to biochemical reactions in the body.

Pyridoxine (B6)

Like pantothenic acid, vitamin B6 is also needed for the breakdown of carbohydrates, proteins and fats. Pyridoxine is also used in the production of red blood cells as well as in the biochemical reactions involved in the metabolism of amino acids (the building blocks of protein). B6 is critical to maintaining optimal immune function and hormonal balance.

Folic Acid (B9) / Cyanocobalamin (B12)

Vitamin B9 works hand in hand with vitamin B12 for the synthesis and repair of DNA. Folic acid, in combination with vitamin B12 and vitamin C, is necessary for the breakdown of proteins and the formation of hemoglobin, a compound in red blood cells that transports oxygen and carbon dioxide. Folic acid is also essential to virtually all biochemical reactions that use a one-carbon transfer and is produced by bacteria in the stomach and intestines. Vitamin B12 is also required for maintenance of our nerve sheaths.

Biotin

There are at least four enzymes that absolutely need biotin to function in the body. Among the purposes of these enzymes is to synthesize fatty acids and to produce glucose. Biotin is also necessary for the production of leucine, which is an essential amino acid. In addition to being necessary for the nervous system to function properly, biotin is associated with the production of neurotransmitters in the brain, including those associated with cognitive function, emotional well-being and memory. Studies have indicated that biotin plays a role in the transcription and replication of DNA.

Vitamin D - the sunshine vitamin

Also known as the sunshine vitamin, vitamin D levels have dropped dramatically over the last 20 years as people are warned to reduce sun exposure.

Vitamin D is a group of fat-soluble steroids. In humans, Vitamin D is unique because it functions as a pro-hormone and because when sun exposure is adequate the body can synthesize it (as vitamin D3).

The evidence indicates that the synthesis of vitamin D from sun exposure works in a feedback loop that prevents toxicity but because of uncertainty about the cancer risk from sunlight, no recommendations are issued by the Institute of Medicine for the amount of sun exposure required to meet vitamin D requirements.

Vitamin D studies show that it does boost the immune system and fight off viral infections such as the flu. At the same time, it tempers the immune system from overworking, which can create more mucus and fluid in the lungs, causing further problems such as pneumonia.

Michael Holick, a professor of medicine, physiology and biophysics at Boston University School of Medicine, said "***What vitamin D really does is play a sentinel role***." What that means is that vitamin D is used by the immune system to fight infection and it also helps to control the immune response and limits inflammation. By "tempering" the immune system in this way, it keeps the immune system from literally overworking, which can actually lead to death and is suspected in many of the deaths in the 1918 flu pandemic.

Vitamin D, the sunshine vitamin

Vitamin D signals the intestines to absorb calcium. With low levels of vitamin D, the body will break down bones to get the calcium it needs. Without enough vitamin D, the body cannot absorb enough calcium to satisfy the body's need for calcium, no matter how much calcium you consume in food or supplements. The proper use of calcium is needed for the functioning of the nervous system, bone growth and bone density. Increasing vitamin D can help prevent non-vertebra fractures and reduce the risk of osteoporosis.

A link has also been found between low levels of vitamin D and certain cancers. New studies have shown that vitamin D could be protective against colon, prostate, breast and other cancers.

Vitamin D receptor ligands have been shown to increase the activity of natural killer cells and enhance the phagocytic activity of macrophages.

There is also evidence that vitamin D could play a role in the prevention and treatment of diabetes type I and type II, hypertension, glucose intolerance, multiple sclerosis, some autoimmune diseases, schizophrenia and other medical conditions. Two small studies have suggested that vitamin D3 supplements provided benefits in people with active tuberculosis. In 2007, an analysis of 18 different randomized studies found that vitamin D supplementation might even help people live longer.

Researchers at the University of Pennsylvania have found that vitamin D may slow the decline in the ability to breathe in people with asthma and COPD. The researchers believe that slowing this progressive decline can prevent or delay the irreversible decline in breathing that leaves many asthmatics even more vulnerable when they suffer an asthma attack.

One of the most important roles of vitamin D is to maintain skeletal calcium balance and Vitamin D has been studied as a potential treatment for both onset multiple sclerosis and osteoporosis. This is significant as it is estimated that over 25 million adults in the United States have or are at risk of developing osteoporosis. Osteoporosis is a disease characterized by fragile bones resulting in an increased risk of bone fractures.

Studies have also shown that a supplement of 800 IU per day of vitamin D increased the bone mineral density of the lumbar spine in postmenopausal women. Make sure your doctor checks your vitamin D levels for optimal values.

PHYTOSTEROLS

Phytosterols are compounds found in plants that are similar to cholesterol. They have been found to lower Low Density Lipoprotein (LDL) levels in humans. They do this by many mechanisms such as blocking the absorption of cholesterol from food in our diets while also binding, transporting and eliminating the cholesterol that our bodies make that is present in the bile acids in our intestines[2]. By lowering LDL, it is believed that a diet rich in phytosterols can decrease the risk of cardiovascular disease. One study showed that a diet of cholesterol lowering foods including phytosterols for 1 month was just as effective as statin therapy[4].

Diverse colors is the key!

Apoptosis is the programmed death of a cell. In cancer cells this program is overridden, and the cell is able to live longer. Phytosterols have been shown to turn this program back on in prostate, breast and colon cancers, effectively shrinking the size and immortality of the tumors[3].

Men with Benign Prostatic Hyperplasia (BPH) who increased their intake of phytosterols found improvements in urinary symptom scores, decreased post void urine retention and increased peak urinary flow. These improvements were found to last nearly 18 months after the study and treatment ended[5].

Another possible effect of plant sterols is their antioxidant activity. It was found that the methanol extract of soybean oil, which has a strong in-vitro protective effect against DNA damage in human endothelial cell, contains phytosterols in addition to tocopherols, Thus, based on results from in vitro studies there is a possibility that plant sterols may possess antioxidant properties. Such antioxidant protection could also benefit atherosclerosis.[6]

Nuts and seeds are an excellent source of phytosterols. The highest amounts have been found in pistachios, sunflower, pumpkin and sesame seeds[1]. Many of the seeds that are recommended in these BTGs.

CONCLUSION

Although the elements of the BTG's have been presented separately, their application was not designed as a list to select one or the other from. These guidelines represent a synergistic and complimentary approach to treatment and omitting one or more of them is like removing one of the legs from a table. Balance, strength and integrity would be lost.

Consider some of the relationships:

- Apple cider vinegar creates an acidic environment that destroys the pathogenic bacteria from entering the intestines. Thus, probiotics spend less time competing for food and space and more time protecting the mucosal lining.

- Flax seeds provide substantial fiber, the food for the probiotic organisms. Furthermore, this fiber binds the endotoxins from the gut, sparing the probiotic organism from having to transform them.

- Dry skin brushing circulates the lymphocytes that the castor oil pack stimulated. Furthermore, by stimulating the production of lymph in the liver, castor oil increases the effectiveness of dry skin brushing by increasing lymphatic volume, which increases flow.

- Castor oil increases the activity of Peyer's patches in the intestines. This increases the immunity in the intestines and works synergistically with the probiotic organisms.

- Water is the principal ingredient in lymph. The increase in fresh lymph allows both dry skin brushing and castor oil to facilitate the removal of toxins from the cells. The castor oil has been found to produce prostanoids, the precursors to the beneficial prostaglandins that need the essential fatty acids from flaxseeds and EPO as raw materials.

- Apple cider vinegar and castor oil work synergistically to increase the parasympathetic influence on the intestinal tract. This equates to more complete digestion and spares the probiotic organisms from having to neutralize the undigested food components.

- Water provides the fluid for the production of protective mucus, which contains the glycoprotein mucin. The probiotic organisms use mucin as a substrate.

- By improving liver function, castor oil packs allow the liver to more efficiently incorporate the essential fatty acids from EPO and flax seeds into the cellular membranes. Cellular membranes with higher concentrations of EFA's are more flexible allowing cellular detoxification to occur with ease.

The list of synergies between the Basic Treatment Guidelines could continue for pages.

It should be apparent that the BTG's are a single therapy consisting of several ingredients and can be thought of as the “multivitamin" of detoxification. They are a daily routine that requires a very minimal time investment.

A hundred years ago, all that was necessary to maintain health was "an apple a day". Considering the modern, genetically modified apples coated with various pesticides capable of disrupting hormonal and neural pathways – most would agree that times have changed.

Through their ability to re-establish homeostasis,
these Basic Treatment Guidelines
may be the best "apples" we have today.

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