

Ayurvedic Nutrition: Food as a Medicine

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ACHS Capstone Project

Masters of Holistic Nutrition

Abstract

With the state of health in our country at a staggering low, and health care prices on the rise many Americans are turning to alternative practices (McMillen, 2011). In an effort to get back to basics and to inspire balance, the contents of this paper will examine the concepts of an alternative practice known as Ayurveda. Of course this eastern tradition brings with it, it's own set of challenges. But by stepping back and surveying the fundamental principles of this tradition, it might become clear that through embodying aspects of the tradition it can become easier to regain health and get back to the basics.

A time honored and holistic path, Ayurveda is an ancient system of healing that developed in India thousands of years ago. More than a mere system of treating illness, Ayurveda is the science of life, Ayur: life, Veda: science or knowledge, offering a body of wisdom essential for optimal health (Pizzorno, 2012). An Ayurvedic lifestyle is one that focuses on living in fluctuation with mother earth and with the rotation of the sun and the seasons. Utilizing diet, exercise, herbs, and even surgical practices in some cases, an Ayurvedic physician treats a whole person. He or she looks closely at the origin of disease rather than simply focusing on pain and symptom management. Ayurveda outlines the four aims of life: *dharma*, *artha*, *kama*, *moksha*. The foundation for all four of these aims is good health.

धर्मार्थकाममोक्षणामारोग्यं मूलमुत्तमम् ॥

dharmārtha kāma mokṣāṇām ārogyaṃ mūlam uttamam

“Good health is the best foundation for achieving the four aims of life: dharma, artha, kama, and moksha.” —Charaka Samhita

“As human beings, our greatness lies not so much in being able to remake the world as in being able to remake ourselves.”

Mohandas K. Gandhi

Introduction

Today in America we are dealing with a cultural health crisis. Ranging from issues with obesity, to sugar addiction, to sedentary lifestyle, to depression, and diabetes, the list goes on. In many ways the American public has the desire to maintain a healthy lifestyle, but consciously choosing this type of lifestyle change certainly has its challenges. Reading magazines, watching television, or even listening to the radio there are numerous advertisements for gyms, diet plans, weight loss books, and diet pills. There are so many choices, so many quick fixes to choose from. How is one to know which one is the *right* one?

For many people, the thought of investing time and energy into this type of change is too daunting to desire. Leaving a sense of hopelessness and doubt. For the average American, the confusion surrounding the nutrition industry has become convoluted. New buzz words, miracle diets, and superfoods are constantly gaining popularity, and how is one to know if this is a marketing ploy or truth? Should the notions of what we should and should not eat be this challenging? So challenging that many people refuse to even consider a change?

With the state of health in our country at a staggering low, and health care prices on the rise many Americans are turning to alternative practices (McMillen, 2011). Alternative medicine is different from western medicine in a few different ways. An alternative practitioner believes that injury and illness are a direct result of disharmony in the mind, body and spirit. This affects

of this are not localized in one spot, but can be seen throughout the entire body according to an alternative approach (Seaward, 2014). Second, alternative practices work as preventative medicine rather than emergency medicine. Alternative practices are meant to be a lifestyle and not utilized just for moments of sickness.

In an effort to get back to basics and to inspire balance, the contents of this paper will examine the concepts of an alternative practice known as *Ayurveda*. Of course this eastern tradition brings with it, its own set of challenges. But by stepping back and surveying the fundamental principles of this tradition, it might become clear that through embodying aspects of the tradition it can become easier to regain health and get back to the basics.

Vital Force and Alternative Medicine

During the Renaissance, a philosophy shaping the direction of medicine in the western world started taking hold. This philosophy, developed by Rene Descartes, stated that the body and mind are separate entities and should be examined and treated differently (Seaward, 2014). Albert Einstein's revolutionary unified field theory which was inspired by an ancient premise, theorized that all points meaning energy and matter connect. Not only that, but each of these points were theorized to significantly affect all others. The human entity encompassing a mental body, emotional body, physical body and spiritual body is very much a part. In some ways, this theory has led aspects of western science back to this ancient premise (Seaward, 2014). Only recently has modern western science taken steps to unite what Descartes separated over 360 years ago, the body and the mind (Seaward, 2014).

Before the dawn of modern chemistry, a theory known as vital force was understood as truth amongst scientists (Seaward, 2014). The unity and complexity of the body, mind, and spirit was not ignored. Vital force is a theory stating that living organisms are different from non living organisms because they contain a non-physical element that governs life in a way that inanimate things do not possess or experience (Denniston et al, 2014). By definition, vital force is “a hypothetical force, independent of physics and chemical forces, regarded as being the causative factor of evolution and development of living organisms” (Collins, 2012). Hypothetical, because in the dawn of modern chemistry this theory was thrown out.

From a cultural perspective, the idea of vital force can be seen in many different civilizations and religions. To some, it could be compared with the soul, the immortal essence of a living thing. Or qi, prana, chakra systems, and the list continues. The existence of subtle energy has been proven on some level. We know that there is measurable energy surrounding us, known as the human energy field (Seaward, 2015). It is an understanding that we are more than just a system of complex chemical reactions. There is something we cannot see that affects our entire human system (Seaward, 2014). With current research one simple truth is beginning to reemerge: the physical, mental, emotional, and spiritual aspects of the human condition are all intimately connected (Seaward, 2014).

Ayurveda: A Brief History

A time honored and holistic path, Ayurveda is an ancient system of healing that developed in India thousands of years ago. More than a mere system of treating illness, Ayurveda is the science of life, *Ayur* meaning life, *Veda* meaning science or knowledge, offers a body of

wisdom essential for optimal health (Pizzorno, 2012). An Ayurvedic lifestyle is one that focuses on living in fluctuation with mother earth and with the rotation of the sun and the seasons. Utilizing diet, exercise, herbs, and even surgical practices in some cases, an Ayurvedic physician treats a whole person. He or she looks closely at the origin of disease rather than simply focusing on pain and symptom management. From the Ayurvedic perspective, just as Albert Einstein theorized the body, mind, and spirit is interconnected, each aspect of the body affects the others both positively and negatively. When treating a patient the Ayurvedic doctor not only takes into account the symptoms of physical body, but the potential impacts of energetic body as well.

The origins of Ayurveda date back to the second millennium BC, but became more widespread when the historical Buddha was born in India (Pizzorno, 2012). The health of a physical body and spiritual growth were intricately wound together therefore the spread of Buddhism and Ayurveda are closely related (Pizzorno, 2012). Ayurveda places great emphasis on the diet. It is believed in this tradition that the human body, both physical and mental, are products of the food consumed. Especially now with the progress of modern science, it is known that the gastrointestinal tract is a long tube that never physically opens up to the rest of the internal body (Marieb and Hoehn, 2013). As the nourishment passes through this tube, the body is able to utilize diffusion to pull the nutrients it needs for function from what was provided. Even before scans and photos showed this, followers of Ayurveda knew that the health of the body was directly related to what was being consumed. Just as Hippocrates said so long ago, “all disease begins in the gut.”

Ayurveda outlines the four aims of life: *dharma*, *artha*, *kama*, *moksha*. Dharma can be translated to mean one’s purpose. Living in alignment with dharma means living with clarity of

perception and action, and being true to oneself. Artha includes all of the resources one needs to live in alignment with their dharma. This includes money but is not limited to financial resources. Our housing, transportation, food, a phone and computer are a part of artha. Kama can be translated to mean pleasure, but it also means surrendering to what is. Through the fulfillment of the positive needs of life, we can go beyond desire. In essence, kama involves finding pleasure in the simple things of life as opposed to chasing our desires. Moksha means liberation. Self-realization and enlightenment can be attained through a state of passive or moment-to-moment awareness in our daily life. The foundation for all four of these aims is good health.

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Ayurveda embodies not only science, but religion and philosophy as well. Religion in the sense that Ayurvedic practitioners actively believe that all life as a sacred entity. Ayurveda places great emphasis on the diet and care of the physical body as the body is the vehicle for spiritual growth on earth. It is believed in this tradition that the human body, both physical and mental, are products of the food consumed. The ancient *Rishis* perceived that cosmic energy manifests in all living and nonliving things. Manifesting as male, *shiva*, or female, *shakti*, energy. All matter is made up of the five elements: earth, water, fire, air, and ether. Based on the *Samkhya* Philosophy, Ayurveda teaches us to observe the qualities of these elements so that we can better observe the elements within ourselves and in our environment.

A western concept and a fact in modern science: homeostasis. *Homeo* meaning unchanging, and *stasis* meaning standing. (Pizzorno, 2012) Our bodies are designed to maintain homeostasis, which literally means “unchanging” (Pizzorno, 2012). This does not mean the body tries to be static, homeostasis is unchanging in a dynamic manner. Our bodies maintain stable internal conditions as the outside world fluctuates (Marieb and Hoehn, 2013). While this concept is a discovery of modern science, the purpose of Ayurveda is simply this. Arming an individual with the tools they need to optimally maintain homeostasis.

The era of dieting that we live in today seems to be fueling the fire of disease. Viewing health from the perspective set forth by Einstein and the Ayurvedic theory, it can be asserted that a healthful person is a balanced person. Balance in food consumption and all forms of consumption, in stress management, in exercise, and in relationships with others and oneself. Regaining control of one’s life and one’s health does not have to be a stress laden process, nor should it be. With appreciation and balance at the core of what Ayurveda stands for, the guiding principles of this practice can be applied to anyone’s life in order to maintain health or to regain health. The foreign language and foreign concepts can seem daunting, but if put forth in a relatable way can empower any person who is seeking a healthier lifestyle to become their own nutritionist, or their own health coach. With an emphasis on knowing ones body and listening to the cues it gives, a person practicing Ayurveda doesn’t need the diet books or diet pills to know what feels right and what feels wrong for his or her own body. The capstone project put forth in my final semester at American College of Healthcare Sciences is an easy to follow manual that explains the important principles of Ayurveda and teaches the user to cleanse the body and to go

on a journey to become more in tune to their true nature. The information to follow guided and inspired all of the information that was ultimately included in the cleanse manual.

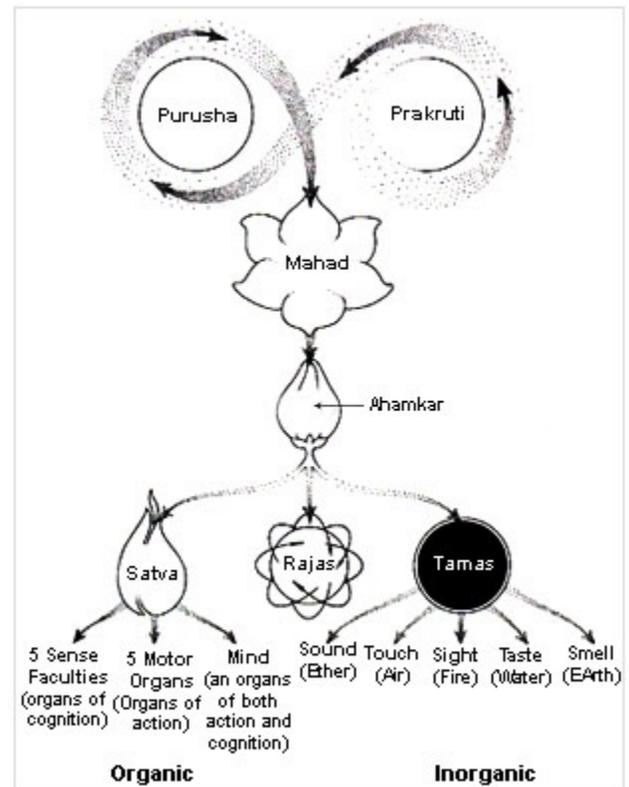
Methods

Ayurvedic texts from Dr. Vasant Lad were the primary sources of information for the sections on Ayurveda. A clinical Ayurvedic surgeon from India, Dr. Vasant Lad has established a well known institute in New Mexico and remains one of the leaders in this field today. Textbooks from Anatomy and Physiology courses were used, as well as the textbook from the Stress Management course. Findings from previous research assignments during my years at ACHS supported and inspired many inquiries in this project. Interviews and conversations with two local Ayurvedic practitioners also provided support and information for this project. Supportive information was found using Google Scholar, PubMed, and WebMD.

Results & Discussion

Samkhya Philosophy

The major principles of Ayurveda are based on the *Samkhya* philosophy of creation, *Sat* meaning truth and *Khya* meaning to know. The image to the right is from Dr. Vasant Lad's book, *The Science of Self Healing* and is a widely used image for describing the guiding philosophy of Ayurveda (1984). All matter in the cosmos is made up of the five elements: earth, water, fire, air, and ether. Ayurveda teaches us to observe the qualities of these elements so that we can better observe the elements within ourselves and in our



environment. This philosophy of creation perceives two things:

“The close relationship between humans and the universe (that humans are a microcosm, a universe within themselves, whereas the external environment is the macrocosm).

The source of all existence is cosmic consciousness, manifest as male (Shiva or Purusha) and female (Shakti or Prakriti) energy (Pizzorno, 2012).”

Purusha is formless and represents all that is beyond attributes, akin to a Western understanding of a spirit or as mentioned earlier a vital force. *Prakruti* has form and creates all forms of the universe from three attributes, or *gunas*. The *gunas* are *satva*, *raja*, and *tamas* which translate to essence, movement, and inertia, respectively. Within the vibrations of the *purusha* and the *prakruti*, the elements were created and all matter was born.

Understanding this concept is essential to understanding the Ayurvedic notions of life and health in short: all matter was born from the five elements. Therefore, the human body is made from the five elements. Just as we know our finger prints are unique so too are the combinations of elements within us. (Pizzorno, 2012).

The five elements manifest within the body as the Tridosha- *Vat*, *Pit*, and *Kaph*. The individual *doshas* are known as *Vata*, *Pitta*, and *Kapha*. *Vata* is a combination of air and ether, *Pitta* is a combination of water and fire, and *Kapha* is a combination of earth and water (Pizzorno, 2012). From the same vibrations that created the elements, unique combinations of the elements will come together to form each person, plant, or animal. On an individual level the *doshas* make up our constitution, or *prakruti*, which is determined at conception. *Prakruti* is a persons natural state of doshic balance. Each person has all three *doshas*—*vata*, *pitta*, and *kapha*—functioning in the body at all times.

Prakruti is as unique as a fingerprint, but there are seven general types of *prakruti*: *vata*, *pitta*, *kapha*, *vata-pitta*, *pitta-kapha*, *vata-kapha*, and *vata-pitta-kapha* or *tridoshic*. The most accurate way to determine ones *prakruti* is to have an experienced practitioner read the radial pulse. The *vikruti*, or present state, is most often a state of imbalance. Again this can be felt in the pulse, and also understood through exploring health history and current signs and symptoms. A

perfectly balanced vikruti would match the prakruti, and that would be a sign of good health. To balance the prakruti and vikruti, and Ayurvedic practitioner will first apply diet and lifestyle changes that address the provoked dosha(s) at the vikruti level. Once balance is achieved, a diet and lifestyle plan appropriate to the person's prakruti will be advised.

Qualities of the Doshas

	Vata Dosha Air + Ether	Pitta Dosha Fire + Water	Kapha Dosha Water + Earth
Qualities	dry light rough mobile subtle clear cold astringent bitter	oily hot sharp light fleshy-smelling spreading liquid pungent sour	heavy slow/dull cool oily slimy soft or hard dense stable cloudy/sticky gross sweet salty
Functions	All bodily movements Maintenance of life Communication Movement of thoughts, feelings, nerve impulses Respiration Circulation Elimination Sensory perception	Transformation Metabolism Digestion, absorption, & assimilation Maintenance of body temperature Appetite, thirst Coloration Visual perception	Nourishment Lubrication Support, stability Groundedness Growth Gaseous exchange in lungs Gastric secretions Strength, stamina, energy Sleep Repair & regeneration

<i>Causes of Imbalance</i>	Irregular schedule Old, leftover food Dry or raw food Insufficient food intake Rapid eating Suppression of urges Staying up late at night Overstimulation Overexertion Worry, fear, loneliness Fall Season	Hot spicy food Sour/fermented food Prolonged fasting Aggression Anger Hate Competitiveness Comparison Judgement/criticism Summer season	Sweet, salty, or sour foods Heavy meals Overeating Oily, fatty foods Cold drinks Slow, sluggish digestion Excessive fluid intake Excess sleep Lack of exercise Attachment, greed Winter & spring seasons
<i>Signs & Symptoms</i>	Constipation Numbness Gas, bloating, distention Pain Lumbago, sciatica Malabsorption Neuromuscular disorders Insomnia Emotional hypersensitivity	Heartburn Acid indigestion Inflammation Infection Ulceration Bleeding disorders Fever Diarrhea Vomiting/nausea Anemia	Weight gain/obesity Lethargy Cold/congestion/cough Swelling/edema Pallor Excess sleep Diabetes Tumors Increased cholesterol & triglycerides

Properties and Actions

Just as a person has a unique balance of the elements, so do the plants and animals that human kind lives with and consumes as food. All disease and discomfort is believed to arise from consuming foods or participating in activities that throw the doshas out of balance (Pizzorno, 2012). For example, some people are able to eat very spicy food while others are sensitive and may even have a GI reaction to spicy foods. Of course some of this will have to do with exposure to spicy foods, but a person who is dominated by pitta which is fire and water already contains a lot of heat in their tissues. Therefore, spicy foods can irritate the fire essence within. Ayurveda utilizes the six tastes to create a working definition food and metabolism. As Dr. Yarema states:

Rather than looking at nutritional labels for X amount of protein or Y amount of carbohydrates, the 6 Tastes naturally guide us towards our body's nutritional needs. Each taste feeds our mind, body, senses, and spirit in its own unique way. From a modern

nutritional perspective, the 6 Tastes satisfy each of the major dietary building blocks. Sweet foods, for example, are rich in fats, proteins, carbohydrates, and water, whereas Bitter and Astringent foods are high in vitamins and minerals (2006).

Rasa	Virya	Vipak	Prabhav
<i>Sweet</i>	Cold	Sweet	Honey (hot virya)
<i>Sour</i>	Hot	Sour	Lemon (cold virya)
<i>Salty</i>	Hot	Sweet	Tamari (cold virya)
<i>Pungent</i>	Hot	Pungent	Onion (cold virya)
<i>Bitter</i>	Cold	Pungent	Turmeric (hot virya)
<i>Astringent</i>	Cold	Pungent	Pomegranate (sweet vipak)

The Six Tastes

Before the U.S. Food and Drug

Administration provided recommended

daily allowances for the macronutrients and

Taste	Property	Examples	Actions	Disorders when consumed in excess
<i>Sweet (earth + water)</i> V- P- K+	Cooling	Wheat, rice, milk, sugar, dates, licorice root, red clove, peppermint	Anabolic: decreases vata, increases kapha. Adds wholesomeness to the body.	Increases obesity, causes excess sleep, heaviness, lethargy, cough, diabetes.
<i>Sour (earth + fire)</i> V- P+ K+	Heating	Yogurt, cheese, green grapes, lemon, hibiscus, rose hips, tamarind	Anabolic: decreases vata, increases pitta and kapha. Stimulates appetite and sharpens the mind.	Increases thirst, sensitizes teeth, toxification of blood, edema, ulcers, heartburn
<i>Salty (water + fire)</i> V- P+ K+	Heating	Sea salt, rock salt, kelp	Anabolic: decreases vata and increases pitta and kapha. Helps to aid digestion, promotes salivation.	Disturbs blood, inflammation, ulcers, rash, hypertension.
<i>Pungent (fire + air)</i> V+ P+ K-	Heating	Onion, radish, chili, ginger, garlic, cayenne pepper	Catabolic: decreases kapha and increases vata and pitta. Promotes digestion and absorption of food. Purifies the blood.	Increases heat, sweating, fainting. Ulcers, dizziness.
<i>Bitter (air + ether)</i> V+ P- K-	Cooling	Dandelion root, rhubarb, turmeric	Catabolic: Decreases pitta and kapha, increases vata. Acts as an antitoxic and germicidal	Increases roughness, dryness, reduces bone marrow and semen.
<i>Astringent (air + ether)</i> V+ P- K-	Cooling	Unripe banana, pomegranate, myrrh, dried turmeric	Catabolic: decreases pitta and kapha, increases vata. Has a sedative action. Can cause constriction of blood vessels.	Dryness of mouth, constipation, too much dryness can affect the heart.

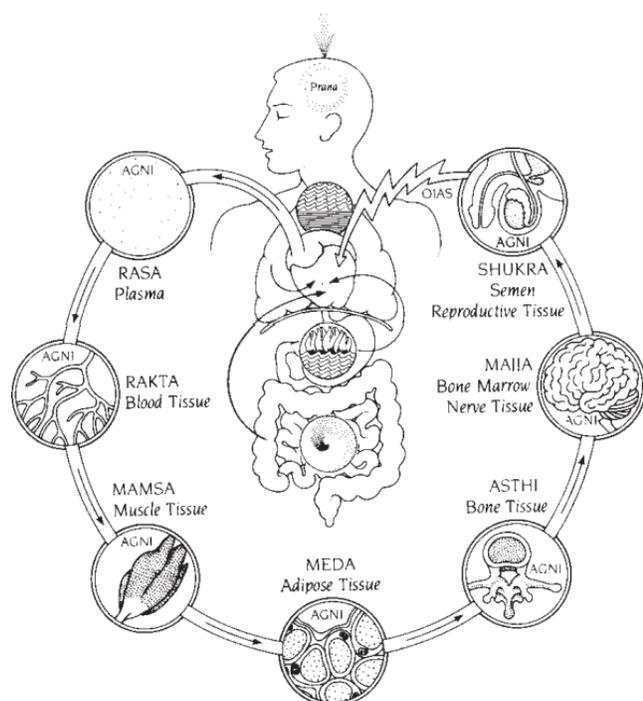
the micronutrients people listened to their taste buds to determine which substances were edible and health promoting. Ayurveda teaches that all six tastes should be eaten at every meal for not only for satisfaction but to ensure that all major food groups and nutrients are represented.

In the tables below the six tastes are broken down further to show the potential healing and balancing actions each taste can promote. *Rasa* is the first experience of taste when a substance hits the tongue. *Virya* is the heating or cooling aspect of the food once it enters the stomach. *Vipak* are the post-digestive effects *Prabhav* is any exception for each taste. For specific cases an Ayurvedic practitioner will develop a diet plan from the prakruti and vikruti utilizing the six tastes to bring the dosas back into balance. As seen in the table below, each taste will either increase or decrease a certain dosha.

Ayurvedic Anatomy & Physiology

The human body is comprised of an interconnected set of tissues, organs, and channels managed by a central intelligence or *prana*. While modern science is slowly uncovering the depth to which these ‘separate’ functions overlap, Ayurveda has developed an extensive map of anatomy and physiology and how the body’s functioning is directly related to this interconnected matrix.

The *Dhatus* are seven tissues of the body. In English they are: plasma, blood, muscle, fat, bone, marrow/nerve, reproductive tissue. In Sanskrit they are: *rasa, rakta, mamsa, medas, asthi, majja,*



and *shukra*. Like most concepts in Ayurveda, the dhatus are much more than their one-dimensional definitions. As seen in the image above from *The Science of Self Healing*, progressively the dhatus feed and enable the others to work (Lad, 1984). Understanding the dhatus is essential to understanding the relationships of the tissues in the body when a doshic imbalance can cause disease (Halpern, 1996).

Dosha	Vata	Pitta	Kapha
<i>Humor</i>	Movement producing humor	heat producing humor	structure producing humor
<i>Seat</i>	Colon, Pelvic cavity	small intestine	chest, stomach
<i>Qualities</i>	dry, light, cold, subtle, rough, moving, clear	oily, sharp, hot, light, sour smell, liquid, fluid	cold, oily, heavy, slow, steady, smooth, dense

Made up of the water element *rasa*, meaning juice or sap, refers to the primary waters of the body and directly relates to plasma, lymph, interstitial fluids, breast milk, and menstrual fluid (Halpern, 1996). It is more than just fluid though, it is nourishment at a physical level and a psychological level. Being nourished *and* feeling nourished. Maintaining a healthy *rasa dhatu* is of great importance as it provides health to the entire body (Halpern, 1996). From a western perspective it is similarly understood that the water element and proper hydration is essential for health.

Blood, or specifically the red blood cells, are known as *rakta dhatu*. *Rakta* refers to the element of fire in the body and is incredibly important from the perspective of health and healing (Halpern, 1996). The red blood cells transport the materials needed to feed the body, heat the body, and energize the body. As mentioned before, progressively the dhatus feed and enable the others to work. Without the plasma or water element of the blood, the red blood cells would not be able to flow throughout the body. *Rasa dhatu* feeds the *rakta dhatu* (Halpern, 1996).

Mamsa, meaning flesh or meat, refers to the muscle tissue, ligaments and skin. Providing strength to the body and the mind, health of the mamsa dhatu arises from proper nourishment both physically and mentally (Halpern 1996). Medas, meaning fat, refers to the fatty tissues and secretions of the body. Built from the water element medas, like mamsa, relies on proper nourishment. Just as rasa plays an important role in satisfaction, medas plays an important role in a persons ability to love and be loved (Halpern, 1996). When medas is balanced the body can act as a well oiled machine, pun intended!

Asthi dhatu refers to the bones and the structure they provide to the body and mind. Physically asthi provides a matrix for the rest of the tissues to stand on and mentally provides courage and steadfastness (Halpern, 1996). Not to say that asthi is entirely rigid as the bones provide movement to the body. Majja dhatu refers to the bone marrow which provides the body with the ability to grow and heal. Majja dhatu also encompasses the nervous tissue (Halpern, 1996).

When translated, shukra means bright, pure, and radiant. It also means the essence of something. Properly nourished majja, or bone marrow and nervous tissue, nourishes shukra, or all secretions involved in reproduction (Halpern, 1996). At this point, the food and water that have been consumed have been transformed into substances that can be used for procreation of children or procreation of artistic/intellectual creations. The job of this dhatu is to act as the matrix through which new creations can manifest and shape into form (Halpern, 1996).

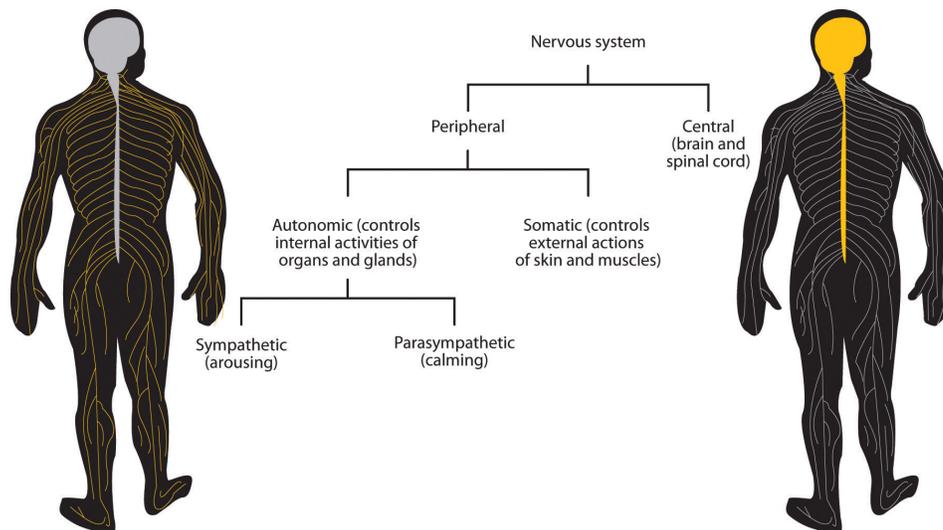
A very basic description of the dhatus, but this shows the connectivity that is understood to exist between the dhatus and how an Ayurvedic practitioner uses this matrix to promote healing. While the exact pathways and verbiage's used is different, from a western perspective

there is connectivity in a similar way. Minus intertwining energetic body which differentiates Ayurveda from allopathic care, but physiologically speaking western science proves or restates in new ways many of the concepts laid out in Ayurveda.

An important principle of Ayurveda that sheds light on the similarities between Ayurveda and western science is the principle of satva. One of the three gunas that was described earlier, Satva is a sanskrit word that translates to “pure, essence, nature, vital, energy, clean, conscious, strong, courage, true, honest, wise, rudiment of life” (Lad, 1984). From current research it is known that stress is a major factor in the formation of disease (Seaward 2015). With all of the discoveries in anatomy and physiology, the concept of satva could provide some insight as to how the healing art of Ayurveda can be woven into the modern western world.

Western Anatomy & Physiology

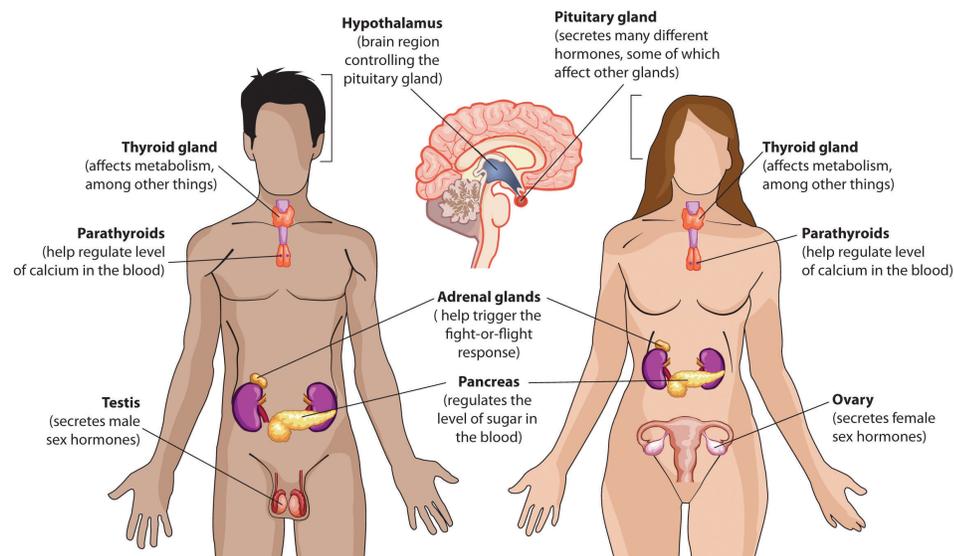
The Nervous System



The nervous system, which is designed to protect us from danger by interpreting outside stimuli, is broken into two main sections. The central nervous system and the peripheral nervous

system. The central nervous system consists of the brain and the spinal cord, while the peripheral nervous system breaks into the autonomic and somatic nervous system. The somatic nervous system is considered to be under voluntary control. It is in charge of controlling the actions of the muscles which each person has voluntary control over. The autonomic nervous system is the unconscious involuntary controller of visceral organs. This means heart rate, digestion, respiratory, salivation, perspiration, pupil dilation, urination, and sexual arousal are all under involuntary control of the autonomic nervous system (Martini et al, 1995). The autonomic nervous system then breaks into two parts, the sympathetic system and the parasympathetic system. It is the parasympathetic and the sympathetic autonomic nervous system of the peripheral nervous system that are of importance when looking at the stress response (Stangor, 2014). The parasympathetic system initiating the *rest-and-digest* response and the sympathetic system initiating the *fight-or-flight* response.

The Endocrine System



A primary function of the sympathetic and the parasympathetic nervous systems are to interact with the endocrine system. The endocrine system is made up of glands that secrete

hormones. Hormones are chemicals that move throughout the body to help regulate emotions and behaviors. Starting at the hypothalamus, hormones are secreted in a domino like effect all the way to the reproductive organs. The release of a hormone at one gland can either trigger the release of a different hormone to be sent the next gland, or used to influence the functions of that specific organ. Again, the parasympathetic nervous system activates the rest-and-digest response. The sympathetic nervous system activates the fight-or-flight response (Stangor, 2014).

Adrenal Gland

The adrenal glands secrete hormones that allow a person to adapt in a stressful situation. Located just on top of the kidneys, the adrenals activate during the fight-or-flight reaction by releasing hormones that allow adaptation and survival (Gregor, 2013). Divided into two parts, the adrenal gland is made up of a medulla and a cortex. Each of these parts has a crucial role in the activation of the stress response.

The pituitary gland will release the hormone Adrenocorticotropic Hormone, ACTH, which alerts the adrenal gland to release its hormones. The medulla will release epinephrine and norepinephrine which is also known as adrenaline. Adrenaline causes blood sugar to rise by inhibiting the insulin secretion from the pancreas and stimulates glycogenolysis and glycolysis. The cortex will release glucocorticoids, specifically cortisol which is a steroid hormone. Cortisol will turn the immune system off, increase blood pressure, and increase heart rate (Marieb and Hoehn, 2013).

An intricate process, the stress response is a cascade of reactions and an interconnection of different systems. As mentioned a few times, the stress response is controlled by the autonomic nervous system, which controls all of the involuntary processes in the body. The body is either prepared for fight-or-flight, or rest-and-digest. Simply reading the names of these

actions it is apparent that humans are meant to spend most of their day in rest-and-digest mode. But in our modern world, that is not the case!

The influence of technology has had a dramatic effect on our lifestyles. Technological items such as the washer, dryer, microwave oven, and even cell phones, were cited as luxuries that would enable the homemaker and the breadwinner alike to add more leisure time to the work week. However as the mass production of these high tech items increased, so too did the competitive drive to increase human effort and productivity. In turn this actually decreased leisure time and created a drive for instant gratification. Thus, created a plethora of unhealthy lifestyles, most notably obesity.

- Studies now indicate that between 70-80% of all disease is strongly related to, if not directly associated with stress (Seaward, 2015).
- 43% of all adults suffer from adverse health effects due to stress (Seaward, 2015).
- 80% of all visits to primary healthcare physicians are for stress-related complaints or disorders (Seaward, 2015).

Yet for some odd reason, relaxation has become synonymous with laziness and stress has become a status symbol tied to self-esteem.

The Cleanse

The words cleanse or detox have become buzz words these days. With the association to rapid weight loss, detoxing has become very popular. However, unlike many of these cleanses or detoxes out there, the true purpose of detoxing is done to support the elimination of built up toxins in the body. A proper cleanse will help the immune system, the liver, and the blood to

support the elimination of toxins and prevent the buildup of further toxicity and disease. The human body knows exactly how to handle toxins by neutralizing, transforming, and eliminating them. Ultimately this process, not diet, will help the person to feel better and regain optimal health (Haas, 2012). The tri-doshic Ayurvedic cleansing process encourages the body as a whole to detoxify. Mental detoxification is also very important and a key component to the Ayurvedic cleansing process. Utilizing five sense therapies, meditation, and mindfulness this cleanse is meant to leave a person feeling physically and emotionally well. A common theme throughout an Ayurvedic cleanse is: if something is stressful, it's not beneficial.

Dosha Test

While the cleanse manual associated with this research has been designed to tri-doshic, or balancing for all three doshas, it can be beneficial to understand which dosha dominates the body. Of course the only way to discover a true prakruti is to see an Ayurvedic practitioner and to have the pulse read, but the test below can help guide anyone to their dominating dosha.

	Vata	Pitta	Kapha
<i>Height</i>	Tall or very short	Medium	Usually short, but can be tall and large
<i>Frame</i>	Slim, slender, bony	Medium build	Large, well formed
<i>Weight</i>	Low, difficulty gaining	Normal	Overweight, difficulty losing
<i>Eyes</i>	Small, sunken, black or brown, dry, nervous	Sharp, bright, gray or green, get red easily, sensitive to light	Big, blue, and calm
<i>Nose</i>	Uneven, deviated septum	Long and pointed, with a red nose tip	Short and rounded, like a button
<i>Lips</i>	Dry, cracked	Red, inflamed, or yellowish	Smooth, moist, and pale
<i>Teeth</i>	Stick out, crooked, thin gums	Medium-sized, gums bleed easily	Large, well-formed, strong gums
<i>Skin</i>	Thin, dry, cold, rough, dull	Smooth, oily, warm, rosy	Thick, damp, cool, and pale
<i>Hair</i>	Dry, brown or black, thin	Straight, oily, thin, blonde, gray, red, bald	Thick, oily, curly or wavy, lustrous

<i>Nails</i>	Dry, rough, brittle, break easily	Sharp, flexible, pink, lustrous	Thick, smooth, polished
<i>Neck</i>	Long and thin	Medium	Big
<i>Chest</i>	Flat and sunken	Moderate	Expanded, round
<i>Belly</i>	Thin, flat, or sunken	Moderate	Big, pot-bellied
<i>Hips</i>	Thin and slender	Moderate	Heavy, big
<i>Joints</i>	Stiff, crack often	Loose	Large and well-lubricated
<i>Sensitivities</i>	Cold, dryness, wind	Heat, sunlight, fire	Cold, damp
<i>Appetite</i>	Irregular, variable	Strong, excessive	Moderate, steady
<i>Digestion/ Elimination</i>	Irregular, forms gas, constipation	Quick, causes burning, loose	Sluggish, prolonged, forms mucus
<i>Thirst</i>	Low	High	Moderate
<i>Disease Tendency</i>	Pain, inflammation, nervous	Fever, edema, blood & liver	Congestion, mucus, lungs
<i>Activity</i>	High, restless	Moderate	Low, moves slowly
<i>Endurance</i>	Poor, easily exhausted	Moderate but focused	High
<i>Sleep</i>	Poor, disturbed	Variable	Excess
<i>Dreams</i>	Frequent, colorful	Moderate, romantic	Infrequent, disturbed
<i>Intellect</i>	Quick, adaptable, indecisive	Intelligent, sharp, clear	Slow, steady, exact
<i>Memory</i>	Good short-term	Accurate, clear	Good long-term
<i>Speech</i>	Fast, frequent	Sharp, cutting	Slow, melodious
<i>Temperament</i>	Nervous, changeable	Motivated	Content, conservative
<i>Positive Emotions</i>	Adaptability	Courage	Love
<i>Negative Emotions</i>	Fear, anxiety	Anger, jealousy	Attachment, greed
<i>Faith</i>	Variable, erratic	Strong, determined	Steady, slow to change
<i>Finances</i>	Spends frivolously	Invests in luxuries, projects, goals	Saves money, invests in property
<i>Totals (32)</i>	Vata:	Pitta:	Kapha:

When a person consumes certain foods and drinks, or participates in jobs or activities that cause stress, or spends time in a polluted area different types of toxins can start to build up in the system. While the body is designed to maintain homeostasis and support its own life, this does

not mean that just anything can be consumed assuming that the body will be able to handle it. With the pace of life today, the popularity of coffee and happy hour, each person can benefit from a true detox where the body is fed nourishing food, appreciation for the body and what it does, and participation in stress relieving practices. Ayurvedic cleansing is typically done by twice a year. Once in the fall and once in the spring. The diet is a simple meal of a mixture of beans, rice, and vegetables eaten three times a day. The cleanser will participate in practices of self love every day, sometimes consuming herbs to support the detox, and of course plenty of water. Rather than just being a depriving juice cleanse or cayenne and lemonade cleanse, this detox plan actually helps a person to reset. Nutritionally, physically, and mentally. A good detox helps support the body to do what it is naturally wired to do. Two of the ayurvedic practitioners consulted during this research both agree that the seasonal cleanse is essential in healing many of the ailments, both major and minor, that their patients are dealing with (2015).

By encompassing a daily routine and simple diet plan, this cleanse is meant to reset the body and to clear the mind. Allowing for peace and calm to arise, self-reflection to occur, and goal setting for a healthy lifestyle to take place. This cleanse includes seven components: meals, drinks; five-sense therapies, pranayama, meditation, mindfulness, yoga, and the healing CCF tea which is a mixture of cumin, coriander, and fennel seeds which are known to aid in digestion (Lad, 1984). Below is a small excerpt from the cleanse manual describing the daily routine:

Upon Waking

Drink a cup of warm lemon water

Complete 5-sense purification

Yoga: Pranayama, Meditation, Asana Practice

Morning

Eat breakfast in a satvic environment

CCF tea

Take a short walk outside or a short haha yoga practice

Afternoon

The largest meal of the day, and just like breakfast enjoy lunch in a satvic environment

CCF tea

Avoid snacking throughout the day. Instead, sip on warm water or tea throughout the day.

If possible, take a short walk or practice yoga for 20-30 minutes

Evening

Eat dinner (at least 2-3 hours before bed) in a sattvic environment

Wind down by reading a book, meditating again, enjoying some hot tea, taking a hot bath, etc.

If possible, we are trying to rise with the sunrise and rest with the sunset. More importantly, go to bed early enough that you get 8 hours of sleep.

Conclusions & Recommendations

Toxicity in the body is a great concern in our modern world, for everyone. None can avoid environmental exposures like powerful chemicals released into the air, water pollution, electromagnetic waves, noise pollution, light pollution, and radiation (Haas, 2012). On top of these environmental toxins many people are ingesting chemicals in their foods and pharmaceuticals multiple times on a daily basis. As described earlier, it is known scientific fact that the liver and the kidneys work to clear the body of toxins (Haas, 2012). The human body continually detoxifies itself, every cell in the body helps the body in waste removal. However, when the body is utilizing a majority of its resources to respond to maintain homeostasis by initiating the *fight-or-flight* response in stressful situations, or to balance out the pH from all the acid producing foods, or to keep a person awake from the lack of sleep, or any other the other well known symptoms that so many Americans are dealing with, the body is not left with enough

resources to properly detoxify itself. The body becomes overloaded and unable to keep up. It is here that the body will communicate, or send a message about the imbalance to say 'hey! I'm struggling!' (Haas, 2012).

As noted above, many times these messages are ignored over and over again, resulting in visits to a primary care doctor. Many are dubious if there is scientific proof that an Ayurvedic detox diets will always work. For a western doctor, or a patient who is in the care of a western doctor who has been trained to treat disease, the nutritional management approach is all but foreign to them. Opting to turn to food as medicine rather than a pharmaceutical drug is not a normal practice for most patients or doctors.

The concepts of Ayurveda can seem unattainable and unbelievable to many people. The Sanskrit language and new concepts can seem overwhelming to Westerners who have not been exposed to a healing art before. However, stepping back to survey the main principles of Ayurveda in regards to overall health, particularly satva, the premise is to honor the body in all things that we do. Consumption of foods that are agreeable to the body in a state of mind that promotes assimilation and reception of the nutrients. We live in a world where gas, acid reflux, stomach pain, bowel issues, belching, lethargy and so on after eating have simply become normal. And to add insult to injury, there are pills that can be taken of a daily basis for each of these symptoms! Rather than stepping back and questioning if the food consumed was beneficial for the body and listening to the cues that it gives us, we have opted to listen only to our taste buds and to lean on pharmaceuticals when the body doesn't agree. The breakdown of the doshas describes this concept on a much more detailed scale, but even for those who are not interested in

understand their dominating dosha, they could adopt the principle of Ayurvedic nutrition by simply listening to the cues the body is constantly giving.

Complementary of this is the Ayurvedic principle of eating in a satvic environment. This means appreciating, enjoying, and being present with the food that one is putting into his or her body. From western scientific breakthroughs we have become incredibly familiar with the nervous system. The concept of eating in a satvic environment can be described in western terminology as activating the *rest-and-digest* response and stepping out of a potential *fight-or-flight* activation where the metabolism of food cannot occur optimally. Whether or not a person wants to completely understand the origin of satva and all that it encompasses, each person can benefit from applying this principle. Many people eat at a desk, in a car, in front of the TV, and so on. Presence with food is not something many people do anymore.

The human body was designed and built to handle a certain level of toxins as it has an incredible system in place to clear those toxins (Haas, 2102). The issues arise when there are not enough resources left for the body to clear them. This balance is disturbed when too much food is consumed, too much stress is endured, or too many chemicals are ingested. The body must process these first, and then it can get back to what it knows best, ridding the toxins.

“When you keep thinking about sense objects, attachment comes. Attachment breeds desire, the lust of possessions that burns to anger. Anger clouds the judgement; you can no longer learn from past mistakes. Lost is the power to choose between what is wise and what is unwise, and your life is utter waste. But when you move amidst the world of sense, free from attachment and aversion alike, there comes the peace in which all sorrows end, and you live in the wisdom of

Self.”

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