

kerala ayurveda vaidyam®

A JOURNAL ON EVOLVING AYURVEDA



Vol. 6, Issue 1&2 ■ Jan-Mar & Apr-Jun 2013



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आहारसंभवं वस्तु रोगाश्चहारसंभवाः ।
हिताहितविशेषाच्च विशेषः सुखदुःखयोः ॥

Man is made of Food. Diseases too.
The specialities of wholesomeness and
unwholesomeness cause health and disease.
C.Soo.28.45

kerala ayurveda
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Man began his life as a zygote, a single cell. His further development is by food.
First from mother and then from his exterior world. Wholesomeness and
unwholesomeness of the food consumed dictates his health and disease.
Wholesome food leads to health whereas unwholesome food causes diseases.
Hence, consume good food to be healthy.

Contents

Dangers of Workout Doping Dr. Yatish Agarwal	04		Saastramathanam Food incompatibilities (<i>viruddhaanna</i>) & their Remedies	09
Role of Psychotherapy in Lifestyle Disorders Dr. Vineetha Manojkumar	16		Research Article Beware of bastard anise	31
Food and Mood Prof. C.R. Agnives	18		Applied Ayurveda <i>Dhaanyaamla</i> - Acetic Grain Liquid Dr. Nimin Sreedhar	46
On Dieting and Fasting Prof. Dr. K. Muraleedharan Pillai	23		Case of the tri-month Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) Dr. Prakash Mangalassery	49
An Allopath's homecoming to Ayurveda Dr. Sanjay Pisharody	30		Folk cuisine <i>Gulkand</i> - Rose petal jam	52
Food for Thought Dr. Deeja C.R.	35		Traditional formulation Hamsapathyadi kwath	53
Lithotriptic Effect of Seeds of Teak (<i>saaka</i>) Dr. Jyotsna G. Krishna	40		Finishing line Finishing the meal	54



Dr. Yatish Agarwal
MBBS, DTCD, MD, DSc

The lure of the gold can demonize the best. Be it a mining prospector, sports person or the man on the street. Even as Indian metros and bigger towns get swamped by home-grown gyms and gym-masters, and cine stars flaunt their six-packs and size zero, young people and adults hunt for easy options to wear that swell look. The use of muscle-building supplements and performance-enhancing drugs stems from that. Step into any of the *desi* gyms and sport-coaching centers, and you would have ill-informed diabolical gurus offering you pills, powders and shots of the forbidden.

Let that not be the mantra you take. Use of performance enhancing drugs, aka, doping- carries serious risks. Let's look at how these drugs work and how they can affect your

health. Let's see their professed benefits, the health risks and the many unknowns.

The range of these so-called performance enhancing drugs is far and wide. They include such compounds as anabolic steroids, androstenedione, human growth hormone, erythropoietin, diuretics, creatine and stimulants.

Anabolic steroids

Some people take a form of steroids- known as anabolic androgen steroids or just anabolic steroids- to increase their muscle-mass and strength. The main anabolic steroid hormone produced in the human body is testosterone.

Testosterone

Testosterone has two main effects in the body.

1. Anabolic effects promote



The dangers of Workout Doping

Fitness-freaks and competent sports-persons are increasingly being lured into body-building and performance enhancing drugs. Dr. Yatish Agarwal enlists some of the most notorious dopes and brings out the unknown or undisclosed debacles of using them.



muscle building.

2. Androgenic effects which are responsible for male traits, such as facial hair and a deeper voice.

Some people take straight testosterone to boost their sport-

ing performance. Frequently, the anabolic steroids that athletes use are synthetic modifications of testosterone. These hormones have approved medical uses, though improving athletic performance is not one of them. They can be taken as pills,

injections or topical treatments.

Designer steroids

A particularly dangerous class of anabolic steroids are the so-called 'designer drugs'- synthetic steroids that have been illicitly created to be undetectable by current drug tests. They are made specifically for young people and athletes and have no approved medical use.

The bait

Why are these drugs so appealing?

Besides making muscles bigger, anabolic steroids may help you recover from a hard workout more quickly by reducing the muscle damage that occurs during the session. This enables you to workout harder and more frequently without over-straining. In addition, some people may like the aggressive feeling they get when they take the drugs.

Risks

Anabolic steroids come with a serious physical side effect.

Men may develop	
1	Prominent breast
2	Baldness
3	Shrunken testicles
4	Prostate gland enlargement
5	Infertility
Women may develop	
1	Deeper voice
2	Increased body hair
3	Baldness

Both men and women might experience severe acne but even more significantly, they are at an increased risk for developing tendonitis and tendon rupture, liver abnormalities and tumors, increased bad cholesterol (LDL), decreased healthy cholesterol (HDL), hypertension, heart and circulatory problems, suppression of the hypothalamic-pituitary-gonadal axis, which is a critical part in the development and regulation of a number of body's systems, such as the reproductive and immune systems. Fluctuations in the hormones cause changes in the hormones produced by each gland and they have various widespread and local effects on the body. Use of anabolic steroids can also lead to aggressive behaviors, rage or violence and psychiatric disorders such as depression.

You also run the risk of developing drug dependence. If you are injecting the drugs, you might end up with serious infections or diseases such as HIV or hepatitis. In teenagers, their use can inhibit growth and development and can spawn serious health problems in the future.

Taking anabolic androgenic steroids to enhance athletic performance, besides being prohibited by most sports organizations, is illegal.

Androstenedione

Androstenedione (andro) is a hormone produced by the adrenal glands, ovaries and testes. It's a hormone that is normally converted to testosterone and estradiol in both men and women.

Andro is available in prescription and non-prescription forms. The prescription version is a controlled substance. Andro is also sold without a prescription as a nutritional supplement. Manufacturers and body-building magazines tout its ability to allow athletes to train harder and recover more quickly. However, its use as

a performance enhancing drug is illegal.

Scientific studies that refute these claims show that supplemental androstenedione does not increase testosterone and that your muscles don't get stronger with andro use. In fact, almost all of the andro is rapidly converted to estrogen, the primary hormone in females.

Risks

Side effects of andro:

Men may develop	
1	Acne
2	Enlargement of the breasts
3	Shrinking of the testicles
4	Diminished sperm production
Women may develop	
1	Acne
2	Masculinization (deepening of voice, male pattern baldness etc)

In both men and women, andro can decrease HDL cholesterol, which puts you at greater risk of heart attack and stroke.



Can *rasaayanaas* help in body building?

Rasaayanaas are wonder drugs. Almost all of them are nutritional supplements which increase tissue growth and augment strength. Mythologically, some of the *rasaayanaas* even claim to bring back youthfulness and increase life-span.

Caraka *samhitaa* states that *rasaayanaas* are energizing (*oorjaskara*) and bestows strength to body and senses (*dehendriya-bala prada*).

Because of all these benefits, *rasaayanaas* have the potential to be safe alternatives to workout drugs. One might get highly tempted to consume *rasaayanaas* like *cyavanapraasa* and *braahma rasaayana* to enhance muscle power and win the gold that is not due.

Here, we have two problems to confront. One is ethical. Is it fair to use drugs to enhance athletic abilities? After all *rasaayanaas* are also drugs.

The second question is more scientific. Have we studied the effects of *rasaayanaas* in our body in modern parlour.

A supplementary question to this avenue is whether the *rasaayanaas* will make changes in the urine of the consumer so that a tablespoon of *cyavanapraasa* can strip off the title. Without such studies, the use of *rasaayanaas* by athletes is risky. Being anabolic in effect, *rasaayanaas* naturally contains steroids though of plant origin. Their chronic effect is yet to be understood. Being herbal is not an excuse.



Human Growth Hormone

Human Growth Hormone (HGH) is a hormone that has an anabolic effect. People take it to improve muscle mass and performance. However, it has not been shown conclusively to improve their strength or endurance. It is available only by prescription and is administered by injection.

Risks

Human Growth Hormone can cause serious adverse effects. This may include joint pains, muscle weakness, fluid retention, Carpal Tunnel Syndrome (causing pain, tingling and other problems in your hand because of pressure on the median nerve). HGH also causes impaired glucose regulation leading to diabetes, hyperlipidemia and cardio-myopathy.

Erythropoietin

Erythropoietin is a type of hormone used to treat anemia in

people with severe kidney diseases. It increases production of Red Blood Cells and Hemoglobin, resulting in improved movement of oxygen to the muscles. E-poietin, a synthetic form of erythropoietin is commonly used by endurance athletes.

Risks

Erythropoietin use among competitive cyclists was common in the 1990's and allegedly contributed to at least 18 deaths. Inappropriate use of erythropoietin may increase the risk of thrombotic events, such as stroke, heart attack and pulmonary edema.

Diuretics

Diuretics are water-pills. They change your body's natural balance of fluids and salts (electrolytes) and can lead to dehydration. This loss of water can decrease a person's weight, helping him or her to compete in a lighter weight class, which many athletes prefer. Diuretics may also help athletes pass drug tests by diluting their urine and are

sometimes referred to as a 'masking' agent.

Risks

Diuretics taken at any dose, even medically recommended doses, predispose athletes to adverse effects such as dehydration, muscle cramps, exhaustion, dizziness, potassium deficiency, heart arrhythmias, drop in blood pressure, heat stroke and death.

Creatine

Many people take nutritional supplements instead of or in addition to performance enhancing drugs. Supplements are available over the counter as powders or pills.

The most popular supplement among athletes is creatine monohydrate. Creatine is a naturally occurring compound produced by the body that helps the muscles release energy.

Scientific research indicates that creatine may have some athletic benefit by producing small gains in short term bursts of power. Creatine

appears to help muscles make more adenosine tri-phosphate (ATP), it stores and transports energy in cells and is used for quick bursts of activity, such as weight-lifting or sprinting. There is no evidence, however, that creatine enhances performance in aerobic or endurance sports.

Your liver produces about 2 gms of creatine each day. If you prefer to eat meat, you also get creatine in your diet. Creatine is stored in your muscles, and levels are relatively easily maintained. Since your kidneys remove excess creatine, the value of supplements to someone who already has adequate muscle creatine content is questionable.

Risks

Supplements are considered food and not drugs by the FDA. This means supplement manufacturers are not required to conform to the same standards as drug manufacturers do. In some cases, supplements have been found to be contaminated with other substances, which may inadvertently lead to a positive test for performance-enhancing drugs.

Possible side effects of creatine that can decrease athletic performance include:

1	Stomach cramps
2	Muscle cramps
3	Nausea
4	Diarrhea
5	Weight gain



Weight gain is sought after by athletes who want to increase their size. But with prolonged creatine use, weight gain is more likely the

result of water retention than an increase in muscle mass. Water is drawn into the muscle tissue, away from other parts of the body. This puts you at risk of dehydration. High dose creatine use may potentially damage your kidneys and liver.

It appears safe for adults to use creatine at the doses recommended by manufacturers. But it is unknown what kind of effect taking creatine has over the long term, especially in teens and children.

Stimulants

Some people use stimulants to stimulate the central nervous system and to increase heart rate and blood pressure. Stimulants can improve endurance, reduce fatigue, suppress appetite and increase alertness and aggressiveness.

Common stimulants include caffeine and amphetamines. Cold remedies often contain the stimulants ephedrine or pseudo-ephedrine hydrochloride. The street drugs cocaine and metamphetamine also are stimulants.

Risks

Although stimulants can boost physical performance and promote aggressiveness on the sporting field, they have side effects that can impair athletic performance. They tend to make you nervous and irritable, thus making it hard to concentrate on the game. They can make you insomniac and prevent you from getting the needed sleep. You also run the risk of developing dehydration and heat stroke.

You may also become psychologically addicted or develop a tolerance. When that happens, you need greater amounts to achieve the desired effect, meaning you will have to take doses that are much higher than the intended medical dose.

Other side effects include palpitations, heart rhythm abnormalities, weight loss, tremors, mild hypertension, hallucinations, convulsions, stroke and heart attack

and other circulatory problems.

No matter how you look at it, using performance enhancing drugs is a risky business. It is best to stay out of the harm's way. Whatever the gym gurus or your seniors may say, never risk your life on them. □

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शास्त्रमथनम्

Saastra-mathanam



Food incompatibilities (*viruddhaanna*) & their Remedies

Are our food habits actually destroying our health?
Do faulty combinations and preparations of food lead to conditions ranging from
hairloss to auto immune diseases?

Saastra-mathanam dives deep into what Ayurveda has
to say on such food incompatibilities.

The texts mention many incompatible food combinations. But, most of them are either out-dated or not understood. Some of them are no longer in use because of awareness. However new categories have entered the scenario and are yet to be catalogued.



Saasthra-mathanam (churning of science) is a discussion program conducted at Kerala Ayurveda Hospital, Aluva on 1st, 2nd and 4th Tuesdays, every month.

Padmasree Dr. K. Rajagopalan
MBBS, DAM, FAIM

is leading the discussions. Doctors and Scientists of Kerala Ayurveda Limited participate in the discussion.

Incompatible foods (*virudhaanna*) are defined in the 7th chapter, 9th verse of Ashtanga-samgraha as those substances that cause an unnatural increase in the humors but do not expel them out of the body. Hence they are more antagonistic than nourishing to the tissues. Many of the food materials mentioned in this context in treatises cannot be identified. Many are no longer in use. But that is not the important thing. We have to understand the underlying

principle. The interaction is more important. There is the concept of drug-drug or food-drug interaction in modern medicine also. For example when Digoxin is given, drinking milk or consuming calcium will increase the toxicity of Digoxin. Similarly our long pepper will enhance the activity of antibiotics.

The list of incompatibilities in the treatises might seem exhaustive but it is mentioned that these are examples of frequently used incompatibles of that time. There are many more. But today we are not using many of them due to changed food habits and awareness of incompatibility.

It is very important to identify the interactions between food with other food or the changes it can undergo while processing, storing etc. Today most of these incompatibilities can be explained chemically.

For example, ghee kept for ten days in bronze vessel is incompatible. This is probably due to the formation of copper sulfate. Brass and bronze vessels are now tin coated inside to avoid this defect.

Vegetable (*saaka*) with butter is incompatible. In hotels boiled vegetables are served with butter or heated with butter.

Indian spinach (*upodakee* = *Basella alba var. rubra* = *B. rubra*) is incompatible with wine and *maireya*. *Maireya* is a cocktail fermented

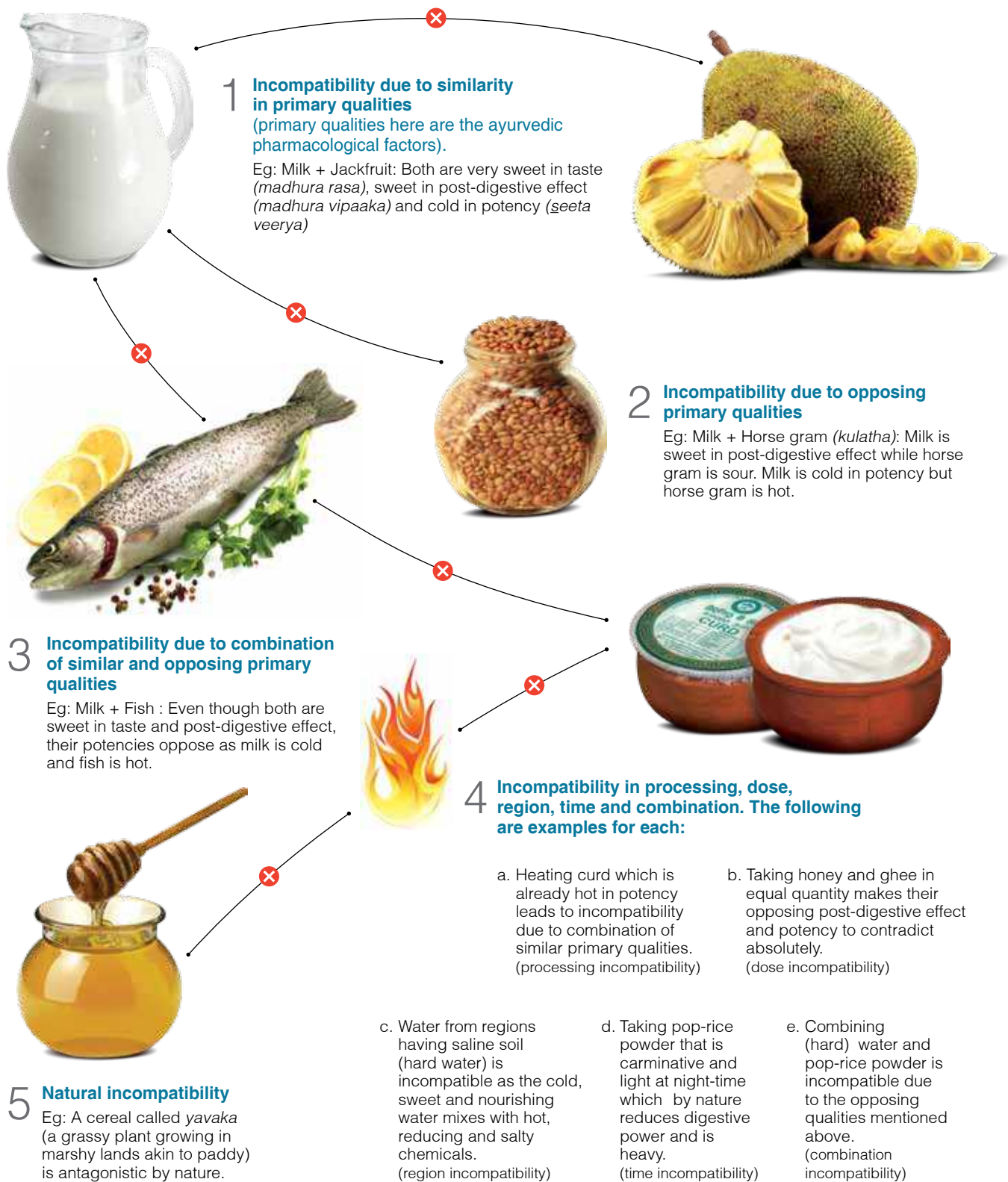
product with *aasava* (liquor) and *suraa* (beer). *Aasava* is usually fermented with fruits and herbs. *Suraa* is usually fermented from cereals. (Potatoes are now used to make beer). Mixing alcoholic beverage made from fruits and with that made from cereals is considered incompatible. Hence *maireya* itself is an incompatible product. This is the same reason why we are not supposed to mix brandy with whiskey.

Acidic fruits with milk are considered incompatible. This may be because milk will get denatured by cracking on combining with the acid. Any how, milk will curdle in stomach as there is hydrochloric acid there. But curdling inside the stomach is not harmful.

Seemingly incompatible combinations are often used in treatments. Using the above example, milk cracked into whey with lime juice was very frequently used, especially in pediatrics as nourishing, in modern medicine. In the treatment of fever it is mentioned to consume curd and sleep at day time. This is purposefully done to increase kapha. In trihumoral fever it is stated that either by decreasing the increased humor or by increasing the decreased humor we can equalize the humors. In treatment such measures are okay. At times it is in fact this antagonistic factor generated in medicinal combinations that work against a pathology. That is not the case with normal diet.

Types of Incompatibilities

Vaagbhaṭa has categorised all incompatibilities as follows:



List of food incompatibilities mentioned in the treatises:		
Food	Combined with	Remarks
Meat of domestic animals (<i>graamyaa maamsa</i>) Meat of aquatic animals and fish (<i>audaka maamsa</i>) Meat of animals living in marshy regions (<i>aanoopa maamsa</i>)	Honey (<i>madhu</i>), Jaggery (<i>gudā</i>), Sesame (<i>tila</i>) Milk (<i>ksheera</i>), blackgram (<i>maasha</i>) Radish (<i>moolaka</i>), Lotus stalk (<i>bisa</i>) Sprouted grains (<i>viroodha dhaanya</i>)	This combination is said to causes-deafness, blindness, tremors, deafness, muteness, stammering and even death. Milk on combination with prawns generates severe metabolic toxins that can vitiate blood causing several diseases and even death.
Meat of pigeon (<i>kapota maamsa</i>), Pork, Fish, Vegetables called <i>pushkara, rohini, saaka</i> , Yellow bird (<i>haaridra maamsa</i>)	Fried in mustard oil (<i>sarshapa taila</i>)	causes-conjunctivitis, atherosclerosis, fits, temporal headache, goiter, throat inflammation and even death.
Meat of crane (<i>balaaka maamsa</i>)	With toddy (<i>vaarunee madya</i>) or parboiled vegetables pulses cooked in steam (<i>kulmaasha</i>) Fried in pig's fat (kills immediately)	
Meat of varanus (monitor lizard – <i>godhaa</i>), quail (<i>laava</i>), partridge (<i>tittiri</i>), peacock and white partridge (<i>kapihjala</i>)	Cooked with fire of castor and tree turmeric and seasoned with castor oil.	Kills instantly
Meat of whistling thrush (<i>haareeta</i>)	Barbecued in rods of tree turmeric cooked with the fire wood of the tree turmeric. Cooked by baking immersed in ash and sand and served with honey	Kills immediately
Milk	Sour taste / acidic substances, Salt, Fruits (soon before or after taking milk), <i>kangu, varaka, makushjaka, vella, kulatha, maasha, nishpaava</i> , Leafy vegetables like <i>moolaka</i> (soon after taking milk) Garlic, <i>krshnagandha, arjaka, surasa</i>	Most of these combinations cause skin diseases
Leaves of vegetables of certain regions like Pushkara, Rohinjika, Jaatuka	Milk and honey	Caraka-samhitaa states that these combinations can cause loss of strength, lusture, bio-fire and even impotency.
Meat of porcupine (<i>svaavid maamsa</i>), Fish	Chinese dates (<i>badara - Ziziphus mauritiana</i>)	
Meat (cooked or uncooked)	Bile (pitta)	
Chicken meat (<i>kukkuja maamsa</i>) Meat of deer (<i>prshata maamsa</i>)	Curd	
Meat of ram (<i>aurabhra maamsa</i>)	Leaves of safflower (bastard saffron - <i>kusumbha - Carthamus tinctorius</i>)	
Meat of beard vulture (<i>bhaasa maamsa</i>)	Barbecue	
Fried snacks made of sesame seeds (<i>sashkuli</i>)	Acetic drink (<i>suaveeraka</i>)	
Radish	Black-gram lentils (<i>maasha soopa</i>)	Black gram is considered as the worst pulse though it has many therapeutic uses.
Vegetables (<i>saaka</i>)	Butter (<i>navaneeta</i>)	
Bamboo shoots (<i>kareera</i>)	Salt bush (<i>peelu - toothbrush tree-Salvadora persica</i>)	
Lotus stalk	Sprouted grains	
Wild jack (<i>lakuca - Artocarpus hirsutus</i>)	Curd, Black-gram lentils, Jaggery, Honey, Ghee	
Banana	Curd, Buttermilk, Palmyra palm fruit (<i>taala-phala</i>)	
Black night-shade (<i>kaakamaacee - Solanum nigrum</i>)	Long pepper (<i>pippali</i>) & black pepper (<i>mareeca</i>), Honey, Jaggery Cooked in same vessel in which fish or <i>sringivera</i> was cooked. If kept in other vessels for long at night.	
Ghee	Kept in brass vessel for more than 10 days Water as adjuvant	
Alcohol, Curd, Honey, Marking nut (<i>bhallaataka</i>)	With any substance of hot potency	
Kamala (<i>kampilaka - Mallotus philippensis</i>)	Cooked in buttermilk	
Beer (<i>sura</i>), cooked sesame (<i>ksaraa</i>) and milk porridge (<i>paayasa</i>)	Taken together	
Honey, Ghee, Tallow (<i>vasa</i>), Sesame oil, Water	Any two in equal quantity, in combination of three, four or all together	
Honey	Water as adjuvant, Seeds of lotus (<i>pushkarabeeja</i>)	
Edible parts of lotus with alcoholic beverage made with sugar (<i>saarkara madya</i>), <i>maireya</i> or honey	Taken together	Excessive aggravation of vaata
Turmeric	Fried in mustard oil	Excessive aggravation of pitta
Milk porridge (<i>paayasa</i>)	Drinking fruit-juice or suspension of flour in water (<i>mantha</i>) over it	Excessive aggravation of Kapha
Indian spinach (<i>upodaka</i>)	Sesame paste Fermented liquors (<i>maireya, mardveeka</i>)	Will cause diarrhea
Long pepper	Fried in oil that was used to fry fish	
Hot - Cold, New - Old, Ripe - Unripe	Mixing items of these qualities or taking them together	

Caraka-samhitaa enlists 18 factors, which if not in favor of the food, may result in incompatibilities:

1	Region (<i>deśa</i>)
2	Time (<i>kaala</i>)
3	Bio-fire (<i>agni</i>)
4	Dose (<i>maatra</i>)
5	Habituation (<i>saatmya</i>)
6	Humors etc (<i>dosha-anilaadi</i>)
7	Processing (<i>samskaara</i>)
8	Potency (<i>veerya</i>)
9	Gut (<i>koshtha</i>)
10	Condition (<i>avastha</i>)
11	Sequence (<i>krama</i>)
12	Compensation (<i>parihaara</i>)
13	Social practices (<i>upacaara</i>)
14	Cooking (<i>paaka</i>)
15	Combination (<i>samyoga</i>)
16	Unpleasant (<i>hrdviruddham</i>)
17	Defective (<i>sampad</i>)
18	Norms (<i>vidhi</i>)

Not only food materials, even activities may be incompatible. For e.g.-

Dipping in water when the body is heated up will cause diseases of skin and the eyes. It will also increase thirst.

Drinking milk when the body is hot may cause bleeding diseases (*rakta-pitta*).

Consuming food when there is physical fatigue due to over exertion will cause vomiting and gas trouble (*gulma*).

Food intake immediately after excessive speaking may cause hoarseness of voice.



The following diseases may occur due to the repeated use of incompatible diet

1	Vesicles (<i>visphota</i>)
2	Edema (<i>sopha</i>)
3	Intoxication (<i>mada</i>)
4	Inflammation (<i>vidradhi</i>) and abscesses
5	Phantom tumor or gas trouble (<i>gulma</i>)
6	Tuberculosis (<i>kshaya</i>)
7	Loss of vigor
8	Loss of strength and immunity
9	Defects of memory
10	Reduction of intelligence
11	Reduction of acuity of faculties
12	Mental derangement
13	Fever
14	Bleeding diseases
15	The eight major diseases (<i>mahaa-roga</i>): neuro-hormonal diseases (<i>vaatavyaadh</i>), calculus (<i>asmari</i>), diabetes (<i>prameha</i>), ascitis (<i>udara</i>), skin diseases (<i>kushtha</i>), fistulae (<i>bhagandara</i>), hemorrhoids (<i>arsas</i>), malabsorption and irritable bowel (<i>grahane</i>).
16	Death

Treatment of incompatibles

Immediate treatment

Immediately purification therapy is to be resorted. If the subject is not suited for purification mitigation with antidotes should be done immediately. Treatment of the disease generated also should be given.

Prevention

If a person is practicing food materials antagonistic to any particular incompatibility, he will not be affected by the

incompatibility. Hence such practice can be considered as preventive treatment.

Persons regularly practicing physical exercises and unctuous food, who are having good digestive power, youth and strength, will not be affected by the adverse effects of incompatible food. Similarly if a poison is habituated in small doses to a person, the same poison in a higher dose may not affect the person. The example of poison maid may be cited here.

We should consider the role of incompatibles in the genesis of lifestyle diseases. Persons regularly practicing physical exercises and unctuous food, who are having good digestive power, youth and strength, will not be affected by the adverse effects of incompatible food.

Withdrawing incompatible food

It should be understood that habituation (*saatmya*) and non-habituation (*asaatmya*) are very relative. The sudden withdrawal of a habituated practice, even if the practice is harmful, will cause withdrawal syndrome (*saatmya-asaatmya-vikaara*). Hence unwholesome habits should be weaned off by tapering. The unwholesome practice should be given up by quarters and wholesome practice should be replaces in similar quantities. Even a habituated substance may become reactive and troublesome in due course. This is mentioned by Hemaadri in his Ayurveda Rasaayana commentary on the context of withdrawal of unwholesome practices in

Ashtaangga-hrdaya Soo.7.

We should consider the role of incompatibles in the genesis of lifestyle diseases. Since incompatibility is equivalent to

poison and artificial poison, antidotes indicated for them are to be employed. There are a lot of formulations with indication of poison and artificial poison.

Dooshee-vishaari-agada is one such formulation. It may be used as antidote for consuming incompatible food. *Abhayaarishṭa* is also good. □

Beetroot beats BP

A cup of beetroot juice a day can help lower blood pressure in patients with hypertension, according to a new study.

Scientists had earlier observed that dietary intake of nitrates had a soothing effect on the blood vessels. The researchers explained that when nitrates are converted to a gas called nitric oxide, it has a relaxing effect on blood vessels and may help lower blood pressure. Vegetables take in nitrate through their roots in the soil where the chemical is naturally found. Nitrate is crucial to the growth of vegetables. Vegetables rich in nitrates include:

- beetroot
- lettuce
- cabbage
- fennel

“Our hope is that increasing one’s intake of vegetables with a high dietary nitrate content, such as green leafy vegetables or beetroot, might be a lifestyle approach that one could easily employ to improve cardiovascular health” says Amrita Ahluwalia, Ph.D., lead author of the study and a professor of vascular pharmacology at The Barts and The London Medical School in London.

The study was conducted by researchers from Queen Mary, University of London and was published in the American Heart Association journal *Hypertension*.

The scientists examined the impact consuming nitrate has on blood pressure in rats and then confirmed their findings in a small study involving 15 patients with high blood pressure.

The participants (eight females and seven males) all had a systolic blood pressure between 140 to 159 millimeters of mercury (mm Hg), did not have other medical problems, and were not on any medication for their hypertension.

The subjects drank 250 ml of beetroot juice or water consisting of a low amount of nitrate, and over the following 24 hours, had their blood pressure observed. About 0.2g of dietary nitrate was contained in the beetroot juice. A large bowl of lettuce or two beetroots contain about the same amount of nitrate, according to the

scientists. The participants who consumed this level of nitrate experienced a positive outcome on their blood pressure for 24 hours - an average ten-point decrease in their blood pressure levels.

“We were surprised by how little nitrate was needed to see such a large effect. This study shows that compared to individuals with healthy blood pressure much less nitrate is needed to produce the kinds of decreases in blood pressure that might provide clinical benefits in people who need to lower their blood pressure. However, we are still uncertain as to whether this effect is maintained in the long term,” Ahluwalia said.

People can lower their blood pressure by altering their lifestyle, such as consuming less salt or losing weight. A previous study in Cochrane Library indicated that consuming cocoa powder and dark chocolate may slightly reduce blood pressure. However, diabetics looking for an option to bring down blood pressure levels naturally, might have to seek other resorts as all the above options are sugar-rich. A different study in the American Journal of Clinical Nutrition showed that high doses of vitamin C may lower blood pressure. □





A Safe Cardiac Protective

Reduces LDL
& Triglycerides
Increases HDL

- An effective drug for hypercholestraemia.
- Corrects disorders in fat metabolism.
- Safe cardiac protective.
- Reduced LDL and Triglycerides increses HDL.
- Reduces the risk of arterosclerosis.

INDICATION:
Hypercholestraemia, obesity.

DOSAGE:
2 tablets thrice daily as monotherapy.
2 tablets twice daily as an adjuvant
to other hypolipidaemic drugs or
as directed by the physician.

PRESENTATION:
Box of 10 blisters of 10 tablets

LIPOSEMTM

COMPOSITION: Each tablet contains extracts of - Garcinia cambogia (Vrkshamla) 75 mg | Salacia oblonga (Ponkorandi) 50 mg | Commiphora mukul (Gugul) 50 mg | Terminalia arjuna (Arjuna) 50 mg | Tribulus terrestris (Gokshura) 12 mg | Pandanus tectorius (Ketaki) 12 mg | Plumbago indica (Chitraka) 12 mg | Musa paradisiaca (Kadali) 12 mg | Madhuca indica (Elippa) 12 mg | Celastrus paniculata (Jyothishmati) 12 mg | Illicium verum (Thakkolam) 12 mg | Strobilanthes Sp (Sahachara) 12 mg | Salmalia malabarica (Sarjarasa) 12 mg | Silajit (Processed) 10 mg | Annabhedhi (Processed) 10 mg |

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Role of psychotherapy in Lifestyle Disorders

Lifestyle Disorder is no longer just a scary medical buzz-word. The likes of diabetes, obesity and heart diseases are increasing by an alarming rate. Though the media is teeming with info on what they are and how to manage them, seldom do we come across materials that link management of Lifestyle Disorders with psychotherapy. In this article, Dr. Vineetha Manojkumar presents an overview on the potential of Ayurvedic psychotherapy as an effective means to prevent and control Lifestyle Disorders.



Dr. Vineetha Manojkumar
BAMS

Lifestyle disorders are those category of diseases for which the improper living of modern human is a major cause. Industrialization made jobs and lifestyle more sedentary and this in turn made lifestyle disorders more and more common. Main lifestyle disorders that we encounter today are stroke, obesity, heart diseases, diabetes, Irritable Bowel Syndrome (IBS), hypertension, hyperlipidemia, colon cancer, Auto Immune Disorders & arthritis.



One major cause of these diseases is the stress and strain of modern living. Many people fail to get a control over their blood-sugar levels due to mental stress and deranged food habits. Obesity is caused mainly due to the sedentary habits. Excessive consumption of non-vegetarian and junk foods cause most of the diseases. Irritation and stress saturate the body cells with toxins which are responsible for pain and discomfort in arthritic disorders. Here is the importance of psychotherapy (*satvaavajaya cikitsaa*) in Ayurveda. When coupled with other regular ayurvedic treatments psychotherapy can do wonders. All the lifestyle disorders are caused by intellectual errors (*prajnajaaparaadha*) and unwholesome perceptions of the senses (*asaatmya indriya-artha samyoga*). To rectify these, we need psychotherapy.

A person is said to be healthy when not only his humors (*dosha*), tissues (*dhaatu*), wastes (*mala*) and bio-fire (*agni*) are in equilibrium but his mind (*manas*) also is clear. A person is said to be completely healthy if his sense faculties coordinate along with soul (*aatma*) and mind properly and the soul and mind themselves are clear.

The composite term '*satvaavajaya cikitsa*' comprises of three words.

Satva means mind. *Avajaya* means to win over. *Cikitsa* is treatment. Therefore *satvaavajaya cikitsa* means the treatment to win over the mind.

In connection with the soul, the mind plays a major role in the proper functioning of body and its faculties. So in keeping the mind clear even in physical disorders helps in relieving it.

So nowadays using psychotherapy along with medicines, one can control most of

the life style disorders.

Caraka samhita defines psychotherapy as 'restraining mind from unwholesome objects. [C.Ci.11/55]. For perception, mind connects the soul with the faculties and directs them to pursue objects. In Bhagavat-geetaa, it is said that the body is like a chariot, the senses are like horses, and mind is like their reins. Only by holding firmly to the reins one can keep control of the horses. If we do not control these senses they will drag us off track and the chariot will skid and topple. Psychotherapy enables us to develop the will-power to control the senses. For this, yoga is helpful. By definition yoga is control of mind. Good saatvic diet can help to increase *satva guna* and decrease *tamas* and *rajas* which are the pollutants of mind.

The control of mind is one among the three major types of treatment in Ayurveda, the other two being divine treatment and logical treatment. This is mainly followed to treat mental disorders. But nowadays this can be applied by all the ayurvedic doctors to treat the lifestyle disorders.

Ayurveda wonderfully describes about the daily and seasonal regimens and good conducts that should be followed

by the people to lead a healthy life. All the lifestyle disorders are preventable by following a good regimens suggested by Ayurveda. In Bagavat-geetaa, the context of despondency of Arjuna, Lord Krishna promptly provides counselling based on the *satvaavajaya* treatment and enables him to fight. By following the daily and seasonal regimens advocated by Ayurveda and by and practising yoga with all its steps, one can attain health and avoid diseases.

He who practices healthy food and activities, who discriminates the good and bad of everything and then act wisely, who is not attached to sense-objects, who is benevolent with donations and considers all as equal, who is true and patient, and in service of authentic persons will be healthy.

So psychotherapy has high significance in Ayurveda. It is simple and usually devoid of medicines and provides wisdom for all for a better lifestyle. ■

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- Stay truthful, both to yourself and to the world.
- Anger is evil. Refrain from it.
- Keep away from the clutches of intoxication.
- Do not overindulge in sex.
- Practice nonviolence.
- Avoid straining your body and mind beyond your capacity.
- Try staying calm and composed. Be in peace.
- Be pleasant and pleasing in your speech.
- Be diligent in your chants, ablutions and penances.
- Be courageous.
- Be kind, sympathetic and benevolent.
- Respect the wise and elderly. Respect the living and the dead.
- Sleep right and rise right.
- Take ghee and milk as a habit.
- Keep a watch on seasons and your surroundings. Adapt accordingly.
- Have an idea of measures. Know what is less, more and apt.
- Have a rationale. Be logical.
- Shun ego.
- Follow the etiquette and protocol that the society demands.
- Strengthen your senses.
- Gather knowledge.
- Grow intellectually.

Known as *aacaara rasaayanaa* in Ayurveda, practices like these makes one a better human being. These are also advised as part of psychotherapy. It is believed that these practices can bestow the benefits of having rejuvenating medicines and hence the name.

food & mood

Food depends largely on the mood of the consumer. If a man, hungry like a king, is about to dine the delicious rich food served to him in the most inviting manner, and is told of the sad sudden accidental demise of his best friend or close relative, will he be still having the voracious appetite to relish his dear dinner? Usually he will not. Anyone with humanity will all of a sudden lose interest in food. Fear, sadness and worry instantaneously kill the appetite. If the person is attempting still to have a grab of the food served to him, he will immediately find that the food is tasteless and feels like saw dust in his mouth and denies to be swallowed. Perhaps you might have experienced it. Even animals require a mood to eat. But man has ingeniously invented mood elevators to generate appetite when there is no physiological and psychological need for food. Naturally

it has culminated in dumping him to the junk food stalls which sell metabolic diseases.

Appetite, hunger and digestion are physiological phenomena governed by enzymes, hormones and the nervous systems and they depend largely on psychological influences. According to Ayurveda the explanation is simple. There is a factor called bio-fire in the living body and the index of the bio-fire is the digestive fire. This is akin to the humor called pitta which is as good as fire or made up of the existent (element) fire (A.H.Saa.3. 89).

It is the normal physiological function of pitta to generate appetite and hunger and to maintain optimal digestion. Pitta is also responsible for



Does our mood have any disposition on the food choices we make? Or is it the food that decides our mood? Prof. C. R. Agnives writes on the mechanism of hunger and satiety and unfurls the relation between food and mind.



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vision, body temperature, thirst, intelligence, bravery and softness of the body (A.H.Soo.11.2). For these functions there are separate factions of pitta. For example, digestion is managed by the digester pitta (*paacaka-pitta*) of the gut and intellectual activities are managed by the achiever pitta (*saadhaka-pitta*) situated in the brain. In Ayurveda, the functions of brain and heart are connected and continuous and are not localized and independent. They interact in a

migrating axis. Hence brain and heart enjoy a sort of identity. Needless to say, the functions of the digester pitta obey the rules of brain and mind. Hence psychic moods dictate our food and dietary habits. Rightly said, that the way to heart is through the stomach.

Human mood depends on a number of environmental factors both external and internal. Ayurveda has identified these factors and has suggested norms for proper intake of food so that the

consumed food will be optimally digested and will be conducive to health. These include place and time of food, dose and type of food, and even the utensils used for cooking and serving the food and the company with whom you are consuming food. All of them matters in generating the optimal mood for consuming food.

Now it is understood that hunger can prevail even in stressful situations. It is true that many people, especially women tend to eat more under stress and gain additional calories to become obese. An unhappy marital bond is the usual cause of stress in many women and they mostly substitute sex with food to gain weight that is much more than permitted by their frame. They complain to the doctor not about their lack of satiety in sex but about their low back ache and persistent catching pain of the knee.

There is a hormone mechanism behind this. There are two antagonistic hormones in a feedback mechanism named Leptin and Ghrelin. They are diametrically opposite. Ghrelin is released by the stomach especially during fasting. Studies prove that even the sight of food will increase the production of ghrelin. Ghrelin increases appetite. It increases hunger. During consumption of food adipocytes (fat cells) trigger the release of leptin. Leptin reduces appetite. Hence satiety is the effect of leptin. If you are not consuming any food for a long time, the level of leptin drops considerably. This is the stimulus for the release of ghrelin which again initiates the feeling of hunger. Both the hormones seems to play hide and



seek. (See diagram 1)

Hunger and appetite are not the same. Hunger is the unpleasant feeling experienced when there is a physiological need for food. Appetite is a desire to consume food even when there is no physiological need for food. A healthy and well nourished person can go for weeks without food. The feeling of fullness of stomach on eating is termed satiety. Ayurveda considers satiety (*tripti*) as the superior effect of food intake. On the other hand the feeling of satiety without food intake is considered as a disease.

We have seen that adipocytes are responsible for secretion of leptin. As adipocytes increase in size by the accumulation of fat, more and more leptin is released. This means that when you are fatty you should have less appetite. But in practice obese persons have more hunger and they savor snacks quite frequently. Ayurveda identifies obesity as a condition where there is increase of fat, *vaata* and bio-fire. This is a paradox. There are various theories regarding this. Now it is understood that even with high levels of leptin, one may experience hunger. Hence it is not the reduction in leptin in the obese that cause overeating. There is a phenomenon called leptin resistance. This is similar to the insulin resistance in many diabetic patients who have high blood sugar levels in spite of high insulin levels in blood. The possibility of defective leptin also may be thought of. Another salient factor includes social and cultural influences that pep up appetite. Who won't consume one more slice of bread with the loving compulsion of mother or sweetheart?

Ghrelin belongs to the class of hormones termed gut hormones. Gut hormones are released in tune with the Enteric Nervous System (ENS). The details of enteric nervous system are unraveled only recently.

ENS is now considered as the secondary brain and the modern physiology considers that even the gut is thinking and controlling the activities of the gut. This concept is not novel to Ayurveda. In Ayurveda the gut has a pivotal role to play in physiology. Many Ayurvedic

Hunger and appetite are not the same. Hunger is the unpleasant feeling experienced when there is a physiological need for food. Appetite is a desire to consume food even when there is no physiological need for food. The feeling of fullness of stomach on eating is termed satiety.

theories are gut-centric. There are two plexuses in the ENS. One is the Myenteric plexus or Auerbach's plexus situated in between the circular and longitudinal muscles of the gut. Another plexus is more towards the interior, i.e., nearer to the lumen. It is called the sub-mucosal plexus or Meissner's plexus. Myenteric plexus looks after the gut movements whereas the sub-mucosal plexus controls the secretions of the gut. ENS functions as a franchise of the brain.

Other members of the group of gut hormones are gastrin, secretin, cholecystokinin (CCK), Peptide YY (PYY) and Glucagon-Like Peptide -1 (GLP-1). Gastrin increases the secretion of gastric juice. It is secreted when the stomach is stretched by food. Secretin is secreted from the duodenum. It stimulates the pancreas to secrete alkaline secretions. It also slows down the emptying of stomach. CCK also is secreted from

duodenum. It reduces appetite, slows down gastric emptying and stimulates the release of bile from gall bladder. PYY is produced in the ileum and parts of large intestine. It slows down the downward movement of food in the gut and thus facilitates digestion and absorption of nutrients. GLP-1 is secreted from small intestine and colon. It inhibits gastric emptying and appetite. It also stimulates insulin release.

In the light of current physiologic knowledge, the phenomena of hunger and satiety are amply complex involving hormonal and neural influences. The role of *samaana-vaata*, *paacaka-pitta*, *apaana-vaata* etc are to be now re-read in this new light to highlight the deep insight of Ayurveda.

Food itself has a role to play in the mood for food. The need for food depends on the level of nutrients in blood. The levels of glucose, amino acids and fatty acids provide signals to the brain to generate hunger and appetite. The whole neural and hormonal systems concerned are controlled by the brain. Apart from the ENS, central nervous system also has a say on appetite, hunger and digestion. This is channeled through the tenth cranial nerve, Vagus the vagabond. There are many centers in the hypothalamus, concerned with food intake. Hunger center and satiety center are among them. Lateral nuclei of the hypothalamus are the feeding centers. Their over stimulation causes gluttony and destruction causes lack of desire for food and inanition. Inanition is the exhaustion caused by lack of nourishment. Vento-medial nuclei act as the satiety centre. This centre inhibits the feeding centre. Stimulation of the satiety center generates a false sense of fullness of stomach. In pathologic satiety the over-stimulation of this centre may be the culprit. On the contrary, if the satiety centre is damaged there

will be gluttony leading to obesity. Paraventricular, dorsomedial and arcuate nuclei of the hypothalamus have a major role in food intake. Lesions of paraventricular nuclei cause overeating whereas those of dorsomedial nuclei cause depressed eating behavior. Arcuate nuclei in the hypothalamus is stimulated by leptin, ghrelin etc to regulate food intake and energy expenses.

Speaking of neural and hormonal controls of food intake, we should also think of neurohormones. Sympathetic and parasympathetic influences mediated through adrenalin (epinephrine), noradrenalin (nor-epinephrine) and acetylcholine are known since decades. We also know about adenosine tri phosphate (ATP), somatostatin, leu-enkephalin, met-enkephalin and bombesin.

Acetylcholine – excites gastrointestinal activity.

Nor-epinephrine – almost always inhibits.

Others have mixed excitatory and inhibitory effects.

The new insights on two sets of neurohormones from arcuate nuclei add up to this pool of knowledge. There are two types of neurons in arcuate nuclei – 1) POMC neurons (Pro-Opio-Melanocortin neurons) and 2) NPY-AGRP neurons (neurons that produce orexigenic substances called neuropeptide Y (NPY) and Agouti-Related Protein (AGRP). POMC neurons produce alpha Melanocyte-Stimulating Hormone (alpha MSH) and cocaine and amphetamine related transcript. Through them, POMC neurons decrease food intake and increase energy expenditure. NPY-AGRP

neurons do the opposite.

There are various proposed hypotheses about hunger and eating. After all hypotheses are hypotheses. None of them are confirmed. Set point theories operate under the assumption that hunger is the result of energy deficit and eating is a compensatory mechanism. But as these theories do not consider the psychological and social aspects of eating, they cannot be confirmed.

articles. Even kissing can be considered as a symbolic form of eating. If you are a sadist you can even bite your partner lest the partner will not file a police case. If not you will have to satisfy with symbolic biting. Scarcity of food has compelled animals to consume food when it is available and store it.

Consuming of food disturbs the homeostasis due to increase of blood glucose level. An anticipatory secretion of insulin tries to reduce blood glucose level. This anticipatory activity generates the pre-meal hunger.

Optimal appetite and hunger are considered as signs of health by Ayurveda. Lack of appetite (*anannaabhilaasha* and *arocaka*) and unduly increased appetite (*bhasmaka*) are considered as diseases. Loss of hunger and augmented hunger are also diseases. We find these symptoms in many diseases. Disturbance of gastrointestinal system is met with in many diseases. Scanning through ayurvedic pathology, one could identify that almost all diseases exhibit

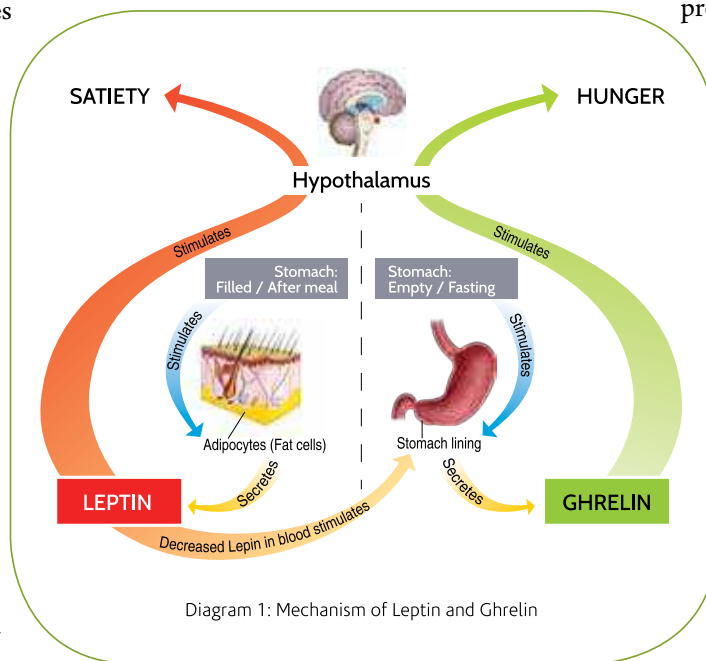


Diagram 1: Mechanism of Leptin and Ghrelin

Positive incentive perspective is an umbrella term. They postulate that man and other animals consume food not for compensating energy deficit but for the mere pleasure of eating. The anticipated pleasure of eating is termed positive incentive value. Here, eating is akin to sexual behavior. In our literature sex symbols have parallels with eating habits. The whole treasure of poetry vouches this idea. Even the name 'honey' for the better half is because honey is a sweet edible item. In Sanskrit literature we come across many erotic verses identifying woman or her parts to edible

some gastrointestinal disturbances. Needless to say, many such symptoms have a psychic edge. Coming to mental diseases, anorexia and gluttony are exhibited by many cases. In depressive psychosis (*kaphaja-unmaada*) loss of appetite and lack of interest to consume food is a cardinal sign. In possession syndromes changed dietary habits are noted. Special fond for particular food materials also may occur. Thus the patient may long for non-vegetarian food in possessions by devil (*asura-graha*), foreigner (*yaksha-graha*), ogre (*raakshasa-graha*) etc. This amply signifies the sudden changes in dietary habits due to mental

distortion. In certain diseases pica may occur. Even in physical diseases such as anemia persons tend to eat substances which are not edible. In childhood this tendency is more. False appetite is a hallmark of pregnancy. The gravid woman may even long for eating unwholesome substances. Ayurveda holds that denying such ambitions of the pregnant women is improper as it may tamper the development of the fetus.

Food habits are also prompted by constitution. The person belonging to vaata constitution usually eats more. Hunger is increased in the case of pitta constitution. Persons belonging to kapha constitution can resist hunger and thirst. Preference of taste also has some relation with the constitution. When a particular humor is more in a person there will be an urge in that person to consume substances with specific tastes that combat the humor. Thus



mental temperaments are enumerated. This is conceptual and do not tally well with ayurvedic concepts. For example, according to Bhagavat-Geetaa, a person with increased rajas prefers spicy and hot food. But according to Ayurveda he will prefer sweet and cold food like ice-cream.

The color, taste and flavor of the food consumed also matters. The very thought that the food is good is a good appetizer. That is why Ayurveda advocates that we should always say that the served food is good. There are negative characters who find all possible demerits with the served food and then consume the same food. They are inviting indigestion.

According to mythology, diarrhea due to indigestion originated from cannibalism. People ate their friends when food was not available. Later they had remorse that they have eaten their fellow beings. It caused indigestion. Even now, a depressed mind is the main culprit in the case of indigestion and many gastrointestinal disorders. Cheer up and have good appetite. It is rightly said that the best curry is hunger. Hunger varies with mood. Tell a child obstinate to have an ice cream to have bread and jam. His hunger cannot be satisfied with bread and jam. His hunger is too special – ice cream hunger. It could be pacified only with ice cream of the specific flavor that he demands! ❑

In our literature, sex symbols have parallels with eating habits. The whole treasure of poetry vouches this idea. Even the name 'honey' for the better half is because honey is a sweet edible item. In Sanskrit literature we come across many erotic verses identifying woman or her parts to edible articles. Even kissing can be considered as a symbolic form of eating. If you are a sadist you can even bite your partner lest the partner will not file a police case.

a person with kapha predominance may chose to consume bitter acrid and astringent food.

Mental temperament also dictates our dietary preferences. In Bhagavat-Geetaa specific nature of food preferred by three major groups of

Hormones change our mood and our mood influences the secretion of hormones. Hormones connected with hunger and appetite are no exceptions. Hence mental functions and mood changes will change our appetite and hunger. Negative moods naturally reduce our desire for food. That is why Ayurveda advocates a pleasant ambience, hearty company and good vessels, utensils etc. for pepping up the appetite and hunger.

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On Dieting and Fasting

Ayurveda offers the freedom to maintain and recover health by understanding the body and its needs. It gives everyone the power to heal by themselves. A tailor made diet and fasting pattern that addresses the individual constitution and specific requirements are fundamental to become healthy and to remain so. Dr. K. Muraleedharan Pillai points out the key elements that have to be kept in mind while dieting and fasting.



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ice-cream, beef, peas and green-salad aggravate vaata. Thus they should not be taken in excess by a person of vaata constitution. Conversely, sweet fruits, coconut, brownies, red-cabbage, banana, grapes, cherries and orange are beneficial for people of vaata constitution.

Spicy foods, peanut, butter, sour foods, banana, papaya, tomato, garlic, orange, peas, sprouts, plum green-salad, sunflower seeds, asparagus and mushroom will increase pitta.

Banana, melons, coconut, dates, papaya, pineapple and dairy products increase kapha. However, dry fruits, pomegranate, cranberries, basmati rice, sprouts and chicken are beneficial for people of kapha constitution.

During autumn, when wind is high and dry, more vaata is present in the

Dieting

Diet should be chosen to suit the individual constitution (*prakrti*). If one understands the constitution and its relationship with the qualities of various foods, then it is possible to select a proper diet. One need to take into account the taste of the food (sweet, sour, salty, pungent or astringent) and also whether it is heavy (*guru*) or light (*laghu*), hot or cold producing, oily or dry, liquid or solid. The seasons of the year must also be considered in choosing diet.

Dry fruits, apple, melons, potato, tomato, egg-plant,



atmosphere. At this time, one should avoid dry food, high-protein food and other foods that increase vaata. During summer, when the temperature is high, people tend to perspire excessively. Pitta predominates at that time of year. It is not good to eat hot, spicy or pungent foods at this time as they will aggravate pitta. Winter is the season of kapha, it brings cold and snow. During this period, one should avoid cold drinks, ice-cream, cheese and yogurt. Such foods will increase kapha.

When considering diet, the quality and freshness of food are important factors. Another factor to keep in mind is incompatible foods.

Water plays a vital role in maintaining balance in the body. Water may be taken in the form of fruit juices. Although fruit juice should not be taken during meals, water is necessary at meals. One should sip water while eating. Water taken with meals moderately aids digestion. If a quantity of water is taken after the completion of a meal, the digestive juices will be diluted and digestion tampered. Climate will affect the amount of water the body requires.

If there is indigestion, one should observe warm water fast. This practice will aid cleansing and increase bio-fire. Therefore ice-cold water is poisonous to the system and hot water is reactor. The digestion is affected when one drinks a lot of water. Too much water can result in retention and additional body weight.

The intake of food should be regulated by the condition of the bio-fire (*agni*).

Do not eat unless you feel hungry.

Do not eat when you feel thirst.

Do not drink when you feel hungry.

If you are hungry, it means your digestive fire is enkindled. If you drink at this time, the liquid will dissolve the digestive enzymes and the bio-fire will be reduced.

Fasting

In fasting too, like in planning the diet, the individual constitution should be assessed. In some regions, people sometimes observe fast for ten, fifteen, twenty or more days without considering their constitutions. This lack of understanding of constitutional requirements may have detrimental effects. A person of vaata constitution should not observe a fast for more than three days. Fasting causes lightness. As vaata is also light (*laghu*) in property, prolonged fasting may cause vitiation of vaata. It may create fear, anxiety, nervousness and weakness.

The same restriction on duration of fasting calls for individuals of pitta constitution. A fast for more than four days will aggravate pitta, increasing the fire element in the body. This increased pitta will cause psycho-physical reactions of anger, hatred and dizziness.

People with kapha constitution, however, may observe prolonged fast. They will feel a pleasant sensation of increased lightness, greater awareness and an opening of consciousness and clarity

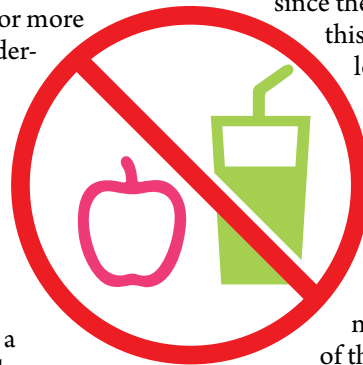
and understanding will improve.

If a juice fast is undertaken, it is important to remember that grape-juice is good for the vaata constitution, pomegranate juice for the pitta constitution and apple juice for kapha constitution. Each day of the fast, drink about one and 1 ½ quarts of the juice diluted with water.

The digestive system is resting during a fast. It is important not to place strain on the digestive fire during this time. During fasting, the digestive fire becomes enkindled and since there is no food to digest, this fire slowly burns away long existing toxins in the intestines. Ayurveda teaches that during a fast, certain herbs such as ginger, black-pepper, cayenne-pepper and curry, which have medicinal value because of their hot, spicy

attributes, may be used to help neutralize toxins in the system. If these herbs are taken in the form of tea, they will help enkindle the bio-fire which will burn away toxins.

When one is observing a fast, physical strength and stamina should be watched. If the strength becomes noticeably less, the fast should be discontinued. Fasting is usually advised in fever, cold, constipation and arthritic pain. If there are toxins (*aama*) in the intestines, fasting is indicated. For the normal healthy individual, a warm water fast (1 to two quarts per day) is advisable at least once a week. This practice allows the digestive system to rest. ■



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Painted Food Tainted Gut



All that glitters is not gold. All that is eaten is not food. Our food contains plenty of natural and artificial unwanted things. The colors, the flavors, the preservatives, stabilizers and the sort has no dietary value. They do not supplement nutrients. They do not provide energy. They just invite you to the food. The color and fragrance of food naturally tempts you to eat. It is often an index for the acceptability of food. That is why most fruits have attractive color when they are ripe enough for eating. In general, ripe fruits are not green so that they can be easily identified, plucked and eaten. The color of the fruit is an invitation card. The plant has a hidden agenda in this. Providing you with sweet flesh, the plant makes you the free distributor of the seed. Ripe fruits have agreeable fragrance too. This is another trump card. Sweetness of the ripe fruits is yet another card. If not for the agreeable taste, who will consume the fruit?

Man is a versatile mimic. Hence, he has ingeniously incorporated these natural wisdom of plants in his food industry. Hence, he uses taste, smell and

color to make the food attractive. Chicken pieces are painted red, not with red chilli, but with cancer causing sodium nitrite. Sugar and sugar substitutes are widely used to sweeten the food. Sugar is nourishing but most of the sugar substitutes are not. To present the food with agreeable fragrance all sorts of aromatic essences are utilized. Surely all these practices add up to the acceptability of food. Preservatives increase the shelf-life of breads, cakes and the sort. Preservatives make it possible for us for eating old food. But these things do not contain an iota of energy or building-up material. Frankly speaking, all these chemicals are unwanted in our food and our physiology will not accept them. They are unwanted guests into the GI system. As with all unwanted guests they can always make trouble, at least for some people. Unfortunately we are living in a chemical world. Hence, biscuits, candies, cakes, soft-drinks, ice-creams, bakery items and even home-made food contain unwanted chemicals. There are taste-makers too. Mono sodium glutamate (commonly known in its brand name, 'Ajino-moto') is in

vogue as a loving mother who compels you to eat more. There are pros and cones about this chemical adding up to the information pollution. As E.M. Foster has rightly pointed out, man is nothing but argument and proof. There are pros and cones for almost all human concepts.

The food-packs promptly declare that the contents contain only permitted colors, flavors, additives and preservatives. You can believe them. But, simply because something is permitted, does it become essential? And, if it is not essential and contributing the food essence, should we consume it? We should develop a culture of making our food pure and devoid of all these artificial invitation cards. There are sufficient natural colors in our food. They will do. But beware; there are even killers among them. The color pigments of carrots and beetroot even damage our health if they are in excess. Painting the gut is not the proclaimed intention of food intake. Now-a-day, colors and flavors have gone stronger and stronger. They might increase the turn-over of the company at the cost of your health budget. □

Herbal Medicines Preferred Over Hormone Replacement Therapy for PMS: Proves Study

It is quite hard coming to terms with this fact but we all do know that aging is a natural process. We are so reluctant to accept the dominance of time over us. At times we resort to measures that are so unnatural that the very measures taken to win over aging would put us on a roller-coaster to where aging would eventually have taken us slowly and serenely.

It is natural for women to stop menstruating after their reproductive age. Feminine physiology is designed so, for the greater good. A lot happens soon before and long after menopause but most of its troubles are linked to the hormone estrogen. Its production just ceases after menopause. As a result, an increase in vasomotor symptoms (hot flashes), genitourinary symptoms (vaginal dryness, sexual dysfunction, frequent urinary tract infections, urinary incontinence), and musculoskeletal symptoms (joint pain) as well as sleep and mood disturbance set in. So, what is the most logical treatment? Hormone Replacement Therapy, said the wise people. Soon HRT, as it is lovingly called, became a *modus vivendi*. 'Lady, if you are past 45 and if you are feeling hot (no pun intended) get yourself an HRT!' This is still the mantra. But then came the side-effects. Breast cancer, blood clots, stroke, and cardiovascular problems top the bottomless list of HRT complications. It is like trading hot flashes for breast cancer. Now who would like to do that?

Well, hope has not sunk for the menopausal kind. A new review published in The Obstetrician and Gynaecologist (TOG) says that herbal and complementary medicines could be recommended as an alternative to HRT.

Iris Tong, Director of Women's Primary Care at the Women's Medicine Collaborative, The Warren Alpert Medical School of Brown University, Rhode Island, and author of the review said: "Up to 75% of women use herbal and complementary medicines to treat their postmenopausal symptoms. Therefore, it is vitally important for healthcare providers to be aware of and informed about the non-pharmacological therapies available for women who are experiencing Post Menopausal Symptoms (PMS) and who are looking for an alternative to HRT."

The author of the review recommends these herbal treatments as there are no significant adverse side effects associated with them, as long as they are used in women who do not have a personal history of breast cancer, are not at high risk for breast cancer, and are not taking tamoxifen.

Apart from some dietary supplements like soy, red clover and black cohosh there are some very effective herbs



that have been enlisted in the ayurvedic treatises to combat gynecological issues. The R&D of Kerala Ayurveda Limited handpicked a bunch that had some specific actions in PMS. Ashoka (*agoka - Saraca asoka*) is an ovarian stimulant and facilitates hormone utilization. Wild asparagus (*sataavaree-Asparagus racemosus*) is popular for its ability to control hot flashes. Lodh tree (*lodhra - Symplocos racemosa*) promotes normal endometrial growth and reduces vaginal dryness. These form the major ingredients of Menovin, a proprietary product of KAL which is an acclaimed remedy for PMS. Other than these herbs, Menovin also contains an efficient diuretic and analgesic hogweed (*punarnava - Boerhavia diffusa*), anti-arthritis and metabolic stabilizers- long pepper (*pippali - Piper longum*) and fire plant (*citrika - Plumbago rosea*), nourishing and cooling raisins (*draakshaa - Vitis vinifera*) which also purifies blood and helps in controlling Low Density Lipoprotein (LDL) oxidation. One tablet of Menovin will also contain 10mg of coral ash (*pravaala bhasma*) which is a natural calcium supplement to check osteoporosis.

The action of these herbal formulations and the effect of the specific diet pattern can be further supported by simple behaviour modifications including keeping the room temperature cool, wearing layered clothing, relaxation techniques and smoking cessation.

Essentially, coming back to nature, incorporating it into the diet and lifestyle, supported by the right herbal medicine can very well be the ideal remedy for PMS. This realisation will soon make HRT a fad of the bygone era.

Safety First!!



Mr. D. Sasikumar (Right), AGM - Public Relations KAL, receiving the award and citation from Mr. Shibu Baby John, Minister for Labour in the presence of Mr. K. Muraleedharan, MLA Thiruvananthapuram.



Dr. K. Anilkumar, Executive Director KAL with the Kerala Ayurveda family at the factory

Meeting the safety standards has always been a key mantra in ensuring that our products are of the best quality. Once again, Kerala Ayurveda Limited has been accredited as one of the best companies that make no compromise in safety in all stages of production.

KAL won third prize in Drugs

and Pharmaceuticals category at the 3rd Annual Safety Awards Competition conducted by the Factories and Boilers Department for Kerala State.

The competition comprised of Safety Presentation and Factory Safety Audit and was adjudicated by a panel of state dignitaries with Director of Factories and Boilers-Kerala, as its Chairman.

The presentation before the jury was done by Mr. Manoj P. V., Sr. Manager -Human Resource and by Mr. Biju Thomas, AGM-Production. The winners were selected from the 20 best entries across Kerala.

The award was disseminated by the Hon'ble Minister for Labour for Kerala State, Sree. Shibu Baby John on 12th March 2013.

Close your eyes..
be at ease..

Embrace the gentle breeze
singing you a lullaby,

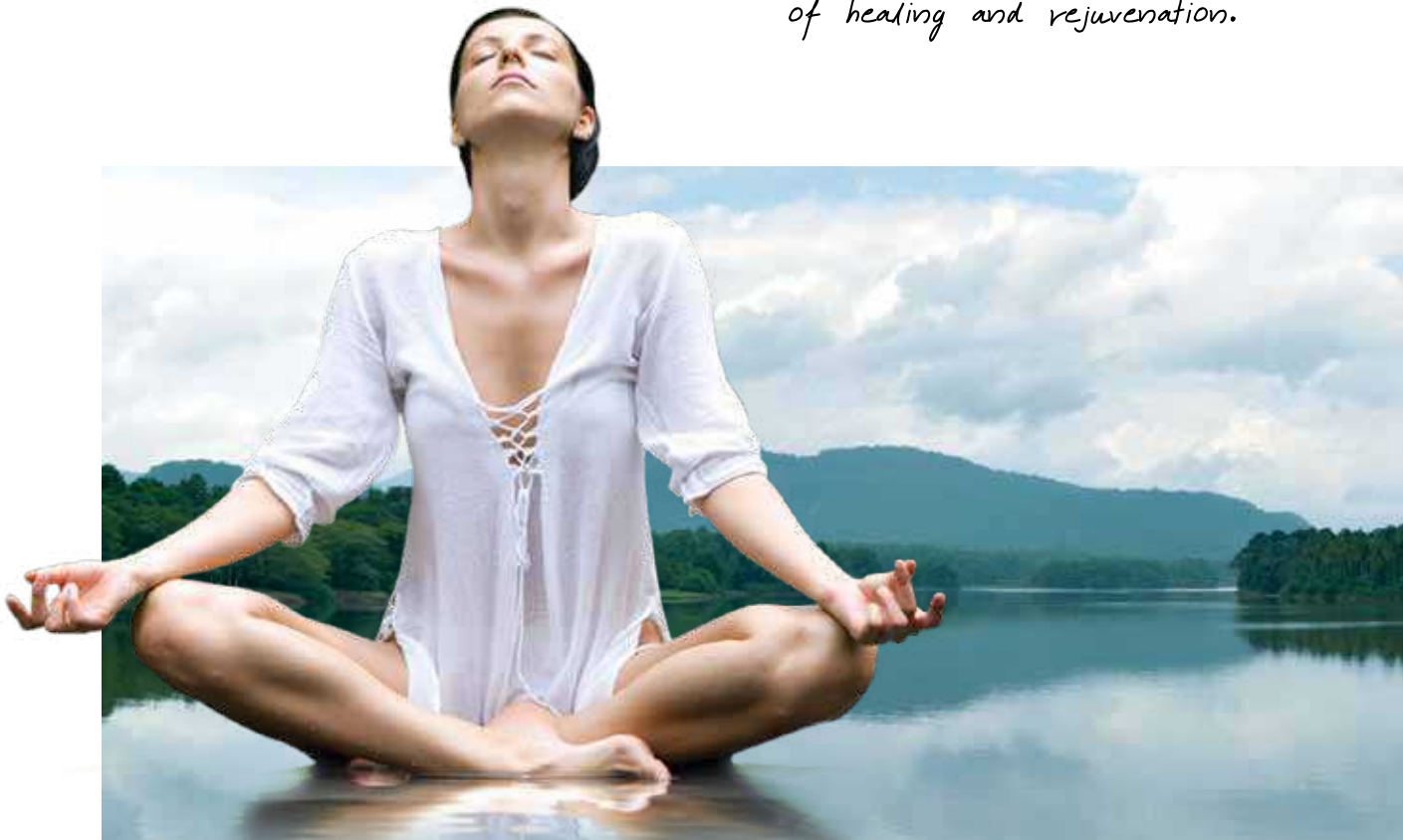
Enjoy the vibrant birds
chirping and fluttering by.

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lapping your feet,

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My journey to study medicine as far I remember began at the age of about seven when I used to spend time shadowing my grandfather watching him collect herbs and prepare various ayurvedic medicines. It was a great pleasure watching him perform all the rituals and fire oblations everyday with punctuality and reverence. Once he told me personally "Among all my grand children, I feel you are the one who will continue this tradition." Three of his children were allopathic doctors but none of them took up Ayurveda.

Hospice and Palliative Care Center. I was intrigued and deeply engrossed myself in understanding how different modalities like hypnotherapy, aromatherapy, pet therapy, touch therapy, massage therapy, acupuncture, spiritual healing and many other methods were being employed alongside main stream allopathic interventions to help alleviate the suffering of the patients. Subsequently I travelled to Cardiff in the UK and completed my Diploma in Palliative Medicine for the next two years.

Returning to India I started my work in

Having decided to travel back to my roots in Kerala to look for Ayurveda, meeting with several traditional vaidyas and learning under them gave me a broader outlook. I was convinced that this is the path for me. I completed a short course in Ayurveda from Jaipur which did not satisfy me. I kept searching for a program that would give me the depth and personal guidance to study Ayurveda. It is then that I found the Kerala Ayurveda Academy where I enrolled immediately for the next one year intensely studying Ayurveda and reveling in the mysteries of its understanding. I was pleasantly taken aback to find the immense wealth lying undiscovered to the world. I asked myself, "Isn't it a shame that such a powerful system of healing that can benefit millions of suffering souls, exists under the smoke of obscurity?" At that moment my life mission clearly dawned upon me. I told myself "I should take this knowledge to the whole world." Now I dedicate my time to traveling and sharing the knowledge of Ayurveda with the rest of the world. My mission is to bring the awareness of Ayurvedic lifestyle to the general people so that they can learn to take responsibility and ownership for their own health in a better way which is the first purpose of Ayurveda. The second is to expose the knowledge of Ayurveda to the alternative healing community.

A very close friend who is a leading allopathic doctor in the country once told me "In allopathy we are only giving palliation. We are not contributing directly to the healing process." How honest and correct! Studying Ayurveda I realized how both allopathy and ayurveda can join hands to create a positive revolution in raising the health of our people. By and large, allopathic physicians are unaware of the possibilities of using Ayurveda alongside allopathy in general practice. Hence ayurveda has been limited largely to treat several intractable health issues and complications which are beyond the limit of allopathy. And thus the third part of my work is to bring Ayurveda into main stream medicine and to educate allopathic physicians and find a common ground where allopathic physicians can work hand in hand with their Ayurvedic counterparts using traditional healing methods with modern, thus creating a complete and holistic system of healing in the world.

Dr. Sanjay completed the Ayurvedic Wellness Counselor (AWC) & Practitioner (AWP) programs from Kerala Ayurveda Academy, USA in May 2013. He is currently the CMO to Kerala Ayurveda Hospital and River Retreat, Aluva sanjay.pisharodi@gmail.com

An Allopath's homecoming to Ayurveda



Dr. Sanjay Pisharody
MBBS, D.Pall. Med, MD (Acu), DYNS

I grew up to develop an interest in medicine and as per the norm of those days, my first choice was allopathic medicine for which I procured a seat at the prestigious BJ Medical College and Sassoon Hospitals in Pune in 1998. I immersed myself in the study of allopathic medicine for the next few years. As looked around I remember being disappointed to see most of my class interested more in passing the exams and less with the study of medicine. However, my time was spent trying to figure out the deeper meaning of practicing medicine and this led me to many philosophical questions. Eventually I completed my graduation but I did not think much of it and kept moving on.

Continuing my search, I ended up studying the Bhagavat Geeta and other ancient Vedic literatures for the next seven years in a monastery living as a celibate monk under the guidance of my guru. The years I spent as a monk gave me a divine sense of purpose to my work as a physician for the benefit of humanity and the world. Subsequently I chose Palliative Medicine as my specialty as Thanatology, the study of death was always fascinating to my consciousness. Completing my post graduation from Calicut Medical College, I further pursued it to UCLA in San Diego as a Scholar in Residence. That was the first time, I was exposed to the concept of integrating modern medicine with traditional methods of healing at the San Diego

Mumbai with establishing the Department of Palliative Medicine in a 175 bedded suburban hospital and later worked as the Director of a hospice in North India for the next 5 years. During this period I worked with hundreds of terminally ill patients and their families, experiencing their helplessness and trying to alleviate their suffering and find meaning during the final days of their life and a closure of their present incarnation while they passed through the door called "death".

As I saw clearly the limitations of modern medicine and the iatrogenicity of the treatments, dissatisfaction got the better of me and I was impelled to search further to find the real meaning of healing. Incidentally I met up with my long lost friend from medical school who had now strayed away from the path of allopathic medicine and was practicing Chinese Acupuncture. Inspired by him, I completed my MD in Acupuncture from the International Academy of Acupuncture in Hong Kong. This was my first major step into traditional healing. While I practiced acupuncture on many of my patients I began to experience deeply the potency and genuineness of traditional healing.

For queries on Kerala Ayurveda Academy please visit:
India: www.keralaayurvedaacademy.com
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Beware of Bastard Anise

This article studies the similarities and contrasts between Chinese star-anise (*Illicium verum*) and Japanese star-anise (*Illicium anisatum*) and points out the methods to differentiate them. It has become important to make the public aware of these two varieties as the former is a popular spice and a powerful medicine while the latter, is a toxic adulterant.



Research Article

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Chinese star anise is the ripe fruit of *Illicium verum* Hook.f. indigenous to the Southern and South Western provinces of China^{1,2}. Like regular anise, star anise gets its distinctive licorice taste from a chemical compound called anethole. Chinese and Vietnamese use this spice in most of their cuisines. It is largely used in France, Spain, Italy and South America in the preparation of cordial

liquor and is added in tea and coffee. It is also an integral part of Indian garam masala used in flavouring confectioneries, chewing gum and in the manufacturing of soaps and perfumes.

It can be found by its Sanskrit name *kakkolakam* in many formulations like *Dasamoolarishta*, *Dasamoolajeerakaarishta*,

Jeerakaarishta, *Khadiraarishta*, *Arimedaadi taila*, *Karpooaraadi coorna* etc. The fruits are effective against dyspepsia, flatulence, dysentery, cough, asthma, rheumatoid arthritis etc³.

Chinese star anise is the major source of the chemical compound shikimic acid, a primary precursor in the pharmaceutical synthesis of anti-influenza drug oseltamivir (Tamiflu). Even though shikimic acid is produced by most

autotrophic organisms, it can be obtained in commercial quantities from elsewhere; star anise is the main industrial source. In 2005, there was a temporary shortage of star anise due to its use in the production of Tamiflu. The 2009 swine flu outbreak led to the shortage of Chinese star anise as it was used in bulk quantities for the manufacturing of anti-influenza drug, Tamiflu. This great shortage and high price led to the entry of an adulterant, *Illicium anisatum* the Japanese star anise in the market.

Japanese star anise or shikimi fruits occur in eastern commerce and are known as 'bastard star anise'. It is a native of Japan, South Korea and Taiwan⁴. It is a medium sized evergreen tree and is very similar to that of Chinese star anise. This is called 'shikimi-no-ki' in Japan and is cultivated near Buddhist temples and used in religious ceremonies for decorating graves. But unfortunately they are toxic to human beings and because of this they must be carefully distinguished from the Chinese star anise.

Chinese star anise	Japanese star anise
<i>Illicium verum</i> Hook.f	<i>Illicium anisatum</i> L. Syn. <i>I. religiosum</i> Siebold
Family : Magnoliaceae	Family : Magnoliaceae
Common name: Chinese star anise	Common name: Japanese star anise
Malayalam name: <i>takkolam</i>	
Sanskrit name: <i>takkolakam</i>	
Hindi name: <i>anaasphal</i>	

Comparison between *Illicium verum* Hook.f. and *Illicium anisatum* L. fruits

The major distinguishing features are in morphology and chemical constituents. Both the trees look very similar to each other. Anatomically, very few differences are there which can be seen more prominently through sophisticated microscopes with high resolving power.

Morphology

Morphology of fruit:-



Plate 1-*Illicium verum* :- a) Fruit, b) Stalk, c) Follicle, d) Seed



Plate 2-*Illicium anisatum* :- e) Fruit, f) Stalk, g) Follicle, h) Seed

Illicium verum is an evergreen tree, 8-15 m in height; Leaves simple, entire, elliptic to oblanceolate; flowers white to red, solitary⁶. Fruit of *I verum* is an etaerio of eight one seeded follicles, star shaped, reddish brown colored, consisting of 8 carpels arranged in a whorl around a central short column. Each follicle is hard, boat shaped, wrinkled and is about 1.5 to 1.7cm long, 1.4 cm deep and 4 to 5 mm thick, radiate horizontally with the split ventral suture uppermost, disclosing the single reddish-brown, shining hard seed. The carpels are woody and somewhat wrinkled externally, paler, smooth and glossy internally; they are boat shaped and bluntly beaked at the apex (Plate 1). Pericarp gives the drug an aromatic odour and spicy taste.

The fruit of *I anisatum* is less regularly developed and slightly

smaller, the carpels are up to 1.3 cm long, 9 mm deep and 5 mm thick, usually more wrinkled, the beak of each carpel more acute and commonly turned upwards^{1,7} (Plate 2).

The stalk of *I verum* is strongly curved at the distal end whereas that of *I anisatum* is straight. Both the pericarp and kernel of Chinese star anise have an agreeable, aromatic odour and a sweet, spicy taste. The Japanese fruits have a balsamic, not anise-like odour and a disagreeable sour taste¹.

Anatomy

Anatomy of fruit:-

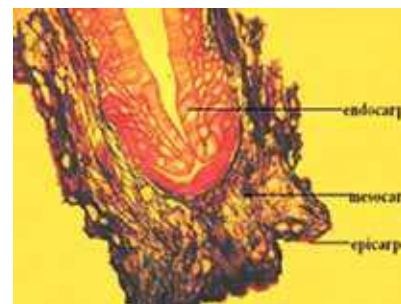


Plate 3 (a) -*Illicium verum* :- C S of Follicle

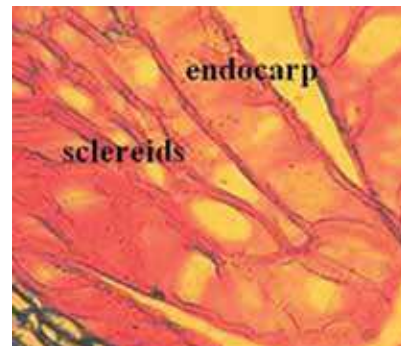


Plate 3(b) -*Illicium verum* :- C S-Portion enlarged

In transverse section *I verum* and *I anisatum* shows almost similar features. There is an outermost single layered epicarp of flattened, nearly rectangular cells followed by mesocarp consisting of parenchymatous, many layered, spongy tissue composed of irregular cells with brownish walls and patches of sclerenchyma. The endocarp composed of a layer of columnar cells. Seed shows testa

with an outer epidermal layer made up of sclereids; inner layer of seedcoat consists of thick walled, brown pigmented cells; endosperms composed of thin walled parenchyma cells and contain food reserves⁴ [Plate 3(a), Plate 3(b) Plate 4(a) & Plate 4(b)].

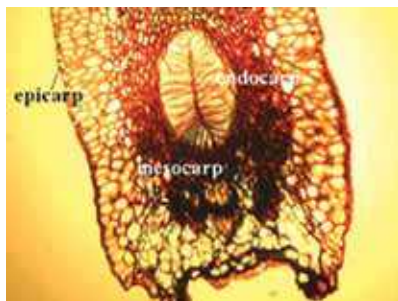


Plate 4(a) - *Illicium anisatum* :-
C S of Follicle

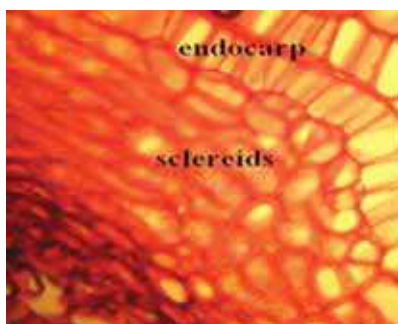


Plate 4(b)-*Illicium anisatum* :-
C S-Portion enlarged

Several microscopical comparisons of different parts of the fruits had been done by using different microscopes. Some of them are discussed below.

The examination of the surface of the follicles through scanning electron microscope (SEM) shows more developed and more raised cuticular striation in *I verum* as compared to *I anisatum*. Paradermal sections of the same through face contrast microscope shows regular parallel striation in *I verum* and more star-like pattern in *I anisatum*⁸.

In the fluorescence microscope, the outer epidermis of *I verum* shows red-brown colour and *I anisatum* shows yellow colour⁸.

The shape and size of the sclereids in the columella remains as valuable features for anatomical

differentiation. *I verum* contains – besides simple formed sclereids- highly branched astrosclereids with a size up to 440 μm , whereas with *I anisatum* only in exceptional cases astrosclereids can be found, usually there are just simple formed sclereids (up to 320 μm)⁸. Therefore the differentiation between two species is possible but only in consideration of the size of the sclereids when the whole fruits are available (Plate 5 & Plate 6).

Sclereids of fruit:-



Plate 5:- *Illicium verum*

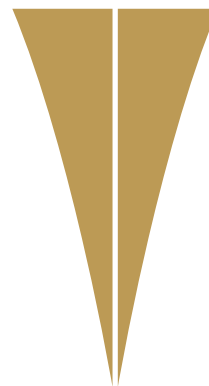


Plate 6:- *Illicium anisatum*

Chemical constituents

The fruit of *Illicium verum* contains shikimic acid which is used for the production of anti-influenza drug oseltamivir. It also yield almost 2.5-5% volatile oil (mentioned as aniseed oil in British Pharmacopoeia and US Pharmacopoeia). This contains almost 80-90% of anethole (a colourless, crystalline solid with m.p. 21°C), Chavicol methyl ether, p-methoxyphenylacetone, safrole and other minor compounds. Japanese star anise contains anisatin, sikimin and sikimitoxin which can inflame the kidneys, digestive organs and nervous system. Anisatin compounds are thought to act as potent noncompetitive γ -aminobutyric acid antagonists⁹ which can cause convulsion and associated problems.

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Discussion

The article provides a detailed review of the toxicity, history of adulteration and botanical, morphological, microscopic, organoleptic, and chemical differences between the species of *Illicium verum* and *Illicium anisatum*. Japanese star anise (*I. anisatum*), also known as shikimi, contains higher concentration of lactones, and is associated with many of the toxic events that have been reported, including convulsion. Concern has been raised regarding the adulteration of *I. verum* with *I. anisatum* and has led to recalls of these in other countries, including Spain, France, Scotland, China, Japan, and Netherlands. The possibilities for the microscopic detection of *I. anisatum* in powdered material, especially in masala powder are very limited. At present a reliable proof of purity of powdered samples

seems to be possible by chemical analytical methods like Gas Chromatography, High Performance Liquid Chromatography or Thin Layer Chromatography.

It is very important to identify and differentiate the authentic drug due to the ayurvedic and commercial importance of *I. verum* and also the toxic effect of its adulterant *I. anisatum* to human beings. This article highlights some significant difference between the two and to identify the correct drug. It makes the people aware about the bastard star anise or Japanese star anise which is toxic to man kind. □

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Head Ahead



Our Chairman, Mr. Ramesh Vangal, with the doctors and staff of Kerala Ayurveda Clinic -Edappally. He is also joined by Mr. J.P. Singh - Executive Vice -President, Kerala Ayurveda Ltd.



In this era of modernization, fast food has become popular owing to a busy life, raised socio-economic standards and easy availability. The health conscious lot, in the other side of the coin, are often misled with books, websites and self-proclaimed experts blurting out half-truths or whole lies. The fundamental questions regarding food remain unanswered. Dr. Deeja C.R. gives a sneak-peak into what Ayurveda has to say on food and the practices of having it.

Food for Thought



Dr. Deeja.C R
BAMS

The wisdom and pragmatic attitude structured in the classics of Ayurveda, aims for total positive health including physical, mental and spiritual well being while combating the illness. For this total positive health, Ayurveda has given three sub pillars- food (*aahaara*), sleep (*nidra*) and sex (*abrahmacarya*), which assists the three humors in supporting the body itself. Here food has been enumerated first, which alone shows its credibility. Even sleep and sex are often equated to food and appetite as sleep is nourishing.

Why to Eat?



With our 'GenNext' going on hunger strike craving for that six-pack or size '0' look, "Why to eat" has become the most relevant of all queries on food today. Sarah Boseley, the health editor of The Guardian, puts it this way: "Anorexia nervosa is a socially transmitted disease and exposure to skinny models may be a contributing factor in the cause of anorexia nervosa".

Life is dear. So dear that our prime biological duty or *dharma* is to survive; both as a self and as a kind. As per the vedic custom, along with *dharma*, there are three more goals for us to pursue- attainment of earthly pleasures (*artha*), satisfaction of desires (*kaama*) and salvation (*moksha*). Now, the most important infrastructure to pursue all these four aspects is health. And the prerequisite for health is nothing other than good food. Survival, the first reason for us to eat is followed by its requirement to attain health. As health itself is a pursuit, food is further required to maintain this health also. Interestingly, our body works like a computer- GIGO- Garbage In, Garbage Out. If you are not feeding in the right stuff, the body will retaliate with ill-health.

Living body is in a continuous state of activity (anabolism and catabolism). According to the theories of momentary existence

(*kshanabangura-vaada*) and natural subsidence (*svabhaavoparama-vaada*) there is a lot of breaking down and building up happening inside us. If this equilibrium is lost, decay of the body ensues. It is food that comes to the rescue by feeding the anabolic factors and thereby keeping the destructive catabolism at bay for a long time, enabling us to grow, ripen, mature and stabilize.

What to Eat?



Ancient Indian wisdom says that you are what you think and what you eat. Right food will bestow not just the right health but a right attitude too. So one should have such a diet, which is good for the gross body (*sthoola sareera*) as well as the subtle body (*sookshma sareera*). Food decides the living and good food decides the quality of living.

A balanced diet should be adequate as well as wholesome. In modern concept also, one should consume a balanced diet i.e, the diet that contains sufficient amounts of fibers and various nutrients (carbohydrates, fats, proteins, vitamins, and minerals) to ensure good health. On close observation, one can find that the food materials that can be consumed regularly mentioned in Ayurveda are in fact in lieu with this modern idea.

Daily usable foods mentioned in Ayurveda are enlisted in Table 01.

In addition, a balanced diet should provide other non-nutrients such as dietary fiber, antioxidants and phytochemicals which bestow positive health benefits. Antioxidants such as vitamin C and E, beta-carotene, riboflavin and selenium protect the human body from free radical damage. Other phytochemicals such as polyphenols, lysine, flavones, etc., also afford protection against oxidant damage. Ingredients like turmeric, ginger, cumin, garlic and cloves, found commonly in traditional dishes, are all rich in antioxidants.

Besides, Caraka-samhitaa (C.Soo.7) and Ashtanga-hrdaya (Ayurveda rasaayane teeka) states that daily usable foods have the following properties:

- » tissue-nourishing (*rasaayana*)
- » maintains health
- » eradicates the causes of diseases

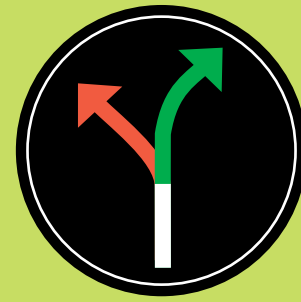
When to Eat?



Chances are that until recent times man might have followed the golden rule regarding the time to have food i.e. to eat when hungry. Gradually as civilizations got established and professions emerged, a way of life took form, we started to have specific times for each meal. After six months to one year of lactating luxury, most of us are made acquainted to this

routine of breakfast, lunch and dinner. Slowly, this habit does something to our body as conditioning did to the dog of the Russian scientist Pavlo. Our body and mind gets so tuned to this time of feeding that even if we have food or not, our body anticipates food at

food before digestion of the previous meal (*adhyasana*) or starving (*kshudha vega-dhaarana*) are becoming the major causative factors of a wide array of diseases. As an ayurvedic physician digs deep into the causes of most diseases related to the gut (from



Pathya

Many dread *pathya*. They believe it to be an undesirable consequence of ayurvedic consultation. We often hear conversations like these- "I went to this *vaidya* for a cure for my skin rash and he said there is *pathya* and forbade me from taking fish. How can one live without having fish?"; "I don't want to take ayurvedic medicines because if I do, then I will have to follow *pathya*."

What is *pathya* anyway? Well, The word *pathya* only means the right path or regimen and most often it is either for the maintenance of health or as an effort that is antagonistic to a disease condition. Hence abstaining from a cold water bath while having running nose, saying no to that chicken biriyani while having indigestion and a pregnant woman drinking milk are all examples of *pathya*.

It has to be understood that in most cases, it is neither the ayurvedic medicine nor the ayurvedic physician that insists on *pathya*. It is the individual's particular condition of health that is demanding *pathya*.

Ayurveda gives great importance to *pathya* owing to the holistic nature of the system. *Pathya* will support not only the medicines but also the bio-energy that is working against a disease. Most regimens stated in Ayurveda for a particular disease are in fact abstinence from the causative factors of that disease itself.

Just because Ayurveda has emphasized on *pathya* and is stringent on following it, it doesn't mean that it is an exclusivity of Ayurveda. No matter what kind of medicine one takes, if that person follows *pathya* along with the medicines, then it is highly likely that the rate of recovery is increased manifold.

Lolimbaraja, the author of *Vaidya jeevana* noted that the value of medicine declines unless correct regimen (*pathya*) is followed. However, regimen includes both diet and lifestyle, but the majority of regimens are covered by diet alone. This too reveals the importance of food. The concept of modern day nutraceuticals lies very close to the methods of *pathya*.

Sl. No.	Food	Major nutrients present
1	Cereals (<i>saashtika, saali</i>)	Carbohydrates
2	Green gram (<i>mudga</i>)	Protein
3	Rock salt (<i>saindhava</i>)	Salt
4	Indian Gooseberry (<i>aamalaka</i>)	Vitamin
5	Barley (<i>yava</i>)	Fiber
6	Rain water (<i>gamgaambu</i>)	Water
7	Milk (<i>ksheera</i>)	Protein, Fat, Sugar etc.
8	Ghee (<i>ghrta</i>)	Fat
9	Lean meat (<i>jaamgala maamsa</i>)	Protein
10	Honey (<i>madhu</i>)	Sugar

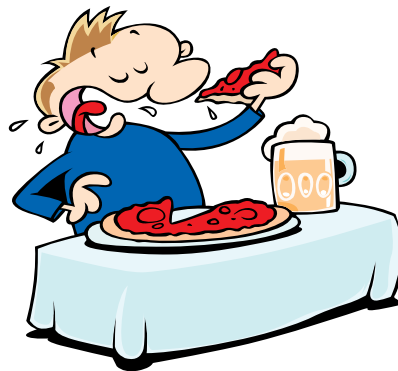
that time and prepares the systems for it. If there is no food when the body is awaiting it, tantrums are raised. So having food at the right time is as important as having the right food in the right manner. Ayurveda duly acknowledges this fact by stating that food in the apt time (*kaala bhojanam*) is the key factor in the provision of health.

However, the golden rule of eating only when hungry has to be kept in mind always. Proper time for meals is always after the digestion of the previous meal. In *Yogaratanakara*, it is said that when the food taken previously is well digested and the essence and wastes from it are separated, should the person feel hungry, food must be had no matter whatever the time is (Y. R. nitya pra 110). Or in other words, it is not mandatory that if it is 1:00pm, then you ought to have lunch. But if it is your lunch time and if you are hungry, then waiting for your friend (who would show-up only on your tea-time) may not be that healthy a habit.

The extremes of either having

foul breath to Irritable Bowel Syndrome or from mouth ulcers to stomach cancer), the above two extremes are commonly encountered.

How To Eat?



The wholesomeness of food depends on several aspects. It can vary with respect to its quality, dose, time and method of preparation. The consumer also has an effect in wholesomeness based on the age, body constitution, emotional state, disease etc. Even the ambience of the place at which food is had has a pivotal role in deciding the quality of food.

Due to the above reasons, ayurvedic classics have laid down some norms (*upayoga samsthaa*) for having food.

Ashtaangga-hṛdaya has dictated the following norms for consumption of food:

- » Eat warm and unctuous food in optimal quantity. Eat only when the stomach is empty.
- » Do not consume food that is incompatible in potency.
- » Consume in a pleasing place with all necessary utensils.
- » The food should be taken in an optimal speed, neither too fast nor too slow.
- » Eat in seclusion.
- » Do not laugh or speak while eating.
- » Concentrate on consuming food while eating.
- » Consider your requirements and limitations of eating.
- » One should also not have food when afflicted with emotional derangements.

Thus, the norms of consuming food are the principles of food intake, that decide the wholesomeness of the food.

Here are some common unwholesome practices in modern food habits.

Refrigeration and re-heating

Consumption of food kept overnight or reheated (*paryooshita bhojana*) is a major cause for inflammations (*vidradhi*) that eventually ends up in diseases like diabetes, hypercholesterolemia, obesity etc. Fast foods, by whatever name it is called, is a classical example of refrigerated and reheated food and it has proven its unworthiness as it is now considered the major cause for the upsurge of life-style diseases.

Cold and dry foods

For the convenience of carrying and consumption, people seem to have moved away from the advocated warm and unctuous to

the perilous dry and cold foods. These are found to aggravate vaata. Also, if one consumes too much water with food, as it would be usually required while taking dry and rough foods, the digestive fire is hampered.

Frequent snacking

Long gone are the ages of 'two-meals-per-day'. We have lost count now, it seems. Anyway, three main courses is accepted a standard but did we count the bag of crispy chips we had before lunch or the yummy ghee burfee at 3pm? How about the masala dosa and vada in the evening. No, the innumerable teas and juices are not considered as food at all. This will not only make the quantity go overboard but the quality is also hampered as digestion becomes improper. This habit has bred a new class of people who seriously believe that they are putting on weight despite their sincere efforts.

Eating too fast or too slow

Having food is a meditation and along with the right food and right setting, you need to have the right pace too. We are often short of time. A honking school bus or an impending deadline can cut short five idlis to one and that too is not chewed in but 'vacuum-cleaned' straight into the stomach. Taking food too fast can disrupt the normal neuro-muscular activity involved with deglutition and can cause from hiccups to choking. Conversely, people who eat too leisurely beside the television or while attending a phone-call, loses attention on food, naturally tend to eat more leading to obesity.

Unhealthy storage, preservation and flavoring

Preservatives and artificial taste makers are currently being suspected for a lot of conditions including auto-immune diseases and cancer. So is the case with artificial coloring agents and flavors.

Ayurveda forbids the daily use of long pepper, alkalis and salt but most of our daily food would certainly contain baking soda or ajino moto and we don't feel a meal to be good enough without bathing it in salt and pepper. No, it may not smack on your face the moment you take it but the effects are more or less cumulative.

Use of incompatible foods

Known as *virudhaahaara*, Ayurveda detests certain food combinations. These foods may be wholesome individually but in combination might generate some toxic effect on the body. The hotel wars are in full swing nowadays and it has become an accepted trend to break away from traditions for the want of variety tastes. One can easily find a lot of incompatible dishes in a modern menu. Butter chicken is an incompatible combination. Hot Kashmiri naan with honey poured over it is incompatible. Fish curry with curd is incompatible. The popular Punjabi vegetable dish with paneer and malai is incompatible. Why say more a simple fruit salad with ice cream can be incompatible if there are acidic fruits in it. Furthermore, consumption of extremely hot or cold beverages soon before, during or after a meal is also incompatible.

How Much to Eat?



There is no universal rule on the quantity of food to be taken; simply because all are not equal- structurally and functionally, at the very least. Ayurveda

considers the bio-fire (digestive power) of each individual to decide that person's quantity of food intake. The capability to understand hunger, both quantitatively and qualitatively, is instinctually present in every living being. Nevertheless, as one grows up, this knowledge of self is purposefully suppressed for the likings of tastes and different food items. This happens only with human beings, no other animal needs any special guidance for the quantity of food needed. Only if we are able to rekindle this instinct in

us, we will be able to decipher the ayurvedic guideline that one fourth of the capacity of stomach should be left free for easy gastric movements.

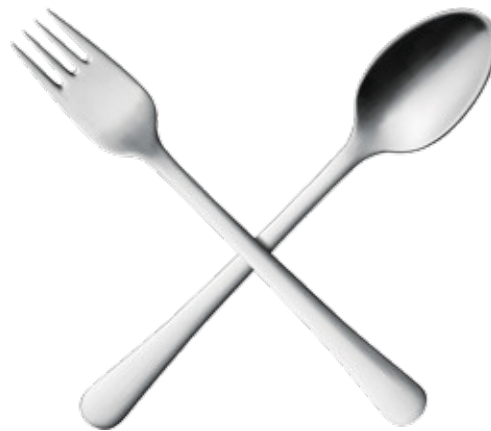
Always remember that food is also a mild form of medicine and it has to be given all respect given to a medicine and much more. So, if you make food your medicine, you can very well avoid medicine becoming your food.

To conclude a so-far inconclusive topic, we have to alter the famous quote 'eat to live not live to eat'. We have to eat right to live

right. And to eat right, we have to know ourselves, our hunger patters, our food thresholds, our likes and dislikes, our rights and wrongs. No one can tell you what should be your ultimate diet pattern. Use the teachings of Ayurveda as guidelines, understand the general rules and directives and seek within yourself. Because that is where the answer lies. □

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When Hunger Strikes



Hunger is the "voice of nature" telling us that it is time for food. There is no other true guidance for when to eat. Genuine hunger is not just a feeling in mouth and throat. It is a complex mechanism emerging from an actual physiological need for energy. Neuro-hormonal initiations give rise to muscular contractions of the stomach and are thought by physiologists, to give rise to the hunger sensation. So holding this urge

means to deliberately work against the normal physiology and this is not without harm. The main symptoms occurring due to holding hunger are: Body ache (*anga-bhanga*), ageusia (*aruci*), tiredness (*glaani*), emaciation (*kaarsya*), pain (*soola*) and confusion (*bhramaah*).

Quite often, we see activists and politicians breaking their hunger-strike by having lemon juice. Well, it is indeed scientific. One should not take large quantities of food soon after a prolonged fast or after holding hunger for long. In such conditions the food

should be initiated with light (*laghu*), unctuous (*snigdha*), warm (*ushna*) and in small quantities (*alpa bhojanam*).

Practically, it is found to be ideal to break a fast with an alkaline drink even before having solids. Though lemon juice is acidic in chemical analysis, on digestion, it becomes alkaline. Besides neutralizing excess acidity, alkaline drinks dissolve toxicity, mucus and excess calcite deposits so that they may be washed out and eliminated.

Lithotriptic Effect of Seeds of Teak

(*saakaa* = *Tectona Grandis* Linn.F.)

An Experimental Study in Albino Rats



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Introduction

Urolithiasis is one among the most troublesome obstructive uropathic disorder. It is the most common affliction of the urinary tract. It typically occurs in middle life, during the most productive years. In terms of ayurvedic science, Urolithiasis can be correlated to *mootra-asmari*. This disease is dreadful and hence considered as one of the major diseases (*mahaa-roga*), may be owing to its potential to disturb the anatomy and physiology of the urinary system. The present day line of management for this condition are conservative, medical, non-operative and operative treatment. An alarming rise in the incidence of Urolithiasis coupled with a motivation provided by WHO to explore the possibility of discovering cure on traditional line has created an impetus for further research in the light of ayurvedic knowledge.

Aim & objective of the study

1. To assess the Lithotriptic effect of seed of *saakaa* (*Tectona grandis* Linn.f.) experimentally in albino rats.
2. To compare the Lithotriptic property of seed of *saakaa* (*Tectona grandis* Linn.f.) with that of a standard Lithotriptic drug (Cystone tablet-Himalaya)
3. To set a platform for the standardization of the study drug seeds of *saakaa* (*Tectona grandis* Linn.f.) through the morphological, microscopical (pharmacognostical), chemical and physical evaluation.

Study design: Experimental animal study

Review of Literature

Saakaa

Figure 1. Habit of *saakaa* (*Tectona grandis* Linn.f.)



Figure 2. Fruits of *saakaa* (*Tectona grandis* Linn.f.)



Figure 3. Seed and Endocarp of *saakaa* (*Tectona grandis* Linn.f.)



Description of the drug *saakaa* is not seen in Vedas and Upanishads. In *Ashtaangga-hrdaya* and *Susruta samhita* there are references about this drug. The detailed description of the drug has been found since the period of the dictionaries (*nighantu*).

Etymology

The word *saakaa* means 'that

which can bear weight'. This drug has many synonyms mentioned in dictionaries mainly indicating its strong timbers, eg: *balaprada*, *bhoomisaha*, *dvaara-daaru* etc.

Pharmacological properties

Taste (*rasa*) : astringent (*kashaaya*), bitter (*tikta*)

Attributes (*guna*): light (*laghu*), dry (*rooksha*)

Potency (*veerya*): cold (*seeta*)

Post digestive effect (*vipaaka*): acrid (*katu*)

Action (*karma*): mitigates kapha and vaata

The botanical identity of *saakaa* is *Tectona grandis* Linn.f. (Verbenaceae family). Fruits of *Tectona grandis* Linn.f. are subglobose drupe, more or less indistinctly 4-lobed, the thick spongy pericarp, consisting of a dense felt of branched hairs. The seeds are uneven, with 1, 2, 3, rarely 4 seeds in a fruit with a central cavity having marble white color.

Preliminary pharmacognostical studies

Microscopic characters of the powder of seed of *Tectona grandis* Linn.f.

- » On Safranin stain- Unlignified fibres without stain and lignified fibres with pink staining present.
- » On Iodine stain-Parenchyma cells with glistening contents (oil cells) are present in blue color.

T.S. of Endocarp of the fruit

The endocarp comprises sclerenchymatous cells with lignified walls. Stone cells appear as thick walled and polygonal or round. Polygonal lignified fibres are present.

T.S. of Seed coat

Polygonal sclerenchymatous cells with thick walls were found in the testa of the seed.

T.S. of Endosperm of the seed

Parenchymatous cells filled with food materials were found.

Figure 4. Powder microscopy of seed of *saakaa* (*Tectona grandis* Linn.f.) with Safranin

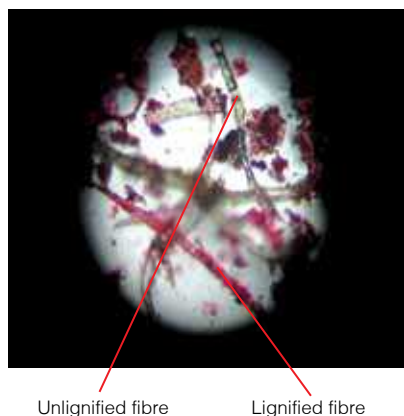


Figure 5. Powder microscopy of seed of *saakaa* (*Tectona grandis* Linn.f.) with Iodine

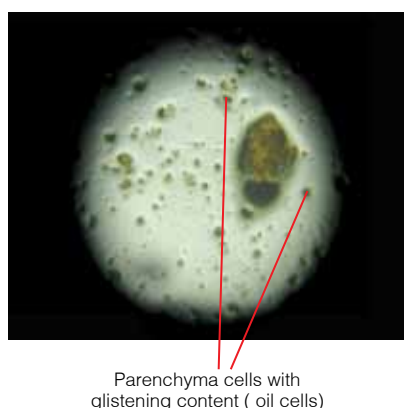


Figure 6. TS of seed coat of *saakaa* (*Tectona grandis* Linn.f.)



Figure 7. TS of Endocarp of the fruit of *saakaa* (*Tectona grandis* Linn.f.)

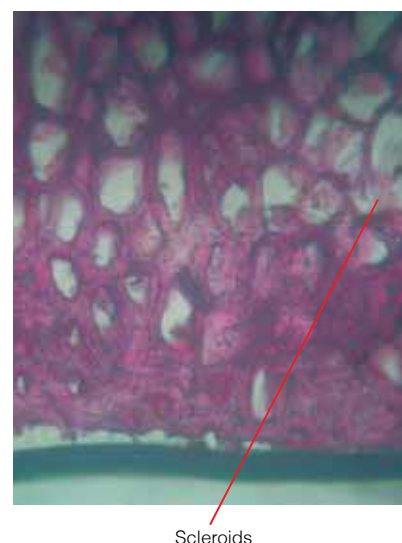


Table 1. Physical analysis of the seeds of *Tectona grandis* Linn.f.

Sl. No.	Experiment	Results
1	Moisture content (%)	14
2	Volatile oil content (%)	Nil
3	Total ash (%)	1.2
4	Water insoluble ash (%)	0.58
5	Acid insoluble ash (%)	0.29
6	Cold water soluble extractive (%)	1.21
7	Water soluble extractive (%)	1.21
8	Alcohol soluble extractive (%)	1.96
9	Fibre content (%)	63.93
10	Total sugar (%) Sugar content	0.2

Table 2. Qualitative analysis of the seeds of *Tectona grandis* Linn.f.

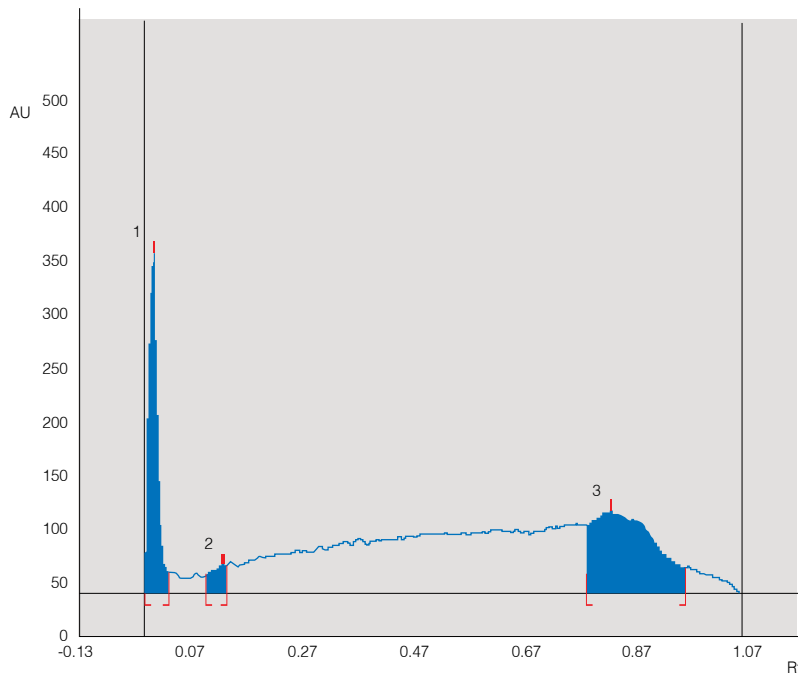
Sl. No.	Chemical constituent	<i>Tectona grandis</i> Linn.f.
1	Steroid	+
2	Flavanoid	Absent
3	Phenol	+
4	Alkaloid	+

Table 3. Rf value of spot obtained in TLC

Solvent system	Alcoholic extract of the Seeds of <i>Tectona grandis</i> Linn.f.	
	Rf	Detection UV/iodine
Toluene:Ethyl acetate=7:3	0.98	UV
Solvent system	Alcoholic extract of the Seeds of <i>Tectona grandis</i> Linn.f.	
	Rf	Detection UV/iodine
Benzene: Cyclohexane=7:3	0.96	UV

Figure 8. HPTLC plate of the seed of *saakaa* (*Tectona grandis* Linn.f.)

Track 2, ID: Tectona grandis



Experimental study to assess the lithotriptic property

Materials and methods

Population

Healthy albino rats of both sexes with body weight between 150gm-200gm. A sample of 30 animals were selected for the study

Parameters selected for study

Six parameters were selected for the study.

- » Serum creatinine
- » Serum calcium
- » Serum Uric acid
- » Urine Creatinine
- » Urine Calcium
- » Urine Uric acid

Duration of the study

2 months

Route of administration

Oral

Dose

Dose was calculated by using the table constructed by Paget G.E & Barnes T.M considering the human dose of powder as 12gm. Based on this the effective dose of the drug was taken as 0.108gm/100gm body weight

Method

30 albino rats were selected and given Ethylene glycol along with drinking water in the ratio of 10:1000 for one month. After one month, on examination of urine through microscope, fully developed crystals were noted and administration of ethylene glycol was stopped. The albino rats were weighed and grouped into 5 (as Group I,II,III,IV and V) with 6 animals in each group. From next day onwards the animals were administered study drug and standard drug (Cystone tablet) respectively for next one month. Blood and urine samples were collected from each group before and after study drug administration

and parameters were analyzed.

Figure 9. Microscopic view of urine after Ethylene glycol induction

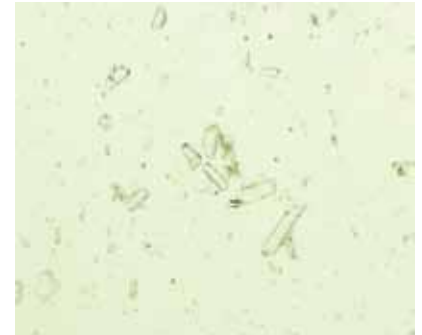


Figure 10. Microscopic view of crystals after treatment - Group I



Figure 11. Microscopic view of crystals after treatment - Group II



Figure 12. Microscopic view of crystals after treatment - Group III

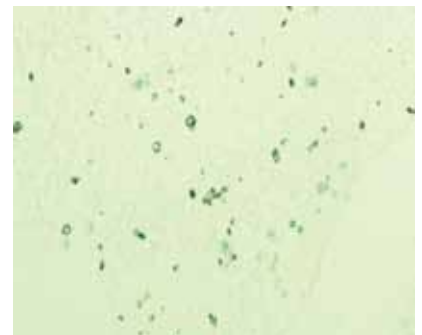
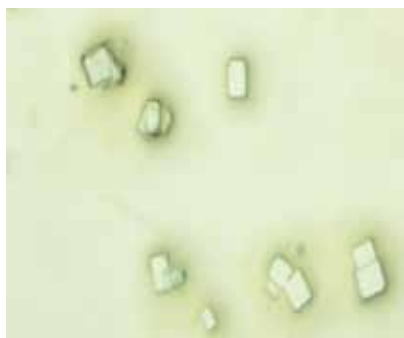


Figure 13. Microscopic view of crystals after treatment - Group IV



Figure 14. Microscopic view of crystals after treatment - Group V



Statistical analysis and interpretation

Among the groups, the standard group showed a significant reduction in serum creatinine, urine creatinine, serum calcium, urine calcium, serum uric acid and urine uric acid levels. There was increase in all the six parameters of control group while comparing their BT and AT values. All other treatment groups (ED, half ED and double ED) showed significant reduction in those parameters.

Standard drug group showed better result on reducing all the six parameters compared to the three study drug groups. There was significant reduction on serum creatinine, urine creatinine, serum calcium, urine calcium, serum uric acid and urine uric acid. (See table 4 to 9)

Probable Mode of action

In all types of *mootra-asmari*, Kapha is the predominant humor. In *asmari*, the vitiated kapha and moisture (*kleda*) are dried up by the action of vaata and it becomes hard masses. Treatment must be suggested to eliminate the vitiated kapha and *kleda*. Among the properties of bitter taste, cleansing of moisture and fat (*kleda-medo-visoshana*) and kapha mitigation are applicable here. astringent taste has a desiccating property which helps to alleviate kapha. It also possess scraping (*lekhana*) property. Acrid

post digestive effect (*katu vipaaka*) of the drug possess desiccating and kapha mitigating property. It also helps to open the channels (*srotas*)

and to remove any obstruction. Thus *katu vipaaka* of the drug may help to remove the block in the urinary pathway (*mootra-vaha srotas*). Cold potency drugs pacifies blood and pitta (*rakta-pitta prasaadana*). As urine is the ultra filtrate of blood, these drugs may improve the renal function. These are beneficial in stopping the pathological progress (*sampraapti vikhattanam*).

Stones are more prone to form when there is obstruction in the free passage of urine. Urinary stasis provides a fertile field for bacterial growth. Stasis also predisposes urinary infection. It allows the crystalloids to precipitate and thus helps in urinary stone formation.

Table 4. Change seen in Serum Creatinine before and after treatment – Test of Significant difference (ANCOVA)

Parameter	SERUM CREATININE(BT)		SERUM CREATININE(AT)		t-stat	p-value(two tailed)
	AM	SE	AM	SE		
I	9.70	0.09	3.78	0.24	31.029	P<0.0005**
II	8.90	0.16	3.98	0.22	61.5	P<0.0005**
III	9.00	0.25	6.04	0.12	15.913	P<0.0005**
IV	8.78	0.14	1.04	0.06	88.471	P<0.0005**
V	9.18	0.22	11.50	0.20	-10.4	P<0.0005**
P. Value	0.016*		P<0.0005**			

*: Significant at 5% level (P<0.05)
 **: Significant at 1% level (P<0.01)

Table 5. Changes seen in Urine Creatinine Before and After Treatment – Test of Significant Difference (ANCOVA)

Parameter	URINE CREATININE(BT)		U.CREATININE (AT)		t-stat	p-value(two tailed)
	AM	SE	AM	SE		
I	20.00	0.26	16.72	0.23	86.436	P<0.0005**
II	18.78	0.23	10.82	0.30	25.097	P<0.0005**
III	18.02	0.36	17.30	0.29	3.116	P<0.05*
IV	17.04	0.34	8.38	0.22	45.285	P<0.0005**
V	19.88	0.27	24.80	0.13	-30.205	P<0.0005**
P. Value	P<0.0005**		P<0.0005**			

Table 6. Changes seen in Serum Calcium before and after treatment – Test of Significant Difference (ANCOVA)

Parameter	SERUM CALCIUM (BT)		SERUM CALCIUM (AT)		t-stat	p-value(two tailed)
	AM	SE	AM	SE		
I	16.80	0.18	15.86	0.31	2.3	Ns
II	18.54	0.28	14.64	0.24	16.056	P<0.0005**
III	19.30	0.46	17.44	0.24	6.593	P<0.0005**
IV	18.40	0.53	8.66	0.22	24.457	P<0.0005**
V	17.80	0.22	21.80	0.33	-25.298	P<0.0005**
P. Value	0.001**		P<0.0005**			



Diuretics prevent the hyper concentration or super saturation of crystalloids in the urine as well as further complications. Scraping property of the bitter and astringent tastes and cold potency of *saakaa* seeds found to increase the urine output may help to wash out the renal deposits and reduces the microbial growth. The alkaline pH of the drug helps to keep the urine alkaline. Since the Calcium oxalate crystals are acidic in nature this drug may render the crystals to more soluble and prevent the deposition. □

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Parameter	URINE CALCIUM(BT)		URINE CALCIUM (AT)			
Group	AM	SE	AM	SE	t-stat	p-value(two tailed)
I	468.00	6.82	367.00	2.55	20.83	P<0.0005**
II	468.00	6.82	330.00	3.54	40.694	P<0.0005**
III	475.00	4.74	380.00	5.92	42.485	P<0.0005**
IV	460.00	3.16	270.00	2.24	120.107	P<0.0005**
V	480.00	3.54	490.00	16.96	-623	Ns
P. Value	0.118ns		P<0.0005**			

Parameter	SERUM URIC ACID (BT)		SERUM URIC ACID (AT)			
Group	AM	SE	AM	SE	t-stat	p-value(two tailed)
I	12.81	0.07	9.55	0.05	70.45	P<0.0005**
II	13.63	0.17	9.19	0.25	47.80	P<0.0005**
III	12.35	0.12	10.81	0.29	3.96	P<0.0005**
IV	12.31	0.16	5.30	0.11	60.557	P<0.0005**
V	12.05	0.28	16.01	0.09	-12.702	P<0.0005**
P. Value	P<0.0005**		P<0.0005**			

Parameter	U.URIC ACID (BT)		U.URIC ACID(AT)			
Group	AM	SE	AM	SE	t-stat	p-value(two tailed)
A	840.00	23.82	782.00	27.09	20.83	Ns
B	890.00	8.37	780.00	11.40	40.694	P<0.0005**
C	898.00	3.74	760.00	17.03	42.485	P<0.0005**
D	860.00	8.94	550.00	23.87	120.107	P<0.0005**
E	795.00	11.62	870.00	13.78	-623	P<0.0005**
P. Value	P<0.0005**		P<0.0005**			

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Dhaanyaamla

Acetic grain liquid



Dr. Nimin Sreedhar
BAMS

An insight on one of the most popular oil-free liquids for ayurvedic therapies. The features and properties of *dhaanyaamla* is detailed along with a walk-through of its preparation.

All that levels humors are treatment in Ayurveda. To bring about this equilibrium, medicines are used both internally and externally. Internal and external treatments often compliment each other.

The body, despite of its varied complexities, functions as one single unit. This fact sufficiently justifies the practices like drinking a decoction for a skin rash or doing buttermilk irrigation (*takra dhaara*) for depression.

Dhaanyaamla is one of the preparations that are widely used in external treatments. The term is a conjugation of two different words, viz 'dhaanya' meaning grains and 'amla' meaning sour. It is also known by the names *kulmaasha*, *kaanjcika*, *avisuddha*, *aaranaala* and *sauveeraka*. All the three major classics of Ayurveda at some instance or the other have referred to its use. Caraka samhita, Susruta-samhita and Vaagbhata have included this in the sour group (*amlavarga*), fermented preparations (*santhaana kalpanaa*)

and in alcoholic beverage group (*madya varga*) respectively.

Though it is mostly a topical application, the unique formulation and method of preparation expands its potential in fighting diseases manifold. It is even given internally in some specific conditions. It's

peculiar blend of action and properties give the edge to the physician and makes him tackle situations which are otherwise tough to handle. Before exploring these actions and properties, the preparation of *dhaanyaamla* has to be comprehended.



Ingredients

Listed below in the table are the ingredients and its ratio according to the text Sahasrayoga.

Ingredients & Quantity of <i>dhaanyaamla</i> as per Sahasrayogam				
Sl. No	Sanskrit Name	English Name	Botanical Name	Ratio (parts)
1	Tandula	Rice	<i>Oryza sativa</i>	5
2	Prthuka	Rice flakes	<i>Oryza sativa</i>	5
3	Kulatha	Horse gram	<i>Dolichos biflorus</i>	5
4	Laaja	Pop rice	<i>Oryza sativa</i>	20
5	Kamgubeeja	Foxtail Millet	<i>Setaria italica</i>	2
6	Kodrava	Kodo Millet	<i>Paspalum scrobiculatum</i>	2
7	Naagara	Dry ginger	<i>Zingiber officinale</i>	1
8	Deepyakam	Ajvan	<i>Carum roxburghianum</i>	1
9	Nimbuka	Lemon	<i>Citrus acida</i>	2
10	Jala	Water	Aqua	100

Method of preparation#

The dried ingredients (1 to 8 in the table above) are taken in the said ratio and made into fine powder. Lemon is cut into small pieces. The powder is then made into 4 poultices and the lemon pieces are distributed in each poultice. If all the powder is packed into one big poultice, the heat may not spread evenly and the core of the poultice may remain unswayed.

The tumbler with water in the said quantity is mounted on the stove. The poultices are put and the lid is closed loosely. Paddy husks* are put under and around the vessel and fired taking every precaution that the temperature of the water in the vessel does not rise above the boiling point. *Dhaanyaamla* is heated gently and continuously in moderate fire, for a period of seven days. The preparation of *dhaanyaamla* is completed on the seventh day.

From the 8th day onwards, the required quantity of *dhaanyaamla* can be taken for use. When doing so, the deficit in quantity is met by adding same quantity of hot water into the tumbler. Usually the preparation is kept under moderate fire for up to one month with the same poultice and after that the poultices are replaced with

new ones. The important factors to be considered during the preparation of *dhaanyaamla* are that absolute cleanness should be maintained and the temperature should be kept uniform throughout the preparation.

Properties of *dhaanyaamla*

Acetic grain liquid is a drastic purgative. Though it is cold to touch, it is sharp (*teekshna*) in nature and hot in potency, which makes it pitta aggravating. It relieves tiredness and

lethargy. It is appetizing, carminative, cures pricking pain in the uterine bladder. It is ideal to be used as decoction enema. It is stomachic, and light. It alleviates vaata and kapha.

Additionally, Susruta states that *dhaanyaamla* is enlivening (*jeevana*) since it is prepared from grains.

*As *dhaanyaamla* is to be kept in constant fire with the temperature adjusted in such a way that it neither gets put-out nor boils the preparation, the fuel used is critical. Traditional wisdom had a simple answer for the challenge-husk. Husk has the ability to keep smouldering for days in a constant temperature and that too without requiring consistent air supply. It neither gets blazed by air nor gets extinguished by breeze. Plus, it does not emit a lot of smoke. Today, we have gas burners, steam boilers, electric equipment and sorts to aid us.

It cures burning sensation. External application and also its oral administration mitigate vaata, kapha and thirst. If gargled or retained in mouth, it alleviates dysgeusia, halitosis (bad breath) and other

kapha related problems as it is sharp in quality. It also reduces metabolic wastes and eradicates tiredness.

The properties of sour taste (*amla rasa*) like light, hot, unctuous, carminative, vaata normalizing etc are also attributed to *dhaanyaamla* as sour is the predominant taste in it. The properties of grains (*dhaanya*) like nourishing, satisfying, strengthening and curing vaata vitiation are also yielded. It is the ascetic acid that is formed due to fermentation that gives *dhaanyaamla* most of its properties and makes it akin to vinegar. Ascetic acid also acts as a preservative.

Properties of <i>dhaanyaamla</i> at a glance	
Taste (<i>rasa</i>)	Sour (<i>amla</i>)
Qualities (<i>guna</i>)	Light (<i>laghu</i>), Unctuous (<i>snigdha</i>), Sharp (<i>teekshna</i>), Cold to touch (<i>seeta sparsa</i>)
Potency (<i>veerya</i>)	Hot (<i>ushna</i>)
Post-digestive effect (<i>vipaaka</i>)	Sour (<i>amla</i>)

Therapeutic uses

Due to the peculiar combination of drugs and the fermentation process that it undergoes, *dhaanyaamla* becomes a very sharp and potent formulation. It has proven abilities in relieving constipation. It is stomachic, relieves lethargy, cures tiredness of limbs, mitigates burning sensation and fever, eliminates diseases of the heart, cures anaemia, anti-helminthic, cures hemorrhoids, indigestion and other digestive errors, and eliminates cystalgia (pain in the uterine bladder). It is ideal to be given as decoction enema.

Specific applications

1. Fever with burning sensation (*daaha jvara*)- The patient is sprinkled/ bathed with (*parisheka*) / immersed in (*avagaaha*) *dhaanyaamla* since the cold touch of *dhaanyaamla* relieves burning sensation and fever (C.Ci. 3/259).

2. Consumption (*raajayakshma*)- Treatment of *raajayakshma* associated with rhinitis (*peenasa*) is complicated. In such situations, sudation with steam (*naadee sveda*) is done and the steam may also be generated from *dhaanyaamla* mixed with oil (C.Ci.8/74).

3. Hemorrhoids (*arsas*)- If the patient suffering from hemorrhoids develops pricking pain in the region, immersion in *dhaanyaamla* is advised.(C.Ci.14/46)

4. *Dhaanyaamla dhaara* -This procedure follows all the methods of *seka* (irrigation) except that the liquid used is *dhaanyaamla*.

#Preparation of *dhaanyaamla* is an elaborate event. Since this is essentially a fermentation process and because it has to be kept in standard conditions for at least seven days, the time, location, season and planetary positions are also studied for the procedure. An auspicious day in a rain-free season is selected. Vedic astrology is used to select the day and to foresee hindrances or adversities. The location where the fireplace is to be set up is also important. According to Vedic architecture (*vaastu saastra*), a kitchen or fireplace should only be made in the south-east corner (corner of fire- *agni kon*).

5. *Dhaanyaamla* also finds its use as an ingredient in other formulations such as *Panjcaamla taila* and *Aaranaalaadi taila*. It may also be given as an adjuvant for other medicines, for example, with *Pushyaanuga coorna*.

Contraindications

Utmost care should be taken while administering *dhaanyaamla*. Even though it is cold to touch, its

The practice of using heated *dhaanyaamla* for external applications needs more contemplation simply because heated *dhaanyaamla* is no longer cold to touch.

hot potency, sour taste and sour metabolic effect are all conducive to vitiation of pitta. It's nature to increase pitta has been specifically mentioned as well. Hence the same properties that help in the mitigation of vaata and kapha and in the digestion of metabolic toxins (*aama*) can cause adverse effects when it is used in conditions of pitta.

Continuous use of *dhaanyaamla* for more than three days is not advocated.

According to Bhaavaprakaasa *nighantu* (santhaana varga-4), *dhaanyaamla* is specifically contraindicated in the following conditions:

- » Emaciation (*sosha*)
- » Fainting/ unconsciousness (*moorcha*)
- » Vertigo/ Stupor/ Confusion (*bhrama*)
- » Intoxication (*mada*)
- » Itching (*kandu*)
- » Depletion of body tissues (*visosha*)
- » Skin diseases (*kushtha*)
- » Conditions of blood loss like epistaxis, hematemesis, proctitis etc. (*rakta-pitta*)
- » Anemia (*paandu*)
- » Emaciating diseases like tuberculosis (*yakshma*)
- » Traumatized individuals (*kshataksheena*)
- » Tired and weak individuals (*sraanta*)
- » Pyrexia with indigestion (*manda-jvara*)

Like all other practices in

medicine, learned and precise use of *dhaanyaamla* can work wonders. However, it is widely found to be used liberally in vaata diseases associated with *aama*, burning sensation etc. Though it has the potency to digest *aama* and alleviate burning sensation, its long term use can lead to pitta and *rakta* vitiation. Hence a comprehensive study on *dhaanyaamla* seems necessary not only to sophisticate the knowledge of *dhaanyaamla* but also to use it effectively in practice, negating any chance of an iatrogenic error. □

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Case of the tri-month

Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)

A case report



Dr. Prakash Mangalasseri
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Introduction

Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) is an acquired immune mediated inflammatory disorder of the peripheral nervous system. The disorder is sometimes called chronic relapsing polyneuropathy or chronic inflammatory demyelinating polyradiculopathy¹. It is closely related to Guillen – Barre' syndrome and it is considered as a chronic counterpart of that acute disease. CIDP is a chronic progressive or relapsing neuropathy leading in at least 50% of the patients to temporary severe disability in the course of the disease while approximately 10% of them eventually become persistently disabled or die because of the illness². Pathology of the disease is not yet clear but involvement of autoimmune disease causing loss of the myelin sheath of the peripheral nerves is suspected the main



pathological feature. As a result, the affected nerves fail to respond, or respond weakly, to stimuli causing numbness, tingling and areflexia. Treatment of CIDP includes corticosteroids, plasmapheresis, and intravenous immunoglobulin, immunosuppressants³.

Case Presentation

A 33 year old male, mobile tower worker by profession in a private company, in January 2012 developed progressively distal parasthesia and hypoesthesia of lower limbs gradually lead to tetra paresis with walking difficulty due

to poor balance. On 15th August 2012 a diagnosis of CIDP was made in another hospital and he was put on Steroidal treatment which has not helped to relieve from his signs and symptoms. The patient was on steroid 30mg per day (since last 7 months) when he was seen in our medical facility, under Kaaya-cikitsa OPD on 20/6/2012. Patient was unable to stand and walk without support; all the limb movements were associated with tremors, difficulty in speech, numbness of toes and fingers, puffy face and rashes on chest and arm regions were noted.

Neurological Assessment was done with the help of questionnaires and clinical tests (Listed in Tables).

Management

Patient was provisionally diagnosed as *kapha-aavrta vyanavaata* and started with internal and external desiccating therapy (*rookshana cikitsa*). Internally he was given:

- » *Varaṇaadi* decoction 15 ml with 45 ml pre-boiled warm water at 6 am and 6 pm in empty stomach
- » *Bhadraaarvaadi* decoction 15 ml with 45 ml pre-boiled warm water at 11AM and 8PM before food
- » *Shad-dharana* tablet - 2 tablets

twice daily with *Varanaadi* decoction

- » *Gomootra-hareetakee lehya*
1 teaspoon twice daily

Along with this, for external desiccation, powder massage (*udvartana*) was done with *yava-kola-kulatthaadi* powder for 21 days (30 min per day).

Then patient was discharged with same internal medicines. Patient got readmitted on 1/7/2012. Patient was reassessed clinically and powder massage was restarted with same powder for 14 days. It was followed by *dhaanyaamla dhaara* for next seven days. Lastly, three *vaitarana vasti* were done on alternate days. After this treatment patient was comfortable and improved his gait and walking. Tremors were reduced. And patient started climbing stairs. All clinical assessments were improved. On discharge patient was given the following medicines:

- » *Dhanadanayanaadi* decoction
15 ml with 45 ml pre-boiled warm water evening at 6 pm on empty stomach
- » *Varunaadi* decoction 15ml with 45 ml boiled and warm water morning at 6 am on empty stomach
- » *Kastooryaadi* tablet 1 tab morning.
- » *Shad-dharana* tablet - 2 tablets evening.

Observations

A. Chair stand test 4 – in 30 sec.

Table No. 1	
Date	Number of sit ups
20/6/2012	Not possible
26/10/2012	3
14/1/2013	16

B. Vibration test (Using Tuning Fork)

Table No. 2	
Date	Sensation
20/6/2012	No sensation in any of finger tip
26/10/2012	Felt on last two lateral finger
14/1/2013	Felt on last three lateral finger

C. ADL Questionnaire (RODS for GBS – CIDP -)

Table No. 3			
Task	20/6/2012	26/10/2012	14/1/2013
Read news paper / book	0	0	1
Eat self	0	0	1
Brush your teeth	2	2	2
Wash upper part of body	0	0	1
Sit on a toilet	0	1	2
Make sandwich	Not Done		
Dress up body	1	1	2
Wash lower body	0	0	1
Move a chair	0	1	2
Turn a key in a lock	1	1	2
Go to general practitioner	0	1	2
Take a shower	0	1	2
Do the dishes	0	0	1
Do the shopping	0	1	1
Catch an object	0	1	1
Bend and pick up an object	0	1	1
Walk on stairs	0	1	2
Travel by public transport	0	1	1
Walk and avoid obstacles	0	1	2
Walk outdoor <1km	0	1	2
Carry and put down heavy objects	0	0	1
Dance	Not Done		
Stand for hours	0	1	2
Run	0	0	0
Total	04	17	31

Grading

- 0 - Not possible to perform
1 - Possible with difficulty
2 - Possible without difficulty

D. Finger nose test –

Table No. 4		
Date	Right	Left
20/6/2012	IM with tremors	IT
26/10/2012	IM with tremors	IT
14/1/2013	IM with tremors*	IT

Impaired - IM; Intact - IT
* Tremors reduced

Discussion

Patient presented with difficulty in walking, tremors (*kampa*), numbness (*suptataa*) and heaviness of the body (*anga gaurava*). The appetite and bowel movements were normal, sleep was disturbed in night. On taking history it was revealed that patient

was completely on unwholesome routine like excessive intake of meat especially beef, excessive day sleep, awakening at night, job stress etc which may be considered as immediate causes for vitiation of musculature (*mamsa-vaha sroto dushti*). The patient was obese earlier which was further aggravated by steroidal use. All these eventually lead to pollution of kapha along with denaturing of fat and flesh leading to vaata due to blockage (*aavarana-janya vaata*) especially at the level of movements (*vyaana*). Vitiation of fat further lead to degeneration (*snaayu-gata vaata*) since nerve (*snaayu*) is derived metamorphically from fat (*medo dhaatu*) and made tremor and numbness as clinical presentation. Patient was responding positively to acrid (*katu*), reducing (*lamghana*), desiccating (*rookshana*), hot (*ushna*) treatment which again indicated vaata blocked by kapha (*kapha-aavrta vaata*). Thus the patient was treated on the line of mitigation of kapha and pacifying vaata (*vaata-anulomana*)⁵. □

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Gulkand

rose petal jam

“**T**hat which we call a rose by any other name would smell as sweet”. Well, Shakespeare was quite right. But he probably might not have tasted *gulkand*. For if he had, he might have added to this famous quote that rose not just smells sweet, it also tastes equally so.

Gulkand is one of the best natural coolants around and it seems that this recipe was around since the time we knew of roses. It is believed to have been introduced in India by the Turks back in the 7th century AD. The name itself suggests this origin. ‘*Gul*’ is rose in Persian and ‘*kand*’ means sweet in Arabic (*kand*, in fact, sounds pretty similar to candy, right?). It was one of the favorite delicacies of Mughal queens, they say. Despite of its tradition and presence in the royal menu card, the preparation of *gulkand* is unbelievably simple.

Ingredients	
Rose petals (<i>Rosa damascena</i>)	1 kg
Sugar	1 kg
Optional ingredients	
Cardamom	2 tsp
Coral paste (<i>pravaala pishti</i>)	2 tsp
Conch-shell ash (<i>sankha bhasma</i>)	2 tsp

Method of Preparation

The petals from Damascus rose are conventionally used. It is best to take fresh, wild and fully grown flowers as they are rich in essential

oils. Also, decayed, damaged or infested petals should be avoided. The petals collected are washed thoroughly to remove dust, pollen and nectar. It is then drained and kept in shade for about 20 minutes for all the excess water to evaporate. You may also want to cut each petal into half or so.

A wide-mouthed glass jar, dry and big enough to hold the ingredients is taken. The rose petals and sugar is arranged in separate layers, one above the other, to fill up the jar. The mouth of the jar is then covered and set tight using a fine cotton cloth so that nothing gets in though moisture can escape.

The jar is then kept in open sun for six hours. It is taken back indoors at dusk and the contents are stirred and mildly mashed with a wooden ladle. All the above three processes are repeated for about three weeks. The heat of the sun and osmotic effect of sugar draws the water out of the rose petals and makes the mixture syrupy. The longer it is kept in the sun, the more moisture gets evaporated. In about three weeks, the content becomes thick, brownish, concentrated and jam-like in consistency. The content is then transferred into an airtight container and is kept in a cool and dry place. Though *gulkand* is now ready, it is best used after two more weeks as it is observed that the essence of rose is felt more after about two weeks of storage.

A common ingredient in Paan,

gulkand may also be taken as such or by adding it into other recipes in which fragrance and flavor of rose is desired.

Health Benefits

It’s sweet taste, cooling potency and sweet metabolic effect evidently makes it pitta pacifying. Hence it acts well in the reduction of body heat, inflammation and bleeding. As it is nourishing and strengthening, it is believed to promote health, immunity and longevity. It has powerful anti-oxidant capacity and is rejuvenating. It relieves stress and fatigue. It gives miraculous and quick results in ulcers of mouth, stomach and intestines. It is a good home remedy for leucorrhea and dysmenorrhea. It is a mild laxative. As it is detoxifying and blood purifying, the benefits are reflected in the skin as well. Those perturbed by diabetes can replace sugar with honey while preparing *gulkand*. However, *gulkand* is forbidden to those suffering from a weak digestion. □



Hamsapathyadi kwath

There are many medicines which are used for hypothyroidism and hyperthyroidism. Usually in hypothyroidism, drugs that are reductive (*lamghana*) are used. In hyperthyroidism, vaata is the culprit and drugs that reduce vaata especially additive (*brmhana*) are used.

Here is a decoction which is utilized for both hyperthyroidism and hypothyroidism. In effect, it is a corrective to thyroid hormone. *Hamsapatyaadi kashaaya* is popular in Kerala especially among the *Ashṭavaidyas*. This formulation is mentioned in the context of treatment for rhinitis (*pratisyaaya cikitsa krama*) in the book 'Vaidya-Manorama' edited by late Brahmaṣree Vayaskara N. S. Moss (V.M. part 2. 30.62). The exact period and author of the book is unknown.

Ingredients:

1	Creeping tick-trefoil (<i>hamsapaadi = Desmodium triflorum</i>)
2	Tinospora (<i>gudoocee = Tinospora cordifolia</i>)
3	Neem (<i>nimba = Melia azadirachta</i>)
4	Long pepper (<i>pippalee = Piper longum</i>)
5	Malabar nut (<i>vrsha = Adhatoda vasica</i>)



This decoction is classically indicated for goiter (*galaganda*) and cervical lymphadenitis (*ganda-maala*). Physicians usually choose among *panjca-kola coorna*, *niṣaamalakam coorna*, *navaayasam coorna*, *daṣmoola-hareetakee lehya* or *shad-dharana coorna* as an adjuvant to this decoction, depending on the constitution of the patient and state of the disease. □

Finishing the meal

Editor-in-Chief

It is conventional to finish the meal with a drink. This drink is called after drink (*anupaana* = following drink). Specific drinks are mentioned for each type of main course. The ayurvedic norms for such meals are given below: -

For food prepared with wheat and barley cold water should be the after drink. In case of meals with curd, alcoholic beverages and honey cold water is the after drink. After eating lotus stem (*visa*) cold water is the choice. [According to another version it is *visha* and not *visa*.

Visha means poison. Poison is not a regular food. But it may be consumed accidentally. In this case hot water should not be used as an after drink as hotness will increase the virulence of the poison.] It is mentioned that curd should not be consumed hot or with hot substances. The same is true in the case of honey too. It is held that honey contains some toxic factor (bee venom) and the toxicity will be augmented with heat. Alcoholic drinks are also hot in potency and

alcohol itself is considered to be a slow poison as its properties are diametrically opposite to *ojas*, the immunity factor.

In case of food prepared with cereal flour, the after drink should be lukewarm water. This norm poses a doubt. If the flour is of wheat or barley should we drink lukewarm water as an after drink? No.

According to rule for wheat and barley, here also cold water is the choice. Hence after chapatti drink only cold water. The cold water should not be chilled. According to the rules, drinking water should not be chilling enough to cause sensitive teeth.

Acidic after drinks like whey, buttermilk and acetic fermented liquids are preferable as after drink to vegetables. Vegetables are mostly alkaline. Acidic after drinks help to reduce the alkalinity of the vegetable meal. Strict vegetarians may please note this point and instead of hot tea or coffee they should finish the meal with a glass of lassi or buttermilk.

Those who are very lean may drink a mug of beer (*suraa*) after food. It will help them to gain weight. But the obese and stout

person should substitute it with a glass of honey water. (Honey water is made by mixing honey with cold water.)

Those who are suffering from emaciating diseases (*sosha*) like tuberculosis may drink meat soup as an after drink. It supplies ample protein and fat for compensating the wasting of muscles.

Liquor is preferred as an after drink to meat. In case of reduced digestive fire also liquors (*arishta* or *aasava*) may be used as after drinks. Usually, people prefer to have liquor as an appetizer. They consume it before meals. But drinking liquor before meals tampers the stomach and in due course the appetizer chances to reduce the appetite. Hence liquor should be consumed along with food or after the food.

Milk is an ideal after drink for those who are weakened by diseases, consuming medicines, lectures, coitus and reductive procedures. It is also good for the aged and children. It is said that milk is like nectar for them.

Now, think twice before sipping at the hot tea cup after a sumptuous wheat meal. □



Tail piece: There is another type of drink mentioned by Ayurveda. It is co-drink (*saha-paana*). A co-drink is consumed along with the meal. In case of oral medication co-drink is the vehicle for the drug. Thus when you are grinding a pill in honey and consuming it, honey is a co-drink.

Are We Eating Right?

Some foods which are wholesome individually can become hard to digest or even toxic when combined or cooked the wrong way. These food incompatibilities are believed to be the real cause of many modern day health issues, starting from premature hair-loss to auto-immune diseases.

Here are some food incompatibilities found commonly nowadays:

- Milk and salt is incompatible. This includes having tea with salty snacks.
- Mixing acidic fruits such as lemon, orange, grapes etc, with milk is harmful.
- Taking milk along with very sweet and heavy fruits like jackfruit is incompatible.
- Taking milk with horse-gram or black-gram is not advisable.
- Avoid fruits soon before, during or soon after taking milk.
- Combining garlic and milk is unwholesome.
- Milk products and alcohol do not go well together.
- Milk on combination with prawns can cause several diseases and even death.
- Mixing banana with milk, curd or buttermilk is not advisable.
- Taking eggs with milk, meat, yogurt, melons, cheese, fish or banana is not good.
- Fish or meat should not be combined with honey jaggery, sesame, milk, radish, black-gram or sprouted grains.
- Heated curd is toxic and using it either directly or in cooking invites illnesses.
- Though a common practice, having chicken and curd together is incompatible.
- Chicken is also incompatible with cheese.
- Vegetables cooked in or mixed with butter is unwholesome.
- Never drink ghee and water together.
- Using heated honey as such or pouring it on hot foods is dangerous.
- Never drink honey and water together.
- Ghee and honey should not be taken in equal quantity.
- Do not combine black-gram and radish.
- Fruits should not be taken with tubers and starches like potato, tapioca etc.
- Do not use sprouted grains regularly.
- Drinking hard water or using it for cooking is harmful.
- It is best to avoid fish or pork fried in mustard oil.
- Try and avoid frying foods in oil already used to fry other foods. For example frying fish in the same oil used to fry pappad.
- Refrigerating and reheating of food that is already prepared are best avoided.
- As a general rule, avoid combining opposite qualities ie. hot with cold, ripe with unripe new with old etc.

Keep this chart handy and ensure that the food taken by you and your loved ones are wholesome in its true sense.



Liver protects You
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