Ayurvedic Dietary Regimens and Yogic Practices in the Regulation of Metabolic Disorder: A Systemic Review

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Abstract

Ayurveda strongly focus on two concepts of diseases first one is related to outcome of over-nutrition and second one, related to under-nutrition. The disease Metabolic syndrome is the outcome of over nutrition due to defective tissue metabolism. Metabolic syndrome increases the risk of cardiovascular diseases, diabetes, CKD and other metabolic disorders. There has been a heightened awareness of Metabolic syndrome in the past few years and a subsequent increase in clinical attention directed towards its prevention, due to its strong association with morbidity and mortality. A quarter of the world's People have metabolic syndrome and prone to greater risk of developing type 2 diabetes. As Prameha, Sthaulya, Hridroga primarily Amabahula and Santarpanajanya Vyadhi, Langhana is basic Chikitsa (treatment protocol) for it.

Aim & Objective: There is no permanent cure for metabolic syndrome in modern medical science till date and drugs used in modern science to treat metabolic syndrome have several adverse effects like nausea, bowel upset etc. and leads to liver, renal and cardiac damage. So, it is a need of time to find out safe and cost-effective treatment for metabolic syndrome from Ayurveda.

Result and Discussion: Along with the regular streak of management of the disease with which the patient is presenting the diet, drug and life style changes should be added in the prescription to get the ultimate result in treatment. Lifestyle modifications, such as increases in the daily physical activity and changes in diet are initial step in the management of metabolic disorders.

Keywords: Diet, Samagani, Metabolic health, Metabolic Disorders.

Introduction

Metabolic health refers to the optimal functioning of biochemical processes that regulate energy production, storage, and utilization in the human body. A critical determinant of metabolic health is the body's response to insulin, a hormone secreted by the pancreas that facilitates the transport of glucose from the bloodstream into cells for energy metabolism. When this mechanism becomes impaired, a condition known as insulin resistance develops, resulting in elevated blood glucose levels and a cascade of metabolic disturbances.

Insulin resistance is often associated with additional metabolic derangements, including:

- Increased Waist Circumference (Central Obesity)
- Elevated Blood Pressure (Hypertension)
- Dyslipidemia (abnormal levels of triglycerides and cholesterol)
- Raised fasting blood glucose levels

Collectively, these abnormalities may manifest as metabolic

syndrome when three or more of these risk factors coexist. Metabolic syndrome significantly elevates the risk of type 2 diabetes mellitus, cardiovascular diseases, and certain malignancies.

In contrast, individuals with good metabolic health maintain these parameters within normal physiological limits and have a markedly reduced risk of developing chronic lifestylerelated disorders.

Assessment of Metabolic Health

Metabolic health can be assessed through clinical and biochemical markers, including:

- Fasting blood glucose levels
- Lipid profile (triglycerides, HDL-C, LDL-C, total cholesterol)
- Blood pressure measurement
- Waist circumference (a surrogate marker for visceral adiposity)
- These indicators provide an integrated assessment of metabolic status and are crucial for the early detection of

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metabolic dysregulation.

• Determinants of Poor Metabolic Health

The etiology of poor metabolic health is multifactorial, involving genetic predisposition and modifiable lifestyle factors. Key contributors include:

Advancing age

- Overweight and obesity, particularly visceral fat accumulation
- Male gender (higher risk of central adiposity)
- Family history of metabolic syndrome
- Dietary patterns high in saturated fats, refined carbohydrates, and low in dietary fiber
- Physical inactivity and sedentary behavior
- Tobacco use
- Excessive alcohol consumption

The synergistic impact of these factors disrupts homeostasis and contributes to the pathogenesis of metabolic syndrome and related disorders [1].

Concepts of Agani in Ayurveda

In Ayurveda, the term "Agni" is used in the sense of digestion of food and metabolism. Agni is responsible for absorbing the nutrients and essential elements the body needs while burning off waste products. If our Agni is strong, we're able to digest food efficiently and easily. On the other hand, if Agni is weak, our body won't digest the ingested food item well, creating toxic residue or Ama that lodges deep in our cells. If digestive fire is not functioning properly, one has poor digestion, languid blood-circulation, poor complexion, low energy levels, flatulence and poor immunity against diseases. Thus, according to Ayurvedic principles promoting proper functioning of the digestive fire is the main key of treating the root cause of the diseases.

Table 1: Nitya sevaniya ahara according to Astanga sangraha-(A.Sa.Su. 10/70-72)^[2]

S. N.		
1.	Carbohydrates (Pradhantam)	Shali Godhuma Yava Shashtikashali Madhu
2.	Proteins (Pradhantam)	Mudga Shali Godhuma Shashtikashali Jangalamamsa
3.	Fats (Pradhantam)	Ghrita Milka
4.	Vitamins	Amalaki Mridvika Dadim Patoli
5.	Minerals	Pathya Triphala
6.	Water	Antariksha jala

Aamalki

According to acharya Sushruta Aamalki is Amla ras, Samadhura Tika Kashaya, Katu Sarm, Chakshushya, Sarvadoshaghnam, Vrishya, Vatahar because of Amla rasa, Pittahar because of Madhurya and Shaitya, and kaphahar because of Rukshya. Amla fruits are a relevant source of protein, minerals such as (iron, calcium, and phosphorous) and fat an important component found in Aamla fruit is ascorbic acid (Vita-C). So, it used in cure to Madhumeha.³

Yava (Hordeum Vulgare):

It is Mutral, kaphasamak, use in Stholya. Purishajanana, lekhana, Agnivardhan, varnasthairyakar.

Madhu (Honey): Aggravates Vata, Rakta Pitta Kapha - har, Ruksha, Kashaya & Madhura. Honey has also been used topically as an antiseptic therapeutic agent for the treatment of ulcers, burns and wounds.

Mudga (Phaseolus mudga)

Rich in fiber (16g/100gm) especially soluble fiber pectin. The husks are found to be resistant to in-vitro gastrointestinal digestion, and thus contain non-digestible constituents, and support the growth of beneficial microorganisms commonly present in the gastrointestinal tract [4].

Saindava Lavana (Sodium Chloride):

- Guna: Laghu, Snigdha, Tikshna
- **Karma:** Agnideepana, Pachana, Ruchya, Netriya, Hridya, Vrishya
- Veerya: Sheeta
- Doshakarma: Tridoshashamaka
- Amayika Prayoga: Sothahara, Vibandagna, Vranadoshahara

Saindhava Lavana boosts cellular absorption of minerals and helps in replenishing the body's electrolytes and maintaining the pH balance. Hence, it is used to stimulate your body's metabolism ^[5].

Dugdha (Cow's Milk): is one of best rejuvenate food according to Charak. It has a fine blend of all nutrients. It is a good source of protein, fat, sugar, vitamins and minerals. Milk protein contains all the essential amino acids.

Antariksha Jala (Rain Water): is the basic requirement. It is the prime source of all the water and purest water in the nature.

Sarpi (Cow's Ghee): is easier to get absorbed. It can bond with lipid-soluble nutrients and herbs to penetrate the lipid-based cell walls of the body. It is also Pitta-Vata hara, good for Shukra, Oja, Swara, Varna, Nirvapanam, Sanskar Anuvartan in nature ^[6].

Shashtika Shali (Oriza sativum)

Rice is known as a queen of cereal crops that have a high nutritional value such as carbohydrate, fat, fiber, protein, vitamins as well as food energy, minerals profile and fatty acids. Fiber is important for regular bowel movements and overall bowel health. Fiber may also help with losing weight and lowering cholesterol and blood pressure. Anthocyanin in *Oriza sativum* have prebiotic activity by effecting bifido bacteria and lactobacillus.

Triphala

Antioxidant, anti-inflammatory, immunomodulating, appetite stimulation, gastric hyperacidity reduction, dental caries prevention, antipyretic, analgesic, antibacterial, antimutagenic, wound healing, anticariogenic, antistress, adaptogenic, hypoglycemic, anticancer, hepatoprotective, chemoprotective, radioprotective, and chemopreventive effects [7].

Patola: (Trichosanthes dioica)

Pachaka-helps to digest undigested food, Hrdya-good forheart, Agnidipaka-increases the secretion of digestive enzymes, Kasaghna-relieves cough, Jvaraghna-relieves fever, Krimighna-removes worms, Balya- gives strength to the body, Visaghna-antitoxic activity [8].

Mridvika Phala-(Vitis vinifera Linn)

Pharmacological Action: The Mridvika Phala is Madhura (Sweet) in taste, Vata-Pitta Shamaka, Sheeta Virya (Cold in potency). Snigdha (Demulcent), Brimhana (Nourishing). Vrishya (Aphrodisiac). Alleviates Jwara (fever). Kasahara (Cough). Raktapitta (Bleeding diseases). Kshata (Injury). Daurbalya (Generalized weakness) [9].

Dadima Phala-(Punica granatum Linn)

Pharmacological Action: Dadima Phald is Tridoshagna (Subsides all the three Doshas), Deepana (Appetizer), Hridya (Cardio tonic), Grahi (Absorbent). As per Bhavaprakasha

Nighantu he explained three types viz, Madhura (Sweet), Madhuramla (Sweet and Sour), Amla (Sour) [10].

Apathya Ahara in Sthoulya [11]

Anna Varga-Navanna, Masha.

Jalavarga-Dusita/Jala, Sheet Jala.

Madyavarga-Nutana Madya.

Ksheeravarga-Dadhi, Ksheera.

Mamsavarga-Anupamamsa

Apathya

Grains, rice, black gram, sweet fruits, potatoes, etc. that have just been harvested. Alcohol, sugarcane products, jaggery, eating before previous meals have been digested and incompatible foods [12].

Apathyakar Ahara (Unwholesome) - Dadhi (Curd), Takra, Ikshurasa (SugarCane Juice)), Guda, Pista - Anna, Nava - Anna, Urada, Gramya - Audaka - Anoopa Mansa, Naveen Sura Adhyasan, Viruddhasana, Kapha - MedaVardhak Ahara, Madhur - Amla (Sour) - Lavana (Salty) Rasadi Ahara.

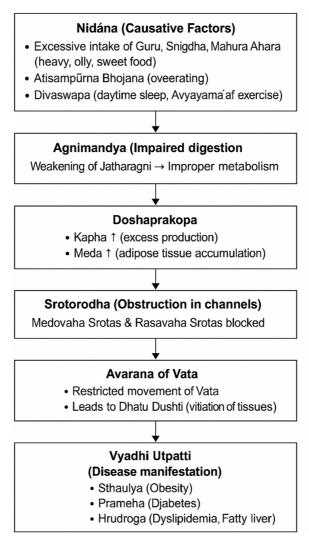


Fig 1: Samprapti of Santapanajanya Vyadhi

Loosening Practices

Side Bending, Twisting, Jogging, Cycling, Side leg raise, Butterfly, Ankle rotation, hip rotation, Knee rotation, Shoulder rotation.

Asana Practices

- Ardhakati Chakrasana
- Trikonasana (Triangle posture)

- Vrikshasana (Tree posture)
- Bhujangasana (Cobra posture)
- Vakrasanasa (twisted posture)
- Ardha Matsyandrasana (Half Spinal Twist)
- Virabhadrasana (Warrior posture)
- Gomukhasana (Cow face posture)
- Ustrasana (Camel posture)
- Surya Namsakara (12) (Sun Salutation)

Krivas

Jalanethi, Vamana Dhouti with plain water, Kapalabhati,

Pranayama:

Nadisuddhi, Ujjayi, Bhramari Meditation Nadanusandhana - AAA Kara - 9 times, UUU Kara - 9 times, MMM Kara - 9 times. OM Kara - 9 times.

Nidra: Acharya Charaka has stated Nidra as-"It is a special state of mind in which the mind is not associated with any type of *Indriyas*. This detachment from the *Bahiya Vishaya* is the result from the tiredness of the body as well as mind." According to *Chakrapani Datta*, Sleep is considered as cause as well as *Chikitsa* for *Sthoulya* and *Karshya*

Nidra is necessary for good health, long life, wellness, strength, virility, and wisdom. Numerous illnesses are manifested by Aplanidra or Nidranasha. Nidranash is caused by the stresses of Vata Dosha, Pitta Vruddi and Kapha Kshaya. We must get the right amount of sleep at the right

time to preserve our health and treat illnesses.¹³

Balance Diet in Ayurveda: Ideal food is nothing but the food which is necessary for maintenance of health, proper body growth & development. It is also described as "Balance Diet". Balance diet is defined as one which contains a variety of food in such quantities and proportions that the need for energy, amino acid, vitamins, minerals, fat, carbohydrate and nutrients is adequately met for maintaining health, vitality and general wellbeing and also makes a small provision for extra nutrients to with stand short duration of leanness [14].

Methodology: The present review study highlights the importance of the regular consumption of *Nitya Sevaniya Ahara Dravya* as advocated in classical Ayurvedic texts including Charak Samhitā, Aṣṭāṅgasaṅgraha and Published research articles along with the adoption of appropriate sleep hygiene (*Nidra*) and incorporation of physical exercise (*Vyayama*) as integral components for the maintenance of *Swasthya* (health) and prevention of disease.



Fig 2: Nitya Sevaniya Ahara Dravya

Results and Discussion

Ayurveda places significant emphasis on a proper diet as a cornerstone for the preservation and promotion of positive health, as well as for the prevention and management of diseases. For individuals suffering from any ailment, strict adherence to dietary guidelines, described in terms of *Pathya* (wholesome) and *Apathya* (unwholesome) food, is considered essential. Without compliance to these dietary regulations, even the most potent medicines may fail to yield results. Food consumed in appropriate quantity and quality is regarded as vital for imparting strength, vitality, a radiant complexion, and for nourishing the body tissues (*Dhatus*). To achieve and

sustain optimal health, it is imperative for an individual to live in harmony with their environment and follow a diet that is compatible with their unique bodily constitution (*Prakriti*). lifestyle modifications (*Dinacharya* and *Ritucharya*), including enhancement of daily physical activity (*Vyayama*) and appropriate dietary regulations (*Ahara Paricharya*), are considered the foundational measures in the prevention and management of *Santarpanajanya Vyadhis* (metabolic disorders).

Conclusion

Ayurveda offers a time-tested framework for the prevention

and management of metabolic disorders through dietary regulation, proper sleep, and physical activity. The principles of *Nitya Sevaniya Ahara*, *Nidra*, and *Vyayama* are crucial for promoting *Swasthya* and addressing *Santarpanajanya Vyadhis*. Integrating these Ayurvedic practices into contemporary healthcare could provide a cost-effective, safe, and holistic strategy for combating the growing burden of lifestyle diseases.

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