Review Article

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Assessment of Nutritional Status in Ayurveda

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Abstract

Nutritional status of a person has prime importance in treatment of disease and its prognosis. In Ayurveda there are so many tools explained to assess the nutritional status by a different authors in different texts. Some of the important assessment criteria's are discussed in the context like *dashavidhapariksha, ashtavidhapariksha* and other criteria's which will help the physician to decide the treatment plan.

Keywords: *Ayurveda; Dashavidhapariksha; Ashtavidhapariksha;* Nutrition; Diet.

Introduction

Nutritional assessment of patient in clinical practice has got an importance in diagnosing & assessing the diseased condition. In Ayurveda, while explaining Dashavidhapareeksha (ten folds of examination) of the patient, the author Charaka includes the assessment of nutritional status of an individual. Nutritional status of an individual is an important marker of any disease. The condition like under-nutrition is readily treatable, whereas in over-nutrition it requires nutritional attention to fulfill the need of the patient.[1] In the Ayurvedic classics, it is elaborately explained in terms of Vruddhi (increased) & Kshaya (decreased) status of the Dhatus(tissues). In malnutrition there is an impaired immunological & healing response. In this regard nutritional support can hasten recovery & protect against complications. Attention to nutritional status may positively influence the course of the disease.[2]

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How to Assess the Nutritional State of an Individual?

Nutritional status of an individual can be assessed by ABCDE method of nutrition. Here A is an anthropometric assessment, B is bio-chemical evaluation, C is clinical history, D is dietary history & E is an economical status of an individual. In Ayurveda too, it is assessed on these parameters only.[3,4]

Ayurvedic View of Assessment of Nutritional State According to Charak[5]

Clinical History

- Prakruti (Constituent of the body)
- Vikruti [Dosha's (bodily humours) which are disturbed in the body]
- Satva (Will power)
- Saara (Predominant Dhatu in the body)

Nutritional History

- Samhana (status of nourishment of the body)
- Pramana (Anthropometric measurement)

Dietary History

- Saatmya (accustomed food consumption in terms of taste & type)
- Aharashakti (Capacity to intake of food in quantitatively & state of digestion)

Table 1: Dashavidhapareeksha & Contemporary Parameter of Assessment in Nutrition

• *Prakruti* (Constituent of the body)	**Clinical history**
• *Vikruti* (Dosha's (bodily humours) which are disturbed in the body)	
• *Satva*(Will power)	
• *Saara*(Predominant dhatu in the body)	
• *Samhana* (status of nourishment of the body)	**Nutritional History**
• *Pramana* (Anthropometric measurement)	
• *Saatmya* (accustomed food consumption in terms of taste & type	**Dietary History**
• *Aharashakti* (Capacity to intake of food in quantitatively & state of digestion)	
• *Vyaayamashakti* (Capacity to do exercise & state of exertion)	**Physical examination**
• *Vaya* (Age)	

Physical Examination

- Vyaayamashakti (Capacity to do exercise & state of exertion)
- Vaya (Age)

According to Yogaratnakara

Vital Signs/Physical Examination

- Naadipareeksha(Pulse examination)
- Jivhapareeksha (Tounge examination)
- Shabdapareeksha (auscultatory sounds like cardio- respiratory sounds etc.).
- Sparshapareeksha (palpation examination)
- Drukpareeksha (Eye examination)
- Akrutipareeksha (Shape of the body)[6]

Laboratory Examination

- Mootrapareeksha (Urine examination)
- Mala pareeksha (Stool examination)

1. Anthropometric measurements

During physical examination, to evaluate whether the patient is of usual body build, unusually thin or overweight. Anthropometric measurements fall in the physical examination of the patient. Anthropometry is a technique for assessing nutritional status. This includes weight, height, BMI, skinfold thickness, mid-arm circumference, chest circumference, abdominal circumference, waist-hip ratio & mid-thigh circumference. While explaining the disease like Sthoulya (Obese) & Karshya (Underweight), the author has considered certain criteria of assessments which are nothing but the anthropometric measurements in contemporary science. Growth & physical state of the body are influenced by diet & intern produces these two conditions.[3,4]

Weight

A detailed history regarding the weight of

Table 2: Ashtavidhapareeksha & Contemporary Parameter of Assessment in Nutrition

• *Naadipareeksha*(Pulse examination)	**Vital Signs / Physical Examination**
• *Jivhapareeksha*(Tounge examination)	
• *Shabdapareeksha* (auscultatory sounds like cardio- respiratory sounds etc.)	
• *Sparshapareeksha* (palpation examination)	
• *Drukpareeksha* (Eyeexamination)	
• *Akrutipareeksha* (Shape of the body)	
• *Mootrapareeksha*(Urine examination)	**Urine & Stool (Laboratory) Examination**
• *Mala pareeksha* (Stool examination)	

the patient is one among the good clinical indicator for assessing the nutritional status of an individual. In under-nutrition/ starvation, there will be a gradual loss of weight was observed by the physician. Loss of weight of more than 20% indicates chances of Protein Energy Malnutrition (PEM).

Height

Measuring the length of a person is good guide of growth & is an indicator of status of nutrition. Normal height of a person as per different author is 84 angula, 120 angula, Hastatraya.[5]

BMI

The relationship between body weight & height provides a simple estimate whether weight is appropriate for height. Nutritional intervention will be needed if the BMI is less than 18 kg/m^2. BMI is calculated by weight in kg divided by height in meter square.

i.e., BMI = wt (kg) / ht $(m)^2$. This parameter has been explained in terms of aayama (height)-vistara (breadth) of the shareera of an individual.[5]Following is the gradation given based on the BMI values.

- Underweight – < 18kg/m2
- Normal – 18 - 25kg/m2
- Overweight – 26 - 29kg/m2
- Obese – 30–39 kg/m2
- Morbid obesity – > 40kg/m2

Skin-Fold Thickness (SFT)

Skin fold measurements at multiple sites correlate well with total body fat especially in the biceps & triceps. SFT over triceps is a perfect index of nutritional status. Simple circumference of upper arm & abdomen can also provide useful measures of body fat.

Mid-Arm Circumference

It is a status indicator of the protein compartment i.e., skeletal muscles. This is the important tool for assessing protein deficiency in childhood.

Waist-Hip Ratio

Central obesity & abdominal adiposity is measured by waist-hip ratio. A waist hip ratio greater than 1.0 in men, 0.8 in women is indicative of android obesity.

2. Bio-chemical evaluation

In the development of any deficiency disease, biochemical changes can be expected to occur prior to clinical manifestation. A number of biochemical tests are available for studying nutritional status of an individual. Hemoglobin estimation is a useful index of the overall state of nutrition irrespective of its significance in anemia. Charaka mentioned the quantities of dhatu's as majja-1anjali, meda-2 anjali, vasa-3anjali, mutra-4 anjali, pitta-5 anjali, kapha-6 anjali, purish-7 anjali, rakta-8 anjali, rasa-9 anjali, udaka-lasika-sweda-10 anjali, mastishka-shukra-aparaoja-1/2 anjali.

3. Clinical examination

Clinical examination assesses levels of health of individuals in relation to health. This aspect has been revealed in roga & rogipareeksha. When two or more clinical signs characteristic of a deficiency diseases are present simultaneously, their diagnostic significance is greatly enhanced.[3]

Clinical History

Clinical history includes nutritional & dietary history. By listening the clinical history from the patient in case of starvation, patient is likely to be at risk of malnutrition because of reduced intake of food or poor appetite or inability to eat. This aspect has been explained in aharapareeksha of the rogi while explaining dashavidhapareeksha. History of infection & infestation such as malaria, TB, parasitic infestation, chronic diarrhea & dysentery often leads to some form of deficiency state of

the nutrients in the body. Other common causes include mental depression, viral illness (flu) which often causes transient loss of appetite & chronic drug/alcohol abuse. While explaining bala kshayakara bhaav, the author has included all these aspects. A history of diarrhea/steatorrhoea with progressive weight loss despite a good appetite should lead to consideration of alimentary disorders such as celiac disease, bacterial overgrowth syndromes/inflammatory bowel disease. Increased metabolic needs arise in severely ill patients, particularly those with fever, burns/ cancers or following major trauma including surgery. Hyperthyroidism must also be remembered as a cause of weight loss despite good appetite.

Examination Sequence

- Measure the height of a patient in standing with a vertical scale in an erect position without shoes.
- As increase in height is seen in Gigantism (Hyper-pituitarism) & decreased height is seen in Turner's syndrome.
- Determining the weight of patient with minimum clothing & without shoes.
- Calculate the BMI wherever necessary.
- Check the temperature of the patient in case of hypothermia.
- Looking for any evidence of malnutrition
- Determine the waist-hip (W:H) ratio in the erect posture.
- Distribution of abnormal fat is seen in Cushing's syndrome & localized deposits as seen in lipomas.
- State of hydration will be assessed on the skin texture.[4]

4. *Dietary History*

A simple evaluation of diet is mandatory in all patients who appear malnourished. General questions about frequency of meals, types of food eaten & methods of food preparation give a clue to dietary habits. Recent changes in appetite/dietary patterns should be noted.

- Avoiding certain foodstuffs for any reason.[3,4]

Nutritional History

Nutritional history reveals the following things.

- Loss of weight is a definite marker in some of the diseases.
- Acute/chronic illness affects nutritional intake (infection, fevers, TB, DM etc)
- Daily assessment of nutrition can be done by asking qualitative (sarvagraha & parigrahaahara) & quantitative (matrayuktaahara) aspects of diet.[5]
- The process by which meal is prepared (samskara of the ahara) & whether during the process of preparation, preservation of vitamins are taken care of or not.[5]

5. *Economical History of the Patient*

Here the economic condition of the patient to be considered.

Summary

Assessment of nutritional status has been widely and elaborately described by all Ayurvedic literature. Nutritional status of a person is itself an indicator of good /bad health and it is the main cause in the manifestation of the disease and its prognosis. Person with a good nutritional status will poses strong immunity and able to protect against the diseases. The assessment especially helps to diagnose the stage of the disease, to fix the dose and to see the prognosis of the disease.

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