Review Article

How Can We Assess the Nutritional Status of an Individual?

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Abstract

Nutritional status of an individual is generally dependent on two factors, external factors such as food safety, cultural, social, economical factors and internal factors, which include age, sex, nutrition, behavior, physical activity and diseases of the person. This article describes the methods of assessing the nutritional status of an individual in easy ways.

Introduction

The condition of imbalance in nutrition is called Malnutrition. Over nutrition and under nutrition can be the two reasons causing Malnutrition. Health of a person is not only dependent upon the physical well-being of a human but, it also depends upon mental and social well-being and good nutrition as well. The nutritional status of a person can be measured by the popular method known as ABCDE method-

A- Anthropometric method

B- Biochemical method

C- Clinical method

D- Demographic factors method

E- Environmental and Social factors method

Anthropometric method

Anthropometric method includes human body measurements. It can be done by the following methods-

1. Body Mass Index- Body Mass Index is popularly known in its short form, BMI. It can be calculated by this formula :

BMI = Weight (Kg)/ Height^2 (M)

After calculating the BMI, if BMI is more than 40, then the person is suffering from a 3-grade obesity, if BMI is between 30-40 then, it is a 2-grade obesity, if itis between 25- 29.9 then it is a 1-grade obesity and less than 25 BMI indicates that person is not obese, but fit.

2. Waist Circumference- High risk waist circumferences are:

For men -> 40 inches (> 102 cm)

For women -> 35 inches (> 88 cm)

3. Arm circumference

Arm circumference is also an important indicator of nutritional status.

4. Weight for Age

In this assessment; children are classified as 1, 2 or 3 degree malnutrition, when their weight for age ranges in the proximity of 75-90%, 60-75% or less than 60% respectively of the referenced median.

5. Measurement of body fat

Different types of skin fold calipers are there in market to measure the body fat such as Harpenden calipers, large calipers, USA MRNL calipers etc.

6. Ponderal index

It is the ratio of height to the cube root of weight (lbs) of the person. An index less than 13, indicates obesity.

Ponderal Index = weight (g) x 100/ (height, cm) 3

7. Waist to hip ratio

The predominant dispersion of fat in a fatty person in lower or upper part may reveal the disease pattern.

8. Broka's index

This indicator has a formula

Height (cm) – 100 = Ideal Weight (kg)

B)-Biochemical assessment method

This assessment involves assessment of Protein, Vitamin A, Vitamin B (Thiamin, Riboflavin, Niacin, and Folic Acid), Vitamin C, Vitamin $B_{12,}$ Iron and Iodine.

C) - Clinical assessment

It includes assessment of following components of body-

1) -General appearance and behaviour– Short Statured, Under Weight, Easily fatigued, Listless, Apathetic, Cathexis, Depressed, Nervous, Irritable, Inability to concentrate, Poor work capacity, Insomnia, polar, etc. are the major general signs of nutritionally unfit.

2)- Hair- If the hair are thin and sparse, dry and brittle, easily pluckable, dyspigmented, flag signs, then the person is malnourished.

3) - Face- Diffuse Depigmentation, Nasolabial Dyssebacia, Moon face, monkey face is common signs of malnutrition.

4) - Eyes- Pale conjunctiva, Corneal xerosis, Keratomalacia, Angular Palpebritis, Bitot's spot may be one of the symptoms that can be found in malnourished person.

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5) - Lips- Angular Stomatitis, Cheilosisis found in malnourished person.

6) - Tongue- Paleness, scarlet, raw tongue and magenta red atrophic papillae should be checked of the person in the case of tongue.

7) - Skin, Gums, Oral mucous membrane, Skin, Nails, Muscles, Skeleton glands are also checked in clinical assessment [1-5].

D) Demographic assessment

Demography is also responsible for the nutritional status of person. Generally, it is observed that people living in hilly region, lack iodine content, causing goiter. It has been seen that, if a person has large family, then the family members will also be nutritionally weak in comparison to smaller families.

E) Environmental and social factors

Social factors are the main factor affecting the nutritional status in Indian society. These some of the following social factors responsible for poor nutritional status:

a) **Economical condition** - Economic condition is one of the main causes of the nutritional status of the person. The person of the influential society generally eats nutritional and expensive food stuffs, but the poor families cannot afford those expensive food stuffs, this also make a great difference in the nutritional status of the person.

b) **food related myths**- There are many food related myths that affect the nutritional status. It is believed that black pepper, papaya, red gram should not be eaten by pregnant women, but it is a misconception that causes malnutrition in pregnant women.

c) **Food fades and taboos**- In our Indian society, there are many food related taboos, such as, it is considered that females should eat food after male, so the females eat the food at the last and eat the leftover food, which causes degradation of nutritional status.

d) **Cultural influences**- Cultural influences are also one of the main causes of bad nutritional status. In India, females cover themselves by clothes all the time, and they do not come outside the home, so they are generally prone to being affected by deficiency of Vitamin D because of lack of exposure in sunlight. This type of deficiency causes rickets in children and osteomalacia in adults.

e) **Religious causes**- Due to religious sentiment, in some of the Indian family egg, meat and other non-vegetarian foods are prohibited, causing deficiency of Protein content in the body. Prohibition of Onion, Garlic and other such stuff alsoadds up in bad nutritional status.

f) **Early marriages**- Early marriages are also responsible for bad nutritional status in females. Early marriage results in early pregnancy, so the health of female is affected adversely, causing major health problems.

g) **Food habits**- Food habits are also responsible for health problem. Eating untimely, skipping meals, avoiding fruits and nutritious food items are very general causes for imbalance in nutritional status of a person.

Importance of the Method of Assessing Nutritional Status

- Nutritional assessment should be done at regular intervals to check if there is any type of infection or disease (such as HIV, Cancer etc.) in the body because if it is detected in its primary stage, it can be treated easily.

- It is important to check if there is deficiency of any nutrient.

- Nutritional assessment is important for healthy and fit lifestyle.

- If we regularly assess the nutritional status of our body, many disorders of liver, intestine, kidney, etc. can be treated before the condition become worse.

One can know the physical health of a person by applying any of the above stated methods. In today's busy schedule, people donottake the time to take care of their health, resulting indecrementation in human life span day by day. If we are aware of this method of assessment, then we can keep away us from common diseases quite easily [6-11].

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