

## Pediatric malnutrition

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### ABSTRACT

Malnutrition is one of the main reasons for child deaths in developing countries. More than 90% of children suffering from malnutrition live in developing countries. The lack of micronutrients, including iodine, iron, calcium, zinc, vitamins A, D, and B2 is considered as a major problem in some parts of Iran, particularly in Sistan and Baluchestan province. The

growth status of children, including weights, heights, and body mass index (BMI), were measured after giving a cooked meal, which included 250 Kcal of energy per meal, 15 grams of protein, 25 grams of carbohydrates and 10 grams of fat. After 120 days; the weight-for-age, height-for-age, and body mass index (BMI)-for-age of the children were compared before and after the intervention, based on the WHO standard and the z-score, using Chi-square and paired t-test.

**Key words:** Pediatric Malnutrition; Macronutrients; Nutrition Food

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### DESCRIPTION

Many families cannot afford or access enough nutritious foods like fresh fruit and vegetables, legumes, meat, and milk, while foods and drinks high in fat, sugar, and salt are cheaper and more readily available, leading to a rapid rise in the number of children and adults who are overweight and obese, in poor as well as rich countries. It is quite common to find undernutrition and overweight within the same community, household or even individual - it is possible to be both overweight and micronutrient deficient, for example.

Extreme fluid retention observed in individuals suffering from kwashiorkor is a direct result of irregularities in the lymphatic system and an indication of capillary exchange. The lymphatic system serves three major purposes: fluid recovery, immunity, and lipid absorption. Victims of kwashiorkor commonly exhibit reduced ability to recover fluids, immune system failure, and low lipid absorption, all of which result from a state of severe undernourishment. Fluid recovery in the lymphatic system is accomplished by re-absorption of water and proteins which are then returned to the blood. Compromised fluid recovery results in the characteristic belly distension observed in highly malnourished children.

Capillary exchange between the lymphatic system and the bloodstream is stunted due to the inability of the body to effectively overcome the hydrostatic pressure gradient. Proteins, mainly albumin, are responsible for creating the colloid osmotic pressure (COP) observed in the blood and tissue fluids. The difference in the COP of the blood and tissue is called the oncotic pressure. The oncotic pressure is in direct opposition with the hydrostatic pressure and tends to draw water back into the capillary by osmosis. However, due to the

lack of proteins, no substantial pressure gradient can be established to draw fluids from the tissue back into the blood stream. This results in the pooling of fluids, causing the swelling and distention of the abdomen.

Marasmus is commonly represented by a shrunken, wasted appearance, loss of muscle mass and subcutaneous fat mass. Buttocks and upper limb muscle groups are usually more affected than others. Edema is not a sign of marasmus and is present in only kwashiorkor and marasmic kwashiorkor. Other symptoms of marasmus include unusual body temperature (hypothermia, pyrexia); anemia; dehydration (as characterized with consistent thirst and shrunken eyes); hypovolemic shock (weak radial pulse; cold extremities; decreased consciousness); tachypnea (pneumonia, heart failure); abdominal manifestations (distension, decreased or metallic bowel sounds; large or small liver; blood or mucus in the stools), ocular manifestations (corneal lesions associated with vitamin A deficiency); dermal manifestations (evidence of infection, purpura, and ear, nose, and throat symptoms (otitis, rhinitis). Dry skin and brittle hair are also symptoms of marasmus. Marasmus can also make children short-tempered and irritable.

### CONCLUSION

With therapy for underlying ailments causing malnutrition and Dietary changes, like eating food sources high in energy and supplements, mineral enhancements can prevent malnutrition. Malnutrition alludes to getting close to nothing or a lot of specific supplements. It can prompt genuine medical problems, including hindered development, eye problems, diabetes and coronary illness. Malnutrition affects billions of individuals around the world.

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