IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

The Hidden Hunger Understanding Malnutrition

[1]Mhaske Punam Navnath, [2]Muntode Akshay Balasaheb, [3]Wagh Sudarshan Anil, [4]Pawar Sonu Suresh, [5]Nikam Harshad Popat

[1]Student , [2]Student , [3]Student, [4]Student, [5]Student

[1]Dr. Ithape Institute Of Pharmacy,

[2]Dr.Ithape Institute Of Pharmacy ,

[3]Dr.Ithape Institute Of Pharmacy ,

[4]Dr.Ithape Institute Of Pharmacy ,

[5]Dr.Ithape Institute of Pharmacy

Abstract : Malnutrition is a deficiency or imbalance of nutrients, causing adverse effects on body composition, function, and clinical outcomes. It is common in developing countries but not widely recognized in UK society and health settings. It occurs for psychosocial reasons and disease, directly affecting clinical outcomes and causing significant healthcare expenditure. Recognizing and treating malnutrition can improve patient care and reduce costs.

Poor oral health can lead to malnutrition, affecting the oral cavity's health and potentially affecting tissue healing and disease progression. Protein-energy malnutrition, a deficiency in essential nutrients, can also contribute to oral health issues.

Nutrition in older adults often shifts from healthy diets and exercise to meeting increased nutrient needs and minimizing muscle loss. Malnutrition in the elderly can lead to starvation, sarcopenia, and cachexia. Screening tools like MST, MNA-SF, and 'MUST' can help identify malnutrition. Regular screenings can improve outcomes and quality of life, ensuring early identification and treatment.

Keywords : protein-energy malnutrition, its prevalence, nutritional management, health economics, MUST score, re-feeding syndrome, and screening in the elderly population.

Definition Of Malnutrition : This review defines childhood malnutrition as undernutrition causing growth failure or weight loss, or severe acute malnutrition. Growth failure is often defined by low weight-for-age, length-for-age, or wasting. Mid-upper arm circumference (MUAC) has been promoted for severe acute malnutrition diagnosis. Other definitions include micronutrient deficiencies, intra-uterine growth restriction, and obesity.

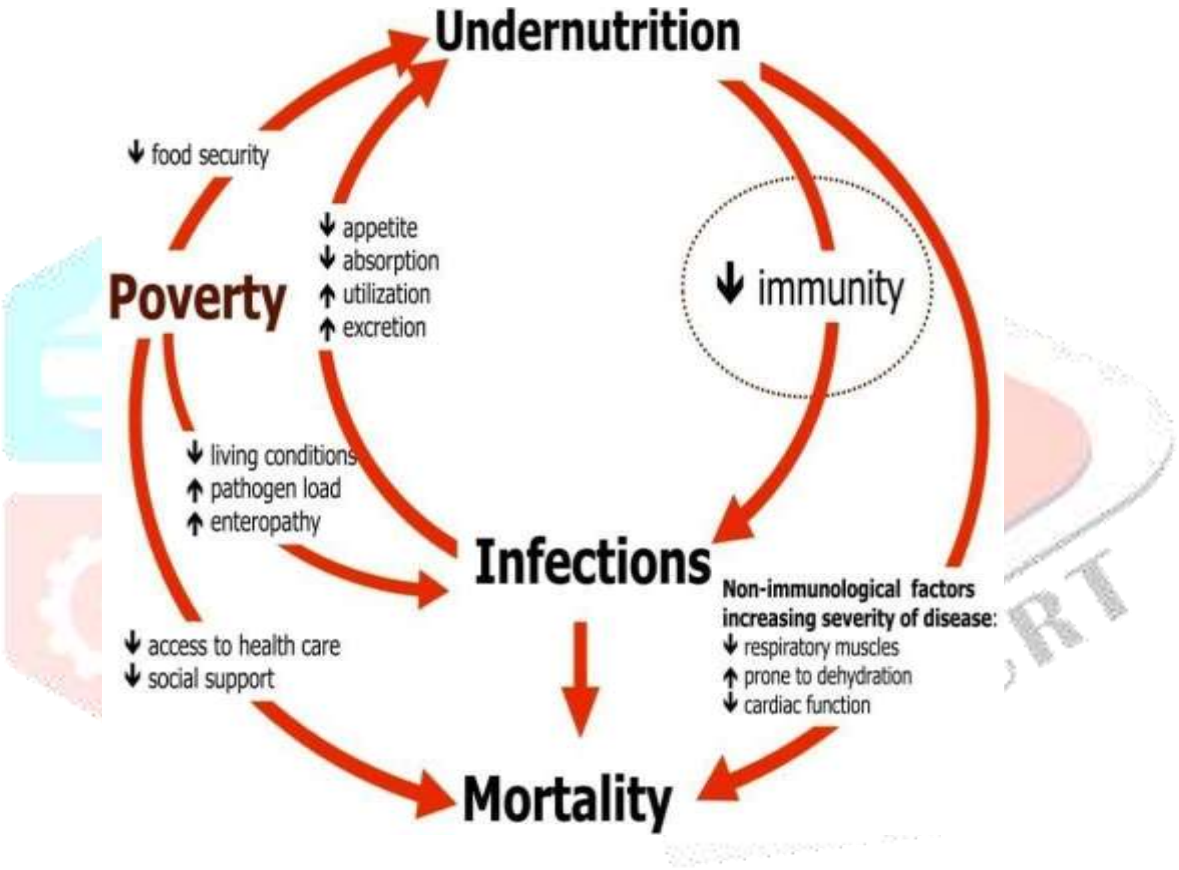
Introduction : The world's population is rapidly aging, with the proportion of the over-60 age group expected to double in the first five decades of the 21st century. This growth necessitates improved healthcare for the elderly, including protein-energy malnutrition (PEM), which is a common Issue in this age group. This paper aims to summarize current literature on PEM prevalence, aetiology, identification, and effective management.

Fig :Effect of malnutrition and oral structure and it's development

Protein/ Calorie Malnutrition	**Delayed tooth eruption,Reduced tooth size.Decreased enamel solubility,salivary glands dysfunction.**
Vitamin A	**Decreased epithelial tissue development, Impaired tooth formation, Enamel hypoplasia.**
Vitamin D/ Calcium phosphorus	**Lowered plasma calcium,Hypomineralization Comprised tooth integrity,Delayed eruption pattern Absence of lamina dura, Abnormal alveolar bone patterns.**
Vitamin C	**Irregular dentin formation,Dental pulpal alterations Bleeding gums, Delayed wound healing, Defective collagen formation**

Malnutrition is a complex condition involving over- or undernutrition and inflammatory activity, affecting body composition and biological function. However, a widely accepted definition is lacking, hindering accurate diagnosis and interventions. This lack of consensus in health care contributes to increased costs and complications, such as
decreased quality of life and longevity. The report focuses on the combined 'undernutrition and inflammation part' of malnutrition.

Caries is the demineralization of the inorganic part of the tooth structure, caused by organic acids in the dental plaque due to bacterial activity. This process increases the solubility of calcium hydroxyapatite in the teeth's hard tissue. The development of caries is influenced by tooth susceptibility, bacterial profile, saliva quality, and fermentable dietary carbohydrates. Early Childhood Protein-Energy Malnutrition (EC-PEM) can be correlated with tooth defects and the salivary system. Periodontal disease develops more quickly in undernourished populations, with malnutrition and poor oral hygiene being the most
important risk factors.



Types Of Malnutrition

- Undernutrition involves insufficient nutrient intake and includes:

1. Wasting: Characterized by low weight-for-height, indicating recent and severe weight loss. It often results from acute food shortages or illness and is associated with a higher risk of mortality, especially in children under five.

2. Stunting: Defined as low height-for-age, stunting results from chronic undernutrition, typically due to prolonged inadequate food intake and recurrent infections. This condition impedes physical and cognitive development, preventing children from reaching their full potential.

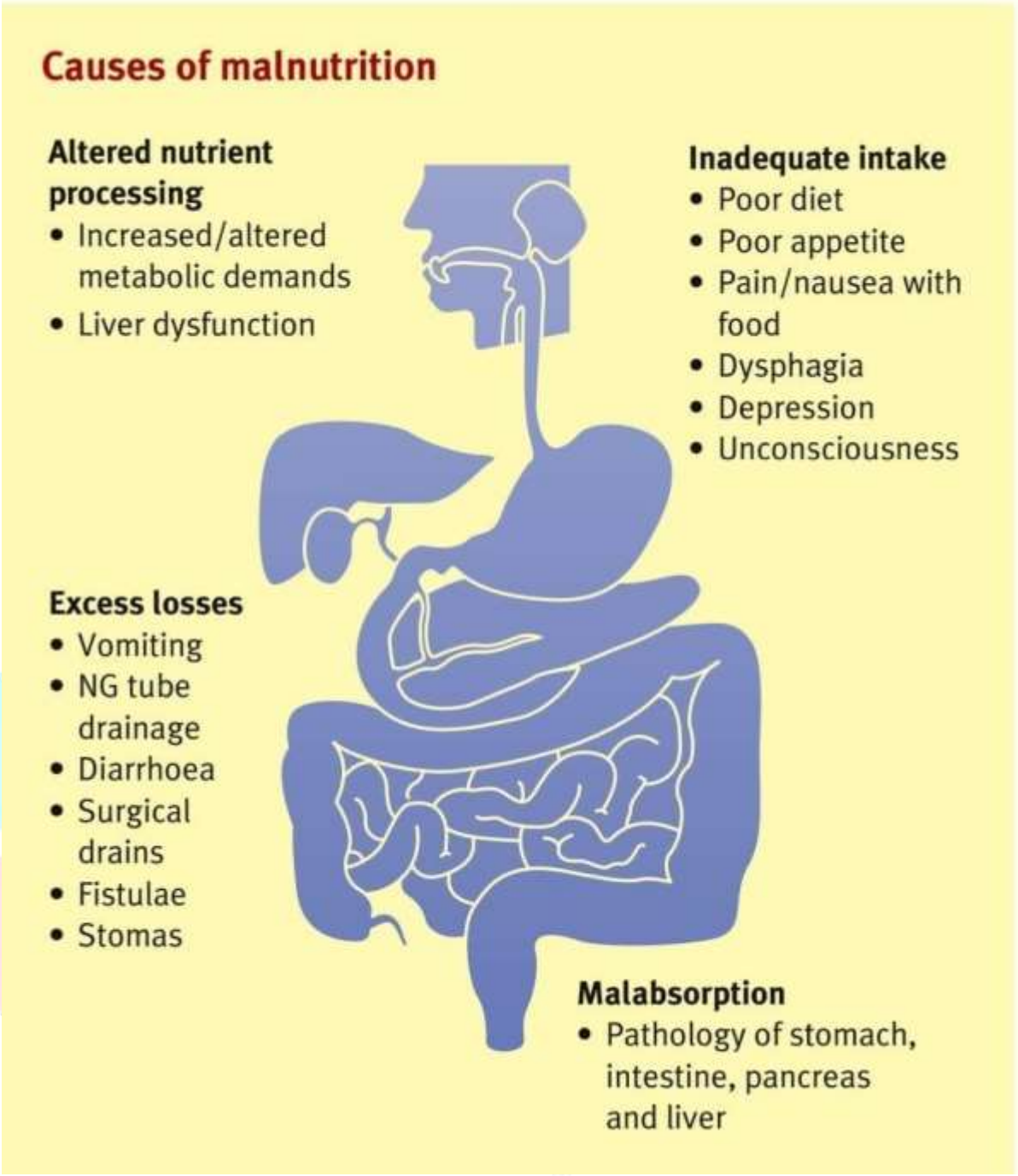
3. Underweight: This term refers to individuals whose weight is low for their age. Underweight status can be a consequence of wasting, stunting, or both, reflecting either acute or chronic undernutrition.

4. Micronutrient Deficiencies: A lack of essential vitamins and minerals, such as iron, iodine, vitamin A, and zinc, can lead to various health issues, including weakened immunity, impaired development, and increased susceptibility to diseases.

- Overnutrition results from excessive nutrient intake and includes:

1. Overweight and Obesity: Excessive accumulation of body fat due to an imbalance between calorie intake and expenditure. This condition increases the risk of noncommunicable diseases (NCDs) such as heart disease, stroke, diabetes, and certain cancers.

2. Diet-Related Non-Communicable Diseases (NCDs): Chronic diseases primarily linked to diets high in sugars, fats, and processed foods. These include cardiovascular diseases, type 2 diabetes, and some forms of cancer.



Causes Of Malnutrition

Malnutrition in developed countries is often linked to poverty, social isolation, and substance misuse, but most adult malnutrition in the UK is caused by disease. Reduced dietary intake is the main cause, resulting from psychosocial conditions like age, depression, and dementia. During illness, appetite sensation decreases due to modified secretion of cytokines, glucocorticoids, peptides, insulin, and insulin-like growth factors. In hospital in-patients, failure to provide regular meals and support with feeding can further exacerbate malnutrition. Energy expenditure in many disease states is usually lower than normal health, and weight loss in patients with persistent inflammation or neoplasia may be accompanied by altered amino acid demands. in developed countries is often linked to poverty, social isolation, and substance misuse, but most adult malnutrition in the UK is caused by disease. Reduced dietary intake is the main cause, resulting from psychosocial conditions like age, depression, and dementia. During illness, appetite sensation decreases due to modified secretion of cytokines, glucocorticoids, peptides, insulin, and insulin-like growth factors. In hospital in-patients, failure to provide regular meals and support with feeding can further

exacerbate malnutrition. Energy expenditure in many
disease states is usually lower than normal health, and weight loss in patients with persistent inflammation or neoplasia may be accompanied by altered amino acid demands.

Elements of malnutrition

Malnutrition encompasses various conditions arising from an imbalance between the nutrients the body requires and those it receives. This imbalance can manifest as undernutrition, overnutrition, or micronutrient deficiencies.

- Undernutrition involves insufficient intake of energy and nutrients.

1. Wasting: Low weight-for-height, indicating recent and severe weight loss. 2.Stunting: Low height-for-age, reflecting chronic undernutrition during critical growth periods.
3.Underweight: Low weight-for-age, encompassing elements of both stunting and wasting.

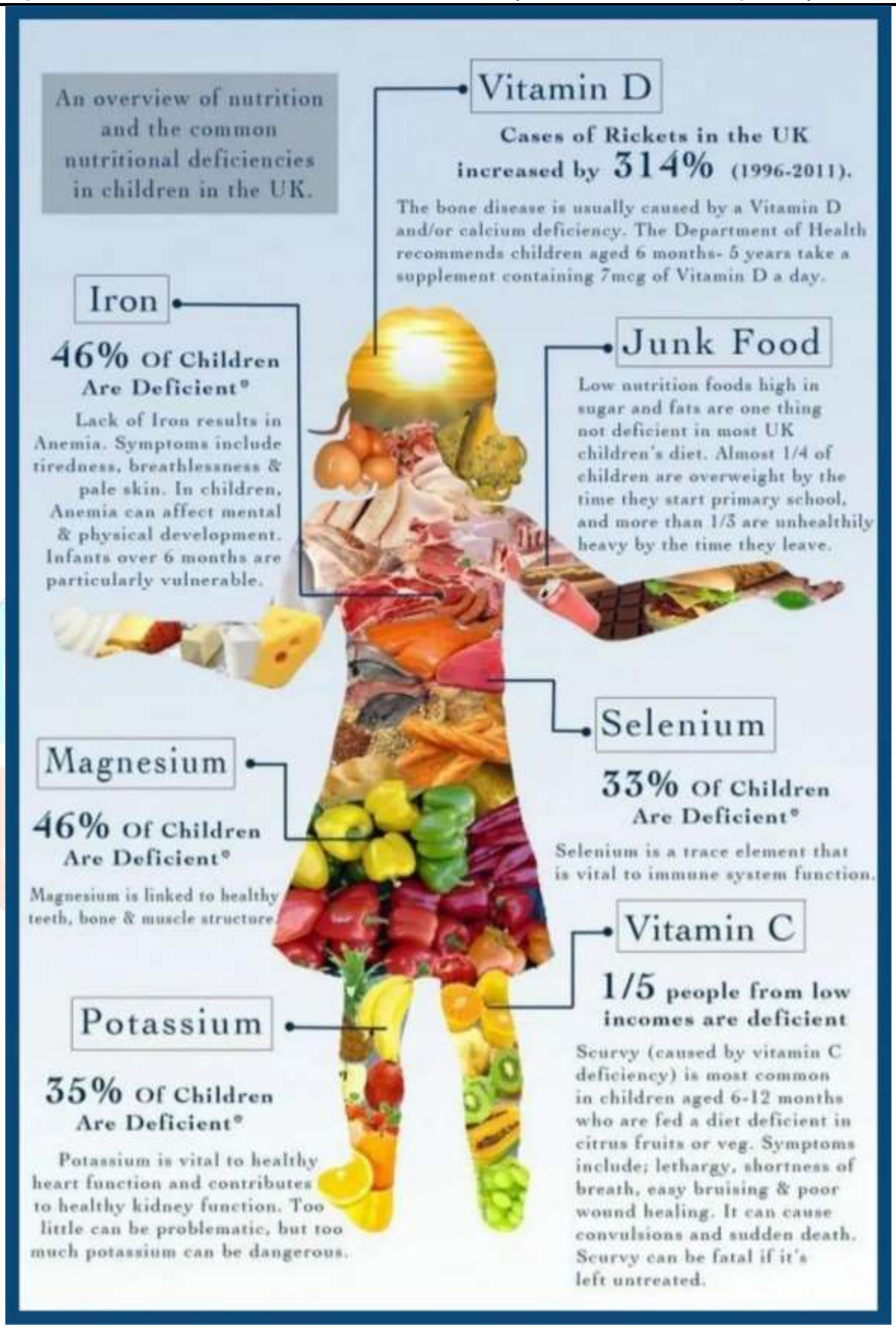
These forms of undernutrition are particularly prevalent in children, making them more susceptible to disease and mortality.

- Overnutrition results from excessive nutrient and energy intake.

1. Overweight and Obesity: Excess body fat accumulation, increasing the risk of noncommunicable diseases such as diabetes, cardiovascular diseases, and certain cancers.
2. Vitamin A Deficiency: Can cause visual impairments and increase susceptibility to infections.
3. Iron Deficiency: May result in anemia, characterized by fatigue and weakened immunity.
4. Iodine Deficiency: Can lead to goiter and developmental delays.These deficiencies can have severe health consequences, particularly for children and pregnant women.

Table 3: Elements in the management of severe protein–energy malnutrition[60]

Problem	Management
Hypothermia	Warm patient up; maintain and monitor body temperature
Hypoglycemia	Monitor blood glucose; provide oral (or intravenous) glucose
Dehydration	Rehydrate carefully with oral solution containing less sodium and more potassium than standard mix
Micronutrients	Provide copper, zinc, iron, folate, multivitamins
Infections	Administer antibiotic and antimalarial therapy, even in the absence of typical symptoms
Electrolytes	Supply plenty of potassium and magnesium
Starter nutrition	Keep protein and volume load low
Tissue-building nutrition	Furnish a rich diet dense in energy, protein and all essential nutrients that is easy to swallow and digest
Stimulation	Prevent permanent psychosocial effects of starvation with psychomotor stimulation
Prevention of relapse	Start early to identify causes of protein–energy malnutrition in each case; involve the family and the community in prevention


An overview of nutrition and the common nutritional deficiencies in children in the UK.
Vitamin D
Cases of Rickets in the UK increased by 314% (1996-2011).
The bone disease is usually caused by a Vitamin D and/or calcium deficiency. The Department of Health recommends children aged 6 months- 5 years take a supplement containing 7mcg of Vitamin D a day.
Iron
46% Of Children Are Deficient*
Lack of Iron results in Anemia. Symptoms include tiredness, breathlessness & pale skin. In children, Anemia can affect mental & physical development. Infants over 6 months are particularly vulnerable.
Junk Food
Low nutrition foods high in sugar and fats are one thing not deficient in most UK children's diet. Almost 1/4 of children are overweight by the time they start primary school, and more than 1/3 are unhealthily heavy by the time they leave.
Selenium
33% Of Children Are Deficient*
Selenium is a trace element that is vital to immune system function.
Magnesium
46% Of Children Are Deficient*
Magnesium is linked to healthy teeth, bone & muscle structure.
Vitamin C
1/5 people from low incomes are deficient
Scurvy (caused by vitamin C deficiency) is most common in children aged 6-12 months who are fed a diet deficient in citrus fruits or veg. Symptoms include; lethargy, shortness of breath, easy bruising & poor wound healing. It can cause convulsions and sudden death. Scurvy can be fatal if it's left untreated.
Potassium
35% Of Children Are Deficient*
Potassium is vital to healthy heart function and contributes to healthy kidney function. Too little can be problematic, but too much potassium can be dangerous.

Prevention And management Of Malnutrition

• **Prevention Strategies**:

1. Balanced Diet: Consuming a variety of foods from all major food groups ensures adequate intake of essential nutrients. This includes:

A. Fruits and Vegetables: Rich in vitamins, minerals, and fiber.

B. Starchy Foods: Such as bread, rice, potatoes, and pasta, providing energy. C.Proteins: Sources like meat, fish, eggs, and beans are crucial for growth and repair. D.Dairy or Alternatives: Important for calcium and vitamin D.

2. Micronutrient Supplementation: In areas where diets lack specific nutrients, supplements or fortified foods can address deficiencies. For instance, iodine supplementation has been effective in reducing infant mortality.

3. Breastfeeding Promotion: Encouraging exclusive breastfeeding for the first six months provides infants with essential nutrients and strengthens immunity.

4. Public Health Interventions: Improving sanitation, access to clean water, and education about hygiene can prevent infections that exacerbate malnutrition

• **Management Approaches**:

1. Nutritional Assessment and Support: Regular screening, especially in vulnerable populations like the elderly, allows for early detection and intervention. Nutritional support may include tailored diets and supplements.

2. Medical Nutrition Therapy (MNT): Utilizing specific nutrition services to manage medical conditions, MNT involves personalized dietary plans devised by healthcare professionals.

3. Community-Based Programs: Engaging local communities in nutrition education and support programs fosters sustainable practices and addresses cultural dietary habits.

4. Policy and Economic Measures: Governments can implement policies to ensure food security, support agricultural development, and provide social safety nets to reduce poverty-related malnutrition.

Diagnosis and Assessment of Malnutrition

1. Clinical Assessment

Medical History: Evaluation of underlying conditions such as chronic diseases, infections, or gastrointestinal disorders that may contribute to malnutrition.

Physical Examination: Signs such as muscle wasting, edema, dry skin, brittle hair, and delayed wound healing can indicate malnutrition.

Functional Assessment: Evaluating muscle strength and physical performance, such as grip strength, to assess frailty and sarcopenia.

2. Anthropometric Measurements

Body Mass Index (BMI): A BMI below 18.5 kg/m² indicates undernutrition, while a BMI above 25 kg/m² suggests overweight.

Mid-Upper Arm Circumference (MUAC): Commonly used in children and adults to assess muscle and fat stores.

Weight and Height: Used to determine weight loss over time, which can indicate acute or chronic malnutrition.

Skinfold Thickness: Measures subcutaneous fat as an indicator of energy reserves.

3. Biochemical and Laboratory Tests

Serum Albumin and Prealbumin: Low levels suggest protein-energy malnutrition but can also be affected by inflammation.

Hemoglobin Levels: Anemia may indicate micronutrient deficiencies (e.g., iron, vitamin B12, folate).

Electrolytes and Micronutrients: Deficiencies in zinc, vitamin D, or potassium can signal malnutrition.

C-Reactive Protein (CRP): Helps differentiate malnutrition from inflammation-related protein changes.

4. Dietary Assessment

24-Hour Recall: Evaluates food intake in the past day, though it may not capture long-term patterns.

Food Frequency Questionnaire (FFQ): Assesses habitual dietary intake over weeks or months.

Dietary Records: More accurate but require detailed self-reporting of food and portion sizes.

Conclusion

Malnutrition affects physiological function and is often overlooked by clinicians. It leads to increased complications, morbidity, and healthcare costs. Identifying at-risk patients through better assessment and screening tools can improve clinical outcomes.

Malnutrition risk increases with age and care level. Muscle wasting (sarcopenia) and cachexia (proinflammatory cytokines) are prevalent in older adults. Several malnutrition screening tools exist, but further research is needed to distinguish between these

conditions. Oral nutritional supplements and dietary counseling can improve quality of life.

REFERENCE

1. Royal College of Physicians. Nutrition and patients: a doctor's Responsibility. A report of a working party of the Royal College of Physicians. London: RCP, 2002.

2. Finch S, Doyle W, Lowe C, et al. National diet and nutrition survey.

3. Elia M. Changing concepts of nutrient requirements in disease: implications for artificial nutrition support. Lancet 1995; 345: 1279e84.

4. Jackson AA. Severe malnutrition. In: Warrell DA, Cox TM, Firth JD, Benz EJ, eds. Oxford textbook of medicine. 4th edn., vol. 1. Oxford: Oxford University Press, 2003: 1054e61.

5. Stratton R, Green C, Elia M. Disease-related malnutrition: an evidencebased approach to treatment. Oxford: CABI Publishing, 2003.

6. WHO. Interesting facts about ageing. 2012 [cited 13th June 2013]; Available from: www.who.int_ageing_about_facts_en_index.html.pdf.

7. Thomas D. Loss of skeletal muscle mass in aging: examining the relationship of Starvation, sarcopenia and cachexia. . Clinical Nutrition. 2007;26(4):389-99.

8. Cruz-Jentoft A, Baeyens J, Bauer J, et al. Sarcopenia: European consensus on Definition and diagnosis Report of the European Working Group on Sarcopenia in Older People. Age and Ageing. 2010;39(4):412-23.

9. Ehizele AO, Ojehanon PI, Akhionbare O. Nutrition and Oral health. Journal of Postgraduate Medicine. 2009; 11 (1) :76-82.

10 Psoter WJ, Spielman AL, Gebrian B, Rudolph SJ, Katz RV. Effect of childhood Malnutrition on salivary flow and pH. Arch Oral Biol. 2008; 53(3): 231–37.