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NUTRITION - Essence & Deficiency



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Nutrients are important to maintain a good health. Our human body requires seven nutrients which include fats, protein, carbohydrates, water, minerals, fiber and vitamins. A good nutrition leads to a healthy lifestyle. When good nutrition is accessible, there are less chances of malnutrition and more chances of reducing the risk of chronic diseases such as heart disease, diabetes, and obesity.

Malnutrition can be due to getting an excess of nutrients or lacking of some nutrients in the diet. Malnutrition can result in overnutrition, protein-energy malnutrition, or micronutrient deficiency. Overnutrition leads to obesity. Protein-energy malnutrition is further divided into two types - marasmus and kwashiorkor. Kwashiorkor results in deficit of protein whereas marasmus causes deficiency in protein and calories.

Deficiency of different nutrients can lead to different health issues. The essential ones to be discussed are iron, folic acid, calcium, iodine, zinc, magnesium, potassium, and various types of vitamins.

Anemia, a common ailment, is due to depletion of iron but it can also be due to a deficiency of folic acid (Vitamin B9) and Vitamin B12. Deficiencies in Vitamins B9 and B12 can cause megaloblastic anemia. Vitamin B9 is crucial during pregnancy as it prevents neural tube defects. Vitamin B12 is important for the nervous system. Both, calcium and vitamin D are important for the bones. Calcium is as well vital for the teeth. Any deficiency in calcium and vitamin D can lead to diseases such as osteoporosis, osteomalacia, and rickets. Depletion in calcium (hypocalcaemia) can lead to manifestations such as weakness, muscle cramps, numbness, and tingling sensation. Iodine is vital for the normal functioning of thyroid hormones. Any imbalance in the iodine level can lead to conditions such as goiter or hypothyroidism.

Zinc plays many roles such as regulating the immune system, wound healing, and in cognition. A deficit in zinc causes symptoms such as delay in wound healing, eczema, hair loss, disturbance in cognition, and abnormal taste and smell. Potassium is necessary for the heart, nerves, and muscle. When it is deficient (known as hypokalemia), it can cause many manifestations such as weakness, muscle cramps, tingling sensation, numbness, and palpitations. It is more dangerous when it is in excess (known as hyperkalemia); it causes similar manifestations such as weakness, tingling, and palpitations and in this condition it is very important to protect the heart. Magnesium has many benefits such as maintaining muscle and nerve functions and regulating blood sugar levels and blood pressure.

Our body requires 13 vitamins and these are Vitamin A, B1, B2, B3, B5, B6, B7, B9, B12, C, D, E, K. Vitamins A, D, E, K are fat soluble and Vitamins B-complex and C are water soluble. Each vitamin is important for overall growth and any deficiency in any vitamin can cause adverse effects to your health. The following table summarizes conditions that may occur in each type of vitamins when it is in deficit.

| Vitamins | Deficiency |
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| A | Night blindness |

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| B1 (Thiamine) | Wernicke-Korsakoff Syndrome, Beriberi |
| B2 (Riboflavin) | Glossitis, Stomatitis, Cheilitis |
| B3 (Niacin) | Pellagra (diarrhea, dementia, dermatitis) |
| B5 (Pantothenic acid) | Paresthesia |
| B6 (Pyridoxine) | Peripheral Neuropathy, Anemia, Dermatitis, Cheilosis, Glossitis |
| B7 (Biotin) | Enteritis, Dermatitis |
| B9 (Folic acid) | Megaloblastic Anemia, Neural Tube Defect |
| B12 (Cobalamin) | Megaloblastic Anemia |
| C (Ascorbic acid) | Scurvy, Bleeding Tendency |
| D | Osteomalacia, Rickets |
| E | Muscle Weakness and Numbness, Worsening of Vision, Gait Difficulty |
| K | Bleeding Tendency |

Essentially every single nutrient has its own importance in maintaining and promoting a good and healthy body. A well balanced diet allows us to perform better in every way whether it is mentally or physically. Therefore, a healthy dietary intake leads to a healthy lifestyle.

References:

1. <https://ods.od.nih.gov/factsheets/Magnesium-Consumer/>
2. <https://www.medicalnewstoday.com/articles/263176.php>
3. <https://www.medicalnewstoday.com/articles/321800.php>

