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**DEPARTMENT: PUBLIC HEALTH**

**COURSE TITLE: BIOCHEMISTRY**

1. **Factors affecting basal metabolic rate:**

Basal metabolic rate is the energy expended in a resting post absorptive State. It is the rate at which a person’s body burns calories while at rest.

The factors affecting Basal metabolic rates are:

* Muscle mass: The amount of muscle tissue on your body. Muscle requires more energy to function than fat. So the more muscle tissue you carry, the more energy your body needs just to exist. (Resistance or strength training is most effective for building and maintaining mass.)
* Age: As you get older, your metabolic rate generally slows. This is because of a loss of muscle tissue and changes to hormonal and neurological processes. During development children go through periods of growth with extreme rates of metabolism.
* Body size: Those with bigger bodies have a larger BMR because they have larger organs and fluid volume to maintain.
* Gender: Men generally have faster metabolisms than women.
* . Genetics. Some families have faster BMR than others with some genetic disorders also affecting metabolism.
* Physical activity. Exercise increases muscle mass and powers up your metabolic engines burning kilojoules at a faster rate, even when at rest.
* Hormonal factors. Hormonal imbalances such as hypo & hyperthyroidism can affect your metabolism.
* Environmental factors. Environmental changes such as increased heat or cold forces the body to work harder to maintain its normal temperature and increases BMR.
* Drugs. Caffeine and nicotine can increase your BMR whilst medications such as antidepressants and steroids increase weight gain regardless of what you eat.
* Diet. Food changes your metabolism. What and how you eat has a big influence on your BMR

1. **Protein Energy Malnutrition:**

Protein–energy malnutrition (PEM), sometimes called protein-energy undernutrition (PEU), is a form of malnutrition that is defined as a range of pathological conditions arising from coincident lack of dietary protein and/or energy (calories) in varying proportions. The condition has mild, moderate, and severe degrees.

Protein-energy malnutrition (PEM) is a potentially fatal body-depletion

disorder. It is the leading cause of death in children in developing countries.

PEM is also referred to as protein-calorie malnutrition. It develops in children. whose consumption of protein and energy (measured by calories) is insufficient to satisfy their nutritional needs. While pure protein deficiency can occur when a person's diet provides enough energy but lacks an adequate amount of protein, in most cases deficiency will exist in both total calorie and protein intake. PEM may also occur in children with illnesses that leave them unable to absorb vital nutrients or convert them to the energy essential for healthy tissue formation and organ function.

1. **Difference between Marasmus and kwashiorkor:**

Marasmus and kwashiorkor are two extreme forms of Protein Energy Malnutrition

* Kwashiorkor occurs when protein deprivation is greater than total reduction in calories, while marasmus occurs when calories is greater than total reduction in calories.
* The symptoms of kwashiorkor include stunded growth, hypopigmented skin and hair, edema and enlarged liver. While the symptoms of msrasmus include growth retardation, weakness, anaemia, muscle wasting
* People with kwashiorkor have poor appetite while their weight for height is normal or slightly decreased. While people with maramus have good appetite while their weight fit height is remarkably decreased