extra SpecialCare

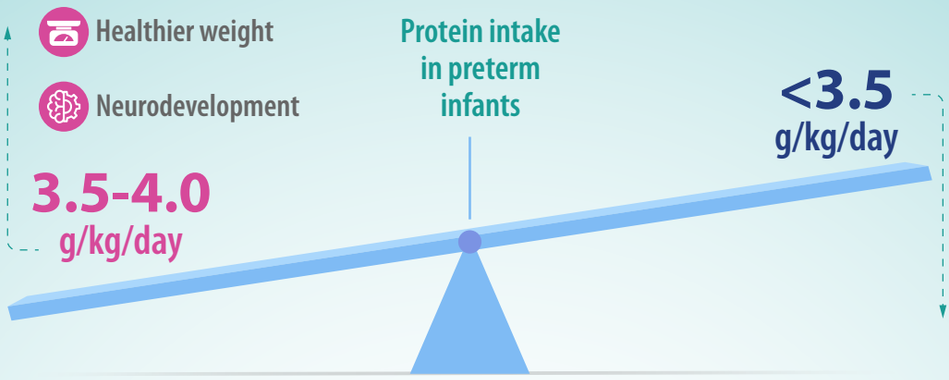
DANONE NUTRICIA ACADEMY

Requirement of protein in pre-term infants

During the first week of life, pre-term infants require increased protein and energy feeds. Protein intake is thought to be the main factor for lean body mass growth.[1]

Proteins form the key structural components of all human cells and are also involved in physiologic processes through their roles as enzymes, hormones, and transport proteins.[1]

Requirement in pre-term nutrition:[1]



Protein Energy Ratio (PER) and Weight gain:[1]

Optimal Protein Energy Ratio (PER): 2.8 to 3.6g/100kcal

Better weight gain and Fat Free Mass accretion with higher PER

Amino Acids (AA) in pre-term nutrition:

Amino acids are the building blocks of proteins and their polymers can range in length from two (dipeptide) to thousands of amino acids.

Some amino acids are conditionally essential and play an important role in pre-term nutrition such as:

- **Arginine:** Lowers the incidence of both necrotizing enterocolitis (NEC) and the risk of mortality.[2]
- **Taurine:** Supports hepatic function, auditory and visual development and intestinal fat absorption.[1]
- **Glutamine:** Plays a role in immunological and growth processes.[1]
- **Cysteine:** Promotes adequate weight gain, positive nitrogen balance, improves red blood cell glutathione levels, prevents brittle bones and lowers the risk of liver diseases.[3,4]
- **Histidine:** Plays a role in protein synthesis and modulation of immune response and allergic reactions.[5]

Therefore, supplementation with AA may help to decrease morbidity in pre-term infants.

Whey and Casein Ratio:[6]

Studies indicate that whey: casein ratio of 60:40 have the most efficient digestion of protein and fat due to the least gastric coagulation at this ratio.

Infants fed with whey-predominant protein had higher plasma threonine levels and greater cysteine retention.[7]

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