

Protein Diet and Menstrual Cycle

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FOOD INTAKE DURING MENSTRUAL CYCLE¹

- Food intake is affected due to neurochemical hormonal, physiological and psychological factors.
- Significant variations observed in appetite and energy intake in women during their menstrual cycle.
- Variations are due to: The effect of estrogen and progesterone on gastric emptying. The effect on secretion of some gastrointestinal hormones (glucagon-like peptide-1, cholecystokinin) important for appetite regulation and energy intake.

EFFECT ON PROTEIN INTAKE DURING MENSTRUAL CYCLE

Various studies have revealed: A significant decrease in protein intake during the ovulatory phase. A decrease in protein intake in the luteal phase. An increase in protein intake during the premenstrual phase¹.

PROTEIN REQUIREMENTS OF YOUNG WOMEN

Urinary nitrogen cycle in women uniquely implies a hormonal regulation of nitrogen utilization².

- Based on the short-term nitrogen balance method, average requirement to maintain crude balance (I-F-U) is about 75 mg egg or about 100 mg of mixed dietary proteins³.
- Balance must be positive to the extent of about 8 mg/kg body weight to allow for various losses under temperate conditions with light activity³.
- The average dietary protein requirement is 0.8 g/kg³.
- However, recently it has been suggested that females may require higher protein intakes owing to the increased protein oxidation, ~1.6 g/kg/day⁴.

DIETARY PROTEIN⁴

- Dietary protein has many functions in the body with regulation of skeletal muscle mass being a primary role.

- Maintaining sufficient quantity of protein intake is extremely important to ensure that the rate of muscle protein synthesis is at least equal to the rate of muscle protein breakdown, and the muscle mass is maintained.
- Intake of adequate amino acids through food is important as the amino acids are the building blocks for new proteins in the body such as actin in skeletal muscle.

During the mid-luteal phase, estrogen and progesterone peak corresponding to an increase in protein oxidation at rest. It has been shown that females need more lysine during the luteal phase than the follicular phase. This is attributed to the various factors affecting progesterone up-regulation of amino acid use⁴.

- Rise in progesterone during the mid-luteal phase leading to reduction in amino acid plasma levels due to increased protein biosynthesis from endometrial thickening⁴.
- Besides, protein use during exercise appears to be higher during the mid-luteal phase⁴.

Hence, it is warranted to increase the protein consumption during the mid-luteal phase to meet the anabolic demands of the body⁴.

In a study on women during the mid-follicular phase of the menstrual cycle, it was seen that the protein needs were further increased. Hence, it is important to consider the menstrual cycle phase of women when assessing them for dietary protein needs⁴.

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