

# Adolescent Nutrition

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BPH 22<sup>nd</sup> Batch

Adolescence is the transitional period between childhood and adulthood, covers the ages between 10-19 years. It is considered to be the most important and versatile period of life where growth and development are accompanied by physical, physiological, behavioral, and social changes. During this period of accelerated growth, the demand for nutrients increases posing a greater risk of nutritional deficiencies. Adolescents from developing countries are more vulnerable to nutritional deficiencies due to early childhood nutritional insults, which include underweight, stunting and low dietary intakes.

Adolescence is the second most critical period of physical growth in the life cycle after the first year. Twenty five percent of adult height is attained during adolescence. For many adolescents, inadequate quality and quantity of food are the prime determinants of nutrition problems. These conditions may be due to household food insecurity, intra-household allocation of food that does not meet their full range of dietary needs, livelihoods insecurity, and lack of nutrition knowledge. Micronutrient malnutrition and chronic energy deficiency resulting in thinness (low Body Mass Index or BMI. Excessive physical activity patterns (e.g., heavy workloads and walking long distances) and infection may also contribute to under nutrition.

The major consequences seen as a result of negligence in adolescent nutrition may lead to one or more among the following including others as well.

## **Stunting**

In children and young adolescents, chronic under-nutrition leads to stunting. In adolescents, chronic under-nutrition also delays normal maturation and is an important and widespread problem with multiple adverse health outcomes.

## **Overweight/obesity**

In spite of low reported data on obesity in adolescents, there is growing concern about these problems. The changes in diet and physical activity contribute to the increased prevalence of obesity in youth, often seen side by side in communities with under nutrition. There is also some evidence that low birth weight may predispose individuals to obesity and associated chronic diseases later in life.

## **Iron deficiency**

It is the most prevalent micronutrient deficiency among adolescents. Iron deficiency and anemia are associated with impaired cognitive functioning, lower school achievement

and most likely lower physical work capacity. Adolescents (both boys and girls) are at risk of developing iron deficiency and iron deficiency anemia because of the increased iron requirements for growth. Infectious diseases such as malaria, schistosomiasis, and hookworm affect both boys and girls, contributing to anemia by affecting the absorption of or increasing the loss of iron. Following the end of their growth spurt, boys rapidly regain adequate iron status, whereas girls may continue to be or become more deficient because of the increased requirements for iron due to menstruation, pregnancy, and lactation.

## **Folate deficiency**

If not addressed during the pre or periconceptual period, folate deficiency may cause irreversible fetal damage. Addressing folate deficiency beyond the middle of the first trimester of pregnancy will not correct neural tube defects that occur in the early weeks of pregnancy. The unplanned nature of many adolescent pregnancies underscores the need to take a preventive approach to this specific nutritional issue for youth.

## **Iodine deficiency**

In settings of endemic **iodine deficiency**, girls are affected disproportionately relative to boys, although all individuals are affected. Detrimental cognitive effects include neural impairment and poor school performance. The fetus of an iodine-deficient mother is at risk of spontaneous abortion as well as a range of neurological and intellectual impairments.

Other micronutrients that may be deficient in adolescents include **vitamin A**, **zinc**, and **calcium**. The latter two are particularly important for achieving maximum growth potential. Calcium intake in adolescence is also important for preventing osteoporosis (brittle bones) later in life. Vitamin A deficiency appears to negatively affect growth and possibly sexual maturation. It is critical for healthy immune system functioning and optimal vision.

A related health issue is **adolescent pregnancy**. It is often associated with nutritional, obstetric, and perinatal health risks for teen mothers and their babies. Incomplete maternal growth heightens the risk of obstructed labor. There is evidence that competition for nutrients will favor the still-growing mother, placing offspring at risk for low micronutrient stores and low birth weight. Concurrent pregnancy and growth worsen maternal micronutrient deficiencies—iron and calcium for example. Children of

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adolescent mothers are also often at greater risk of poor nutritional care and feeding practices.

### Steps towards prevention

The nutritional needs of pregnant adolescents are the greatest at the time when these are most difficult to be met. If the adolescent is still growing, steps must be taken to assure adequate weight gain and nutrient intake to prevent poor pregnancy outcomes, including low birth weight.

Adequate intake of other nutrients that are essential for growth, such as iron, vitamin A, zinc, folic acid and vitamin D, need to be assured through dietary means or supplements.

As it may not be possible to ensure the above, postponing the first pregnancy is an excellent way to improve the nutritional status of the adolescent girl and to ensure that she enters pregnancy later in life in better health and nutritional condition. This would contribute in breaking the intergenerational cycle of malnutrition, poverty and disease.

### Prevent and reduce general malnutrition

- Skills-based nutrition education<sup>#</sup> for adequate energy/protein consumption
- Reduce excess energy expenditures (e.g., improved household food processing technology; decreased household labor production demands)
- Infectious disease control (e.g., sexually transmitted diseases, malaria, TB)
- Targeted supplementary feeding for at-risk adolescents (e.g., during natural or manmade disasters; in food insecure communities)
- Comprehensive antenatal care for pregnant adolescents including counseling on preventive health and nutrition self-care practices
- Targeted supplementary feeding for at-risk girls during pregnancy/lactation

### Prevent and treat micronutrient deficiencies

- Skills-based nutrition education for consumption of diverse food sources rich in micronutrients; counseling on the use of fortified food and supplements
- Fortification of widely consumed foods with vitamin A
- Vitamin A supplementation in deficient populations
- Universal salt iodization and consumer education
- Regular de-worming of adolescents in high parasite-load settings (girls at higher risk than boys)

### Address underlying causes of malnutrition

- Postpone/avoid adolescent pregnancy to reduce nutritional losses
- Increase Adolescent access to/control over food
- Improve Hygiene and sanitation
- Gender equity

Skills-based nutrition education includes such techniques as counseling with age-tailored messages for dietary decision-making and healthy lifestyle fundamentals; shopping for best nutrition buys; food handling/safety and preparation skills.

### References

1. Assessment of nutritional status of adolescent boys from public and private schools of Peshawar, Pakistan J. Med. Res. Vol. 42 No.3, 2003
2. <http://www.searo.who.int> assessed on 10<sup>th</sup> September 2011
3. <http://web.worldbank.org> assessed on 10<sup>th</sup> September 2011