NUTRITIONAL CONSIDERATIONS FOR THE ADOLESCENT ATHLETE

The challenge for those involved with young athletes is to integrate sports nutrition into the athlete training regimen and to ensure that the nutritional needs for growth and development are met.

GROWTH & DEVELOPMENT

- Teenage years: development of secondary sex characteristics, marked acceleration in height & changes in body composition
- Growth that occurs in adolescence is second only to the first year of life.
- Total nutrient needs are higher during adolescence than at any other time in life; greatest demands occurring during the peak velocity of growth
- At peak of adolescent growth spurt the nutrition requirements may be twice as high for the remaining period of adolescence
- Nutrition at this time can help prevent adult related chronic diseases.
- Prior to puberty nutrients needs are similar for boys & girls

ENERGY

- Needs are influenced by:
  - Activity level, BMR & support of growth & development
  - BMR closely associated with the amount of LBM.
  - Adolescence males have higher calorie needs since they experiences biggest increase in height, weight & LBM than females
  - Carbohydrates, protein & fats

CALCIUM & VITAMIN D

- Adolescence presents a window of opportunity for optimal bone development & future health.
- Calcium needs during adolescence are greater than they are in childhood or adulthood: 45% of peak bone mass is attained during adolescent.
- By aged 17 adolescent have attained 90% of their adult bone mass
- To absorb calcium you require vitamin D
- Dieting/ avoiding a food group in adolescence is likely to contribute to suboptimal peak bone mass in early adulthood and osteoporosis in the long term

Ensure your child has 3-4 portions of calcium rich foods per day

- 3-4 servings per day:
  - 200ml milk (or a fortified alternative such as soya)
  - One carton yoghurt (150g = one portion)
  - Small piece of hard cheese (match-box size)
- Vitamin D (limited supply from food):
  - Oily fish, eggs & some fortified foods such as margarine & ready to eat cereals
IRON

- Needs increase with rapid growth & expansion of blood volume and muscle mass:
  - Anaemia is not uncommon in teenagers
  - Males: highest needs during growth spurt
  - Females after onset of menstruation
- Storage: often absent in adolescent athletes
- Menses (5-45mg)
- Yet only 3.5mg day absorbed from the diet
- Vegetarians need to consume twice as much iron to meet requirements

Dietary Sources

- Plant sources:
  - Only 2-3% absorbed but vitamin C can triple uptake
  - dried fruit, beans, blackstrap molasses, fortified cereals, kale, spinach (phytates)
- Animal sources:
  - Up to 35% absorbed
  - Meat (especially red) & fish

Strategies to meet iron needs

- Include vit C rich foods with meals, avoid tea & coffee, choose fortified cereals, frequent intake of meat

OTHER IMPORTANT NUTRIENTS

- Zinc: important in adolescents due role in growth & sexual maturation.
  - Zinc levels do decline in response to rapid growth and hormonal changes
  - Naturally abundant in red meats, shellfish, wholegrain & fortified breakfast cereals
  - Zinc competes with iron
- Fibre: important for normal bowel function, may reduce risk of some cancers & CV disease.
  - Often low in adolescents due to low intake of fruit, vegetables & whole grains

Other Concerns

- Delayed puberty
  - Age at menarche ≥14 years of age is a level of concern.
  - Secondary amenorrhea is defined as 3 months or more of absent menses
- Females: increase of body fat & how this relates to body image.