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Sports Nutrition in practice with young people

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Overview:

- Importance of PA and Nutrition
- Vulnerable life stage
- Nutritional considerations/strategies for adolescent athletes
- Dispelling the myths
- Role of coaches/PE teachers

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Importance of PA & Nutrition

- PA and eating patterns during childhood and adolescence establish lifelong habits
- Essential to promote healthy patterns *early* in lifecycle for health, wellbeing and prevention of chronic disease
- Participation in sport (amateur/semi professional/elite level) promotes:
- Health and fitness, self confidence/esteem and establishes lifelong healthy activity patterns

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Adolescent athletes

Vulnerable life stage

- Big changes:

  Boys: get tall, lean, and bones become stronger

  - Attain 15% of final adult ht during puberty
  - Lean body mass doubles
  - Large calorie needsð increase from 2,000 at 10 yr to 3,000 at 15 yr

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Vulnerable life stage

- Girls: get taller and fatter
- % body fat increases from the teens into the mid-20s
- Gain almost 50% of their adult ideal weight 6-9 months before ht increases during puberty
- Dieting can have a negative impact on linear growth during this time
- Calorie needs increase by only 200 from 10 yr to 15 yr

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Identity development

- Attempt to figure out who they are
- Success is dependent on positive interaction with the environment: home, school, and the community
- They will ñtry onò different lifestyles looking for the ñright fitò
- Risk taking behaviors: alcohol, drugs, tobacco, sexual behaviors, self-injury etc.
- Immediate and severe consequences

Behaviours with Less Pronounced Consequences

- Eating choices ï **experimentation with diet**
- Increased availability to food
- Eating out/school canteens/ outings with friends
- Physical activity and exercise ópt outômentality
- Affect adolescentsô sense of well-being, energy and health in the short term
- Knock on effect on athletic performance as well as affecting adult-onset chronic disease risk in the long term

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Nutrition for sport in adolescence

- Lots of impacting factors which can influence nutritional intake in adolescents
- Vital that we get nutrition right to ensure normal growth is not restricted and athletic performance is maintained/improved

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Nutritional considerations

- Energy needs and calorie intake are of **primary concern** in adolescents
- Growth and maturation should follow a linear progression with age
- Often mapped using height and weight assessments at regular intervals
- Young gymnasts, wrestlers and boxers may be at risk of **growth disorders** as these sports emphasise weight restriction
- Restrictive eating behaviours will negatively impact growth e.g. óstunting of jockeysô

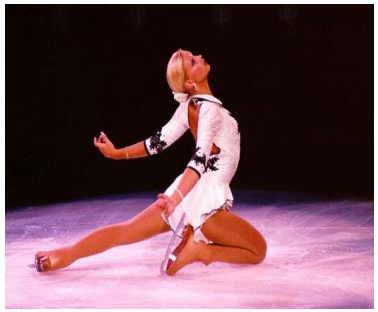
Types of Sports Most at Risk?

- Endurance

  Long distance running, swimming, triathlon

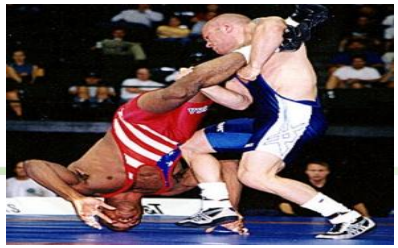
- Aesthetic

  Gymnastics, figure skating, synchronised swimming



- Weight-limited

  Boxing, rowing, judo, horse racing



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Sport-Specific Contributors?

- Myths about Weight & Body Shape

  "……thin to win….."

- Social Influence

  Coaches & parents can do much to influence the attitudes of their athletes by the language they use and the values they promote. Emphasis should be on performance, strength, technique, and endurance rather than on weight or any aspect of appearance!

- Performance Pressure

  Pressure does not always have to come form outside sources…..! Personality characteristics that make athletes excel in sport can often contribute to disordered eating behaviours

Example of poor practice

- 2 weeks prior to weigh in athlete was 7kgs over their weight category

Coach:

- ñThese athletes will eat gravel if they have toò
- Coach had charted ñacceptable weight lossò
- This kind of mentality/pressure leads to unsafe practice
- Skipping meals/excessive exercise/use of sweat suits to loose weight prior to weigh in
- Ideally, athlete would have a healthy balanced diet out of season rather than ódinge/starveôapproach

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Health Consequences ?

- When growth is restricted by diet, nutrient requirements will not be met
- Decrease bone accrual: osteopenia/osteoporosis in later life
- Calcium, vitamin D, iron and other nutrients required for bone density will be limited

Strategies ?

- Work with athlete/parents to establish a regular meal schedule and providing snacks throughout the day will ensure the adolescent meets their energy requirements for normal growth and sport
- Avoid yo-yo approach in weight-limited sports

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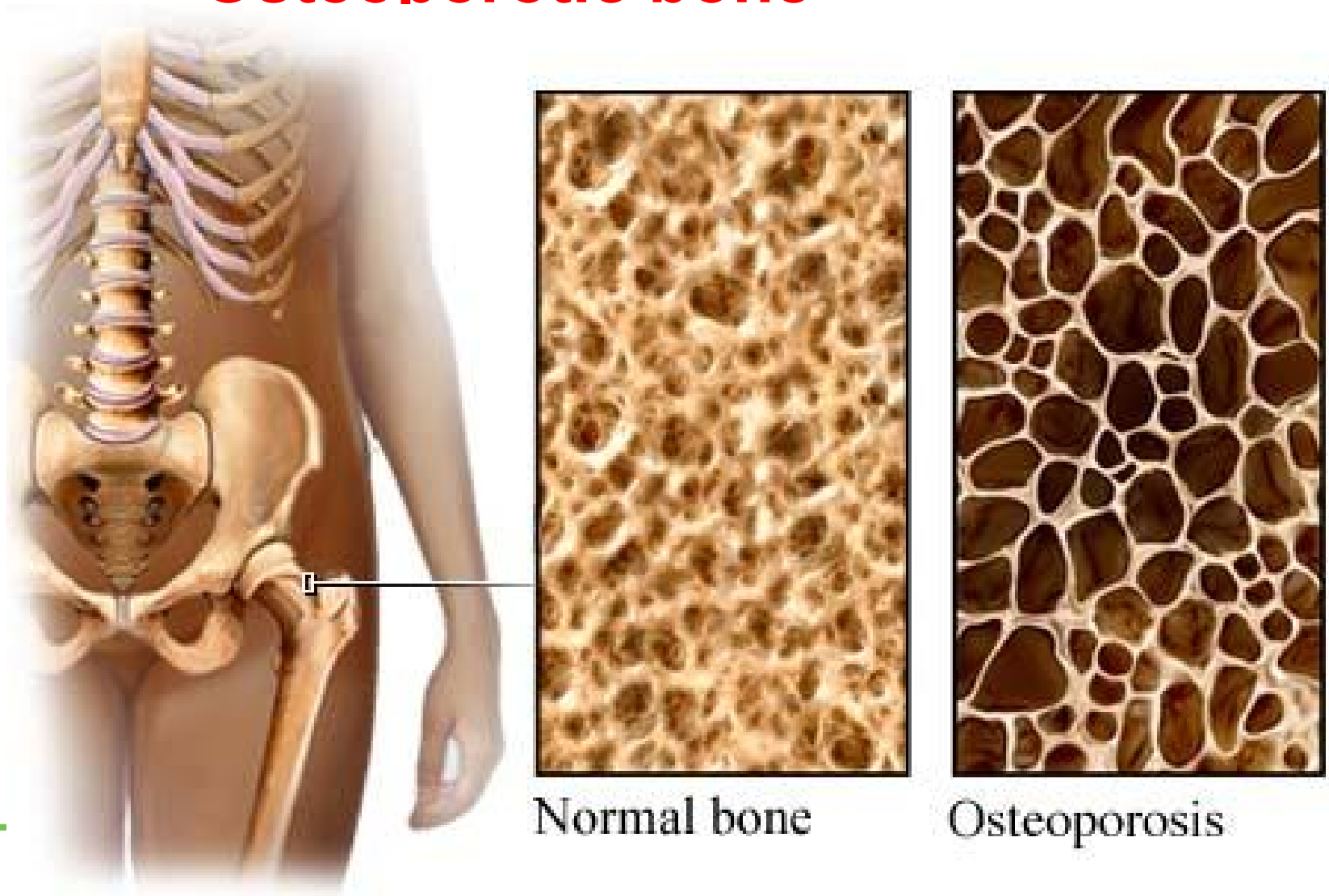
Osteoporotic bone



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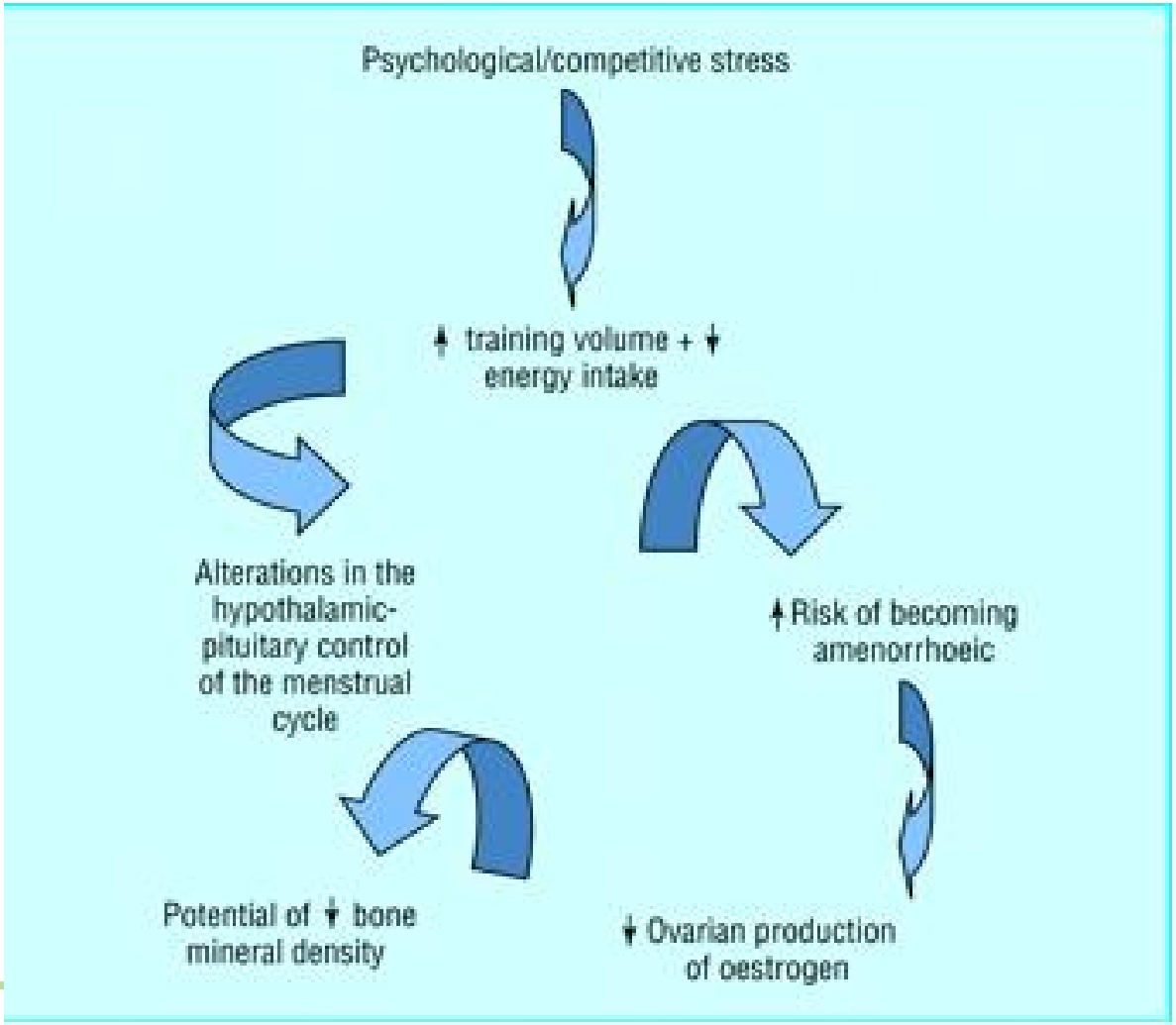
Female specific

- Disordered eating in females can lead to development of the female athlete triad
- A energy deficiency leads to a reduction in body fat
- Once BF falls below 20%, the athletes body will stop producing hormones needed to make oestrogen resulting in menstrual cycle disturbances = ammenorhea
- The lack of oestrogen decreases calcium abs and retention. Dietary deficiency of CA is also common ï left untreated leads to loss of BM, stress fractures and osteoporosis

How Are the Three Corners Inter-Related?



Birch (2005)

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Strategies

- Be aware of risk of disordered eating in appearance related sports/adolescent females
- Good working relationship with athlete/parents is crucial in spotting some of the telltale signs of disordered eating
- Good professional practice
- Educate on importance of nutrition for sport and health
- Use analogies to illustrate the fact that they need energy to function, don't bombard with science
- If athlete has to make a certain weight category, educate so they don't fluctuate massively outside competition

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Fluid for adolescents

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Why is fluid so important ?

Water and body weight (BW):

- 60% of BW in men
- 55% of BW in women
- 75-80% of BW in infants and children

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Fluid requirements in adolescence

- Adequate hydration especially important in teen athletes
- Less tolerant to heat than adults: body SA absorbs heat from environment more readily than adults
- Produce more heat during exercise but sweat less than adults
- Hydration strategy:
- Give teen own drinks bottle
- Frequent fluid breaks during practices and competition
- Encouragement from parents and coaches
- Weighing before and after exercise can help educate the teen about proper hydration
- Educate and supply pee charts!!

Hydration strategy

Pre exercise:

- Fully hydrate (400-600mls fluid) 2 hours prior to exercise
- Use pee charts for urine analysis
- Need to practice hydration strategy to avoid GI disturbances/ feeling bloated / heavy

During exercise:

- Replace fluid losses incurred by sweating
- If possible provide a source of CHO to supplement limited stores sustaining exercise (sports drinks)
- 150-250mls every 15-20 mins can be a challenge
- Preparation is key
- Weather is crucial factor

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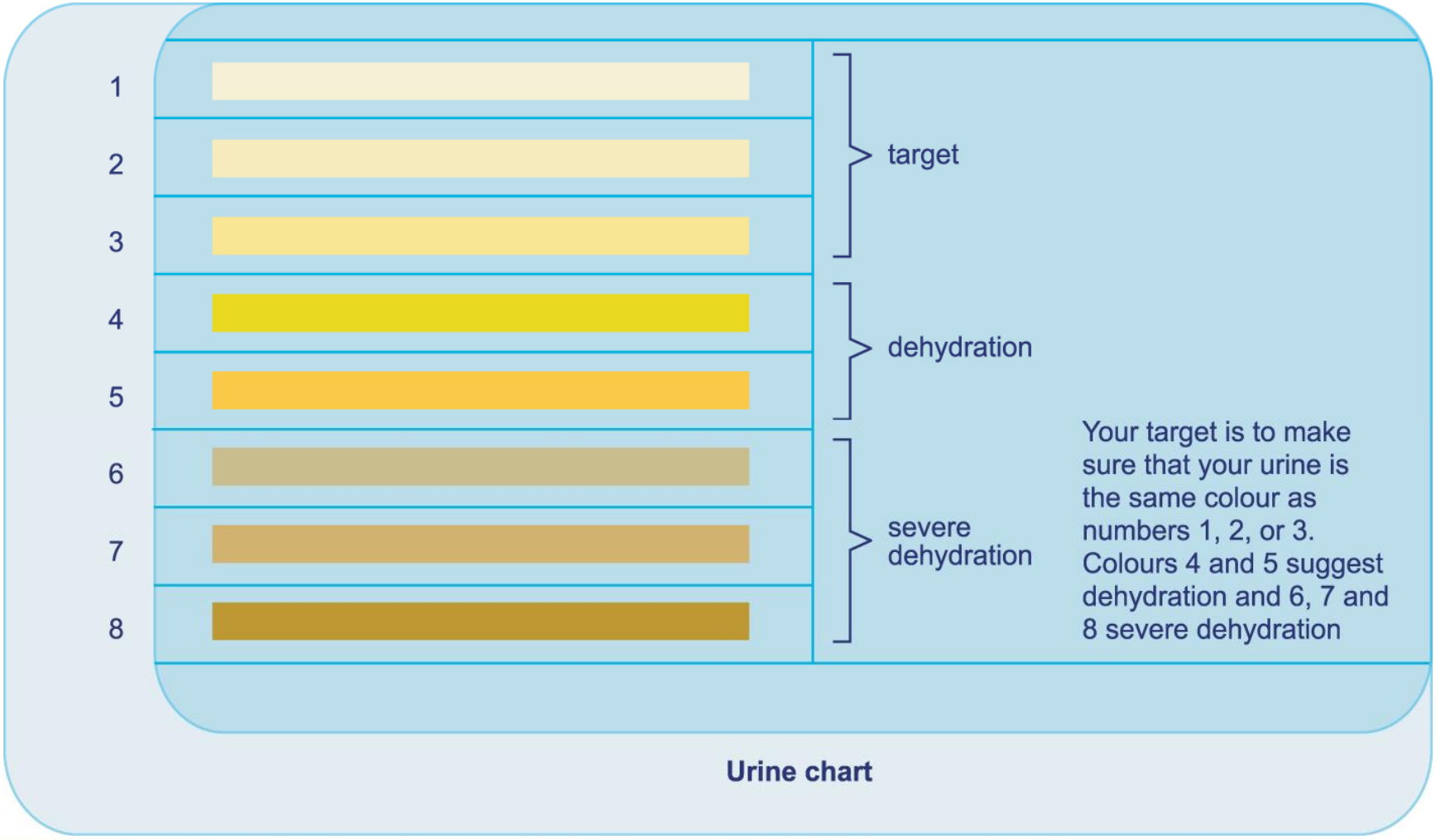
Hydration strategy

Following exercise:

- Aim is to replace potassium, sodium and fluid lost through sweat
- Top up glycogen stores ready for next session making use of ó1-2 hour windowô
- Aim is to fully rehydrate
- Until urine is a pale, yellow colour


1
2
3
4
5
6
7
8
target
dehydration
severe dehydration
Your target is to make sure that your urine is the same colour as numbers 1, 2, or 3. Colours 4 and 5 suggest dehydration and 6, 7 and 8 severe dehydration
Urine chart

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Word of caution

For good dental health:

- Drink quickly and avoid sipping slowly
- Donôt holdôor ôswishôdrinks around your mouth
- Brush teeth twice a day using fluoride toothpaste
- Visit your dentist regularly

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Vitamin and mineral intake

- May be higher in teens due to increased energy demand
- Teens who meet energy requirement will meet nutrient intake
- However, iron and calcium are two mineral which have been seen to be deficient in teen athletes, esp. female athletes
- Although true iron anaemia is rare can suffer fatigue and impaired growth that can significantly affect sport performance
- Ca important for BMD

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Strategies

- Meet iron RDAs by consuming a wide variety of foods which contain iron and calcium
- Consume adequate calories
- Iron fortified cereals, breads, bagels, cereals/bars should feature in the diet
- Combine iron containing foods with vitamin C to aid absorption
- A once daily multivitamin for teens may help supplement dietary Ca and Fe
- Milk and dairy products are a source of CHO, Protein, and Ca !! Good for athletes

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Sources of iron

- Haem iron: from animal origin (eggs, lean red meat, liver, kidneys, offal)
- Non haem iron: from plant sources (dark green leafy vegetables: broccoli, savoy cabbage, spinach, curly kale, whole grains)
- Eat a combination of both as part of a healthy balanced diet, combine with vitamin C to improve absorption (e.g. a glass of pure orange juice with main meal)

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Calcium content of some foods (mg/per 100g)

Hard cheese (cheddar, red Leicester, double Gloucester)	731
Soft cheese (medium fat)	99
Milk	118-129
Yoghurt	120-200
Brown bread	186
Broccoli	40

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Role of coach/PE teacher

- Be knowledgeable- educate athletes on importance of nutrition for health and athletic performance
- Be responsible- you are a role model
- Be aware- coach/teacher may spend long periods training with athlete and could be vital in detecting any problems
- Be approachable- you may be the first person that an adolescent athlete turns to for advice/help
- Know your athlete!

Remember: 5Pôs

- POOR
- PREPARATION
- PRECEEDS
- POOR
- PERFORMANCE