

# Nutrition in Sport: Fuel for Success!

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## Outline

- How does what you eat affect performance??
- Basic principles of a healthy diet for athletes
- Importance of food QUALITY
- Important nutrients
- What to eat BEFORE
- What to eat DURING
- What to eat AFTER
- Any questions?

Your body is a finely tuned vehicle, give it good fuel and it will take you places.

### What do you think your diet affects?

- Injury & illness prevention
- Recovery
- Attitude
- Training progress
- Competition performance
- Long & short term health

### Worth the extra effort?

"But I go for long periods, maybe three months, **without any fast food**"

**Breakfast:** Ackee and saltfish (a traditional Jamaican dish) with dumplings, cooked banana, yellow yam, and potato.  
**Lunch:** Pasta and chicken breast.  
**Dinner:** Rice and peas with pork.  
*(Usain bolt- who has a personal chef. Not always chicken nuggets!)*

"I was eating the most I've ever eaten and yet I'd lost weight and I was at my most defined and strongest. I was **training very hard** but because **I was eating properly, it allowed me to get stronger.**"  
*(Dame Kelly Holmes)*

**I can't afford to under-eat as my performance would be affected.** But I try to go for **balance**, so I'm getting all the **minerals and vitamins** I need. I eat a lot of **carbs** for energy."  
*(Jessica Ennis-Hill)*

### Systematic approach

**Tailor & Refine**  
i.e. Supplements

**"You can't build an athlete upon sports nutrition alone"**

**Build on the Basics:**  
Specific nutritional considerations  
i.e. CHO for energy, Protein for recovery, Fluid for hydration

**Strong foundations:**  
Food choices & behaviours i.e. regular meals, high quality foods, fruit and vegetables

### The foundations of sports nutrition

Basic guidance with 4 additional considerations.....

1. Eat **enough** food
2. Eat **high quality** foods
3. Eat enough **carbohydrate**
4. Eat enough **protein**

**The eatwell plate**

- Fruit and vegetables
- Potatoes, bread, rice, pasta etc
- Non-dairy sources of protein
- Milk and dairy foods
- Fat and/or sugar

## High Quality Food

### Choice One:

- Bowl of weetabix or fortified porridge with handful of raisins/other fruit & small OJ
- &
- Slice of wholegrain toast with thin spread of sunflower or olive based margarine.

### Choice two:

- Bowl of coco pops
- &
- Two pieces white toast & butter

Which breakfast do you think is higher...

In iron uptake? Higher in fibre? Higher in healthy fats? Higher in vitamin C? Higher in folate? Higher in other essential vitamins & minerals?

## Simple swaps can drastically alter your nutrient intake....

Can of fizzy Juice/sports drink <b>or</b> glass of milk	Sugar <b>or</b> Calcium, protein, phosphate & variety of vitamins
Large Sausage roll <b>or</b> baked potato & beans	Fat: 40g/16g <b>or</b> fat 1.6g/0.2g & high fibre, vit C, magnesium, selenium.
Jelly sweets <b>or</b> fresh fruit	Sugar <b>or</b> fibre & huge range of vitamins & minerals
Crisps <b>or</b> small packet dried fruit & nuts	Salt & fat/low nutrient value <b>or</b> high protein, selenium & magnesium.
Biscuits <b>or</b> wholegrain toast & peanut butter	Fat, sugar & salt <b>or</b> fibre, high protein, B-vitamins, selenium, zinc

## Carbohydrates

- Stored as **glycogen**-primary energy source during exercise
- 40-60% of daily energy (++) if training ↑

Before exercise: **Optimize glycogen stores**  
 During exercise >1 hour: **Immediate energy source**  
 After exercise: **Replenish glycogen stores & promote muscle synthesis**

- Sources:**
  - Pasta, cereals, bread, rice, potatoes, fruits & vegetables, beans, pulses, yogurts etc.
  - Low to medium G.I. carbohydrates should make up most of diet .....but high GI sources have their uses

## Protein

- Essential for muscle repair and growth
- Essential** immediately following exercise
- 3-5 servings a day depending on source
  - 100g meat/fish = 25-30g protein; other sources=15-20g



Complete proteins	Other proteins
Meat & fish Soya & dairy products Quinoa Eggs Flaxseeds	Grains (wheat, oats etc) Nuts & seeds Beans & pulses



Many athletes spend £££ on protein powders...but food sources are a better choice!



## Fat

- Energy dense
- Source of essential fatty acids & the vitamins A, D & E
- 20-35% of energy intake (limit saturated fats to 10%)
- Avoid just before & during exercise



Saturated fats: cakes, biscuits, fried food, full fat dairy & meat products



Unsaturated fats: nut/olive/vegetable oils, seeds & nuts, oily fish, avocados

## Fluids

- Fluids and electrolytes are lost in sweat
- Dehydration negatively impacts performance
- Important to drink regularly throughout day
  - ↑ during & after exercise
- Drink 1.5L for every kg weight lost during exercise or....  
**....Monitor colour of urine- aim for clear to light yellow!**
- Water best during day & short duration exercise
- Sports drinks for exercise >60 minutes & recovery



## Calcium & Vitamin D

- Adolescence presents a '*window of opportunity*' for optimal bone development & future health
  - By aged 17 you have attained 90% of adult bone mass
  - Not eating enough calcium during adolescence is likely to contribute to suboptimal peak bone mass in early adulthood & osteoporosis in the long term
- To absorb calcium you require vitamin D

## Bone friendly foods!

- Ensure 3-4 portions of calcium rich foods 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

## Any Questions?

### Nutrition BEFORE

- **Aims**
  - Optimise glycogen stores
  - Ensure adequately hydrated
- **Recommendations:**
  - Meal rich in low to medium G.I. foods 3-4 hours before
  - If required, smaller medium G.I. snack nearer event
  - Drink 5-7ml/kg body weight 3-4 hours before
    - If 60kg this means 300-420ml
    - If urine still dark drink a further 3-5ml/kg
- **Tips:**
  - Don't overeat
  - Don't try anything new before competition
  - Avoid foods high in fat & fiber
  - Nutrient dense foods

### Meal & snack ideas

#### Morning event:

- Porridge or wholegrain cereal with milk & honey
- Wholegrain toast with eggs/beans
- Granary bagel with jam

#### Afternoon event:

- Wholegrain sandwich with lean protein source
- Baked potato with tuna or beans
- Wholemeal pasta & tomato sauce

#### Snacks:

- Granola bars
- Flapjacks
- Banana
- Dried fruit
- Fruit loaf (soreen)
- Rice cake & honey
- Oatcake & jam

### During exercise

- Consuming carbohydrates during exercise >60 minutes:
  - Delays fatigue onset
  - Sustains optimum pace & intensity of exercise
  - Maintenance of skills and concentration
- High GI foods
  - Glucose gels, dried fruit, jelly babies, white bread & jam/honey
- Isotonic energy drinks
  - 6-8% carbohydrate content i.e. Lucozade sport
  - Easy and cheap to make your own!

### After exercise

- **Aims:** (3 Recovery Rs)
  - **Replenish** muscle energy stores (**Carbohydrate**)
  - **Repair** damaged muscle (**Protein**)
  - **Rehydrate** (**Water and electrolytes**)
- **Recommendations:**
  - Meal/snack rich in carbohydrate & protein (**3-4:1 ratio**)
  - **Within 30 minutes of finishing exercise**
  - Drink 1.5L for every estimated 1L lost
- **Considerations:**
  - Duration, intensity & type of exercise
  - Individual energy requirements & training aims
  - Gastric tolerance
  - Time until next exercise session

### Suitable foods post training

Food	Portion
Full/semi-skimmed milk & a banana	500ml & medium banana
Large banana & 500ml of high diluting juice	400ml
Low fat flavoured milk shake	400-500ml
Pancake & peanut butter with carton of fruit juice or milk	2 x small pancakes & 200-250ml fruit juice or milk drink/yoghurt
Jam/honey or banana sandwich/bagel/pitta	2 x bread & generous spread
Bowl of cereal (large) with milk	60g cereal & 200ml milk
Tuna Sandwich & semi or skimmed milk	2 slices of bread & 300ml milk
Nesquick	30g (6 tsps) with 400ml milk
Low fat rice pudding or yoghurt & fruit	150-200g yoghurt & 2 fruit
Granola/oat based cereal bar & raisins or other fruit	Bar with 25-30g of carbs & large handful of raisins or 2 x fruit

### Meal/snack ideas

#### Meal ideas:

- ✓ Lean beef burger on wholegrain roll with salad
- ✓ Stir fried vegetables, chicken or turkey and brown rice
- ✓ Scrambled eggs on wholegrain toast with avocados

#### Snack ideas:

- ✓ Chocolate milk + banana
- ✓ Peanut butter & jam sandwich + apple
- ✓ Cheese & ham salad wrap
- ✓ Smoothies

### Food Diary Feedback

- About half of each athletes food intake consisted of processed foods....
- While some processed foods make up part of balanced diet (i.e. bread, cereals....) they shouldn't be the main type of food eaten
- Important to think about the **QUALITY** of foods you choose like discussed earlier



Lean sources of protein  
Complex CHO  
Fruits and vegetables



Processed foods  
high in fat and/or sugar  
'Empty calorie' foods

### Take home messages:

- Nutrition affects all aspects of training & competition as well as your short and long term health
- Eat a healthy, balanced and varied diet- choosing high quality foods rich in complex carbohydrates, protein, calcium and other vitamins & minerals
- Take time to plan suitable meals & snacks
- Drink enough fluids before, during and after exercise
- Every athlete is an individual
  - Tailor general advice to meet **your** needs and preferences
- **Enjoy your food!**

## Any questions??