

DANONE
GetPRO

PROFESSIONAL

INTRODUCTION TO SPORTS NUTRITION FUNDAMENTALS

This resource was created by Michael Naylor, Head of Performance Nutrition, UK Sports Institute in collaboration with the GetPRO Professional nutrition team

This resource is for use under professional supervision

HOW CAN NUTRITION SUPPORT THE ATHLETE



**PROVIDE
ENERGY**



**SUPPORT
RECOVERY**



**BRAIN
FUNCTION**



**PHYSIQUE
MANAGEMENT**



**INJURY
MANAGEMENT**



**IMMUNE FUNCTION
SUPPORT**



**GENERAL
HEALTH**

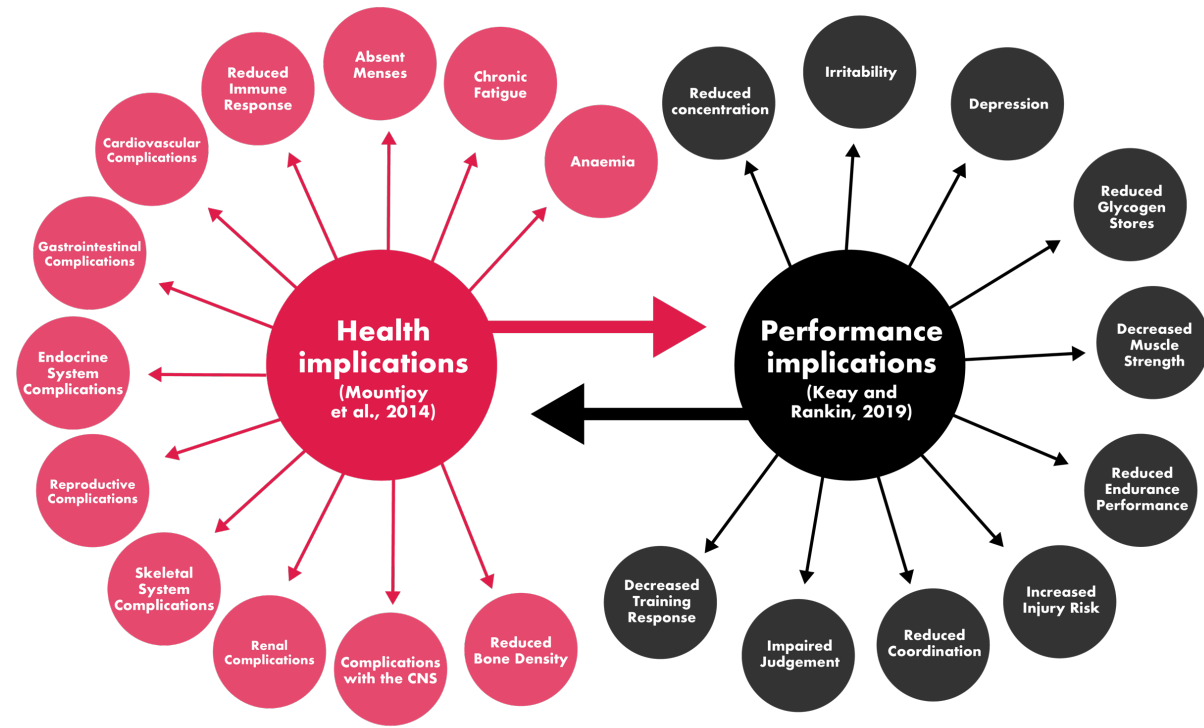
ENERGY AND ENERGY BALANCE

Energy Balance = When total daily calories burned is equal to total calories consumed



Energy balance is vital for the body to harmoniously continue its physiological functions, maintaining health and performance

REDs
Relative Energy Deficiency in sport
Sustained 'low energy availability' can lead to REDs



MACRONUTRIENTS



CARBOHYDRATE

4 kcal/g



PROTEIN

4 kcal/g



FATS

9 kcal/g

SACN RECOMMENDATIONS

Carbohydrate	Fat	Protein
50% TDEI	35% TDEI	15%
Effort to increase dietary fibre and lower free sugars	Focus on healthy fats and limit saturated fat to >10%	To support repair and growth of muscles, enzyme production and immune function

ATHLETES VARYING NEEDS

Carbohydrate	Fat	Protein
3 - 12g/kg/bw/d	20 - 30% TDEI*	1.2 - 2 g/kg/bw/day
Maximises glycogen replenishment	Absorption of fat-soluble vitamins, carotenoids, essential FA's and linoleic acids, essential for maintaining body weight and health	Maintain muscle mass due to the regular catabolic state and muscle breakdown endurance exercise can cause

*Total daily energy intake

CARBOHYDRATE PERIODISATION

LIGHT TRAINING DAY
(4g/kg/bw)



$70 \times 4 = 280\text{g}$ Carbohydrate

MODERATE TO HIGH TRAINING DAY
(or pre intense day) (6g/kg/bw)



$70 \times 6 = 420\text{g}$ Carbohydrate

EQUATION: WEIGHT (KG) X CARBS RECOMMENDED FOR DAY (G)

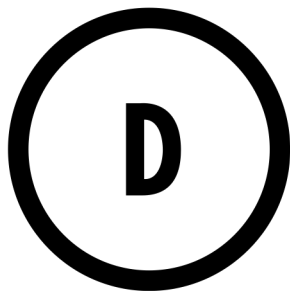
MICRONUTRIENTS

Micronutrients consist of vitamins and minerals and they are typically obtained through a balanced diet that includes a variety of fruits, vegetables, wholegrains, lean proteins and dairy products... eating the rainbow is a great way to ensure you get all the essential micronutrients in your diet.

Nutrient	Foods High in Nutrient	Effects on the body
Vitamin A	Sweet potatoes, carrots, spinach, kale, mangos	Essential for vision, immune function, skin health, and cell growth
Vitamin B	Whole grains, lean meats, nuts, dairy products, leafy greens, fish, potatoes, bananas, eggs	Crucial for brain development and immune function. Supports energy metabolism and important for neurological function
Vitamin C	Citrus fruits, strawberries, bell peppers, broccoli	High in antioxidants, boosting immune function
Vitamin D	Fatty fish (salmon, mackerel), fortified dairy, sunlight exposure, eggs	Facilitates calcium absorption, crucial for bone health
Vitamin E	Nuts and seeds, spinach, broccoli, sunflower oil	High in antioxidants, protecting cells from damage
Calcium	Dairy products, leafy greens, fortified foods	Essential for bone health, nerve function and blood clotting
Iron	Red meat, lentils, spinach, fortified cereals	Critical for oxygen transportation in the blood and energy production
Potassium	Bananas, oranges, potatoes, beans	Regulates fluid balance, nerve signals and muscle contractions
Zinc	Meat, dairy, nuts, legumes	Important for immune function and wound healing

MICRONUTRIENTS

Nutrient	Daily adequate intake recommendations	Food sources
Calcium	9-18 yrs: 1300 mg/day 19-50 yrs: 1000 mg/day 51-70 yrs: 1200 mg/day Amenorrheic athletes: 1500 mg/day	1 cup Skimmed milk: 300mg 1 cup fortified soy milk: 280mg ½ cup boiled broccoli: 89mg 1 cup chickpeas: 80mg
Iron	Males 19+ years: 8.7mg Females 19 – 49yrs: 14.8mg Females 50+ yrs: 8.7mg	Red meat such as beef: 2.47mg per 100g Kidney beans: 8.2mg per 100g raw Fortified breakfast cereals (Weetabix: 4.5mg per 2)



VITAMIN D FOOD SOURCES:

- Oily fish – such as salmon, sardines, herring and mackerel
- Red meat
- Egg yolks
- Fortified foods – such as plant milks and breakfast cereals

10 ug (micrograms/mcg) recommended between September - March

HYDRATION

FUNCTIONS OF WATER

- ✓ Regulates body temperature, removes waste products via urine, transports nutrients and compounds in the blood and acts as a lubricant for our joints.
- ✗ For athletes, dehydration can result in reduced endurance and strength performance as well as heat related illness. Research suggests individuals suffer adverse effects when there is a loss of <2-3% body weight.

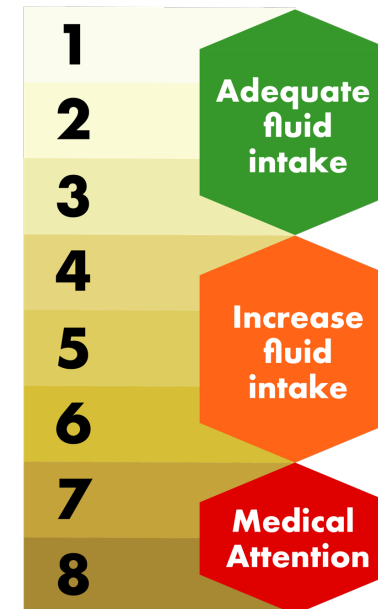
Hydration needs are highly individual and vary depending upon:

- Duration
- Intensity
- Temperature/environment

SWEAT TEST

$$\begin{array}{|c|} \hline \text{BODY WEIGHT (KG)} \\ \hline \text{post exercise minus any} \\ \text{food or fluid consumed} \\ \hline \end{array}
 +
 \begin{array}{|c|} \hline \text{BODY WEIGHT (KG)} \\ \hline \text{pre-exercise (minimal} \\ \text{clothing)} \\ \hline \end{array}
 =
 \begin{array}{|c|} \hline \text{SWEAT} \\ \hline \text{RATE} \\ \hline \text{l/hr} \\ \hline \end{array}$$

ACTIONS



High sweat rate or visible salt lines post exercise?
Consider adding an electrolyte to your drink, particularly when exercising over 2hrs

PRE-EXERCISE FUELLING

The closer to exercise, opt for high carbohydrate, high GI* foods that are in lower saturated fat, fibre + protein as these foods take the body longer to digest!

AIMS
limit tummy issues + top up glycogen stores ready to perform!

2 - 4 HOURS
pre-exercise



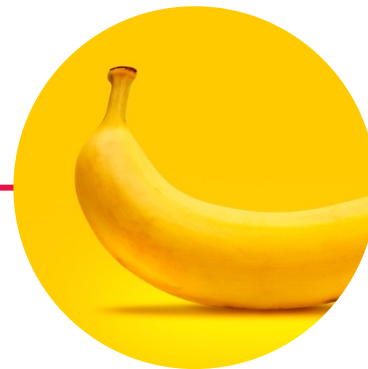
Tomato pasta with chicken

1 - 2 HOURS
pre-exercise



Porridge with honey + banana

30 - 60 MINUTES
pre-exercise



Banana/white bread with jam



*GI/Glycemic index = a measure of how quickly a food causes our blood sugar levels to rise

DURING EXERCISE NUTRITION

High Gi foods first when practically possible



Gels / Carb drinks when food less practical



How much fuel?

Duration	Carbohydrate per hour (g)
Up to an hour	Mouth rinse or nothing
1-2 hrs	30g carbohydrate
2hrs +	60g per hour
2.5hrs +	90g per hour

POST-EXERCISE NUTRITION

THE 3 R'S...
REFUEL, REPAIR, REHYDRATE



**FIRST 30
MINUTES**



**WITHIN
2-3 HOURS**

DID YOU KNOW?

Milk provides the
perfect 3:1 ratio
of carbohydrate
to protein
for recovery!

FOOD FIRST APPROACH

Where practically possible, nutrient provision should come from real foods and drinks rather than from isolated food components or dietary supplements.

As top researchers have stated “nutritional programs should prioritise food over supplements, as whole food sources offer energy and macronutrients as well as a range of micronutrients, polyphenols, fibre and other bioactive compounds that can have positive benefits.”



When food first may not be practically possible:

- Some nutrients are difficult to obtain in sufficient quantities in the diet
- Some nutrients are abundant only in foods individual's dislike
- The nutrient content of some foods can vary – e.g. caffeine
- Concentrated doses of some nutrients are required to correct deficiencies and/or promote immune tolerance
- Some foods may be difficult to consume around/during exercise
- Tested supplements may help if food hygiene concerns/contamination



WHEN CONSIDERING A DIETARY SUPPLEMENT THINK:

- Does it pose any harm?
- Is it legal?
- Can I practically consume this through food?
- Does it promote health?
- Does it promote performance?

SUMMARY

Nutrition can support an individual's overall health and performance, often at pivotal points in sport!

The components of the carbohydrates, fats and proteins that make up our energy balance will differ day to day, depending on individual goals and activity levels.

Consuming a range of fruits, vegetables and grains will help ensure sufficient micronutrients are in your diet.

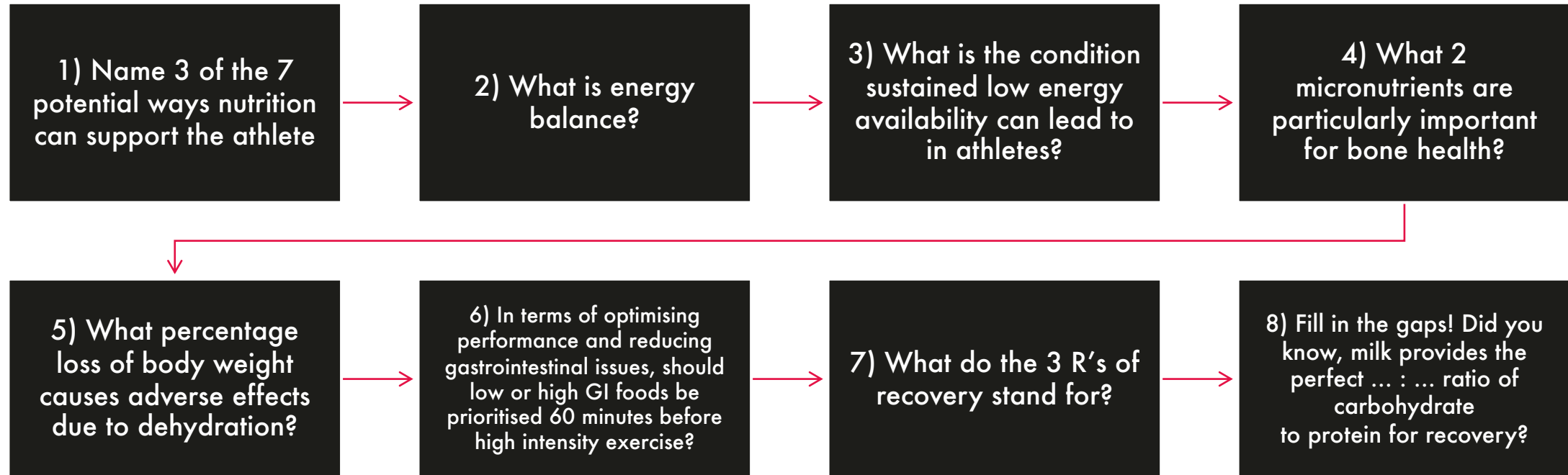
Glycogen stores are limited (~500g) highlighting the importance of topping up stores if exercising at high intensities or for long durations (>80mins) if the aim is to maximise performance.

Think of the 3 R's when it comes to recovery! Repair, Replace, Replenish!

A food first approach should be adopted first where practically possible.

Hydration needs vary greatly. Use the hydration chart to assess and respond accordingly.

QUIZ



REFERENCES

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About the author: Michael Naylor is a leading health & performance nutritionist with over 15 years' experience in elite sport. In his role as Head of Nutrition for the English Institute of Sport he provides expertise to 25 of Team GB's Olympic and Paralympic sports.



THANK YOU