



Hasting Runners Nutrition Talk

Strength & Conditioning Tips

20th August 2024

Rhys Boorman

MSc Sport, Health & Exercise Science

Level 4 Certificate in Weight Management & Athletic Performance

Level 3 Personal Trainer

Level 3 UKA Endurance Coach



'You Can't Exercise Your Way Out of an Unhealthy Diet'

'Strength and conditioning improves runner's performance, physical health, and prevent injuries.'

The Importance of Diet and Supplements

- Your diet is vital to ensure your body can grow and repair after exercise, especially as you grow older when recovery takes longer.
- Your diet may not hit the recommended nutrient amounts. by taking supplements it bridges the gap between your diet and body needs,
- As you get older nutrient absorption declines with age therefore supplements can help with the depletion.

Supplements are diet enhancement, not diet replacement!

The Role of Diet on Fitness, Athletic Performance and Recovery

- More energy
- Meet the demands of training exercise
- Training adaptations
- Improved recovery
- Optimal body weight and body fat levels
- Optimal hydration levels.

Dietary Guidelines for Sports and Exercise

- An athlete's diet should be similar to the general public:
55% Carbohydrates (CHO), 12-15% Protein (PRO), 30% Fat.
- Exceptions:
 - Athletes taking part in exercise 60-90mins a day - CHO 65-70%
 - Endurance Athletes - PRO intake 1.2-1.7g/kg.BW instead of 0.8-1g/kg.BW

Guidelines before Exercise

- Main meal - consumed 3 hours prior to exercise
- Snacks - high in CHO, low in fat, some protein.

Energy Availability

- **Energy availability is the amount of energy that is left and available for the body to function after the taking away the energy expended for training and the energy consumed from the diet.**
- **Energy Availability = Energy Intake - Energy Expenditure**

Calculating Caloric Intake

- Dependent on a person's gender, body weight and age.

Men

- $BMR = 88.362 + (13.397 \times \text{Body Weight in Kilograms}) + (4.799 \times \text{Height in Centimetres}) - (5.677 \times \text{Age})$

Women

- $BMR = 447.593 + (9.247 \times \text{Body Weight in Kilograms}) + (3.098 \times \text{Height in Centimetres}) - (4.330 \times \text{Age})$.
- PAL and Thermic Effect of Food also impacts calorie intake.

Calculating Daily Macronutrient Intakes

- Calorie values - CHO & PRO - 4kcal/g Fat - 9kcal/g
- Example: TDEE - 3526kcal
- CHO/PRO/FAT - 50/25/25
- CHO - 1763kcal PRO - 881.5kcal FAT - 881.5kcal
- CHO - 441g PRO - 220g FAT - 98g

TDEE = Total Daily Energy Expenditure

Importance of CHO

- Primary Energy Source
- Excess CHO stored as glycogen
- Helps preserve muscle mass
- Net carb – digestible part of CHO Fibre – non-digestible
- Glycaemic Index (GI) – impacts efficiency of releasing energy

High vs Low CHO diets for training

High CHO	Low CHO
<ul style="list-style-type: none">+ Can improve performance+ CHO loading do prolong high intensity exercise <ul style="list-style-type: none">- High CHO diets can cause spikes in blood glucose- Increased risk of diabetes	<ul style="list-style-type: none">+ Can promote the use of fat at a resting state+ Reduce body fat and lower blood sugar levels+ Reduce risk of Diabetes <ul style="list-style-type: none">- Decrease performance due to lack of CHO during exercise.- Leading cause of death in U24's with diabetes.

The Importance of Carbohydrate Loading

- A nutritional strategy that increases the amount of glycogen stored within the body.
- Eating more carbohydrates over several days than you would normally do, and in conjunction with a taper.
- Shown to reduce fatigue, increase performance and speeds up recovery.
- 6-day; 3-day and 1-day protocol

Role of Protein in the Diet

- The building blocks of tissue growth and repair
- Can be used as an energy source
- Help with the production of hormones and a functioning immune system.
- Complete/Incomplete Proteins

Using Protein for Weight Control

- Increased protein in a diet can help with weight control
- Increased levels of satiety, reducing the levels of hunger
- Thermic effect of protein is higher than CHO & Fats

The Role of Fat in the Diet.

- Used as an energy source
- Insulation from cold temperatures
- Fat is needed for cell membrane structure
- Transport of fat-soluble vitamins like vitamin A, D, E and K2
- Limit amount of saturated fats, avoid trans fats

Body Fat Percentage

<u>Males</u>		<u>Females</u>	
5-9%	Low Body Fat	5-9%	Dangerously Low Body Fat
10-14%	Lean Body Fat	10-14%	Low Body Fat
15-19%	Healthy Range	15-19%	Lean Body Fat
20-24%	High Healthy	20-24%	Low average range, healthy
25-29%	Considered Overweight	25-29%	High Healthy Range
30-34%	Considered Obese	30-34%	Leading towards obesity
35%+	Risk of heart disease and heart attacks	35%+	Risk of heart disease and heart attacks

Fat Recommendations

- Men – less than 30g of saturated fat a day
- Women – less than 20g of saturated fat a day

- Trans fat – less than 5g a day

Importance of Omega 3 & 6 in the Diet

- Omega-3 fatty acids are essential fatty acids, which means that the body can not make this type of fat.
- These are important in cell membrane and crucial for eye, brain, sperm, heart, and blood vessel functioning. It can also help with the endocrine and immune system as well.
- Omega-6 fatty acids are also needed to help cells function.

Role of Micronutrients

- Vitamins are essential for overall health and to aid with cell function, growth and development.
- Minerals also aid a variety of bodily functions as well.

Vitamin C	Healthy Teeth & Gums, Iron Absorption
Vitamin B2 & B6	Red blood cell production
Vitamin K	Blood clotting
Calcium	Bone Health
Potassium	Muscles and Nervous System
Zinc	Immune system and fighting infection

Importance of Hydration

- Maximises physical performance
- Reduce Oxidative Stress
- High energy levels and brain function
- Prevents headaches
- Relieves constipation
- Helps with the treatment of kidney stones

Age & Metabolic rate

- Metabolic rate is the amount of energy that is expended.
- Metabolic rate slows down as humans age this is due to the loss of muscle tissue and changes in neurological and hormonal processes

How to increase metabolic rate:

- Increasing the amount of protein in your diet
- Drinking more water (specifically cold water)

Nutrition before Exercise

- The amount of CHO should decrease the closer to your training session or race
- High GI foods cause a spike in blood insulin levels which suppresses fat as an energy source
- Low GI food has less impact on blood glucose and fatty acid concentrations
- Should have some protein to allow for a quicker rebuild and repair

Nutrition During Exercise

- Only need to fuel if it exceeds for than 60-90mins at a moderate intensity or 60mins if it is high intensity.
- Doing more than 2 hours exercise hourly rate should be 30-60g of CHO.
- If more than 3 hours than 90g of CHO every hour (3x30g), to avoid stomach issues.
- Protein not necessary, but small amounts can speed up recovery.

Nutrition After Exercise

- Post exercise nutrition is vital when exercising a lot or strength training
- Consuming CHO between 15min-2 hours post exercise will help replenish glucose and glycogen stores
- A mix of CHO and PRO, 3:1 CHO:PRO ratio – ideal product is chocolate milk

Recommended Daily Portion Intakes

- Average woman 2000kcal/ Average man 2500kcal.
- Recommend that the use of hand size is based on portion size.
- 5 portions of fruit and vegetables
- 3-4 portions of starch CHO's
- 2-3 portions of beans, pulses, fish, eggs, meat and other proteins
- 2-3 portions of dairy or dairy alternatives

Nutrition & Strength in Perimenopause & Menopause

Very good article on <https://zoe.com/learn/perimenopause-diet>

- A healthy, varied diet with many plant foods - also a mediterranean diet.
- Increasing protein into your diet.
- Increase risk of osteoporosis - need to have food rich in Calcium and vitamin D.
- Increase of Omega-3 help manage symptoms of night sweats and depression
- Avoid caffeine

Women's Health – Nutrition according to menstrual cycle

- **Menstrual phase** - Diet high in protein, fibre, mineral rich and healthy fats. Help minimise cramping, increase energy levels and stabilise mood.
- **Follicular phase** - eating foods high in this Magnesium can help warn off period pain further down your cycle. Foods that can reduce the effects of oestrogen may be beneficial for reducing heavy periods
- **Ovulatory** - Eating foods high in fibre can help to reduce the levels of oestrogen, which can be important to avoid oestrogen dominance in the body. Increasing consumption of glutathione, folic acid and omega-3 fatty acids can all help boost fertility.
- **Luteal Phase** - To mitigate painful periods, eating foods high in magnesium at this time can help. Magnesium is also thought to support low energy and libido during this phase. Eating healthy fats and proteins will also help maintain muscle and strength as your body prepares to bleed.

Nutrition questions

- Specific foods to prepare for a half marathon?
- Protein powders? What's your thought on them?
- Plant Based Nutrition

Strength & Conditioning Questions

- Practical exercises to support running
- How to recover better after training/racing?
- What is eccentric training?
- The type of training needed for an older runner, to improve strength and reduce injury - How does this differ from training for a younger runner?



Any Further Questions?



Thank you for having me!