



Carbohydrates – Fuelling Success

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Aims & Objectives



Aim –

- Inform swimmers on the roles of carbohydrate in a swimmers body and help them identify their daily requirements.

Objectives – Identify;

- Roles
- Different Types
- Sources
- Requirements



What is Carbohydrate?

- Organic molecules made up of made up single or many sugars bonded together
- Carbohydrate is broken down in the mouth, stomach, and intestines
- Predominate energy source for humans
- Different carbohydrates are absorbed at different rates into the blood stream
 - Glycemic Index



Carbohydrate's Roles?

Fuel!!!

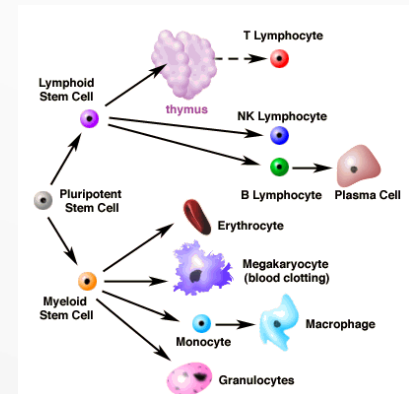
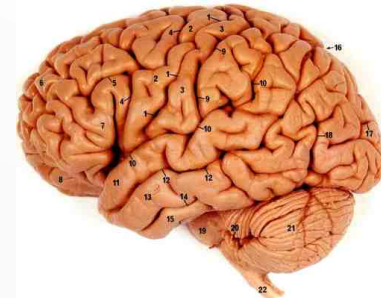
- Muscles
 - Aids recovery by topping up muscle and liver carbohydrate stores (glycogen)
 - Provides energy to fuel growth
 - Provide energy to support adaptation from training
 - Prevents protein stores (muscle tissue) from being broken down for energy



Carbohydrate's Roles?

Fuel!!!

- Central Nervous System
 - Glucose only energy source for Brain
 - Brain controls everything!
- Immune System
 - Major energy source for antibodies
 - Low carbohydrate stores impair immune system



Excess & Deficient Intakes

Deficient

- Low energy stores
- Slow recovery
- Muscle breakdown
- Depressed immune system
- Injury
- Extreme – Chronic Fatigue



Excess & Deficient Intakes

Excess

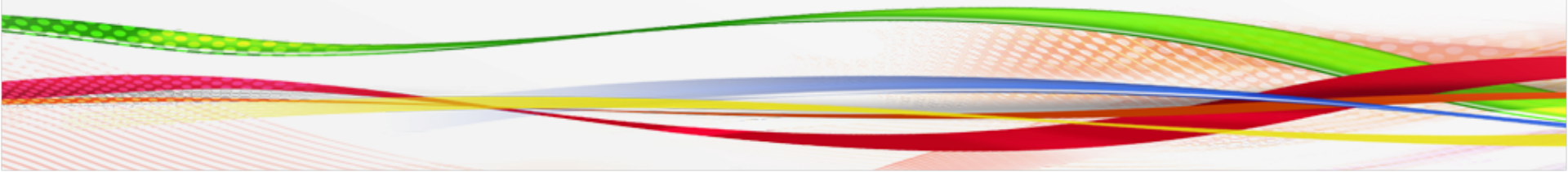
- Body can convert carbohydrate into fats that can be stored
- Can lead to increased fat stores
- Unfavourable body composition
- Extreme - Type II Diabetes!
(Unlikely in elite athletes)



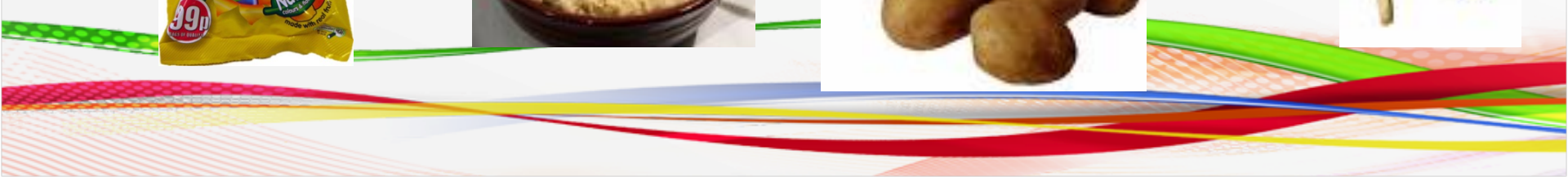
Just Right!



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Carbohydrate Sources



Simple & Complex

Simple (sugars) Carbohydrates

- Monosaccharide/disaccharide – single sugar molecules and paired molecules
- Most are rapidly absorbed into the bloodstream.
 - *This is called having a high glycemic index*
- **Best to be consumed during or immediately after training**
 - *This rapidly replenishes blood glucose and glycogen stores*



Simple & Complex

Complex Carbohydrates

- Polysaccharides – multiple bonded sugar molecules
- Most are slowly / moderately absorbed into the bloodstream
 - *This is called having a low / medium glycemic index*
- **Best to be consume before training**
 - *Provides a slow released but longer lasting energy supply to fuel whole training session*



Glycemic Index (G.I.)

Low

- Porridge Oats
- Muesli
- Spaghetti
- Macaroni
- Brown Rice
- Apricots
- Dairy Products
- Vermicelli
- Lentils
- Wild Rice
- Beans

Medium

- Sweet potato
- Wholegrain pasta
- Noodles
- White rice
- Bananas
- Semolina
- Pea
- Sweetcorn
- Oatmeal
- Beets
- Cantaloupe

High

- Gels
- Sports drink
- Jelly sweets
- Boiled sweets
- Sugar
- White bread
- White potato
- Honey
- Cornflakes
- Soft drinks
- Water melon

Carbohydrate Requirements

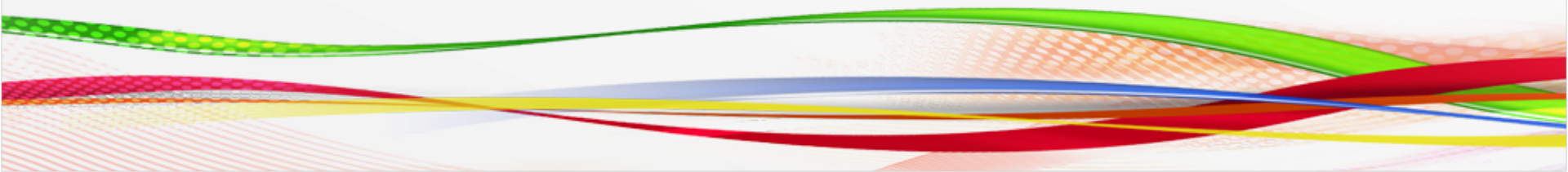


Your Carbohydrate Requirements will differ due to;

- **Body Mass**
 - Higher muscle masses require more fuel
- **Type of Training**
 - Differing training has varied energy demands
- **Training Phase**
 - Varied intensities have differing requirements
- **Body Composition Goals**
 - Changing carbohydrate intakes can influence body composition
 - *Consume more than required if trying to gain mass*
 - *Consume less than required in trying to loose mass*

Calculating Carbohydrate Requirements

- Using the **Carbohydrate Calculator** and **Table 1** on the handout to identify how much you need to consume of a daily basis.
- Then use the **Carbohydrate Portions Booklet** to plan your diet for one day to meet your protein requirement
- Use the **Daily Plan Template** to help you structure this to your normal routine



Thanks for your attention!



Questions?

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