

# FUELLING FOR SUCCESS

**INSPIRED LIVING CYCLE RIDE 2010**

By  
**LINIA PATEL**

( MSc. Nutrition, Sports Dietitian)

# Plan of Action

- **Aim**
- To empower you to become your own “ sports nutritionist”
  
- **Background**
  - Sports Nutrition Basics
  
- **Secrets of Sports Nutrition**
  - Pre-event Nutrition
  - During event Nutrition
  - Post Event Nutrition
  
- **Supplements**

# Fuelling for Success: Background

- Road cycling an **endurance sport**
- Cyclists need to be lean to **maximise power: weight ratio**
- Physically and nutritionally demanding
  - **Nutritional demands are high**
    - Energy intakes in Tour de France recorded at 9000kcal/day
    - Elite cyclist = 21kcal per minute at speeds of 26mph
    - **Carbohydrates ( CHO) are fuel of preference at high intensity**
    - Body only stores +/- 2000-3000kcal of CHO which lasts +/- 90 mins at speeds of 26mph

# Fuelling for Success- Training Diet

- Tailored to achieve ideal body composition
  - To lose weight: 500-1000kcal energy deficit/day
  - Macronutrient breakdown recommended by AIS

<b>Aim of training</b>	<b>Ratio of CHO:PROT:FAT</b>
3 hours training /day	(60:20:20)
Fat loss	(40:30:30)
Weight gain	(50:30:20)

- **Fuelling for Success- Training Diet**
- High in **carbohydrate, protein, vitamins and minerals**

	<b>Amateur</b>	<b>Elite</b>	<b>A 70kg cyclist</b>
<b>Kcal (kcal/kg/day)</b>	35 – 50	> 60	4200kcal
<b>Carbohydrate g/kg/day</b>	6-8	8 - 12	560 g
<b>Protein g/kg/day</b>	1 – 1.4	1.2 – 1.8	84 g

# Fuelling for Success- Training diet

- **Timing of meals** is important to ensure adequate recovery – “Graze”
- Speed at which body absorbs carbohydrate from the blood gut and makes the fuel available to the exercising muscle is NB
  - **Glycaemic Index**
    - **High GI:** Good for 1 hour before, during and immediately after exercise
    - **Low- Moderate GI:** Best eaten a couple hours before exercise, and in-between events for glycogen refuelling

# Glycaemic Index

HIGH GI > 85	MODERATE GI 60- 85	LOW < 60
Glucose	Bananas	Fructose
Sucrose	All Bran	Apples
Honey	Grapes	Berries
Cornflakes	White Pasta/ Rice	Pulses
White bread/ bagel	Bakes Beans	Yogurt

# Fuelling for Success

- **1) Pre-event Nutrition**
  - Pre- Event Meal
  - Pre- Event Snack
  - Carbo loading
- **2) During Event**
  - Carbohydrate intake
  - Fluid Intake
- **3) Recovery Nutrition**
  - Immediately after event: Recovery Snack
  - Recovery Meal

# Eating before workouts

- **Purpose of meal:** Top up liver glycogen levels & help maintain blood glucose levels during cycling performance
- **Eating before exercise:** the longer you have the more you can eat, the closer you are, reach for some carbohydrate.

If you have	Choose	Containing
3 hr – 4 hr	Meal	Carbohydrate, protein, fat
2 hr	Mini-meal or snack	Carbohydrate, protein
1 hr	Fluids	Carbohydrate
5 min – 10 min	Fluids, or energy gel	Carbohydrate

# Pre-event Nutrition: Pre-Race Meal

- **Purpose of meal:** Top up liver glycogen levels & help maintain blood glucose levels during cycling performance
- **Meal Timings:**
  - Pre -race meal should ideally be eaten 3-4 hours before the race
  - Early morning races ( i.e. 10 a.m), cyclists need to eat between 7 and 9 a.m.
  - Nervous? High CHO meal night before and a liquid meal/snack before the race
- **Type of meal:**
  - High in carbohydrate
  - moderate in protein, low in fat
  - Include fluid with pre-race meals
  - GI? Low or high GI? Does it matter?

# Pre-Race meal ideas

- Oats porridge/Cereal + semi-skimmed milk + fruit + juice
- Toast with thinly spread peanut butter + honey/jam/marmite + sports drink
- Smoothie made with low fat yogurt + fruit
- Sandwich including lean meat/ low fat cheese filling + fruit + water
- Baked potatoes + baked beans + low fat grated cheese + juice
- Pasta/rice topped with tomato based sauce + lean meat + juice/cordial
- Low fat creamed rice + banana + juice

# Pre- Event Nutrition: Pre-event snack

- **Purpose of snack:** Keep glycogen levels topped up and blood glucose levels optimal
- **Timing:**
  - 1 – 2 hours before the event
  - <90 mins to the start: Last intake of solid food
  - < 60 mins to the start: Liquid fuel
- **Type of meal:** High in carbohydrates ,low protein, low fat.
  - Recommended intake of CHO: 1 g/ kg BW = 60-70g
  - Recommended intake for fluid:
    - 2 hours before: 400- 600mls
    - 0-60 mins before: Top up with 200-250mls

# Pre- event snack

- Isotonic Sports drinks
- Pre- exercise sports bars
- Fruit bun/ Malt loaf
- Fruit i.e. Banana
- Dried Fruit i.e. raisins
- Yogurt/ Smoothie
  
- Practice makes progress and then eventually perfect!!

# Pre-Event Nutrition: Carbo loading

- **Purpose:** To optimise glycogen levels in muscle/ liver
- **How:** Increase carbohydrate intake a few days prior to the race/ event in combination to reduced training
  - Ideally cyclists should consume 8-12g of carbohydrate of kg of body weight
  - The higher end of the range can be used for extreme situations, for example stage races ( 11-12g per kg of body weight).
- Important to not use it as an excuse to fat load!

# Pre-Event Nutrition: Day before

- **Goal:** Eat in a way that leaves you physically ready and mentally prepared
- No experimenting!
- Keep it simple. Graze throughout the day.
- Last meal should be high in carbohydrate- i.e. Pasta/ rice/ potatoes
- **Top Tips:**
  - Drink a “healthy” beverage with every meal/snack. Don't overload with water
  - Avoid beans, calciferous veg if you suffer from bowel problems
  - Avoid high-fiber foods such as raw fruits and veg with thick skins, bran cereal, nuts and seeds
  - Avoid sugar substitutes like sorbitol and mannitol which may cause diarrhoea
  - Limit alcohol or avoid all together
  - Eat or drink a bedtime snack to squeeze in a few more calories /
  - Set out, prepare and pack everything you need.

# During Race Nutrition: Carbs

- **Purpose:**
  - Body has limited stores of CHO- need to top up
  - Improves performance
  - Prevents fatigue
- **Recommendations:**
  - Carbohydrates: 1 g/kg body weight per hour
    - 60-70kg rider: 60-70 g CHO
    - Start taking carbohydrate in the form of fluid/ gels/ food after 15 minutes of exercise ( 6 % CHO solution containing 20-30 mmol/litre sodium
    - Experiment in training, CHO needs and see what suits you best
  - **Fluid:**
    - Ad lib?
    - 150- 350mls every 15- 20 minutes

# During Race Nutrition

- Examples of CHO choices ( containing 50g CHO) are:

Food/ Amount
800- 1000 ml Isotonic Sports drinks
2 Carbohydrate gels
2 large bananas
2 Cereal bars
6 Jaffa cake
1 ½ Sports bars
Jam Sandwich ( 2 thick slices of bread, .51 tbsp jam)
50g Jelly beans

# Recovery Nutrition: Immediate

- **Purpose:** Recovery after an event should encompass:
  - Refuelling
  - Repair & Adaptation
  - Rehydration
- **Recommendations:**
  - Begin rehydrating and refuelling immediately
    - Glycogen repletion is most rapid 0-60 mins post exercise and complete repletion is achieved in 24 hrs
  - Rehydrating:
    - For each kg of weight lost during exercise replace with 1.5 litres of fluid
    - Water is not the ideal post exercise method of hydration
    - Sodium containing drinks stimulate thirst

# Recovery Nutrition: Immediate

- **Refuelling:**
  - 1 - 1.2g/kg CHO of body weight per hour provided at 30 minute intervals ( i.e. 75 - 90g per hour)
  - CHO intake above 90g per hour provides no additional benefits with muscle glycogen storage and may cause GIT disturbances
  - Studies have shown an increase in glycogen synthesis ( 40-100%) if protein is added to carbohydrate
  - Protein also promotes protein synthesis/ muscle repair
  - Aim for 1.4 - 1.6g per kg of body weight/ day
  - CHO: Protein ratio of recovery snack: 2:1

# Fuelling for Success: Take home messages

- **Pre- Event Nutrition**

- Increase carbohydrate intake 8- 12g carbohydrate per kg body weight at least 3 days before the race
- Ensure adequate hydration 24 hours before the event. Drink adequate amounts of appropriate fluids during the 2-3 days before the event
- Have a pre-race meal 3-4 hours before the event ( carb rich)
- Have a pre-race snack 1-2 hours before the event
- Take 400-600mls of fluid before the event
- Top up with 200-250 mls immediately before the event begins
- Start out with a normal use of salt contain foods and salting to taste. If extreme heat, high humidity of conditions warmer than what you trained in are expected increase your salt intake for 3-5 days before hand.

# Fuelling for Success: Take home messages

- **During**

- Take advantage of every opportunity that you have to rehydrate, refuel and recover
- Start from the start. Begin refuelling early in the event rather than waiting for fuel stores to become depleted.
- Fuel containing drinks are a good option as they meet both fluid and CHO needs
  - Aim for 60- 70g Carbohydrate per hour
  - Recommended a 6% carbohydrate solution containing 20-30 mmol/liter of sodium
  - Practice, Practice Practice!!!

# Fuelling for Success: Take home messages

- **Recovery Nutrition:**

- Just do it.
- Accept you aren't going to feel hungry or want to eat, rely on liquid calories
- Refuel immediately with 1.2g Carbohydrate per kg of body weight in the first 4 hours post race, eat at regular intervals of 15 – 30 minutes for the first 4 hours post race
- Drink 150% of the weight loss during the race with a sodium containing sports drink to help rehydration ( 7-8% solution).



# Sports Supplements

- There are hundreds of different supplements on the market that have many wonderful... And sometimes weird claims to fame?
- Popular supplements with cyclists:
  - BCAA, Vitamin C, E, A / Antioxidants,
- No replacement for a good and nutrition diet
- Is there a place for some supplements?
  - Supplements should be icing on a cake. You need to first build a strong base

**Credible ergogenic supplements:**

Can boost performance 1-3%

**High-energy sports foods & drinks:** can boost performance 5-10%

**Vitamin T** = Good physical and mental training with adequate training

**Foundation of smart eating**



Questions ?