Illawarra Triathlon Club Seminar

Sports Nutrition Q&A

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Question 1:

WHAT IS A RECOMMENDED BREAKFAST TO HAVE BEFORE A LONG TRAINING SESSION E.G. BEFORE A 3 HOUR BIKE RIDE?

Eating before training / racing

- Consider –
  1. Duration? < or > 90-120min?
  2. Intensity? Hills / Efforts?
  3. Time? 5.30am vs. 8am?
  4. Type of activity? Cycling vs. running vs. swimming
  5. Environmental considerations e.g. hot / cold?
  6. Previous experiences with food

Eating before training / racing

- Ideal pre-training / pre-race meals:
  - 2-3hrs pre start
  - Contain carbohydrates (1-1.5g.kg) – LOW GI
  - Contain fluids – at least 500ml
  - Low in fat
  - Moderate protein
  - FAMILIAR & TESTED IN TRAINING

15g carbohydrate portions

- **1 x slice grain bread**
- **¼ cup rolled oats**
- **½ cup natural muesli**
- ½ cup breakfast cereal
- 2 x Weet-Bix
- **250ml milk**
- **½ Up & Go**
- **100g fruit yoghurt**
- **200g natural yoghurt**
- **1 x medium fruit**
- ½ oat instant pack
- 30g dried fruit (palm)
- **1 spoon honey**
- 1Tb jam / sugar
- 1 x Trail Bar
- 1/3 cup **pasta** or rice
- ½ cup potato or **corn**
- 125ml fruit juice
- 250ml sports drink
- ½-1 gel

Bolded = Low GI – note some cereals, rice, dried fruit are low GI

Early morning training

- Consider –
  - Digestion slows during exercise as blood rushes to legs / arms.
  - Solid food takes 2+ hours to be digested, and for nutrients to reach muscles
  - You have enough stored fuel to last 90-120mins
  - Opportunity to eat & drink <u>during</u> cycling is greater than for running / swimming
  - Purpose of session – is it a “quality” session

Early morning training – running / swimming

Liquids

- Low fat milk drinks e.g. fruit smoothie, Up & Go, Milo & milk or similar
- Low fat fruit yoghurt in tub / tube
- Fruit juice – 100%
- Liquid meal e.g. Sustagen, Endura Optimiser
- Sports Drink
- Gel & water

+ / - light digestible solids

- 1-2 x toast, crumpet,
- ½-1 english muffins
- ½ - 1 x banana
- 1 x quick oats pack
- ½ - 1 x muesli bar
- ½ - 1 x sports energy bar

Early morning training - cycling

- Food better tolerated
- Individual
- Depends on duration:
  - <3-4hrs – light / liquid meal
  - >4-5hrs – liquid + light meal
- Target nutrition on the bike early
- Oats / muesli with milk, yoghurt & fruit
- Porridge with honey / dried fruit
- Toast (grain / raisin) with spreads
- Banana, honey & peanut butter on toast
- Up & Go & Sports energy bar

Question 2:

WHAT ARE SOME RECOMMENDED SNACKS TO EAT WHILE RIDING ON A 3 HOUR SESSION EXCLUDING GELS?

Eating During Training / Racing

- Consider –
  1. Duration? < or > 90-120min
  2. Intensity? Hills / Efforts?
  3. Type of activity? Cycling vs. running vs. swimming
  4. Environmental considerations e.g. hot / cold?
  5. Previous experiences with food
  6. Did you have a pre-meal?
  7. Is losing body fat a goal?

Eating During Training / Racing

- What needs replacing?
  - Glycogen (carbohydrates)
    - 30-60g / hr = rate of oxidation of carb
    - Up to 90g / hr can be achieved
  - Fluids – more on hot days
    - Usually somewhere between 500-1000ml.hr
    - Base on own sweat rate (later…)
  - Electrolytes
    - Are you a salty sweater?
    - 30-60mmol.L sodium (690-1380mg sodium/ L fluid)

When to eat?

- Time eating & drinking
  - Take a drink every 15-20mins
  - Have something to eat every 30-60 minutes
  - Don't wait until you are tired & thirsty!!
- Solid / lower GI foods – early in the ride
- Liquid / higher GI foods – later in the ride

Solid / Lower GI Foods

Energy Bars

- Bars – 25-40g carbohydrate

Liquid / Higher GI Foods

Electrolytes? Sports Drinks

Sports Drinks provide:

- **Fluids**
- **Carbohydrates – in the correct concentration (6-8%)**
- **Electrolytes – some more than others**

Electrolytes Replacements

- Note – no carbohydrate
- Good if you prefer to eat

Question 3:

WHAT BRAND OF PROTEIN POWDER DO YOU RECOMMEND TO HELP REBUILD MUSCLES AFTER EXERCISING BUT WITHOUT A LOT OF ADDITIVES?

Recovery Nutrition

- 3 R's of Recovery Nutrition:
  - Replenish carbohydrate stores
  - Rebuild & Repair muscle with protein
  - Rehydrate & Restore fluid & electrolytes

Recovery Nutrition

- General recommendation:
  - Sooner the better after training -
  - 0.8-1.2g.kg carbohydrate – 70kg athlete = 56-84g
  - 0.2-0.4g.kg protein – 70kg athlete = 14-28g
  - Fluids to replace losses (more on this later)

What does this look like?

- 1 x salad roll with 60g lean meat & a banana
- ½ cup rolled oats with 250ml milk & small skim cappuccino
- ½ cup natural muesli with 200g low fat yoghurt & piece of fruit chopped on top
- Smoothie with 300ml skim milk, 200g low fat yoghurt and 1 x banana
- 1 x Up & Go Energise & 2 x slice raisin toast with fresh ricotta
- 1 x WPI shake & banana & honey roll

Protein for muscle repair

- To maximise muscle protein synthesis:
  - Essential Amino Acids (EAA's) – leucine 2-3g
  - Coincides with individual protein serve of 20-30g
  - High biological value (HBV) protein foods contain largest amounts of EAAs
    - Animal sourced e.g. Milk, yoghurt, cheese (contains casein & whey), eggs, most meats
    - Plant sourced e.g. isolated soy protein
  - Every 3-4hrs

Sample Meal Plan

- Breakfast Options:
  - 3 x egg omelette
  - Bowl of cereal with 250ml milk & tub of yoghurt
  - Smoothie with 250ml milk; tub of yoghurt, fruit
- Lunch:
  - Salad / Sandwiches with 60g lean meat & 40g cheese (2 x slice)

Sample Meal Plan

- Dinner:
  - 120g piece of beef, chicken, fish, seafood & vegetables
- Snacks:
  - 90g tin tuna on crackers with cheese
  - 2 x tubs yoghurt
  - 2 x small skim milk drink e.g. cappuccino

To answer the question…

Ingredients –skim milk, milk solids

- High in protein
  - 80% casien
  - 20% whey
- 600ml = 2-3mg luecine
- Low GI – contains carbs
- Minerals calcium, magnesium, phosphorus, potassium
- Vitamins A, B1, B2, B3, B5, B6, B12, D

Protein Shakes?

Benefits

- High in HBV protein (commonly whey protein – rich in leucine)
- Portable
- Convenient
- Pleasant tasting
- Good when appetite low straight after exercise

Potential drawbacks

- Expensive – relative to food options
- May not contain vitamins & minerals
- Risk of contamination
- Over-consumption of protein?

Protein requirements of endurance athletes is approx. 1.2-1.6g.kg.day = 84-112g per day for 70kg person – you can easily achieve this by eating protein rich foods at each meal

Choosing protein shakes

- Aim for Australian made (less chance of contamination)
- Look for 100% WPI – many shakes mix WPI and WPC as WPC is a cheaper ingredient
- 20-30g protein per serve
- + / - carbohydrates – are you using it as a sole source of recovery?

100% WPI

Liquid meal supplements

- 10-30g protein / 30g or more of carbs

Question 4:

WHAT SNACKS DO YOU RECOMMEND TO EAT AFTER A LONG TRAINING SESSION TO REPLENISH ADEQUATELY?

Snacks – post training

- Snacks that provide combination of protein & carbohydrates:
  - Fruit & Yoghurt
  - Tuna / Cottage cheese on Vita Wheats
  - Skim milk drinks e.g. Smoothie, Hot Milo, Coffee
  - Unsalted nuts & dried fruit
  - Wholegrain toast / Raisin Toast (Burgen) & toppings
  - Wholegrain crackers with hommus / veggie dip / 100% nut butters like peanut, almond etc

Question 5:

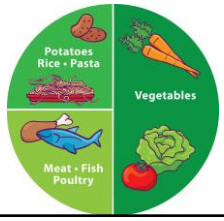
IDEAS ON HOW TO FUEL ADEQUATELY TO HAVE ENOUGH ENERGY TO EXERCISE BUT STILL MAINTAIN A HEALTHY WEIGHT?

Healthy Weight Tips

- Monitor regularly (not daily!)
  - Weight / Body Fat – 1 per week maximum
  - Skinfolds – every 6-12 weeks
- Understand energy (kilojoules / calories)
  - How much you need
  - How much is an ideal meal / snack portion
    - Main meals – 300-600cal (1260-2520kJ)
    - Snacks – 100-300cal (420-1260kJ)
  - What this looks like on your plate?

Healthy Weight Tips

- Eat regularly & aim to eat a mix of low GI carbs & protein at each meal & snack
- ¼ ¼ ½ rule – apply it as much as possible:



Carbohydrates

Lower GI

- Oats, meusli, all bran, guardian
- Milk
- Yoghurt
- Wholegrain, raisin bread
- Vita Wheats, Ryvitas
- Most fruit
- Sweet potato
- Basmati rice
- Noodles and pasta
- Legumes, corn

Higher GI

- Refined cereals
- White & wholemeal bread including turkish & wraps
- Cruskits, Premiums
- Watermelon, rockmelon
- Dates, sultanas
- White potato
- Jasmine rice, instant rice
- Quick Oats / Oat temptations
- Lollies, cake, most biscuits

Sample Plan – 1800cal / 7560kJ

- ½ cup natural muesli; 200ml skim milk; 100g fat free natural yoghurt; 1 x piece of fruit
- Small skim cappuccino & 15 x almonds
- Salad with 90g can of tuna; can of 4 bean mix; 4 x Vita Wheats; ¼ avocado
- 200g fat free natural yoghurt & 1 x piece of fruit
- 150g lean meat / fish / chicken; vegetables & ½ cup cooked rice, pasta or potato
- 200ml skim milk & 2tsp Milo

Limit / Reduce

- Alcohol & other calorie containing drinks
  - fruit juice, soft-drinks, Up & Go's; > 2 x coffees per day (milky), boost juice, milkshakes
- Refined carbohydrates
  - Lollies, cakes, biscuits, pastries, doughnuts sugary drinks, refined cereals, white bread, ice creams
- Adding too much (healthy) fat
  - Large portions of nuts, seeds, avocado, LSA, coconut oil – its healthy but can still make you fat

Limit / Reduce

- High (unhealthy) fat foods –
  - Processed meats, takeaways, chocolate, biscuits, full fat dairy foods
- Sports foods
  - Sports drinks, gels, bars, protein shakes etc
  - Use only when appropriate / necessary
  - Highly process and energy (calorie) dense
  - Do you need it?? What is the least you can use??
  - Save it for race day

Other considerations

- Social life?
- Workplace?
- Who do you live with?
- Non-hungry eating behaviours?
- Meal planning & shopping habits?

Question 6:

IDEAS ON A PRE-HYDRATION PLAN – PARTICULARLY FOR LONG COURSE AND IRONMAN RACING

Why is fluid important?

- Water is essential to the human body:
  - Maintains blood volume (90% of blood)
  - Maintains body temperature
  - Transports nutrients (carbs, amino acids, salts)
  - Allows muscles to contract
- Heat is removed from the body when beads of sweat on the skin evaporate, which results in loss of body fluid.

Sweat

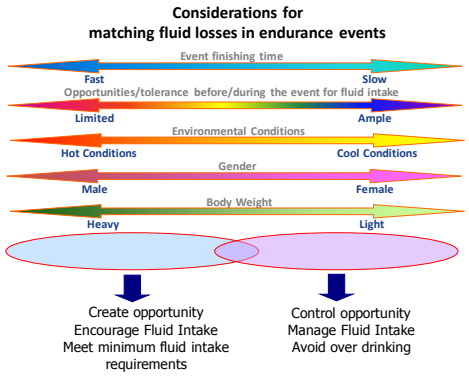
- Sweat production (and fluid loss) increases with increasing ambient temperatures and increasing exercise intensity.
- Composition varies, but on average:
  - Sodium 900mg/L
  - Potassium 200mg/L
  - Calcium 150mg/L
  - Magnesium 1.3mg/L
  - Trace minerals – zinc, copper, iron, chromium, nickle, lead

Dehydration

- As dehydration increases there is a gradual reduction in physical & mental performance:
  - Heart rate increases & body temperature rises
  - Increased perception of how hard exercise feels
  - Mental fatigue – impaired skill level, judgment & decision making ability
- As little as 2% body weight change has been shown to impair performance (1.4kg for a 70kg athlete)
- Dehydration > 2% increases risk of nausea, vomiting, diarrhoea and other GI issues.
- Dehydration slows the rate of fluid absorbtion from the intestines making it more difficult to reverse the fluid deficit.

Can you drink too much?

- Yes – it happens in longer races e.g. IM races
- Over-hydration is called hyponatremia which means dilute sodium levels in the blood.
  - Headaches
  - Disorientation
  - Coma & death



Preparing for an event

- You cant "fluid load" in the same way you carbo load prior to an event
- Prior to an event:
  - Have some idea of what the conditions will be like
  - Know what your "sweat-rate" is – in various conditions
  - Develop a race nutrition plan that incorporates fluid & electrolyte intake based on your sweat rates

Hydration: Sweat Rate

How much do I need to drink? Depends on **Sweat Rate**

To calculate sweat rate:

1. Weigh yourself in minimal clothing + empty bladder pre-training / comp
2. Train / compete – trial hot / cold / easy / hard
3. Re-weigh at end of training or comp
4. The weight change reflects your fluid loss – 1kg = 1000ml
5. Sweat rate = fluid loss (kg) (plus ingoing / minus outgoing fluids) / time

e.g. 2hr session; weight change = 1kg (1000ml); + 750ml fluid intake – 0ml output = 1000ml + 750ml – 0ml = 1750ml /2hrs = 875ml per hr

(Note – average urine void is 350-700ml)

Pre-hydration

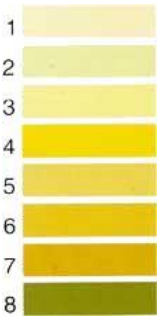
- Start well hydrated – urine colour can be good measure of status
- Pre-IM – carboload – include sports drinks, & rehydration formulas to drive thirst & ensure adequate electrolyte levels
  - Gatorade Endurance
  - High 5 sports drinks range
  - Hydralyte / Gastrolyte

Hydration: Status Testing

- Thirst not a good indicator

Dehydration:
- Dark urine
- Headaches / nausea
- Dizziness / cramps

Urine colour:
1-3 = Good hydration
4-6 = Dehydrated
7-8 = Severely dehydrated



Race Plan

- Should be well planned, tailored to you, and trialed in training:
  - Your carbohydrate needs
  - Your fluid needs (sweat rate)
  - Your electrolyte needs
  - Your taste preferences
  - The race itself – what will you carry, what is provided on coarse?
  - Reduce the chance of gut problems & cramping

Question 7:

WHAT CAUSES STOMACH ISSUES DURING RACES AND WHAT ARE THE RECOMMENDATIONS FOR MANAGING THESE ISSUES?

Gastrointestinal (GI) Upset

- Bloating
- Nausea
- Vomiting
- Abdominal pain / cramping
- Diarrhoea

- Who has a story to share?

Causes

1. Pre-hydration status / dehyrdration
2. Pre-exercise meal(s)
3. Carbohydrate concentration

1. Pre-hydration / Dehydration

- >2% dehydration increases the risk of GI upset (nausea, vomiting, diarrhoea)
- During exercise blood is already redistributed away from the GI tract to muscles
- Less blood volume = less blood flow through GI tract
- Decreased blood flow = decreased fluid uptake / nutrient exchange from intestines
- = bloating, nausea & delayed fluid replacement

1. Pre-hydration / Dehydration

- Start well hydrated – clear to pale urine
- Plan your fluid intake:
  - Set a timer
  - Drink every 15mins
  - Freeze one bottle so you have a cold drink
  - Use sports drink / electrolytes to drive thirst

2. Pre-exercise meal(s)

- Days / Night before & Morning of race
  - Familiar & well tolerated
  - Not too big – get carbs from fluids too
  - Confident you will be able to go to toilet pre-race
  - Timing – at least 2hrs pre-race, better 2.5-3+hrs
  - ? Modify fibre intake
  - Low fat & protein – in pre-meal as these take longer to be digested

Fibre

Higher Fibre

- Fruit & dried fruit
- Vegetables
- Legumes
- Wholegrain, wholemeal breads, pasta, cereals
- Oats & muesli
- Brown rice

Lower Fibre

- Salad
- White rice, pasta, bread, english muffins
- Refined cereals
- Lollies
- Drinks e.g. soft drink, sports drink, flavoured mineral water
- Yoghurt, custard, ice cream
- Muffins, cake, biscuits

3. Carbohydrate concentration

- Optimal osmolality (concentration) for carbohydrate uptake from the intestines is 6-8%
- Sports drinks are 6-8% (6-8 carbs per 100ml)
- Add gels to the mix and osmolality rises to 11-12% or more…..
- Add food to the mix….
- Add dehydration to the mix….

3. Carbohydrate concentration

- Consider your food / fluid intake plan:
  - Sports drinks?
  - Water?
  - Gels?
  - Bars?
  - Food?
- Time sports drinks by themselves
- Have water with gels / food
- Add electrolyte replacements to water

3. Carbohydrate concentration

- The gut has channels for:
  - Glucose
  - Fructose
- Products that contain a 2:1 ratio of glucose to fructose maximise carbohydrate uptake, and may help reduce risk of carb concentration issues.

Multiple transportable carbohydrate mixes

Where can I get more info?

- Training diets
- Competition Plans
- Skin fold analysis
- Supplement advice
- Hydration plans / Sweat Testing
- Group presentations & workshops

SDA ACCREDITED SPORTS DIETITIAN

Where can I see a Sports Dietitian?

ACTIVATE FITNESS & NUTRITION

- 60 Rosemont St
- Wollongong
- Call Kate:
- 0421 849 331
- kate@activate-eatmovelive.com.au