Why should we worry about the food we eat?

- General health & wellbeing
- Supports/fuels training
- Aides recovery
- Helps achieve ideal weight category,
  - changing muscle/fat mass & body weight
General Health & wellbeing

- Helps prevent illness
- What is a balanced diet?
- Enjoy a wide variety of nutritious foods from all the food groups
- Avoid excessive amounts of high fat & high sugar foods
- Stay well hydrated
Support your training & aide recovery

- What habits support and fuel our training?
- Providing adequate carbohydrate before training
- Staying well hydrated
Support your training & aide recovery

- What habits aide recovery?
- Consuming protein and carbohydrates after training
- Providing adequate protein spread throughout the day
- Consuming adequate vitamins and minerals
Support your training & aide recovery
A closer look at carbohydrates and protein
# Carbohydrates

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Example food sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrient-dense</strong></td>
<td>These foods provide carbohydrate and needed vitamins and minerals, fibre, protein and other nutrients</td>
<td>Breads and cereals, grains, fruit, starchy vegetables (e.g. potato, corn, sweet potato, taro etc.), legumes and low-fat dairy products</td>
</tr>
<tr>
<td><strong>Energy dense, nutrient-poor</strong></td>
<td>These foods contain predominantly carbohydrates, often as simple sugars and high GI, with minimal other nutrients.</td>
<td>Candy, lollies, carbohydrate supplements (gels sports drinks, bars), soft drinks, low fat desserts, biscuits and bars etc.</td>
</tr>
<tr>
<td><strong>High-fat carbohydrate</strong></td>
<td>These foods are high in energy, carbohydrates and fat with minimal other nutrients.</td>
<td>Ice cream, desserts, cakes, pastries, french fries, potato chips, chocolate etc.</td>
</tr>
</tbody>
</table>
Pastries
Crisps and chips
Chocolates
Cakes
Sweet biscuits
Savoury cracker biscuits
Chocolate-coated muesli bars
Full-fat milk and ice-cream
Carbohydrate intake should reflect daily training demands

- **Include moderate amounts of carbohydrate at meals**
  - Skill based, low intensity training sessions
  - Rest Days

- **Increase carbohydrate intake at meals and/or include at snacks**
  - Moderate to high intensity training sessions
  - Long training hours
Protein

Protein (chain of amino acids)

enzymes split protein apart

Individual amino acids

amino acids incorporated into body proteins

AIS
Protein

- This process of breakdown and construction of new protein (protein synthesis) is constantly happening

- There is an upper limit to rate of protein synthesis

- More is not always better

- Absolute amount of protein per day is important

- ‘Spread’ of protein across the day also important

- High protein diets are often high fat diets
Choose lean sources of Protein

• Cut visible fat of meat
• Remove the skin from poultry before cooking
• Use low fat cooking techniques
• Select low fat dairy foods
15-25g of Protein

Ham and cheese toasted sandwich
2 large eggs w 2 slices soy & linseed bread
Chicken 6inch sub
200g of Chobani yoghurt
Small can of tuna w vita wheats
Energize Up&Go 350mls & nut bar
Glass of Sustagen Sport made w milk
Glass of soy milk w handful of nuts
Hydration
Consequences of dehydration
Consequences of dehydration

- Impaired heat regulation
- Impaired decision making/concentration
- Reduced muscular endurance
- Reduced muscular strength
- Cramping
- Dizziness, headaches
- Lethargy
- Heat exhaustion
- Heatstroke
- Coma
- Death
Consequences of dehydration

- Impaired heat regulation
- Impaired aerobic fitness
- Impaired muscular endurance, exhaustions
- Impaired strength and power, heat cramps
Develop a hydration plan

- Drink with all meals and snacks
- Drink 300-600ml before training
- Sip fluid during training
- Replace sweat losses after training

- Measure training losses
  - Weigh before & after
  - Drink 150% of weight loss before next session

- How do you know if you’re dehydrated?
Weight Management
Poor Weight Management

Weight (kg)

Weight Category

Time

Tournament 1

Tournament 2
Ideal Weight Management
Weight management

What contributes to our bodyweight?

Bone, muscle, body fat, organs, fluid, gut contents

While you’re growing, all of these are changing so weight division must change as you grow and develop
Weight management

Once fully grown, the areas you could manipulate:
  - body fat
  - muscle
  - fluid
  - gut contents

Which can we manipulate short term/long term?
### Weight management

<table>
<thead>
<tr>
<th>Long term (weeks – months)</th>
<th>Short term (hours – days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body fat</td>
<td>Fluid</td>
</tr>
<tr>
<td>Muscle</td>
<td>Gut contents</td>
</tr>
</tbody>
</table>

- What strategies do you use to change body weight?
- What body compartments do they change?
Long term weight management
(body fat reduction)
Long term weight management

ENERGY IN
eating and drinking

ENERGY OUT
physical activity and BMR
Weight gain

ENERGY IN
eating and drinking

ENERGY OUT
physical activity and BMR
Weight loss

ENERGY IN
eating and drinking

ENERGY OUT
physical activity and BMR
Energy density

Protein – 16 kJ/g
4 kcal

Carbohydrates – 16 kJ/g
4 kcal

Fat – 37 kJ/g
9 kcal

Alcohol – 29 kJ/g
7 kcal
Energy density

Butter
330g

Broccoli
7kg

10,000 kJ
The benefit of veggies

- Energy 1770 kJ
- Energy 1850 kJ
Choose your drinks wisely

- Energy 2846kJ
- Energy 3372kJ
Dessert Comparison

- 1 scoop crumble: 1236 kJ
- 672 kJ
- 306 kJ
Energy density in reality

Each Side is the Same in Energy!

Which side would keep you going all day?
Snack comparison

2,200 kJ
50g Carbohydrate
7g Protein
33g Fat

= 

2,200 kJ
95g Carbohydrate
25g Protein
5g Fat
Energy density

Protein – 16 kJ/g
4 kcal

Carbohydrates – 16 kJ/g
4 kcal

Fat – 37 kJ/g
9 kcal

Alcohol – 29 kJ/g
7 kcal
Removing the fat

- Save 250kcal, Bad 650, Good 400
- Save 400kcal, Bad 850, Good 450

- 1050kJ

- 1680kJ
Removing the fat

Save 350cal
Bad 800
Good 450

Save 200cal
Bad 400
Good 200

-840kJ

Save total of 5040kJ
Removing the fat

Save 5040 kJ per day

= ½ kg body fat per week
Long term weight management

- Set a long term plan, maximum 0.5kg / week loss
- Eat consistently through the day (small but often)
- Reduce serve sizes at main meals, think about veg/protein/carb portions
- Reduce fat intake (fried foods, oils, dressings, butter / marg, lots of cheese / avocado / nuts)
- Drink water rather than juice / milk / cordial / soft drink
- Limit “treats” (chocolate, chips, etc) to no more than 1 / week
- Increase fruit and vegetables and use more wholegrain breads / cereals
- May be able to increase exercise?
Questions?
<table>
<thead>
<tr>
<th>Long term (weeks – months)</th>
<th>Short term (hours – days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body fat</td>
<td>Fluid</td>
</tr>
<tr>
<td>Muscle</td>
<td>Gut contents</td>
</tr>
</tbody>
</table>
Gut contents
Strategies to manipulate gut contents

- Vomiting
- Laxatives
- Starvation
- Food restriction
- Low residue diet
Low residue diet

- Dietary fibre: indigestible portion of food derived from plants and waste of animals that eat dietary fibre
- Provides bulk to meals without adding energy/kilojoules/calories
- Adds bulk to your stools, attracts water into the intestinal space
- Prevents constipation
Low residue diet

• Used for 2-3 days immediately before weigh in
• Low fibre
  • no fruit, limited range of vegetables
  • white breads / low fibre cereals
  • no nuts, seeds
Low residue diet

• Remove fibre component

600g 300g
Low residue diet

• Don’t pig out
Example low residue diet

**Breakfast**
- 2 scoops rice bubbles with low fat milk OR
- 2 slices white toast or 1 English muffin with jam or honey (no marg) plus a low fat vanilla yoghurt

**Morning Snack**
- 1 low fat milk drink (with milo or plain)

**Lunch**
- 1 wrap with cold meat or tuna or chicken (no salad)
- OR 1 white bread sandwich
- OR 1 scoop of rice with chicken / meat (take veggies out)

**Afternoon Snack**
- 1 yoghurt OR a glass of milk OR 6 rice crackers

**Dinner**
- 1 scoop of boiled rice or pasta with ½ scoop tomato based sauce (no veggies) – e.g. Bolognese sauce
- OR 1 small piece of fish with 1 scoop potato and zucchini

**Evening Snack**
- 1 small scoop of custard or a tub of yoghurt
Fluid & fluid balance
## Dehydration

<table>
<thead>
<tr>
<th>Passive dehydration</th>
<th>Active dehydration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid restriction</td>
<td>General training</td>
</tr>
<tr>
<td>Sauna</td>
<td>Sweat runs</td>
</tr>
<tr>
<td></td>
<td>Training in extra layers</td>
</tr>
<tr>
<td></td>
<td>Exercise in hot/humid environment</td>
</tr>
</tbody>
</table>
Consequences of dehydration
Long term vs short term weight loss

-10 or more
-9
-8
-7
-6
-5
-4
-3
-2
-1
0

Days before weigh in

Body fat

Gut contents
Fluid
Low fluid / sweat
Low fibre/ low food weight

Calories, kilojoules (energy in, energy out)
Making weight

- What you remove in order to make weight, you MUST replace!!!
- Think about stomach comfort
Practice this BEFORE you get to competition
Questions?