Why sports nutrition?

Optimum Nutrition + Optimum Training = Optimum Performance
How?

• Overall health
  - Build health immune system
  - Prevent illness

• Body Composition
  - Increasing lean muscle
  - Controlling body fat levels

• Performance
  - Maintain endurance and speed
  - Stay mentally alert and prevent fatigue
  - Recover quicker from training and games

• Rehabilitation
## Fuelling Footy – 3 phases

<table>
<thead>
<tr>
<th>Phase</th>
<th>Goals</th>
</tr>
</thead>
</table>
| Pre Season (4-5 months)| • Gain strength & power  
                          • Gain speed & agility  
                          • Skill acquisition |
| In- Season (5-6 months)| • Maintain gains  
                          • Optimise game  
                          • Manage injuries |
| Transition (1-2 months)| • Rest  
                          • Rehab injuries  
                          • Build lean muscle  
                          • Reduce body fat |
One size fits all?
The Base Diet
Macronutrients

- **Macro** means nutrients we need in *large* amounts
  - Protein
  - Carbohydrate
  - Fat
- These nutrients provide **energy** in the form of **kilojoules** (or calories)
- To maintain weight we need to balance energy we eat with the energy we burn
Carbohydrates

- Best fuel for the body
- Carbohydrates are broken down to glucose (muscle and brain fuel)
- Stores are used quickly by the muscles, so they must be constantly replaced
- Low levels will cause fatigue / poor performance
- Important to match carbohydrate intake to training load
  - On a heavy training day, include plenty of carbohydrate rich snacks.
  - On rest/low energy output days, reduce carbohydrate snacks or portion sizes
Nutritious Carbohydrate Foods

- Bread (wholegrain, fruit bread, white)
- Crumpets, English muffins
- Pasta, rice and noodles
- Breakfast cereals
- Fruit
- Potato and corn
- Legumes (beans, lentils)
- Cereal and breakfast bars
- Flavoured milk and yogurt
Refined Carbohydrate Foods

- Sugar
- Lollies
- Low-fat ice-cream
- Soft drinks
- Cordials
- Jelly
- Sports drinks
- Honey/jams
- Sports gels
Protein

- Protein is made up of amino acids - building blocks of muscles
- Important for healthy growth and development
- Helps repair damaged muscles and enhance recovery
- Requirements are increased with increased training intensity
- Most people eat plenty of protein - **Timing** of protein is more important than **amount**
- Good quality protein snack after training can help recovery
Sources of high protein foods
Fat

- Body needs some fat for health
- Too much fat can displace energy needed from carbohydrate
- Not the body's preferred fuel source
- More difficult to control body fat levels with high fat diet
- Choose the "good" fats – found in fish, nuts, seeds, and avocado
What are some foods that are high in fat?
Tips for reducing fat

- Choose lean meats, skinless chicken, fish and seafood
- Limit butter and margarine
- Use spray oils and other lower fat cooking methods
- Limit addition of cream, high fat dressings and rich sauces
- Limit high fat snack foods such as chips, biscuits, cakes and pastries
- See ‘Champion takeaway choices’ handout for healthier options
Micronutrients

"Micro" means nutrients that we need in small amounts.

- **Vitamins**
  - Water-soluble vitamins include vitamin C and the seven B-complex vitamins.
  - Fat-soluble vitamins include vitamins A, D, E and K.

- **Minerals**
  - Major minerals include calcium, phosphorus, chloride, magnesium, potassium and sodium
  - Trace minerals are chromium, copper, fluoride, iodine, iron, selenium and zinc.

*Best to get these nutrients from food – more is not necessarily better!*
Key Nutrients

- **Iron** to restore red blood cells and the iron that's depleted from sweat
  - Good sources are meat, chicken and fish
  - Cereals, vegies and legumes have smaller amounts

- **Calcium** for protection against stress fractures and bone strength
  - Teenagers need 1300mg calcium per day (adults 1000mg)
  - 3-4 serves dairy each day
  - Serve = 1 cup milk or 1 tub yogurt or 2 slices cheese
Putting it all together

- Carbohydrate is for fuel
  - Should make up most of the food
  - Choose “nutrient rich” sources

- Protein for power
  - Supports muscle growth and recovery
  - Choose lean sources

- Fat for flavour
  - Athletes need to limit fat
  - Look for low-fat and low-saturated fat options

- Add nutrients for health
  - Fruit and vegetables for vitamins, minerals and antioxidants
  - Supports immune system
# Make a meal of it!

Include something from each group at every main meal

<table>
<thead>
<tr>
<th>Protein</th>
<th>Carbohydrate</th>
<th>Add nutrients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>Noodles</td>
<td>Vegetables</td>
</tr>
<tr>
<td>Beef</td>
<td>Bread</td>
<td>Salad</td>
</tr>
<tr>
<td>Lamb</td>
<td>Pasta</td>
<td>Fruit</td>
</tr>
<tr>
<td>Fish</td>
<td>Rice</td>
<td>Milk</td>
</tr>
<tr>
<td>Lentils</td>
<td>Cous Cous</td>
<td>Cheese</td>
</tr>
<tr>
<td>Legumes</td>
<td>Pita bread</td>
<td>Yogurt</td>
</tr>
<tr>
<td>Milk</td>
<td>Cereal</td>
<td>Nuts</td>
</tr>
<tr>
<td>Cheese</td>
<td>Potatoes</td>
<td></td>
</tr>
<tr>
<td>Yogurt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lunch ideas

- Bagel with vegemite & cheese
- Pita bread with tuna & salad
- Turkish bread with chicken & avocado
- Cold pasta spirals with salad vegetables and ham
- Mini pizza with cheese & pineapple
- Sandwiches:
  - Tuna/Chicken/Ham with salad
  - Chicken & avocado
  - Jam or light peanut butter
  - Ricotta, banana & honey
Snacks on the go

- Fresh, dried or canned fruit
- Plain popcorn
- Crackers with spread
- Low-fat yoghurt or fruche
- Creamed rice
- Scones and fruit buns
- Pre-cooked pikelets
- Cereal bars (look for 97% fat free)
- Baked beans or canned spaghetti
- Jellied Fruit Packs
- Milk shakes, smoothies or Up-and-Go
Dinner options

- Beef and vegetable stir-fry with rice or noodles
- Pasta with chicken or lean meat tomato sauce, add vegetables or serve with salad
- Chicken and vegetable risotto
- Grilled chicken and gravy rolls, with salad
- Home-made pizza (low-fat cheese, lean ham, vegies)
- Soup with pasta/noodles/rice and meat/chicken/legumes
- Baked potato with reduced fat cheese and sour cream
- Roast meat with vegies and bread roll
- Mild curry with vegetables and rice
What about supplements?
What is a sport supplement?

Supplements can be divided into two main categories:

- **Sports foods**
  - Play a role in providing a practical alternative to food.
  - E.g. sports drinks, sports gels, sports bars, liquid meal supplements

- **Nutritional ergogenic aids**
  - Often contain unusual amounts of nutrients or other components of foods.
  - Many of these chemicals are involved in exercise metabolism or recovery pathways.
  - E.g. creatine, carnitine, or coenzyme Q10.
Supplement regulation in Australia

- **Sports foods**
  - Fall under the Food Standards Australia New Zealand (FSANZ).
  - FSANZ provides regulations about the ingredients and labeling of sports foods, and permits a limited number of claims to be made on the product package.

- **Supplements**
  - Pill, potion or powder form fall under Therapeutic Goods Administration (TGA).
  - Products only required to provide proof they don't contain ingredients that are banned
  - The TGA does not require that a product has proof of its benefits.
Risks of using supplements

- Money being wasted on products that don’t work
- Potential health risks and unwanted side effects
- Distractions away from factors that are proven to enhance health, recovery and performance
- A small but real risk of a positive ‘doping’ outcome
The Australian Sports Anti-Doping Authority is the organisation with responsibility for implementation of the World Anti-Doping Code in Australia.

ASADA’s position on supplements is that taking a poorly labeled dietary supplement is not an adequate defense in a doping hearing.

Athletes should be aware of the dangers of potential contamination of supplements and of the principle of strict liability:

- athletes are ultimately responsible for any substance found in their body, regardless of how it got there.
Frankston’s Matthew Clark was banned for two years after the banned substance dimethylamylamine was detected in his system after a match.

"I took it anyway. I thought it was all sweet. It was bought from a shop," Clark said.
18 month ban for fat-burner

- Wade Lees received an 18-month ban for importing a fat-burning supplement
- He did not know it contained traces of steroids
- He didn’t even take the product
Jack3d linked to deaths

- Marathon runner Claire Squires collapsed less than a mile from the marathon's finish line.
- The experienced runner had bought Jack3D online and used it during the race.
- The product has since been banned in Australia and UK after being linked to several deaths.
Who’s responsibility is it?

AFL lays down law as players plead lack of drugs education

Mark Stevens | Herald Sun | August 15, 2012 12:00AM
It’s *the players* responsibility

- Ultimate responsibility for use of any product lies with the athlete.
- Each player is responsible for checking with a Sports Dietitian or Sports Physician before consuming *any* supplement or sports food not provided by the academy.
AFL Academies Position
Nutritious Food First

- Sports foods and supplements are only provided if ‘real food’ options cannot be used to meet specific nutrient or energy needs at specific times.
- Players will only be offered sports foods and supplements if they have shown diligence in following a nutritious meal plan.
Approved sports foods and supps

- The following slides list products which *may* be of benefit to academy athletes.
- The products should only be used as per the “Situation for Use”
- This does not mean they are essential
Sports drinks are ideal for higher intensity or longer duration training session or games
  - The carbohydrate provides fuel source for muscles.
  - The sodium helps drive thirst & retain fluid.

They provide a convenient option for addressing fuel, fluid and electrolyte needs before, during and after exercise.
Sports Gel

- Provides easily consumed carbohydrates to help meet fuel targets during **long** training sessions and games.
- Carbohydrate gels may cause *upset stomach* for some athletes.
- Practice using them in training first
Liquid Meal Supplement

- Carbohydrate-rich, moderate protein, low-fat product. Typically, fortified with a range of vitamins and minerals.
- Useful following key training sessions or games, to provide targeted amounts of protein and carbohydrate to promote repair/adaptation and refuelling.
- Portable, non-perishable and easily prepared
Sports bar

- Compact source of carbohydrate with variable amounts of protein and micronutrients
- Can be used to provide a practical form of energy following key training sessions or games to contribute to carbohydrate needs for refuelling.
- Some bars contain adequate protein content to contribute to muscle repair and synthesis
Electrolyte replacement

- Powders, tablets or ready to drink products containing (in particular), sodium and potassium
- Situations where replacement of electrolytes is warranted include:
  - Rapid rehydration following moderate-large fluid deficits
  - Replacement of large electrolyte losses during exercise in certain individuals with high rates of sweat loss and/or high sweat content of electrolytes
  - Prevention and treatment of dehydration during diarrhoea and gastro-enteritis (sports physician advice required).
Probiotics

- Live microbial food supplements “good bacteria”
- Athletes with a prior history of gastrointestinal problems during periods of heavy training may benefit from a course of probiotics
- Can be useful prior to and during travel periods to aid in reducing likelihood of gastrointestinal infection.
Vitamins and Minerals

- Supplementation vitamin and minerals may be justified when there is an unavoidable reduction in food/energy intake or the nutrient density of dietary intake is restricted:
  - A prolonged period of travel, particularly to countries with an inadequate or otherwise limited food supply
  - Sports physicians have diagnosed low levels
Are supplements essential?
# Recovery Plan

<table>
<thead>
<tr>
<th>Recovery Plan</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rehydrate</strong></td>
<td></td>
</tr>
<tr>
<td>![Water Bottle]</td>
<td>![Scales]</td>
</tr>
<tr>
<td>- Work out fluid deficit</td>
<td>- If sweat rate is high – include <strong>electrolytes</strong> (sodium &amp; potassium)</td>
</tr>
<tr>
<td>- Replace 1500ml <strong>fluid</strong> for every 1kg weight lost</td>
<td></td>
</tr>
<tr>
<td><strong>Refuel</strong></td>
<td></td>
</tr>
<tr>
<td>![Carbohydrate Icon]</td>
<td></td>
</tr>
<tr>
<td>- Consume 1g <strong>carbohydrate</strong> per kg body weight within 30 minutes to start refuelling</td>
<td></td>
</tr>
<tr>
<td>- E.g. A 70kg athlete would require 70-84g carbohydrate.</td>
<td></td>
</tr>
<tr>
<td><strong>Repair</strong></td>
<td></td>
</tr>
<tr>
<td>![Muscle Icon]</td>
<td></td>
</tr>
<tr>
<td>- Include 20-25g <strong>protein</strong> to repair and rebuild muscles</td>
<td></td>
</tr>
</tbody>
</table>
Electrolytes

If sweat losses are high include electrolytes:

- Vegemite
- Pretzels
- Hydralyte
- Soup
- Sports drink
- Milk
Recovery Plan

<table>
<thead>
<tr>
<th>Recovery Plan</th>
<th>Instructions</th>
</tr>
</thead>
</table>
| **Rehydrate** | - Work out fluid deficit  
- Replace 1500ml fluid for every 1kg weight lost  
- If sweat rate is high – include electrolytes (sodium & potassium) |
| **Refuel** | - Consume 1g carbohydrate per kg body weight within 30 minutes to start refuelling  
- E.g. A 70kg athlete would require 70-84g carbohydrate. |
| **Repair** | - Include 20-25g protein to repair and rebuild muscles |
## Refuelling foods - Carbohydrate

<table>
<thead>
<tr>
<th>Foods or Fluids containing 50g carbohydrate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports drink</td>
<td>700-800ml</td>
</tr>
<tr>
<td>Cereal bars</td>
<td>2 bars</td>
</tr>
<tr>
<td>Bananas</td>
<td>2 medium</td>
</tr>
<tr>
<td>Liquid meal supplement</td>
<td>250-300ml</td>
</tr>
<tr>
<td>Flavoured yogurt</td>
<td>2 x 200g tubs</td>
</tr>
<tr>
<td>Flavoured milk</td>
<td>600ml</td>
</tr>
<tr>
<td>Cordial</td>
<td>800ml</td>
</tr>
<tr>
<td>Dried fruit</td>
<td>4tbs or 80g</td>
</tr>
<tr>
<td>Sports gel</td>
<td>2 x 40g sachets</td>
</tr>
<tr>
<td>Jelly beans</td>
<td>60g</td>
</tr>
</tbody>
</table>
# Recovery Plan

| Rehydrate | Work out fluid deficit  
| Replace 1500ml **fluid** for every 1kg weight lost  
| If sweat rate is high – include **electrolytes** (sodium & potassium) |
| Refuel | Consume 1g **carbohydrate** per kg body weight within 30 minutes to start refuelling  
| E.g. A 70kg athlete would require 70-84g carbohydrate. |
| Repair | Include 20-25g **protein** to repair and rebuild muscles |
# Repair foods - High quality protein

<table>
<thead>
<tr>
<th>Food containing 10g protein</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs</td>
<td>2 small</td>
</tr>
<tr>
<td>Cheese</td>
<td>30g</td>
</tr>
<tr>
<td>Cottage cheese</td>
<td>70g</td>
</tr>
<tr>
<td>Milk/flavoured milk</td>
<td>250ml</td>
</tr>
<tr>
<td>Skim milk powder</td>
<td>4tbs</td>
</tr>
<tr>
<td>Lean beef, lamb or pork</td>
<td>35g</td>
</tr>
<tr>
<td>Chicken</td>
<td>40g</td>
</tr>
<tr>
<td>Grilled fish</td>
<td>50g</td>
</tr>
<tr>
<td>Canned tuna/salmon</td>
<td>50g</td>
</tr>
<tr>
<td>Yogurt</td>
<td>200g</td>
</tr>
<tr>
<td>Custard</td>
<td>250ml</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplements containing 10g protein</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustagen Sport</td>
<td>120-150ml</td>
</tr>
<tr>
<td>PowerBar Protein</td>
<td>120-150ml</td>
</tr>
<tr>
<td>High protein sports bar</td>
<td>20-30g</td>
</tr>
<tr>
<td>High protein powder</td>
<td>15-20g</td>
</tr>
</tbody>
</table>
# Nutrition Resources on Dartfish

## Performance Nutrition

### Champion Takeaway Choices

<table>
<thead>
<tr>
<th>Takeaway</th>
<th>Calories</th>
<th>Fat</th>
<th>Carbs</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subway</td>
<td>500</td>
<td>20</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>McDonald's</td>
<td>600</td>
<td>30</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Red Rooster</td>
<td>700</td>
<td>40</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Sushi</td>
<td>800</td>
<td>50</td>
<td>60</td>
<td>50</td>
</tr>
</tbody>
</table>

### Nutrition: Interst

- Carbohydrates are important for energy and recovery.
- Protein is essential for muscle growth and repair.
- Fats provide energy and are necessary for absorption of fat-soluble vitamins.
- Water is crucial for hydration and regulating body functions.

### 3 Day Food & Activity Diary Instructions

- Fill in the sections of the diary to record your food intake, physical activity, and any relevant notes.
- Record all meals, snacks, and beverages consumed.
- Include details such as portion sizes, brands, and preparation methods.
- Note any activities performed, duration, and intensity.

<table>
<thead>
<tr>
<th>Day</th>
<th>Food and Activity Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Breakfast: Oatmeal</td>
</tr>
<tr>
<td>Tue</td>
<td>Breakfast: Smoothie</td>
</tr>
<tr>
<td>Wed</td>
<td>Breakfast: Eggs</td>
</tr>
</tbody>
</table>

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### Example Calculation

- Example: 100 kcal of food contains 10g of carbohydrates, 5g of protein, and 5g of fat.
- Calories: 100 kcal
- Carbohydrates: 10g
- Protein: 5g
- Fat: 5g

---

### Performance Nutrition Assessment

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Reference Ranges</th>
<th>Goal (Per Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbs</td>
<td>130-190g</td>
<td>150g</td>
</tr>
<tr>
<td>Protein</td>
<td>75-120g</td>
<td>90g</td>
</tr>
<tr>
<td>Fat</td>
<td>&lt;65g</td>
<td>50g</td>
</tr>
</tbody>
</table>

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### Drink up: Hydration

- Proper hydration is crucial for optimal performance.
- Aim for at least 2-3 litres of water per day.
- Replace sweat lost during exercise with water or electrolyte drinks.
- Avoid sugary and caffeinated beverages during and after exercise.

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### Example:

- Example: 1 litre of water = 1000 kcal.
- Example: 2 litres of water = 2000 kcal.
- Example: 3 litres of water = 3000 kcal.

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### General Tips

- Stay hydrated before, during, and after exercise.
- Monitor fluid intake during intense physical activity.
- Use hydration monitoring devices like heart rate monitors or hydration sensors.

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### Additional Resources

- Nutrition guide for athlete development.
- Interactive tools for tracking progress.
- Educational resources for understanding sports nutrition.

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### Conclusion

- Nutrition plays a critical role in athletic performance.
- Adjust your diet and hydration habits based on your activity level and goals.
- Seek professional advice for personalized nutrition plans.

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# Additional Resources

- Nutrition guide for athlete development.
- Interactive tools for tracking progress.
- Educational resources for understanding sports nutrition.
Want More Information

- Sports Dietitians Association
  www.sportsdietitians.com.au

- AIS