

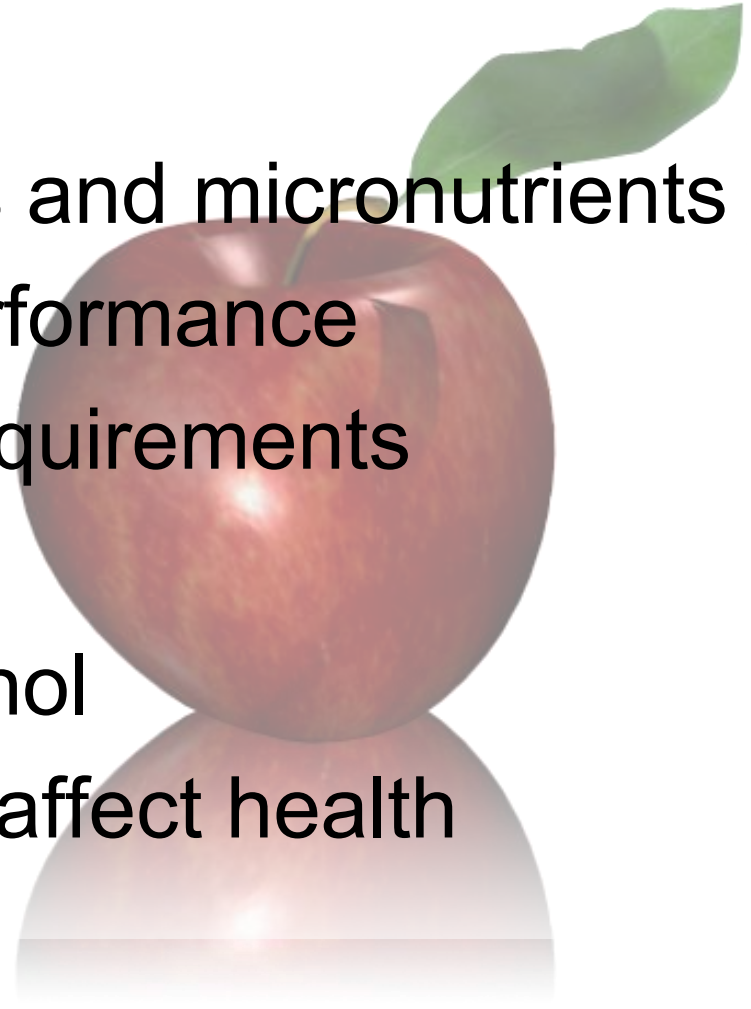
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Nutrition and Judo



By the end of this you should understand:

- The importance of good nutrition for life and for judo
- The role of macronutrients and micronutrients
- How to fuel for optimal performance
- How to work out caloric requirements
- How to lose fat
- The caloric impact of alcohol
- How eating disorders can affect health



What is **GOOD** nutrition?

A good diet contains the necessary amounts of carbohydrates, proteins, fats, vitamins, minerals and water as required **FOR THAT PARTICULAR INDIVIDUAL**

That means **YOU** need to eat differently compared to everyone else i.e. I am not going to eat in the same way as Jozsef!

The Basics: Diet and BMR

BALANCED DIET



What are RDIs?

- Recommended Daily Intakes, as established by the Health & Medical Research Council
- Suggested intakes for the average, **healthy** individual
- Often inadequate for judokas, where higher levels of iron, zinc, calcium and B vitamins are often needed. PDIs (Performance Daily Intakes) are a more reliable benchmark



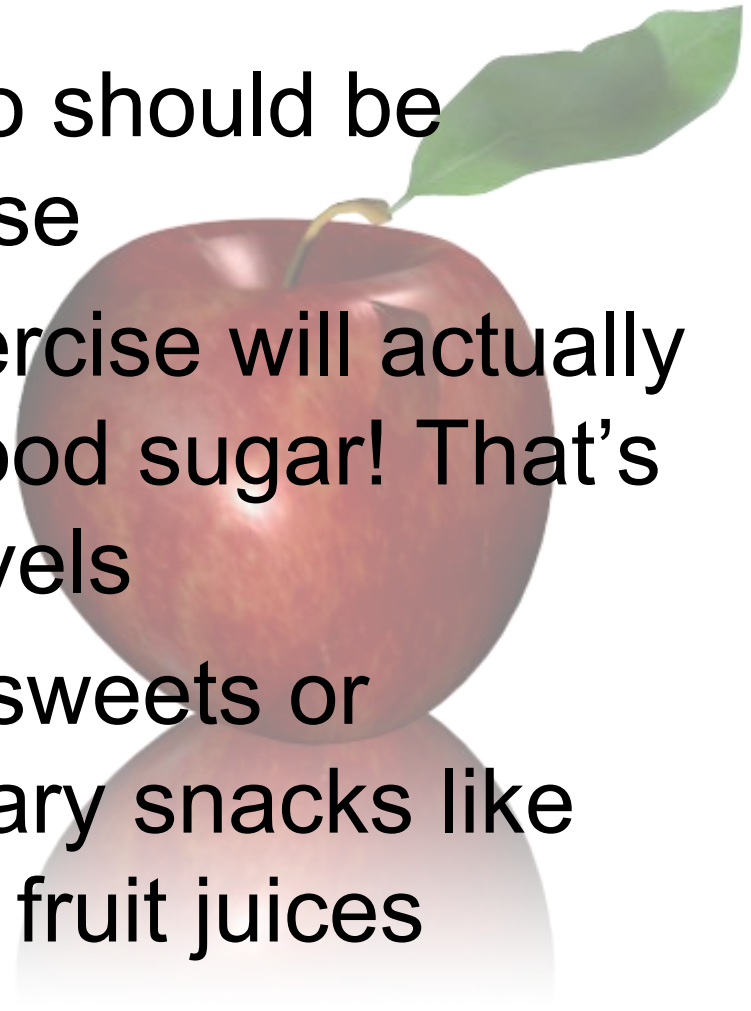
Carbohydrates

- Our body's preferred energy source
- 55-65% of total calories



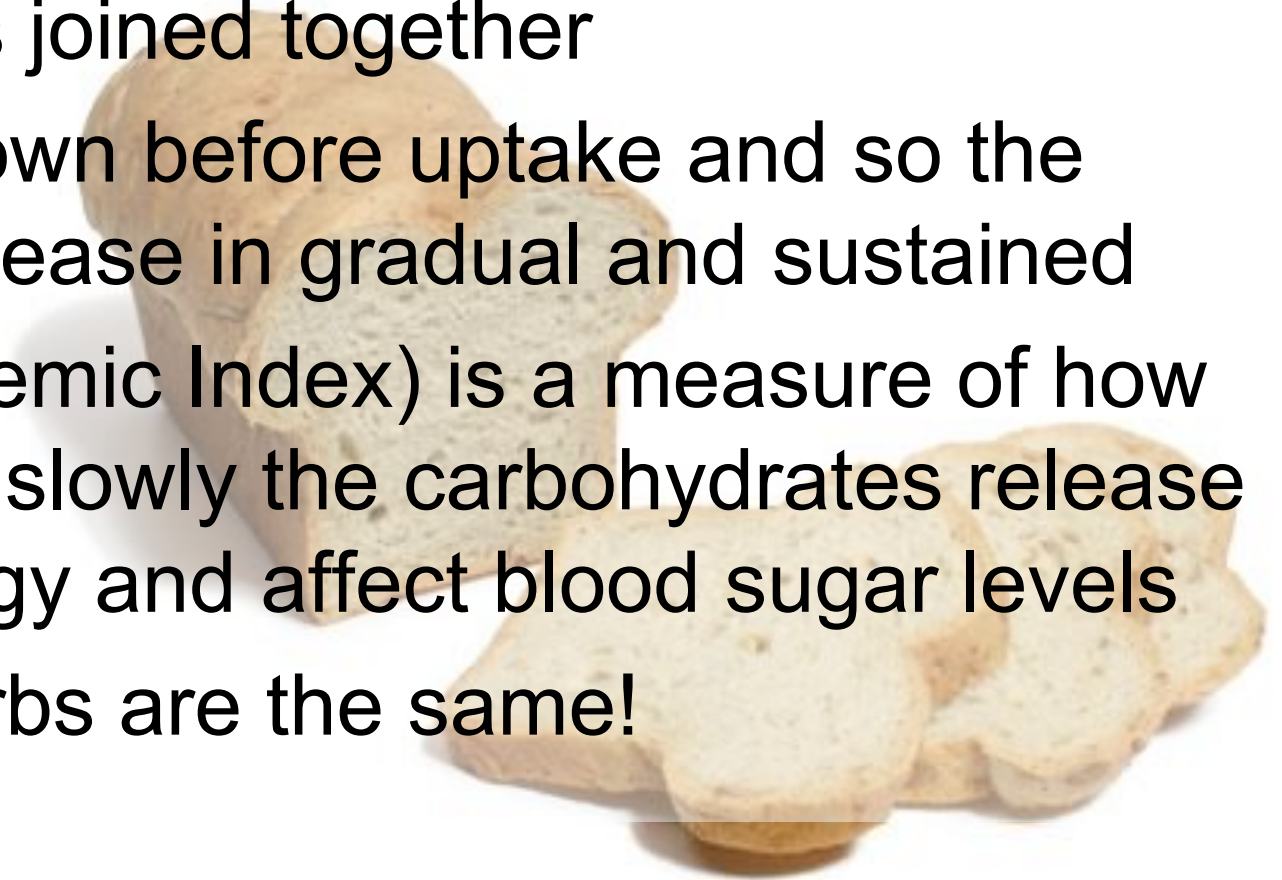
Simple carbohydrates

- Sugars or “empty” calories
e.g. glucose, sucrose
- Rapidly absorbed and so should be consumed **during** exercise
- Consumption **before** exercise will actually lead to a decrease in blood sugar! That’s NOT good for energy levels
- Avoid sugary foods like sweets or allegedly “healthy” sugary snacks like flapjacks or dried fruit or fruit juices



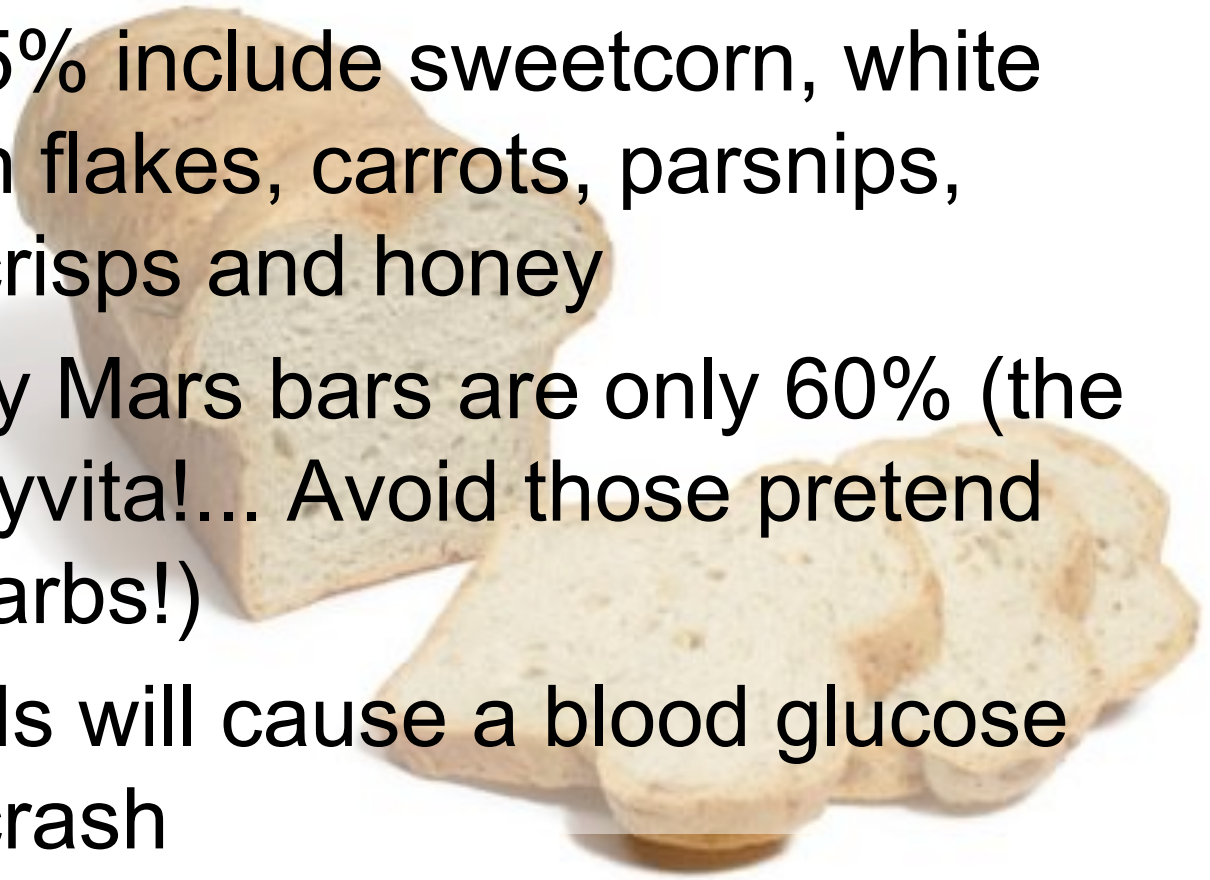
Complex Carbohydrates

- Thousands of simple carbohydrate molecules joined together
- Broken down before uptake and so the energy release is gradual and sustained
- GI (Glycaemic Index) is a measure of how quickly or slowly the carbohydrates release their energy and affect blood sugar levels
- Not all carbs are the same!



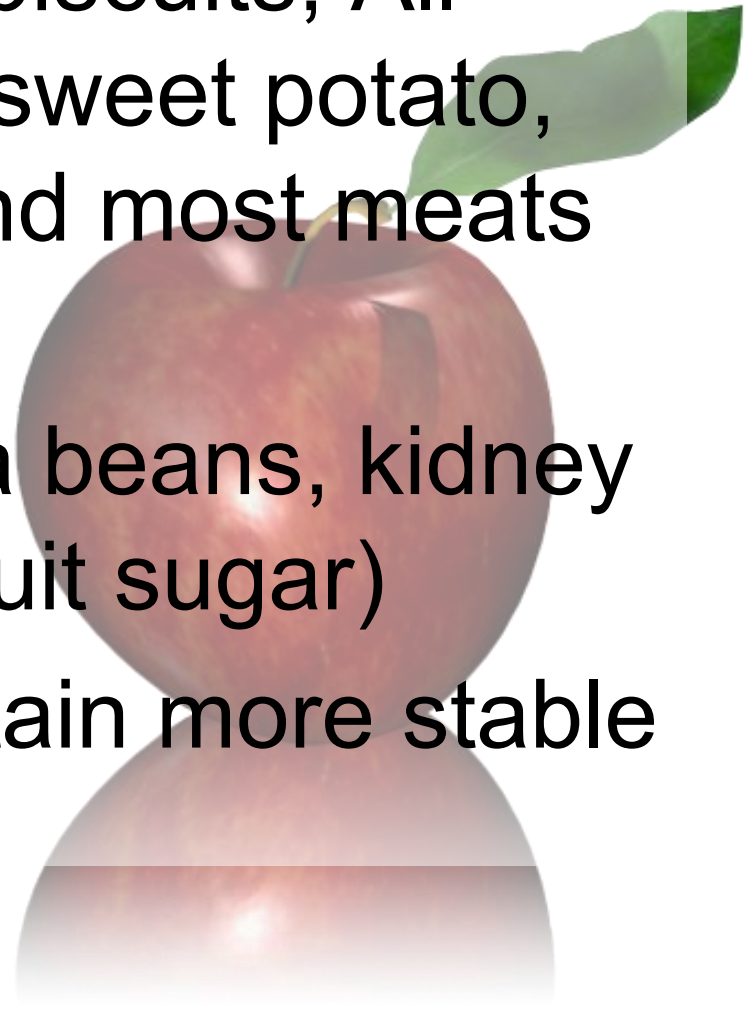
High GI Foods

- Glucose is 100%
- Foods > 85% include sweetcorn, white bread, corn flakes, carrots, parsnips, potatoes, crisps and honey
- Surprisingly Mars bars are only 60% (the same as Ryvita!... Avoid those pretend “healthy” carbs!)
- These foods will cause a blood glucose peak and crash

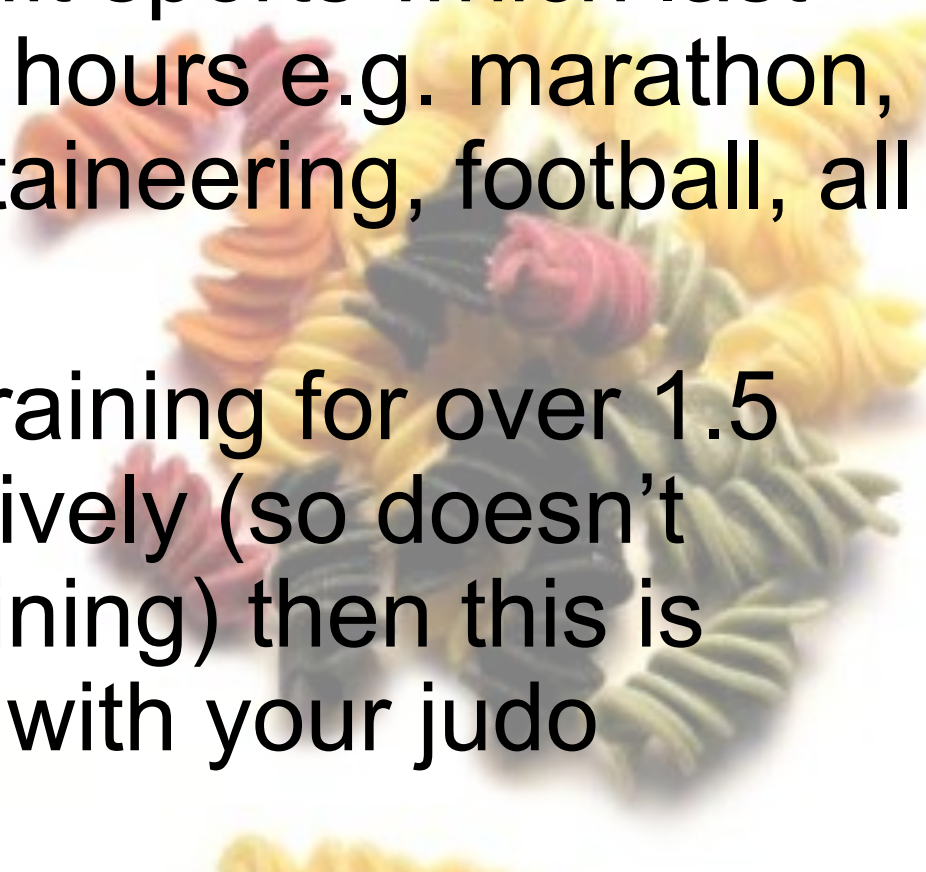


Low GI Foods

- Foods < 60% include biscuits, All Bran, spaghetti, oats, sweet potato, yoghurt, apples, OJ and most meats and cheeses
- Foods < 20% are soya beans, kidney beans and fructose (fruit sugar)
- These foods will maintain more stable blood glucose levels

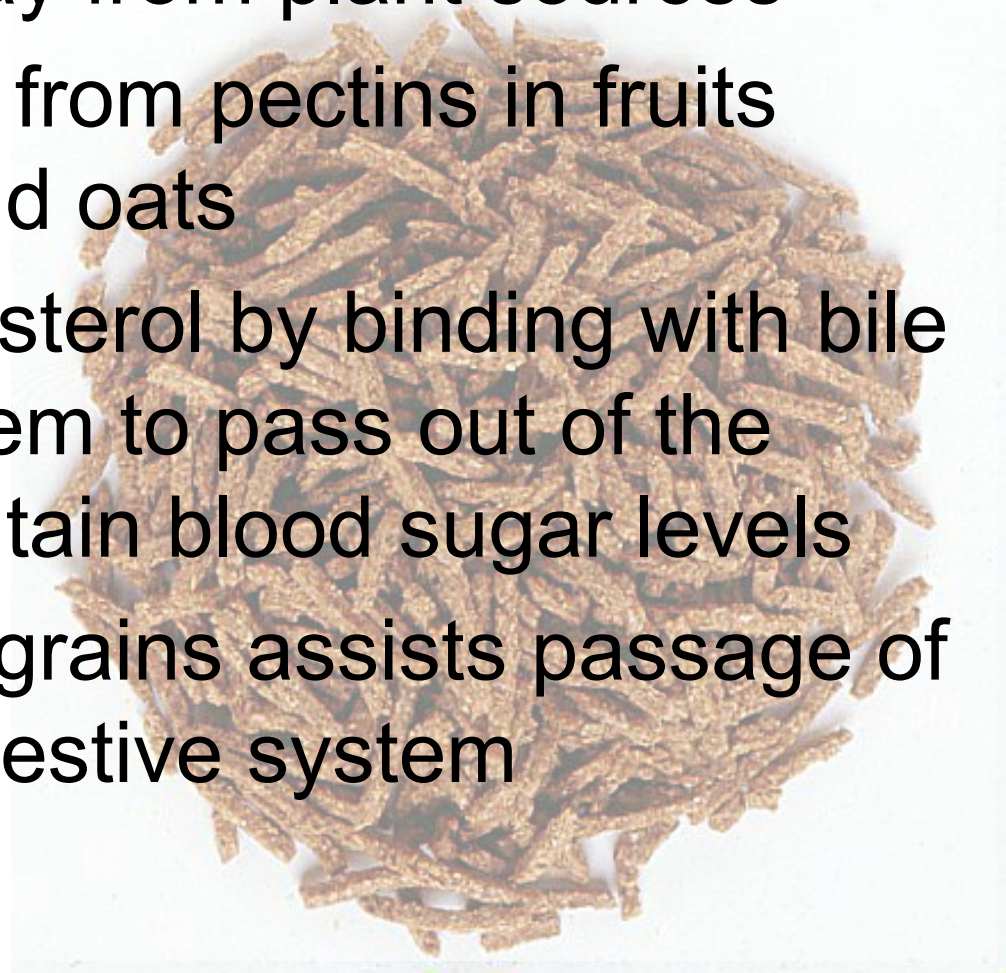


Carb Loading

- Proven to benefit sports which last longer than 1.5 hours e.g. marathon, triathlon, mountaineering, football, all day events
 - Unless you're training for over 1.5 hours consecutively (so doesn't include split training) then this is unlikely to help with your judo training.
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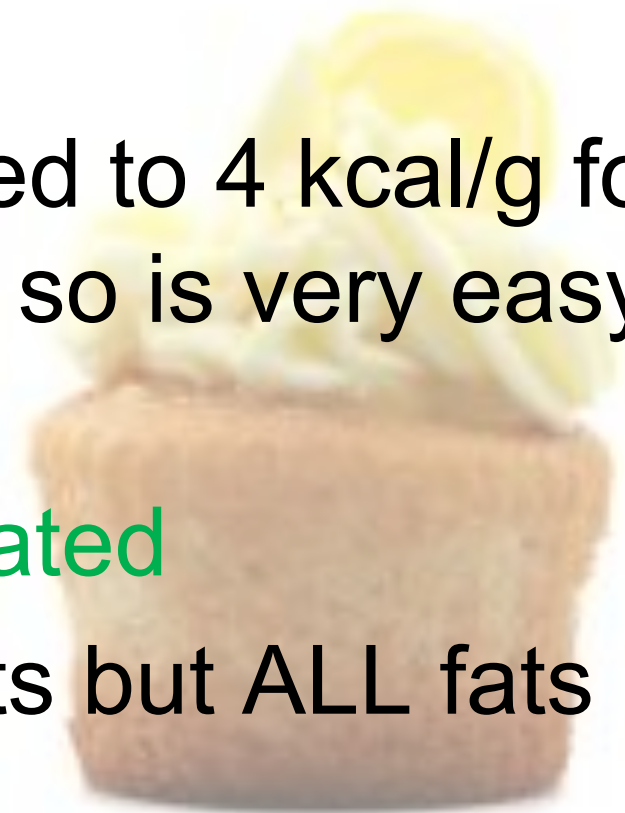
Fibre

- RDI = 30-40g per day from plant sources
- Soluble fibre comes from pectins in fruits gums in legumes and oats
- Reduce blood cholesterol by binding with bile salts and helping them to pass out of the body, and also maintain blood sugar levels
- Insoluble fibre from grains assists passage of food through the digestive system



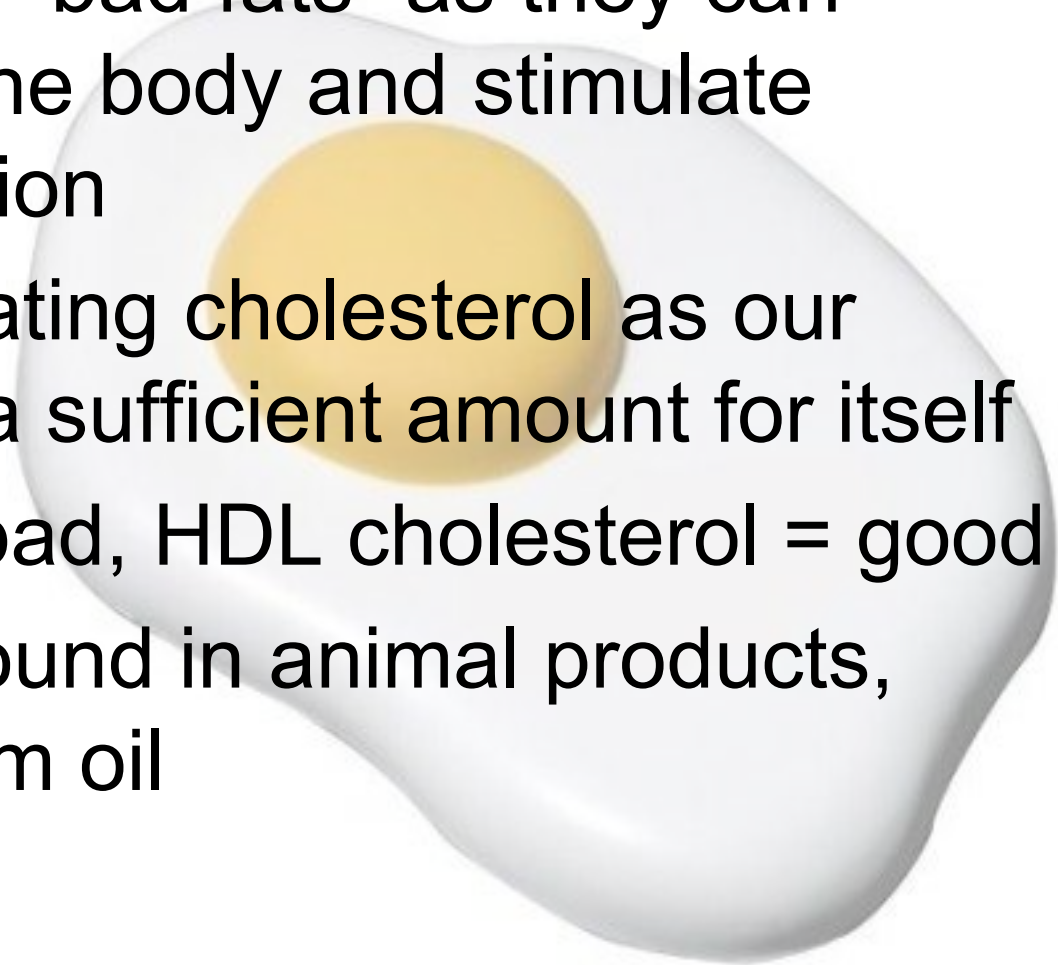
Fats

- RDI = 25-30% of calories
- Taste nice!
- 9 kcal per g (as opposed to 4 kcal/g for carbs and protein) and so is very easy to overeat
- Saturated and unsaturated
- Yes, there are good fats but ALL fats are equally fattening!



Saturated Fats

- Often thought of as “bad fats” as they can cause deposits in the body and stimulate cholesterol production
- We should avoid eating cholesterol as our body can produce a sufficient amount for itself
- LDL cholesterol = bad, HDL cholesterol = good
- Usually solid and found in animal products, coconut oil and palm oil



Unsaturated Fats

- Monounsaturated fats are found in avocado, lean meats and nuts 😊
- Polyunsaturated fats are found in fish and vegetable oils 😊
- Trans fats are made from hydrogenation of vegetable oils e.g. margarine and have been shown to have the greatest health risks so avoid things cooked at high temperatures in oil like chips and crisps ☹️



The Problem with Fat

- Heart disease
- Late onset diabetes
- Gall stones
- Bowel cancer
- High blood pressure
- High cholesterol
- High blood sugar
- Constipation
- Reduced performance



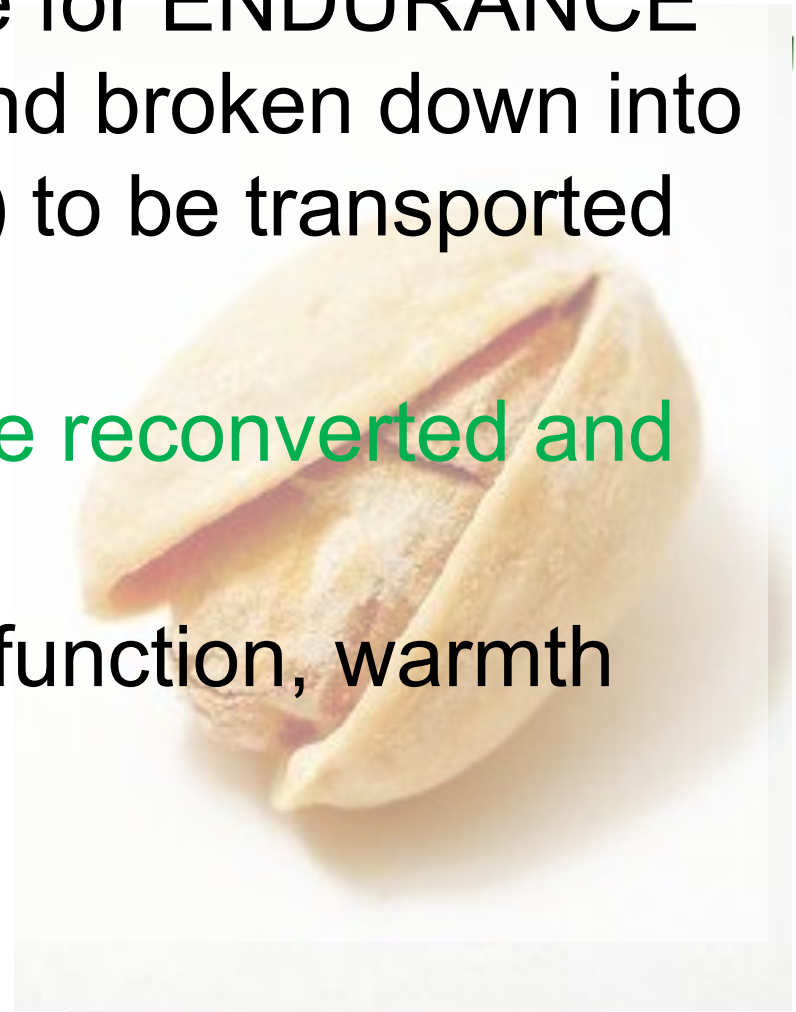
Reducing Fat Intake

- Choose lean meats
- Reduce spreads and sauces
- Use low fat dairy products
- Limit chocolate, cakes and pastries
- Increase fibre intake
- Eat more complex carbs to help you stay full for longer



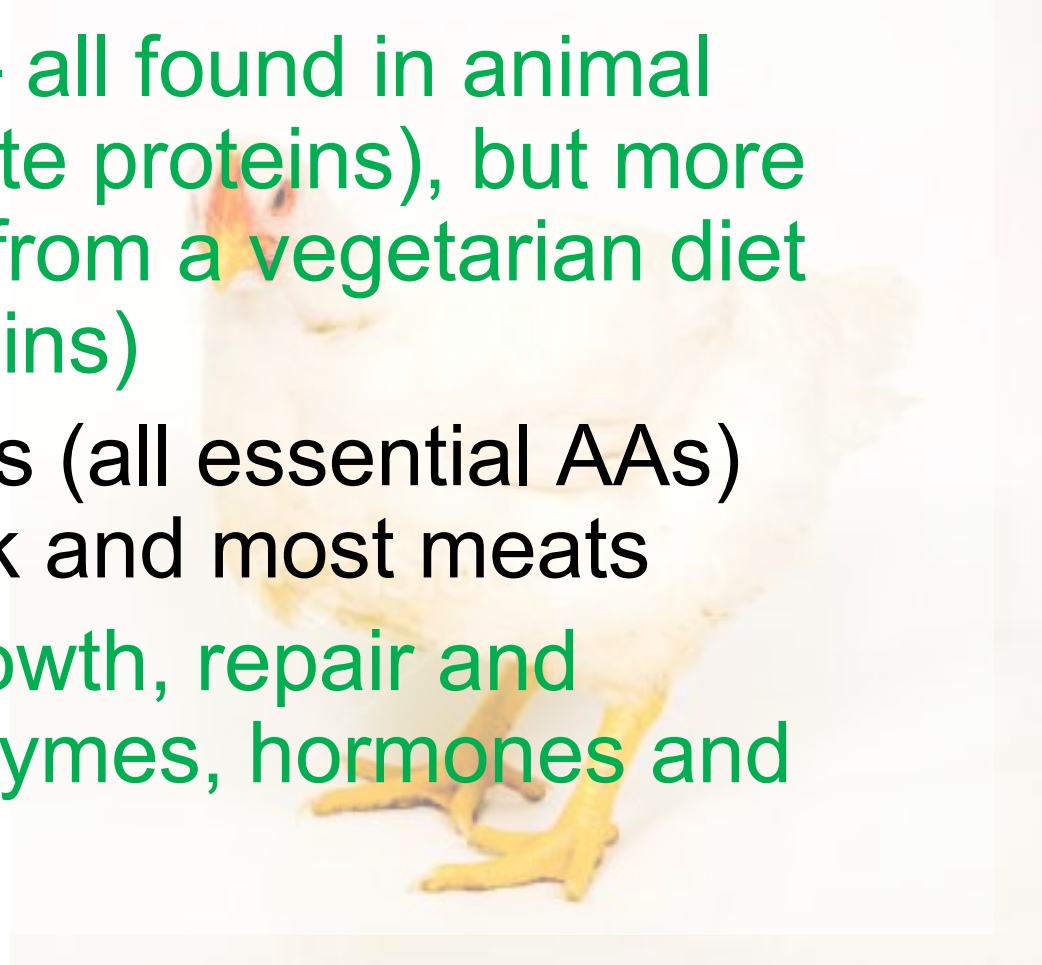
The Importance of Fats

- Excellent energy source for ENDURANCE events – triglycerides and broken down into FFAs (Free Fatty Acids) to be transported in the bloodstream
- If not used, they become reconverted and stored
- Also essential for brain function, warmth and protection



Proteins

- Made up of amino acids
- 8 essential AAs – all found in animal products (complete proteins), but more difficult to obtain from a vegetarian diet (incomplete proteins)
- Complete proteins (all essential AAs) include eggs, milk and most meats
- Necessary for growth, repair and production of enzymes, hormones and anti-bodies



Quality of Protein

- Protein Efficiency Ratio (PER) refers to the amount of lean mass gained vs protein ingested e.g. casein's PER is 2.86, which means 2.86g weight gained from 1g casein
- Foods with a high PER include egg (3.92), whey (3.9), fish (3.55), whole milk (3.09), soy (2.3) and beef (2.3)
- Many supplements contain a combination

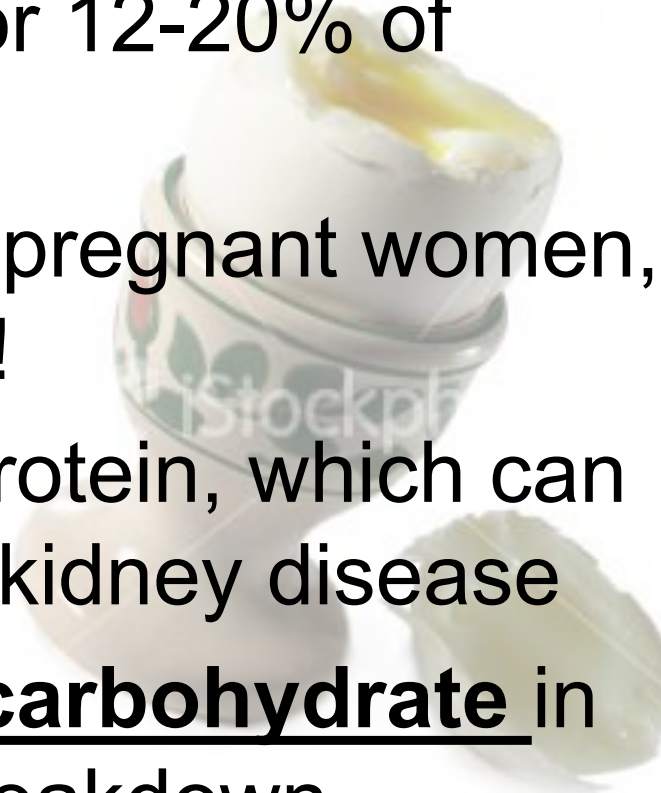


Quality of Protein

- Another measurement often used is Biological Value (BV), which is the ability of food proteins to deposit nitrogen into the muscles
- The same proteins come out on top: whey (157%), egg (100), milk (91), soy (74).
- Constant positive nitrogen balance is essential for muscle growth and repair



Protein Supplementation

- The most common supplement
 - RDI = 1g per kg of body weight (more for athletes at 1.2-2g per kg) or 12-20% of calories
 - Often needed for children, pregnant women, sick people... and judokas!
 - Many take in TOO much protein, which can lead to atherogenesis and kidney disease
 - Most actually need more carbohydrate in order to prevent muscle breakdown
- 

Caloric Requirement

- How many calories should you be consuming?
- Depends upon their weight, lean mass and activity level
- More lean mass and more energetic lifestyle means more calories!
- Should be split into 5 or 6 meals



Worked Example

BMR for Men = 1 X BODY WEIGHT (in kg) X 24 hours X LEAN MULTIPLIER*

BMR for Women = 0.9 X BODY WEIGHT (in kg) X 24 hours x LEAN MULTIPLIER*

ENERGY REQUIREMENT (in kcal per day)
= BMR X % ACTIVITY/100

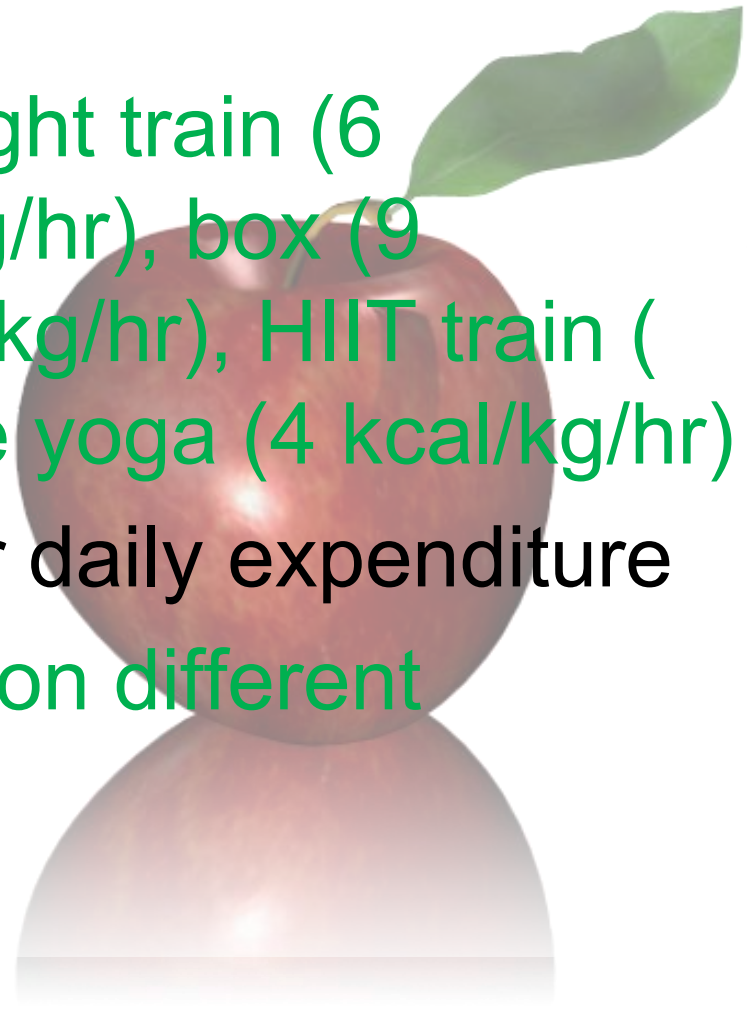
If you are interested in this, it is best if I work this out for you.

*Your lean multiplier depends on your body fat. The easiest way to calculate this accurately is using skin fold analysis. I can do this for you if you like 😊



Energy Expenditure

- Judo training burns on average 10 kcal per kg per hour
- As an example, I also weight train (6 kcal/kg/hr), run (13 kcal/kg/hr), box (9 kcal/kg/hr), swim (11 kcal/kg/hr), HIIT train (15 kcal/kg/hr) and practise yoga (4 kcal/kg/hr)
- You need to work out your daily expenditure
- You should eat differently on different expenditure days



Macronutrient Ratio

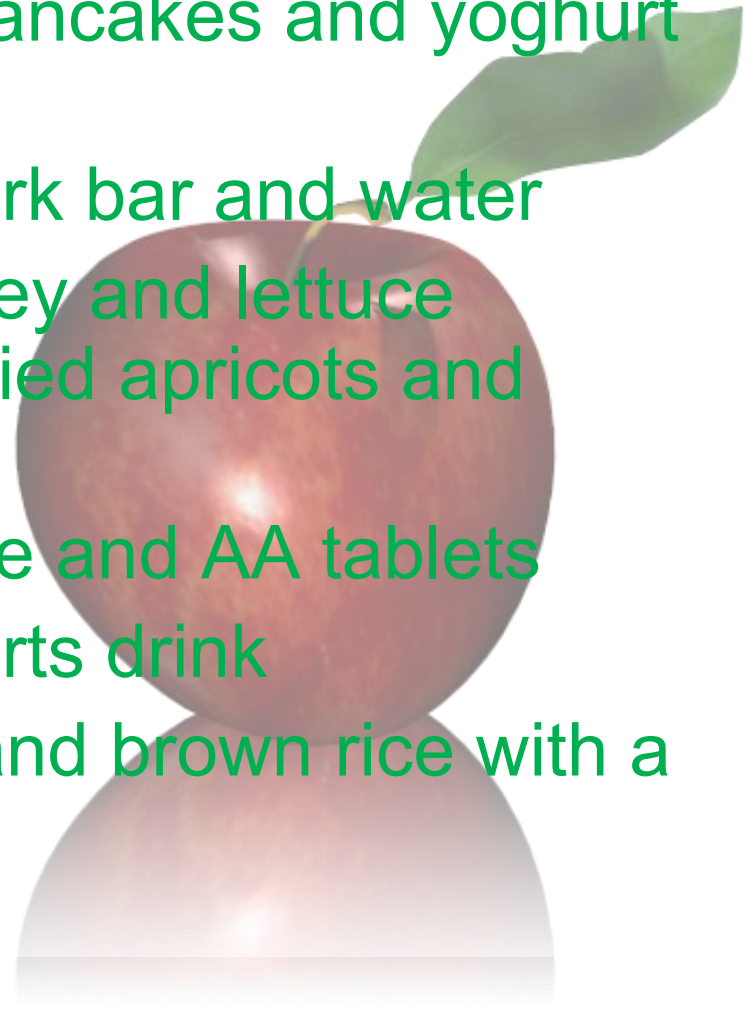
Fat: Protein: Carbohydrate

- Each of the 5 or 6 meals per day should have approximately the same split
- Anaerobic-Immediate Energy Sports e.g. judo competitions 15%:30%:55%
- Anaerobic-Glycolytic Sports e.g. skiing 20%:25%:55%
- Anaerobic-Oxidative Glycolytic Sports e.g. judo training 20%:20%:60%
- Oxidative Sports e.g. triathlon 25%:15%:60%



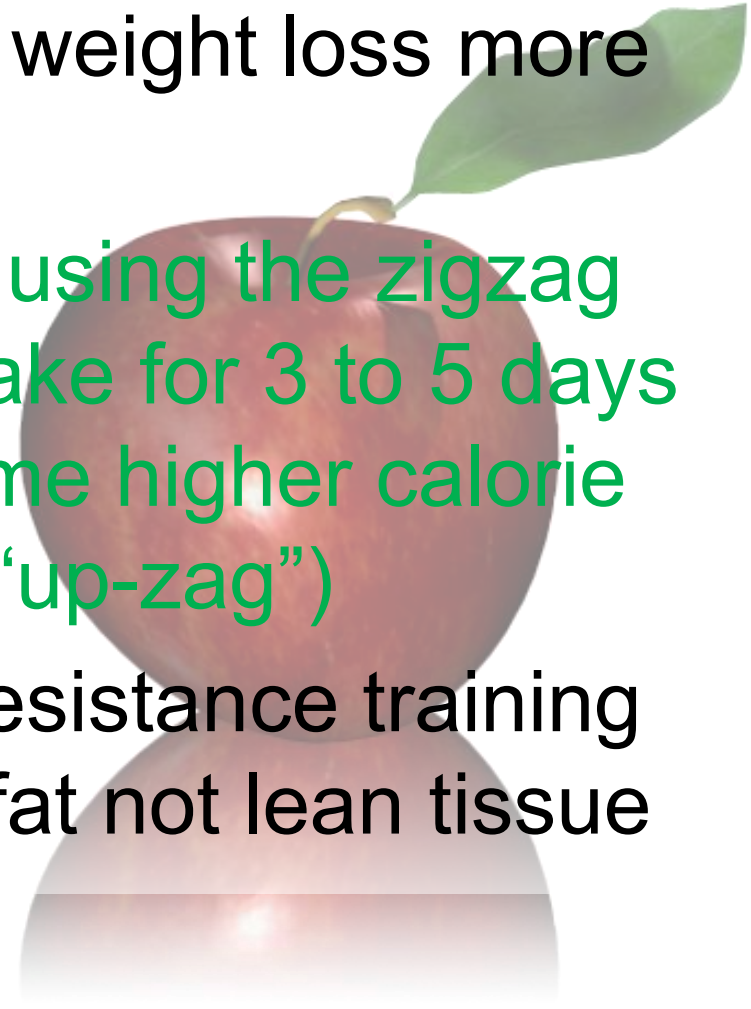
Example Daily Plan

- 20% fat: 20% protein: 60% carbs and 2500 kcal/day
- Breakfast (450kcal): protein pancakes and yoghurt with water and coffee
- Snack (250kcal): fruit and quark bar and water
- Lunch (450kcal): cheese, turkey and lettuce sandwich with mustard and dried apricots and water
- Snack (250kcal): protein shake and AA tablets
- During workout (400kcal): sports drink
- Dinner (700kcal): tuna steak and brown rice with a side salad and water



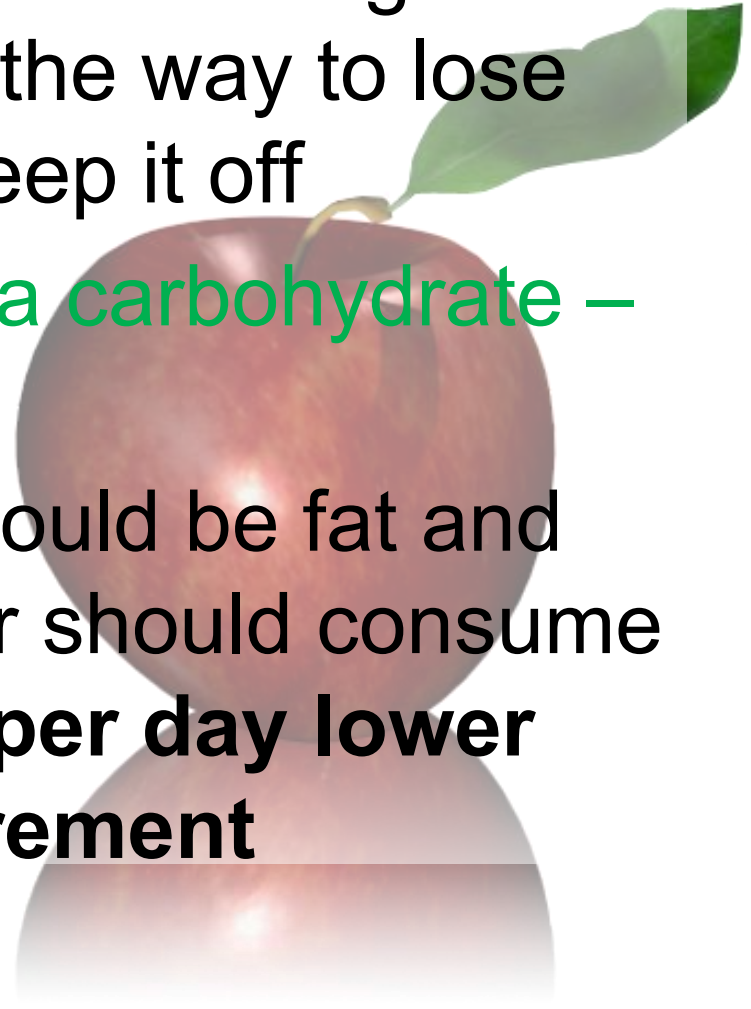
ZigZag Fat Loss

- When a dieter loses weight, their BMR also drops, thus making further weight loss more difficult
- This can be counter-acted using the zigzag method: reduce calorie intake for 3 to 5 days (the “down-zig”) then resume higher calorie intake for 1 or 2 days (the “up-zag”)
- **MUST** be combined with resistance training so that weight is lost from fat not lean tissue



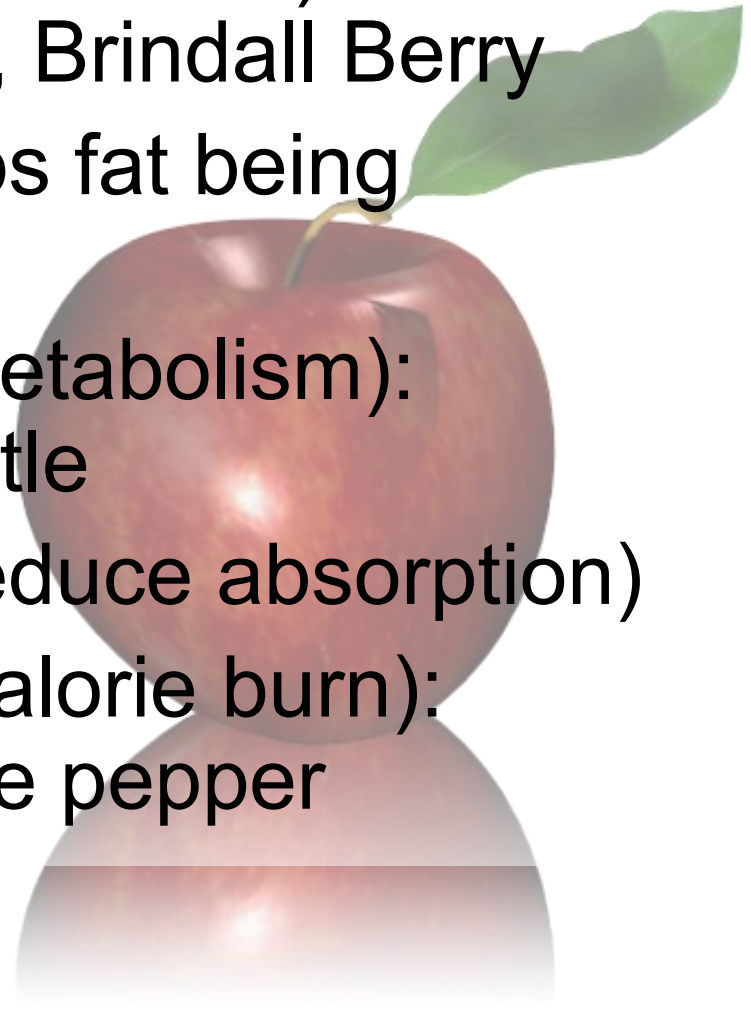
Reducing Calorie Intake

- It has been proven time and time again that “crash” diets are not the way to lose weight... if you want to keep it off
- Fat burns in the flame of a carbohydrate – don't avoid carbs
- Ideally any weight lost should be fat and for this to happen a dieter should consume **NO LESS than 300kcal per day lower than their caloric requirement**



Fat Loss Aids

- Anorectics (appetite suppressants): L-Tyrosine, L-phenylalanine, Brindall Berry
- Fibre (fills you up and stops fat being absorbed as readily)
- Lipotropics (promote fat metabolism): Inositol, Choline, Milk Thistle
- Chitosan (binds to fat to reduce absorption)
- Thermogenics (increase calorie burn): caffeine, guarana, cayenne pepper



- Water accounts for 70% of muscle weight, 30% of bones and over 90% of blood
- It cools us, it acts as the solution for all of our biochemical reactions, is essential for immune function
- A judoka during intense training can lose 2 litres of water – that's 4% of my body weight
- A 2-4% reduction in hydration by BW can reduce strength training performance by 21% and aerobic performance by 48%
- Can decrease short term memory, mental acuity and visual abilities by 20%
- If you're exercising for less than 90 minutes water is the best drink
- If exercising for more than that a sports drink (NOT energy drink) may be beneficial



“Be water my friend”



Energy Drinks



- Empty calories
- If used regularly, your body gets used to it and they give the *perception* of energy
- Have be proven to cause sleep problems, headaches, lack of energy (oh the irony) and reduced intellectual performance
- **NOT** the same as sports drinks which can help with rehydration



It's not just the food...



- Want to be skinny? (and inevitably unfit and unhealthy?)

Starve yourself!



- Want to have low body fat (and be fit, healthy and toned?)

Eat sensibly, eat **regularly** **AND** exercise (including **resistance training**)!



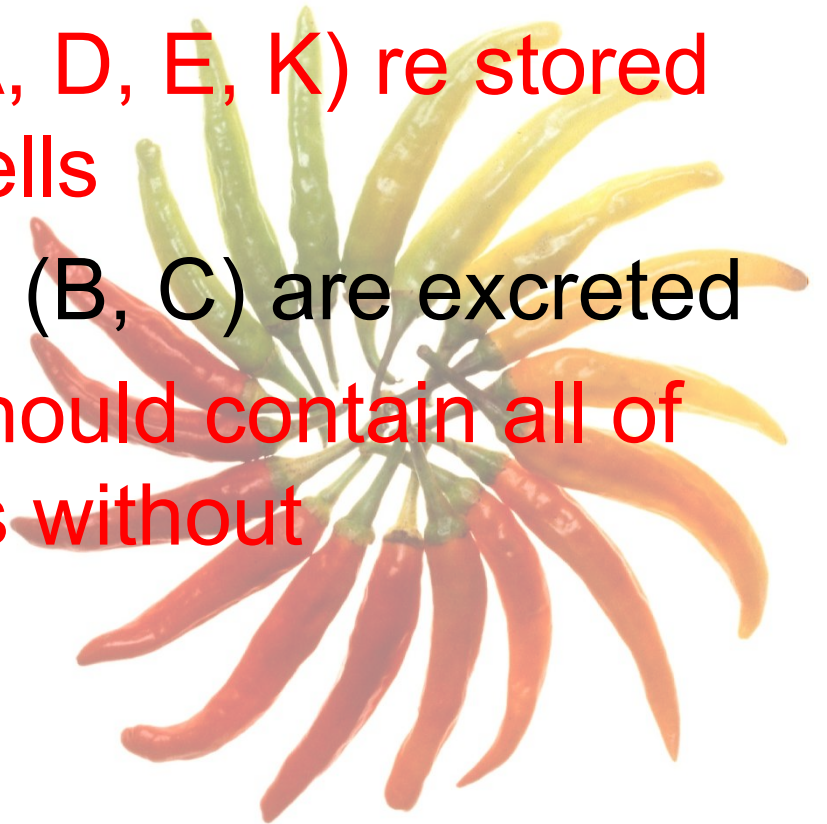
Who do you think is stronger?



**Take care when
considering aesthetics
vs. performance**

Vitamins

- Necessary for processing proteins, fats and carbohydrates
- Fat soluble vitamins (A, D, E, K) re stored in the liver and in fat cells
- Water soluble vitamins (B, C) are excreted
- A well-balanced diet should contain all of the necessary vitamins without supplementation

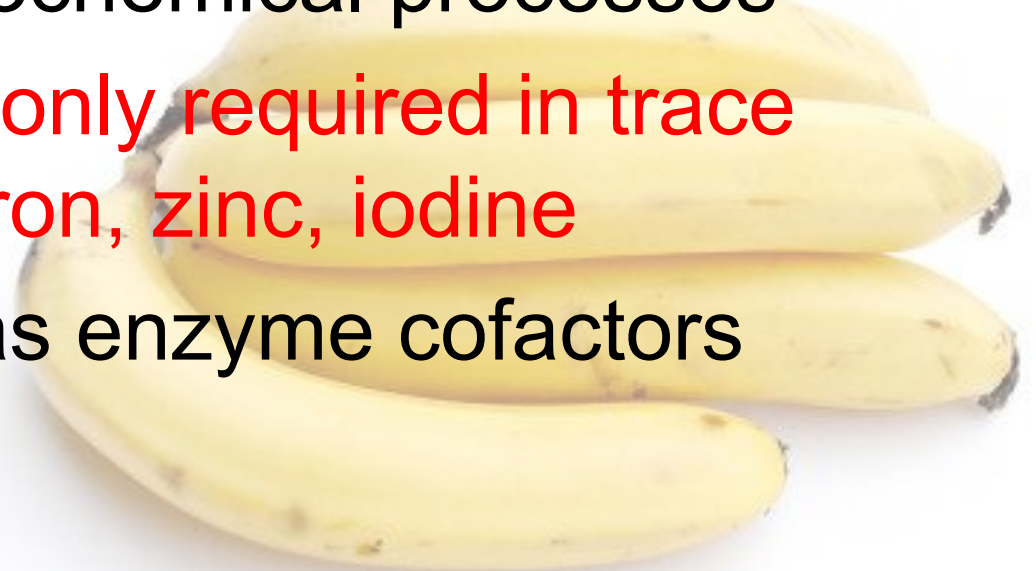


Vitamins

| | |
|--------------------------|--|
| A (carotene) | Yellow/orange fruit and veg, green leafy veg, dairy |
| B1 (thiamine) | Fortified cereal, red meat, whole grains |
| B2 (riboflavin) | Whole grains, green leafy veg, eggs, milk |
| B6 (pyroxidine) | Fish, poultry, beans, whole grains, bananas |
| B12 (cobalamin) | Red meat, dairy, fish |
| Folic acid | Green leafy veg, liver, lentils |
| Niacin | Red meat, poultry, fish, peanuts, eggs |
| C (ascorbic acid) | Citrus fruits, berries, peppers |
| D | Sunlight, fish, eggs, fortified milk |
| E | Whole grains, nuts, oils, green leafy veg |
| K | Green leafy veg, fruit, dairy |

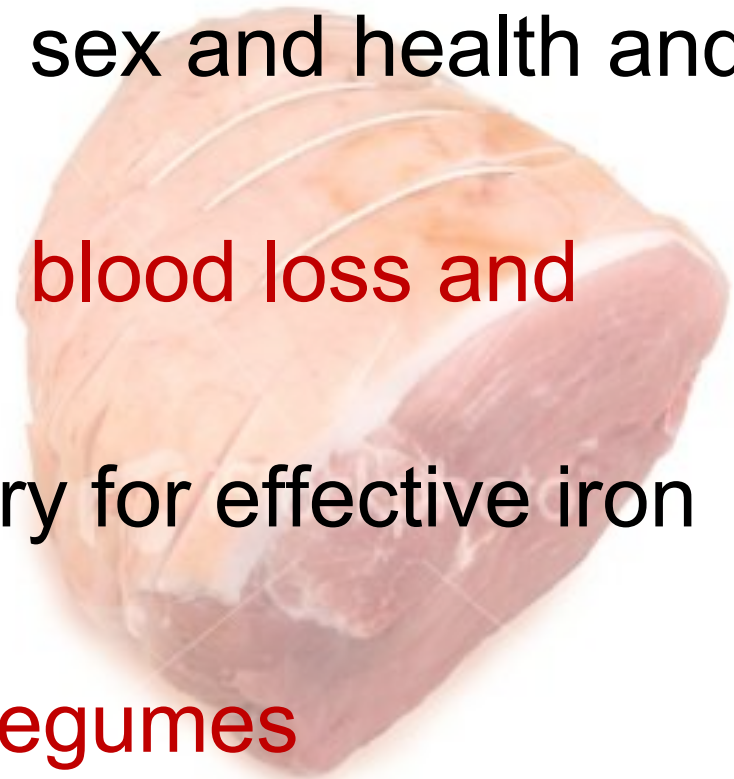
Minerals

- Macrominerals, RDI = >200mg/day, are magnesium, calcium, chloride, phosphorus, potassium, sodium, sulphur
- Required for biochemical processes
- Microminerals, only required in trace amounts, e.g. iron, zinc, iodine
- Often needed as enzyme cofactors



Iron

- Particularly needed for women
- A component of many proteins, notably **HAEMOGLOBIN**
- RDI depends on age, sex and health and is roughly 8-18mg/day
- Lost during sweating, blood loss and growth
- Vitamin C is necessary for effective iron uptake
- Found in meats and legumes



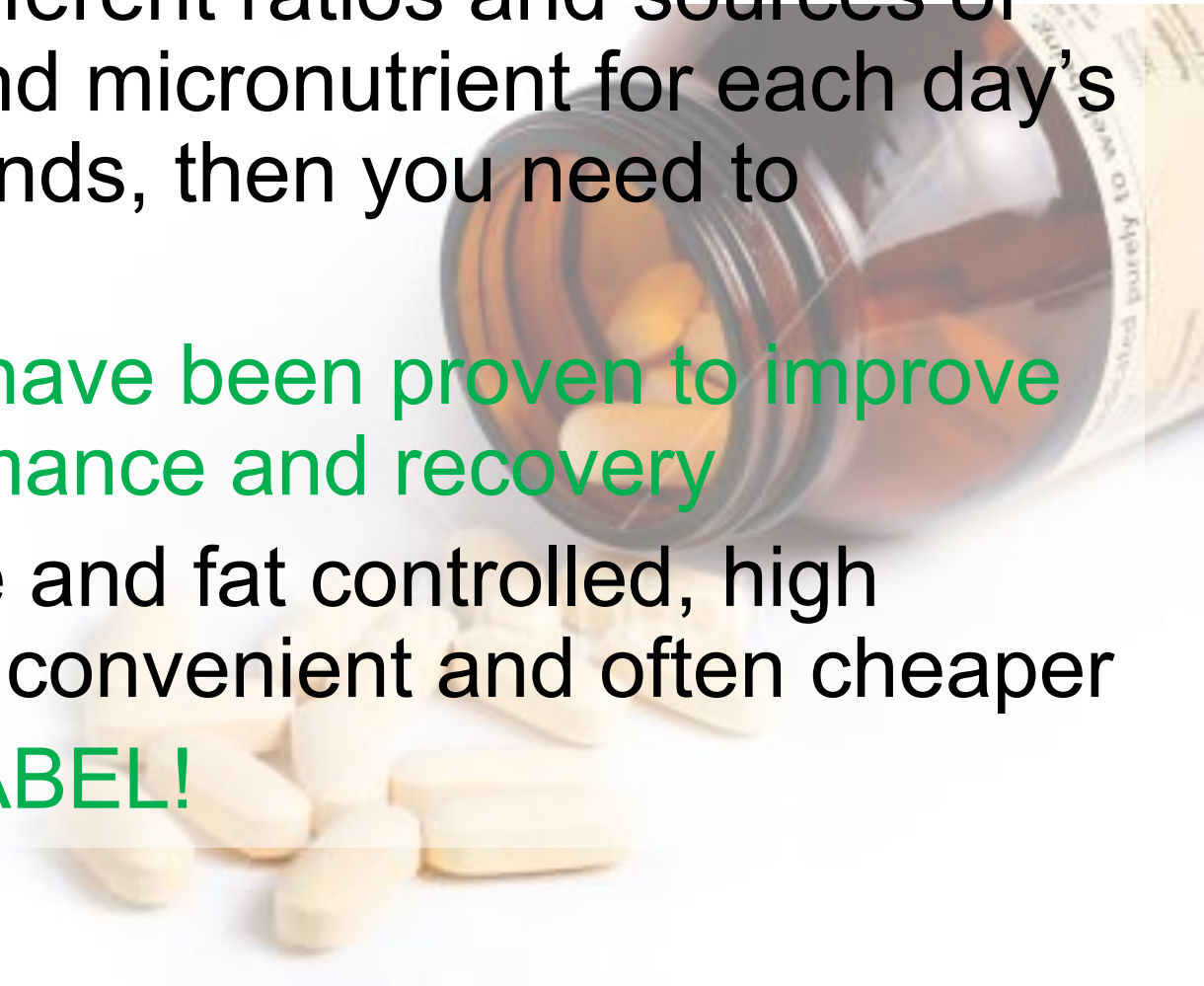
Calcium

- Needed for strong bones and teeth, and nerve and muscle function
- Extra needed during development to ensure Peak Bone Mass
- Women particularly susceptible to osteoporosis
- Weight bearing exercise is essential for absorption of calcium into the bones
- Found in dairy products



Supplementation

- Unless you dedicate a couple of hours a day working out different ratios and sources of each macro and micronutrient for each day's differing demands, then you need to supplement!
- Supplements have been proven to improve health, performance and recovery
- Usually calorie and fat controlled, high bioavailability, convenient and often cheaper
- **READ THE LABEL!**
- Talk to Chad!



Types of Supplement potentially beneficial for judo

- Multi-vitamins and minerals
- Amino acids esp. BCAAs and L-glutamine
- Omega-3s
- Creatine
- Antioxidants
- Protein drinks/bars
- Glucosamine and chondroitin



Alcohol

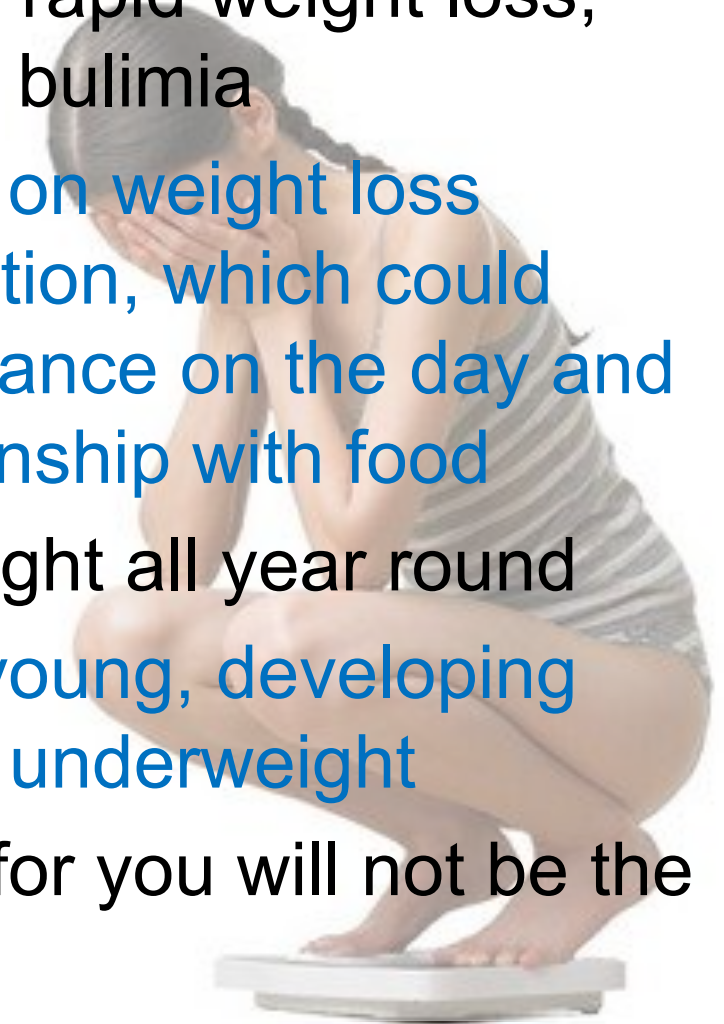
- Excess consumption damages the liver, heart, brain, stomach, nerves and pancreas
- 7 kcal per g
- “Empty” calories

| | |
|---------|----------|
| Beer | 105 kcal |
| Wine | 85 kcal |
| Spirits | 60 kcal |



Eating Disorders / Crash Diets

- Avoid promoting excessive or rapid weight loss, which can lead to anorexia or bulimia
- With children, try not to focus on weight loss immediately before a competition, which could lead to a decrease in performance on the day and a potentially unhealthy relationship with food
- Maintain a healthy, active weight all year round
- It is medically healthier for a young, developing person to be overweight than underweight
- A healthy weight/ body fat % for you will not be the same as for someone else



Any Questions?
Don't hesitate 😊

