

Introduction to Performance Nutrition

Louise Bloor



INTRODUCTION

A balanced diet and healthy lifestyle has a significant impact on how you grow, develop, train and ultimately perform. Laying strong foundations will enhance your physical capabilities and robustness to meet training demands and maximise adaptations.

Less time spent ill, injured or fatigued means more time on the mat. By selecting the right foods, at the right time and making weight correctly you can expect to perform at your best.

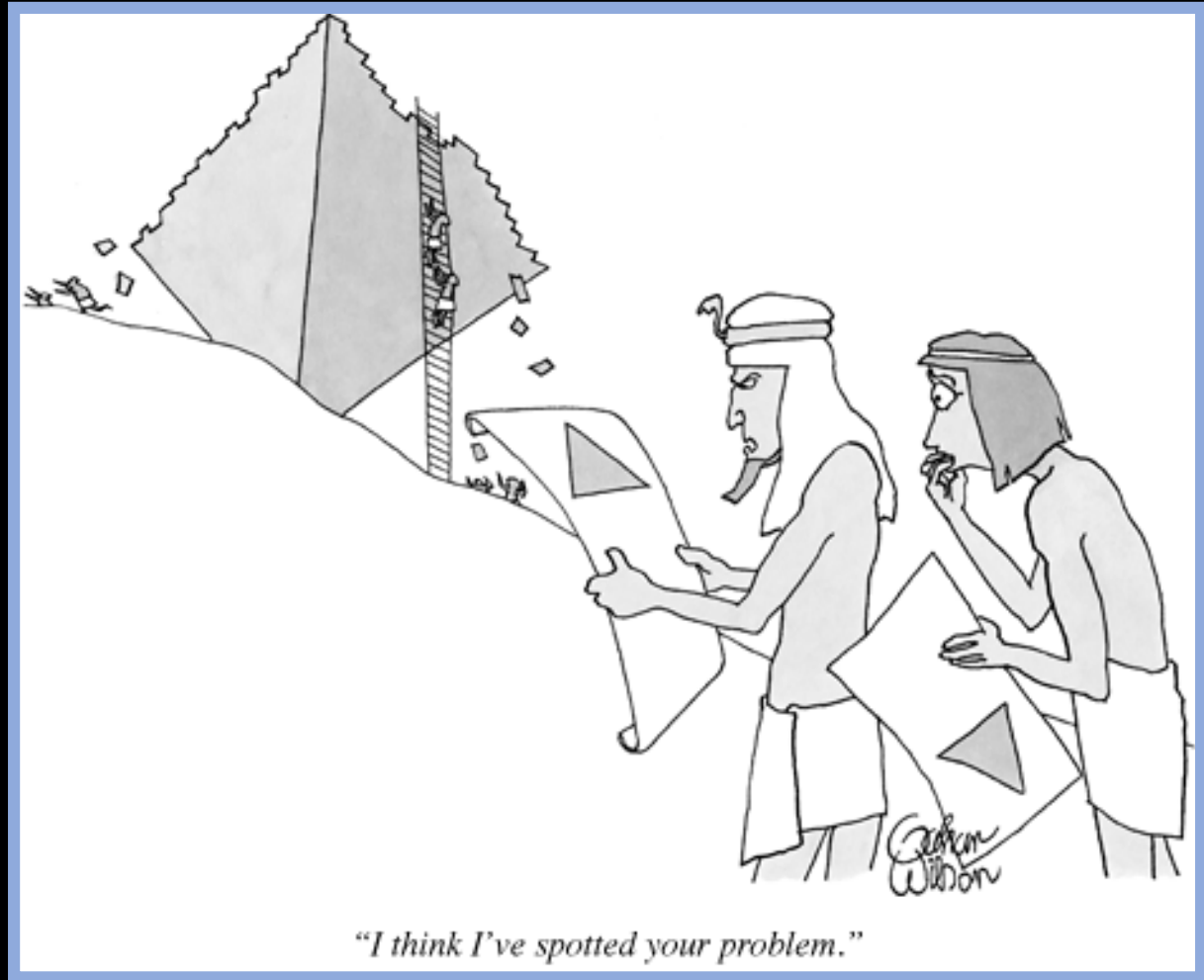
Be a better athlete today, than you were yesterday!

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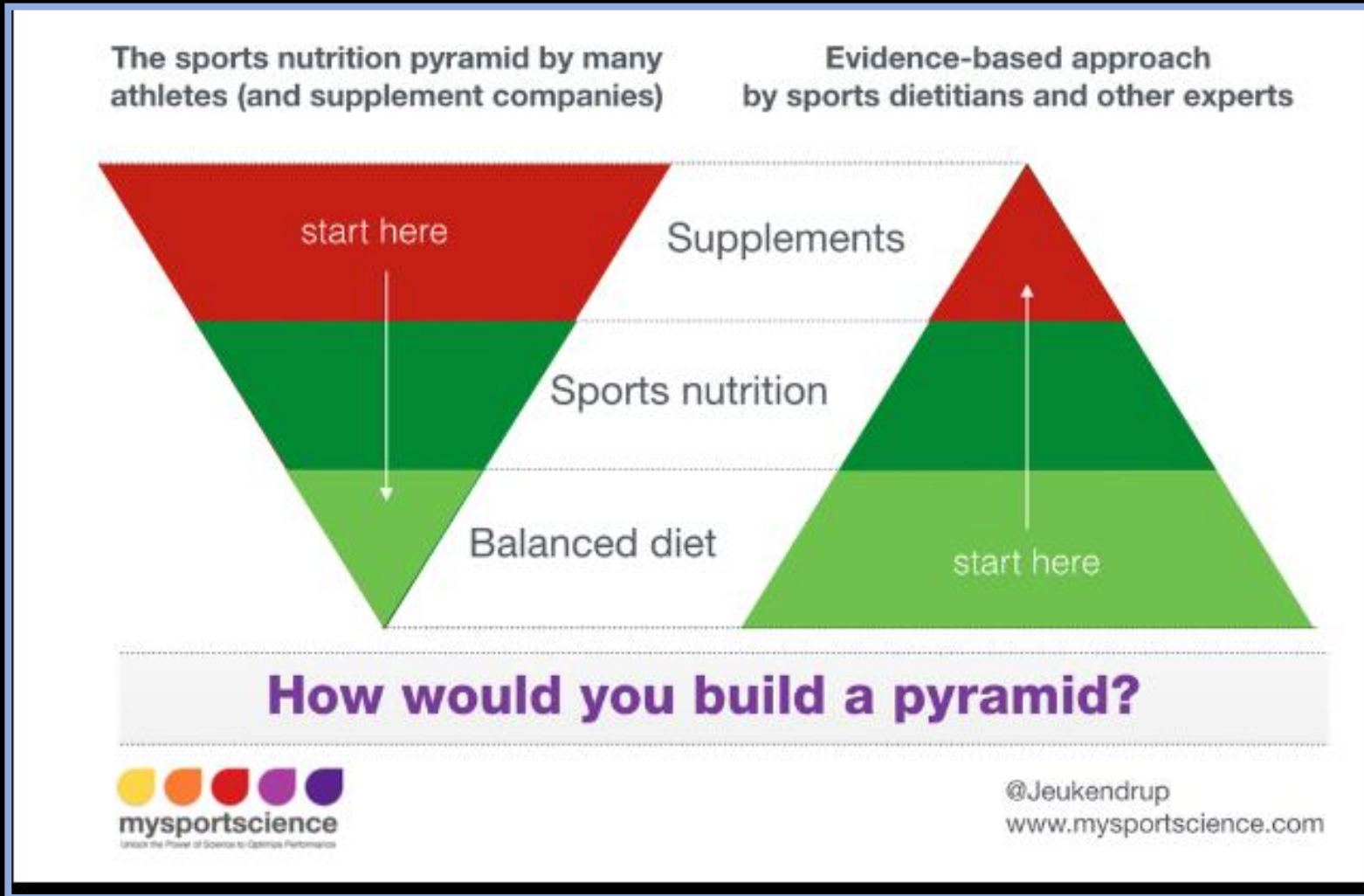
1. The basics & marginal gains.
2. Macro & Micronutrients
 - Types of carbs, protein, fats, vitamins and minerals
 - Quantities and their roles.
3. Timing of intake
 - Fuelling: when to eat and how much?
 - The 4 R's of recovery
4. Structure of a normal training diet
5. **Competition nutrition & Plan**
6. Sleep/Rest

THE BASICS – GET’EM RIGHT!

- Nutrition
- Sleep
- Rest



SOLID FOUNDATIONS



MARGINAL GAINS...

Performance gains can be made with supplements, but those gains become insignificant if you're not doing the basics.

- *Balanced diet*
- *Sleep*
- *Rest*
- *100% into every session*
- *S&C*
- *Prehab*
- *Psychology*
- *Overall Lifestyle*

NUTRIENTS: 2 GROUPS



CARBOHYDRATES
PROTEIN
FATS



VITAMINS & MINERALS
ANTIOXIDANTS &
PHYTONUTRIENTS

CARBOHYDRATES: *GO FOODS*



Breads



Fruits



Potatoes



Cereals



Pulses



Confectionary



CARBOHYDRATES: *GO FOODS*



Carbs are king!

Key Roles:

- Primary energy source
- Supports training intensity and quality - throughout long sessions.
- Sustains concentration and decision making
- Supports skill execution – S&C and judo training specific.



Training with high carbohydrate stores via good meal choices, meal timing and weight management makes high intense and quality training sustainable throughout the session.

Poor fuelling and crashing weight can lead to fatigue, poor skill execution and increased risk of illness and injury in addition to emotional stresses and frustration.

CARBOHYDRATES: 2 TYPES



FAST RELEASE (High Glycaemic Index)



Cornflakes
Coco Pops
White bread
Bagels
Potatoes
White Rice
Baguettes
Ripened Bananas
Tropical Fruit
Sweets
Sports Drinks
Gels

Foods with a higher GI are digested and absorbed rapidly causing a sharp increase in blood glucose and energy.

SLOW RELEASE (Low Glycaemic index)



Foods with a low GI take much longer to break down and digest producing a gradual blood glucose response and a more steady and sustained release of energy

Muesli
Porridge
Chickpeas
Pasta
Beans
Quinoa
Sweet Potato
Apricots
Strawberries
Oranges
Apples
Greek Yoghurt

PROTEIN: *GROW FOODS*



Meat



Fish



Diary



Eggs



Nuts/Seeds



Legumes and
Lentils



PROTEIN: *GROW FOODS*

Key Roles

- Supports muscle turnover
- Muscle Growth (hypertrophy)
- Repairs damaged muscle fibres
- Reduces muscle soreness

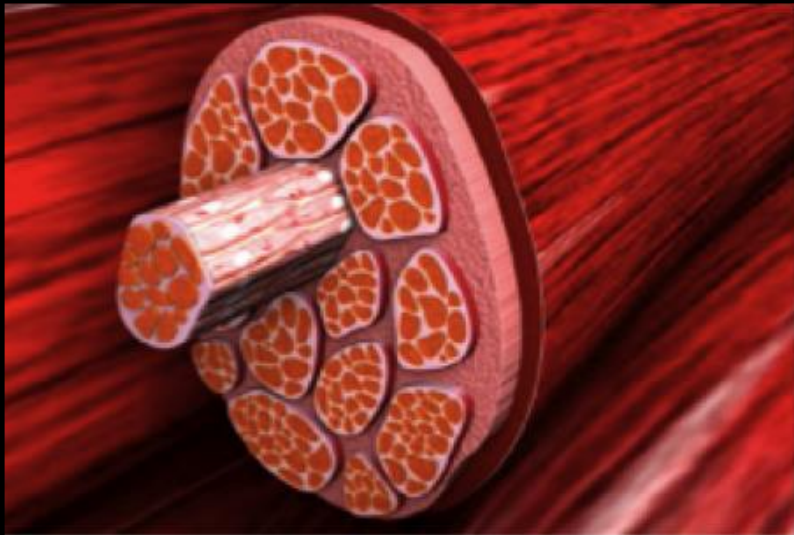
The muscle are constantly breaking down and resynthesising. When you eat protein they synthesise, repair and grow; and when all this protein has been utilised muscles begin to breakdown.

Therefore, its important to include protein in every meal and snack equalling around 5-6 protein feeds per day (every 3-4 hours) so each day the muscles have spent more time in periods of growth than breakdown.



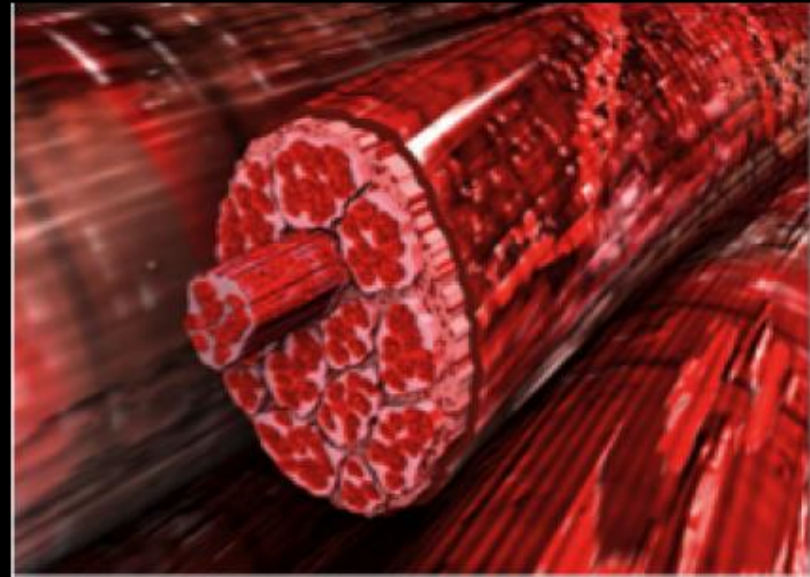
Recovered muscle fibre!!

- *Repaired and healthy fibres*
- *Reduced/No soreness in training.*
- *High protein intake.*
- *Frequent protein feeds (every 3-4 hours).*
- *High protein recovery snacks after training.*



Damaged muscle fibre!!

- *Damaged muscle fibres*
- *Possible muscle soreness in training.*
- *Poor protein intake.*
- *Poor frequency of protein feeds.*
- *No or poor recovery choices after training.*



FAT GOOD | BAD | UGLY



Oily Fish



Nuts/seeds



Olive Oils



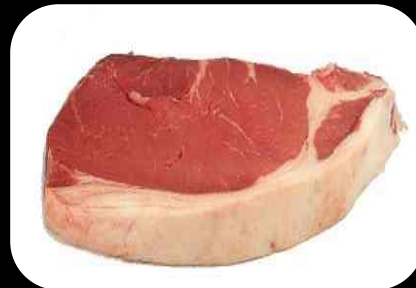
Avocado



Fried Foods



Sunflower Oil



Fats on Meats



Butter/Cheese



FAT GOOD | BAD | UGLY

We need to include fat within our diet, but in order for it to have a positive impact we need to be eating more of the good and less of the bad!

Positive Roles

- Energy Source
- Essential Fatty Acids (must come from diet)
- Fat Soluble Vitamins e.g Vit D and Vit K
- Cardiovascular health
- Reduce Inflammation

Negative Roles

- Weight Gain
- Cardiovascular Disease
- Diabetes



OMEGA 3



Other omega 3 sources:

- Nuts/seeds
- Avocado
- Olives
- Olive Oil

EPA: Oily fish (salmon, mackerel, sardines)

Recommendation: x 2/week



EPA found in omega 3, specifically oily fish, boosts the immune function and reduces inflammatory responses. This can increase recovery during high intensity training and reduce the risks of missed or below par training sessions. Higher intakes of EPA, up to 2-3 grams per day are shown to have greater benefits for athletes.

VITAMINS & MINERALS: *GLOW FOODS*

There are far too many vitamins and minerals to cover them all in detail. Instead, we have focused upon 3 of the key ones for combat athletes.

- *Vitamin D*
- *Calcium*
- *Iron*

If the diet is well planned you should be able to get sufficient amounts of all vitamins and minerals without the need for supplements (perhaps with the exception of Vitamin D during the British winter).



VITAMINS & MINERALS: *GLOW FOODS*

CALCIUM

Function → Bone, teeth health as well as cell and neural signalling

Found in → Yoghurt, milk, fortified cereal, tofu, fish with small edible bones

Requirement → 2-3 servings per day



VITAMINS & MINERALS: *GLOW FOODS*

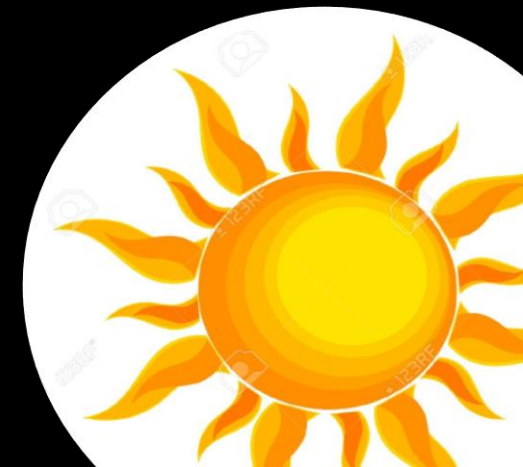


VITAMIN D

Function → Calcium absorption (bone health), immunity,
muscle strength and power

Found in → Oily fish, egg yolks, fortified milk, cereals and yoghurt
OR
5-30 sun exposure April-November in Britain

Requirement → Blood 25(OH)D levels should be $>75\text{nmol/L}$
(Blood test required)



VITAMINS & MINERALS: *GLOW FOODS*

IRON

Function → Help make red blood cell and transport oxygen around the body.
Deficiency can cause fatigue/tiredness and impaired recovery

Found in → Red meat, fortified cereal, green veg

Requirement → 2 -3 servings red meat/week



PHYTONUTRIENTS & ANTIOXIDANTS

FRUIT & VEG

Key Roles

- Packed full of essential vitamins and minerals
- Boosts immunity
- High in fibre, maintaining healthy digestive tract
- Supports muscle recovery: attacks Free Radicals and reduces oxidative stress!

When you train there is an increase in Free Radical production within the body. Free Radicals are molecules that are highly reactive and damage cells, resulting in impaired recovery and muscle soreness. This is known as Oxidative Stress.

Antioxidants, found in fruit and veg, can reduce this stress response by engulfing and destroying the free radicals. Therefore including fruit and veg in most main meals and snacks is essential not only for health, but for performance.



PHYTONUTRIENTS & ANTIOXIDANTS

FRUIT & VEG

RED

Cherries, raspberries, tomatoes, red cabbage, grapefruit

WHITE

Onions, garlic, apples, coconut, parsnip, cauliflower

PURPLE

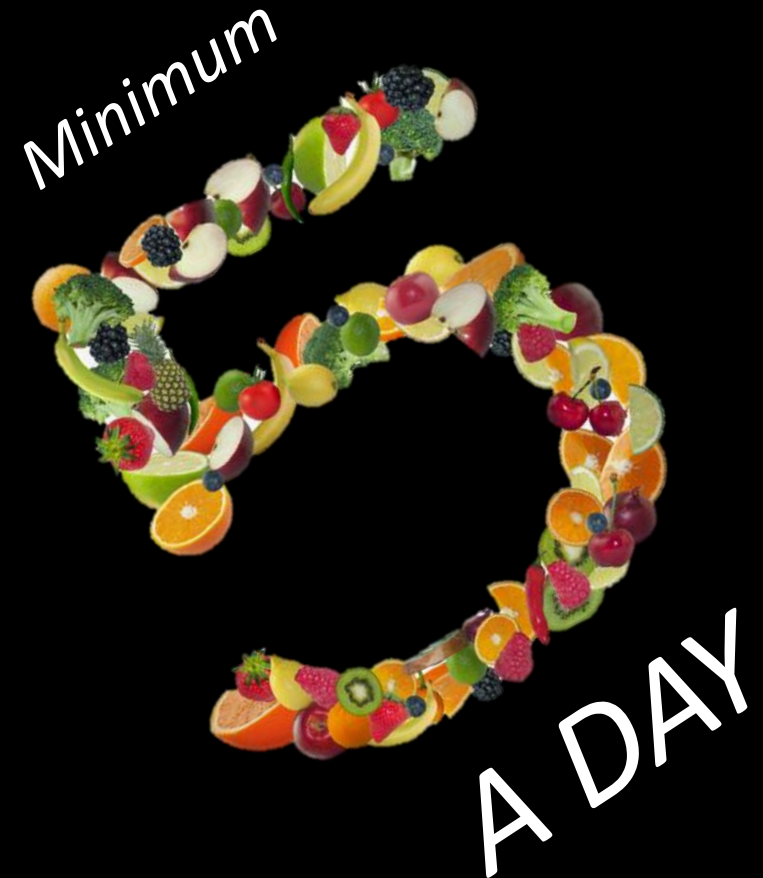
Beetroot, blueberries, cranberries, grapes, aubergine

GREEN

Broccoli, spinach, beans, cabbage, lettuce, kale, sprouts

ORANGE

Carrots, sweet potato, squash. Citrus fruit, peach, mango



PHYTONUTRIENTS & ANTIOXIDANTS

FRUIT & VEG

What counts as 1 portion?

Medium-size fruit (eg 1 apple, banana, pear, orange)

Small fruit (eg 2 plums, satsumas, kiwi fruit)

Fruit juice (eg 150ml glass, but this can only contribute 1 portion to your 5 a day)

Dried fruit (eg 3tbsp of raisins, currants, sultanas)

Green vegetables (eg 2 broccoli spears or 4 heaped tbsp of kale or green beans)

Other vegetables (eg 3 heaped tbsp of peas, sweetcorn or carrots)

Pulses (eg 3 heaped tbsp of baked beans, kidney beans, chick peas)

FUELLING & RECOVERY: TIMING OF INTAKE



FUELLING

2-3 HOURS BEFORE TRAINING/COMPETITION

Low GI carbs to provide a steady sustained release of energy.

E.G muesli with 180ml semi skimmed milk + yoghurt, chicken pasta bake, meat/fish sandwich or wrap, cous cous with chicken or fish, jacket potato with tuna.

30-60 MINUTES BEFORE TRAINING/COMPETITION

High GI carbs can provide a fast supply of energy to top up stores

E.G Cornflakes, meat/fish sandwich on white bread, ripened banana, cereal bars, sports drinks, gels.

EFFECTS OF LOW GLYCOGEN STORES



Reduced duration and intensity of exercise

*Hypoglycaemia (Low blood sugar):
concentration & awareness*

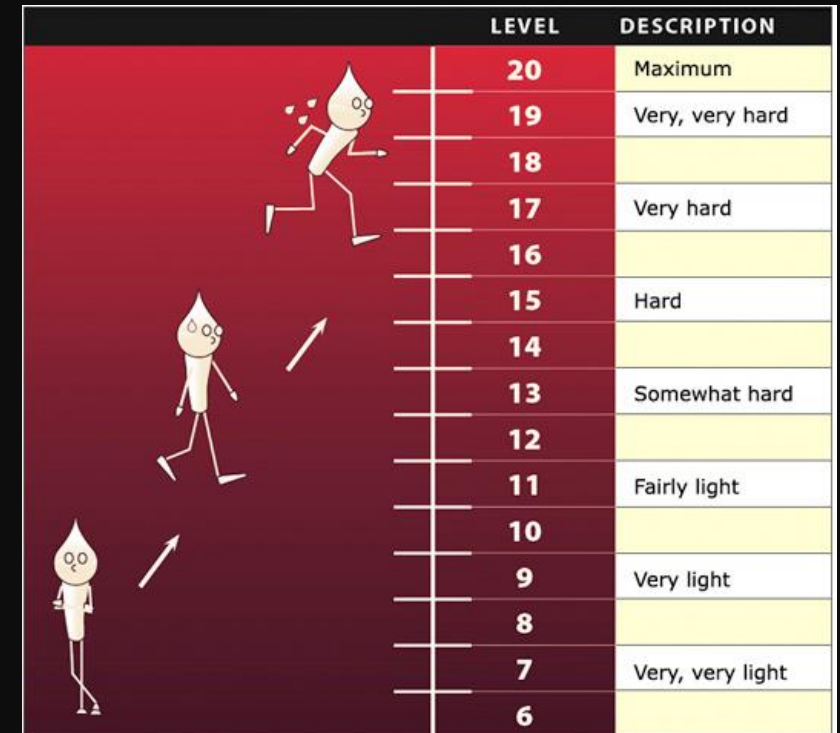
Increased risk of illness and injury

HOW MUCH IS ENOUGH?

How much carbohydrate you need is determined by a number of factors:

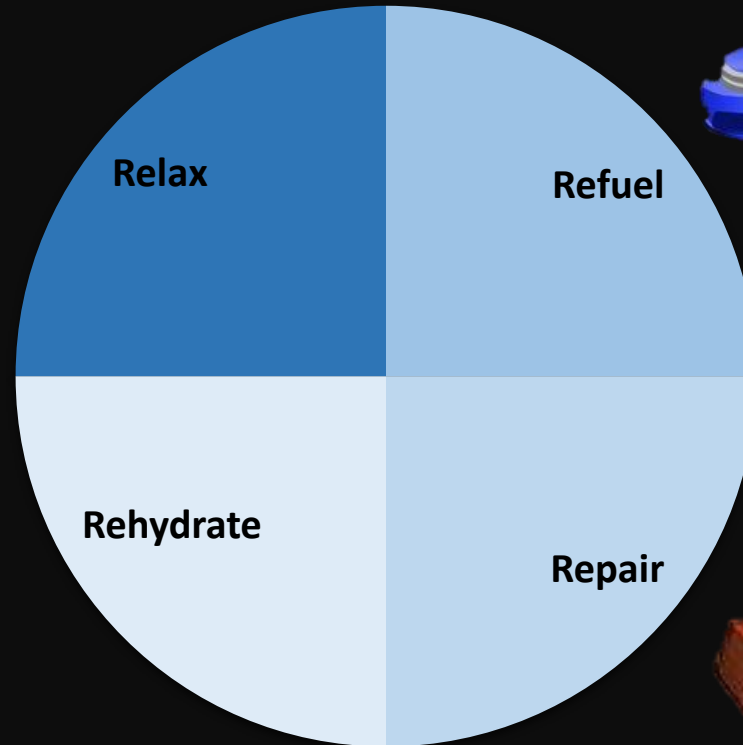
- **Training Intensity** – How hard the session is.
- **Training Frequency** – How often you train per day/week.
- **Training Duration** – How long each session is.
- **Type of Training** – Long or short track or S&C etc.
- **(In addition** – Support growth and development).

Rating your sessions out of 10 or using a red, amber, green system can help determine how hard sessions are.

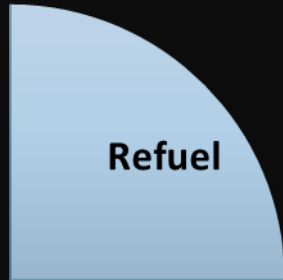


| LEVEL | DESCRIPTION |
|-------|------------------|
| 20 | Maximum |
| 19 | Very, very hard |
| 18 | |
| 17 | Very hard |
| 16 | |
| 15 | Hard |
| 14 | |
| 13 | Somewhat hard |
| 12 | |
| 11 | Fairly light |
| 10 | |
| 9 | Very light |
| 8 | |
| 7 | Very, very light |
| 6 | |

RECOVERY: THE 4 R's



RECOVERY



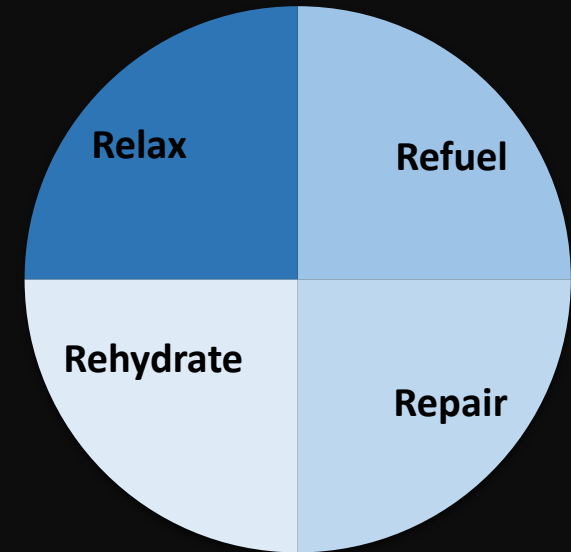
CARBS!

Replenish glycogen stores with fast absorbing carbs.



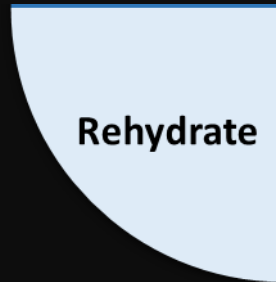
PROTEIN & ANTIOXIDANTS

Rebuild and repair muscle.
Between 15-20g dependant on session
Balanced carb, protein and veg meal



Recovery meals and snacks should contain both carbohydrate and protein as the body absorbs these nutrients more affectively when consumed together.

RECOVERY



FLUID!

Replace sweat losses

Weight yourself before and after the x 1.5

1kg loss = 1 litre fluid = 1.5 litres to drink

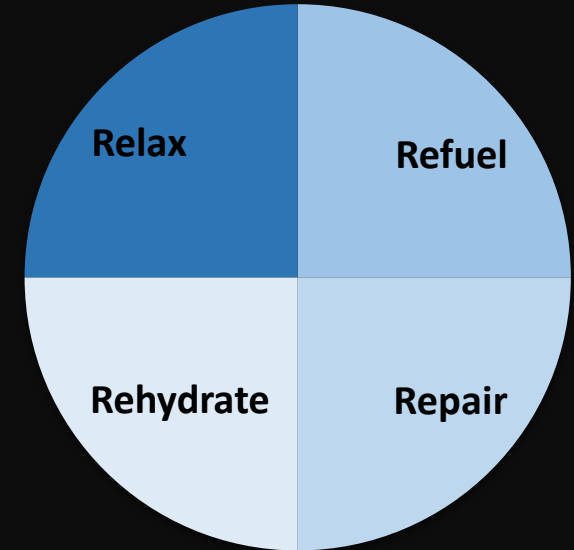


NAP!

Regenerate

Create optimal sleep environment

Minimum 8 hours



Your body replaces and repairs damaged muscle fibres not in the gym, but whilst you rest!! If you're not resting, you're compromising this adaptation.

RECOVERY



Meat/Fish Sandwich



Carbs: ~26g
Protein: ~23g

50g Beef Jerky



Carbs: 2g
Protein: 25g

Banana (for carbs)



Carbs: 30g
Protein: 1g

Arla Drinks/Yoghurt



Carbs: ~16g
Protein: 20g
Calcium: ✓

Yazoo Milkshakes

400ml



Carbs: 40g
Protein: 12.5g
Calcium: ✓

200ml



Carbs: 20g
Protein: 6g
Calcium: ✓

Muesli with 180g milk



Carbs: 40g
Protein: 12g
Calcium: ✓

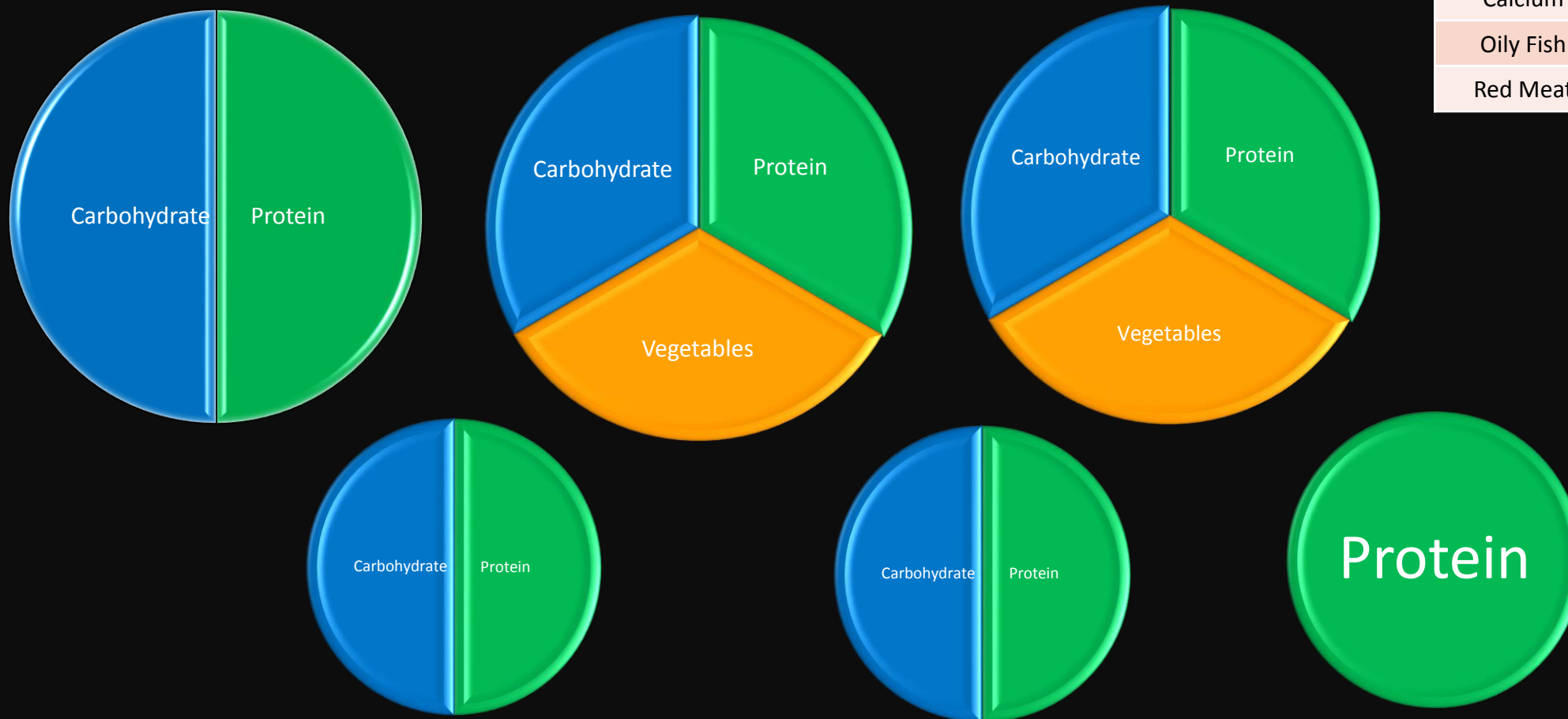
50g Mixed Nuts



Carbs: 8g
Protein: 11g

NORMAL TRAINING DIET

| Nutrient | Times per day/week |
|-------------|--------------------|
| Carbs | 4-5 / day |
| Protein | 5-6 / day |
| Fruit & Veg | ≥ 5 / day |
| Calcium | 2-3 / day |
| Oily Fish | 2 / week |
| Red Meat | 2-3 / week |



COMPETITION DAY



TIPS FOR COMPETITION DAY

Focus on slow release carbs that will release energy slowly throughout the day!

| BREAKFAST OPTIONS | Approx wgt of meal |
|---|---------------------------|
| Oats So Simple Pot | 0.30kg |
| 2 eggs on 2 slices toast | 0.21kg |
| 2 Slices Toast with Peanut Butter + 250ml semi skimmed milk | 0.32kg |
| 1 bowl Muesli with 180ml milk | 0.28kg |
| Beans (1 small tin, 200g) on 2 slices toast | 0.26kg |

REMEMBER YOUR 5%!!

Knowing approximately how much food weighs will enable you to work out how much you can eat!



Don't forget fluids: 1 litre = 1kg



AFTER EVERY BOUT

Have a fast release carbohydrate based snack to ensure carbohydrate stores are always topped up!

Where possible include protein to support muscle repair and recovery.



| SNACK OPTIONS | |
|--------------------------------|----------------------------------|
| Carbs | Carbs & Protein |
| Cereal Bar | Milkshakes |
| Rice Cakes | Greek yoghurt |
| Banana/Apple/Grapes | Nuts/Seeds |
| Dried Fruit (raisins/apricots) | Beef Jerky + Fruit |
| Sports Drinks | Meat/Fish sandwich (white bread) |

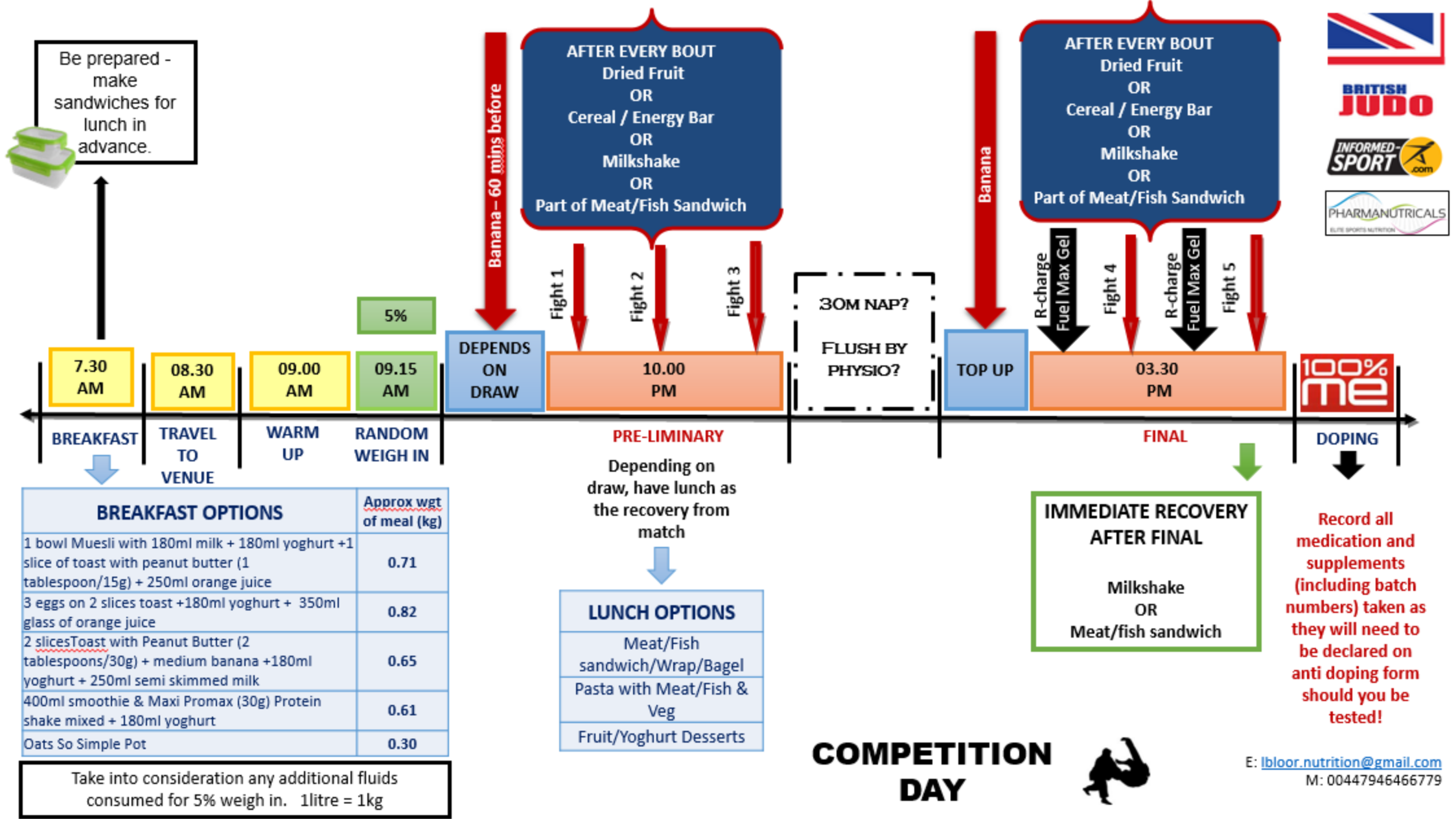
Remember to keep foods low in fat as they can sit heavy and impair performance.

BE ORGANISED

Don't rely on good food at the venue!

Remember to take your own food & drink with you & raid the breakfast hall.





Be prepared - make sandwiches for lunch in advance.

7.30 AM BREAKFAST
 08.30 AM TRAVEL TO VENUE
 09.00 AM WARM UP
 09.15 AM RANDOM WEIGH IN (5%)

| BREAKFAST OPTIONS | Approx wgt of meal (kg) |
|---|-------------------------|
| 1 bowl Muesli with 180ml milk + 180ml yoghurt + 1 slice of toast with peanut butter (1 tablespoon/15g) + 250ml orange juice | 0.71 |
| 3 eggs on 2 slices toast + 180ml yoghurt + 350ml glass of orange juice | 0.82 |
| 2 slices Toast with Peanut Butter (2 tablespoons/30g) + medium banana + 180ml yoghurt + 250ml semi skimmed milk | 0.65 |
| 400ml smoothie & Maxi Promax (30g) Protein shake mixed + 180ml yoghurt | 0.61 |
| Oats So Simple Pot | 0.30 |

Take into consideration any additional fluids consumed for 5% weigh in. 1litre = 1kg

AFTER EVERY BOUT
 Dried Fruit
 OR
 Cereal / Energy Bar
 OR
 Milkshake
 OR
 Part of Meat/Fish Sandwich

Banana - 60 mins before

Fight 1
 Fight 2
 Fight 3
 10.00 PM
 PRE-LIMINARY

30M NAP?
 FLUSH BY PHYSIO?

AFTER EVERY BOUT
 Dried Fruit
 OR
 Cereal / Energy Bar
 OR
 Milkshake
 OR
 Part of Meat/Fish Sandwich

Banana

TOP UP
 R-charge Fuel Max Gel
 Fight 4
 R-charge Fuel Max Gel
 Fight 5
 03.30 PM
 FINAL

IMMEDIATE RECOVERY AFTER FINAL
 Milkshake
 OR
 Meat/fish sandwich

Record all medication and supplements (including batch numbers) taken as they will need to be declared on anti doping form should you be tested!



COMPETITION DAY



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COMPETITION DAY NUTRITION GOALS

↑ CONCENTRATION

↑ ENERGY STORES

↓ FATIGUE

↑ DECISION
MAKING

↓ CONCUSSION
RISK

MAXIMAL
POWER OUTPUT

↑ REACTION TIME



SLEEP/REST

Disturbed **sleep** causes a stress response and can negatively impact recovery and the subsequent session.

Poor **recovery** increases stresses and can lead to broken sleep.

Poor sleep quality = missed training and fatigue
Sleep loss = reduces training and recovery.

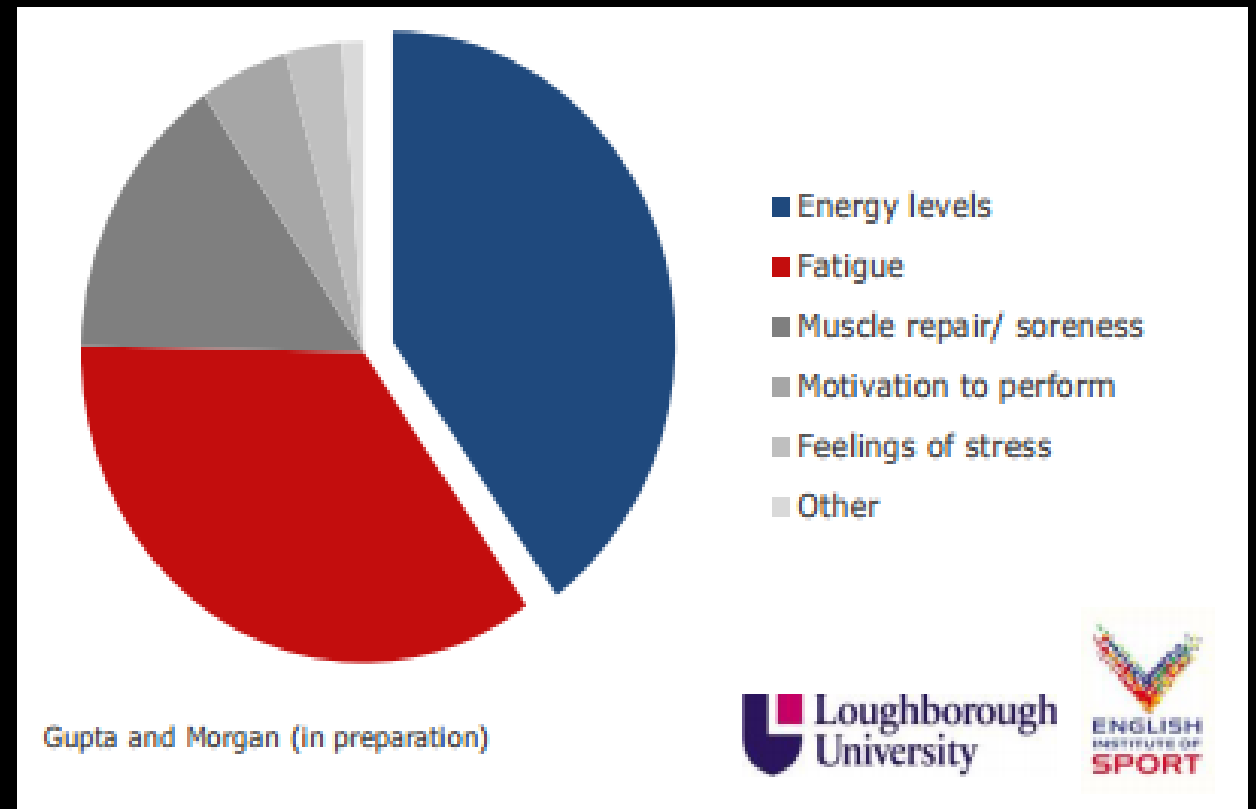


SLEEP/REST

Q. *What aspects of your recovery is improved as a result of your sleep?*

Energy Levels and Fatigue improve the most as a result of improved sleep!

Followed by muscle soreness, readiness and feelings of stress.

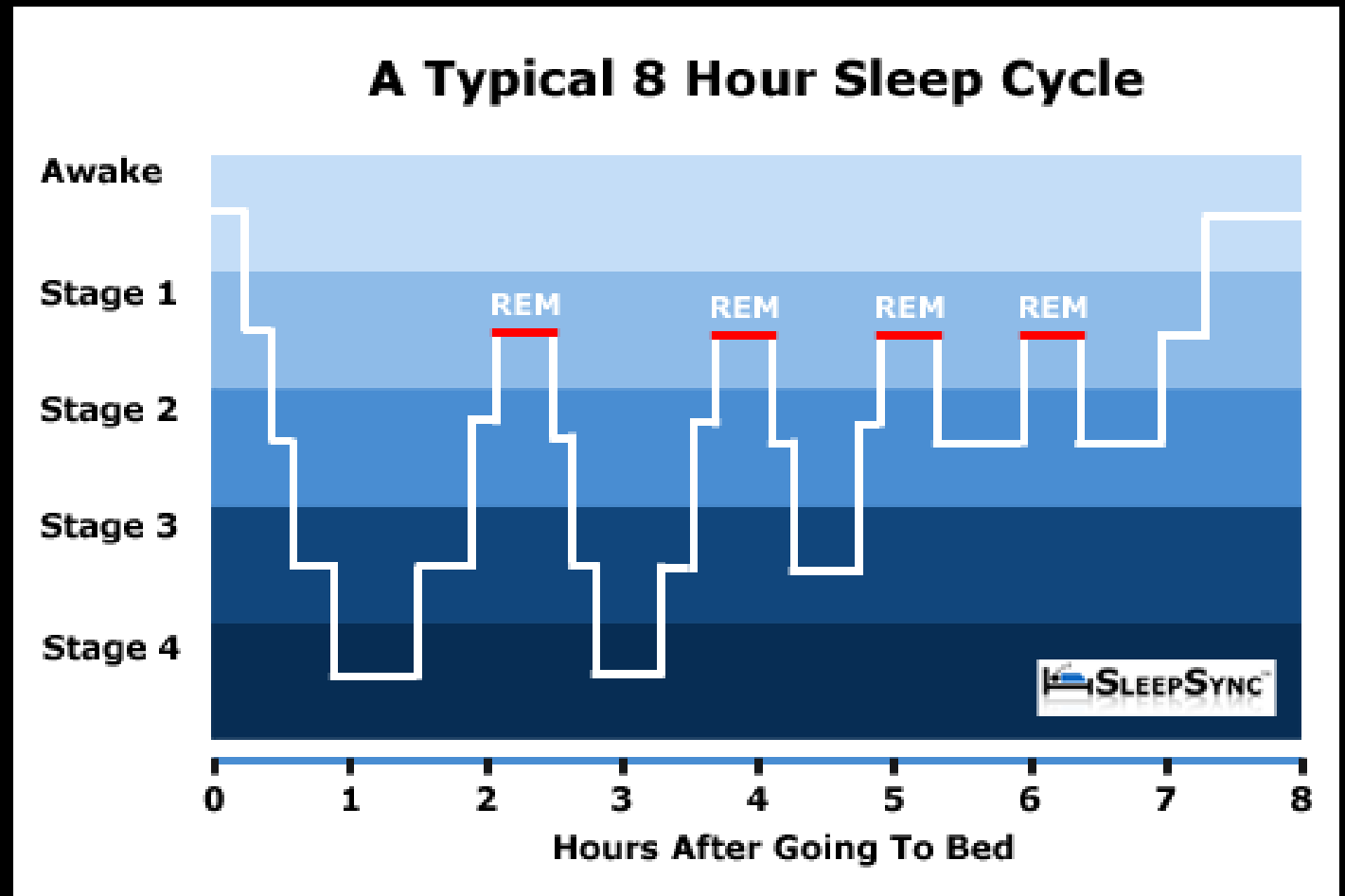


SLEEP/REST

Sleep2win

Message from the PD...

'players should sleep every day from 30mins to 90mins to aid recovery and adaptation to training – Sleep and Rest are just as important as the training itself – we can make BIG gains if the players sleep during the day.'



TAKE HOME MESSAGES

- The Basics – Get'em right.
 - Supplements won't compensate for downfalls in the key fundamentals: Sleep, balanced diet, work ethic lifestyle etc
- Nutrition: Get the balance right and meet your needs
 - Carbs: Main fuel for support training → Place LGI within 60minutes of sessions and HGI at all other times.
 - Protein: For muscle recovery and growth → Aim to 5-6 feeds per day to maintain greater muscle synthesis than breakdown.
 - Fats: Less of the bad and more of the good → Oily fish 2/week
 - Fruit & Veg: Destroy those Free Radicals → Minimum 5 per day
 - Other key micronutrients: Calcium and red meat to support bone health and iron levels.
- Recovery: Needs to take place within 20minutes of finishing the session
- Competition Nutrition: Plan ahead. Low GI breakfast then recovery snack after each fight.
- Sleep: 7/9 hours per night

THANK YOU



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