

Sports Science for *Best Performance*



“PERSONAL BEST”

Optimal performance is made up of 4 components where a deficit in any of these areas can negatively impact the athlete **(student)** to perform at an optimal level.

Tactical

Apply strategies given the strengths and weaknesses (gameplan)

Mental

Utilise mental skills required to succeed/ in pressure situations.

BEST

Performance

Physiology

Develop physical attributes through training /nutrition etc.
Meet energy demands

Technical

Demonstrate physical skills to play at the level / understanding content for assessment



OBJECTIVE

- Develop knowledge of key **nutritional considerations** and **mental skills/strategies** applicable for students and parents in maximising performance both academically and on the sporting field.

NUTRITION



Content focuses on specific dietary guidelines to **enhance performance** relating to **energy consumption**, significance of **macronutrients** and **hydration**.

Student Fuel: Key Considerations



- For activity at high intensity for ~60mins+, **Carbohydrate (CHO)** is the optimal fuel source.
- CHO consumption should be optimised (e.g. cereals, wholemeal bread, rice/pasta, grains)
- **Glycaemic Index (GI)** – speed at which glucose is released into bloodstream: consumption dependent on activity duration.
- **Avoid** high fibre & high fat foods → gastrointestinal issues and are harder to break down for energy
- **Increase protein** for muscle repair & growth.
eg. 1 x chicken breast adequate, protein shakes generally not necessary.

Meal Plan

*For events lasting longer than 60min

-Pre / During / Post performance

*CHO - Carbohydrate



✓ PRE: Consume low GI CHO for slow release of glucose = sustained energy. (↑ glycogen stores)

DURING: Consume high GI CHO

E.g. sports bars, jelly beans etc. - *delays depletion of glycogen* & quick release of glucose = ↑ energy.

✓ POST: Consume high GI CHO within 30 minutes & Low GI CHO over next 24 hrs = replenish glycogen stores used within muscle.

✓ Approx. 7-8g/kg of CHO

Consume 1.5g/kg Protein = muscle repair.

Don't skip breakfast! & best to eat regular, smaller meals



DEHYDRATION LEVEL IMPACT

(% OF BODY WEIGHT)



1%
LOSS

Trouble focusing,
impaired ability
to regulate body
temperature,
mild thirst

*1% (Equivalent to ~1-1.5
cups of water for an
average person)*



2-3%
LOSS

Impaired memory
and cognitive
performance,
decreased
reaction times,
dry mouth,
loss of appetite



4%
LOSS

20-30% reduction
in work capacity
(i.e., physical
performance)



5%
LOSS

Difficulty
concentrating,
headache,
sleepiness

HYDRATION



DAILY RECOMMENDATION

- ✓ ~2L of water per day (if minimal activity)

PRE - ACTIVITY

- ✓ 1L *additional* prior to activity recommended
- ✓ Avoid energy drinks (caffeinated) as act as a diuretic and will increase fluid loss.
- ✓ Coffee OK for seniors e.g. long black

DURING ACTIVITY

- ✓ Drink ~150ml of water every 15min
- ✓ CHO drinks such as Powerade can benefit if significant sweat lost

RECOVERY

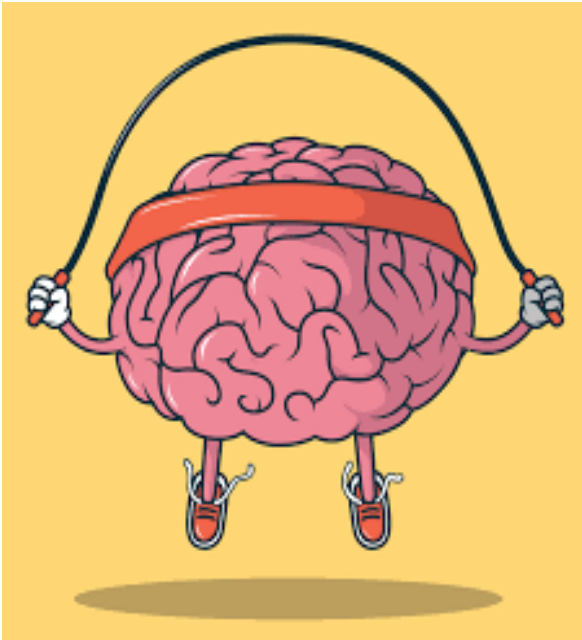
- ✓ Consume 1.5L / every litre of fluid lost
- ✓ Protein supplements/shakes – muscle repair

Recommended Daily Intake (RDI) Caffeine for Adolescents:

~90mgs



MENTAL SKILLS



Key skills/strategies for minimising anxiety/stress as well as enhancing concentration and self-confidence.



NB. Stress is the body's response when there is an imbalance between the demand and the body's ability to meet the demand when failure has consequences.

MENTAL SKILLS



Strategies for **improving concentration** and **attending to relevant cues, ignoring distraction**

1. **Self – talk:** repeating key words/phrases during/pre performance e.g. “follow through”, “read the question”, “kick through the ball”
2. **Imagery:** Visualise a past successful outcome whether practice or competition (sight/sound)
3. **Performance Routine:** Complete a ritual before every performance to enhance ability to attend to relevant cues (requirements) eg. Bounce ball 5 times, complete practice assessments, do quizzes, listen to music

6 MENTAL SKILLS ALL ATHLETES SHOULD DEVELOP

MENTAL IMAGERY

EMOTION REGULATION

GOAL SETTING

RELAXATION

SELF-TALK

SELF-EFFICACY

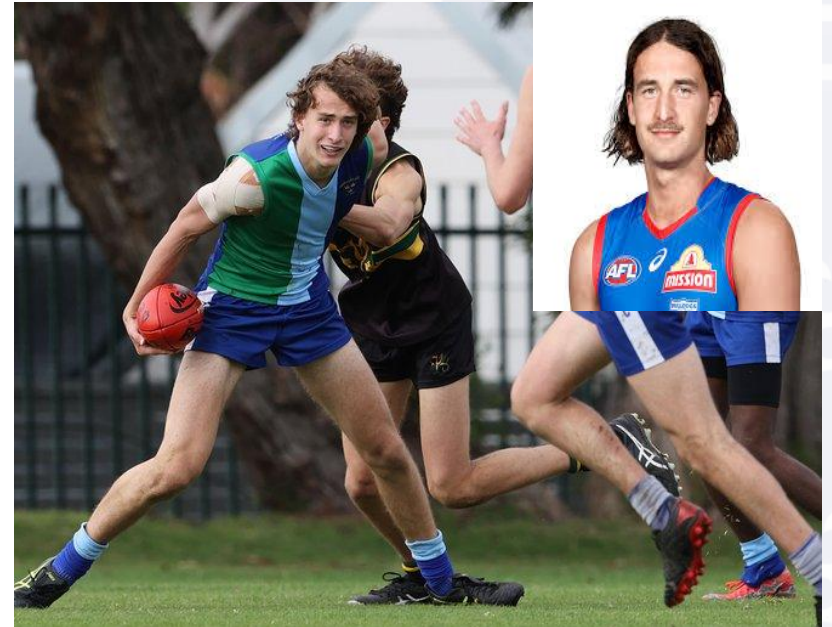
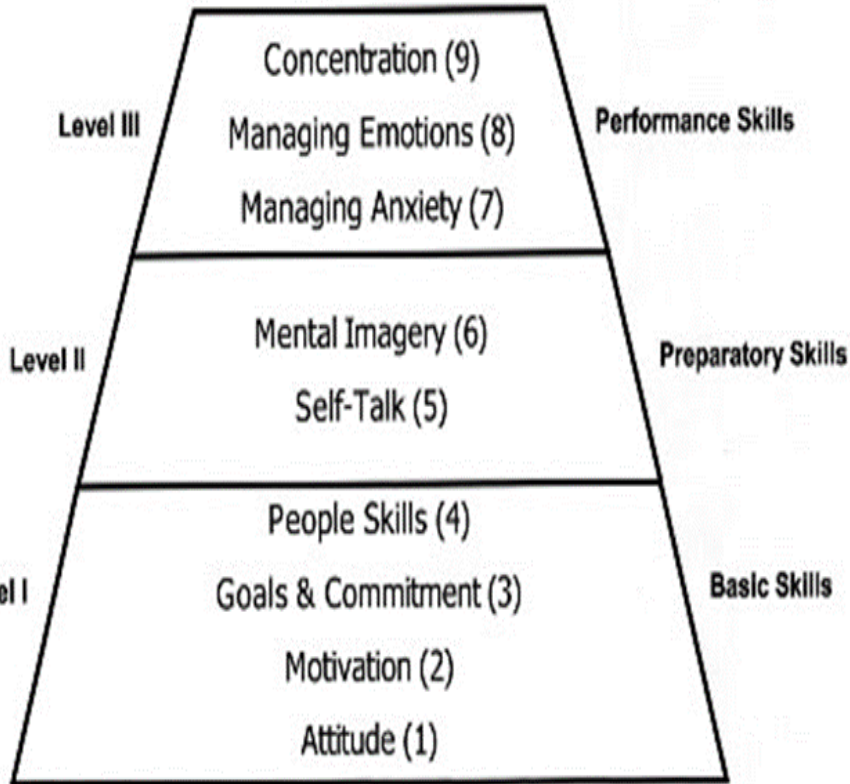


IN THE ZONE

Strategies for **minimising anxiety** & **maximising self-confidence**

- 1. Self – talk:** repeating key words and phrases during/pre performance. *Positive = 'good feeling'*
e.g. "I've nailed this kick 100 times" = *increased self-belief*
- 2. Relaxation:** activities undertaken to reduce feelings of anxiety eg. Music, deep breathing
-remove feeling of imbalance & consequences
- 3. Goal Setting:** Deciding on objective/s, when by & how to do it. **Process goal > outcome goal**
ie. Complete revision booklets / 3 past papers, never miss training, do 50 free-throws... **not 75%+**

ATAR/COMPETITION READINESS



ATAR → AFL?
Correlation between overcoming challenges/ stresses in sport & academic success