



WHAT CAN YOU DO?

**CREATING ENVIRONMENTS
TO MITIGATE THE RISK OF
RED-S AND OPTIMISE HEALTH,
PERFORMANCE, AND THE PHYSICAL
DEVELOPMENT OF SWIMMERS**

**A RESOURCE FOR COACHES,
SWIMMERS, PARENTS/CARERS**

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Acknowledgements

Swimming Australia and Griffith University respectfully acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture.

Authors

Ali Disher – Swimming Australia
Jennifer Hamer – Griffith University
Greg Shaw – Swimming Australia
Ben Desbrow – Griffith University
Chris Irwin – Griffith University
Helen Alexiou – The Knowledge Brokering Group

Design

Gillian Cosgrove

Funding for the development of this resource was provided by Swimming Australia and Griffith University.

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RESOURCE PURPOSE

This resource has been developed for the purpose of creating sporting environments that support swimmers' health and performance outcomes, while mitigating short- and long-term health risks associated with Relative Energy Deficiency in Sport (RED-S). The content included across this resource aims to provide clear expectations and practical guidance in helping swimmers meet their energy needs in their daily training environment. These resources are intended for use by coaches, swimmers and parents/carers recognizing that everyone has a role to play in supporting swimmers' energy needs and managing risks of RED-S.

This resource provides coaches, parents/carers and swimmers with tools and strategies to confidently address concepts around energy availability and create supportive environments to deliver athlete health and performance. This will help to ensure swimmers can continue to perform without compromising their health.

RESOURCE BACKGROUND

Regular participation in sport has long been known to promote positive physical and psychological health benefits.¹ However, in recent years adverse health outcomes in athletes have been recognised.² A concern among athletes today is the risk of developing Low Energy Availability (LEA), which occurs when energy intake (EI) is insufficient to meet biological requirements. Repeated acute bouts or prolonged LEA can lead to the condition RED-S, which can have both short- and long-term health and performance implications.² The causes of RED-S are

multi-factorial^{3,4} and can be influenced by social, cultural, demographic, environmental, biological, psychological, and behavioural factors.⁵

Coaches are important figures of influence in mitigating risk, detecting and supporting the management of LEA and its associated health complications.^{4,6} Ideally, coaches provide supportive environments for training and nutrition behaviours, that lead to performance optimisation and long-term health.⁷ However, in some cases the pursuit to develop faster and stronger swimmers has led to poor health outcomes associated with RED-S.^{6,8,9}

RESOURCE DEVELOPMENT

This resource was developed through adopting a complex, stepwise, systems-level approach – engaging with many stakeholders to identify key contexts and priorities and aimed to bring together research, practice and policy. A critical component of the successful development of this resource was engaging with a knowledge translation consultant (The Knowledge Brokering Group). This process ensured that all content developed would be embedded within the organization in a useable and scalable way.

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COACH



SWIMMER



PARENT/CARER

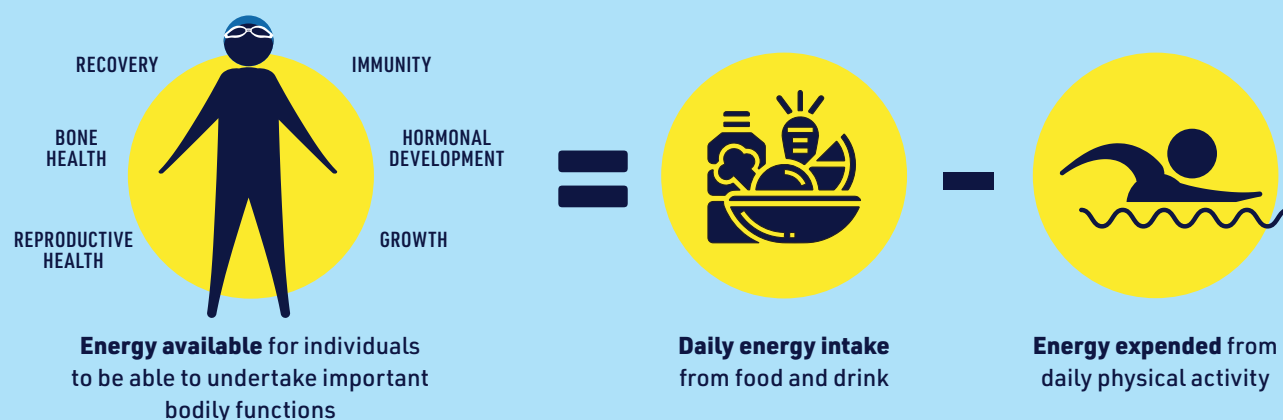
SECTION 1

WHAT IS RED-S AND WHY DO I NEED TO KNOW ABOUT IT?

AIM

- To provide definitions and an overview of the concepts of Energy Availability (EA), Low Energy Availability (LEA) and Relative Energy Deficiency in Sport (RED-S).
- Outline the potential health and performance implications to a swimmer when EA is not appropriately managed.

ENERGY AVAILABILITY EQUATION



KEY DEFINITIONS

EA **Energy Availability** is the amount of energy available for swimmers to undertake important bodily functions (e.g., recovery, growth, hormonal development) after energy expended from all physical activity is accounted for (EA = energy intake – energy expended from physical activity).

RED-S LEA can develop in as quickly as a few weeks and can lead to a range of health problems, collectively referred to as **Relative Energy Deficiency in Sport**.

LEA **Low Energy Availability** occurs when a swimmer's energy intake is insufficient to support the basic energy requirements for healthy bodily function, once the daily energy expended via all physical activity is accounted for.

The higher the energy expenditure and the lower the energy intake, the less that is left over to supply energy to support healthy bodily function.

THINK OF IT LIKE THIS:

When your phone switches to low power mode, certain features and functions (e.g., background app refresh) no longer run until you charge your phone sufficiently.



REMEMBER!

- > If not intervened early, RED-S can be prolonged, severe and enduring.
- > RED-S can have adverse effects on many body systems, leading to negative health and performance implications.
- > RED-S can affect:
 - > Males and females
 - > Adolescents and adults
 - > Any level of swimmer

WHY DOES IT MATTER?

IT MATTERS BECAUSE...

- > LEA does not always present in obvious or negative ways before health and/or performance are affected. Your awareness of more subtle signs/symptoms could make a big difference
- > RED-S leads to health implications, which can be lifelong (problems with fertility, bone health, mental health)
- > These health implications can reduce a swimmer's ability to train and perform both now, and in the future¹

1 / Vanheest et al. reported a 10% decline in swimming velocity over a 400m time trial (after 12 weeks of training) among young elite swimmers with ovarian suppression secondary to energy deficiency compared with an 7% improvement in their eumenorrheic teammates). See VanHeest JL, Rodgers CD, Mahoney CE & De Souza MJ. Ovarian suppression impairs sport performance in junior elite female swimmers. *Medicine & Science in Sports & Exercise*. 2014;46(1):156-166.

SPECIFIC CONSIDERATIONS

Athletes compared to non-athlete peers

- > Swimmers are at a higher risk of LEA and RED-S due to the high energy cost of training²
- > Busy lifestyles, time-consuming training demands
- > Food availability and preparation skill/literacy, including those of the parent/carer

Adolescents compared to their older/more elite training partners

- > Higher energy cost of training due to maturation and technical inefficiencies
- > Psychological challenges of maturation and body image issues
- > Adequate EA is essential to ensure important processes are not impaired such as critical periods for growth of muscle mass, connective tissue and bone mass, as well as training adaptations

Swimmers compared to other sports

- > Social and environmental influences impacting food choice, for example:
 - > training/racing attire
 - > aquatic environment influencing appetite and/or ability to consume training nutrition

2 / Mountjoy M, Sundgot-Borgen JK, Burke LM, et al. IOC consensus statement on relative energy deficiency in sport (RED-S): 2018 update. *British Journal of Sports Medicine*. Jun 2018;52(11):687-697. doi:10.1136/bjsports-2018-099193.

THE HEALTH AND PERFORMANCE IMPLICATIONS OF RED-S FOR A SWIMMER

PERFORMANCE DETRIMENTS

NOW

- ↓ muscle and connective tissue development
- ↓ glycogen resynthesis
- ↑ fatigue
- ↓ adaptation to training

FUTURE

- ↓ ability to reach maximum potential as a swimmer

SUPPRESSED IMMUNE FUNCTION

NOW

- ↑ illness susceptibility
- ↑ time away from training

FUTURE

- ↑ susceptibility to illness

METABOLIC

NOW

- ↓ metabolic rate
 - ↳ may lead to
- ↑ body fat stores

FUTURE

- Adverse body composition
- ↓ metabolic rate

PSYCHOLOGICAL

NOW

- Body dysmorphia, disordered eating, eating disorders
- ↑ risk of body image-associated mental health conditions
- ↑ fatigue, irritability, low mood state, altered behaviour

FUTURE

- ↑ mortality rate associated with eating disorders
- Potentially irreversible health consequences
- ↓ quality of life

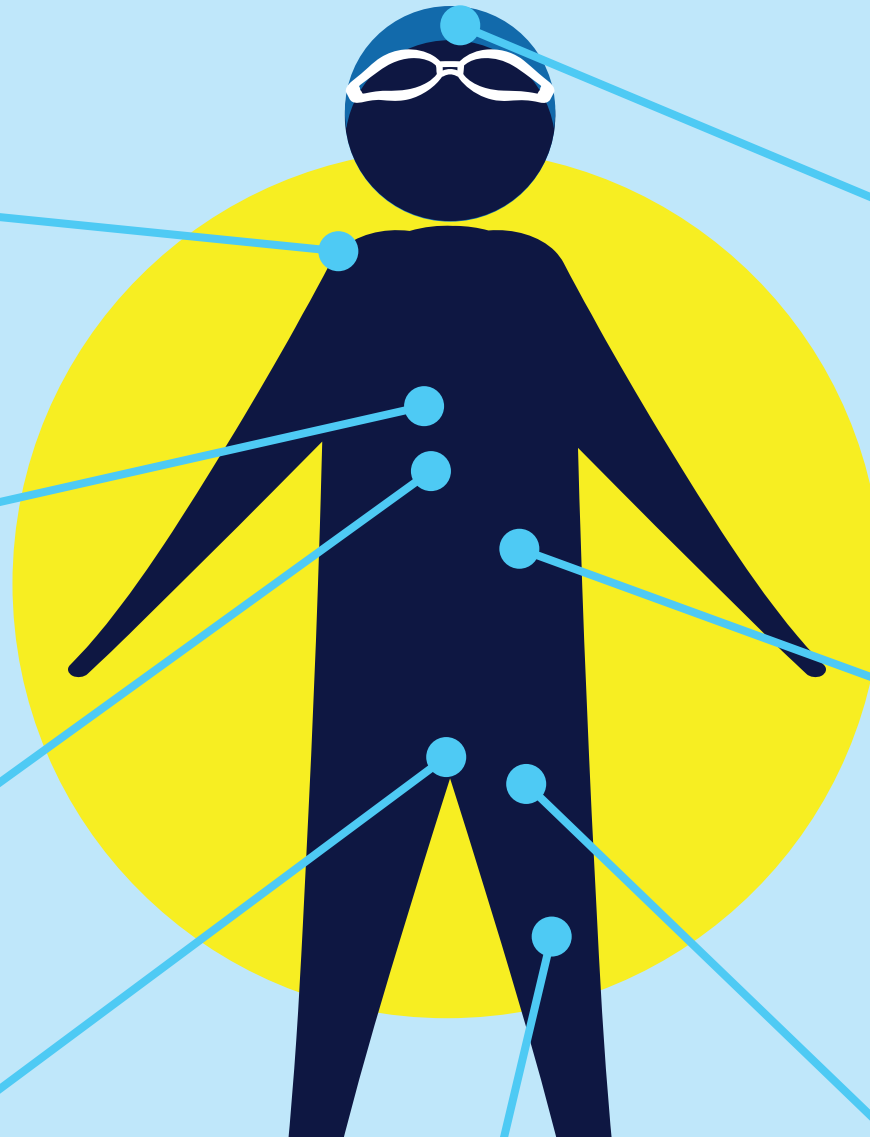
GASTROINTESTINAL DISTRESS

NOW

- Poor digestion
- Stomach discomfort
 - ↳ can affect energy intake making it even harder to overcome RED-S

FUTURE

- Persistent poor digestion and stomach discomfort
 - ↳ more susceptible to chronic RED-S



HORMONE IMBALANCES

NOW

Low sex hormones:

♀ loss of/irregular menstrual cycle

♂ significantly decreased vigour

Negative impacts on muscular development and joint and bone health

↓ ability to progressively load, reach maximal efforts

↓ adaptations to strength training

FUTURE

Osteopenia/osteoporosis (brittle bones)

Reproductive health complications

INJURY

NOW

↑ risk of injury (e.g., soft tissue, tendons/ligaments)

↑ recovery time from injuries

FUTURE

Susceptible to frequent injuries which linger for extended periods of time

Higher bone stress risk due to low bone mineral density

GROWTH AND DEVELOPMENT

NOW

Delayed growth and development

Delayed puberty

↓ ability to gain strength, power and speed

FUTURE

Delayed growth and development milestones

↳ can lead to performance disadvantages

FAQS

Will a swimmer with RED-S always be underweight?

No, RED-S can occur in any swimmer, any body shape, any size.

Does RED-S always develop alongside an eating disorder/disordered eating?

No, while athletes are at a greater risk of developing RED-S from disordered eating/eating disorders, many can develop RED-S unintentionally, whereby they are unaware of the energy needed to meet their daily requirements.

Are the health implications easily addressed?

If a swimmer receives early intervention, physiological health implications can be reversed relatively quickly. However, prolonged RED-S can lead to long lasting and in some cases irreversible health implications, often associated with psychological components of LEA and RED-S.

What is the best treatment for RED-S?

Ensuring a swimmer's energy intake is sufficient to cover healthy physiological functioning along with training.

This may require increases in specific food consumption and/or reductions in training (i.e. more targeted load management).

Can a swimmer ever undergo periods of LEA to strategically lose weight or alter body composition to support performance outcomes?

Yes, if deemed appropriate, body composition change in a supported and supervised environment can still occur with sufficient energy remaining for healthy daily bodily functions.

SECTION 1

WHAT CAN YOU DO? WHAT IS RED-S AND WHY DO I NEED TO KNOW ABOUT IT?

WHO IS THIS SECTION FOR?



COACH



SWIMMER



PARENT/CARER

SECTION 2

ENERGY NEEDS, ENERGY AVAILABILITY

6

AN INDIVIDUAL'S ENERGY REQUIREMENTS

The energy requirements of an inactive person are complex, variable and individual. They are both driven by, and influenced by, a myriad of intrinsic and extrinsic factors that are unique to a person, their situation and their environment. The energy requirements of a swimmer are further complicated by changing daily training loads, meaning that total expenditure on one day can look vastly different to the next. It is important to understand this variability and individuality to support daily energy requirements, particularly during phases of high training demands.

AIMS

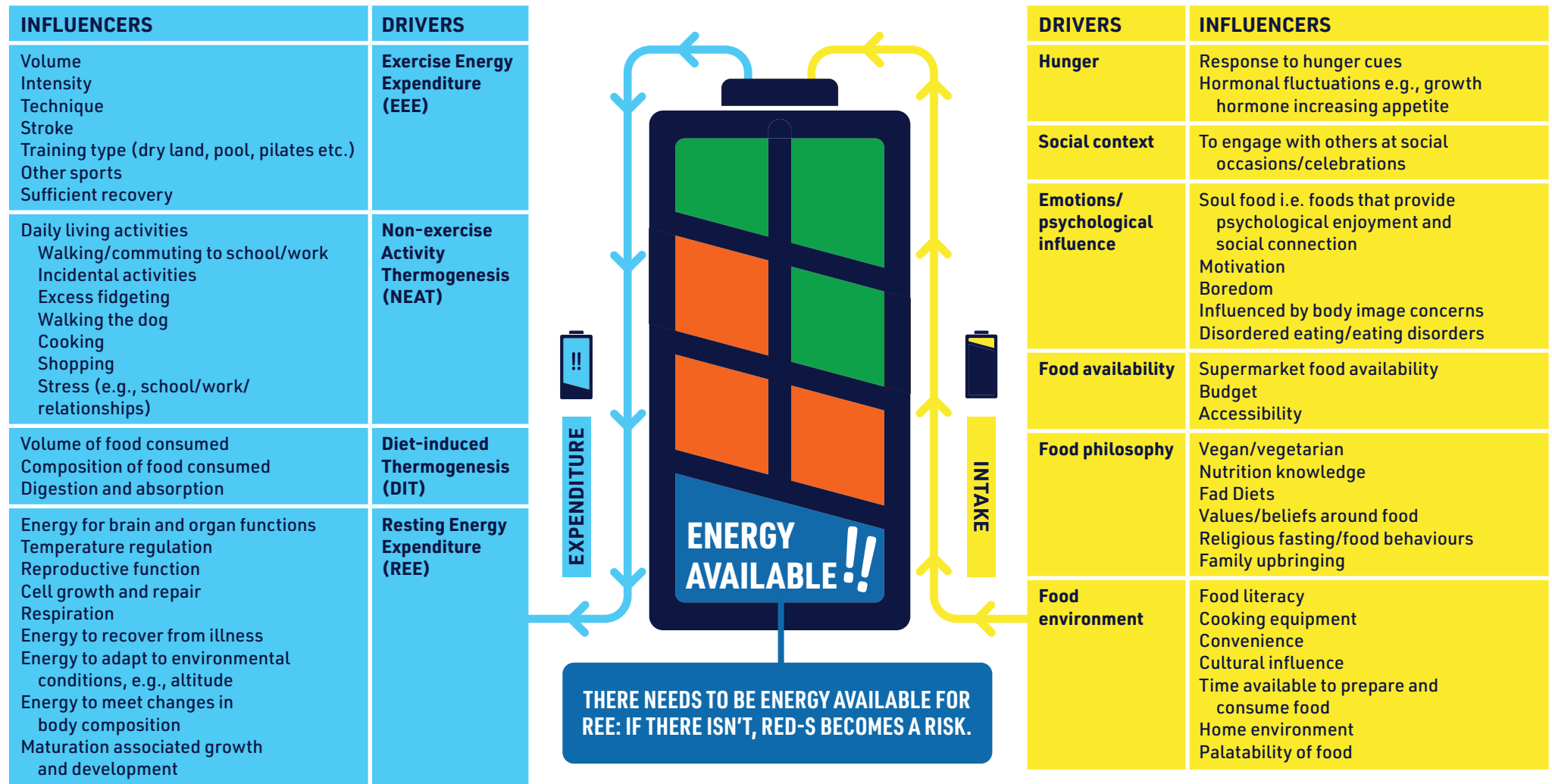
- ▶ Provide an overview of all the reasons swimmers eat.
- ▶ Outline and describe what influences energy needs.
- ▶ Highlight that a swimmer's energy needs are highly variable and individual.
- ▶ Provide strategies to positively influence environments that support a swimmer's unique nutrition needs.

THINK OF IT LIKE THIS:

Batteries can be charged and drained. In humans, food and fluid intake recharges the battery that gets drained by Daily Energy Expenditure.



THE MANY FACTORS INFLUENCING ENERGY EXPENDITURE AND INTAKE



WHEN ENERGY INTAKE MATCHES EXPENDITURE FROM EXERCISE, A SWIMMER WILL HAVE ENOUGH ENERGY AVAILABLE TO MEET RESTING ENERGY REQUIREMENTS.
 WHEN ENERGY INTAKE DOES NOT MATCH EXPENDITURE FROM EXERCISE, THERE IS NOT ENOUGH ENERGY AVAILABLE TO MEET RESTING ENERGY REQUIREMENTS;

THIS INCREASES A SWIMMER'S RISK OF RED-S.

FOOD ENVIRONMENT

WHAT YOU NEED TO KNOW



COACHES, SWIMMERS AND PARENTS/CARERS

The environment in which a swimmer consumes food is important, as well as addressing what food is available.

- > Eating should for the most part be an enjoyable experience, which should allow eating with sufficient time and in a relaxed/enjoyable environment.
- > Remember social context: how food is presented and with whom it's consumed can influence intake based on level of social interaction.
- > School may be a significant opportunity to meet energy needs, but food availability could be limited by food storage, time, social pressures.
- > Create an environment where food is normalised as part of enjoyment of life. As well as playing a role in performance, it is important to help build a positive relationship with food.
- > Financial constraints may impact a swimmer's food environment and hence intake.
- > Understand that convenience and flavour can impact food intake.

WHAT IS A FOOD ENVIRONMENT?

A food environment is both the physical presence of food, and the social and cultural norms and networks that shape a person's intake. This may include factors having an influence on food choices, such as family, school, socioeconomic status or food marketing.

WHAT YOU CAN DO



COACH

Encourage swimmers to implement positive food behaviours by allowing for opportunities to consume food socially, both within and outside the training environment.

Positive food behaviours in the DTE: allow space and time for post-training recovery food.

Social setting: team BBQ after training to normalise and encourage social eating beyond simply fuelling to recover.

Consider factors like weather conditions and training intensity and understand how these elements can influence a swimmer's appetite.

Collaborate with the club to develop newsletter recipes, canteen options etc.



SWIMMERS

Ensure you are offered opportunities to consume food in a social setting at school/work/home as well as after training sessions.

Ensure you can find enough time to consume food in a relaxed environment and with adequate time to eat and enjoy your food.

Let your coach and/or parent/carer know you need time to sit and eat if you feel rushed or distracted.

If you have recently moved out of home, ask for support to learn to grocery shop and cook efficiently, and to a budget.



PARENT/CARER

Recognise the role of food and eating for enjoyment and pleasure in addition to its role in performance.

Communicate with your swimmer about their opportunities at school/work to take time to eat as well as asking about the options available to them, as they may need more time, or additional food provided from home.

Create an environment where meals can be enjoyed, shared and consumed with minimal distractions (e.g., social media/TV/on the run).

Consider the convenience and appeal of food to create an food environment for your swimmer to meet their energy requirements.

PLANNING

WHAT YOU NEED TO KNOW



COACHES, SWIMMERS AND PARENTS/CARERS

- > Communicating training schedules with parents and swimmers means they can plan for days when extra energy is required.
- > Communicating 'life' schedules with coaches means they can consider and plan training around competing energy demands.
- > A swimmer may be well fuelled and still underperform due to other contributing factors.
- > Growth and maturation can play a role in a swimmer's fatigue and adaptation.
- > Some developing swimmers can expend up to 50% more than their elite peers while their stroke is being mastered and their shape is changing.¹
- > Swimmers may need to consume more energy on bigger days (e.g., rest day vs double day).
- > Swimmers' energy needs are different to friends, family, other swimmers and those sharing their food intake on social media.
- > How a swimmer eats from day to day will change – training needs vary, and social occasions/busy lifestyle will dictate intake and preference.
- > Be aware of high energy days and busy schedules – it can sometimes take careful thought and planning to consume enough energy, particularly around training. Seek support if you need help.
- > Rest days are important to recover and provide opportunity to top up energy stores that may be depleted from hard training sessions.
- > Consider additional activity expended outside of swimming (e.g., other sport), as this will further increase energy requirements.

WHAT YOU CAN DO



COACH

Understand the challenges that training can pose for swimmers and proactively encourage preparation for training e.g., food preparation, time management and prioritisation.

Training Considerations

Use an RPE tool to get a better understanding of how a swimmer is experiencing the training session and load, and use it to educate swimmers on recovery and food needs.

Recognise that energy needs depend on more than just gender, age, size or training load and that energy needs are individual. What supports one person's energy needs may not support another's.

Ensure the sessions you are planning are appropriate for the swimmers in your group regarding their stage of development.

Planning Reminders – Ask Swimmers

? 'Did you remember to bring a snack with you for between/after training?'

'Tomorrow is a quality session, make sure you prepare yourself'

'If you're not hungry after your main set, try liquid nutrition to recover'



SWIMMERS

Plan meals and snacks to meet the demands of training schedules and daily living.

Add foods with purpose before and after training to proactively meet your needs.

Remember to pack enough food before you leave the house.

If you have a long drive home after training, pack some non-perishable snacks for the car ride.

Prompt your coach to provide information about the session ahead of time to help your planning.

Ensure you have some quick and convenient foods for times when you might be in a rush but need to fuel for training.

Be aware of the extra activity and exercise that you're doing outside of swimming training – it could be more than you think.

Be aware of your stress levels and how they might impact your appetite.

Monitor your growth and maturation patterns and communicate them – if you have a growth spurt, you're usually more tired. If you have your period, you can also be more tired etc.



PARENT/CARER

Reach out to a sports dietitian if you need support with planning for your swimmer's busy week.

Help your swimmer get into positive fuelling behaviours by reminding them to fuel before training and pack a snack for recovery afterwards.

Plan meals that meet the nutrition requirements of your swimmer. Remember these meals may look different to your own and/or siblings'/ other swimmers' meals.

When eating out, consider whether your swimmer needs more than the provided portion. Do they need an extra snack when they get home? They may require a top up (e.g., dessert) when they get home.

Consider the overall sporting load your swimmer is undertaking, as this could be causing challenges in meeting their total energy requirements.

1 / Abbott S, Yamauchi G, Halaki M, Castiglioni MT, Salter J & Cobley S. Longitudinal relationships between maturation, technical efficiency, and performance in age-group swimmers: improving swimmer evaluation. *International Journal of Sports Physiology and Performance*. 2021;16(8):1082–1088.

LANGUAGE

WHAT YOU NEED TO KNOW



COACHES, SWIMMERS AND PARENTS/CARERS

- > Communication relating to physique can be well intended yet can be received negatively by the recipient.
- > Innocent comments (e.g., looking fit, lean, soft, top heavy) can cause body shame and increase a swimmer's risk of compensatory dietary behaviours.
- > Language that labels foods such as 'good or bad' can encourage poor dietary behaviours that may manifest into disordered eating.
- > Passing comments on a swimmer's food choices can leave lasting impacts and affect food relationships.
- > Language around nutrition should come from a place of purpose and positivity. Some swimmers might experience disordered eating behaviours when exposed to negative food language.

WHAT YOU CAN DO



COACH

Focus on commenting on a swimmer's functionality in training.¹ Rather than saying how they look, ask how they feel both physically and mentally (e.g., motivated, effortless, strong). Instead of 'looking fit/lean' replace with 'how did that feel?'

Use language that promotes a positive relationship with food by encouraging a varied nutritional intake that provides energy, nourishment and enjoyment.

The circumstances leading to a swimmer's food decisions are complex and difficult to fully understand in the context of their unique requirements. If present when a swimmer is eating, commentary should be avoided.

If you are concerned for a swimmer's health (e.g., not consuming enough) speak to their parent/carer and/or dietitian.

Be mindful of how you express your personal nutrition/diet philosophy and remember that this may be unsuitable for a swimmer.



SWIMMERS

Instead of commenting on other swimmers' bodies, consider commenting on aspects relating to their swimming performance. For example, 'you looked effortless, powerful, in flow'.

Remember that other swimmers' food choices and requirements will be different to your own and are very hard to compare.

Your nutrition beliefs, habits and behaviours are your own. Share your own views without imposing them on others.

If you are concerned for another swimmer's health, speak to your coach and/or dietitian.



PARENT/CARER

Ensure foods are seen through a neutral lens, where no food is off limits all the time.

Be aware that labelling of foods with words such as bad, good, unhealthy, treat can lead to strained food relationships.

Use options other than food for rewarding your swimmer – instead of food to reward achievement, consider an experience or a non-edible reward.

Be mindful of how you express your personal nutrition/diet philosophy and remember that this may be unsuitable for a swimmer.

Encourage positive relationships with food by focusing on the 'drivers and influencers' on page 7.

Comments on your own body, or other people's bodies can be internalised by your swimmer to thinking their body is the most important thing about them, increasing risks of disordered eating. Focus on comments relating to the function of their body rather than appearance.

1 / Muscat AC & Long BC. Critical comments about body shape and weight: Disordered eating of female athletes and sport participants. Article. *Journal of Applied Sport Psychology*. 2008;20(1):1-24. doi:10.1080/10413200701784833

WHO IS THIS SECTION FOR?



COACH



SWIMMER



PARENT/CARER

Whether you are a coach, swimmer, parent or staff member, everyone has a role and responsibility in preventing and treating RED-S. It is important to remember that some swimmers will develop RED-S due to factors that are out of your control. By implementing strategies to mitigate controllable risks, optimal health and performance outcomes can be achieved.

AIM

- ▶ To recognise and document the signs and symptoms of RED-S in order to ensure early intervention.
- ▶ To provide an understanding of the more subtle signs and symptoms of RED-S to look out for that may occur before you recognise performance declines in swimmers.
- ▶ To provide an 'identification to action' protocol so that signs and symptoms can be recognised, to identify if further support and/or referral is required.
- ▶ To outline individual roles and responsibilities in supporting the management of RED-S risk, identification and referral.

SECTION 3

UNDERSTANDING RED-S: FROM IDENTIFICATION TO ACTION

WHO PLAYS A PART IN RISK MITIGATION, IDENTIFICATION AND TREATMENT OF RED-S

WHAT TO LOOK OUT FOR IN THE TRAINING ENVIRONMENT

↓ recovery from training/
injury and/or illness
prolonged muscle
soreness

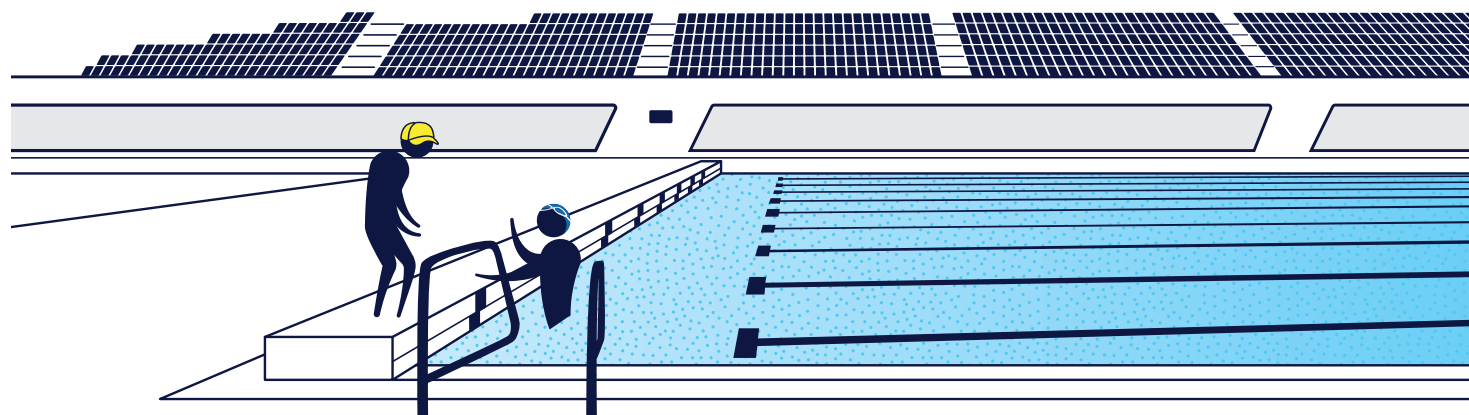
Continuing weight loss or
rapid, acute weight loss

↓ training capacity and
adaptations to training
increased perceived
exertion, slower times

Stress fractures

Excessive fatigue

↓ performance outcomes
inconsistent swim times
(training, competition)



WHAT TO LOOK OUT FOR IN THE TRAINING ENVIRONMENT

SIGNS PARENTS/CARERS CAN MONITOR

Poor/delayed growth and development during maturation

Trouble sleeping (falling asleep or staying asleep)

Mood changes
anxious, depressed, lacking motivation

Disordered eating behaviours
restricting, cutting out food groups, bingeing, purging

Unintentional or unexplained weight loss

Low / poor appetite

Above the surface: these factors tend to be more overt in presentation, and can be clearer signs and symptoms to monitor. A swimmer may notice these factors within themselves, or as a coach or parent/carer, you may observe or ask about these.

Obsessive monitoring of dietary intake and/or body composition

Social withdrawal

Recurring injury and/or illness
illness incidence of ≥ 2 times in the last six months

↓ vigour in males

Below the surface: these factors can be harder to identify, may present in less obvious ways, or may require specific tests to unveil.

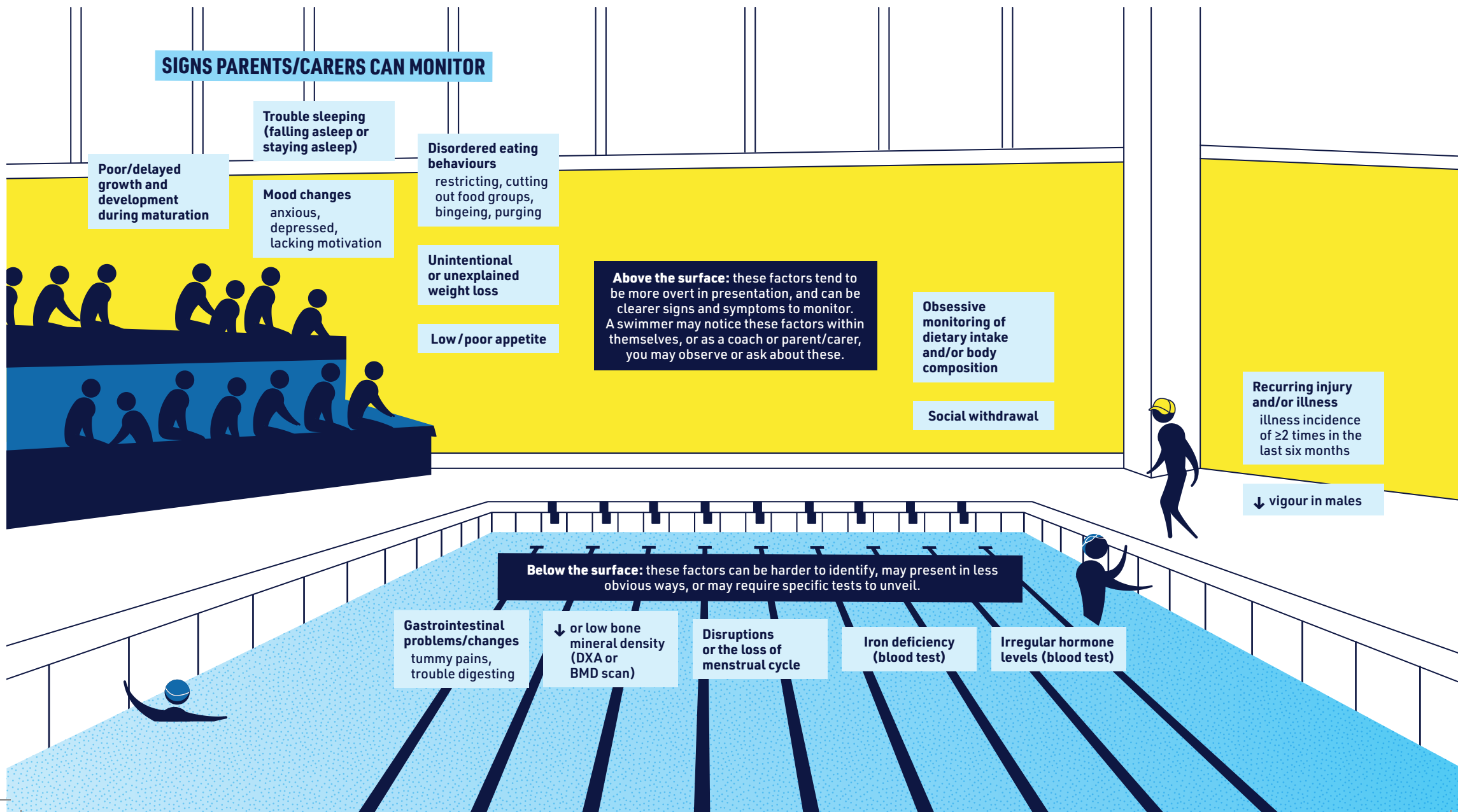
Gastrointestinal problems/changes
tummy pains, trouble digesting

↓ or low bone mineral density (DXA or BMD scan)

Disruptions or the loss of menstrual cycle

Iron deficiency (blood test)

Irregular hormone levels (blood test)



WHAT CAN YOU DO? QUESTIONS TO ADDRESS WEIGHT LOSS, MOOD CHANGES OR UNUSUAL DIETARY BEHAVIOURS



COACH TO SWIMMER

I HAVE NOTICED YOU HAVE BEEN STRUGGLING WITH MAIN SETS TOWARDS THE END OF THE WEEK, WHY DO YOU THINK THAT MIGHT BE?

YOU SEEM TO BE GETTING SICK MORE FREQUENTLY THAN YOU USED TO – ANYTHING YOU CAN THINK MIGHT BE THE REASON FOR THIS?

TELL ME ABOUT HOW YOU CHANGE YOUR DIET TO COPE WITH THE TRAINING?

QUESTIONS TO ADDRESS WEIGHT LOSS, MOOD CHANGES, DISORDERED EATING BEHAVIOURS

DO YOU THINK HOW YOU'RE FUELLING AT THE MOMENT IS SUPPORTING YOUR HEALTH AND PERFORMANCE?

DO YOU FEEL LIKE YOU ARE RECOVERING WELL BETWEEN SESSIONS OR ARE YOU FINDING YOU ARE CONSISTENTLY FEELING FATIGUED IN MOST OF YOUR TRAINING?

I HAVE NOTICED YOU DON'T SEEM YOUR USUAL SELF – IS EVERYTHING OK?



SWIMMER TO SWIMMER

HEY, YOU HAVEN'T COME OUT FOR BREAKFAST WITH US IN A WHILE, IS EVERYTHING OK?

I HAVE NOTICED YOU HAVE BEEN STRUGGLING IN MAIN SETS, ARE YOU EATING ENOUGH BEFORE TRAINING?

I NOTICED YOU HAVE BEEN REALLY FLAT LATELY DO YOU THINK ARE YOU ARE EATING ENOUGH?

HEY, I HAVE NOTICED YOU DON'T SEEM YOUR USUAL SELF AT THE MOMENT—YOU KNOW I'M ALWAYS HAPPY TO LISTEN IF YOU WANT TO TALK?

YOU ARE SUCH A GREAT SWIMMER, BUT I HAVE NOTICED LATELY YOU ARE NOT AS MOTIVATED OR ENERGETIC AT TRAINING. ARE YOU FEELING OK?

OTHER QUESTIONS

HEY, I KNOW YOU LIKE TO EAT HEALTHILY BUT I AM WORRIED YOU ARE NOT EATING ENOUGH. – DO YOU THINK THE DIETITIAN COULD HELP?



PARENT/CARER TO SWIMMER

I HAVE NOTICED YOU ARE UNUSUALLY TIRED AND NOT YOUR USUAL SELF AT THE MOMENT, IS EVERYTHING OK?

I HAVE NOTICED YOUR EATING PATTERNS HAVE CHANGED RECENTLY—TELL ME A LITTLE BIT ABOUT THIS?

I HAVE NOTICED YOU ARE EXTREMELY TIRED AND GETTING SICK EVERY FEW WEEKS, DO YOU THINK WE ARE FEEDING YOU ENOUGH?

I KNOW YOUR TRAINING PROGRAM VARIES; DO YOU WANT HELP TO PLAN YOUR FOOD INTAKE FOR THE BUSY WEEKS?

I HAVE NOTICED YOU AREN'T EATING CERTAIN FOODS YOU USED TO EAT ANYMORE – IS THERE A REASON FOR THIS?

I KNOW YOU ARE TRAINING REALLY HARD, AND DOING WELL BUT I AM WORRIED WE MIGHT NOT BE MEETING YOUR FUELLING NEEDS TO SUPPORT YOUR HEALTH. I JUST WANTED TO CHECK YOUR CYCLE IS STILL REGULAR?

IS THERE ANYTHING ELSE WE CAN DO TO SUPPORT YOU TO EAT WELL?

WHO TO SEEK FURTHER SUPPORT FROM?

If you identify a concern that requires further support and/or expertise, who can you refer to?



See Section 5 for more information.



SECTION 4

CHALLENGING ASSUMPTIONS AND OPTIMISING DAILY TRAINING ENVIRONMENTS (DTE)

AIM

- Explore common assumptions and the risks associated with these.
- Identify aspects of a DTE and club environment that can increase or minimise risk to swimmers' health and performance.
- Identify risk factors relating to physique measurement and language used in the DTE.

ASSUMPTION CHECK

Consciously or unconsciously, we all make assumptions, based on our own experiences and our living and working environments. In sport, many of the assumptions relating to RED-S fall into two themes that are broader than nutrition alone: measurement and performance. How a swimmer's environment is planned and delivered is influenced by a coach's previous experiences associated with measurement and performance.

It is important to consider how common assumptions can influence the DTE and ensure non-evidence based assumptions do not increase the risk of RED-S in some swimmers.

SOME COMMON ASSUMPTIONS ARE:

SKINFOLDS INCREASING =
INTERVENTION NEEDED
IMMEDIATELY

A LEANER SWIMMER IS
A FASTER SWIMMER

SKINFOLDS INCREASING =
LACK OF DISCIPLINE/
POOR NUTRITION AND
LIFESTYLE HABITS

THE BEST SWIMMERS IN
THE WORLD SIT WITHIN A
SPECIFIC SKINFOLD RANGE
AND THIS IS THE REASON
THEY SWIM FAST

MUSCULAR ATHLETES
SWIM FASTER

FEMALES ARE MORE
SENSITIVE TO PHYSIQUE
DISCUSSIONS; MALES ARE
LESS SENSITIVE

PUTTING ON LEAN
MASS IS EASY – JUST
LIFT HEAVIER AND
EAT MORE

SWIMMERS UNDERSTAND AND
CONNECT PHYSIQUE MEASURES
THROUGH THE PERFORMANCE
LENS RATHER THAN FOCUSING
ON BODY IMAGE



UNDERSTANDING PHYSIQUE MEASURES: FOR THE COACH

How physique is measured and monitored can change the risk of RED-S. Understanding how it is captured, by whom, how often, and the reason for measuring can influence the risks associated with physique measurement and monitoring.

REMEMBER!

This section of the resource is intended to prompt your thinking and reasoning around why and how to measure physique. It should be used alongside the AIS and National Institute Network Best Practice Protocols for physique measurement.



See Further Reading

SHOULD PHYSIQUE BE MEASURED?

STEP 1

CONSIDERATIONS

- > Has physique been identified as a performance limiter for the swimmer – how was this assessed, by whom?
- > Is the swimmer currently experiencing challenges outside of swimming that might be influencing their physique?
- > Will drawing attention to physique cause any negative consequences at this time?
- > Is it appropriate for this particular swimmer to be measured (e.g., considering past history of disordered eating and/or RED-S)?
- > Can focusing on other areas for change have similar/better impact?
- > What are the consequences of not measuring?
- > Is physique measurement required to elicit the identified change?
- > Are you viewing a swimmer's performance as a direct consequence of their physique?

REASONS WHY PHYSIQUE MIGHT BE MEASURED

STEP 2

CONSIDERATIONS

- > To inform changes that may be required to training
- > To serve as a marker (amongst others) for energy availability in swimmers
- > To understand fluctuations and responses to training and competition phases
- > To measure outcomes of an agreed upon strategic intervention to safely adapt physique to enhance performance
- > Physique influences performance both positively and negatively, and without measures it can be challenging to identify whether intervention is required, and whether intervention is effective

WHEN IS IT NOT APPROPRIATE?

- > If the swimmer is overly focused on achieving a number or it is affecting their performance
- > If the swimmer has no access to support through categorisation or is not supported privately (e.g., private dietitian)
- > If the swimmer does not work with a support team of practitioners
- > If you do not have the swimmer's informed consent
- > If a swimmer is under 18 and you do not have parent/carer informed consent
- > If the measurement outcome being communicated is not supported by education on how to make change
- > If the swimmer has not undergone maturation



This is a tool for coaches to conduct their own environmental health check in the DTE. What this is not however, is a policy. Please ensure that you always refer back to Swimming Australia policy and the AIS/NIN guidelines for physique measurement if you are unsure.



This is also tool for swimmers to help them conduct an environmental health check so that they can make an informed decision on whether they should be a part of the process, and understand clearly what that process looks like. There are guidelines for practitioners to abide by and it is important for swimmers to be aware of these as well.



PHYSIQUE MEASURES: ENVIRONMENTAL HEALTH CHECK

<p>Consult the relevant guidelines (those who will be involved in the measurement process). This includes gaining verbal and/or written informed consent</p>	<input type="checkbox"/>	<p>Do I feel safe and comfortable with the person taking my measures?</p>	<input type="checkbox"/>
<p>Discuss physique in the context of the many other performance variables at play</p>	<input type="checkbox"/>	<p>Am I aware of any concerns expressed to me by other swimmers, and would it be helpful to share that with anyone to improve the measurement process?</p>	<input type="checkbox"/>
<p>Ensure that you (coach, swimmer, parent, support staff) can collectively justify measurement (method, frequency, personnel, reporting)</p>	<input type="checkbox"/>	<p>Have I been asked for informed consent, and do I know what informed consent means?</p>	<input type="checkbox"/>
<p>Use performance language when discussing body composition</p>	<input type="checkbox"/>	<p>Have I been shown the guidelines and athlete information sheets, and am I aware of how the process should operate?</p>	<input type="checkbox"/>
<p>Identify how will you manage risk factors</p>	<input type="checkbox"/>	<p>Has it been made clear that physique assessment isn't mandatory, and I can choose not to participate?</p>	<input type="checkbox"/>
<p>Consider how measurement is being offered to swimmers, and in what setting they are being provided the opportunity to opt in/out</p>	<input type="checkbox"/>	<p>If I choose to not participate, have I been given the opportunity to express my reasons?</p>	<input type="checkbox"/>
<p>Consider your process for opt-out follow-up support</p>	<input type="checkbox"/>	<p>If I am uncomfortable with a particular method, have I been provided with an alternative method to assess physique change?</p>	<input type="checkbox"/>

Engage with the appropriately qualified practitioner who can:

- identify a time and space where the swimmer can proactively and comfortably engage in the measurement process

☐
- provide sufficient education and context for swimmers to interpret measures

☐



UNDERSTANDING PHYSIQUE MEASURES: FOR THE SWIMMER

How physique is measured and monitored can change the risk of RED-S. Understanding how it is captured, by whom, how often, and the reason for measuring can influence the risk of physique measurement and monitoring.

REMEMBER!

This section is intended to prompt your thinking and reasoning around why and how to measure physique. It should be used alongside the AIS and National Institute Network Best Practice Protocols for physique measurement.



See Further Reading

SHOULD PHYSIQUE BE MEASURED?

STEP 1

CONSIDERATIONS

- > Will the numbers negatively impact me in any way? (i.e. if the numbers move in a positive direction in my opinion, will I feel more positive? Or vice versa?)
- > Am I well educated on what, why and how the measures will be taken and used to help me be a better swimmer?
- > Are the measures collected with other performance metrics to contextualise them?
- > Does either the measurement process or the information it provides cause me any negative feeling?
- > Is my current mental wellbeing supportive/conducive to having measures taken today?
- > What would be the consequence of not having measures taken today?
- > Do I have a tendency to compare my current measures with a previous version of myself (and hence previous measures)?

- > Do I have a tendency to compare my current measures with other swimmers' measures?
- > Does measuring negatively influence my eating behaviours either before or after measures?
- > Does measuring lead me to become preoccupied with my body/physique?
- > Do I have any concerns about how those who have access to my information will interpret it?
- > Do I rely on this information to show me what I cannot see when I look at my body (e.g., for validation, affirmation)?

WHY WOULD PHYSIQUE BE MEASURED?

STEP 2

CONSIDERATIONS

- > Will measuring help me understand how my training and performance is tracking? Will the data help me to plan next steps?
- > Do I fully understand what these measures are providing me with, and what I can do with the information?

- > Am I just agreeing to measures being taken to minimise fuss, even though I have no interest in the data?
- > Can I make a connection between my current training and nutrition behaviours, and my physique?
- > Do I understand and have I been a part of the discussion as to why I might be trying to change my physique?
- > Do I understand what changes in physique mean to me and my performance?

> WHEN IS IT NOT APPROPRIATE?

- > If you have no access to support through categorisation and you are not supported privately (e.g., private dietitian)
- > If you feel inadequately equipped to make change and you do not work with a support team of practitioners
- > If you do not give informed consent
- > If you are under 18 and you do not have informed consent from a parent/carer
- > If the measurement outcome being communicated is not supported by education on how to make change



WHAT YOU CAN DO: COACH, PARENT/CARER AND SWIMMER

- > Have an open and honest conversation about any concerns and challenges
- > Identify who you need to involve in this process and seek support



Refer to Section 5

- > Ensure you are aware of the guidelines and have a clear understanding of the process and protocol



Refer to Further Reading

- > Discuss the many alternative ways to measure performance that don't necessarily involve body composition measurement
- > Discuss which measurement method may work best for the individual (who, when, what, how)

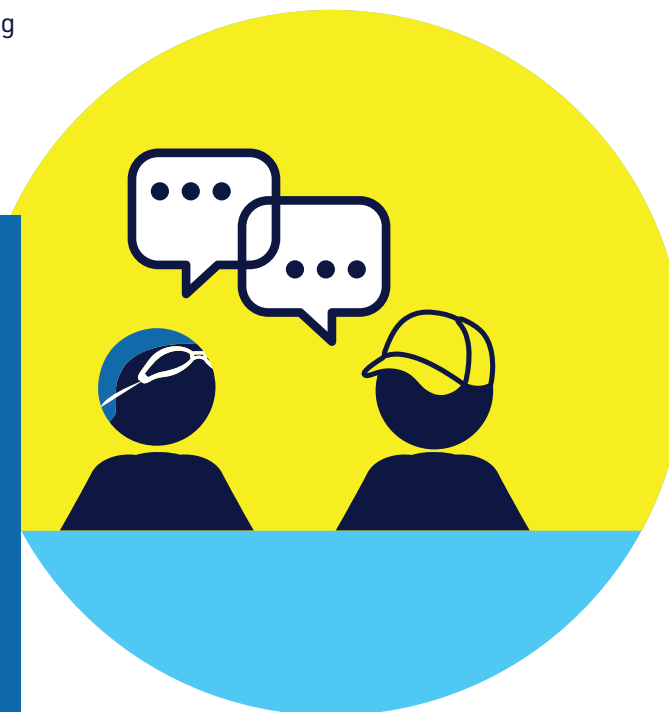
LANGUAGE IN THE DAILY TRAINING ENVIRONMENT (DTE)

Language used during formal and informal conversations in the DTE can influence a swimmer's risk of developing RED-S. Your approach to communication can have a positive influence on health and performance outcomes.

Throughout this resource, language has been a common theme; how we discuss important topics represents our values and beliefs. Building on the language tools in Section 2, this page and the following serve as a reflection tool; something that you can take back to your own DTE. It is something for all of the swimming community to reflect on – staff, parents/carers and swimmers.

REMEMBER!

- > Appropriate communication requires identifying what sort of relationship you have with a person, and whether the information you intend to discuss is something that is needed.
- > Being mindful of personal topics and respecting boundaries requires careful consideration of every member of your swimming community.
- > It is important not to assume that you can have a certain conversation with someone, just because it feels right to you.



LANGUAGE IN THE DAILY TRAINING ENVIRONMENT (DTE)

THINGS TO CONSIDER	ACTION POINTS TO IMPROVE THE DAILY TRAINING ENVIRONMENT
PHYSIQUE CONSIDERATIONS	
<ul style="list-style-type: none"> > Is a swimmer's physique being discussed on pool deck? > Are comments being made on a swimmer's appearance, even those with best intentions (e.g., 'looking lean', 'looking like a swimmer') > Is a swimmer's health being thought about before comments are made about their body/physique? 	<ul style="list-style-type: none"> > Discussing aspects of physique such as weight, shape and/or appearance should not occur on pool deck. > Comments relating to physique are in context of performance only (e.g., 'looking strong in the water'). > Even physique comments you deem positive (e.g., looking fit/healthy/lean) can be interpreted in a negative way.
NUTRITION CONSIDERATIONS	
<ul style="list-style-type: none"> > Is specific nutrition advice being provided to manipulate physique by unqualified individuals (e.g., first person experience) > Are swimmers feeling pressured to, or being advised to restrict intake? > Are your own nutrition beliefs and food philosophies prevalent in the daily training environment? 	<ul style="list-style-type: none"> > Specific nutrition advice is to only be provided by accredited dietitians > Encourage all squad members to meet energy demands by prioritising a balanced and varied dietary intake to support health and performance. > All food can have a purpose, even for elite athletes. It is unhelpful to label foods (e.g., 'good or bad, healthy or unhealthy, treat or cheat' etc.) > Ensure conversations about nutrition in the DTE are focused on positive food behaviours linked to performance (e.g., are you eating to meet your energy and nutrient requirements/have you had something to eat before this gym session?)
THE DEVELOPING SWIMMER	
<ul style="list-style-type: none"> > Is communication with a developing swimmer the same as with an elite, mature swimmer? > Are the many challenges an adolescent swimmer is navigating being addressed with empathy and support? > When might it be necessary to have a conversation with a developing swimmer about their menstrual cycle (females) or vigour relating to lowered testosterone (males)? > Do you have the right relationship with the swimmer for this conversation? 	<ul style="list-style-type: none"> > Developing swimmers are navigating physical and psychological changes through puberty which require support and understanding. Performance outcomes throughout puberty are not always consistent. > Maintaining normal hormonal function is important for all developing swimmers. If changes are noticed (in females – menstrual function; in males – vigour), this can be a signpost for RED-S. Conversations relating to these functions can be sensitive, and should be communicated via the parent, sports doctor/physician, dietitian and/or the swimmer, if they are comfortable to discuss this.



COACH



SWIMMER



PARENT/CARER

It is important to be aware of your roles, responsibilities, and scope. Calling on experts in various areas of health and performance will ensure that swimmers receive the best support possible.

AIM

- Guide you to create your support network to mitigate the risks of LEA and RED-S.
- Guide you to the relevant support for cases where an athlete is at risk of LEA and RED-S or to triage a concern beyond your role/scope.

SECTION 5

BUILDING YOUR SUPPORT NETWORK

YOUR ROLES AND RESPONSIBILITIES



PARENT/CARER'S AND SWIMMER'S ROLE

1. OBSERVE

- Observe signs and symptoms that may signpost LEA/RED-S risk.

2. RAISE AWARENESS

- Raise awareness if you feel safe and comfortable to do so (swimmer); discuss with your swimmer or their coach that additional support may be required.

3. STAY CONNECTED

- A coach may identify the required expertise area (see below) or suggest a specific practitioner.
- It is your choice as a swimmer and/or parent/carer to decide to engage with support staff, and to choose a specific practitioner to work with.



COACH'S ROLE

1. OBSERVE

- Observe signs and symptoms in the DTE that may signpost LEA/RED-S risk. You know your swimmer very well; don't underestimate the vital role you play in detecting change.

2. RAISE AWARENESS

- Discuss with a swimmer and/or their parent/carer that additional support may be required.

3. STAY CONNECTED

- By referring swimmers to support networks, this allows you to focus on coaching while assisting swimmers in getting the best help for their needs.
- Knowing who can help based on the context is the first step, however knowing how to make contact is equally important to assist the swimmer in seeking support.

If a swimmer is identified as at risk of LEA/RED-S and you have identified the need for further support/expertise, see below for who you can refer to or contact for help (and what role they play).

- > Sports Dietitian/Accredited Practising Dietitian
- > Psychologist
- > Sport and Exercise Physician/Sports Doctor/General Physician/Endocrinologist
- > Sports Physiologist/Scientist
- > Strength & Conditioning Coach
- > Sports Physiotherapist
- > Athlete Wellbeing and Engagement staff

 For more information see the diagram on the next page.



AS A COACH, HOW CAN YOU IDENTIFY, BUILD AND STAY CONNECTED WITH A SUPPORT NETWORK IF THEY ARE NOT EMBEDDED IN THE DTE?

- > Some consultations will be bound by confidentiality, however, you can ask what it is that you can do if a swimmer is working with external providers (if both swimmer and practitioner feel comfortable doing so). In most cases the more transparency and information sharing, the better the outcome for the health and performance of the swimmer.
- > Conversations with support staff can result in shared and aligned health and performance philosophies. It can also minimise mixed messaging which may occur when people supporting a swimmer are siloed and working independently.
- > Your influence is key in raising awareness of support staff who can foster optimal health and performance processes. Support staff can not only provide individual consultation, but they can support at a broader level in club awareness and education on various health and performance topics. Engaging support staff may lead to earlier identification of RED-S risk factors.
- > If your swimmer is categorised, contact the hub closest to you for support.

REMEMBER!




COACH/PARENT/CARER/SWIMMER

When choosing a practitioner to work with, it is recommended that you identify someone with experience working in sport and RED-S where possible.

If you have uncategorised swimmers and are unable to locate support in the vicinity of your club, you can visit the following websites to locate practitioners in your area (search boxes indicate what you can type into a search engine rather than entering the link):

<https://www.sportsdietitians.com.au/find-an-accredited-sports-dietitian/>

 SDA find a dietitian


<https://www.essa.org.au/find-aep/>

 ESSA find an AEP

<https://psychology.org.au/find-a-psychologist>

 APS find a psychologist


<https://www.acsep.org.au/>

 ACSEP find a physician


<https://www.sportsdoctors.com.au/find-sports-doctor>

 find a sports doctor

<https://choose.physio/find-a-physio>

 find a physio

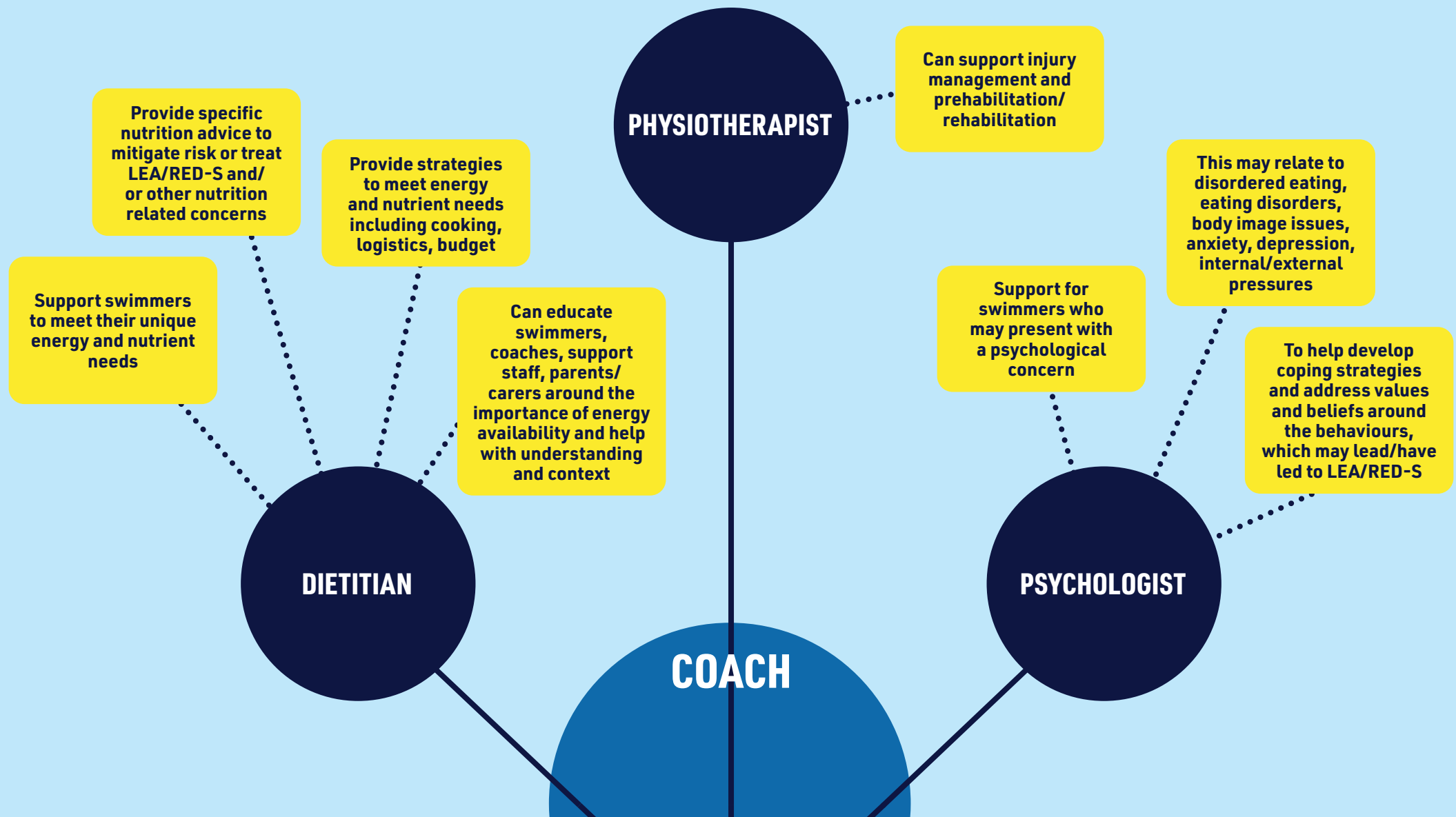
<https://www.strengthandconditioning.org/find-a-mentor-coach>

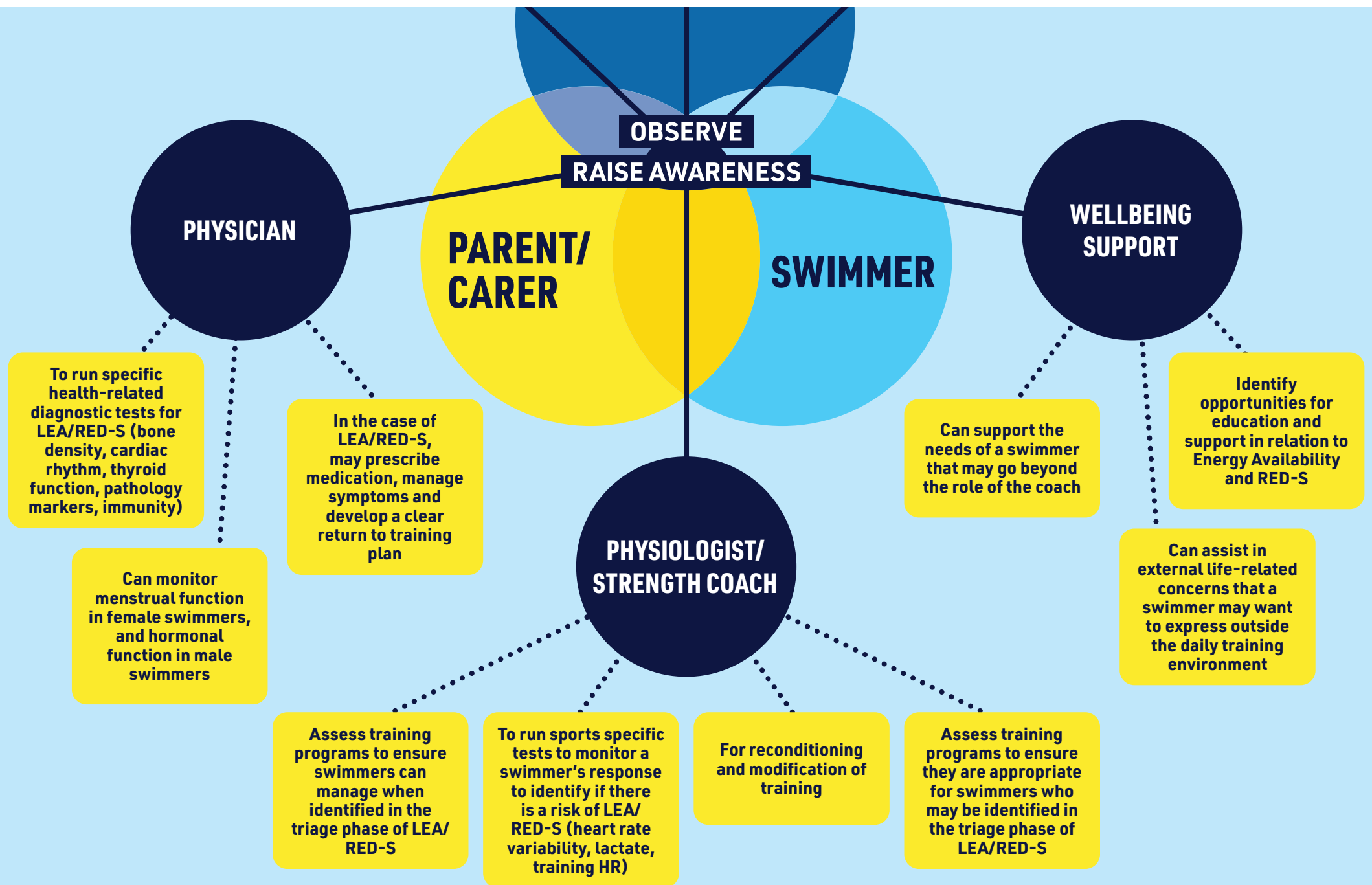
 find an S&C

https://www.ais.gov.au/health-wellbeing/awe#ais_athlete_wellbeing_and_engagement

 AIS wellbeing

WHO TO CALL UPON?







SWIMMING AUSTRALIA

QAS Recovery Centre
QLD Sports & Athletics Centre
Kessels Rd
Nathan QLD 4111

ali.disher@swimming.org.au
greg.shaw@swimming.org.au

www.swimming.org.au



GRIFFITH UNIVERSITY

Griffith University
1 Parklands Drive
Southport QLD 4215

jennifer.hamer@griffithuni.edu.au
b.desbrow@griffith.edu.au
c.irwin@griffith.edu.au

www.griffith.edu.au

