ReFuel®

AUTUMN 2021

FROM THE EXPERTS IN SPORTS NUTRITION

THE LOW RESIDUE DIET

MANAGING MY NERVOUS
COMPETITION GUT!

FUELLING YOUR REGATTA

FUELLING FOR COMPETITION

ULTRA - MARATHONS

SDA SPORTS DIETITIANS AUSTRALIA

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EO REPORT

It is great to be bringing you more evidence-based sports nutrition content to help guide you through the year ahead! There will continue to be some bumps in the road to navigate this year but like Jess, I am hoping and anticipating that you and/or your athletes will still be able to notch up some good competition and training throughout 2021. Even if you don't compete formally, don't tune out... there are chestnuts of information within these pages that can be applied whether you are competing against others or yourself! And always reach out to an Accredited Sports Dietitian for guidance and support specific to your needs. Enjoy!

Marie Walters
Executive Officer, SDA

EDITOR'S REPORT

Welcome to our first edition of ReFuel for the year! Whilst not wanting to get too far ahead of ourselves, we do hope that competition continues to roll ahead as planned so that a fun, motivating and successful year of training and or competition may be had. This edition is themed around 'Competition Ready!' and we again have some great contributions from all of our Sports Dietitians to inspire your motivation and ideas to implement your performance nutrition plans!

For the regatta athletes preparing for those gruelling weekend competitions, head to VIS Sports Dietitian's Elaine Bo's article. For anyone gearing up for their first or consecutive half ironman event, reach top gear with advice from Matt Hart. For our Ultra - endurance community, enjoy the current updates from Monash Researcher Chris Rauch and enjoy a bunch of competition style recipes to support your fuelling and recovery to keep you performing at your best!

Jess Rothwell
Accredited Sports Dietitian

CONTENTS

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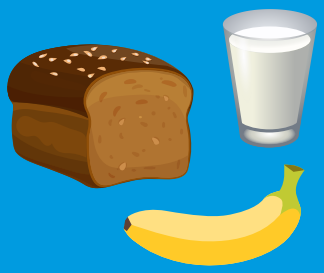
NUTRITION FOR THE JUNIOR ATHLETE

AGED 5-11 YEARS

CHOOSE NUTRIENT DENSE FOODS FOR FUELLING, HEALTH AND GROWTH

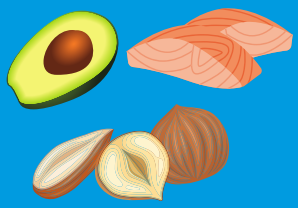


CARBOHYDRATES

Before training & across the day
Provide energy

PROTEIN

To repair and recover
Help your immune system
At each meal & snack and after exercise



FATS

For your brain, growth & development
Limit saturated fats, choose unsaturated

HYDRATION

Water first
Milk for teeth & bones
Don't need sports drinks
May need more in warm weather

EAT REGULARLY

3-4 hourly &
1-2hrs before training

VITAMINS & MINERALS

From food
Iron: red meat, leafy veg, tofu
Zinc: wholegrains, dairy, nuts
Calcium: dairy, soy products,

PLAN AHEAD

Include a snack for training after school
Bring extras on comp day & refill water bottle

PRACTICE MAKES PERFECT

How much can I eat & drink?
Practice what you will eat & drink before comp day

SUPPLEMENTS

Not needed without a diagnosed deficiency.
Speak to a GP

VEGETARIAN OR VEGAN JUNIOR ATHLETES MAY NEED ADDITIONAL NUTRIENTS & SHOULD SPEAK TO AN ACCREDITED SPORTS DIETITIAN FOR GUIDANCE

DOWNLOAD FULL FACTSHEET ▶

SPORTS DIETITIANS AUSTRALIA

NUTRITION FOR THE JUNIOR ATHLETE GENERAL

Each day you need energy for school activities, as well as for before and after school training sessions. Plan ahead! This will make sure you take enough food and drinks with you on days you move more, to cover your higher energy needs. Eating enough energy will help your body move faster and for longer. Getting to know how much you need to eat can take time but will set you up well for great sporting performance.

FOOD FOR HEALTH & ENERGY

Food gives us energy. This energy in food comes from structures called carbohydrate, protein and fat. These structures also have other important health related jobs in our body. To make sure you put enough energy in every day, it is important to eat regularly, around every 3-4 hours or 6 times across the day. Think of this as putting the fuel in that drives exercise and builds a bank of fuel ready for the next day – like a race car! Carbohydrates give you energy quickly and easily, eat them before and after every training.

Choosing nutrient dense foods will help you meet your nutrition requirements for fueling, health and growth at the same time. This includes growing strong bones and muscle, plus supporting your immune system. Include foods rich in fibre and texture as well as a variety of colours within your everyday choices. If your food variety is small now slowly work to build this up, work at your own pace.

You can fuel well and keep healthy by packing a wide variety of foods in your lunch box everyday, use all of the time allowed at school to finish your recess and lunch before you go out to play. Eat a nourishing breakfast each morning and replenish your energy levels with your evening meal and supper each night.

FOOD FOR EXERCISE

Nourishing foods are great to fuel with up to 1.5-2 hours before training and regularly across the day.

Examples include:

Milk drinks, yoghurt, cheese, fruit, grainy sandwich, oats, breakfast cereals, homemade muffins or slices, nuts, muesli bars, popcorn, baked beans, chic peas and fav'va beans, crackers and spread.

If you need to eat with a short amount of time before training then select a smaller amount of food that is digested a bit faster and you know sits well in your tummy, e.g. a white bread sandwich or rice cakes with jam, honey or a banana.

Most of all make sure you choose foods you enjoy!

FOODS FOR RECOVERY

Foods rich in protein provide the building blocks of your muscles and fats provide additional energy and fat-soluble vitamins and omega 3's. Your body needs food with protein and fats in them spread across the whole day. Your specific needs will differ based on the type and amount of training you do. If you are vegetarian or vegan you may need a little more protein, as your body doesn't digest and use plant protein as well as animal sources.

Protein is found in beef, lamb, chicken, fish, eggs, dairy products, soy products, legumes, lentils, nuts, seeds and in small amounts unrefined breads and cereals. Include a source of protein in at least 4 of your meals and snacks to help support your needs.

HYDRATION

Water and milk are great choices of fluid to help support your hydration, development and recovery needs. Water helps to keep your body cool and milk is great for supporting strong bones and teeth! Don't forget to pack a water bottle each day, take it to training and top up during breaks. If it's hot, try to keep your water in a shady spot or icy esky and not too far from where you're training! Coaches should always allow time for a drink break!

HUNGER

Your appetite can help to tell you how much and how often to eat. It is very important not to ignore hunger or thirst. Harder and longer duration exercise can temporarily numb your appetite. This might mean that later that day or the next day you have a higher hunger level. It is important to include enough fuel to catch up and meet your hunger levels.

Continue reading this article **here**.

FUELLING YOUR REGATTA

Organise to optimise

Regattas are held in summer, with high temperatures and humidity likely to be forecast. The day starts early shortly after sunrise as athletes need to get up to fuel their bodies and finishes in the late afternoon. The length of regattas can range from two to seven days depending on the level of competition. These long days indicate a need for athletes to be well organised with adequate food and beverages to fuel, recover and rehydrate from each day of competition to optimise performance.

Each opportunity to eat or drink is an opportunity to prepare the body for racing. It is crucial to be well organised – know what food and beverages you need to purchase in advance. Avoid leaving it to the last minute or relying on the venue to have adequate options.

THE MORNING OF RACING

Start the day off with a carbohydrate-based breakfast, eaten two to three hours prior your first race to provide plenty of energy for your muscles. Breakfast should be something familiar and well-practised, low in fibre and fat and contain moderate protein.

- Weetbix with banana, honey and milk
- Few slices of toast with jam, peanut butter or honey topped with banana
- Porridge or bircher muesli with fruit
- Pancakes with fruit and maple syrup

SNACKS PRE-RACE

Rowers will compete in multiple races throughout the day, often separated by a few hours in between. Eating pre-race serves the purpose to top up energy levels, as your body's energy stores will otherwise continue to deplete from the previous race. Aim to eat a snack at least one hour prior to your next race; what you eat and the amount will likely depend on how much time you have.

- Banana
- Honey or jam sandwiches
- Muesli bars
- Fruit salad
- Fruit muffins
- Hot cross buns (when available!)
- Pikelets sandwiched together with jam or honey
- Sandwiches or rolls with chicken or tuna and salad (for longer breaks)

EATING POST-RACE

After each race, consume a protein and carbohydrate-rich snack to repair muscles and replenish the body's energy stores. It also helps to provide energy for your next race.

- Flavoured milks
- Yoghurt drinks
- High protein yoghurts

Pair the above with some carbohydrates - a muesli bar, sandwich, fruit muffin or rice cakes with honey

Hydration

Dehydration can lead to muscle fatigue, dizziness, slow reaction time and increased risk of cramps. It is important to stay hydrated throughout the day; drink water with meals and snacks to help the body absorb the fluid. For high temperature and humidity days, more senior athletes may need a sports drink and/or electrolyte tablets to replace the body's electrolytes lost through sweating. Without first replacing the body's electrolytes, you will find yourself running to the toilet frequently and feeling dehydrated despite drinking lots of water!

ELAINE BO

Elaine is an Accredited Sports Dietitian at the Victorian Institute of Sport. She provides nutrition servicing to several sporting programs, including Rowing, Shooting and Golf.

MANAGING MY NERVOUS COMPETITION GUT!

and boom ... you need to go to the toilet!

You're at the starting line. Your heart is racing, palms sweating, breathes cycling and arms and legs fidgeting. Your adrenaline is spiking and your arousal is peaking, all in preparation for what lies in front. But at the same time, you're telling yourself to keep calm, control that breath, visualise those first steps… and boom, you need to go to the toilet. ASAP! It's game day, and once again, that nervous gut of yours is putting the brakes on your pace.

THE PHYSIOLOGY OF A NERVOUS GUT

Your gastrointestinal intestinal (GI) tract is an organ responsible for digestion, absorption and excretion of matter; all vital for energy expenditure. It is controlled via three distinct centres: (1) myogenic control – the intrinsic rhythm of your GI muscles; (2) hormonal control – various hormones, including cholecystokinin, gastrin and secretin, that trigger numerous functions; (3) neural control – including your GI's enteric nervous system (ENS) and autonomic nervous system (ANS). All of these processes work together to achieve normal GI functioning, including motility, secretion, digestion and absorption. When you see or smell food, or when food enters your gut and stimulates mechanical and chemical receptors, this triggers your central nervous system to communicate with your ENS. Your ENS is a mesh-like system of neurons that coordinates your gut functions, such as GI muscle contractions (peristalsis) plus neurotransmitter signalling (e.g. serotonin). Your ANS is the second major neural controller of your GI tract. It is comprised of the parasympathetic (PS) and sympathetic systems (SS). Basically, the PS exerts its effects via the vagus nerve (innervates your oesophagus, stomach, pancreas, upper large intestine) and pelvic nerves (innervates your lower large intestine, rectum and anus). For example, when food enters your mouth, your vagus nerve stimulates muscles in your oesophagus to swallow. On the other hand, your SS coordinates your smooth muscle cells, secretory cells and endocrine cells. The ANS also regulates your breathing, heart rate, blood pressure and body temperature. On a broader level, your SS system triggers your primal "fight or flight" response, and your PS manages your "rest and digest".

GBA AND COMPETITION NERVES

What does all this mean? Your gut and brain continuously talk via nerve signals, hormones and neurotransmitters. This is referred to as the gut-brain axis (GBA) and helps to explain the link between stress and gut symptoms. When you become stressed or nervous, your "fight or flight" response is triggered, in turn diverting your body functions and energy to facing the perceived stressor. Consequently, your heart rate and blood pressure increase, your blood pools away from your GI tract to periphery muscles, heart and lungs, stress hormones (cortisol, adrenaline, norepinephrine) are released and usual body functions running in the background are deprioritised. For instance, your digestion often slows or stops, which can result in abdominal discomfort, cramping, diarrhoea or bladder urgency. There is also increasing evidence that your GI tract responds to stress by releasing hormones such as GABA; purported to be involved in GI disturbances, as well as anxiety. In addition, an excessive release of stress hormones can cause lipopolysaccharides translocation outside of the GI tract triggering immune and inflammatory responses often resulting in increased intestinal permeability.

It is also important to note that the physical load of exercise induces the stress response. For instance, as exercise intensity increases there are proportional increases in stress hormones. Further to this, statistics show that up to 20% of people suffer from IBS, characterised by visceral hypersensitivity; meaning their gut nerves are super sensitive to stimuli, such as gas production from high FODMAP foods.

BRIEF TIPS THAT MAY HELP MANAGE FREQUENT TOILET TRIPS

Pre and during competition nutrition:

- Timing: Avoid eating your main meal for 2-4 hours pre competition
- Avoid high fat, high fibre and high FODMAP foods
- Include low fibre, carbohydrate rich foods such as white rice, white potato, instant oats, cornflakes and white bread.
- High FODMAP foods to avoid include fruit juice, stone fruits, dried fruits, cow's milk (with lactose) and for some, fructose containing gels.
- Support hydration: always start exercise well hydrated, choose water and low concentration drinks such as standard sports drinks (4-8% carbs). Avoid high concentration/high fructose drinks such as soft drinks, juices and energy drinks.
- Practise mindfulness and breathing exercises to calm your GBA.

And finally, if you're still experiencing a nervous gut – consider consulting the expertise of a sports psychologist (hyperlink to article page 10) in conjunction with seeking advice from your sports dietitian!

JOSH REED

Josh is the founder of Reed Nutrition, Byron Bay. He is an Accredited Sports Dietitian, consultant Dietitian, health writer and the author of the **plantbasedguidebook.com** – contact Josh here: **www.joshreed.com.au**

FUELLING FOR COMPETITION
ULTRA - MARATHONS

What's the latest?

Ultra-marathon competition places immense challenges on the athlete, both physically and mentally. Depending on the format of the competition, physical exertion can last anywhere from several hours up to days with the broad range of events offering additional demands such as difficult terrain, extreme climatic conditions and often the inclusion of a night-time segment.

Adding to this challenge is how to maintain a steady flow of fuel for such events, aside from drawing on the body's energy stores. The nutritional energy requirements of Ultra-marathon competition are significant, with immense caloric deficits often being endured by the athlete. The closer the caloric nutritional intake can match the energy expenditure, the better the performance and health outcomes for the athlete. For many ultra-marathon runners, getting in adequate nutrition during events presents a significant barrier to optimal performance.

One of the greatest impediments to achieving optimal energy intake during ultra-marathon competition is poor tolerance to feeding during running, which manifests as symptoms such as bloating, cramping, nausea, and in extreme cases vomiting and diarrhoea. Our research at Monash University has clearly shown that the digestive tract is stressed during exercise lasting two to three hours, in terms of not only symptoms experienced but also acute damage to the gut (much like muscles get damaged during intense or prolonged exercise).

Our research has also shown that the digestive tract is very responsive to training. As athletes practise taking on nutrition in their training sessions, so does the ability to tolerate food, gels and sports drink. Practising race nutrition in training may seem obvious and yet is so often neglected, especially by ultra-athletes who like to simulate "running on empty". Practicing feeding when running will facilitate the adaptations required to improve uptake of nutrients and reduce the debilitating symptoms described. This ideally involves a structured program of gut training, practicing with a range of solid foods, purees and gels at a range of exercise intensities. Initially testing your tolerance for food and gels at low intensity training sessions is a good starting point and progressively building this up leading into competition. Take note, that whilst aggressive gut training with carbohydrates is protective to the digestive tract, aggressively training with fluids and water is best avoided without professional support – overhydration can be dangerous. Drinking according to thirst in training and competition is the safest option for ultra-endurance athletes.

Another important consideration is the time of day for gut training. In a recently published study by my colleagues and I at Monash University, it was shown that symptoms are significantly worse when running at night-time compared with the same duration and intensity in the morning and that gut function is slower at night (stomach emptying and intestinal transit). This suggests that if you are competing in an event with a night-time segment, it would be prudent to include some gut training at night.

Professional support from a Sports Dietitian can be invaluable to determine target rates of carbohydrate intake for competition and devising a gut training plan in the lead-up to the event.

CHRIS RAUCH

Chris Rauch is a sports dietitian and researcher at Monash University and Private Practice. He consults with athletes and runs exercise tests in the laboratory for clients looking for customised race nutrition strategies or those looking to diagnose and manage gut issues that occur in training and racing. **W: www.monash.edu E: chris.rauch@monash.edu**

COMPETITION NUTRITION CONSIDERATIONS 70.3 IM

The popularity of long course triathlon and half ironman events seems to have increased exponentially particularly over the past two years – and with that, comes great new learnings of managing the physiological and nutritional challenges unique to support longer hours spent in the pool, out on the bike and pounding the pavement.

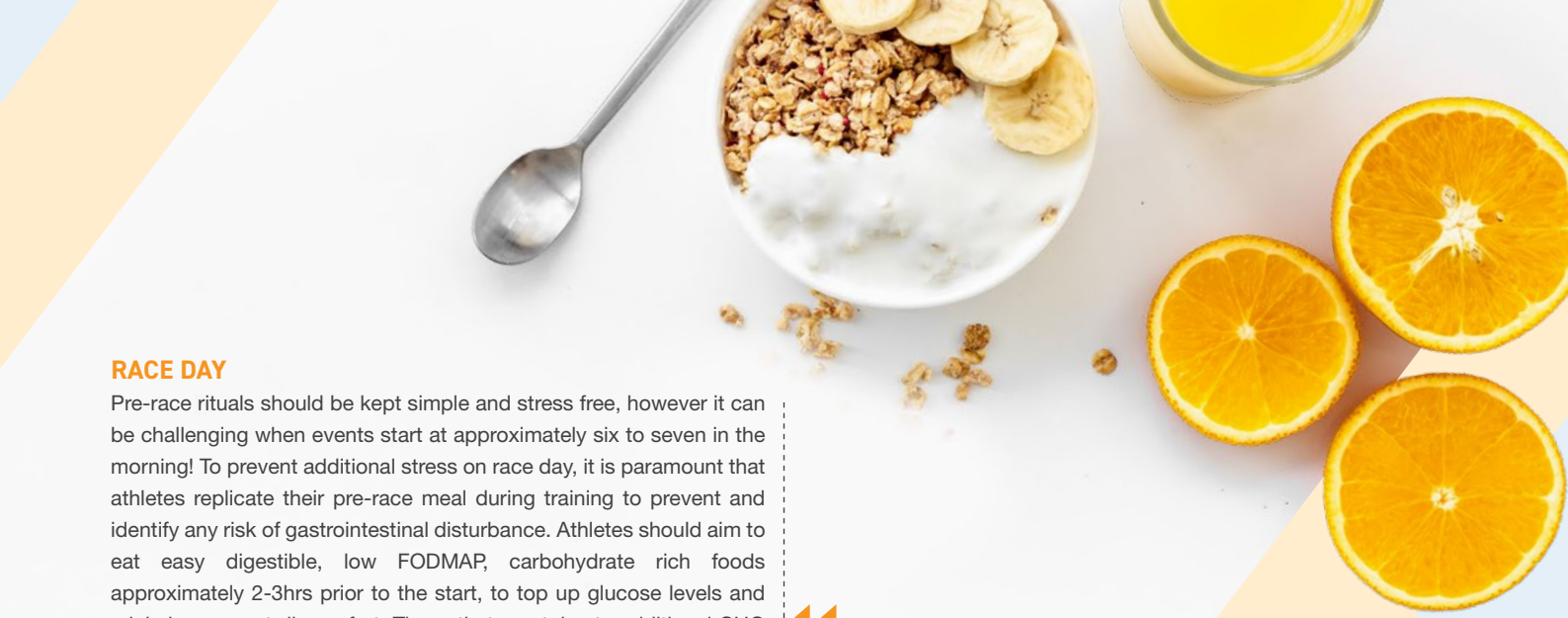
Nutrition considerations for Half Ironman events play a fundamental role towards the performance outcome of both novice and elite athletes. A typical 70.3 Half Ironman event encompasses a 1.9km ocean swim, 90km cycle and 21.1km run. Individual nutrition requirements for Half Ironman events are not universal and should be tailored to individual athlete requirements and objectives following a thorough nutrition assessment. Athletes should aim to practise and trial various nutrition strategies under the guidance of an Accredited Sports Dietitian to prevent any nutrition implications over race day.

REACHING YOUR TOP GEAR

Across Half Ironman events carbohydrate (CHO) has been established as the primary macronutrient to fuel moderate to high intensity endurance sport. Carbohydrate consumption for most athletes during long distance triathlon is important given relatively limited stores within the body. Depleted CHO stores have been associated with earlier onset of fatigue, increased perceived effort, a reduction in work rate and impaired decision making. Nutrition recommendations for race day may vary between events based on environmental conditions, body composition and individual preference re mode of dietary intake.

PRE - RACE NUTRITION

During the days and week leading up to a half ironman event, training load starts to taper off generating a great window of opportunity to ensure glycogen storage is at its peak. Carbohydrate loading is a common pre-event nutrition strategy with the intention of maximising CHO stores within the body. High CHO (high glycaemic index food and beverages) ingestion of approximately 10-12g/kg body mass coupled with low or nil activity has led to increased muscle energy stores after 24hrs. It can be quite challenging to eat what one would consider 'healthy' when aiming to consume upwards of 500 – 600g of CHO which can often be unrealistic and challenging for some athletes. Carbohydrate loading should not necessarily revolve around 'eating more' food but incorporating dense CHO foods and beverages. During the days leading up to an event, athletes should aim to continually sip on fluids throughout the day, ensuring the urine is pale in colour.



RACE DAY

Pre-race rituals should be kept simple and stress free, however it can be challenging when events start at approximately six to seven in the morning! To prevent additional stress on race day, it is paramount that athletes replicate their pre-race meal during training to prevent and identify any risk of gastrointestinal disturbance. Athletes should aim to eat easy digestible, low FODMAP, carbohydrate rich foods approximately 2-3hrs prior to the start, to top up glucose levels and minimise any gut discomfort. Those that can tolerate additional CHO in a snack form, approximately 45-60 minutes before starting are encouraged to.

BREKKIE IDEAS: 2-3HRS BEFORE

- Overnight oats soaked in juice, maple syrup or 1tsp honey and banana +/- dried fruit
- Muesli OR Granola
- Crumpets, English Muffins or toast with spread of choice + optional: glass of fruit juice/sports drink

ADDITIONAL SNACK(S): 1HR PRIOR TO STARTING (HIGHLY INDIVIDUAL)

- Banana
- Pikelets
- Sports bar or gel

COMPETITION NUTRITION

Race nutrition is something that often evolves over time with experience. Building gut tolerance (training the gut) and identifying individual food and beverage preferences whilst exercising at a moderate to high intensity is key to nailing nutrition and minimising complications. Increased CHO consumption has been associated with increased performance during events >2.5hrs. Traditionally, research suggests athletes benefit from consuming 60-90g of CHO/hr. If athletes are striving to achieve or exceed >60g/hr, using multiple transportable CHO (glucose and fructose) sources can help reduce the onset of gastric upset with adequate gut training. For some athletes, it can be challenging to achieve 60-90g of CHO/hr due to suppressed appetites, challenging environmental conditions and or poor gut tolerance. It is important that athletes start feeding early on during their ride as there is often minimal nutrition related issues here, and serves as a prime time to setup for the final leg, the run. When planning race nutrition, it crucial that athletes consider the practicalities such as, storage space in bento boxes, bidons, cages on bikes and room to tape nutrition to the bike. Athletes may utilise some of the following on the bike:

- Honey or vegemite sandwich
- Homemade slice/bars
- Sports gels, chews and bars
- Fruit cake
- Rice cakes

Fuelling strategies during the run leg will vary based on individual preferences. Athletes are encouraged to sip on fluid at each aid station to support hydration needs. Athletes should aim to prevent the onset of excessive dehydration >2% body weight loss, as this may result in voluntary dehydration and increases in core temperature. Athletes face the challenge of using sports drinks and or gels, to fuel them through this final leg and if tolerable, soft foods may also contribute to optimising fuelling and subsequent performance.

> **ACROSS HALF IRONMAN EVENTS CARBOHYDRATE (CHO) HAS BEEN ESTABLISHED AS THE PRIMARY MACRONUTRIENT TO FUEL MODERATE TO HIGH INTENSITY ENDURANCE SPORT.**

RECOVERY NUTRITION

After running down that red carpet the last thing some athletes feel like doing is eating. To aid recovery, nutrition does not always need to be in the form of solid food, particularly for those who struggle to eat post-exercise. A lot of the time, the same nutritional goals can be achieved through a fluid or beverage to aid recovery. Athletes should aim to consume at least 1g/kg of CHO post exercise with a source of protein to aid muscle repair, gut integrity and immunity. In addition, athletes should aim to sip regularly on fluids with and around food, which will help replace losses including electrolytes, lost during exercise.

With most Ironman events providing food and fluids at the end of the course, athletes are encouraged to consume a combination of the following once crossing the line:

- Flavoured milk, fruit juice, smoothies
- Wraps, burritos or sandwiches
- Yoghurt, fruit and muesli
- Toast OR English muffin with avocado and eggs
- Water

Engaging an Accredited Sports Dietitian is paramount to creating individualised nutrition strategies to support the performance goals of all athletes.

MATT HART

Matt is an Accredited Sports Dietitian at Apple to Zucchini Performance Nutrition based in Brisbane working predominately with a range of elite to novice individual and team based athletes.

THE ULTRA – TRAIL MIX

Preparation time: 60 minutes

Difficultly level: Medium

Serves 8

INGREDIENTS:

- 100g rice puffs
- 100g corn flakes, gluten free
- 2 large handfuls of cranberries
- 2 large handfuls of dried banana slices, these can be freeze-dried or dehydrated
- 2 large handfuls of mixed nuts (e.g. walnuts, almonds, hazelnuts, pecan nuts, macadamia nuts)
- 24 mini marshmallows
- 2 handfuls of jelly beans

METHOD:

1. Place all the ingredients in a large bowl and mix well.
2. Place a portion of the mixture (e.g. 100g) in an individual food bag. Repeat until all the trail-mix has been placed into individual bags. Store until use.
3. Consume straight from the bag as a snack at rest or on the go (practice consuming trail-mix during training, before consuming it during competition).
4. Consume as a nutrition-rich breakfast with 300ml of enriched lactose free skimmed milk (e.g. add 3 heaped Tbsp of skim milk powder to 300ml of water). Re

HOT TIPS

Highly nutritious mix of ingredients, ideal for those consecutive days of prolonged strenuous exercise- great for expedition, adventure racing and/or multi-stage ultramarathon events. PER Energy 1683kJ; 7.2g Protein; Total Fat 12.1g; Saturated Fat 1.7g; Carbohydrate 65.8g; Fibre 4.3g

Recipe with permission from: Using Food and Medicine: Exercise and the Gut
Monash University: Department of Nutrition, Dietetics and Food
Sports Dietetics edition

CHOC BANANA BREAKFAST SMOOTHIE

HOT TIPS

This smoothie provides a great source of calcium. Consuming adequate amounts of calcium and vitamin D (also received from the sun), as well as doing weight bearing exercise, helps develop and maintain strong bones that are more resistant to fracture and osteoporosis later in life.

For more healthy recipes please visit **sportsdietitians.com.au/recipes**

INGREDIENTS:

- 2 frozen bananas
- 100g frozen blueberries
- 1 cup of milk of your choice (we suggest cow's milk)
- 1 cup Greek yoghurt, low fat
- 1 heaped tablespoon of Milo
- ¼ cup of rolled oats
- 1 teaspoon of honey

METHOD:

1. Add all ingredients and blend for a minute.
2. Pour in tall glasses and garnish with more banana and a handful of oats. Enjoy straight away. Re

Q & A WITH DR DOM

QUESTION: DO I NEED A PRE – WORK OUT?

I know the feeling… when you have a planned training session and just feel so tired and unmotivated that you have no idea how you will get through it…so it makes sense why a supplement, like a pre-workout, that can help with energy levels and focus is so appealing. But, before you decide whether you should use one, it is important to understand what a pre-workout actually is, whether a pre-workout is the right supplement to complement your training program and goals, and the potential risks.

WHAT ACTUALLY IS A PRE-WORKOUT?

A pre-workout is designed to provide energy and focus, plus assist with fatigue that may occur before training sessions, essentially helping you to train harder and for longer. Pre-workouts can come in powders or pills and there are a variety of different formulas, but the common aim of this supplement is to boost energy levels.

SO WHAT IS ACTUALLY IN A PRE-WORKOUT?

Great question, and not one that is easy to answer! Pre-workout formulas can vary quite a bit from brand to brand. If you have read some of the ingredient lists on these supplements, you will see just how extensive the list can be. The reality is, not all of these ingredients will be useful or have any scientific evidence to justify the inclusion. But there are a few key ingredients that most pre-workouts will have, including:

CAFFEINE

It makes sense why caffeine would be a key ingredient, given the purpose of a pre-workout is to boost energy levels. However, the amounts of caffeine can vary quite significantly between products, with some having quite large amounts. If excess amounts of caffeine is consumed or you are not used to caffeine, possible side effects can include difficulty sleeping, anxiety, jitters, shakiness and increased heart rate. Caffeine in high doses is toxic and can lead to fatal consequences, therefore check with your Accredited Sports Dietitian regarding the amount provided in your product.

CREATINE

This is a popular supplement among athletes and gym-goers due to the potential to increase muscle power, enhance strength and improve exercise performance.

BCAAS

Branch chain amino acids, in particular Leucine, can support protein synthesis and therefore assist with an increase in strength. Note – many other factors contribute to supporting muscle growth.

B-VITAMINS

These vitamins play an important role in energy production.

Other ingredients may also include Beta-Alanine, Taurine, NO2-boosters…(and the list can go on.)

WHEN IS THE BEST TIME TO TAKE A PRE-WORKOUT?

Again an interesting question without a clear answer. Just because it is called a pre-workout, it does not mean it has to necessarily be consumed before the session. Some people will take it 20-30 min before a session, while others like to have it during the session, which can be beneficial if the session is going to be long one. It is important to seek advice from an Accredited Sports Dietitian, regarding ingredient use and dosage recommendations, as each supplement can be different.

WHAT ARE THE CONS OF USING A PRE-WORKOUT?

Like any caffeine source, if you take a pre-workout regularly you can build tolerance to the effects, so speak with an Accredited Sports Dietitian about dosage and planning for sessions that may be of higher duration and or intensity. Ideally, they should not be used for every session, but instead saved for those sessions that may be of higher intensity or duration.

So in summary to the original question, whether you should use a pre-workout or not can depend on many factors. There are many different types of pre-workout supplements and so choosing the best formula is essential. A final important question to ask yourself is, 'why you are considering a pre-workout in the first place?' If it is because you are feeling fatigued, then it will be important to first look at your dietary intake and ensure you are fuelling and recovering adequately, before trying to supplement with a pre-workout.

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PERFORM

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NUTRITIONIST APPROVED

THE LOW RESIDUE DIET

And its Impact on Sports Performance

WHAT IS LOW RESIDUE?

A low residue diet is typically a short - term eating pattern that reduces the bulk in your digestive system and may benefit sports performance in some specific circumstances. A regular, healthy diet should contain a wide variety of foods, and these foods will have at least some small portion of them that is indigestible; that is, a portion that makes it all the way through our gut. These indigestible portions are great for our gut health and our microbiome, but in some sporting scenarios may lead to decreased performance. In the context of sports nutrition and performance goals, a low residue diet may be recommended by your sports dietitian. This aims to reduce as much fibre as possible, in order to achieve a decrease in weight or to reduce discomfort in sports that place greater stress on the gut.

LOW RESIDUE IN WEIGHT CATEGORY SPORTS

Some sports require a “weigh-in” procedure that ensures that competitors are evenly matched or adhere to certain limits. While we typically think of boxing and combat sports in this realm, other sports impose weight limits such as rowing and sailing. A short-term, low fibre diet may assist in reducing weight, however, results vary significantly between individuals and research suggests that weight losses usually do not exceed 500g.

LOW RESIDUE IN ENDURANCE SPORTS

A low residue diet has been widely used in endurance sports that involve a high amount of mechanical stress on the gut, such as triathlon and distance running. Any sport involving long competition durations may benefit from an acute low residue diet by reducing gut discomfort and the logistical issues associated with going to the bathroom on race day. Other sports that may see the benefits of these comfort or logistical issues are long-distance swimming, where suit removal may not be an option, or some team sports that don’t allow for constant interchanges or breaks.

HOW DO I FOLLOW A LOW RESIDUE DIET

Firstly, as described above, low fibre or low residue diets cut out a lot of the variety we typically enjoy, as well as foods that are very important for our health. For this reason, a low-residue diet should only be followed for a very short period, unless medically prescribed, and maximum durations typically do not exceed one to three days.

EXAMPLES OF FOODS TO AVOID IN A LOW RESIDUE DIET ARE;

- Wholegrains and ‘brown’ carbohydrates such as wholegrain bread, crackers, or pasta and rolled oats,
- Raw fruit and veg especially varieties eaten with the skin on, and
- Some nuts and chia seeds.

FOODS TO PRIORITISE IN A LOW RESIDUE DIET ARE;

- White carbohydrates such as white bread, pasta and rice, or quick oats, simple breakfast cereals and rice crackers,
- Flavoured dairy products such as yoghurts or milks,
- Pulp-free juices and sugary drinks,
- Mashed or pureed cooked fruits and veggies and
- Jams, jellies, honey.

The low residue diet is typically very high in sugar, so good dental hygiene is recommended. It is also only typically used around competition scenarios, so consult a sports dietitian before trying as part of your performance nutrition plan.

ALEX DREYER - CATALYST DIETITIAN

Alex is a sports dietitian specialising in nutrition for health and performance in endurance sports. Alex has a strong passion for improving nutrition knowledge, cooking skills, and positive attitudes towards food and exercise in junior athletes in W.A.individual and team based athletes.

GRILLED SALMON PASTA

Preparation time: 60 minutes *Difficultly level: Medium* *Serves 8*

INGREDIENTS:

- 200g pasta shells, gluten free
- 8 green tips spring onion, chopped
- 1 lemon
- 200g salmon fillet
- 100g of smoked salmon, diced
- 200ml skim milk, lactose free
- 200g low fat cream, lactose free
- 1 level Tbsp garlic infused olive oil
- Handful of fresh dill finely chopped (or 2 heaped tsp of dried dill)
- Salt and pepper to taste

METHOD:

1. Add the pasta to a pot of boiling water. Add a pinch of salt. Stir occasionally, until pasta is soft (refer to packet for cooking details). Drain pasta and cool under running cold water. Put to one side.
2. Place the salmon fillet on a non – stick grilling tray. Add a squeeze of lemon juice plus salt and pepper to taste. Place under a hot grill until surface is browned slightly. Turn carefully and continue cooking until flesh has changes colour (do not overcook). Additional lemon juice can be added during cooking. Cut the cooked salmon into medium sized cubes and put to one side.
3. Add oil and spring onions to a medium sized non -stick pan. Cook on medium heat until lightly browned, stirring occasionally. Add the smoked salmon and continue cooking for one minute under low heat.
4. In a bowl, mix together the milk, cream, and dill. Add pepper to taste. Add mixture to the smoked salmon in the pan. After stirring, cover and simmer on low heat for 5 minutes.
5. Fold the pasta through the salmon and onion sauce. Then gently add the grilled salmon cubes. Re

HOT TIPS

Inspired by the long cycle rides along the Mediterranean Coast - a favorite dish of Iberian elite cyclists. Substitute another favorite fish or seafood, such as prawns or calamari for the salmon. PER 100g Energy 763kJ; Protein 8.6g; Carbohydrate 16.3g; Total Fat 8.9g; Saturated Fat 3.4g; Fibre 0.9g

Recipe with permission from: Using Food and Medicine: Exercise and the Gut. Monash University: Department of Nutrition, Dietetics and Food Sports Dietetics edition

RICOTTA PROTEIN PANCAKES WITH GRILLED APRICOTS

A great recovery meal

Serves approximately 3 people
Time: 30min

INGREDIENTS:

- 250g ricotta
- 125ml milk
- 1 tsp vanilla essence
- 2 large eggs, separated
- 100g wholemeal flour
- 1 tsp baking powder
- 2 heaped tsp sugar + extra for dusting
- Pinch of salt
- Oil, for frying
- 8 apricots, halved
- 1 cup of berries, fresh or frozen
- High protein/Greek yoghurt, to serve

Optional toppings include sweet dukkha, maple syrup or lemon juice.

METHOD:

The pancakes

1. Wisk egg whites until soft peaks form
2. Mix together the egg yolks, milk, vanilla essence and ricotta
3. In a separate bowl, mix together the flour, salt and sugar
4. Mix the flour mixture with the wet ingredients
5. Slowly fold in the whisked egg whites
6. Heat a fry pan to medium heat
7. Fry heaped spoons of the mixture, flip to cook on each side once the mixture starts to bubble

The apricots

8. Heat a grill pan or fry pan
9. Brush the apricots with oil and sprinkle a small amount of sugar over themCook the apricots on each side until they start to go slightly black
10. Cook the apricots on each side until they start to go slightly black

To assemble

11. Assemble pancakes with your high protein/Greek yoghurt, grilled apricots and berries. Use other toppings as desired and recover well!

ERICA CUNNINGHAM

Erica Cunningham is a provisional sports dietitian who works in private practice across the North-West Coast of Tasmania. Erica works with all people but has a special interest in nutrition for endurance athletes. She can be contacted via email: erica@ecnutrition.com.au

MIXED BERRY MUFFINS

Pre – comp snack

These muffins are a convenient pre-competition snack that can easily be adapted to individual requirements by simply adjusting the quantity of muffins consumed. Two muffins served with high protein yoghurt will provide almost 40g of carbohydrates and 22g of protein, with fat and fibre low to optimise gut comfort!

INGREDIENTS:

- 2 cups self-raising flour
- 1/3 cup caster sugar
- 2 tablespoons margarine, melted
- 1 cup light milk
- 1 egg, lightly beaten
- 1 teaspoon vanilla essence
- 2 cups fresh or frozen mixed berries
- 100g high protein yoghurt to serve

ALEX STONE

Alex Stone is a private practice Dietitian at SportsFit Physio and Health in Melbourne. She is currently undertaking the Sports Nutrition Course.
https://www.sportsfitphysioandhealth.com.au/dietitian-nutritionist-glen-iris-malvern-east
Instagram @alexstonedietitian

METHOD:

1. Preheat oven to 200°C fan forced.
2. Prepare 12-hole muffin pan.
3. Mix flour and sugar in a bowl and set aside.
4. In a separate bowl combine the margarine, milk, egg and vanilla.
5. Create a well in the middle of the dry mixture and pour in the wet mixture. Combine gently.
6. Fold in mixed berries.
7. Pour mixture evenly into the muffin pan.
8. Put muffins into oven and reduce oven temperature to 180°C fan forced.
9. Bake for 20-22 minutes or until the tops are crispy and a skewer comes out clean.
10. Leave in pan for a couple of minutes before letting muffins cool on a wire rack.
11. Serve with yoghurt and enjoy 1-2 hours pre – exercise or as a healthy snack over the day!

ATHLETE'S CHICKEN & CARROT RISOTTO

Preparation time: 30 minutes *Difficulty level: Medium* *Serves 4*

INGREDIENTS:

- 1 cup of risotto rice (washed)
- 3 cups boiling water (extra if needed, use one cup to make stock as below)
- 2 cups white cabbage, diced
- 8 green tips of spring onion, chopped
- 400g carrots, peeled and grated
- 2 skinless chicken breasts, cut into small cubes
- 2 Tbsp reduced fat cream, lactose free
- 1 heaped Tbsp parmesan cheese
- 2 heaped Tbsp reduced fat cheddar cheese, grated
- 200ml dry white wine
- 1-2 chicken stock cubes or 1-2tsp powder, dissolved in 1 cup of boiling water
- 1 level Tbsp garlic infused olive oil
- 1 handful of fresh coriander, finely chopped
- Salt and freshly ground black pepper to taste

METHOD:

1. Make up 1 cup of stock liquid in a pan and bring to boil. Set the pan to one side.
2. Place the olive oil, chicken, spring onion and cabbage to a large non – stick pan. Cook under moderate heat with occasional stirring until the chicken breast meat is white throughout and the onions have become lightly brown. Add rice and carrots. Cook for a further 2 to 3 minutes, stirring until the rice is well coated with the oil. Add white wine, coriander, salt and pepper. Simmer until most of the wine is taken by the rice grains.
3. Add the stock liquid slowly, stirring until the rice has taken up the liquid after each addition. Heat the pan using a moderate heat. After the stock has been added, add the hot water in the same way until two cups have been used. Bite a couple of test rice grains – when done they should be soft. Continue to add more water and cook further if the rice is still a little raw.
4. Reduce the pan heat and add the cream and two cheeses. Stir gently, cover, and leave to heat through gently for 3 to 4 minutes. Lower the heat if the rice starts sticking to the pan.
5. Serve immediately with a warm bread roll, a side salad of your choice, and/or a nutritious drink. Re

HOT TIPS

Tip Originally developed to support long -course triathlon and competition. Consume as a meal -3hours before exercise or as a post – exercise recovery meal. PER 100g Energy 305kJ; Protein 5.2g, Carbohydrate 7.5g; Total Fat 1.6g; Saturated Fat 0.6g; Fibre 1.0g

Recipe with permission from: Using Food and Medicine: Exercise and the Gut
Monash University: Department of Nutrition, Dietetics and Food
Sports Dietetics edition

BROWN RICE SALAD

This dish is rich in carbohydrates and easily digested to support your performance. If you want to increase the protein and this feels good for you pre-competition, add your choice of tofu, eggs, fish, chicken etc.

Pre – competition dinner *Serves 4*

INGREDIENTS

- 1 cup uncooked brown or white rice
- 1 medium red capsicum
- 1 medium green capsicum
- 2 spring onions
- ½ cup currants
- 25g pepitas
- 25g sunflower seeds

DRESSING

- 1 clove garlic
- 1 tbsp extra virgin olive oil
- 2 tbsp soy sauce
- 1 tbsp white vinegar
- Juice of ½ lemon
- 1 tsp caster sugar

METHOD

1. Bring a large saucepan of water to the boil and then cook the brown/white rice for 25 minutes or until cooked through. Drain, rinse under cold water and then drain again.
2. Dice the capsicums and finely slice the spring onions, placing them in a large bowl.
3. Add the currants, pepitas, sunflower seeds and rice to the large bowl and stir through.
4. To make the dressing, finely dice the garlic and add it to a small cup or jar with the olive oil, soy sauce, vinegar, lemon juice and caster sugar. Stir until the sugar dissolves.
5. Add the dressing to the rice mixture and serve. Re

ALEXANDRA BAKER

Alexandra is an Accredited Practising Dietitian and Provisional Sports Dietitian. She currently works with Coburg Football Club and in private practice in Albury.

WHAT IS TRAINING THE GUT?

The gastrointestinal (GI) tract or the 'gut' is responsible for absorbing the food we eat, including during exercise when we need to replenish fluid and carbohydrate stores while competing. Incidence of GI complaints during exercise can be high amongst athletes, in particular amongst endurance athletes. GI distress can be uncomfortable at best, to halting competition for athletes at worst. Just like the rest of our body including muscles, the gut is trainable and highly adaptable, adapting to the stress we put it under. Training the gut is the principle of increasing fluid and carbohydrate intake before and during exercise to reduce the risk of GI distress, replenish depleting energy stores and support hydration intake. Ultimately, optimising performance outcomes.

Training the gut should be done in training, starting at a level where the athlete has no GI distress, then slowly stepping up the amount ingested. This can be achieved through greater carbohydrate fluid intake, and/or gels, and other simple high carbohydrate foods. Most endurance athletes will aim to train their gut to achieve an absorption of ~ 60g/h of carbohydrate without GI complaints. For ultra-endurance sports or cycling, athletes may even be able to tolerate ~90g/h carbohydrate and athletes competing in heavy multi day endurance sports ~120g/h. It is critical this is done in training and over time with the support of an Accredited Sports Dietitian, as many other factors can play a role in the development of GI symptoms during exercise.

BRYCE ANDERSON

Bryce Anderson is a Masters of Dietetics student at the University of Canberra, and a 5km - Half Marathon runner, representing Australia on several occasions.

PREPARING FOR AN EVENT?

HIGH IN:

- ✓ Protein
- ✓ Vitamin E
- ✓ Healthy Fats

"Nutrition is key. Start by seeing if you are spreading your protein intake out over the day.

Almonds add protein. Grab a handful as a pre or post training snack, with breakfast cereal, on top of a stirfry or blended in a smoothie."

Simone Austin is an advanced sports dietitian, keynote speaker and author. She is also our nutrition program ambassador.

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