A GUIDE TO

SPORTS NUTRITION FOR THE SYDNEY MARATHON

SYDNEY MARATHON

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WELCOME

Welcome to this Sports Nutrition Guide for the Sydney Marathon.

I created this guide to assist you in the weeks leading up to your marathon, including race day.

Getting your nutrition and hydration right ensures you maximise your efforts during training and have a safe journey.

This information can be used by anyone participating in a marathon, from first-timers to regular marathoners.

kira sutherland

SPORTS NUTRITIONIST/NATUROPATH

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PRE-TRAINING FUEL

WHAT TO EAT BEFORE TRAINING

TRAINING SESSION OF 1.5 HOUR OR LESS

Eating before training depends on the length of the session.

- Training of less than 1.5 hours only needs a small snack such as: a piece of toast with nut butter/jam, a banana, a few dates or a small glass of juice if a liquid is preferred.
- Alternatively, training on an empty stomach first thing in the morning is okay as long as your body is comfortable with it and it's an easier session.
- If training in the afternoon, a small snack approximately 1 hour before training will help fuel the session.
- Snacks considerations: muesli bars, fruit, toast with avocado or other toppings, or a small handful of raw seeds, nuts and dried fruit.
- Alternatively, if time is short, a sports drink such as FIXX or a Gu energy gel can be taken about 15 minutes before the session.

TRAINING OF 1.5 HOURS OR LONGER

- A small carbohydrate snack is great if training first thing in the morning. If it feels okay, you can train without eating first because you can fuel yourself whilst training instead.
- Training longer than 1.5 hours should be fuelled by foods consumed during training.
- Athletes should consume approximately 30-60 grams of carbohydrate (CHO) per hour during longer sessions. This will also give you a chance to practice consuming foods, carbohydrate gels and fluids (water and sports drink) for your upcoming race day.

WHAT TO EAT BEFORE TRAINING

TRAINING OF 1.5 HOURS OR LONGER

- It is vital to practice your race nutrition during training to make sure your chosen plan agrees with your body.
- On a two-hour run, you could consume one gel at about the 45-minute to 1-hour mark with adequate water or have a few hundred millilitres of a sports drink or a banana.
- If needed, a second fuelling can be at approximately the 1.5 hour-mark of your run
- Always consume food or gels with an adequate amount of water (approximately 250-300ml). Never consume food or gels with sports drinks, as this makes the carbohydrate solution in your stomach too concentrated and will slow/inhibit gastric emptying. When that occurs, it leaves you more likely to experience stomach issues as well as delay the delivery of fluids and needed calories into your system.
- As race day gets closer, it is good to practice your exact race nutrition to make sure you have the right plan and that your digestive system can cope with the increased load of carbohydrates and fluid. This means that you need to increase your carbohydrate intake during your hours of training.
- Most people will ingest between 30-60 grams of carbohydrates per hour during a race. Practising the timing of your intake and volume during training is vital so that there are no surprises during race day. See information on race day intake later in this article. .

POST-TRAINING NUTRITION

POST-TRAINING NUTRITION

EATING AFTER TRAINING IS VITAL FOR RECOVERY.

CARBOHYDRATES

- After all training sessions, having a meal or snack as soon as possible is important to help your body replenish its carbohydrate (glycogen) stores.
- It is optimum to eat within 30-45 minutes after training in a ratio of 4 parts carbohydrate to 1 part protein. This 4:1 ratio is optimum for muscle recovery and will help to replenish your glycogen stores for your next training session. Some people may prefer a 3:1 ratio, and that's okay too, as long as you consume adequate carbohydrates.
- Consume approximately 30-60 grams of carbohydrates and 10-30 grams of protein at this time, depending on if you are having a meal or a snack.
- Foods that are a great source of carbohydrates include the following: fruit, vegetables, bread, rice, pasta, oats, cereals, and other grains.
- This is not the time of day to be 'carbohydrate phobic'. Your body needs carbohydrates to replace the glycogen you have used during training. It is actually the best time of day to be eating them.
- Protein choices can be from all sources, such as: meat, fish, chicken, eggs, dairy, seeds and nuts, beans, soy, and protein powders can be useful at this time too.

WHAT DOES 30 GRAMS* OF CARBOHYDRATES LOOK LIKE?

*APPROXIMATELY

Bread 2 slices	Bread roll or pita (1 roll)
Crumpet 1.5 pieces	Weet-Bix 3 pieces
Cereal (avg) ½ cup (read label)	Rice cakes 4 pieces
Yoghurt – Greek 300gm	Milk 600ml
Sustagen Sport 2 scoops	Choc muesli bar 2 pieces
Pancakes 2 average	Fruit juice 300ml
Sports gels (20-30grams)`	Jam 2 tablespoons
Fruit salad 1 cup	Dried figs 4 medium
Banana 1 med/ large	Sultanas/raisins 1/3 cup (45 grams)
Dates 6 small	Dates 3 (large/fresh)
Kiwi 3 pieces	Pineapple 1.5 cups
Rockmelon 2.2 cups	White potato (no skin) 180-200 grams
Carrots 300 grams	Pumpkin 500 grams
Pasta – cooked ¾ cup	Rice - cooked ½ cup
Hot cross bun (1 average)	Untoasted muesli ½ cup

WHAT DOES 30 GRAMS* OF CARBOHYDRATES LOOK LIKE?

*APPROXIMATELY

Cooked oats 1 cup	Sports bars (Read label)
Fruit yoghurt 200gm	Honey 2 Tablespoons
Up and Go (regular) 350ml / 1 pack	Muesli bar 2 (read label)
Crispbread 6 biscuits	**GU (sports gel) 25 grams**
Gu (energy chews) 6 pieces	**FIXX Fuel X (approx 24gm per scoop)**
Jellybeans 10 (read label)	Orange/apple/pear (2 medium)
Grapes 1 cup (12-14)	Dried apricots (10 halves)
Watermelon 3 cups	Blueberries 1.5 cups
Strawberries 3 cups	Raspberries 2 cups
Mango 1 medium	Nectarine 2
Sweet potato 150 grams	Beetroot 300 grams

POST-TRAINING NUTRITION

PROTEIN

- Protein intake between 10-30 grams in the recovery meal helps with tissue repair and the creation of new proteins, including muscle.
- Foods that are a great source of proteins include the following: meats, fish, dairy, legumes, eggs and protein powders.
- Protein intake for a person training for a marathon is suggested to be between 1.2-1.6 grams/kg (of body weight per)/day. Thus a 60-kilogram athlete aiming for 1.5 grams per kilogram of body weight would be aiming for 90 grams of protein per day in total. Protein intake is also suggested to be consumed at 0.25-0.4 grams/kg/per meal.
- Be aware these are pure protein amounts, and you need to read food labels to see how much protein they contain. For example, 120 grams of chicken contains approximately 20-25 grams of pure protein.

Download a more detailed list and description of proteins and carbohydrates here: https://www.kirasutherland.com.au/protein-and-carbohydrates-guide

PURE PROTEIN AMOUNTS IN FOODS

*APPROXIMATELY

PROTEIN SOURCE AND QUANTITY	AMOUNT OF PURE PROTEIN IN GRAMS
Protein powders`	Read labels`
5 Anchovies 20g`	5.8 grams
Chicken breast 100g cooked`	20-25 grams`
Lean Beef or Lamb 120grams`	25 grams`
Chicken sausage 100g`	18 grams`
Fish 120g`	20 grams`
Snapper / Swordfish 85g`	21 grams`
Salmon 100g`	25 grams`
Oysters 50g (raw)`	6 grams
Tuna 100g (canned)`	25 grams
1 egg 50g (raw)`	5-6 grams`
Two egg whites 70 g (raw)`	7-8 grams`
Cottage cheese 100g`	15-18 grams`
Ricotta cheese (246 g)`	28 grams

PURE PROTEIN AMOUNTS IN FOODS

*APPROXIMATELY

PROTEIN SOURCE AND QUANTITY	AMOUNT OF PURE PROTEIN IN GRAMS
Yoghurt (plain-low-fat) 1/c`	13 grams`
Yoghurt (fruit-low-fat) 1/c`	13 grams`
Milk 250ml low-fat 2%`	11 grams
Soymilk 250ml`	7 grams`
Feta cheese 28g`	4 grams
Feta reduced fat 28g`	8 grams
Mozzarella 28g`	5.5 grams
Mozzarella (skim) 28g`	6.9 grams
Cheese reduced fat 21g`	4 grams
Edam cheese 30g`	8 grams
Halloumi cheese 30g`	6 grams
Tofu 100 grams`	12 grams
Almonds 33g / Nuts`	6.6 grams
Cashews 25g (raw)`	4 grams

PURE PROTEIN AMOUNTS IN FOODS

*APPROXIMATELY

PROTEIN SOURCE AND QUANTITY	AMOUNT OF PURE PROTEIN IN GRAMS
Sunflower seeds 33g`	7.6 grams
Baked beans 220g`	20 grams
Kidney beans 175g`	6.7 grams`
Nutella spread 1 Tbs`	1 gram`
Peanut butter 1 Tbs`	5-7 grams
Pine Nuts 33 g`	4.3 grams
Sports bars`	Read the label
Soy and linseed bread 2 slices`	11.5 grams
Bread 2 slices`	2-10 grams (read the label)`
Quinoa 85g (dry)`	12 grams
Brown rice 1/2 cup cooked	2.3 grams
White rice 1/2 cup cooked`	2.1 grams
French bread 100g`	9 grams
Potato gnocchi 100g`	4 grams`

PURE PROTEIN AMOUNTS IN FOODS

*APPROXIMATELY

PROTEIN SOURCE AND QUANTITY	AMOUNT OF PURE PROTEIN IN GRAMS
Pasta 100g	12 grams (read the label)`
Bagel 71g`	7 grams`
Muesli (not toasted) 100g`	11 grams`
Muesli (toasted) 100g`	9 grams
Rolled oats 100g`	11-14 grams`
Wheat bran 25g`	3-4 grams`

PROTEIN INTAKE FOR A PERSON TRAINING FOR A MARATHON IS SUGGESTED TO BE BETWEEN 1.2-1.6 GRAMS/KG (OF BODY WEIGHT PER)/DAY.

YOUR BODY WEIGHT IN KILOS _____ **X 1.2-1.6 =** _____ **DAILY PURE PROTEIN INTAKE**

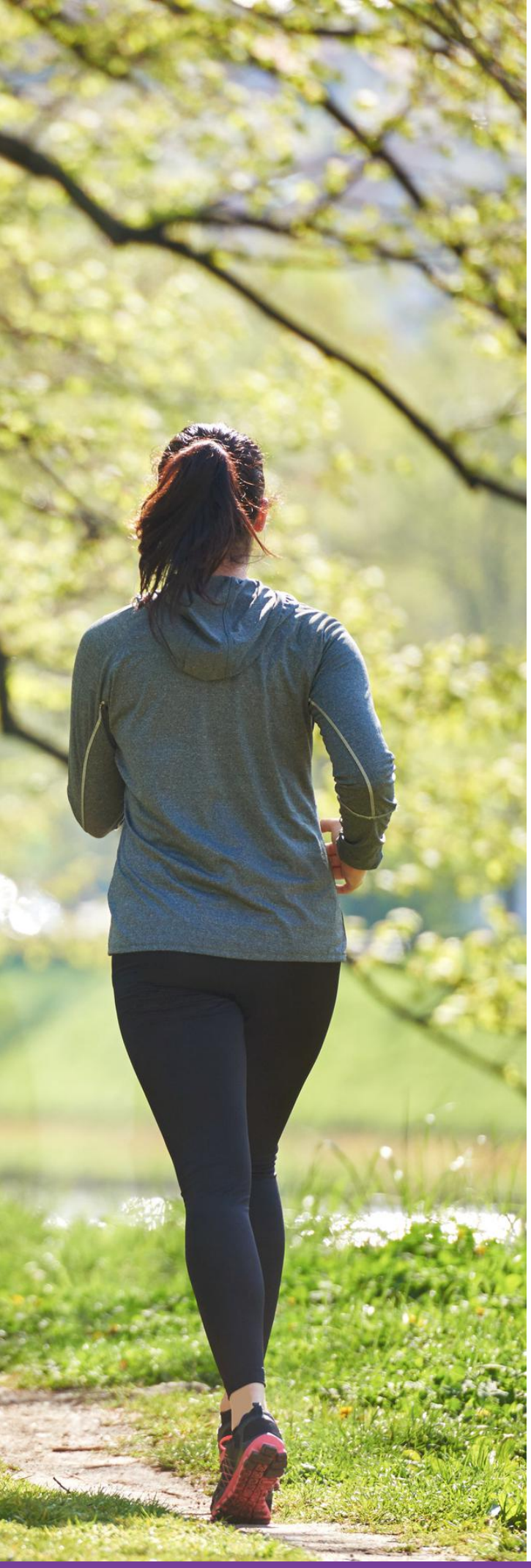
FLUIDS AND HYDRATION

FLUIDS

- The body needs approximately 600 ml–1 litre for every hour of exercise, depending on your sweat rate, air temperature, humidity, gender, body size etc. You must add this on top of your normal daily fluid needs.
- Rehydration of fluids and electrolytes lost in training should also be a focus. Aim to consume 150% of fluids lost from training over the next 2-4 hours once training has stopped. Having fluids and foods containing sodium will help to retain the fluids consumed.

CALCULATE YOUR APPROXIMATE SWEAT RATE

- It is best to calculate your own sweat rate rather than guessing your loss.
- Weigh yourself pre and post a 1 hour run (at your approximate race pace) to see how much weight you have lost. A 1 kilogram loss is equal to about 1 litre of fluid loss.
- It is good to test this seasonally, as it can vary depending on the outside temperature. Australian temperatures can be quite extreme between seasons or even days, so be sure to know your rates for 20 degrees Celsius as well as 30 degrees Celsius to be prepared.
- • Once you know your fluid losses, you should aim to replace up to the amount lost, but never over this amount. You do not need to replace the whole amount while training, as you can make up for a lot of the fluid loss throughout your day.
- It is dangerous to over-consume fluids, so be sure to determine your sweat rates.



DEHYDRATION

- In sports, dehydration can lead to increased body temperature which will shunt blood to the skin for cooling and leave the muscles and the brain short of blood flow.

- Dehydration affects mental functioning (concentration and skill) as well as increasing the risk of gastrointestinal discomfort and reducing stomach emptying rates.

- It is wise to try the available sports drink and gel (Fuel X and Gu) well before race day so as to be aware of tolerance and taste. Consuming fluids during running sessions is a great way to 'train' your body to intake while running. Practice is vital!

PLEASE NOTE: Hydration volume suggestions are based on 'normal' weather conditions. If you expect hot or humid conditions, the required volume of fluids (water) may increase.

SPORTS GELS & CHEWS

Please be sure you familiarise yourself with the Sydney Marathon course plans so you can note when and where to find hydration and nutrition.

Nutrition on the Sydney Marathon course includes;

GU

The carbohydrate gel, on the course, contains 25 grams of carbohydrates per packet. They also have a sports chew which contains 5 grams of carbohydrates per chew. Chews are not supplied on the course but are a great alternative to use in training if you want variety. Please remember that GU's and chews must be consumed with adequate water intake.

FUEL X BY FIXX

The sports drink, on course, contains just under 5 grams of carbohydrates per 100ml if made with 1 scoop of powder. Each scoop also contains 230mg of sodium, 75mg of potassium, 31mg of calcium and 12mg of magnesium. The drink will be made to approximately 7.5-8.5 grams of carbs per 100ml of fluid on race day.

SPORTS DRINKS AND ELECTROLYTE REPLACEMENTS

- During prolonged exercise (1.5 hours or longer), you should consider using a sports drink. This will supply the water, electrolytes and carbohydrates that the body needs to keep exercising. Alternatively, you could use water and a carbohydrate GU.
- You may also consider using solid foods if this is to your liking and your stomach's tolerance. Foods that are easily digested during racing and training include: bananas, sultanas, dates, honey, white bread, or jelly snakes.
- You must still aim for the right amount of carbohydrates per hour when consuming solid foods and always try new foods in training before using them on race day.

RACE WEEK NUTRITION

RACE WEEK NUTRITION

The focus on nutrition in the week leading up to a marathon is of great importance so as to arrive at the start line with optimal hydration and carbohydrate (glycogen) stores.

CARBOHYDRATE INTAKE/LOADING

Carbohydrate (CHO) intake should be slowly increased during the week leading up to a marathon. You want to get your body ready for your long race, and getting your stored carbohydrates (glycogen) levels up is essential.

- The older, more extreme styles of carbohydrate loading are no longer used and a the more simplified approach can be applied.
- Take your carbohydrate intake up to 50% of your daily calories for days 7,6, and 5 before the race. For days 3,2 and 1 pre-race, take your carbohydrates up to approximately 70% of your total daily intake/calories.
- When you increase carbohydrates in the diet, you automatically need to decrease your protein and fat so as not to be overconsuming calories. You do not want to increase overall calorie intake; you just want to change the ratios of the macronutrients you are consuming.

CARBOHYDRATE LOADING

- Many people prefer to decrease fibre intake at this time as well to limit the chances of gastrointestinal upset during the race. Thus, consume more white rice and pasta than whole grains etc., just for the last day or two. This change in your eating will increase your body's glycogen stores, giving you added fuel to use on race day.
- CHO loading is not about overeating it is about increasing CHO for optimum liver and muscle glycogen stores for race day.
- Great forms of CHO at this time include: high-GI bread and cereals, rice, pasta, flavoured milk, fruit and fruit juices, sports drinks such as FIXX, smoothies, honey, jam, meal replacement drinks and sports bars, Gu's and chews.
- Perfect healthy eating is not the main goal at this time and can be focused on after the race. Learn to read labels and obtain a CHO/Protein and calorie counting list or APP if you are unsure.
- For every gram of glycogen, the body will hold 2.5 to 3 grams of water, and thus an athlete can experience a weight gain of up to 2 kilos when well CHO loaded. Your body will use this extra water during the race too!
- CHO loading has been shown to enhance endurance and postpone fatigue in endurance exercise at a steady state. However, it does not help increase one's speed.
- The week before a race is not the time to be dieting or calorie restricting as it will leave you short of fuel and energy for race day.

RACE DAY NUTRITION

The morning of a race can be a nervous time. It is best to consume tried and tested foods and fluids and to never eat or drink anything new on race day, no matter how much someone talks up a product.

FOODS

- The goal is to replenish liver glycogen stores from the overnight fasting state and the timing of your pre-race meal will depend on the start time of your event.
- The Sydney Marathon and half marathon will start at different times. It is best to check the start schedule well in advance to know how to time your food and fluid intake pre-race. You should aim to eat approximately two or so hours pre-race in order to top up glycogen stores and fluid levels.
- Don't sacrifice sleep for an earlier, larger meal, as your carbohydrate intake during the race will compensate for a smaller meal eaten pre-race. A light meal of mainly carbohydrates is best at this time.
- Aim for 1-2 grams of carbohydrate per kilogram of body weight in carbohydrates. Thus, if you weigh 70 kilos, have a light meal of approximately 70 to 140 grams of CHO. Eat at the smaller end of this scale, if you only have a short window before the race; use the larger end of the scale if you have a few hours.

FOODS

- The meal/snack should be high CHO with low fibre, fat and protein to decrease the chance of gastrointestinal upset. Meal replacement drinks, sports bars and sports drinks/gels can be useful when nerves or time are a factor.
- Great food choices can be: white bread, crumpets, honey, jam, bananas and smoothies. Often whatever you eat before a long run is the best option to eat on race morning, as long as it's not too high in fibre.
- Be aware, oats are very healthy, but some people find they contain too much fibre for them on 'race morning' and can result in gastrointestinal issues during the race.

IT IS BEST TO NEVER EAT OR DRINK ANYTHING NEW ON RACE DAY!

FLUIDS

It is important to start the race with adequate fluid levels on race day. Hopefully, this has been a focus in the few days before the race, making sure that you are not starting the race dehydrated.

- Do not go overboard consuming fluids. Too much can be as dangerous as not enough. In the few days before the race, consume your average fluid amounts, plus make sure to replace losses from training. You do not need to 'water load' as your intake during the race will cover you if you have measured your fluid needs and practised this in training.
- Race morning, you need around 400-500 ml with the pre-race meal and a further 300-400 ml 15 to 20 minutes before the race starts.
- It is okay to consume sports drinks, juice and other carbohydrate-containing fluids with the pre-race meal but DO NOT sip on sports drink in the hour before the race. This can lead to high blood sugar and then a subsequent rebound low. Sip water the hour before the race!
- Many athletes consume a carbohydrate gel with 250-300ml water or 300- 400ml of sports drink 15 minutes before the race starts so that they have a 'top up' of carbohydrates in their blood when the race gets underway. Consuming carbohydrates so close to the race should not cause issues with blood sugars as you will be underway in the race before this makes it through your digestive system.

FUELLING DURING THE EVENT

Race day nutrition should be calculated and practised well in advance of race day to determine amounts of carbohydrates (CHO), types of CHO and fluids that an athlete needs and can tolerate per hour.

The recommended amount of CHO to consume per hour in a marathon is between 30-60 grams for most people. This amount is known to reduce fatigue and to be rapidly absorbed.

Some individuals will need/want to consume between 60-90 grams per hour. These larger amounts must be practised and tolerated in training, and there needs to be a caloric demand of such large amounts for it to be warranted.

If choosing to consume sports drinks and gels, please remember not to have them simultaneously. You must alternate their intake not to inhibit your gastric emptying rate. Always consume gels with water!

Ultimately, your race nutrition plan must suit you and your digestive system. Some athletes will feel great on only 30 grams per hour, while others will prefer 60 grams of carbohydrate or more.

FLUIDS

- Fluid should be consumed at a rate as close as possible to one's sweat rate but never over it. If this amount is not possible an athlete should consume as much as is tolerable to their digestive system while running. Most athletes will be fine with approximately 600-800ml per hour.
- You should have calculated your sweat rate and be comfortable knowing how much you plan to consume, adjusting if the race day is unusually cold or hot in ambient temperature.
- Start consuming your fluids early and regularly to limit dehydration and to assist gastric emptying rates by keeping stomach volume high.
- Overconsuming fluids (weight gain during an event) can lead to hyponatraemia (low blood sodium), which is dangerous to your performance and health.
- Be aware if consuming food or gels to consume them with a good quantity of water. Consuming them with sports drinks will greatly slow/inhibit gastric emptying and decrease their delivery to your working muscles.

EXAMPLE RACE PLAN

- The intake of carbohydrate per hour should be between 30-90 grams depending on need and length of the race.

- If you choose to consume 50 grams an hour, you will need to consume two gels per hour (GU = 25 grams of carb) plus adequate water.

- Alternatively, if you want to consume FIXX Fuel X, you will need to consume approximately 400ml to obtain 28-30 grams of carbohydrates, thus needing 800ml per hour to hit close to your 50-gram target.

  FIXX Fuel X will be mixed on race day to contain 7.5-8.5 grams of carbohydrates per 100 mls of fluid.

- Alternatively, you could choose to have 350ml of sports drink and 1 Gu gel per hour to hit your 50-gram target. Most individuals ingest carbohydrates every 20-30 minutes during a race, so make your calculations accordingly.

- The slower you are going, the less fuel you will burn and the less you will sweat. Make sure to adjust your intake accordingly.

I hope you have a fantastic race and wonderful time training. The more focused you are with your training nutrition, the more energy you will have, the better you will recover, and the more likely you will be to arrive on race day fuelled and ready for a great race. Getting your race nutrition right can make a massive difference in having a fun and enjoyable race! Please remember to practice your fuelling/fluid needs so that by race day, it will be second nature to you!

Best wishes for a great race!

Sincerely,

Kira Sutherland
BHSc, Grad Dip (Sports Nut - IOC), Adv Dip Nat, Adv Dip Nut.

KIRA SUTHERLAND

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With over 30 years of clinical experience, Kira is passionate about working with athletes of all levels.

She is the previous recipient of the Bioceuticals Integrative Medicine Award for Excellence in Clinical Practice (Nutrition/Dietetics).

She divides her time between lecturing at the undergraduate level, clinical practice and mentoring practitioners of complementary medicine in the application of sports nutrition.

Kira also competes in endurance sports and will be running in this year's marathon as well.

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