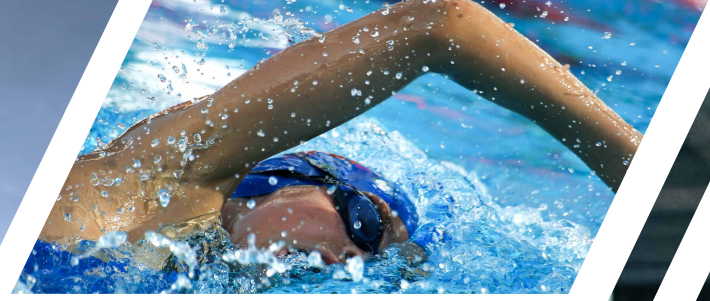

BODY&FIT®
THE FIT PEOPLE'S SUPERMARKET

ENDURANCE GUIDE

NUTRITION & ENDURANCE SPORTS
TIPS FOR BEGINNERS & PROFESSIONALS

CONTENTS

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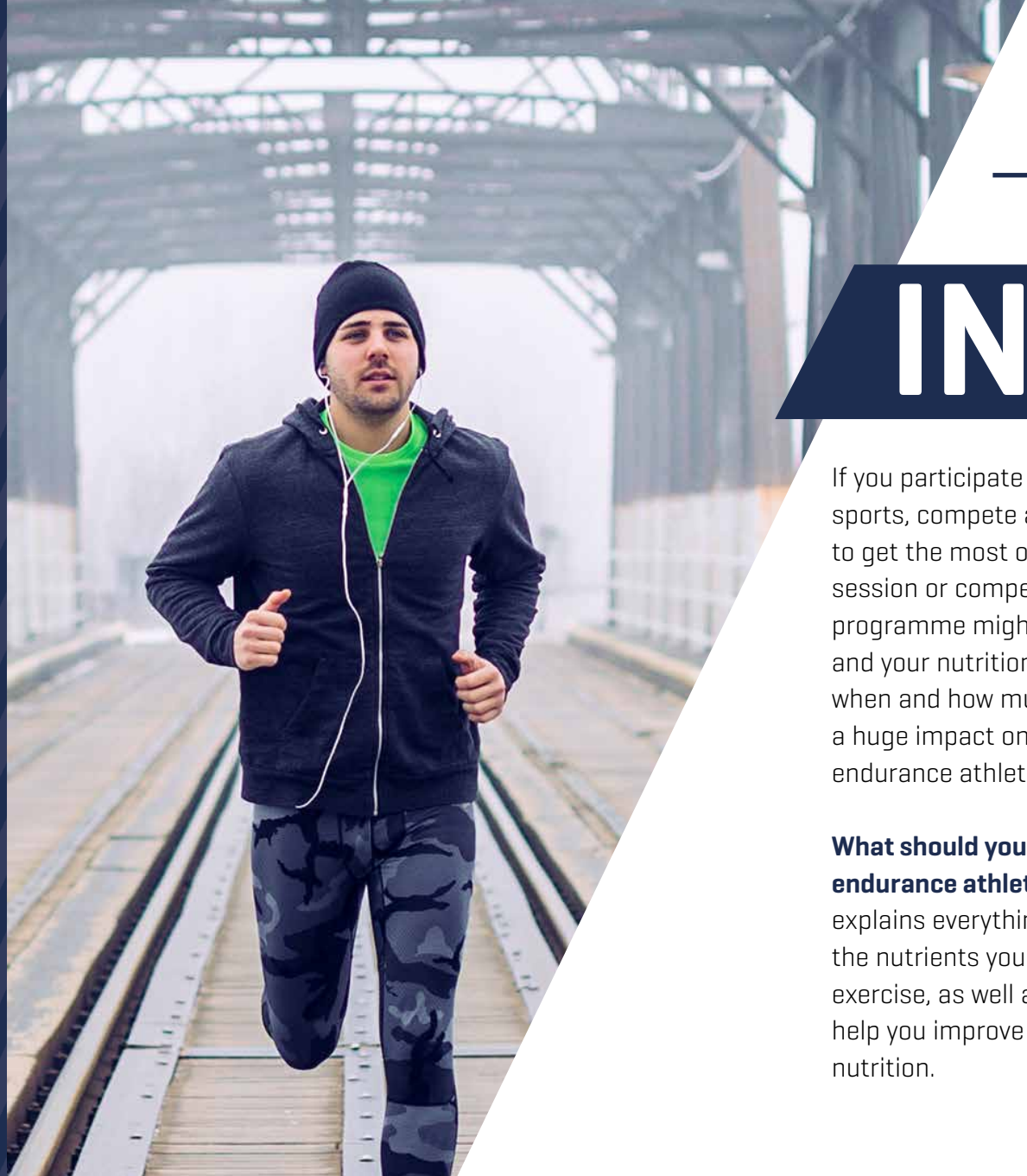

INTRO

If you participate regularly in endurance sports, compete at a professional level or want to get the most out of each and every training session or competition, this endurance programme might give you just the boost you and your nutritional plan need. After all, what, when and how much you eat and drink has a huge impact on your performance as an endurance athlete.

What should you be focusing on as an endurance athlete? This *Endurance Guide* explains everything you need to know about the nutrients you need before, during and after exercise, as well as the other factors that will help you improve your performance, besides nutrition.

NUTRITION & ENDURANCE

ENDURANCE SPORTS

As a rule, you can categorize sports as either strength sports or endurance sports. Endurance sports are performed over a longer, continuous period and demand exceptional physical stamina. What effect do endurance sports actually have on your body? And why is nutrition so important for endurance athletes?

Strength and endurance sports each have different effects on the human body. One focuses on increasing muscle strength – examples include CrossFit, weightlifting and boxing. The other focuses on improving stamina, generally for longer than one hour – examples include running and cycling. They're generally performed at a steady tempo at which your muscles don't produce lactate. Your muscles start producing lactate when they receive too little oxygen, at which point you can only maintain exercise for a brief period. This is why endurance athletes focus on both improving technique and increasing VO2 max (maximum oxygen consumption). Doing so ensures that you always have enough oxygen in your bloodstream, preventing the onset of lactate production.

NUTRITION & ENDURANCE SPORTS

Nutrition is extremely important for endurance athletes. The type and quantity of nutrition required varies from individual to individual. They also depend on the type of endurance sport and its intensity, duration and frequency, as well as important factors such as gender, weight, body composition, etc. It's important for endurance athletes to eat a varied and healthy diet that provides sufficient calorific intake in the form of carbohydrates, proteins, vitamins and minerals. Timing is also critical, and you need to make sure you eat and drink enough before, during and after a training session or competition. Doing so allows your body to function and recover as efficiently as possible during and after sustained exercise.

IT'S IMPORTANT FOR **ENDURANCE ATHLETES** TO EAT A VARIED AND HEALTHY DIET THAT PROVIDES SUFFICIENT **CALORIFIC INTAKE**.

NUTRIENTS

Proper nutrition has a huge impact on your sports performance. But what nutrients do endurance athletes need to ingest, and in what quantities, to perform at the highest possible level?

CARBOHYDRATES

Carbohydrates are your main source of energy as an endurance athlete. They quickly and easily provide the energy you need to sustain prolonged exercise when fatigued. Our bodies can store some carbohydrates in the liver and muscles in the form of glycogen. Once we've used up our glycogen reserves, our bodies switch to burning fat and protein, but while doing so we only perform at 50% of our maximum. This will have a detrimental effect on your performance. To prevent this, it's advisable to supplement your glycogen reserves before and during exercise.

TYPES OF CARBOHYDRATE

Our bodies convert carbohydrates to glucose, which is the fuel our cells need. There are actually two types of carbohydrate – slow-acting and fast-acting. This refers to how our bodies absorb the carbohydrate. A combination of both slow- and fast-acting carbohydrates is extremely important in endurance sports. That's why – for example – our **ROCKET FUEL ENERGY BARS** contain both. You should consume fast-acting carbohydrates during training sessions and competitions, as these can be absorbed quickly. Slow-acting carbohydrates don't provide you with energy immediately, which is why it's advisable to consume these three to four hours before a competition. Avoiding stomach upsets is another reason.
A number of products in our range contain slow-acting carbohydrates. These include our **ULTRA FINE OATS**, **PURE OATMEAL** and **PROTEIN & OAT BARS**. You'll find some deliciously healthy recipes using our **ULTRA FINE OATS** on page 17.

CARBOHYDRATE REQUIREMENT

Our glycogen reserves are, generally speaking, sufficient for approximately 1 to 1½ hours of intense exercise. As a rule, you're advised to consume 6 to 10 g of carbohydrate per kilogram bodyweight (60% daily calorific intake). This compensates for the loss of carbohydrates during exercise. Professional endurance athletes may boost their glycogen reserves by increasing their nutritional carbohydrate intake to somewhere between 8 and 10 g per kilogram bodyweight (70% daily calorific intake) four to five days before the competition. This is also called the tapering-off method or carb-loading. Read more about this on page 11.

PROTEINS

Proteins act primarily as the body's

building blocks, but they can also serve as a source of energy. All our bodies' cells and muscle tissue are in fact made up of proteins. Muscle proteins break down during exercise, which is why you need to consume protein to allow your muscles to recover as quickly and fully as possible after training. This is also why it's important for endurance athletes to eat a balanced diet containing sufficient protein. One way to supplement your protein intake after a training session is a protein shake. Timing is also important during the recovery phase. Recovery can take anywhere between ten and thirty-six hours depending on the type of sport, and your glycogen reserves before and nutritional intake after. Besides consuming enough protein, it's also important to get plenty of rest to allow your muscles to recover fully.

PROTEIN REQUIREMENT

As a rule, endurance athletes are advised to consume 1.2 to 1.6 g of protein per kilogram bodyweight. An adult male weighing 80 kg should therefore eat between 96 and 128 g of protein per day.

FATS

Fats in our diet ensure that our bodies absorb fat-soluble vitamins such as vitamins A, D, E and K properly. They actually serve several purposes, including protecting and insulating our bodies, as well as supplying us with energy. In fact, they're an essential part of a healthy, balanced diet. Unsaturated fats in our diet ensure we ingest sufficient essential fatty acids. Our bodies cannot produce essential fatty acids themselves, even though they're vital for good health. Fats play less of a role before, during or after endurance training or competitions. As is the case for proteins, we only perform at 50% of our maximum while burning fat. Carbohydrates form the main source of energy for prolonged exercise. Our body's own fat reserves are generally more than sufficient for supplying us with energy.

FAT REQUIREMENT

Endurance athletes are advised to ingest between 20 and 30% fat as their daily calorific intake. For someone who needs 1800 calories per day, this is between 40 to 60 g of fat.

VITAMINS AND MINERALS

It can sometimes prove difficult to ingest enough vitamins and minerals, even though they're essential for our bodies. This is why it's so important to eat a varied diet. Supplements such as our **MULTI MEN/WOMEN** multivitamins are a good way to make up for any possible deficiencies

The most important vitamins for endurance athletes to top up are >

TO MAKE UP FOR A POSSIBLE VITAMIN DEFICIENCY, THINK ABOUT TAKING MULTIVITAMINS.

> vitamins B6, B12, C and D, as these play a critical role in our bodies' metabolism. Vitamin C also helps reduce fatigue. Vitamin D is also good for our muscles and bones. Magnesium is a mineral that helps boost energy levels, reduce fatigue and restore muscle. What's more, it also helps regulate proper hydration and mineral levels in the body. Body & Fit's **Vitamin B12**, **VITAMIN C POWDER** and **VITAMIN D3 – 3000 IU** are products that can help you maintain your vitamin levels.

SODIUM AND POTASSIUM

Sodium and potassium are mineral electrolytes found in salts and play an extremely important role in maintaining healthy body cells. They help establish an optimal fluid level balance inside (sodium) and outside (potassium) our bodies' cells, transport nutrients from and to cells, and are responsible for muscle contraction and nerve stimulus. The interaction between sodium and potassium is similar to that of a pump.

It's essential that endurance athletes drink fluids containing sufficient sodium and potassium electrolytes. Major fluid loss caused by profuse sweating can actually have immediate effects on cell concentration levels. This causes fluid levels outside the cells to drop, ultimately resulting in dehydration. We ingest 80% of our salt in our food and drink. On average, we consume 10 g of salt per day despite only needing between 3 and 8 g per day. Although the average person easily consumes enough sodium and potassium, an endurance athlete, who keeps an eye on their diet, may need to supplement these electrolytes.

THE MOST IMPORTANT VITAMINS FOR ENDURANCE ATHLETES TO TOP UP ARE VITAMINS B6, B12, C & D.

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FLUIDS

As well as proper nutrition, your body needs extra fluids during prolonged exercise. Low fluid levels can be detrimental to your performance levels. Read below how you can make sure you're sufficiently hydrated in any situation.

Sweating causes you to lose a lot of fluids during intense exercise, which is why it's important to drink extra water. Sports drinks are also an alternative to water, as they help fluid absorption and also provide energy.

SPORT DRINKS

There are three types of sports drink – hypotonic, isotonic and hypertonic. These terms refer to differences in the drink's particle concentration levels and a process known as osmosis – these particles being the carbohydrates and/or salts you lose during exercise. Which to drink before, during or after training or competing depends on the concentrations of salt and sugar in your blood. The speed with which your body can absorb the drink depends on the drink's, but also your blood's, concentration levels. This is important for your performance during a training session or a competition. We've explained these terms below.

HYPOTONIC

Hypotonic sports drinks have lower concentration levels than our body fluids do. They contain less than 4 g of carbohydrate per 100 ml – this means that our body absorbs them more slowly. Drink a hypotonic sports drink before training to boost your muscle cells' fluid levels. If you're going to train for less than an hour, these drinks are also fine for after your training session. Our **ZERO DRINK** is just one example of a hypotonic sports drink in our product range.

ISOTONIC

Drink an isotonic sports drink during exercise to top up your fluid, energy and electrolyte levels. These drinks contain between 4 and 8 g of carbohydrate per 100 ml and have the same concentration level as our bodies' cells. This means that our bodies absorb the drink more quickly, instead of it remaining in our stomach and causing an uncomfortable churning feeling during training. **ISOTONIC SPORTS DRINK** and **STAY STRONG** are suitable sports drinks for use while training or competing.

HYPERTONIC

Hypertonic sports drinks have higher concentration levels than our body fluids do. They contain more than 8 g of carbohydrate per 100 ml and are intended for use after exercise to top up lost nutrients, fluids and minerals as quickly as possible. Glycogen reserves begin to run out after about an hour. Hypertonic sports drinks make it easy for you to replenish your glycogen reserves.

What to consume before, during or after endurance sports varies from individual to individual and depends on the duration and intensity of the exercise. There's also a difference between sport at a recreational and professional level.

NUTRITION

BEFORE, DURING & AFTER EXERCISE

BEFORE EXERCISE

Your body needs a lot of nutrients even before exercising. But which nutrients are the most important?

RECREATIONAL ATHLETES

It's advisable to eat a last meal consisting of slow-acting carbohydrates two to three hours before taking part in an endurance sport. This helps your body store enough carbohydrates and energy in preparation. Your muscles receive the nutrients and oxygen they need during any period of exercise via your bloodstream. If you eat a meal shortly before exercising, your blood diverts to your stomach to help digest the food you've eaten. This in turn means that there's less blood available to carry nutrients and oxygen to your muscles. Needless to say, this is detrimental to your performance.

PROFESSIONAL ATHLETES

At a professional level, endurance athletes training or competing for more than 1 to 1½ hours are advised to top up their glycogen reserves in order to improve their performance. Tapering off (or carb-loading) over a period of four to five days before the competition is just one method (see below).

HYDRATION

Before exercise, it's imperative to drink sufficient fluids. Research has revealed that drinking 500 to 1000 ml of fluid two hours before, and no more than 150 to 300 ml immediately before, exercise directly offsets the fluids lost through sweating. What's more, very little of this fluid ends up in the bladder. This helps reduce the chance of dehydration.

BEFORE THE COMPETITION:

- Consume 8 to 10 g of carbohydrate per kilogram bodyweight (70% daily calorific intake) to increase carbohydrate intake. Suitable sources of carbohydrate primarily include wholewheat grains, such as wholewheat bread, pasta, potatoes, rice, legumes, vegetables and fruit.
- Consume less fat (approx. 75 g or 20% daily calorific intake).
- Reduce training intensity.

DURING EXERCISE

If sustained exercise lasts longer than an hour, it's possible that your body will start to run out of certain nutrients. Find out everything you need to know about the nutrients your body needs to perform at its best.

RECREATIONAL ATHLETES

When you train or compete for longer than one hour, it's important to top up your energy reserves in the form of carbohydrates, otherwise your body will start burning fat or protein. As we mentioned earlier, fat or protein is a slower and less efficient source of energy for endurance sports than carbohydrates. You can top up on carbohydrates in solid or liquid form. Whether eating or drinking is most suitable generally depends on the type and duration of your sport.

- During exercise lasting longer than one hour, drink 150 to 250 ml of thirst quencher every 15 minutes to maintain your fluid levels. An isotonic sports drink is the best choice – our **ISOTONIC SPORTS DRINK** or **MAGNIFICENT**, for example.
- During exercise lasting longer than 1½ hours, consume approximately 60 g of carbohydrate every hour to prevent your muscle carbohydrate reserves from dropping too low. An isotonic sports drink or gel is the best choice.

PROFESSIONAL ATHLETES

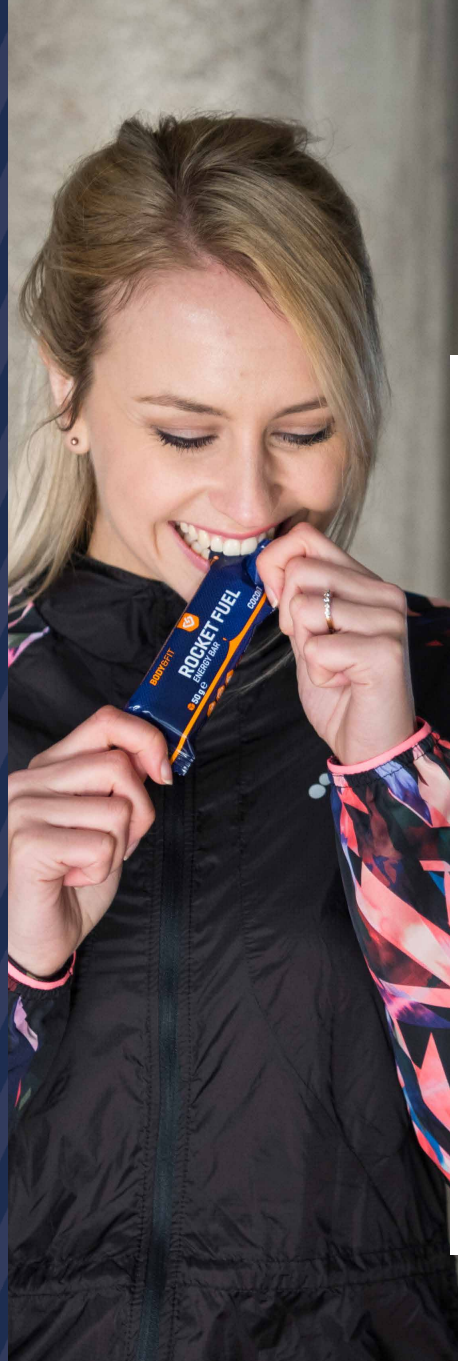
Your body uses up your energy reserves and needs nutrients during exercise. Consuming supplements containing carbohydrates, proteins or amino acids, and drinking fluids is the solution. It's advisable to drink 150 to 250 ml of fluid every fifteen minutes to avoid dehydration. Our **STAY STRONG**, **PERFECT AMINO**, **EDURAMINO** and **ISOTONIC SPORTS DRINK** products are ideal for this purpose.

TIPS FOR TRAINING OR COMPETING

It's vital to top up your glycogen reserves while training or competing, especially if you're a professional athlete, as this provides extra energy to keep you going for longer. Body & Fit has a range of energy gels that help you keep your carbohydrates topped up.

These include **ROCKET FUEL ENERGY GEL**, **POWERGEL HYDRO**, **RECHARGE GEL** and **POWER GEL**.

Energy gels top up your carbohydrate levels quickly while training or competing.



BUT WHICH CARBOHYDRATE IS MOST SUITABLE AND WHEN?

- **GLUCOSE** absorbs quickly into the bloodstream, and from there into the muscles.
- **FRUCTOSE** or **GALACTOSE** (a component of lactose) absorb and release energy less quickly.
- Combining **CARBOHYDRATES**, for example glucose and fructose, can improve endurance sport performance by anywhere between 1 and 9%.

It's not advisable to consume excessive amounts of carbohydrate, as our bodies cannot process any more than 1 to 1.1 g per minute. Hence, your maximum carbohydrate intake should not exceed 60 to 66 g per hour.

DURING EXERCISE

Because there are so many types of endurance sport, it's important that you test which forms of nutrition and drink work best for you. Do not use sport drinks or gels for the first time during a competition. Test them out in advance during training sessions.

- During exercise lasting longer than ¾ to 1½ hours, it's sensible to top up on carbohydrate.
- Consume no more than 60 to 66 g of carbohydrate per hour.
- Fructose, galactose and insoluble starches absorb slowly into the bloodstream.
- Drink 6 to 8 ml of fluid per kilogram bodyweight at the start (approx. 500 ml).
- Drink approximately 2 to 3 ml per kilogram bodyweight every 15 to 20 minutes throughout the period of exercise (approx. 200 ml every 20 minutes).
- Avoid sports drinks with carbohydrate concentrations of more than 15%.
- Opt for a lower concentration (4-8%) in hot weather.
- Opt for a higher concentration (max. 15%) in cold weather.
- Drinking and eating during exercise is a process of trial and error.

AFTER EXERCISE

Sustained exercise depletes your body's nutrient levels, especially carbohydrates. That's why it's so important to start topping up your levels after training or competing. Find out which nutrients to focus on.

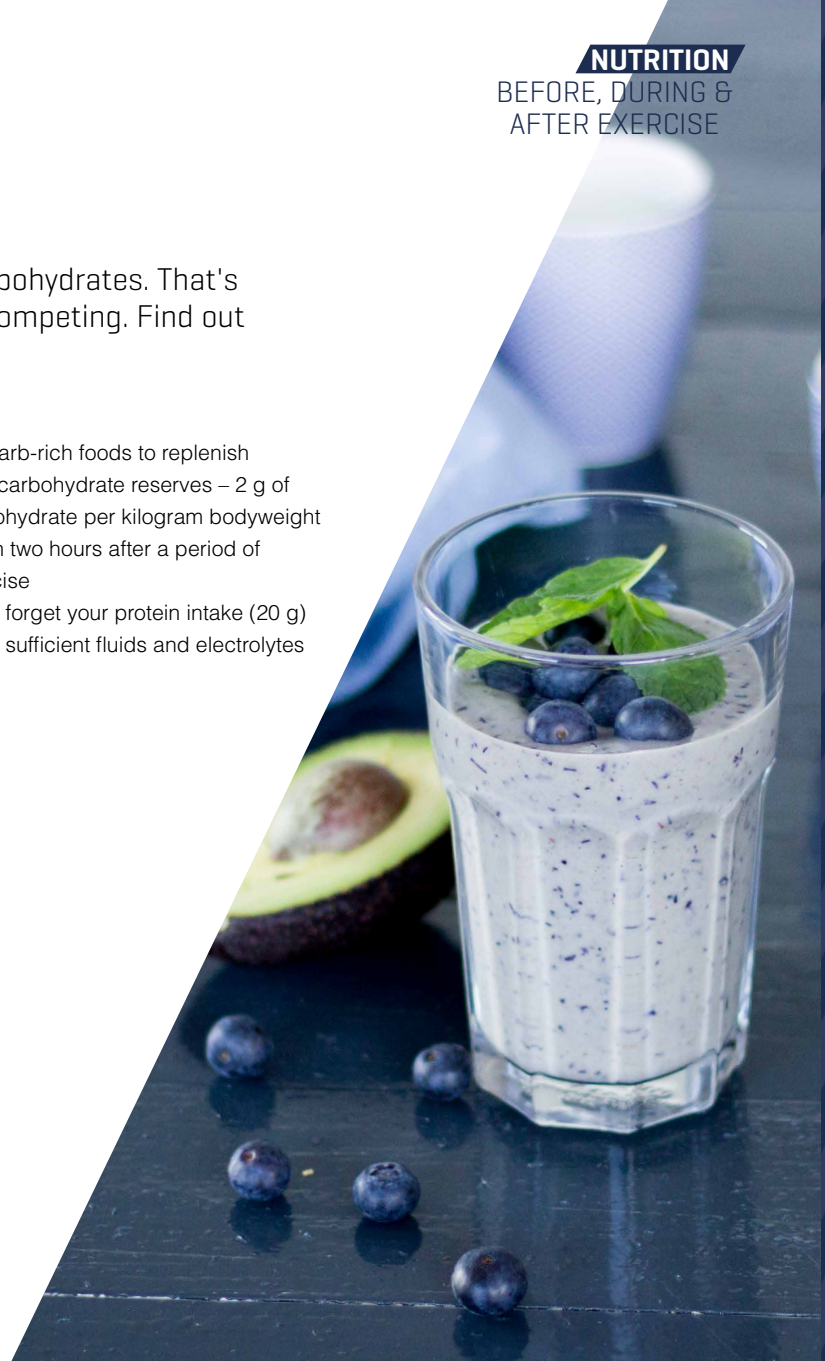
RECREATIONAL ATHLETES

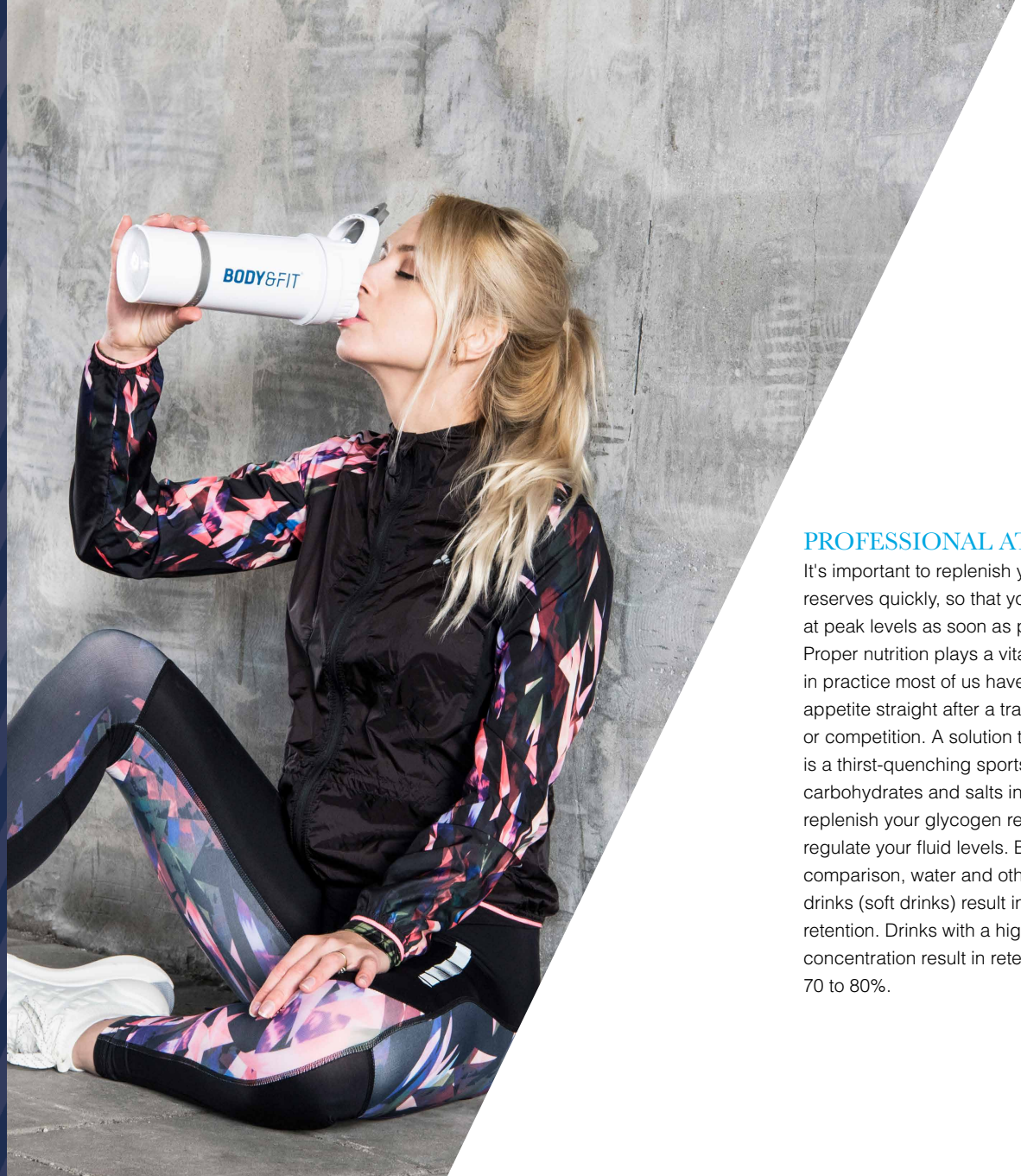
Your body recovers fastest when it receives sufficient carbohydrate within two hours of training or competing. Waiting longer than two hours means your body will take longer to recover. If your body doesn't get the chance to recover fully before the following bout of exercise, you won't be able perform at peak level. It's advisable to consume a carb-rich meal to replenish your glycogen reserves.

Besides carbohydrates, you'll have to top up on proteins after a particularly intensive training session or competition. Your muscles start to tire while you're training or competing, and because your muscles are primarily made up of proteins, you need protein to rebuild them. To aid recovery, take 20 g of protein after exercise. And sufficient rest is essential in addition to proper nutrition. This combination allows the body to repair and prepare itself for your next training session or competition. Training regularly helps make your body fitter and stronger, assuming you're eating the right nutrition and getting enough rest. The type of nutrition needed for optimal recovery varies from individual to individual, and for each type of sport. Protein shakes are an ideal way to increase your protein intake. **WHEY PERFECTION** is the ultimate protein shake in our product range, but **WHEY ISOLATE XP** and **ISOLATE PERFECTION** are great alternatives, too. Faster-acting carbohydrates are available in our **WAXY MAIZE STARCH** or **DEXTROSE PURE** products, and complement our protein shakes nicely! On page 18, you'll find a recipe for a really great-tasting protein shake.

After intense exercise, it's also important to replenish your fluid levels. Make sure you rehydrate sufficiently to maintain healthy fluid levels.

- Eat carb-rich foods to replenish your carbohydrate reserves – 2 g of carbohydrate per kilogram bodyweight within two hours after a period of exercise
- Don't forget your protein intake (20 g)
- Drink sufficient fluids and electrolytes





PROFESSIONAL ATHLETES

It's important to replenish your energy reserves quickly, so that you can perform at peak levels as soon as possible. Proper nutrition plays a vital role, but in practice most of us have very little appetite straight after a training session or competition. A solution to this problem is a thirst-quenching sports drink. The carbohydrates and salts in these drinks replenish your glycogen reserves and regulate your fluid levels. By way of comparison, water and other low-sodium drinks (soft drinks) result in only 50% retention. Drinks with a higher sodium concentration result in retention of up to 70 to 80%.

AFTER EXERCISE

- Proteins for repair
- Carb-rich foods for recovery (25 g of carbohydrate per hour)
- Opt for fast-acting carbohydrates
- Get plenty of rest for optimal recovery
- Drink sufficient fluids and electrolytes

After exercising, think about your fluid, protein and carbohydrate intake.


RECIPES

As a finishing touch, add some low-fat fromage frais and fruit. Bon appetit!

BANANA OAT PANCAKES

THREE PANCAKES

INGREDIENTS

- 35 g **Ultra Fine Oats***
- 100 ml **skimmed milk**
- 1 **banana**
- 1 **egg**
- 1 teaspoon **cinnamon**
- **pinch of salt**

EXTRA ITEMS

- **frying pan**
- **Smart Cooking Spray***

PREPARATION

Mash the bananas with a fork in a bowl. Add the Ultra Fine Oats, milk, egg, cinnamon and a pinch of salt. Mix together until it has a smooth, even consistency. Heat the Smart Cooking Spray in a frying pan. Fry up three small pancakes.

Bon appetit!

NUTRITIONAL INFORMATION

ENERGY **358.6 KCAL** | FATS **8.58 G** | CARBOHYDRATES **53.03 G** | FIBRE **7.33 G** | PROTEINS **16.58 G**

RECOVERY
PROTEIN SHAKE

1 SERVING

INGREDIENTS

- 250 ml **skimmed milk**
- 1 scoop **Whey Perfection***
- 35 g **Ultra Fine Oats***
- 1 tablespoon **Pure Cacao Powder***
- 1 pinch of **salt**

EXTRA ITEMS

- **blender***

PREPARATION

Add all the ingredients in a shake beaker and shake until the mixture has a smooth, even consistency.

Cheers!

NUTRITIONAL INFORMATION

ENERGY **399.45 KCAL** | FATS **8.13 G** | CARBOHYDRATES **39.25 G** | FIBRE **8.93 G** | PROTEINS **39.2 G**

OATMEAL & FRUIT
ENERGY BARS

10 BARS

INGREDIENTS

- 200 g **Ultra Fine Oats***
- 80 g **Natural Peanut Butter***
- 150 ml **skimmed milk**
- 2 scoops **Whey Perfection***
- 20 g **Chopped Pure Brown Almonds***
- 20 g **Pure Goji Berries***
- 50 g **Pure Cranberries***
- 30 g **dried apricot or apple***

(or other dried fruit of your choice)

- 2 teaspoons **grated orange rind**

EXTRA ITEMS

- **baking tray**
- **greaseproof paper**
- **Smart Cooking Spray***
- **food processor***

PREPARATION

Line the baking tray with greaseproof paper and spray with Smart Cooking Spray. Mix the Ultra Fine Oats, peanut butter and milk until you achieve a smooth, even consistency. Add the protein powder. Mix briefly, then add the chopped almonds, goji berries, cranberries, dried apricot or apple, and the grated orange rind. Spread the mix on the baking tray and cover with a sheet of greaseproof paper. Allow to set for a night in the fridge.

Bon appetit!

NUTRITIONAL INFORMATION (PER BAR)
ENERGY **197.59 KCAL** | FATS **7.27 G** | CARBOHYDRATES **20.9 G** | FIBRE **4.16 G** | PROTEINS **10.79 G**

RECOMMENDED PRODUCTS

BODY&FIT®

FOR ENDURANCE ATHLETES

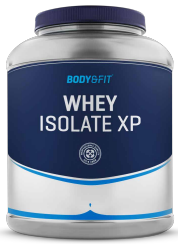
Free **gift** with every order

Next-day delivery when you order before 10 pm

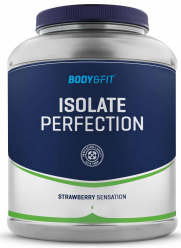
#1 WHEY PROTEIN SHAKE

Whey Perfection

Magnificent



Whey Isolate XP



Isolate Perfection

Ultra Fine Oats

Protein & Oat Bar

Waxy Maize Starch

Pure Oatmeal

Dextrose Pure

Isotonic Sports Drink

Stay Strong

Vitamin C

Multi Men

Multi Women

Vitamin B12

Vitamin D3 3000 IU

Magnesium Citrate Capsules

Rocket Fuel Energy Gel

Rocket Fuel Energy Bar

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