

TORQ. To the land down under.

TORQ PERFORMANCE THE POWER OF TORQ RESOURCE

TORQ. From the United Kingdom...

INTRODUCTION

We do sincerely believe that we have designed class-leading performance nutrition products, but we want you to use them appropriately and know how, when and why you should be combining them? Consistent with our Fitness Consultancy service, our intention is to make our recommendations crystal clear. You will find that there are a few very simple rules that you'll need to employ – rules that hopefully with the aid of this resource you'll never forget.



TORQ PHILOSOPHY

We have developed our range of performance nutrition products through a need to offer the highest standard of support to the athletes we work with. We critically analyse every product on the market and take on board their best features – and then improve upon them – every little detail – without compromise. We ask our clients which types of products they prefer to use and continually develop and perfect our range. We hope that the comprehensive nature of this brochure is testament to this.

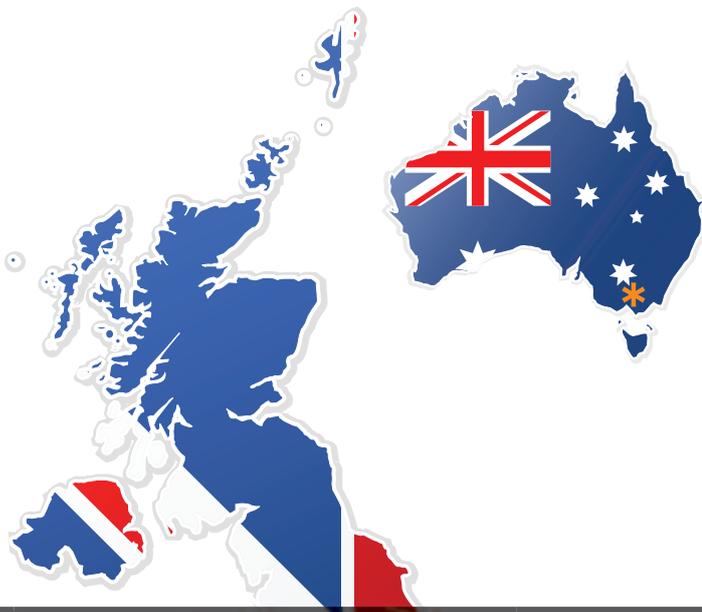
Mountain Biking is as grueling an endurance sport as any other. Our products are used by elite-level Cross Country racers, Downhillers and 24-hour soloists (yes, people who ride their bikes for 24 hours without stopping) and we sponsor and manage our own Mountain Bike Race Team. We have to be clear about this though.

You don't have to be a Mountain Biker to benefit from TORQ. Our products are used extensively in Triathlon and Road Racing. They have been up Everest and to the North Pole. They are used by Firefighters and Premiership Football clubs. The principles of sports nutrition hold true for any branch of endurance sport – if you have an endurance goal, TORQ is there to help you achieve it.

We have uncompromising standards, yet we also have a conscience. We absolutely refuse to use ingredients that are not derived from a NATURAL source, or don't naturally occur within the human body. We are firmly of the opinion that artificial ingredients like sweeteners offer no performance advantage, can cause stomach discomfort and could potentially harm your health long term. We see no point in including them. Advanced compounds like D-Ribose, HMB and L-Glutamine naturally occur within the human body and represent some of the most potent supplements available on the market today, so why would we want to use anything artificial? Every ingredient we use is included to the levels recommended by available research. We do not cut corners and do not accept compromise. We don't just stock our own products though; we will get behind and support any product we believe to be of benefit to the endurance athlete.

This is why we stock Powertap for instance, a remarkable bicycle hub that provides power (wattage) feedback to the cyclist—a technology we have supported since its conception and one that is now rapidly becoming 'standard kit issue' for any serious competitive cyclist.

So, please read on to find out more about the products and services we offer. We hope you will be as excited about them as we are...



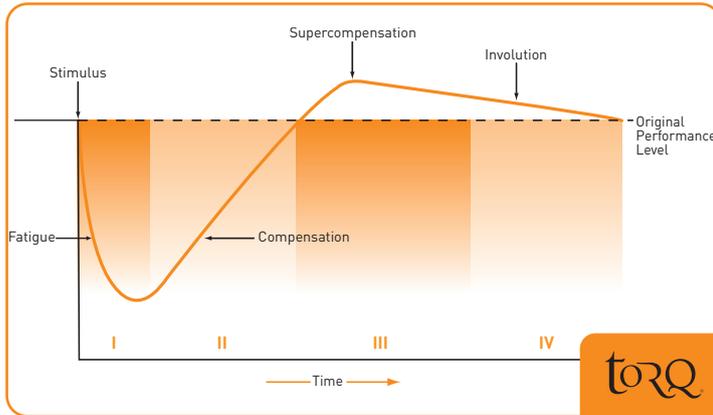
TORQ is a UK-based company,
also distributing out of Australia.



We have developed our range of products through a
need to offer the highest standard of support for the
athletes we work with.

TRAINING THEORY...

To understand Performance Nutrition, first off you need to get to grips with the training process. Once you appreciate this, it will be clear how an athlete's diet in combination with our products will help you to achieve a higher level of performance. We will of course tell you what constitutes an athlete's diet too.



This diagram by Yakovlev in 1967 explains the training process beautifully. If you consider the vertical axis to be your 'energy level' and the horizontal axis to be 'time', Phase I shows the fatigue induced by a training session. Phase II demonstrates the body recovering and Phase III indicates an over-energised state, where the body has actually over-recovered (stronger than it was before the training session). Phase IV shows a regression of form as the over-energising wears off.

Each phase is of importance, but it's Phase III that we're obviously interested in – the getting stronger bit. How does this happen? Clearly and simply, this is how all biological systems respond to a stimulus. We are not machines, so we don't perform the same amount of consistent work, day in day out and get parts changed when they wear out or break. We are adaptive organisms, which means that when we're put through hardship, we become weaker for a short time (Phase I).

The shock of the stimulus causes our bodies to throw every resource they have at the situation (including important components of our diet) to facilitate repair and re-energising (Phase II). It's little wonder then that we get Supercompensation (Phase III) when you consider how over-resourced we become.

Figure 1. Training Theory. Diagram adapted from Bompa 'Periodization: Theory and Methodology of Training'. Human Kinetics (1999).

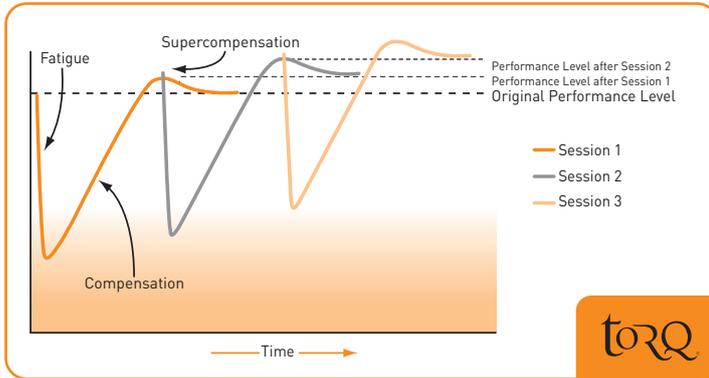


Figure 2. Adaptation Strategy 'A'.

The diagram above shows what happens when you throw a few well-timed training sessions together.

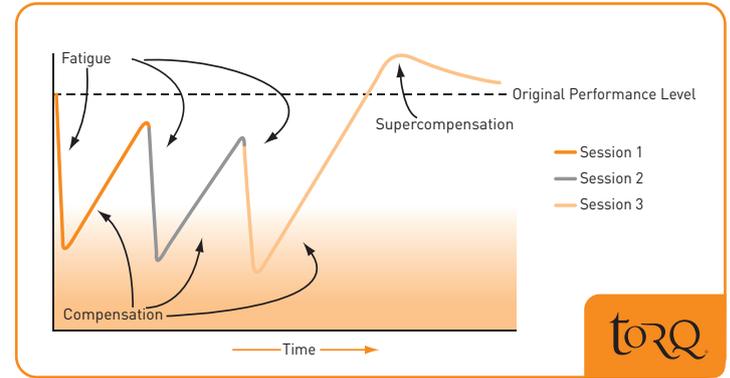


Figure 3. Adaptation Strategy 'B'.

Or you could string a number of training sessions together, deliberately allowing inadequate recovery, thus producing a deep trough of fatigue and a subsequent peak in form for a big event.

FUELLING AND RECOVERY...

As much as we'd like to separate the concepts of Fuelling and Recovery and discuss them independently, it's impossible, because they are unquestionably linked. Once again, it is our intention to clarify the two concepts in the following section before making any specific nutritional recommendations.

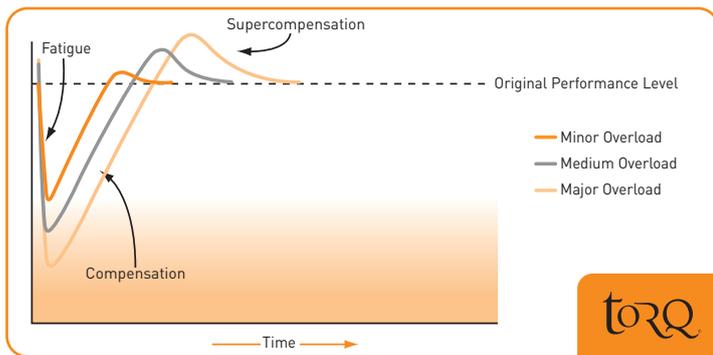


Figure 4. Effect of Magnitude of Overload on Adaptation.

It goes without saying that a well recovered athlete is going to be in a better physiological state prior to an important training session than someone who is tired and under-fuelled. The diagram above demonstrates how a well-prepared athlete is able to generate a bigger training stimulus and therefore gain greater fitness benefit from a training session. Also, consider how an effective fuelling strategy during exercise could prolong and intensify the workout.

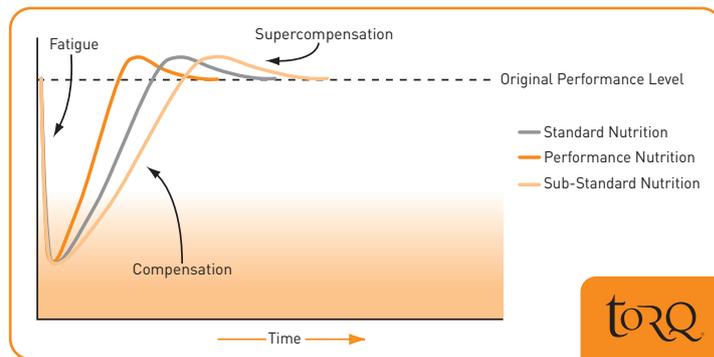


Figure 5. Effect of Nutritional Strategy on Recovery and Adaptation.

This next diagram shows how much quicker an athlete will recover if he/she uses an effective re-fuelling strategy post exercise. If you combine the key concepts in both of these diagrams, it becomes clear that a performance-fuelled athlete will be able to both train harder and recover quicker. It really is as simple as that!

Where does the recovery process start? Logically, if you're going to look for a point in an athlete's training cycle where the recovery process starts, it has to be immediately post exercise. To that end, research has proven⁶ that 1gram of high Glycaemic Index (GI) carbohydrate per Kg of bodyweight should be consumed within 15 minutes of finishing exercise. This is a time

when enzyme activity is elevated and carbohydrate has a greater chance of being stored. Further research suggests^{4,6} that if this carbohydrate is mixed in a ratio of 3:1 with Whey Protein, carbohydrate storage is further facilitated. Either way, high GI carbohydrate intake immediately after exercise is paramount. Some research⁹ has found that these practices also boost the immune system and make you less susceptible to infection immediately after exercise. As 3grams of water are required to store 1gram of carbohydrate, an energy or recovery drink is the recommended vehicle for getting carbohydrate in to your body.

For comprehensive information on TORQ's energy and recovery drinks, please consult the relevant sections of this resource. Both TORQ energy and TORQ recovery contain some highly potent natural micronutrients, which also help to facilitate the recovery process, but we only want to cover the broad principles in this section.

Ongoing recovery: A mountain of research^{4,6,7,9} has found a very high carbohydrate diet to be linked to quicker more comprehensive recovery, which in turn (as hopefully we have demonstrated thus far) leads to more rapid physiological adaptation and improvement in performance. Author's recommendations suggest that anything from 55 to 75% of an endurance athlete's diet should be carbohydrate. Most modern opinions are closer to the 70% mark. For an athlete undergoing heavy training and burning many calories, this is a large amount of carbohydrate, very difficult to consume if eating regular food alone. This is where carbohydrate supplementation can help. During particularly high load training, as well as taking a recovery drink immediately after exercise, it is good practice to consume 1gram of

carbohydrate per Kg of body weight at 2, 4 and 6 hours post exercise also. Remember that to achieve an intake of 70% of your daily calories from carbohydrate, you need to keep your fat intake very low. Protein intake should be moderate, representing 12 to 15% of your daily calories. Vegetarians will need to work harder at this than meat eaters, but it's likely you'll achieve this by default.

We have one product called TORQ energy NATURAL UNFLAVOURED which offers a huge level of versatility. It can be used as an energy drink or can be added to food to boost its carbohydrate content. It is also available in a 100% ORGANIC formulation, certified by the Soil Association. This product is of immense benefit if you're an athlete who struggles to meet your daily energy requirements through carbohydrate. For more information on the 'Invisible Calorie', please consult the relevant section of this resource.

Recovering on the hoof: We believe that fuelling ones self during exercise is the most intelligent form of recovery. It's a pre-emptive effort to limit the damage to ones carbohydrate stores. The human body has the ability to burn 1gram of ingested carbohydrate per Kg of bodyweight per hour whilst exercising. For a 70Kg athlete, this amounts to some 280 calories per hour. Clearly, if the muscles are burning this carbohydrate as opposed to stored carbohydrate, the athlete will be able to exercise harder for longer. Also, for any given training session, the exercise-fuelled athlete's carbohydrate stores will be less depleted than an individual who doesn't take fuel on board. Less depletion equals quicker and more comprehensive post exercise recovery of course.

FUELLING AND RECOVERY...

Recent research^{1,2} has found that if two carbohydrates (Maltodextrin and Fructose) are blended in a 2:1 ratio, an athlete is capable of using 1.3 to 1.4 grams of carbohydrate per Kg of bodyweight per hour. This is a staggering finding and it's looking like all Sports Science texts are going to have to be re-written, because the findings are suggesting a 40% higher carbohydrate utilisation rate than was previously thought possible. As all TORQ energy products are formulated to this specification, we mention this research one of two times in this publication and give clear dosage recommendations. Please bear in mind that these guidelines are relevant to TORQ products only. If using another Sports Nutrition brand, it would be advisable to assume the traditional recommendations of 1gram of carbohydrate per Kg of body weight per hour apply. A comprehensive explanation of the 2:1 Maltodextrin:Fructose findings can be found on the page of this resource dedicated to the TORQ gel.

Research also suggests⁶ that carbohydrate ingestion during exercise protects the muscles. The body will only metabolise muscle protein in the absence of carbohydrate. This process is called 'gluconeogenesis' and is a last resort for the body, where protein is converted to carbohydrate at an energy cost. This is not an efficient or desirable metabolic pathway for the body to take and only occurs in under fuelled athletes.

TORQ offer a variety of fuelling products including TORQ energy, TORQ bar and TORQ gel. All of these products are discussed independently in this resource, but if you think you might be confused as to which product you should use and when, please read the next section entitled 'Using TORQ Products'.





The principles of sports nutrition hold true for any branch of endurance sport
—if you have an endurance goal, TORQ is there to help you achieve it.



USING TORQ PRODUCTS...

To keep this simple, we have split this section into pre, during and post exercise nutrition. Remember, TORQ products are Performance Nutrition Supplements and are not intended to replace a healthy diet; they should be used to supplement it.

PRE-EXERCISE NUTRITION:

The long-established TORQ moto is "Eat today for tomorrow". This means that by the time you're thinking about exercising, all the good work should have been done. If you've skipped the section of this resource that discusses 'Recovery', please read it NOW! If you've done all the right things since your last training session, what you do in the 2 or 3 hours approaching exercise will have little bearing on how you feel. However, we realise that training sessions and races can sometimes be at the most awkward times of day, so you may find yourself in a position where you 'must' eat. Don't consume TORQ energy or TORQ gel in the hour or so before exercise or any other high GI food. You need low to moderate GI foods that don't stimulate high levels of insulin release and keep your blood glucose levels stable. High GI foods will raise your blood glucose levels rapidly, stimulating a panic over-production of insulin, resulting in lower than normal blood sugar and a very weary disposition. You'll be yawning and feeling sleepy just before you exercise.

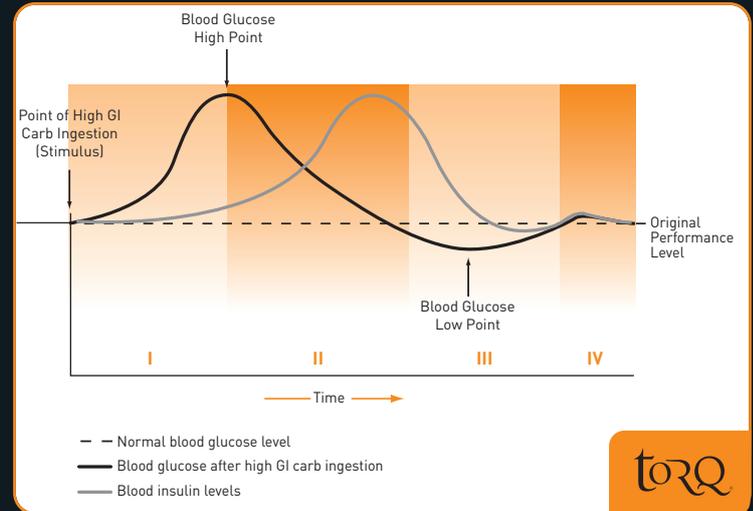


Figure 6. Effect of High GI Carbohydrate Ingestion on Blood Glucose.

Notice how similar this diagram is to Yakovlev's Training Theory (Figure 1.) explained earlier on in this resource. It's an upside down version of the same diagram, confirming that this is the way that biological systems behave.

Consuming low to moderate GI foods prior to exercise has an additional benefit. They release energy slowly into the bloodstream, so often you

derive the benefits of consuming these foods early on in the exercise session. High GI foods have a much faster burn rate. It goes without saying, DO NOT CONSUME HIGH FAT FOODS before, during or immediately after exercise. Generally they're worth avoiding anyway, but they certainly shouldn't figure anywhere near exercise. They will clog up your digestion and block carbohydrate absorption. Fats are the enemy.

So, if you need to eat something in the hour or so before exercise, you're safe with TORQ bar. The ingredients in TORQ bar are wide-ranging in GI, so won't spike your blood sugar.

NUTRITION IMMEDIATELY PRIOR TO EXERCISE:

With about 10 minutes to go, you're safe to take High GI carbohydrates on board, because once you start exercising, your insulin release is much more tightly regulated. TORQ energy or TORQ gels are ideal for this. If you're the kind of person who needs a kick up the backside to get out and exercise, or are overly laid back at the start of a race, try using our Forest Fruits TORQ gel with Natural Guarana 5 minutes before you go. This gel contains 89mg of Caffeine, almost twice as much as any other gel we know of on the market. If you're the kind of person that gets nervous before a race, we'd advise you save the caffeinated gel until the event gets underway, because there's a chance it could make things worse.

NUTRITION DURING EXERCISE:

This is where a lot of people go wrong, so we want to set the record straight. There are two issues you need to address whilst exercising. Firstly there is 'Fuelling' and secondly there is 'Hydration'. If you consider both of these factors and act on them, you will gain a distinct advantage over your opposition.

Fuelling has been discussed at length earlier on in this resource, but as a memory jogger, you are reminded that a good guide for carbohydrate ingestion is 1gram of carbohydrate per Kg of bodyweight per hour. As mentioned in the 'Fuelling and Recovery' section of this resource, if using TORQ products, this can be revised significantly upwards to 1.3 to 1.4grams. If you stick to this strategy, you will not need to take on any calories other than carbohydrate. If you are taking part in an ultra-endurance event where you are obviously missing meals, attention clearly needs to be paid to your protein intake. Our opinion is that you should consider 'normal food' in these situations so that you are taking a psychological break from 'energy food' whilst still attending to your protein needs. In this instance, normal food means 'high protein' and 'low fat'. Once again, avoid fat – it will do you no favours.

USING TORQ PRODUCTS...

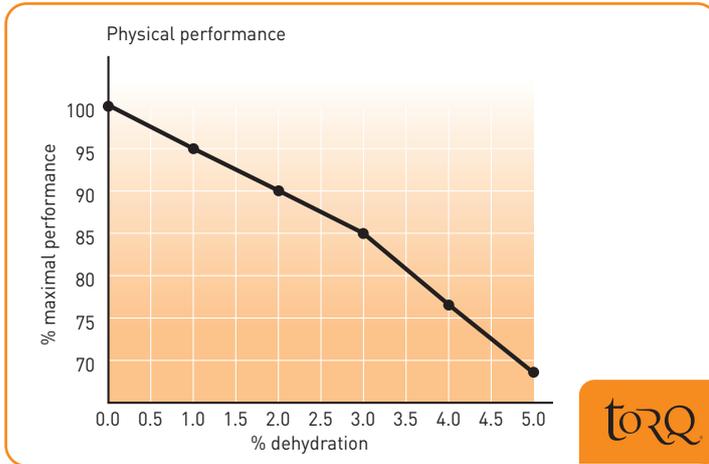


Figure 7. Effect of Dehydration on Performance. Diagram adapted from Wilmore & Costill 'Physiology of Sport and Exercise'. Human Kinetics [1999].⁷

Research⁷ has demonstrated a 5% drop in performance for every 1% your body weight drops through dehydration. In particularly hot and dry conditions, it is impossible to re-hydrate at the rate you are losing fluid, but your advantage over the opposition will hinge on how much you are able to take on board. In short, you want to dehydrate at a slower rate than them!

So, here are some proposed hot and cooler weather nutritional strategies. Please bear in mind that it is conceivable that hot weather principles may apply in a situation where you are exercising extremely intensively in a cooler environment. Similarly, very low intensity long duration exercise in the heat may reduce the necessity for fast hydration. It's all about how much fluid you're losing through perspiration:

HOT WEATHER:

A 6% solution of naturally flavoured TORQ energy is Isotonic. This means that it is in balance with your body fluids, so will hydrate you quicker than water, or a lower/higher concentration of TORQ energy. 6% also means that the drink contains 60grams of carbohydrate per litre, which based on traditional research is enough to satisfy the hourly fuelling requirements of a 60Kg athlete. If you weigh 90Kg, you'll need to consume 1.5 litres of fluid per hour to get the fuel you need. If you consider that TORQ products deliver up to 40% more carbohydrate than the traditional formulations, you could experiment with significantly higher fluid intake, because the carbohydrate will be utilised. At a 6% solution, we do realise that this is an awful lot of fluid to take on board if you are going to ingest the optimal amount of carbohydrate (1.3 to 1.4 litres of fluid per hour for a 60Kg athlete), so we are aware that you may need to compromise optimal carbohydrate intake for hydration. Our recommendations are clear however. Drink as much as you can. Running an isotonic solution and drinking a lot of it is by far the most effective way of simultaneously fuelling and hydrating oneself whilst exercising in the heat. Please also be aware that the unflavoured TORQ energy does not contain electrolytes, so is not the best choice of product in the heat.

Where it can all go wrong in the heat: What happens if you pop a TORQ gel or eat a TORQ bar in these environmental conditions? A TORQ gel mixed in your stomach with a 500ml of isotonic TORQ energy will make an 11% carbohydrate solution! You'll satisfy your energy requirements, but your fluid uptake will be seriously compromised. Don't do it. Forget the gel and just keep drinking lots of the 6% TORQ energy. The same applies to using TORQ bars in the heat.

Can you use TORQ gel and TORQ bar in the heat at all? Yes, you can, but avoid using them with an energy drink. Some people don't like using energy drink and prefer to use gels or bars with water. It's a preference, that's all – you can do either/or. Also, sometimes you have no choice, because you're competing in an event where they only hand out water. TORQ gels are a lifesaver in situations like this, because they're effectively a very concentrated energy drink. One TORQ gel contains 28grams of carbohydrate, so you should be aiming to drink just under 500ml of water per TORQ gel. A TORQ bar contains 45grams of carbohydrate, so you're looking at 750ml of water per TORQ bar. Then all you need to work out is how much product you need to satisfy your energy requirements too.

For instance, if you weigh 60Kg, assume that you will use 1.3grams of carbohydrate Kg of bodyweight per hour ($1.3 \times 60 = 78$). So you need 78grams of carbohydrate and 1.3 litres of water.

Mixing TORQ energy with TORQ gel or TORQ bar in the heat: You can do this, but remember to switch to water when you introduce the gels or bars.

Once again, please be aware of the TORQ products that contain electrolytes.

Only naturally flavoured TORQ energy and TORQ gel contain electrolytes. TORQ bars do not. Therefore, leaning towards flavoured TORQ energy or TORQ gels is advisable if exercising at high intensity in the heat. TORQ bars tend to be a better fuelling choice at lower exercise intensities when exercising for a long duration, or in generally cooler weather.

COOLER WEATHER:

All the same principles apply here, except that hydration is less important. You will still need to fulfil your energy requirements, but this time using less fluid. Much of the research that has looked at the 2:1 Maltodextrin:Fructose mix has done so at solutions of 9% carbohydrate, so it's in the cooler environmental temperatures when you're able to push your body so much closer to its limits, where you could potentially benefit most from using our products. Naturally flavoured TORQ energy has been designed to be mixed safely at both 6% and 9%. All 5 electrolytes sit within the research recommended⁴ levels at both concentrations. If you find the flavour of TORQ energy too strong, you can mix the flavoured and unflavoured products. Try going for 6% flavoured and 3% unflavoured. Generally speaking, in a 500ml bottle, use 2 level scoops of flavoured and one of unflavoured. In a 750ml bottle, use 3 level scoops of flavoured and one of unflavoured.

What happens if I use TORQ energy at 6% in cooler conditions? At this concentration, you will need to drink a lot of fluid to satisfy your energy requirements and as your perspiration rate won't be particularly high, your bladder will fill up. This is obviously both inconvenient and impractical, especially if competing.

USING TORQ PRODUCTS...

Mixing TORQ energy with TORQ gel and TORQ bar in cooler conditions:

This is much easier to do in cooler weather than in the heat and we certainly have a strong opinion that it's a better option than simply mixing a stronger energy drink. If you mix your TORQ energy at 9%, there's less flexibility. If the weather turns hot, or you end up exercising at a higher intensity than you'd envisaged, you're stuck with a 9% solution, but the beauty of the TORQ gels in particular is that they are just a concentrated version of our energy drink. So, you could mix your TORQ energy at 6% and regulate your carbohydrate intake using the gels.

For instance, if a 60Kg athlete is consuming 500ml of TORQ energy at a 6% mix, he/she will get 30grams of carbohydrate per hour from this. We have already established that this athlete needs 78grams of carbohydrate per hour, so he/she is missing 48g. One TORQ gel every 40 minutes would do the tick (28g carbohydrate per gel) or a TORQ bar every hour (45g carbohydrate). Once again, during high intensity racing, gels tend to be preferred over bars, but you can experiment yourself to see what works for you.

Forest Fruits TORQ gel with Natural Guarana: This product has two functions. Firstly, it provides carbohydrate like the other TORQ gels for fuelling purposes, but also it delivers a very high dose of caffeine for nervous system stimulation. If taken during the main body of exercise, stick to the principles discussed in this section of the resource. However, the product can be used for a 'boost' when you're flagging at the end of a race. If this is the case, just go for it. Perhaps your nutrition will be pushed momentarily out of 'isotonic', but the benefits of the caffeine at this stage will outstrip the disadvantages.

Post Exercise Nutrition: The concept of recovery nutrition was covered comprehensively earlier on and is covered in further detail later on in this resource, so we'll save on paper and cover this quickly. TORQ recovery contains 3:1 carbohydrate to Whey Protein mix to re-stock your carbohydrate stores and some very clever naturally occurring micronutrients (D-Ribose, HMB and L-Glutamine) to help with growth and repair. Functionally, this product is nothing short of incredible. This product should be mixed as per the recommendations on the side of the tub and consumed within 15 minutes of finishing exercise.

For the budget conscious? At the very least, you should be consuming an energy drink immediately after exercise. Our natural unflavoured TORQ energy is ideal for this and can be used to supplement TORQ recovery 2, 4 and 6 hours post exercise too.



TORQ RAW:

These products are on our shelves because, as a Fitness Consultancy, we want to offer a complete and thorough service. Everyone's needs and requirements are different and by talking to you, often we can recommend a blend of our products that will suit your situation. For example, older athletes tend to lose lean muscle mass, so a daily intake of TORQ HMB will help them to hold onto it. Some people suffer from a weak immune system, which is where TORQ glutamine can help. TORQ ribose can help ultra-distance athletes to recover 'on the hoof' and TORQ carnitine helps to mobilise fat as a fuel.

All of the TORQ raw supplements are discussed in detail later on in this resource, but you can always get in contact with us if you have a specific situation you would like to discuss?



SCENARIO DIAGRAMS

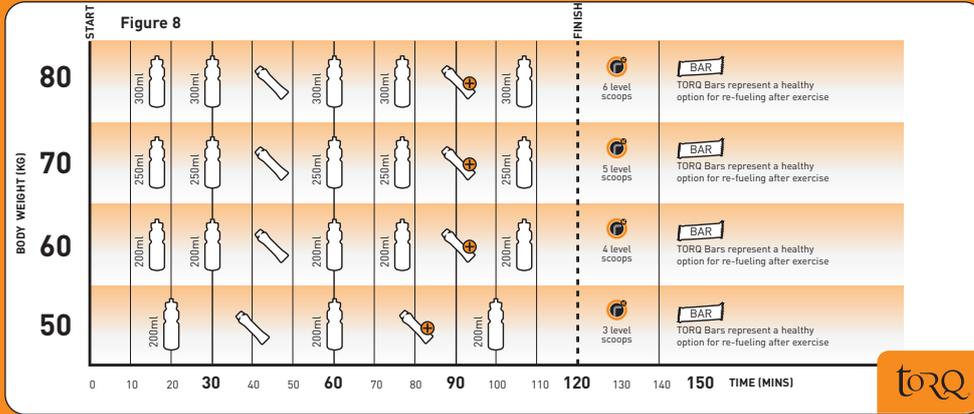


Figure 8. TORQ nutritional strategy for a high intensity endurance competition (2 hours) in COOL environmental conditions.

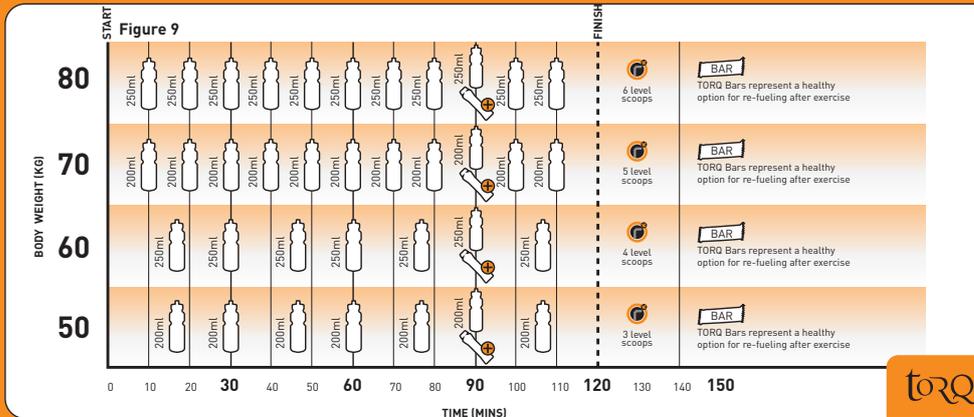


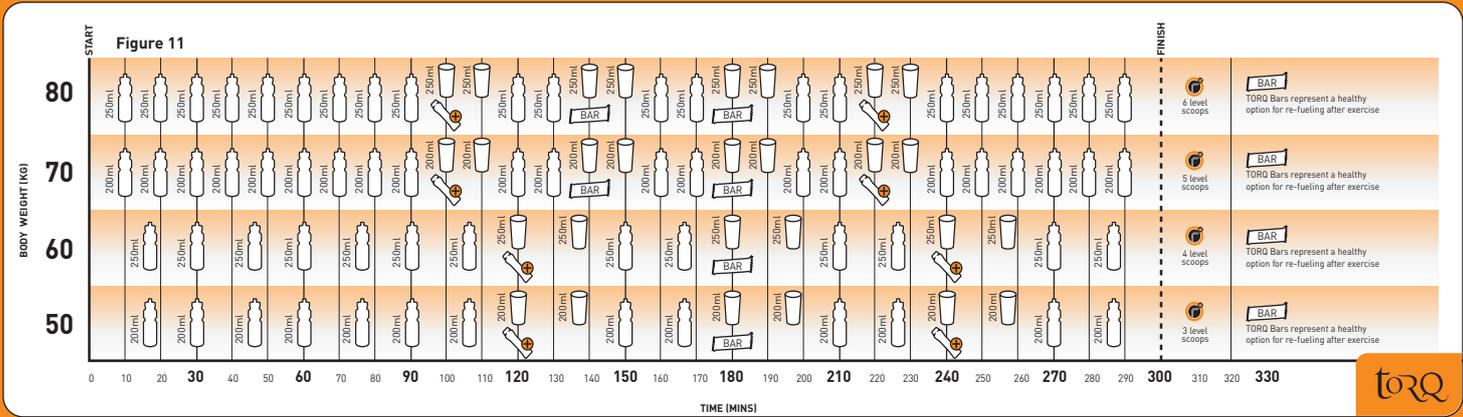
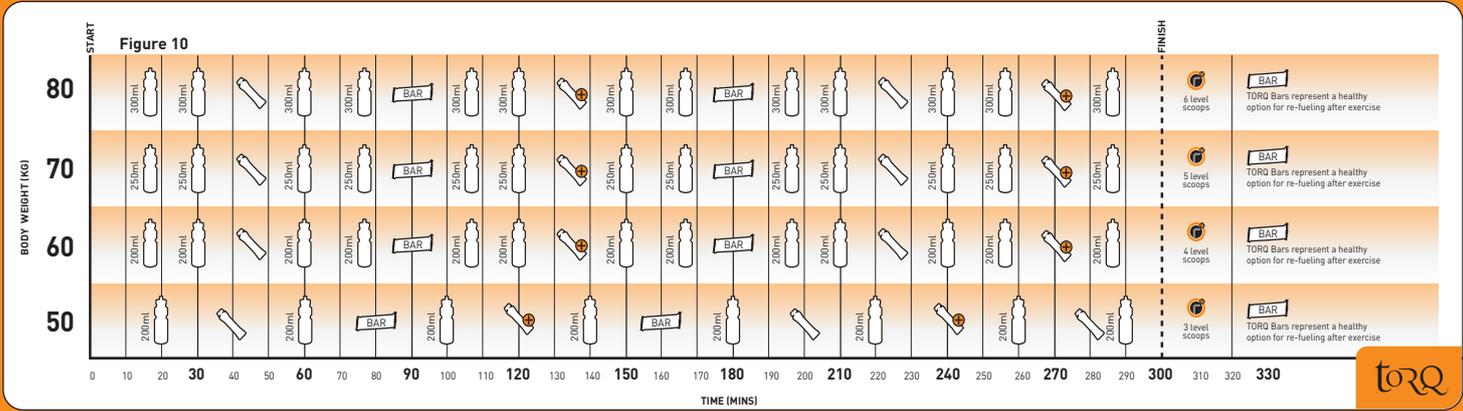
Figure 9. TORQ nutritional strategy for a high intensity endurance competition (2 hours) in HOT environmental conditions.

Figure 10. TORQ nutritional strategy for a low intensity ultra-endurance competition (5 hours) in COOL environmental conditions.

Figure 11. TORQ nutritional strategy for a low intensity ultra-endurance competition (5 hours) in HOT environmental conditions.

Please note that these examples have been published to help you to formulate your own nutritional strategy based on your reading is the accompanying text. TORQ products can be used differently to achieve the same results. For instance, certain individuals will prefer to take gels more regularly and hydrate with water instead of using an energy drink. It really comes down to personal preference – just follow the rules and you won't go wrong...





PRODUCT SCREENING

TORQ has a very strict Anti-Doping stance and we guarantee the purity of our products. As you begin to understand our philosophies, you will learn that we always source the most natural of ingredients and have made it our mission to produce the finest, most technologically advanced Sports Nutrition range in the world without resorting to the use of artificial/chemical additives. We can think of no artificial ingredient capable of enhancing sporting performance that isn't listed on the WADF banned substances list. In fact, we are firmly of the conviction that artificial/chemical substances like sweeteners, colours and artificial flavours are likely to oppose successful sporting performance, which gives all the more reason to steer well clear of them.

All of our TORQ bars contain a very high percentage of Fairly Traded fruit and we are the producers of the first ever Organic powdered energy drink with full Soil Association Certification. We are also developing two new products in 2009, both of which are Fairly Traded and 100% Organic. This is our current stance and TORQ will continue to evolve in a way that we perceive our customers are comfortable with.

TESTING FOR PROHIBITED SUBSTANCES:

One would think that with our commitment to purity, that it wouldn't be necessary for us to test our products for the presence of substances listed on the WADF 'banned' list? You'd be right. We don't think its necessary either, but there's one sticking point. It is illegal for us to state to our customers that our products are 'Guaranteed Drug-Free' unless we test them for the presence of these substances.

Testing for prohibited substances is not an inexpensive process, but we feel it is necessary to provide professional athletes with the assurance and confidence they need in such an uncertain world. A few years ago, many sports supplement brands were tested independently and an alarming number were found to contain traces of substances that could give rise to a positive dope test. We want to make absolutely sure that this accusation will NEVER be levelled at us.

Just to put this issue into perspective though. When you're sitting down eating your breakfast cereal in the morning, do you worry that your food may contain banned prohibited substances? We're pretty sure it wouldn't cross your mind, but by taking the stance that we do, we can offer an unparalleled level of purity assurance, simply because we have a testing regimen in place for our products. Standard food products and ingredients you purchase from a supermarket are not tested for banned substances.

TESTING PROCEDURE:

TORQ products are random-tested under ISO17025 by an independent laboratory. With the exception of the TORQ bar, all of our product classes are produced from the same batch of ingredients. For instance, all of our energy drinks are made from the same batch. The only differential is the Natural Flavour, which defines how they taste. The same goes for our Recovery Drinks and Gels. We test one flavour from each product class and believe that this accurately represents the entire batch of flavours for that product. For instance, we produce four different flavours of TORQ energy from one batch and then we send one of the flavours to the lab for testing. With TORQ recovery, we produce two flavours from one batch

and again send off one flavour for testing. Unless a contaminant is contained within the natural fruit extract used to flavour the product, we are confident that if one flavour passes the test, the others are clear too. In most cases, the natural flavour represents about 2% of the product, so is a very small component of the ingredient matrix.

If we were to pool all of the flavours in a product class and test them as a whole, the sensitivity of the test would be lost and therefore our guarantee would be worth less. If we tested all flavours separately, the cost would be prohibitive and the average person on the street would be discouraged from buying our products due to high prices. We believe that we have struck the perfect balance between having a committed anti-doping stance and being 'sensible'. We realise that everyone who purchases our products wants assurance of purity, but also understand that not everyone wants to pay for product testing when it potentially only benefits an absolute minority of the population (athletes who undergo dope testing). We can therefore offer the following assurances:

1) If you are purchasing TORQ products, we can assure you that one flavour of every batch of a class of products has been tested. In other words, one flavour of TORQ energy will have been tested when we produce a batch of four flavours together. Also, one flavour of TORQ gel will have been tested when we produce a batch of 4 flavours together and one flavour of TORQ recovery will have been tested when we produce a batch of 2 flavours together.

2) If you are an elite athlete or are concerned that you may undergo dope testing, please use TORQ products with confidence. If you need absolute assurance that you are using a product that has been tested and therefore carries a 100% guarantee of being free from any banned substances, please contact us and we will send you product from the tested batch. Flavour choice will be limited, but we will ensure that you receive the correct batch.

3) TORQ bars: Although many of the ingredients that constitute TORQ bars are from the same batch, approximately 12% of the ingredients are not common to all. This simply constitutes the fairly traded fruit that determines the flavour. As unlikely as it is that this could be a source of contamination, it does constitute quite a significant differential between the bars. Once again, cost prohibits us from testing every flavour of bar, but TORQ always holds at least one batch of bars that have been tested. These are usually the Banana or Pineapple and Ginger bars. Once again, we feel that this random testing is sufficient to offer purity assurance for our full range of bars, but if you are an athlete wanting absolute assurance that your product has been tested, please contact us directly and we will supply you with 'tested' product.

If you have any questions at all about our testing program, please do not hesitate to get in contact with us.



TORQ BAR

- Moist and chewy
- High in complex carbohydrate
- Very low in fat
- With TORQ ribose*
- Flavoured with fairly-traded fruit
- No colours, artificial flavours or preservatives

TORQ bar has been painstakingly formulated to produce a food that is ultra high in carbohydrate, very low in fat and with ingredients wide-ranging in glycaemic index for immediate and sustained glucose release.

Just as important, this bar has been designed to taste great with a cup of tea too! All too often energy bars are dry and difficult to eat - and those that aren't contain far too much fat. TORQ bars are delicious, moist and chewy, containing just over 2grams of fat per 100 (a little over a gram per bar) and packed with usable carbohydrate. This makes it the perfect food and fuel choice before, during and after exercise.

TORQ bar was developed to satisfy the needs of athletes and physically active people. Many energy bars on the market cater for some of these needs, but we don't believe they have addressed them all. Here is what athletes and physically active people need:

- **Carbohydrate:** They 'need' carbohydrate full stop. They 'need' it whilst they exercise to spare their limited glycogen reserves and at rest to top their valuable stores back up again. TORQ bar contains over 70 grams of carbohydrate per 100g (in excess of 45 grams per bar) and TORQ bar's unique blend of Maltodextrin and Fructose Syrup maximises 'available' carbohydrate**.
- **Glycaemic Index:** They 'need' a food with ingredients wide-ranging in glycaemic index for immediate and sustained release of glucose into the bloodstream. TORQ bar has been carefully formulated to include ingredients with low, moderate and high glycaemic indices for this purpose.
- **Ultra low fat:** They 'need' a food that is ultra low in fat to guarantee rapid digestion and minimize the intake of ineffective calories. TORQ bar contains only 2 grams of fat per 100g (just over a gram per bar).
- **Easy to eat:** They 'need' a food that is easy to eat, or they won't eat enough of it to derive the benefits. There are too many dry energy bars out there, making it difficult to supply sufficient carbohydrate calories - the ones that aren't dry tend to contain too much fat. TORQ bar is delightfully moist and chewy, yet it remains ultra low in fat and high in carbohydrate.
- **Tasty:** They also 'need' a food that tastes so good that they choose to snack on it in preference to high fat, less effective alternatives. Some energy bars are encapsulated with chocolate to entice the customer into buying. Many of these bars taste great, but you can't coat a bar with chocolate and keep it low in fat. Therefore the product becomes compromised and less effective in supplying useful energy. The careful formulation and preparation of TORQ bar has ensured a delicious deep flavour, with a mouth-feel more commonly associated with a higher fat food.
- **Ribose:** Finally, athletes and physically active people 'need' to recover quickly if they are to maintain a lively performance day in day out. The simple and complex carbohydrates in TORQ bar will rapidly re-stock the body's depleted glycogen stores, but will do nothing to address the actual energy charge of the muscle cells. After particularly heavy physical training, full recovery at a cellular level can take many days. Research has proven that supplementation with ribose can boost cellular recovery by a staggering 340-430%*.

Ribose is natural sugar present within every living cell of the body and is used to manufacture ATP (the energy currency of the cell) from scratch. Whilst the body can manufacture its own ribose from glucose, this requires energy and is a very slow process. Supplementing with ribose simply bypasses this course of action.



TORQ bar has been painstakingly formulated to produce a food that is ultra high in carbohydrate, very low in fat and with ingredients wide-ranging in glycaemic index for immediate and sustained glucose release.

TORQ bars are made with a high proportion of fairly traded fruit and our ingredient listings are simple and NATURAL.

TORQ Bars weigh 65g, are sold individually or in packs of 24 and are available in the following flavours:

TANGY APRICOT // SUNDRIED BANANA // RASPBERRY & APPLE // PINEAPPLE & GINGER // NEW FLAVOUR FOR 2009: ORGANIC MANGO & GOJI (Certified Organic by the Soil Association)

Typical Ingredients (Tangy Apricot): Oats, Raisins, Maltodextrin, Fructose Syrup, Apricot (12%), Puffed Rice, Ribose (0.77%), Vitamin & Mineral Mix.

Nutritional Information (Per 100g): Energy 1346KJ / 322Kcal, Protein 3.8g, Carbohydrate 71.7g, (of which is sugars 33.6g), Fat 2.1g, (of which saturates) 0.7g, Fibre 5.9g, Sodium 49mg, Niacin 6.5mg (36%)**, Vitamin E 4.0mg(50%), Pantothenic Acid 2.3mg (38%), Vitamin B6 1.0mg (50%), Riboflavin 0.9mg (56%), Thiamine 0.7mg (50%), Vitamin A 40µg (50%), Folic Acid 100µg (50%), Biotin 75µg (50%), Vitamin D 1.5µg (30%), Vitamin B12 0.8µg (80%), Zinc 7.5µg (50%), Iron 7µg (50%).

*** (%) = Percentage of Recommended Daily Allowance

** For further information, refer to the section of this presentation entitled 'TORQ energy NATURAL FLAVOURED'

* For further information on Ribose, refer to the section of this presentation entitled 'TORQ ribose'



MOIST & CHEWY
Pack of 24 bars

Everest Summit

TORQ ENERGY

NATURAL UNFLAVOURED

- Complex carbohydrate energy drink
- Neutral (flavourless)
- Can be added to food
- ORGANIC or non-organic options
- No colours, flavours, artificial sweeteners or preservatives
- Also available in NEW 'Single Measure' re-usable and recyclable aluminium canisters.

TORQ energy NATURAL is made from an ingredient called 'Maltodextrin' often referred to as a glucose polymer. A glucose polymer's molecular profile optimises the long-term energy providing properties of complex carbohydrates, without the need to consume bulky starch-rich foods.

These bulky foods take a longer time to digest because they contain fibre, an important, but metabolically useless nutrient. They also fill and bloat your stomach making movement and sport in particular more difficult. TORQ energy, when diluted with the correct amount of water, delivers a sustained supply of glucose to the working muscle.

TORQ energy NATURAL's major benefit is its versatility. Not only can it be mixed at high concentrations with water to produce a neutral-tasting energy drink, if you want to flavour it, you can add your own cordial,

or you can add it to food where it represents a highly effective invisible carbohydrate calorie.

TORQ energy NATURAL is also available in an organic form. Functionally both products are identical, however TORQ energy NATURAL ORGANIC is derived from an organic maize crop.

When should I use TORQ energy?

- **As a supplement to your regular nutrition during heavy training /racing periods:** Sometimes it is just impossible to get enough calories from a regular diet to fuel your performance. 4 level scoops of TORQ energy dissolved in 750ml of water is equivalent in energy to a medium sized bowl of pasta. TORQ energy can also be added to all sorts of regular food. Sprinkle TORQ energy onto your breakfast cereal, or add to your favourite sweet or savoury recipes. You are unlikely to notice that it has been added; yet it will enhance the carbohydrate content of the food significantly. If you use TORQ energy in this way, please ensure that you drink plenty of extra water as this is necessary for effective glycogen storage.
- **While you are exercising:** It is very unlikely that you will replace all of the energy you are using, unless you are riding particularly slowly, but research has proven that regular intake of a glucose polymer whilst exercising will delay the onset of fatigue. Aim to consume 1g of TORQ energy per Kg of bodyweight per hour whilst exercising.

- **Within 15 minutes of finishing exercise:** This is the best time to get carbohydrate into your system (while enzyme activity is elevated) and solid food isn't always appealing at this time. For optimal recovery, aim to consume 1gram of TORQ energy per kilogram body weight, or between 60 and 80g (4-5 level scoops) immediately after exercise and repeat this procedure every 2 hours for the next 4-6 hours. For optimal muscle recovery, please refer to the section of this leaflet entitled 'TORQ recovery.'
- **For carbohydrate loading:** Research has shown that if you elevate your carbohydrate intake for the days leading up to an endurance event, you will super-charge your muscles with glycogen, enhancing your performance and extending time to exhaustion. There are a variety of carbohydrate loading methods. One of the most recent and highly effective methods trialed by the University of Western Australia is to perform a 3 minute all-out effort 24 hours prior to your event, then consume 12g of carbohydrate per Kg of bodyweight in the period up to the event. Please note that these figures represent the recommended amount of total carbohydrate, so use TORQ energy to help you achieve these levels.

TORQ energy NATURAL and NATURAL ORGANIC are available in 500g, 1.5kg, 3kg, 5kg & 10kg tubs.

Ingredients (TORQ energy NATURAL): Maltodextrin (Polysaccharide 94%, Maltose 5%, Dextrose 1%).
Nutritional Information (Per 100g): Energy 1605kJ/384kCal, Carbohydrate 99.9g, Protein 0.1g, Fat 0.0g.

Ingredients (TORQ energy NATURAL ORGANIC): Maltodextrin (Polysaccharide 93%, Maltose 3%, Maltotriose 3%, Dextrose 1%). Per 100g:
Nutritional Information (Per 100g): Energy 1620kJ/382kCal, Carbohydrate 95.0g, Protein 0.0g, Fat 0.0g.



TORQ ENERGY

NATURAL FLAVOURED

- Optimal carbohydrate blend
- With electrolytes
- Natural flavours
- No colours, artificial sweeteners or preservatives
- Also available in NEW 'Single Measure' re-usable and recyclable aluminium canisters.

TORQ energy NATURAL FLAVOURED is a naturally flavoured high carbohydrate energy drink, containing no artificial sweeteners, colours or preservatives. TORQ energy NATURAL FLAVOURED has been painstakingly formulated so that it delivers TORQ's unique blend of carbohydrate and electrolytes to the working muscles through a drink that is lightly flavoured, refreshing and most importantly NATURAL.

This flavoured version of TORQ energy offers all the benefits of TORQ energy NATURAL with a number of significant added qualities:

More available carbohydrate: This drink's ingredient matrix has been brought in line with some of the most recent research into energy drink formulation. Two published studies^{1,2} in 2005 offered quite staggering results when Maltodextrin (TORQ energy NATURAL) was mixed with Fructose (fruit sugar) at a 2:1 ratio. Although Maltodextrin alone has been

proven to be considerably more effective than Fructose in isolation, when the two are mixed in this 2:1 ratio, significantly more carbohydrate is made available for use. These studies have demonstrated that a 2:1 Maltodextrin to Fructose mix caused athletes to burn 40% more carbohydrate compared with consuming maltodextrin alone.

What are the benefits? Quite simply, the increased availability of carbohydrate means that you will be able to sustain a higher pace for longer using TORQ energy NATURAL FLAVOURED, making this product the most advanced formulation available to endurance athletes on the market today

Electrolytes: TORQ energy NATURAL FLAVOURED contains Sodium, Chloride, Magnesium, Potassium and Calcium to replace the electrolytes lost through perspiration and to preserve muscle function. Some brands do not include all of these electrolytes in their formulations—some include none at all.

Ready to drink: Perhaps a small benefit for sure, but if you're going to add flavour to your unflavoured TORQ energy NATURAL, this formulation will save you time. Just add the appropriate measure of product to your water bottle, give it a shake and it's ready to drink.

So, why would you ever buy unflavoured TORQ energy NATURAL after reading about our flavoured products? The benefit of TORQ energy NATURAL is its simplicity. If you don't like flavoured products and want a neutral-tasting beverage, TORQ energy NATURAL is as effective at providing energy as any other product available on the market today.

It can also be added to food as an invisible calorie to boost the carbohydrate content. It is not recommended that you mix TORQ energy NATURAL FLAVOURED on its own above 9% carbohydrate or you will overdose on electrolytes, so during cooler weather you can add TORQ energy NATURAL if you want to run a higher concentration.

TORQ energy NATURAL FLAVOURED is available in 500g, 1.5kg and 3kg tubs in the following flavours:

NATURAL ORANGE // NATURAL LEMON // NATURAL LIME & LEMON // NATURAL PINK GRAPEFRUIT

Typical Ingredients (Natural Orange): Maltodextrin, Fructose, Citric Acid, Natural Orange Flavour (3%), Electrolytes (Sodium Chloride, Calcium Lactate, Potassium Chloride, Magnesium Carbonate).

Nutritional Information (Per 100g): Energy 1522kJ/365kCal, Carbohydrate 91g (of which 23g sugars), Protein 0g, Fat 0g.

Electrolytes (mg/l) [@ 6% Concentration]: Chloride (941), Sodium (550), Potassium (127), Calcium (50), Magnesium (11.4).



TORQ GEL

- Optimal carbohydrate blend
- With electrolytes
- Natural flavours – including yoghurt flavours!
- Light texture
- No colours or artificial sweeteners
- Naturally caffeinated option

Forgive us for repeating ourselves on the 2:1 Maltodextrin:Fructose concept, but if you've just picked up this brochure and flicked straight to this page, we figure that you'll be relieved that we've explained it again!

Maltodextrin used in isolation has been proven to be considerably more effective than glucose used in isolation because of its lower osmolality in the gut. However, the recent research^{1,2} stated above compared traditional 'maltodextrin only' formulations with a 2:1 Maltodextrin:Fructose blend and the results are nothing short of staggering.

TORQ energy, TORQ's energy drink is formulated using the same 2:1 technology, and our TORQ bars are too, so regardless of the TORQ product you're using (or combination of them), the current research^{1,2} demonstrates that you won't get a higher carbohydrate delivery and utilisation from any other food or drink.

The reason a 2:1 Maltodextrin:Fructose formulation works so well is actually rather simple, but it has been overlooked by research scientists

until recently. This is because Fructose (fruit sugar) has always been deemed slow and ineffective because of its low glycaemic index. Glucose on the other hand was the preferred sugar for use in sports drinks until Maltodextrin (a polymer containing many glucose molecules) was discovered.

Maltodextrin is the best carbohydrate to use in isolation, but what happens if you mix Maltodextrin with Fructose? Basically, unlike Maltodextrin and Glucose, which compete with each other for absorption, Maltodextrin and Fructose are absorbed in parallel, so you get the ultra-fast energy supply from Maltodextrin, plus the slower energy release from Fructose. In total, there's a 40% greater delivery of carbohydrate to the working muscle. The peer-reviewed research studies^{1,2} are two of an increasing number of well controlled investigations that have demonstrated these findings and 'peer reviewed' means that the results have been published in a reputable scientific journal. Be wary of claims by manufacturers that cite 'University Studies' without referencing a mainstream publication.

Based on the results of these recent studies, we suggest that an athlete consuming TORQ products can use 1.3 to 1.4 grams of carbohydrate per Kg of bodyweight per hour whilst exercising. For years, Sports Scientists have been recommending the much lower level of around 1 gram of carbohydrate per Kg of bodyweight per hour and this is all you can expect to absorb through maltodextrin only or maltodextrin/glucose based products.

So that's the science, what about the taste? We've said it before and we'll say it again. We do not accept compromise at TORQ. The flavours of these gels are sensational. Without the need to resort to using dairy and using natural extracts, we have created two yoghurt flavours (Strawberry and

Black Cherry). We accept that some people don't like the taste of yoghurt though, so have produced two non-yoghurt flavours too (Orange & Banana and Forest Fruits).

The texture of the TORQ gel is light and syrupy. It doesn't stick to your mouth and you don't need water to wash it down. We have deliberately designed this gel to be easy to consume when you are on the move.

NATURAL Guarana: Three of our gels do not contain any caffeine, but the Forest Fruits one does. There's 89mg of caffeine in each Forest Fruits gel. Most other caffeinated gels on the market only contain 50mg per serving. They also tend to use chemically manufactured caffeine, where as we use a Natural Guarana Extract – it turns the gel a rich gold colour. The Forest Fruits gel gives you a huge kick. The caffeine stimulates your nervous system, improving muscle function, fat burning, mental focus and reaction time, so is an ideal product to use in the latter stages of a race or for ultra-distance competitions.

Each TORQ gel weighs 45g. They are sold individually or in cases of 20 and are available in the following flavours:

**STRAWBERRY YOGHURT // BLACK CHERRY YOGHURT // FOREST FRUITS
// ORANGE & BANANA**



TORQ RECOVERY

- Optimal blend of carbohydrate and protein
- Ribose, HMB and Glutamine for rapid recovery
- Silky smooth
- Natural Flavours
- No colours, artificial sweeteners or preservatives



TORQ recovery is a highly advanced post-exercise nutritional drink formulation that has been designed to repair, recharge and refuel fatigued muscle tissue after heavy exercise. TORQ's unique matrix of Glucose Polymers, Fructose and Whey Protein Isolate stimulate the rapid absorption of carbohydrate to re-stock vital glycogen stores. TORQ's active ingredients, D-Ribose, HMB, L-Glutamine and blend of carefully selected vitamins and minerals work together to repair and recharge over-stressed muscle fibres. We believe TORQ recovery to be the most thorough and effective formulation of its kind on the market today – yet we flavour it NATURALLY and use no colours or artificial sweeteners. There is not a single ingredient within TORQ recovery's formulation that isn't derived from a NATURAL source, or doesn't naturally-occur within the human body.

It is generally accepted that consuming carbohydrate and protein at a 3:1 ratio within 15 minutes of finishing exercise will speed up glycogen synthesis (numerous authors have confirmed this). In other words, it will help you to store carbohydrate more effectively than consuming carbohydrate alone and/or waiting until this 15-minute window of opportunity has passed. It is also generally accepted^{4,6} that whey protein is faster acting and available more quickly than any other kind of protein, thus it provides the amino acids necessary for muscle repair with little delay. TORQ recovery represents this 3:1 blend of carbohydrate and high quality whey protein.

It is TORQ's unique blend of D-Ribose, HMB, L-Glutamine, vitamins and minerals that sets it apart from other recovery products on the market. D-Ribose and HMB are particularly expensive ingredients and it is not unusual for nutrition companies to claim that their products contain these

components, whilst providing too small a dose to have a significant effect. Most other products don't contain them at all. We do not believe in compromise, so every serving of TORQ recovery contains a dose of D-Ribose, HMB and L-Glutamine that has been verified by the available research^{3,4,5}.

For further information on D-Ribose and HMB, refer to the sections of this presentation entitled 'TORQ ribose' and 'TORQ HMB' respectively. Put simply, TORQ ribose rapidly re-charges the muscle cell with energy, whilst HMB acts like a bionic protein, helping to protect the muscle structure against muscle damage and quickly building new tissue that has been stimulated through the training process. It helps your muscles to grow.

L-Glutamine is present in the more advanced recovery products on the market and there's good reason for it. L-Glutamine is the most abundant amino acid in the body, in a large part because it is needed a lot by the brain, intestines, kidneys, lungs and immune system and also because you can manufacture your own. However, if you leave your body to produce its own supply, it will break down muscle tissue in order to make it available. Logic dictates that this is not desirable when you are a training athlete. Therefore, supplementation with L-Glutamine immediately after exercise stops the body scavenging for an alternative supply and eating into your well-earned muscle. It also ensures that plenty of L-Glutamine is available to fuel the immune system. Numerous studies have considered the effects of L-Glutamine supplementation on immune function and although the findings are mixed, there appears to be enough evidence to support its worth⁴. Couple the benefits of L-Glutamine with HMB and it's clear that

there are huge gains to be achieved by taking a supplement containing both of these.

Finally, the vitamins and minerals we blend into TORQ recovery are comprehensive. Heavy exercise takes an inevitable toll on the body and our recovery formulation wouldn't be complete without a generous serving of these essential micro-nutrients.

What is Fruit Pectin? You will note from our listings below that we use this ingredient in TORQ recovery to thicken it. Fruit Pectin is a natural extract of fruit that gives our product a luxurious creamy mouth feel and has been used in jam making for many years. We have harped on about the functionality of this product, but we also think you will find it very pleasant to drink.

TORQ recovery is available in 500g, 1.5kg and 3kg tubs in the following flavours:

CHOCOLATE ORANGE // BANANA & MANGO // STRAWBERRIES & CREAM

Typical Ingredients (Banana & Mango): Skimmed Milk Powder, Maltodextrin, Fructose, L-Glutamine (6%), Whey Protein Isolate, Thickener (Fruit Pectin), D-Ribose (3%), HMB (3%), Natural Banana Flavour (0.6%), Natural Mango Flavour (0.6%), Natural Vanilla Flavour, Vitamin & Mineral Mix.

Nutritional Information (Per 100g): Energy 1464KJ / 351 Kcal, Protein 22.4g, Carbohydrate 61.5g (of which sugars 40.5g), Fat 0.7g, (of which saturates 0.7g), Fibre 4.8g, Sodium 473mg, Niacin 1.6mg (9%)*, Vitamin E 1mg (13%), Pantothenic Acid 0.6mg (10%), Vitamin B6 0.3mg (13%), Riboflavin 0.2mg (14%), Thiamine 0.2mg (13%), Zinc 1.9mg (13%), Iron 1.8mg (13%), Vitamin A 100µg (13%), Folic Acid 25µg (13%), Biotin 19µg (8%), Vitamin D 0.4µg (8%), Vitamin B12 0.2µg (20%).

*[%] = Percentage of Recommended Daily Allowance

TORQ RAW

PLEASE NOTE: Not all supplements are this pure. TORQ's RAW range provides a guarantee of purity and high potency. We use the highest quality pharmaceutical-grade, non-animal based material. We do not mix, blend or dilute.

TORQ RIBOSE

- A naturally-occurring sugar
- Boosts recovery by 340-430%
- Ensures maximal muscular energy charge

Ribose is present within every living cell of the body and is used to manufacture ATP (the energy currency of the cell) from scratch. Whilst the body can manufacture its own ribose from glucose, this requires energy and is a very slow process. Research into ribose supplementation^{3,4} has proven that taking as little as 3-5grams per day will return cellular levels of ATP to normal within 6-22 hours of exhaustive exercise. Without supplementation, this is likely to take between 26 and 93 hours.

Every cell in your body contains ATP (adenosine triphosphate), an energy-rich compound that provides virtually all the energy needed to function on a second-by-second basis. When ATP is broken down into ADP + Pi (adenosine diphosphate + inorganic phosphate) energy is released and this is used to power all our bodily functions. Naturally then, it is the breakdown of ATP within the cells of the working muscles that provides the energy for exercise. Without it you wouldn't be going anywhere!

It is through the metabolism of carbohydrate, fat and protein that ADP + Pi is reformed to make ATP. This ATP is then available to be used for muscular contraction. As the muscle uses it, once again it will break down to ADP + Pi and so it goes on. When exercising, this cycle rapidly and continually takes place in order to satisfy the substantial turnover of energy required.

Research has shown that after maximal high load exercise, the pools of ATP and ADP + Pi in skeletal muscle cells are reduced by as much as 20-28 percent. The mechanisms behind this are rather complex and involve the loss of a compound called AMP (adenosine monophosphate). However, the net effect is that the overall pools of ATP and ADP + Pi within each cell is reduced, which seriously limits their energy potential. It doesn't matter how much carbohydrate you ram into your body, if these nucleotide levels are low, you're not going to have the raw materials available to produce power effectively. To further compound the problem, once AMP has left the cell, there's no getting it back and so ATP and ADP + Pi levels will remain low, perhaps sinking further if another high intensity bout of exercise is experienced.

What is ribose and what does it do?

Ribose is a simple sugar, the carbohydrate backbone of ribonucleic acid (RNA) and deoxyribonucleic acid (DNA), so is a component of the genetic materials used to pass on genetic code from one generation to the next. As well as having this very important function, ribose is also the starting point for the production of ATP. Although cells cannot draw nucleotides back into them to re-form ATP, they can make it from scratch using ribose.

Ribose is found naturally in every living cell of the body and is synthesised from glucose, but this is slow, complicated and requires energy. Supplemental ribose is able to bypass this process, quickly re-building cellular ATP and returning muscle energy levels to normal. Again, research has shown that ribose supplementation increases the manufacture of ATP in skeletal muscle by 340 to 430 percent. It has also demonstrated that ribose improves the cell's ability to salvage and re-use ADP and AMP by as much as 700 percent (these are the nucleotides that are usually lost from the cell for good). These are not 'slight' benefits - they are highly significant.

Why supplement with ribose?

Whilst all living cells contain ribose, there is not enough in the food we eat to re-stock energy levels. Ribose in meat is predominantly lost through the cooking process and there are insufficient quantities of the nutrient in plant foodstuffs to have any effect. Add to this the fact that it can take many days for the body to synthesise its own ribose from glucose and the benefits of supplementing with this nutrient become clear. Supplemental ribose is very quickly absorbed into the bloodstream with much of this absorption occurring before it is even swallowed. Once in the muscle cell itself, ribose can be very quickly transformed into ATP.

We're not suggesting that supplementing with TORQ ribose will make you more powerful. The available research doesn't support this. What the research does clearly indicate however, is that you will recover more quickly after heavy exercise, which means that the quality of your training during periods of high physical load will improve. Our TORQ recovery product contains TORQ ribose at the research recommended levels already, so if



you are using this product, it may not be necessary for you to purchase RAW TORQ ribose also. TORQ ribose in its RAW form can be added to other brand's recovery products if you want to boost their effectiveness or can be used as part of our 'Vegan Recovery' package (featured in this section). TORQ ribose can also be added to your energy drink during ultra-endurance events. This practice can help you to 'recover on the hoof', because the synthesis of ATP from Ribose is extremely rapid, so from 6 hours into an event you will start to benefit from the earlier doses. This is a product strongly recommended for Ultra-Endurance events over 6 hours in duration.

TORQ ribose is available in 200g and 500g tubs.

Ingredients: D-Ribose (100%)

TORQ RAW

TORQ HMB

- Stops muscle breakdown
- Reduces body fat
- Boosts the immune system
- Reduces harmful cholesterol

HMB (Beta-hydroxy beta-methylbutyrate) is a metabolite of the amino acid Leucine. This means that it is a natural bi-product of the breakdown of leucine, a constituent of normal dietary protein. Small amounts of HMB are found in certain foods like catfish, alfalfa and it is a natural component of mother's milk, but generally speaking it's pretty scarce in the average diet. HMB was first discovered in the 1950's and has been studied for several decades, but only really became popular as a sporting supplement in the mid 90's.

HMB has been found to slow down the degradation of muscle protein as well as enhance muscle gain, which means that it possesses both anti-catabolic and anabolic qualities. Early research has demonstrated that HMB supplementation lowers cholesterol and helps strengthen the immune system too.

The research

HMB supplements were first used in the farming industry to help farmers raise leaner cattle and keep them free from infection. Scientists who

studied animals taking HMB found that it increased muscle growth, immune function and reduced subcutaneous fat (the fat stored directly under the skin).

More recent research with human subjects has shown similar benefits. A highly respected research scientist called Dr Steven Nissen and his research team at Iowa State University conducted a study to determine if HMB would prevent muscle breakdown in humans undergoing resistance training and whether differing levels of protein intake would affect muscle mass or strength. They also assessed the effects of training and HMB administration on body fat and lean body mass levels^{4,5,6}.

The researchers found that HMB supplementation decreased muscle breakdown in the group that took 3grams. Muscle strength also increased by 18.4% in the 3gram group, compared with 8% in the placebo group and muscle mass also increased by 2.66lbs and 0.88lbs respectively.

How does HMB work?

HMB is derived from the essential amino acid leucine. Essential amino acids have to be delivered to the body via the diet and usually human HMB production averages around 0.2 to 0.4grams per day, depending on how much leucine is present in the diet. Researchers have experimented with high dietary doses of leucine to see if this results in higher HMB production and although this has worked, for HMB production to reach 'gram' quantities, you would need 20 to 50grams of leucine per day. Supplementing with these quantities of leucine can be incredibly expensive and is likely to upset your stomach. Therefore, supplementing directly with

In order to establish how HMB might work, researchers have formulated hypotheses and tested them. It is known that HMB improves the protein balance by reducing catabolism (breakdown) and increasing anabolism (build-up) of muscle, but it is not fully understood how this occurs. It was first thought that HMB might be blocking the enzymes that carry out this catabolic process or that HMB itself may be an integral part of the cell membranes. While neither of these hypotheses has been ruled out, scientists now believe that HMB is most likely to be a precursor to a vital component of cell membranes, cholesterol. Rest assured, HMB has also been found to reduce harmful LDL (low density lipoprotein) blood cholesterol levels too, so HMB supplementation could reduce the risk of heart disease as well.

How much do I need and when do I take it?

Based on the available research, we suggest a daily dose of 3-5grams. If you are training heavily and using TORQ recovery as a supplement, we suggest that you supplement with TORQ HMB on your 'rest' days (the days you're not using the TORQ recovery product). Remember that TORQ recovery contains your full complement of HMB, so it's not necessary to supplement with RAW TORQ HMB on the days you're using this. Older athletes in particular stand to gain a lot from HMB supplementation, because the aging process hastens the loss of lean muscle mass and if you are vegan, you may wish to consider taking TORQ HMB as part of our 'Vegan Recovery' package featured in this section of the publication.

TORQ HMB is available in 200g and 500g tubs.

Ingredients: HMB (Beta-hydroxy-methylbuterate) 100%

TORQ GLUTAMINE

- Supports the immune system
- Prevents muscle breakdown
- Accelerates recovery

L-Glutamine is the most abundant amino acid in the body, in a large part because it is needed a lot by the brain, intestines, kidneys, lungs and immune system and also because you can manufacture your own. It is actually termed a 'non-essential amino acid', but this can be misleading, because under times of high training stress, if you leave your body to produce its own supply, it will break down muscle tissue in order to make it available.

Logic dictates that this is not desirable when you are a training athlete. Therefore, supplementation with L-Glutamine immediately after exercise stops the body scavenging for an alternative supply and eating into your well-earned muscle. It also ensures that plenty of L-Glutamine is available to fuel the immune system. Numerous studies have considered the effects of L-Glutamine supplementation on immune function and although the findings are mixed, there appears to be enough evidence to support its worth⁴. Couple the benefits of L-Glutamine with HMB and it's clear that there are huge gains to be achieved by supplementing with both of these compounds.

How do I use TORQ glutamine?

To maintain your muscle integrity and fuel the immune system, take 6-10

grams of TORQ glutamine immediately following exercise. Our TORQ recovery product contains TORQ glutamine at the research recommended levels already, so if you are using this product, it may not be necessary for you to purchase RAW TORQ glutamine also. TORQ glutamine in its RAW form can be added to other brands' recovery products if you want to boost their effectiveness or can be used as part of our 'Vegan Recovery' package (featured in this section). If you suffer from a particularly weak immune system, supplementing with TORQ glutamine on your 'rest days' (when you're not using TORQ recovery) may help to ward off infection and illness.

INGREDIENTS: L-Glutamine (100%).



TORQ CARNITINE

- Increases fat burning
- Prolongs endurance
- Increases aerobic power

L-Carnitine is vitamin-like substance formed in the body from several amino acids. It's naturally present in meat (particularly red meat) and dairy and has been linked by many researchers to the increased metabolism of fat. L-Carnitine is not available through vegetable sources, so supplementation with this product perhaps has particular relevance to Vegetarians and Vegans?

Research suggests^{4,6} that a 1-4 gram daily dose of L-Carnitine increases the maximum use of oxygen (VO2 max) and increases endurance (time to fatigue). This occurs because L-Carnitine is linked to the mobilization of Fat. Fat is unusable in its Triglyceride form and needs to be converted to a Free Fatty Acid (FFA) in order for it to be metabolised as a fuel and L-Carnitine helps with this process. A supplement that increases fat burning has huge implications for endurance athletes in terms of increasing aerobic power, sparing muscle glycogen and therefore prolonging time to exhaustion.

It seems clear that Carnitine is most effective when taken long-term. If you have an important competition that you would like to peak for, you should start taking this supplement at least 3 weeks beforehand. Some studies have even demonstrated an increase in muscle strength in endurance

athletes as a result of taking Carnitine. Dr Ed Burke⁴ theorises that this may be due to the fact that the increased fat-burning somehow reduces the breakdown of muscle as a fuel during exercise. This further suggests that long-term consumption of Carnitine would be the best overall policy to adopt.

How do I use TORQ carnitine?

To boost endurance performance, take 2-4 grams of TORQ carnitine in divided doses on a daily basis. For best results, use TORQ carnitine daily in divided doses and if exercising, take one dose 30-60 minutes beforehand so that it reaches a peak in your blood plasma whilst training. For ultra-endurance events, you may benefit from adding TORQ carnitine to TORQ energy in your drinks bottle during exercise at the rate of approximately 1 gram per hour.

INGREDIENTS: L-Carnitine (100%)

TORQ VEGAN RECOVERY

Our TORQ recovery product contains whey protein, so won't be suitable for you if you're want a dairy-free diet. However, we do offer an extremely effective recovery package that combines 3 of our RAW products with TORQ energy NATURAL. Further information is available on our website or feel free to phone us and we'll discuss the 'blend' with you.

References & Further Reading

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* Ed Burke was consultant to Chris Carmichael, coach to Lance Armstrong (seven times Tour De France winner).

TORQ CONSULTING

TORQ FITNESS TRAINING & CONSULTANCY

- Fitness testing and consultancy
- Mountain Biking and 'Power-Feedback Training' specialists
- Tailor-made fitness programs for cyclists of all abilities
- Group seminars and presentations
- Guided mountain bike rides

TORQ Performance Consultancy was launched towards the end of 1999 offering an unrivalled level of service with a unique and fresh approach. TORQ's roots are firmly entrenched in fitness consultancy and we believe this is what makes us truly unique.

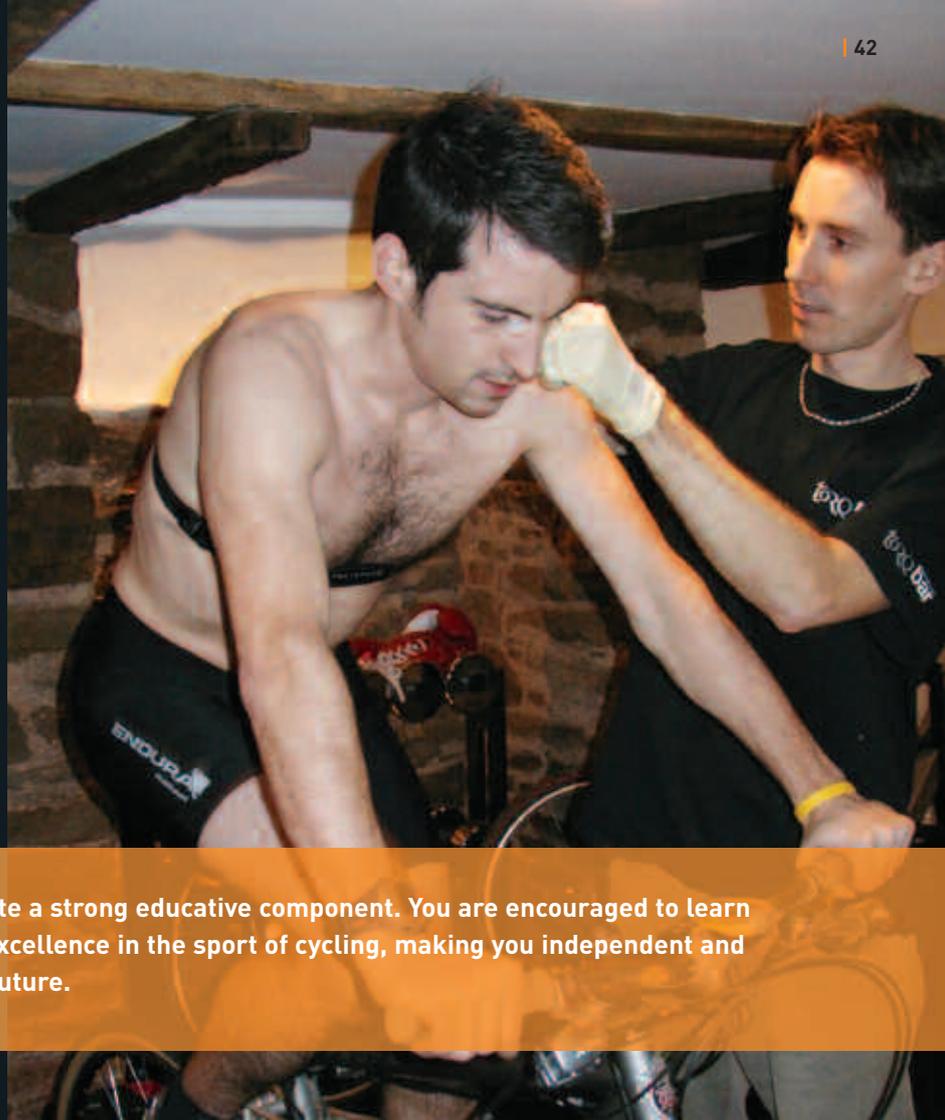
We work with athletes of all abilities and genuinely test our nutritional products and canvas opinion before they are released into the marketplace. The philosophy of the business is all about clear, effective communication, and that means regular talking. We believe that a successful consultant builds success in his or her clients through exemplary communication. This involves listening, understanding and making any recommendations crystal clear. This is why we encourage you to meet up with us initially to discuss your performance face-to-face.

TORQ consultations also incorporate a strong educative component. You are encouraged to learn about how and why one achieves excellence in the sport of cycling, making you independent and hence less reliant on TORQ in the future. Whilst solid, proven scientific principles form the structure of any performance and excellence program, it is important also to recognise the spiritual elements of cycle sport. You will be treated as an individual and will learn about self-awareness, to help you understand your own body.

After meeting for an initial consultation and fitness test with TORQ, you will be offered a variety of options. You can either take away the information you have learned and construct your own program, or you can opt for one of TORQ's ongoing support options. More details are available at on our website, or you can phone if you would like to talk to us about it.



**TORQ also offer group seminars
for clubs and teams.**



TORQ consultations also incorporate a strong educative component. You are encouraged to learn about how and why one achieves excellence in the sport of cycling, making you independent and hence less reliant on TORQ in the future.

TORQ EQUIPMENT

TORQ POWERTAP

Powertap is a highly advanced piece of training equipment for cyclists, providing extremely accurate wattage (power) data to the user. TORQ has been a huge advocate of 'Power-Feedback Training' since its conception and continues to provide consultancy advice to users as this product becomes increasingly popular. You can purchase the Powertap system through TORQ and/or arrange for a consultancy session.

What is 'Power-Feedback Training?' It is the use of accurate and reliable wattage data to steer you through your training. The Powertap system will provide you with second-by-second wattage information. If you ease off on the pedals momentarily, your Powertap handlebar-mounted computer display will tell you. It will of course tell you if you're riding too hard as well! Data for up to 9 hours of riding is stored in the head unit and can be downloaded to your PC and analysed. The system allows you to take interval splits and displays and records heart rate, energy used, speed, cadence, distance and time.

Why buy from us? Quite simply, we are specialists in this field and we will support you and the product. We have a vast amount of experience when it comes to training with power and if you ever have a problem with your Powertap, or need some advice, we will be available to assist you.

Models Available:

Powertap SL 2.4 (Wireless) // Powertap SL // Powertap Pro



TORQ BANDS

TORQ bands are large elasticated latex bands, available in 4 resistance strengths. We designed these for the endurance athlete, because upper body strength and core stability are areas that are often neglected in this group. Strengthening the core, as well as specific muscle groups can help reduce the risk of injury, stabilise weaker areas and for the shorter high intensity events, upper body muscle can help to metabolise and remove lactic acid, the cause of a great deal of pain!

TORQ resistance bands present numerous advantages over other similar products. They are extra-long (175cms), which means that you can work both sides of your body at once, cutting workout times by 50%.

TORQ bands also feature unique trade marked 'anchor points' making it easy to remember how much band you grabbed last time. This is important, because the amount of band you grab determines the overall

resistance—consciously altering your 'anchor points' as you get stronger is essential for your progression.

Also, unlike bulky dumbbells, TORQ bands are light, easily storable and offer a wide range of resistances. A full set of TORQ bands provides a range of resistances equivalent of a light to very heavy dumbbell set. The range of feasible exercises is also much greater, because you don't need the assistance of gravity.

Many TORQ clients take their bands with them if they are travelling away on business or holiday you can fit a full set in your pocket!

TORQ resistance bands are available in the following 4 strengths:

- Red (beginner)
- Blue (advanced)
- Green (intermediate)
- Navy (superior)

TORQ bands can also be used in combination to produce even greater resistances. For instance, if you combine the Red band with the Navy one, you get a slightly higher resistance than the Navy alone. Imagine how much resistance you can create when you use all 4 bands together? You can even fold the bands in half to double-up on the resistance. There really are no limits to your potential progression, other than in your own mind of course.

All exercise band orders are supplied with full usage instructions, exercise illustrations and a progress card. You are also provided with a complimentary cloth drawstring carry bag if you order a full set of 4 bands.

'Anchor Point' and 'Stretch Past Your Limits' are Trade Marks of TORQ LTD.





GUIDED MOUNTAIN BIKE RIDES

- Discover unspoilt Shropshire
- Refine your technical skills
- Test TORQ's products
- Have a pub lunch on us

As we are a business based on passion, we have decided take a deep refreshing breath, turn back the clock and invest more time in the sport and recreation we love and which brought us to where we stand today - Mountain Biking. Ok, so we've been running TORQ Inspirational Weeks in the French Pyrenees and Southern Spain since 2005, but now we're turning our attentions closer to home – to our own back yard in fact. Of course we're still running our Mountain Biking Development weeks abroad, they're astounding experiences, but you should see our back yard?

This is our escapism. It's an opportunity for us not to be analytical and scientific. Instead we urge you to come out and ride through the stunning Shropshire countryside with us, enjoy the freedom, grab a pub lunch and then carry on and enjoy the freedom a bit more. Included in the price of your guided ride, you will get all the TORQ products you need to fuel you for the day FREE OF CHARGE, plus a TORQ recovery drink at the end to help you feel human again very quickly. You get to keep your TORQ drinks bottle and TORQ mixer bottle too.

We have a number of pre-assigned single-day guided rides available for immediate booking on the website. We offer beginner, intermediate and advanced rides, so all abilities are catered for. We also run two 3-day

'Shropshire Feasts', one in the summer and one in the winter. These include 3 full days of guided riding with simple inexpensive accommodation laid on for you. If you ride for a club or team, you can book a bespoke custom day with us or even a 'Custom Feast'?

Our customising option even allows you to mix a days Fitness Consultancy with Guided Riding, but that would be far too difficult to explain here, so if you like the sound of this, please contact us for further details.



TORQ INSPIRATIONAL WEEK

- Breathtaking scenery
- Challenging riding
- Nutrition and training seminars
- Technical skills training

Since 2005, TORQ have successfully run a number of Training Camps and Mountain Biking Development weeks in the French Pyrenees and Southern Spain. These weeks have evolved since conception as we've learnt what people like and don't like and now we believe we've got the winning formula.

Every year there are a number of one-week TORQ programmes on offer catering for every school of rider - from the weekend leisure rider right through to the competitive elite racer. Whether novice or expert, if you're interested in improving your fitness, nutrition and technique, one of these weeks is for you.

In February we run a Training Camp in Southern Spain. This has proven so popular that at the time of writing this, we have already filled this with 27 guests, 4 months before we depart. This week is aimed at the keen cyclist—a rider who wants to train like a pro for a week and eat, drink and sleep cycling. All abilities are catered for, but please bear in mind that the aim of this week is to maximise the volume of training you'll be doing. We will try to maximise the hours you spend on the bike, so it's not for the faint hearted.

We structure the week's physical attributes and lead daily seminars on a comprehensive range of fitness subjects including training theory, energy

systems, performance nutrition, periodization, pedalling dynamics and sports psychology.

In September, we run a couple of weeks Mountain Biking Development weeks with AQR in the French Pyrenees. These weeks are not as hard-core as the Spanish week and have a simple objective - to make you into a better Mountain Biker. Once again we run the seminars and you also have the opportunity to take advantage of a fitness test (optional), which will help provide insight into your personal physical strengths and weaknesses. If you were to visit TORQ, this testing would cost you £120, but on the holiday you get to do it at the hugely discounted rate of £45—a nominal fee to cover the cost of the consumables used.

AQR's Kate and Ian Potter will be guiding you through this stunning part of France and working with you to develop your technical skills. They'll even tweak your bike and suspension set up to improve the way your bike handles. Our hotel in Luchon offers incredible sumptuous cuisine, so you will return from this holiday feeling refreshed and 'alive' if not a little tired.



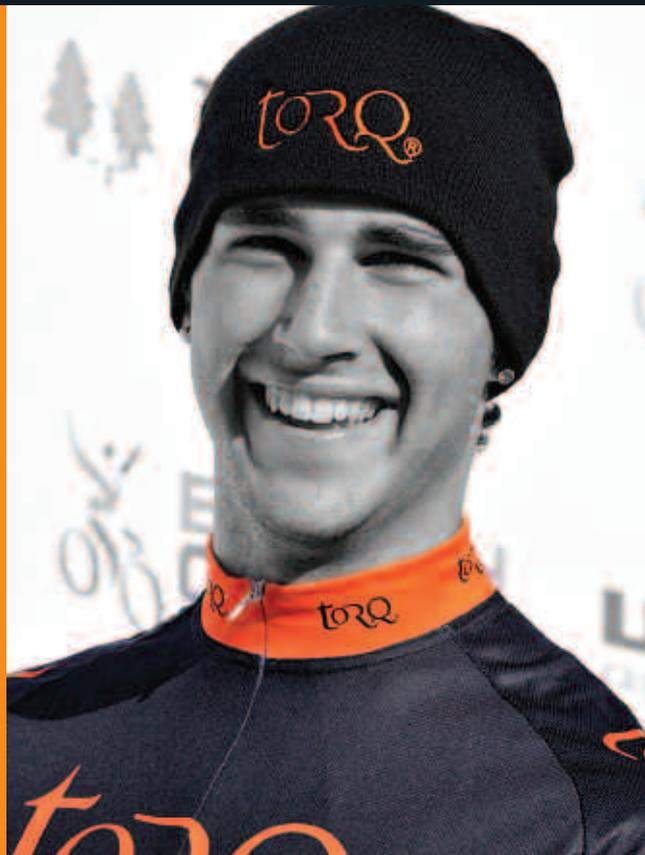


TORQ PERFORMANCE CLOTHING





TORQ PERFORMANCE CLOTHING



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£5 (UK) and \$12.50 (AUS)

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