Training Nutrition

So, whether you've been following the content of the previous article, or you've got your own training ideas, I guess that the one thing that unites us is the fact that 'we're all actually training'. Well I hope you are, because this is a BIG event! You may be limited by time like I am and therefore trying to squeeze training sessions in around business/family – well life in general really, or you may be blessed with a decent amount of time? Irrespective of your personal situation, the single most important message from the last topic is that you should have a plan of some kind and you should be aiming to progress your training load over time.

Nutrition is an absolutely vital component of the training process. If you get it wrong, you won't recover and this will mean that you won't adapt as effectively and get stronger.

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.

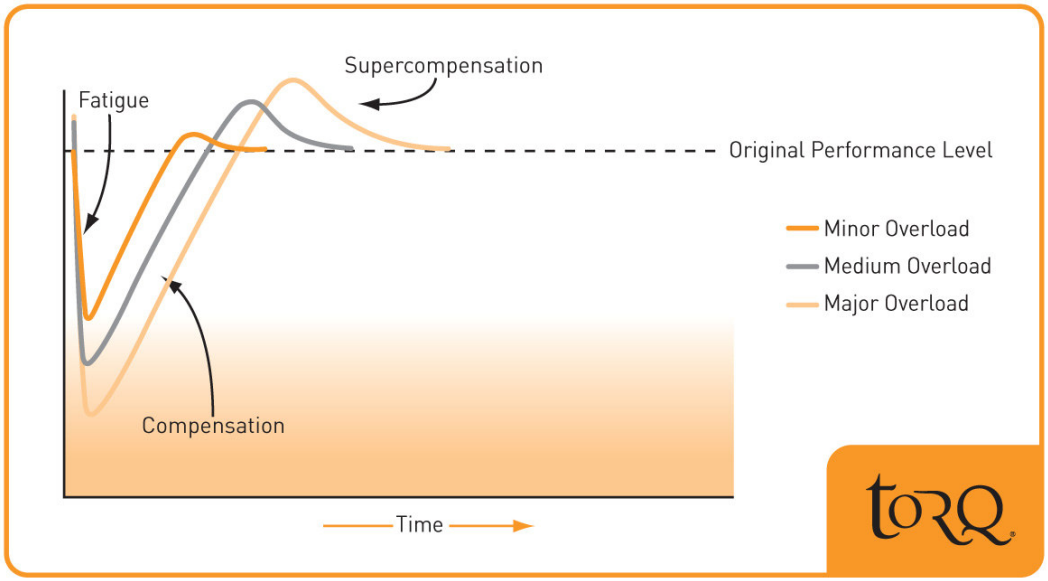

Figure 4. Effect of Magnitude of Overload on Adaptation.

It goes without saying that a well recovered person 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.

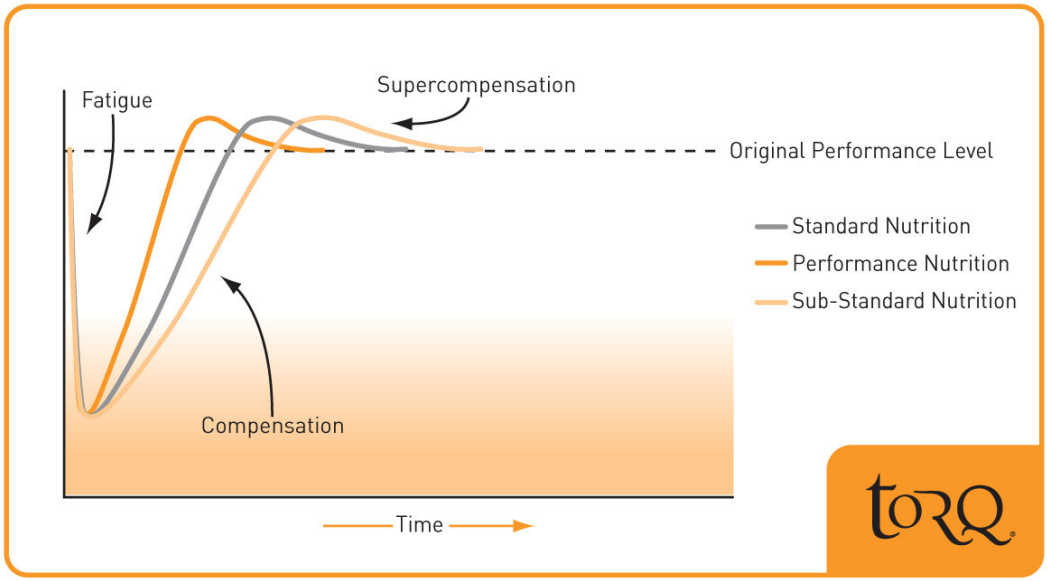

Figure 5. Effect of Nutritional Strategy on Recovery and Adaptation.

This next diagram shows how much quicker a person 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 proven 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 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 research 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.

There are plenty of energy and recovery drinks on the market, so if you're going to purchase one, just check that it is 3:1 Carbohydrate to protein with Whey protein as the preferable protein source. For comprehensive information on TORQ's energy and recovery drinks, please drop us an e-mail and request a FREE 48-page Performance Resource from us. We will send you it in electronic PDF format (RRP for this resource is $12.50). Our TORQ recovery contains some highly potent natural micronutrients, which also help to facilitate the recovery process, but we only want to cover the broad principles here, so you can read about that in your own time if you're interested. To claim this resource, e-mail Genevieve@torqaustralia.com.au and stick 'Free TORQ Performance Resource' in the subject heading.

The word 'Research' keeps getting mentioned in this text too and I'm aware that some companies make spurious unvalidated claims with reference to their products. All the research mentioned in this article is peer-reviewed and published in well known reputable scientific journals or cited by reputable authors in the Sports Science field. Full references are listed in the free Performance Resource. Be very wary of any company claiming that it has 'University Studies' or 'Scientific Research' proving their product's worth that isn't referenced to a peer-reviewed journal, or statements like 'We tested 12 athletes and they were much faster and better on our products'. This kind of thing can be used to miss-sell

nutritional supplements. It's pretty easy to make up your own studies or pay a university lab to come up with some favourable results on your behalf, so don't fall for it. Sorry, rant over, but we see it all the time and it's dishonest and misleading.

Ongoing Recovery

A mountain of research 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 in our portfolio 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', again consult our resource. I realise that there are sections of this article that sound a bit like I'm getting on my TORQ marketing soapbox. I do really believe in what we do at TORQ, but what we sell are 'supplements'. They are not replacements for a healthy diet, but are there to give you a helping hand when you need it most. Under intensive training conditions, you need carbohydrate calories full stop. The product mentioned above (Maltodextrin) has been used by Tour de France riders for years as an invisible calorie, because it's flavourless and extremely calorie rich. The non-energy product route for dense concentrated carbohydrate would be sugar. With the best will in the world, you can't add sugar to soup and get away with it. If you can stomach it, fine, but rather you than me.

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.

Recent peer-reviewed research 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. Please note that all TORQ energy products are formulated to this specification. 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. Basically, check the ingredients, or phone your nutrition provider up and talk to them, so that you can identify your carbohydrate dose.

Research also suggests that carbohydrate ingestion during exercise protects the muscles. The body will only metabolise muscle protein in the absence of carbohydrate. This process is called 'gluconeogenisis' 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.

The key is to make sure that you're consuming carbohydrate calories regularly on training rides and to this end TORQ offer a variety of fuelling products that will be available for use at the Terra Australis including TORQ energy, TORQ bar and TORQ gel. How to use energy products effectively during racing will be discussed in the final article on 'Race Nutrition' in a few weeks time, but until then, please take on board the principles outlined above.

As a reminder, here's what to think about during this period. Consume a high carbohydrate/low fat diet at all times. Eat today for tomorrow, because, if you don't get the calories in that you're using up, it will limit your recovery potential. Eat while you're on the bike and get carbohydrate at the very least down your neck within 15 minutes of finishing exercise. Unless your vegetarian or vegan, protein should take care of itself, so don't get hung up on protein shakes and the like. Just have good quality lean protein incorporated into your main meals.

Also, you can't drink enough water – you won't drown…