



## Montane Lakeland 50 & 100 Coaching Article 3

### Nutrition part 1

#### Eat and be merry.. so long as it's the right stuff..

The festive season is upon us but this is not another article which outlines look after your waist line over Christmas and New Year. There's a long way to go until the 2011 Montane Lakeland 50 & 100 so you've plenty of time before you need to get serious, a bit of extra wine, whisky and turkey can be burnt off in spring!

This month's article is part 1 of a 2 part instalment relating to fuelling yourself and planning nutrition for ultra distance event. The focus for part 1 is an understanding of fuel types and physiology.

#### Burn the fat..

During ultra distance events there are 2 main fuel sources, these are fat and carbohydrate stored within the body. Protein is used in small quantities but generally only supplies 2-4% of the overall energy demand, with the remaining 96-98% coming from fat and carbohydrate.

Fat is available in relatively large quantities (please don't take that personally). A 70kg person with 15% body fat equates to 10.5kg of body fat (70 x 15%). In terms of stored calories, 10.5kg of body fat provides 94,500 stored calories (10.5kg = 10,500g with 9kcal per gram).

When moving at moderate speeds you will burn 500-750 calories per hour, so with 94,500 stores calories of fat, our 70kg / 15% body fat person should be able to run non-stop for 100 miles without any issue whatsoever! If only things were so simple..

#### What's the catch?

Fat is a very poor standard fuel , it requires a lot of oxygen to break down each gram and is therefore very 'uneconomical'. If you were to use fat as your main fuel source, it's likely you would be moving very slowly!

By contrast carbohydrate is a much better fuel source and for those old enough to remember, we're talking about '4 star' compared to '1 star'. When you are moving quickly or working at higher intensities, a high percentage of your energy will come from your carbohydrate stores as it's a higher grade of fuel.



## **Why not just use carbohydrate for the full event?**

Whilst our fat stores are relatively large, our carbohydrate stores are relatively limited and there's not enough to last for 50 miles, if you're doing the 100 mile distance, the problem is somewhat bigger!

Throughout the event, your carbohydrate stores will be dropping continually, this leads to a 'switch' in energy provision from carbohydrate to fat. In the opening miles of the event, 75% of your energy may come from carbohydrate, this may drop to 50% by half way and then continue to drop all the way to the finish. By contrast, the energy coming from fat will be 25% at the start and continue to increase as the event progresses until it is the major energy source in the second half of the event.

The problem with this 'switch' is that your heavy reliance upon uneconomical '1 star' in the latter stages results in you slowing down dramatically.

## **What's the answer?**

The problem can be summarised as follows:

1. Carbohydrate is limited and runs out quickly
2. To save carbohydrate and make it last longer, we need to use more fat / less carbohydrate
3. Our bodies are not very good at using uneconomical '1 star' fat as a fuel
4. When we use fat we go slow

To resolve this problem there are 2 things we can do:

1. Keep stuffing carbohydrate rich foods into our bodies whilst we exercise and make sure the carbohydrate tanks don't drop too low.. the problem with this plan is that we can't absorb enough carbohydrate to account for the usage (but it will slow down the 'switch')
2. We can teach our bodies to use fat more economically, teach it to 'thrive on 1 star'. If our bodies learn to love fat, we can use it with greater ease, generate higher amounts of energy, move faster and save our precious carbohydrate stores.

NB: The second option is 'resolving' the problem, the first option is purely 'dealing with it'

## **Love the fat..**

To enhance your endurance, your muscles need to 'embrace and love the fat'. The '1 star' fuel source needs an upgrade and your muscles must be more effective at using this calorie rich substance which has had a fair bit of bad press..

Things to consider:

1. If you don't practice burning fat you'll never become good at it
2. Burning fat requires long duration and low intensity exercise
3. If you give yourself carbohydrates, your body will gladly accept them and stop using fat
4. When your body is using fat, it's likely that you will not feel great and you will not go fast (at least in the short term)

## Things to do:

1. Long and low intensity exercise sessions lasting several hours
2. Avoid breakfast beforehand so you start with low carbohydrate stores
3. Avoid energy products for the session, don't give yourself any carbohydrate fuel. Note that much of the nutrition advice is retail driven, the more product you use, the greater the company profit.
4. Be wary of becoming psychologically attached to nutrition products i.e. 'If I don't take 3 gels per hour, I feel dreadful'.
5. Accept that you will feel 'tired' and get on with it, it doesn't mean that you are 'unfit', you are doing this for a specific reason and the benefits will come later. You will notice a change over time as your body learns how to use fat more effectively. If it's a training session, it doesn't matter if you feel tired, so long as you feel great in the event.
6. Take some emergency food just in case you really need it. If you have been exercising for 1-2 hours and feel that you need some carbohydrates for energy, that's fine. By this time your body will be using fat to such a high extent that a small amount of food will not be enough to reverse the process.
7. You should stay hydrated throughout the session and electrolyte replacement is also important. I suggest the product such as High 5 Zero Active Tablets:  
<http://www.theendurancestore.com/product.php/224/high5-zero-active-hydration-tablets>

In Nutrition Part 2 (January) we will look at how to plan your event nutrition, what to take, how much and when. For now, merry Christmas and enjoy the turkey!



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