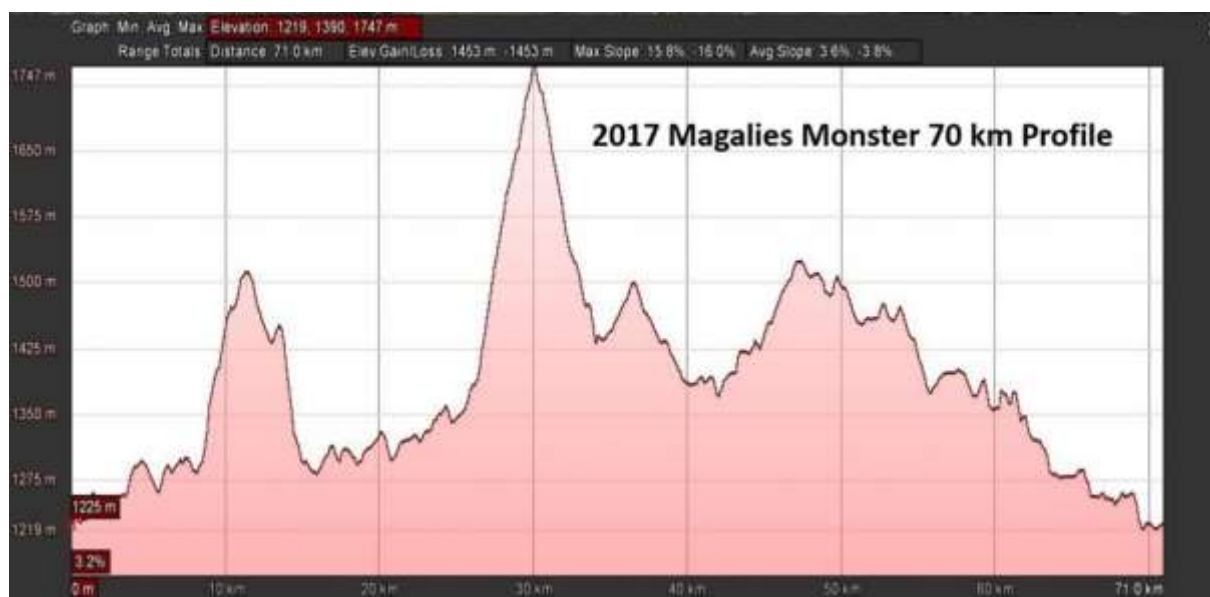


Eat, drink (be merry!), fuel and hydrate (be strong!)

Strategies to finish strong.

Magalies Monster 2017

71km, 1747m of climbing, max gradient of 17%, 9km 'Monster' Climb!



We are getting closer to race day, we have planned for this event, our training is on track and we have done enough hill intervals to make the “Monster” appear flatter than it is, exciting times as everything comes together.

So how do we make sure we provide our bodies with the energy to be able to climb and finish the race with a smile, pose for a selfie and enjoy the awesome hospitality at the finish?

Nutrition is a hugely complex topic with many viewpoints, studies and research, some less scientific than others.

The difference between Eating and Drinking vs Fueling and Hydrating can best be illustrated by our environment;

- The first one we do with family, friends, involves laughter and our favourite beverages, probably alcoholic,
- The second one involves a fair amount of sweating, burning sensations in various parts of our bodies, guzzling fluids and trying to swallow food while chasing that wheel just ahead or get to the top of the climb, and of course laughter which is always a requirement!

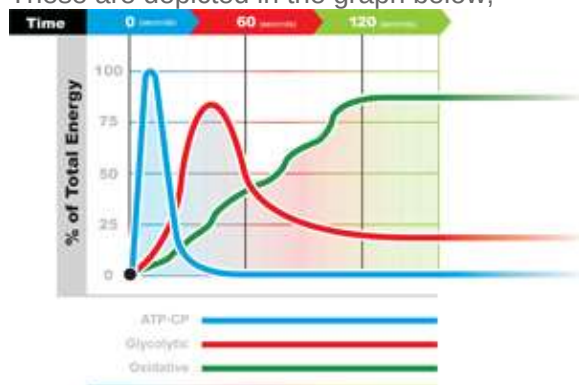
It is not likely that we will be enjoying a delectable medium rare fillet with a creamy green peppercorn sauce served on a bed of mash with green beans on the side accompanied with a 2002 Meerlust Rubicon, savouring the complexities and subtle nuances of the blend while attempting to climb a 10% gradient, you are more likely to be gasping and chomping on a nutritious but odd tasting energy bar while swishing some equally questionable tasting energy drink around inside your mouth to help wash it down.

As athletes we need to fuel and hydrate during an event otherwise so we get to the finish in some sort of condition that will allow us to eat and drink afterwards!

Some generally accepted information about the body;

- We have 3 energy systems;
 - o Adenosine Triphosphate (ATP) Phosphocreatine (CP /PC / CR)
 - o Glycolytic or Anaerobic
 - o Oxidative or Aerobic

These are depicted in the graph below;



The problem with the terms "aerobic" and "anaerobic" when applied to exercise is that we never switch from total aerobic to total anaerobic metabolic conditions. The more intensely we exercise, the greater the need for anaerobic energy production. Consequently, it is best to view the terms aerobic and anaerobic as transitions in metabolism, where the proportion between aerobic and anaerobic metabolism changes depending on exercise intensity.

As we start to exercise the increased energy needs of muscle contraction require that we increase our breathing, oxygen intake and energy production. However, as exercise intensity increases, the need for energy release eventually exceeds that which can be supplied by aerobic metabolism.

- We can store around 2,000 calories (or less than 500g of glycogen, carbs are converted into glycogen by glycogenesis and stored in the liver and muscles), the mass of your liver and your lean muscle mass will then determine the exact amount of stores for each individual.
- 1g of fat is roughly 9 calories, 1 g of carbohydrate is roughly 4 calories. Fat is more nutrient dense than carbohydrate but takes longer to metabolise.

- If we are riding flat out and consuming 700-1,000 calories an hour (depending on body mass, intensity and environmental conditions) those stores will get used up quickly, when they start dropping our central governor (brain) takes charge in and reduces the level and which we can exercise to reduce our demand on our energy systems so we can continue to climb albeit slower and slower instead of collapsing in a heap dreaming of koeksisters and coke, it's called survival mode!

If you've ever felt light headed, tired, cold sweats, no power around 2 to 2.5 hours into a tough ride / race you have probably experienced glycogen depletion...you have bonked!

- It is generally accepted that we can process a maximum of 90g of carbs per hour of intense exercise, which is only 360 calories an hour, yet we are using 700-1,000 calories per hour. This is called a deficit and will determine how hard you can ride for how long, the longer the duration the less the intensity and the more critical it becomes is to fuel and hydrate from early. If you leave the fuelling and hydrating till too late you can't catch up. This is where the cliché of 'eat early and often' comes from!
- We lose fluid while exercising, from breathing and through sweat, this includes minerals lost which are essential for normal cell function, some of these are;
 - o Sodium
 - o Potassium
 - o Chloride
 - o Calcium
 - o Magnesium

We need fluids that contain essential minerals and ideally a good dose of carbohydrates to keep us hydrated and fuelled, plain water is not going to do unless we are replacing the minerals some other way, various manufactures have made it ridiculously easy to do this by clever packaging like Rehidrat Sport that comes in handy 14g sachets that are easy to keep in your pocket.

Our fuel and hydration strategy will replace these minerals or our bodies won't function properly, lack of proper hydration is believed to be one of the causes of muscle cramps during endurance exercise.

Sports drinks, of which there are many, need to be tested in training before the big day so we can see what works.

Read the ingredients of a product and not the marketing slogan on the front, see what it contains and work out what you are going to need depending on the duration of the event, for example a race strategy could be;

- bottles on the bike with an electrolyte rich carbohydrate drink providing 35g of carbohydrate per bottle
- Energy bars providing 40g of carbohydrates per bar or something more natural like boiled potatoes, apples, banana's (around 80-120 calories (20-30 g of carbohydrate depending on size)

Aiming to drink a bottle an hour and a good quality energy bar will provide roughly 75g of carbs per hour which is approaching the limits of what we would be capable of processing at high intensity.

If we do this consistently over a four-hour event that will be 300g of carbs or roughly 1200 to 1360 calories. Combine this consumption with the reserves we have of roughly 2000 calories and we have a sumptuous total of 3,200 calories, or 800 calories per hour as our 'budget' which would allow us to go close to flat out for 4 hours.

If we use a similar strategy over 5 hours our hourly 'budget' will drop to 700 calories, so we will either must consume more, which may not be possible, or lower the intensity at which we ride. The same applies to a shorter duration of 3 hours, we can consume less and raise the intensity, all the things we like to hear chasing a personal best or our riding buddies up the Monster!

Always be adaptable, environmental conditions could mean your 3-hour race turns into a 5 hour mudfest, if it's raining and cold it doesn't mean you need less, you could be burning more calories just keeping your core temperature stable. The more you understand your fuelling and hydration requirements the easier and quicker it is to adapt.

The more we train our bodies the more efficient they become, this includes fuelling and hydration and should be incorporated into your training regime and periodised according to the phase and requirements of your training.

* All calories and grams used for example are estimates and depend on the individual and environment

Enjoy, be courteous and be thankful for the privileges that allow us to achieve our goals 😊

About the Author



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