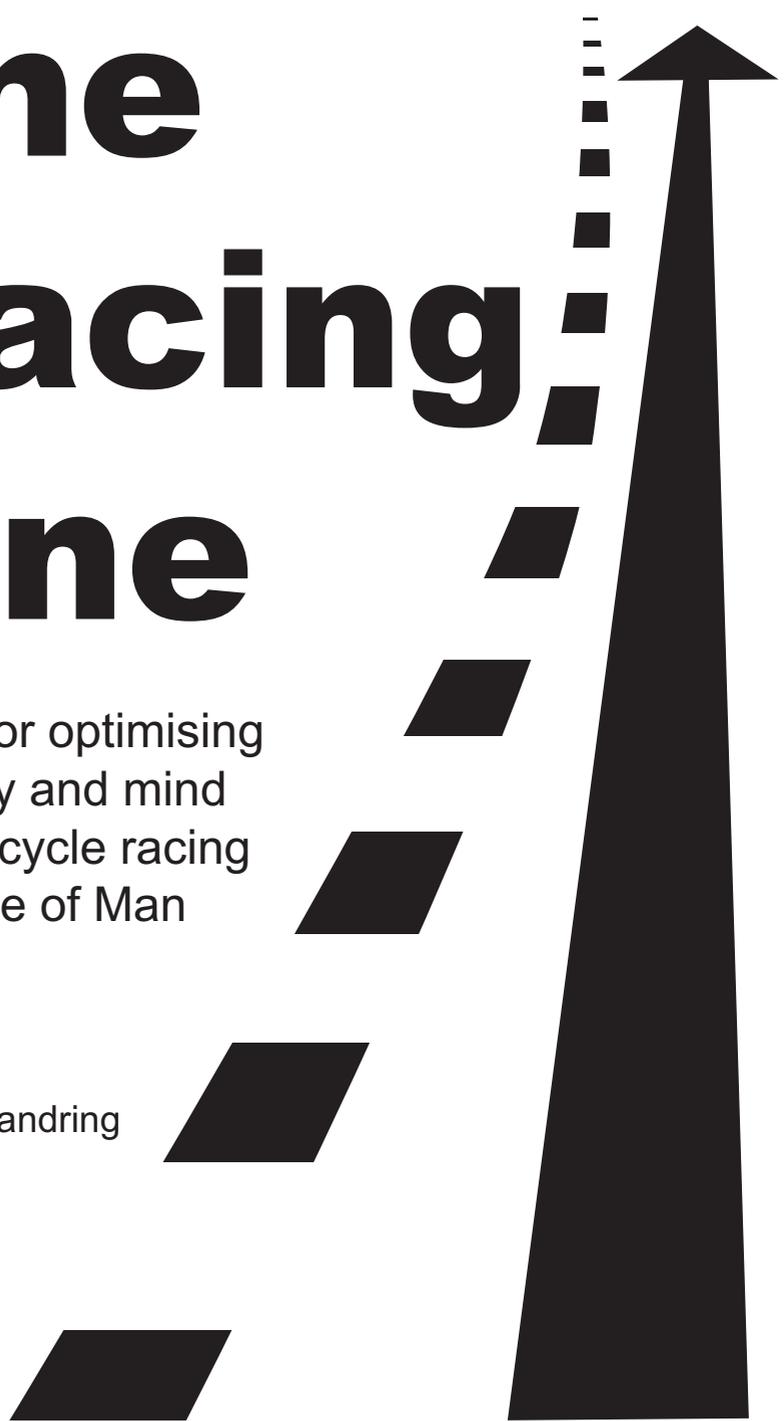


The Racing; Line



A guide for optimising
your body and mind
for motorcycle racing
on the Isle of Man
Mountain
Course

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2013

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Introduction

Whether you've been racing bikes for years or if you're relatively new to the sport, you have one thing in common: No matter what level you are competing at, your main motivation is likely to be enjoyment. Turning this enjoyment into success in competition depends upon using the thrill and adrenalin of riding fast bikes to power your natural instincts and abilities to their limits.

It goes without saying that no matter how well turned out and set up a bike is, its ultimate performance depends upon the physical, mental and emotional condition of the rider. The flip side of this is that even the best most highly motivated rider can be let down by the mental, physical and emotional condition of members of their support team. The fact is, some of these very human problems remain the commonest root cause of under-performance and disaster in racing, and this booklet aims to introduce you to the principles and techniques you can use to help understand and prevent such issues. The advice can also be applied to improving anything else you do in life.

“I know what I'm doing! Do I really need this?”

People involved in bike racing come in four general categories, which can be applied to both rider and team. Where do you see yourself?

1. **The Individualist.** Your main motivation is fun – you enjoy the thrills of racing but know your limits and are happy to push them at your own rate. Success for you is about achieving personal goals and having a good time. If only this sport weren't so expensive!
2. **'Up and coming'.** You are highly competitive by nature and know you have the skill to succeed and win. You are continually pushing at the limits of what you are comfortable with, testing how far your skills might take you. Success for you is getting in the rankings and closer to the podium and you are on the lookout for the bikes and sponsors to get you there, but still feel you are on a learning curve.
3. **Race Winner, Champion.** You are competitive, experienced and very fast. You know the lines and know what you can and can't get away with. You have the best machines and mechanics available to you, and the ability to test both to their limits. Success for you is about winning, being consistent and keeping your sponsors (and loved ones) happy.
4. **The Team Leader:** You are the vital cogs in the machine that keeps your rider and other team members feeling ready to succeed on a competitive bike. You need to make sure everything and everyone works as smoothly as possible to get the best results. Your experience might be greater than that of your team's riders and the only reason you're not riding yourself is because you broke one bone too many in the past.

No matter which of these categories you think you might fit into, there are benefits to be had from understanding how your mind and body works and co-operates, and what it needs to work well when racing: As the ancient wisdom says - 'know thyself'. Each 'category' or level of experience has its own particular stresses and challenges which need to be negotiated in order to get a rider onto the start line and round the course safely, enjoyably and successfully.

It is only relatively recently that bike racers have been shaking their traditional 'pie and pint' image and started exploring how body performance affects them. Motorcycle road racing is a physically, mentally and emotionally arduous sport. However, compared to the 'athletic' sports, it's culture has placed more emphasis upon the rider's 'balls and prowess' and upon the machinery itself, rather than technical aspects of the rider's (and team's) bodily and mental function. We all know that in addition to all of the thrills and triumphs, bike racing is underpinned by the ever-present spectre of failure, sometimes in its saddest form... Still, everyone participating acknowledges this risk – after all, isn't that part of the fun? Although we all tend to deal with risk in different ways, ultimately the best insurance is to endeavour to go out on the track with our bodies, minds and machines in optimal condition.

Health, fitness and nutrition – the specific problems and their solutions:

You have already had to deal with the not insignificant stress of getting everything travelling to the Isle of Man, getting set up in and settled in and signing on, but in addition to the stresses of practicing and competing you will might also have to:

- Work on your own bikes, and/or spend time discussing them with your mechanics and team.

- Spend time testing the bike or inspecting the course.

- Go shopping for parts, food, and bog roll for your luxury bus.

- Spend time finding people, dealing/arguing with officials

- Do interviews, fulfil contractual obligations, entertain sponsors and celebrities (a hard life!).

- Make movies, open supermarkets, visit schools and cat sanctuaries.

- Spend time with fans, and catching up with old acquaintances.

- Go sightseeing and relax with your family.

- Unwind with your mates, lark about, have a beer.

At big race meetings such as the Isle of Man TT, all of these demands can lead to cumulative difficulties with:

Physical and emotional stress

Disrupted patterns of eating and drinking

Disrupted sleep patterns.

Under-performance.

These are often compounded by the stresses of travel and arrival quite close to the start of practice, so it is not unusual for competitors and their teams to suffer tension, tiredness, hunger and dehydration. These in turn lead to irritability (fights and arguments), poor concentration, easy fatigue and a weakened immune system – hardly what you need when you're trying to hang on to a superbike at 180+ mph, let alone when trying to make sure that the bike is performing well enough to safely get to these speeds!

There is more to lose than just the race.

What your body needs for you to succeed:

The best way to think of your body is by analogy to the bike itself, as their needs are fairly similar.

On the most basic physical level, your body requires a steady supply of fuel (food) and air (oxygen) with which to combust it.

This needs to be delivered to your brain and muscles to keep them both operating and co-operating for the duration of a race so you can let your skills, talent and experience do the work.

Your body has dynamic moving parts including your muscles and joints, and the circulation. Like all mechanical parts these need to be able to move freely to prevent wear and overheating, and require lubrication (in the body's case this means hydration). Like an engine, in the process of burning its fuel your body will make waste products which require exhausting.

Sounds pretty basic, right? - Fuel, air and water.

Vroomvroom!

Let's look at this in more detail:

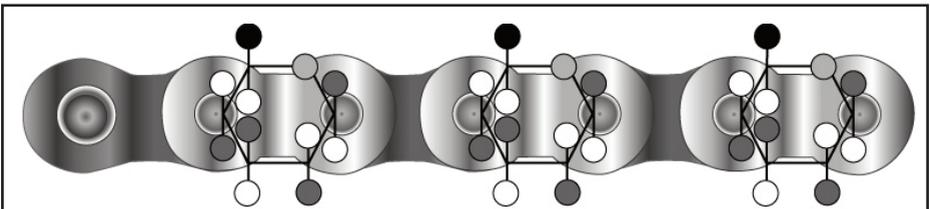
Fuel:

All of our body's cells – be they nerve, muscle, bone or organ - function by burning a sugar called glucose with oxygen. This is your fuel.

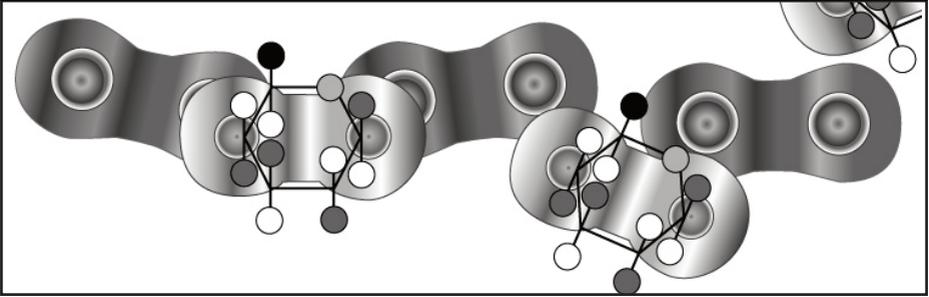
The body chemical adrenalin is what revs your engine – the more adrenalin the body makes, the more fuel your body wants to burn.

When you hear the term '**blood sugar**' being used, it means blood glucose. Your glucose is derived from food constituents called carbohydrates ('carbs') and from stores kept in your body. There are two types of carbohydrates: simple and complex.

Simple carbs are usually referred to as sugars, which are based on single or double molecules ('monosaccharides' and 'disaccharides'). The most basic of these, and the only ones that the body can absorb directly are **Glucose** itself (also called Dextrose), **Galactose** (eg - from milk) and **Fructose** (eg - from fruits). These form combination pairs called 'disaccharides' which include **Sucrose** (table sugar), **Lactose** (in milk) and **Maltose** (in malted grains). The body rapidly breaks these down into glucose. This is why they taste nice and sweet. Think of these as like a single paired link on the chain on your bike.



Complex carbs or 'starches' are simply long chains of simple carb molecules – like the whole chain from the bike, if you will. When eaten, the body has to unlink these and convert them to simple carbs in order to absorb and burn them. Depending on



which complex carb you consume, this can sometimes take a bit more effort and time to process, particularly when consumed in a natural and unrefined form, so provide a steady and long-lived supply of glucose. Some complex carbs such as Maltodextrin (used in most sports drinks) can be broken down much more quickly and offer a high 'density' of energy. Your body keeps a back-up supply of a similar glucose chain molecule, called **Glycogen**.

Maltodextrin: A form of carbohydrate made of long chains of glucose molecules. It is popular in sports drinks as it can rapidly provide a lot of glucose molecules into the bloodstream, while being kinder on the stomach than sugars dissolved in water (a lower 'osmotic load', meaning less bloating, churning and discomfort). Pre-competition nerves are often associated with a churning stomach, and maltodextrin appears kinder to it than purely sugary drinks. It is also less sweet and syrupy tasting. Contrary to many claims made about it by sports drink manufacturers it is not a 'slow-release' sugar, but has a GI close to that of glucose!

Fuel Regulation:

Insulin and glycogen: When your digestion has freed the glucose from your food, it needs to regulate how it is used. When it is not needed, excessive glucose in the bloodstream can cause problems for the body. Just like a carburettor and fuel-injection system, the body has its own way of regulating excess fuel levels by pumping a messenger-hormone called **insulin** into the bloodstream in response to rapidly rising glucose levels. This

tells the body to store glucose away in cells in the form of a long chain-like form called glycogen, ready for later emergency use if needed.

Glycogen is the 'reserve fuel tank' that gives you your 'second wind' when you are flagging. It is stored in your Liver and muscles and allows your 'motor' to keep firing without interruption when the main tank starts to go empty.

The 'sugar crash' or 'insulin spike': The more glucose that is poured into the bloodstream, the more insulin you make. This 'spike' will cause much of the glucose to be stored away (as glycogen) instead of being kept available for immediate use. This 'insulin spike' can result in a paradoxically lower than expected supply of glucose to the system at the time it is needed, causing lower energy availability and tiredness, just like after a heavy meal. Your motor will therefore not be 'running smooth'.

To ensure a steady and regular supply of glucose and maintain optimum performance it is better to use energy foods based on unrefined complex natural carbohydrates which release their sugars in a more regulated and continuous manner.

These are said to have a lower 'glycaemic index' or 'G.I.' – the rate at which carbs are broken down to glucose. Glucose itself has a GI of 100 (the highest) – the lower the GI, the more controlled the release and the less vigorous the insulin spike. Fructose has a very low GI (19) and is often combined in sports drinks with high GI carbs such as dextrose and maltodextrin.

Low GI foods improve endurance because they do not provoke the 'insulin spike'. These include fruit, nuts and seeds and 'whole grains' such as oats. Many sports energy bars are based on combinations of these foodstuffs, ideally with a smooth 'no nonsense' mouth-texture. You take them before starting sport and they support endurance, reducing the need to replenish carbs during activity.

High GI foods only give a short burst of energy, followed by a potential ‘bottoming-out’ of energy levels: Have you often wondered why you feel sleepy or tired after a very sugary or starchy meal? White bread, pasta, pastry, potatoes and sugary drinks all have a high GI.

Which types of Carbs to choose?

This depends on how you get on with food before you race – some people can sit down to a three course dinner with all the trimmings before going off to do a 120+mph lap, but they are the minority! Hitting the limit of the suspension at the bottom of Bray Hill with a full stomach has led to reports of regurgitation! Nerves and adrenalin inhibit the appetite and slow stomach emptying*, so food doesn’t tend to sit easily in an anxious stomach. However, the physical and mental exertion of a race requires nutrition – specifically glucose - to be available in the bloodstream throughout. This is where energy bars, drinks and gels can be useful: They are convenient, tasty, easily digestible and allow you to have the sustained energy and focus for a good ride.

‘MOUTH-FEEL’ AND ‘STOMACH FEEL’ OF FOODS AND DRINKS ARE IMPORTANT FACTORS IN ACCEPTABILITY OF FOOD TO STRESSED PEOPLE. THIS IS WHY MANY OF US WILL HAVE FOUND A FAVOURITE FOOD THAT WE LIKE TO EAT WHEN RACING.

Research has found that combining ‘gumming’ and ‘gelling’ agents (thickeners) with ‘simple’ carbs can smooth their uptake from otherwise ‘high GI’ foods and drinks. Most of these are derived from a form of modified glucose molecules (eg – the gel-thickener xanthan gum, and the glucans in oats which give porridge its sticky texture). These are being used in some sports energy products such as energy gels.

**The other factor that will slow and regulate the delivery of glucose rich drinks and foods from your stomach is high levels of adrenalin.*

In spite of claims made by the various companies in the lucrative sports energy food industry, there is actually very little solid scientific evidence backing up the allegations they make about their products. Of these, the commonest fallacy appears to have been the description of maltodextrin as a 'slow release' source of blood glucose.

BY NOT EATING REGULAR SNACKS AND MEALS, AND BY CONSUMING EXCESSIVE AMOUNTS OF ALCOHOL OUR GLYCOGEN RESERVES ARE AT RISK OF BECOMING DEPLETED AND WE MAY HAVE LESS ENERGY TO CALL UPON IN EMERGENCIES. WE SHOULD TRY AND KEEP OUR GLYCOGEN STORES TOPPED UP.

Glycogen depletion and 'glycogen loading':

Although all carbohydrates are broken down into sugars upon digestion, if there is spare to go round, the body can create a reserve store of glucose by converting it to Glycogen (made of long chains of glucose molecules) which it stores in the muscles and liver.

When you are tired and running low on energy, you will have probably noticed that you often get was is called a 'second wind'. When this occurs the body starts unlocking the glycogen chains to make more glucose. If you have no glycogen stored away and you have already burnt the glucose from what you have eaten, then you risk becoming overwhelmed by fatigue. This is known in the politer euphemistic parlance of athletes as feeling 'bonked', otherwise 'fecked' or 'knackered'... you would be in a severely compromised physical and mental state. Even if you are able to struggle on, your body will have resorted to digesting your own muscles to keep going, and with the result that they will feel sore and damaged for days or weeks afterwards. Luckily this isn't a marathon and such extremes are uncommon in the modern TT races, as races are limited to 6 laps. Still, everyone occasionally needs their 'second wind' to carry them home.

Hydration:

Due to the length of the races, the style of the course, and the sheer adrenalin buzz of competing in the TT and the Manx Grand Prix your body will SWEAT. Sweat means the body loses water and salts.

YOU WILL SWEAT AT LEAST HALF A PINT (A THIRD OF A LITRE) ON EVERY LAP OF THE TT MOUNTAIN COURSE more if it is a hot day.

Added to this, you may be dehydrated before you start a race and this could make things worse.

Dehydration from upwards of **1.5%** of your body weight might affect your physical and mental performance, and is not unusual in these races.

The negative effects of dehydration and salt loss include:

1. Tiredness and impaired mental abilities – especially later in the day.
2. Cramps. Not good when you're wrestling to get over the bumpy miles between Ginger Hall and Milntown!
3. Dry mouth. Distracting and uncomfortable.
4. Overheating.
5. Reduced lubrication of tendons and muscles leading to pain and inflammation.

Water or sports drinks?

It's ultimately a matter of taste how you choose to fuel and hydrate. At the least make sure you are not dehydrated before you go out to race and have something to drink handy for when you pit.

Sports energy drinks combine carbs with fluids and some salts. They are a very convenient solution for both energy and fluids and are designed to taste refreshing by having a combination of sweetness, saltiness and acidity.

Water is pure – and even better when cold. The single act of refreshing yourself with a drink while competing brings a psychological boost.

Many racers now believe that sports drinks leave them feeling less tired and better able to concentrate.

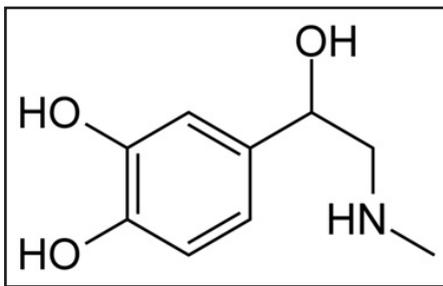
Muscles and Breathing:

Warming the engine and scrubbing in the tyres: preparing your mental and muscle chemistry:

Just as an engine needs to be warmed before the race, your mental and muscle chemistry also benefits from a little bit of warming up before it gets put into action. Luckily, we all have a system built into our bodies that gets us ready to go – that familiar old friend, adrenalin.

Adrenalin and You:

Adrenalin (also called Epinephrine) and its cousin Noradrenalin (Norepinephrine) are excitatory chemicals our bodies produce in times of stress and excitement – producing a state of high mental and physical arousal and readiness.



Adrenalin is pumped directly into our main circulation from glands which sit just above our kidneys in response to stress, fear and excitement. This causes a rapid change in our physiology which prepares us for immediate action. The effects include:

1. **Raised heart and respiratory rate**, with a rush of blood into our muscles, which causes us to burn more fuel (oxygen and glucose).
2. **Release of fuel stores** (from glycogen in the liver and muscles and 'fatty acids' from body fat). These will support the increased muscular and neurological activity.

3. **Decreased activity of the digestive tract**, including slowed gastric emptying. Diversion of blood flow from skin and intestines to support muscle and other critical organ capacity.
4. **Sharpened mental focus**, 'tunnel vision', faster reflexes.
5. **Dry mouth**, dilated pupils and decreased tear gland activity.
6. When associated with satisfaction it will lead to an increase in levels of the brain chemical **Dopamine**, and the secretion of chemicals called **endorphins** which combine to produce a very pleasurable sense of euphoria and elation, as well as an **insensibility to pain and common sense**.
7. The final phenomenon (in men) is a **shrivelled penis**. The size of the testicles remains unchanged, thus providing the famous relative illusion of 'big balls'!

It may seem strange that, given point 7 above, the condition caused is sometimes referred to as a state of 'hyper-arousal'! Numerous racers will vouch that the feeling of doing the TT is 'better than sex or drugs'... It is therefore highly addictive, and like other addictions can lead to the addict spending countless thousands of pounds in pursuit of more! Most long-term addicts will take up pedalling this adrenalin to others in return for money to fund their habit. These people are sometimes referred to as 'winners', and can often be recognised by the fact they have more than one television and a toilet in their caravans.

Stress-heads take note:

The mental arousal associated with adrenalin output can swing between two poles giving either negative or positive feelings. Simplistically, negative feelings (nervousness, sense of frustration, irritability and agitation) are associated with higher levels of a brain chemical called Serotonin (also known to scientists as 5-Hydroxytrptamine or 5-HT). This can be thought of as the 'bad adrenalin' sensation.

Positive feelings (happiness and euphoria, sense of being focussed and in control) are associated with the release in the brain of a chemical called Dopamine. This is the 'good adrenalin' sensation.

The release of adrenalin is the starting point for the brain response with these chemicals, and before a race the 'negative' conditions predominate. During and after a race is when the 'positive adrenalin' kicks in. If a race is going badly, then the negative symptoms may predominate and can lead to bad outcomes.

The relative levels of dopamine and serotonin can be coloured by your mental and physical attitude and state before a race or competition and this can affect your ability to get into the 'good' zone and do well.

Military research into combat stress (similar in many ways to racing stress) has looked at dietary supplements which can influence the balance of production of **Dopamine** and **Serotonin** in the brain. These chemicals share a common precursor from which they are produced, and supplementing the diet with this seems to push the balance towards :-). The supplement is an 'amino acid' called **TYROSINE**.

Tyrosine is present in large quantities in meats, but is also available in capsule form from 'health food' shops.

The 'missing link' between Frankfurters and TT success, perhaps?

A SHORT BURST OF **CARDIOVASCULAR EXERCISE** NOT LONG BEFORE GOING OUT TO RACE CAN PREPARE YOUR MUSCLE CHEMISTRY FOR ACTION, AS WELL AS SHAKE OFF A BIT OF PRE-RACE TENSION AND HONE YOUR ADRENALIN RESPONSES (GET YOU IN THE RIGHT FRAME OF MIND). IT ALSO AIDS THE CREATION OF A LITTLE EXTRA ENERGY STORED AS GLYCOGEN IF CARBS ARE TAKEN STRAIGHT AFTER THAT EXERCISE.

Problems with the Air Intake and Exhaust Systems:

So, we burn our body fuel with the oxygen we breathe, and the more revved up we are with adrenalin, the more of this our engine needs. The waste products of this process are actually the same as from an internal combustion engine – carbon dioxide and water, which we exhaust by breathing out and going for a pee. To ensure complete combustion and keep our ‘engine’ firing smoothly we need to balance our oxygen input with our exhaust output.

Without a good oxygen input we can suffer from incomplete ‘combustion’ of glucose, causing a chemical called **lactic acid** to build up in our muscles. **This causes cramps which can be very uncomfortable and inconvenient at high speed...**

Disordered breathing is in fact a problem encountered by many motorcycle racers, and no more so than at the TT. Think of it this way: anything which causes your buttocks and sphincters to clench is probably causing you to hold your breath as well! In other words – an adrenaline boost has occurred! Therefore, parts of the course or incidents that are particularly challenging, tricky or just downright scary will make you liable to hold your breath. In addition, your muscles will be tense* and (needless to say) you will *not be feeling relaxed*.

If you then find yourself taking a sharp deep in-drawing of breath after the stress is off, then this means that your oxygen levels have probably dropped low, and your carbon dioxide levels have risen while holding your breath! This isn't generally a problem for short periods, but some people may be doing it for longer than is healthy, potentially leading to: **Poor mental function and cramps, *arm-pump and over-working of muscles.**

The opposite problem of breath-holding is 'over-breathing' or hyperventilating. This can lead to numbness and tingling in the face, hands and feet and at its worse can also lead to muscle spasms, due to over-exhausting the carbon dioxide which the body normally needs a little of to maintain the correct chemical balance in your bloodstream.

Obviously as experience accrues you will be able to relax more, but it is a good practice to learn to regulate your breathing. As any 'yoga monkey' will tell you – control the breathing and you control the muscles...

Physical Fitness

'The best training for racing bikes is riding bikes' – John McGuinness.

Many find the physicality of riding off-road bikes (motorbikes and mountain bikes) to be good fitness preparation for racing on roads. As well as training you for strength in the muscles used in controlling bikes in the more physical conditions of real roads it keeps the sense of balance and reflexes ready. However, there is more you can do to maintain general fitness.

Cardiovascular Training:

'Cardiovascular' fitness is the type of fitness where you have more energy and stamina and recover quicker. Your body will be better prepared to use its fuel and oxygen to serve your muscles

and organs with this type of fitness. The psychological benefits of exercise include a more positive sense of preparedness for competition. Exercise helps dispel tension and (when properly supervised by a physiotherapist or sports injury specialist) to overcome residual effects injury – not uncommon in motorcycle racing...

AIM TO TRAIN AT LEAST 3 TIMES PER WEEK FOR UP TO AN HOUR TO SIGNIFICANTLY INCREASE 'CV' FITNESS LEVELS. IDEALLY DO THIS 4-6 WEEKS BEFORE COMING OVER, ALTHOUGH BENEFITS BEGIN TO ACCRUE WITHIN A WEEK.

To take all of the guesswork out of your training, try training with a heart rate monitor. These are available in nearly all sports and cycle shops, and prices start from £20-30 for a really basic model. They usually comprise a wristband with display and separate chest band containing the cardiac monitor which transmits wirelessly to the wrist device. They help you measure the effectiveness of your training, by allowing you to tell if you are pushing yourself hard enough for your training to be effective.

**You should aim to train at a 'target zone' of between 60% to 70% of your theoretical maximal heart rate (Max HR).
THEORETICAL MAX HR IS APPROXIMATELY 220 MINUS YOUR AGE.**

Cardiovascular exercise can be anything that suits your limitations and abilities. It can be done outdoors, or on machines in a gym, or at home: Walking, running, cycling, rowing and swimming are the commonest modalities of cardiovascular exercise, but modern gym machines can combine hybrid forms of cardiovascular exercise that also improves strength – ski and step machines being examples of these.

If you are tired and your training session is feeling like a real effort, as long as you can maintain the lower end of your target zone, it is still doing you good and worth carrying on.

For example: If you are 35 years old Max HR will be $220-35 = 185$ beats per minute. 60% (Max HR x 0.6) of this is 111 beats per minute. 75% (Max HR x 0.75) of this is 139 beats per minute.

Begin all training sessions with at least a 5-minute warm up. Gradually increase your heart rate over the duration of your warm up until you reach your target training zone. The best methods of cardio training are cycling, swimming and walking. If you would prefer to jog or run, stick to running on grass to begin with as road running can more easily cause joint injuries or make a back problem worse due to the higher shock impact.

Strength Training:

The best strength training for racing bikes is riding bikes, but there a gym exercises that can focus on specific areas useful to you.

‘Muscular’ fitness includes improving both the strength and condition of your muscles. It should focus on the shoulders and back, thighs and forearms – **if it aches when you ride then it could probably do with trimming up!**

It is best to join a gym - there will often be a wide range of equipment available and experienced instructors on hand to show you the exercises.

Using the exercises 2 to 3 times per week will increase and maintain muscular strength and endurance.

Start with low weight, high repetition (up to 20) exercises, to build muscular endurance.

Complete 2 to 3 sets of each exercises and start on weight machines as these encourage good technique.

After a few sessions move on to free weights where possible.

These will help you build strength in your weaker side and improve your balance.

It is very important that you consult a properly qualified physiotherapist as well as a gym instructor before commencing any program of exercises if you are suffering from an injury.

A gym instructor can advise on the specific exercises designed for the needs of motorcycle racers. The following are provided as a guideline to what they might advise:

UPPER BACK AND SHOULDER EXERCISES:

Low row machine, 3 sets of 20 repetitions ('reps') (3 x 20) Wide grip upright row machine (3 x 20)

LOWER BACK EXERCISES:

Back extensions over a gym ball (2 x 20) Back extension machine (2 x 20)

THIGH EXERCISES:

Leg press machine (3 x 20) Lunge with free weights (3 x 20) Squat with gym ball against wall, free weights in hands (3 x 20)

ARM EXERCISES:

Triceps pushdown machine (2 x 20) Free weight bicep curl (2 x 10 each arm) Free weight - shoulder front raise (2 x 20)

ABDOMINAL EXERCISES:

Basic crunch or 'situp' (2 x 20) Reverse crunch (2 x 20) Side crunch (2 x 20)

FINISH EACH EXERCISE SESSION WITH A 10 MINUTE 'COOL DOWN' OF LIGHT CARDIOVASCULAR EXERCISE AND STRETCHES OR YOU MAY SEIZE UP

(Ask a Gym Instructor).

Specific Advice for the TT and MGP:

Now the theory has been covered, it's time to summarise our advice on putting the principles into practice for racing on the Isle of Man TT Mountain Course. This advice has been developed on the basis of research at the TT and MGP over the last decade

and aims to help riders improve their performance as well as their safety. Even though it is aimed at competing in the Isle of Man, you will find these techniques apply equally well to all other 'real roads', short circuit and endurance races too.

In truth, you never really know what awaits you around the next corner in any race or practice session, and many decisions (some of them life-or-death) need to be made in a split second. There is often little room for error and you need to ensure you have the reserves of physical and mental energy to call upon to get it right at any given point in the race. The adrenalin of competing often helps overcome some tiredness and discomfort, but when you have a nasty 'moment' out there on the course, it can mentally and physically 'knock the wind out of your sails' and might reveal that your energy levels have been knocking on empty and running on adrenalin alone. At best you will ease off the gas and slow up, but at the worst you might get really stressed and maybe make a bad decision.

BY MEETING THE MOST BASIC BODILY NEEDS OF FOOD, DRINK AND AIR YOU CAN STAY IN THE COMFORT ZONE AND HAVE THE ENERGY TO ENJOY YOUR RIDE, BE MORE COMPETITIVE, AND SHOULD THE NEED ARISE, REACT BETTER IF AN EMERGENCY CALLS UPON ALL YOUR SKILLS AND ABILITY TO STAY COOL AND CALM.

The following is the basic approach to getting your hydration and nutrition optimised. Make sure you have read the rest of the booklet so that you understand the principles.

General Dietary Advice:

1. Try to eat a balanced diet during the fortnight. Enjoy as many sit-down meals as you are able. Plenty of fibre in the form of salad, fruit and vegetables will help stop you getting constipated. Sitting down to eat also gives you time

- to rest, relax and socialise.
2. Keep a good supply of snacks and drinks handy.
 3. If it's not your responsibility, make sure the person in charge of the catering and shopping knows what is needed and keeps supplies topped up.
 4. Take it easy with the alcohol.

Using Energy Foods and Energy Drinks:

1. Many sports people replenish their glycogen stores by eating a high carbohydrate meal or extra sugary/starchy snack the evening before a practice or race day. If you enjoy a few alcoholic drinks in the evening, be aware that alcohol reduces your body's glycogen stores and can leave you dehydrated. Remember to replenish in time.
2. Breakfast: On race days, breakfast might turn out to be the only chance to get a decent meal until the evening so it needs to set you up for the day. Although not to everyone's taste, 'wholegrain' (unprocessed) cereals are the best for providing a sustained supply of energy, and of these oats are king: As porridge, muesli or a processed cereal, oats give the best sustained glucose release. If you add fruit and nuts into this mix, it is even better. Luckily for those who don't see themselves as muesli-munchers you can buy oatmeal cookies or sports energy bars combining fruit, nuts and oats which are tasty and are designed with a smooth rather than grainy texture. 'High5 Sports Bar' and 'Powerbar' are popular ones, often found in local running/cycling shops but there are plenty of others, including the popular supermarket brands. These are convenient and you can carry a couple in your pocket as you busy yourself in the run-up to the main events of the days.
3. Time to race: One of your team should be in charge of your drinks, energy gels and food supplies at race time. For drinking, most people use a 'goalie bottle' with a wide plastic tube added (the famous TTRA bottles often given to competitors at the start of the fortnight are a good example). Ideally, aim to have at least a couple of these bottles available

and filled.

Aim to have 600-750ml (one bottle) of an energy-electrolyte formula over the hour before you go out to ensure that you are hydrated and energy levels are ready. Keep a spare bottle full with the team if you need more during a pit-stop or when changing bikes in a practice.

Bottles can be kept cool and refreshing by wrapping a damp cloth around them, using a chiller jacket for wine bottles, and/or placing them in a bucket with ice. There are multi-bottle carriers for sale in sports shops that the team can use, and another useful option is a 'Camelback'-style drink backpack, popular with motocrossers and soldiers the world over - the team can pass you the tube to drink from at a pit stop. Some are using similar systems with the reservoir built into the aerodynamic hump on the back of their leathers.

4. Energy gels can be used just before you set off, or at a pit stop. The 'isotonic' type do not require water to be taken at the same time; they have a cleaner 'mouth taste' and provide a concentrated source of glucose (usually as maltodextrin) which may be absorbed more steadily into the system than energy drinks. Oat and fruit-based sports energy bars give even more sustained energy so are best for before the race, but it is probably better to use the fine-textured ones (eg - High5 Sports Bar or similar) if you do not wish to chewing and crunching your way to the start line!
5. Have a sweet 'recovery' drink or snack ASAP after you finish. It'll lift your tiredness, keep your energy levels up afterwards and help recover the body's stores of glucose/glycogen....
6. Finally...

Have a BEER* - you've earned it!

Disclaimer: This advice and the techniques described in this booklet may not be suitable for everyone. It is advised to familiarise yourself with any new techniques before trying them out 'in the wild', particularly the beer.

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