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With any activity you get out what you put in. Especially with sport!

WHY DO WE NEED SPORTS NUTRITION?

It is also well known that daily our body suffers from a variety of factors that gradually cause degradation. Free radical damage is a major cause and unfortunately exercise contributes to this damage.

Sport puts considerable demands on your body, gradually using up your body's natural resources. If these are not replenished adequately then your body will begin to struggle to cope with just the normal daily functions you expect from it. Overtraining and insufficient rest between activities, along with a lack of essential raw materials required to repair your body, will lead to damage, degradation and sometimes debilitating injury.

A common sign that you are pushing your body too far without giving it what it needs can be seen by a lowering of your immune system. This usually manifests in a frequency of common colds and illnesses and an increase of minor injuries.

Fatigue is an inability to sustain a given power output or speed. It is the miss match between the demand for energy and the supply of energy.

It is therefore of paramount importance that your body is fuelled correctly and this can be broken down into 5 key stages.

WHAT ARE THE BENEFITS OF GOOD SPORTS NUTRITION?

STAMINA increases in stamina can often be the difference between winning and coming second. The body's ability to continue any activity at a high level for longer periods is only partly influenced by physical training. The other requirement is correct nutrition that provides all the essential ingredients to enable physical growth and development.

ENERGY is essential for any activity and therefore an increase in energy will increase the performance of any sports person. It is created through a chemical process (metabolism) within the body and as with any fuel it burns more effective when all the required components are present in the correct quantities. Nutrients are a major one. The higher the quality and availability of nutrients the more effectively they can be converted and used for energy.

MENTAL TOUGHNESS Increases in "mental toughness" include improved ability to perform tasks with increased co-ordination and the ability to focus the mind, achieving greater concentration.

AGILITY & SUPPLENESS Increased agility and suppleness helps reduce injury and damage to your body. It also helps you develop a greater range of movement that in turn leads to improved performance.

REPAIR & RECOVERY Probably the most important part in a sports person's routine yet very often overlooked. With any form of muscle development the fibres in the muscle are stressed to breaking. It is the repair and re-growth of these fibres that is responsible for the muscles ability to perform the required task with greater ease in future. Proteins are the preferred nutrient in this instance.

REDUCED INJURY& ILLNESS With the correct nutrients, vitamins and minerals the body can begin to produce the required fluids to lubricate the joints and help maintain correct immune function.

BASI C PRINCIPLES

The body requires a constant supply of Nutrients and Vitamins in order to function correctly on a daily basis. With sport, increased energy requirements and a faster rate of damage necessitate the need for a more efficient intake of required nutrients.

THERE ARE THREE MAIN NUTRIENTS

CARBOHYDRATE Main source of fuel commonly referred to as either "simple" or "complex" Carbohydrates.

Simple (sugars) = Instant energy (i.e. jelly beans)

Complex (starches & fibres) = Slow release energy (i.e. pasta/rice).

PROTEIN - For growth and Repair.

LIPIDS (major one is FAT)

Although all three are capable of producing energy CARBOHYDRATES and FATS are best suited to energy production and PROTEINS for growth and repair.

CARBOHYDRATES are essential in all energy production with FAT providing the reserve fuel stored on the body. Ideally both should be used efficiently and if the correct balance can be maintained the greater energy produced by fats can be utilised.

All nutrients are broken down by metabolism (the chemical process that turns nutrients into energy).

NUTRIENTS + METABOLISM = ENERGY

Vitamins are also essential for normal metabolism as they help maintain the enzymes that break down the nutrients in the process.

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5 KEY STAGES TO EFFICIENT SPORTS NUTRITION

1. FUELING

In order to fuel the body for optimum energy production the main nutrient CARBOHYDRATE is essential. Without it in sufficient quantity even the energy stored as fat cannot be metabolised.

"FAT BURNS IN THE FIRE OF CARBOHYDRATE"

Unfortunately CARBOHYDRATE is either used as "INSTANT FUEL" or stored in the muscles as GLYCOGEN. Any excess CARBOHYDRATE consumed above the aforementioned requirements is converted to LIPIDS (fat) and stored around the body. It is this process that is generally the cause of high body fat % and difficulty in reducing it, rather than as a result of ingesting too much actual fat.

To perform exercise the body will move through all the three processes of energy production. For prolonged periods of exertion the body requires sufficient supplies of GLYCOGEN to produce continual supply of energy. In this instance it is generally better to utilise a combination of essential CARBOHYDRATES as the catalyst and to burn FAT. Fat has the greater yield of energy per gram and when used in the aerobic energy process can help sustain energy production for long periods.

This is why when taking part in any long distance sport/event topping up of essential carbohydrates is essential for maintaining performance.

A sports person is constantly striving to get this balance right. Unfortunately it is actually a difficult and complex process and for the majority and something that is seldom mastered. It is generally considered that a liquid form of Carbohydrate is better as it can be broken down faster and also helps with fluid intake.

2. REFUELING

During exercise/sport our body will utilise whatever stores of GLYCOGEN available. The depletion of these is the cause of fatigue and in most cases performance is limited to the amount of GLYCOGEN in the muscles.

By refuelling as soon as possible within 20 minutes post exercise we can re-introduce GLUCOSE into the body which in turn will contribute to the production of GLYCOGEN. This in turn can be utilised by the energy processes to considerably reduce damaging effects.

As a general rule you should refuel every hour in the same way until activity ceases and then you should refuel as per post exercise.

It is also important to replenish vital vitamins and minerals at this time to ensure sufficient raw materials for the following phases.

Remember that your body will continue to metabolise fat for some time after exercise and this is again aided by having sufficient CARBOHYDRATES available.

3. RECOVERY. Having just explained the need to refuel the body we now move on to the process of recovery. With exercise lasting between 30 seconds to 30 minutes fatigue is caused by the inability of the bloodstream to remove LACTIC ACID at a faster rate than it is being produced. The build up of this in the muscle reduces its ability to perform intense contractions and once this reaches harmful levels a burning feeling can be experienced. This is a safety mechanism to prevent muscle cells from destruction.

By utilizing antioxidants post exercise it is possible to reduce the length of time harmful toxins remain within the body and speed up the removal of LACTIC ACID. It is also beneficial in removing FREE RAICALS. Antioxidants can also help reduce long term damage to muscle fibres and speed up the chemical process that converts GLUCOSE to GLYCOGEN. (Increased glycogen re-synthesis) They also help to boost the immune system and help ensure that the body is not fighting disease and infection, but devoting all its resources to recovery and repair.

4. REPAIR. When participating in sporting activity, the body is generally pushed to its limits and often beyond. At this time the muscle fibres within the muscles are torn. The process of first tearing, then repairing these fibres, leads to the growth and development of stronger fibres that are more capable of the demands that will be placed on them. This process is responsible for the size, strength and endurance gains that sports people require. This process can often be quite painful and generally manifests as muscle soreness 2 days after. It is commonly referred to as DOMS (delayed onset muscle soreness) For subsequent growth and development to occur efficiently and quickly the body requires certain proteins. The sooner these are available the sooner the repair and growth process can begin. In many cases DOMS can be significantly reduced.

PROTEINS are essentially amino acids that form various chains of protein depending on their purpose. The body requires a total of 20 Amino Acids. Unfortunately, the body can only produce 11 Non-essential amino acids) out of the total of 20 itself and the other 9 (essential amino acids) MUST be ingested. Once broken down ALL the amino acids are transported to the liver where they are mixed (synthesised in what is referred to as the AMINO ACID POOL. They are then converted to ENERGY or a variety of different PROTEINS and distributed as required. Because we have already topped up our body with

CARBOHYDATES in the refuelling phase a larger proportion of the amino acids can now synthesised as protein, maximising growth and repair.

5. HYDRATION is probably the most talked about and discussed topic for any sportsperson.
Just as the heart beats constantly, fluids move constantly within the body. It is this movement that enables the body to maintain the constant state of balance it requires.

In a healthy body FLUID GAINS = FLUID LOSSES

In normal daily function approximately 2.6 litres of fluid must be taken in (before exercise)

1.5L FROM CONSUMED LIQUIDS
1.1L FROM SOLID FOODS & AS A BYPRODUCT OF METABOLIC FUNCTION

As soon as exercise begins an imbalance occurs and this must be corrected.

As long as 80% of fluid lost during exercise is replace the there should be no drop in performance. Ideally the following guidelines should be followed.

CONSUME ADDITIONAL 1L PER HOUR OR MORE IF REQUIRED
SIP CONSTANTLY RATHER THAN DRINK
2000kcal energy expenditure = 2L fluid intake
3000kcal energy expenditure = 3L fluid intake etc.

Correct fluid balance is also required to maintain correct body temperature and blood circulation. This in turn ensures correct brain function.As a result of insufficient fluid intake the body becomes DEHYDRATED. Changes within the body trigger motor neurons that seek to satisfy thirst. At this stage the body has already suffered sufficient imbalance to cause a drop in performance and increase possibility of severe fatigue.

Signs of dehydration are often DRY MOUTH, HEADACHES, and DARK URINE.

TIPS FOR SPORTS NUTRITION

Tip 1 **Fuel** the body 20 minutes pre exercise taking Formula 1 in fruit juice

Tip 2 **Re-hydrate** every 15 minutes during exercise using a combination of water LIFTOFF or Thermojetic Beverage

Tip 3 **Refuel** (carbohydrates) every hour and when finishing exercise (within 30 minutes) with Formula 1 and fruit juice.

Tip 4 **Repair** muscles by taking Formula 1 and 3 in high protein drink 1.5-2.5 hours post exercise

Tip 5 Complete the recovery process by taking Schizandra Plus within 20 minutes post
exercise to neutralise free radicals.

WHATEVER EXERCISE YOU DO YOUR BODY NEEDS GOOD NUTRITION.

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