

# NUWTR

**FULVIC MINERAL SUPPLEMENT**

**What Fulvic Acid Can Do for You!**

# 1. Can Fulvic Minerals really help you?

Fulvic minerals are an organic material that is produced by the action of microbes over millions of years. These microbes help to breakdown dead and dying vegetation and the by-product of this breakdown is fulvic minerals.

One of the consequences of this natural process is that fulvic minerals contain approximately 45% oxygen (See Fig 1) which is highly bio-available to the human body and is readily absorbed by human cells.

*Fig 1: Distribution of five elements in Humic Minerals and Fulvic Minerals*

<u>Element</u>	<u>% of Fulvic Minerals</u>
Carbon	45.8
Hydrogen	5.4
Nitrogen	2.1
<b>Oxygen</b>	<b>44.8</b>
Sulphur	1.9

It is this characteristic of fulvic minerals which makes it so useful for sportspeople because if fulvic minerals are taken regularly over a period of 2–3 months then the problems associated with lactic acid and carbon dioxide may be reduced.

Fulvic minerals have the ability to deliver O<sub>2</sub> directly to the muscle cells and thus may reduce the detrimental effects of lactic acid and CO<sub>2</sub> build up.

Although thorough research is yet to be done on this specific subject, testimonials have shown that when fulvic mineral supplements are taken for sufficient time, muscle soreness after exercise is decreased and the ability to train for longer is noticed.

## 2. Electrolytes

An electrolyte is something that can assist in the transfer of electricity in cells. The importance of electrolytes in sport is well documented with the absence of which being linked to muscle cramps, dehydration and decreased performance levels.

These electrolytes are actually minerals that can be found in almost all foods in varying quantities. Minerals such as sodium and potassium are extremely important for sportspeople but other minerals such as calcium, magnesium and chloride are just as important.

Many sports drinks contain a very limited number of electrolytes and use mineral ingredients which are known to be very poorly absorbed.

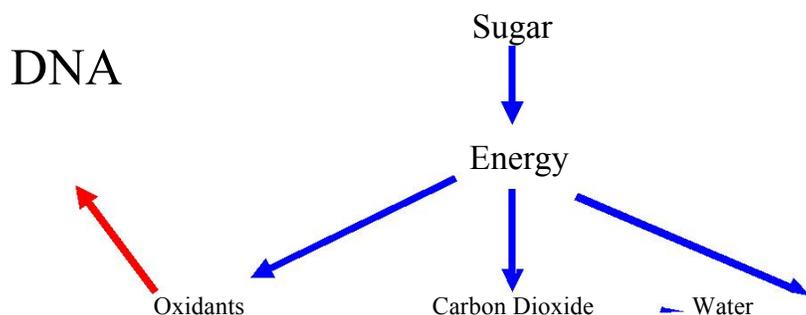
Fulvic minerals are one of nature's most powerful electrolytes as many research articles prove its ability to maximize the electrical chemistry of the cell. The reason that fulvic minerals are so powerful is that they naturally contain around 75 different minerals and also have the ability to provide minerals to a cell if they are needed. Therefore, when sweating occurs during prolonged exercise and blood electrolytes are being lost through the skin; fulvic minerals will immediately replace these and prevent loss of performance. Fulvic minerals are the only substance known to man with this ability.

### 3. Antioxidant

During exercise, oxidants are produced which can cause damage to cells and tissues. These oxidants are actually produced by our own metabolism and, as sportspeople have a faster average metabolic rate than non-sportspeople; their requirement for *anti*-oxidants is higher.

An oxidant is a very unstable molecule which basically wants to become stable again. To do this it has to 'steal' from other molecules which, if those molecules are not anti-oxidants, causes damage. The importance of preventing this is highlighted by the fact that in some circumstances, oxidants can attack DNA.

Therefore, it is vital, especially for athletes, to consume a regular amount of anti-oxidants. Well known anti-oxidants include vitamins A, C and E but the complex structure fulvic acid makes it far more powerful an anti-oxidant than any other nutrient known.



Simplified illustration of the metabolic pathway and its by-products. Highlights oxidant production and potential damage to DNA.

### 4. Fulvic Minerals and Vegetal Silica

Another characteristic of fulvic minerals is its ability to dissolve vegetal silica into a form easily use by the body. Silica is vital for the healthy production of collagen which is important for sportspeople. Collagen is an integral component of connective tissue such as ligaments and tendons and if these structures are kept strong then sports injuries may not occur. Also, if tears to tendons and ligaments do occur, it is vital that a good source of bio-available silica is taken regularly to aid the healing process.

*Only by taking **vegetal silica** in combination with fulvic minerals, **will the best effects be seen.***

Fulvic minerals should be considered essential to sports, exercise training program and wellness.

## 5. Metabolism

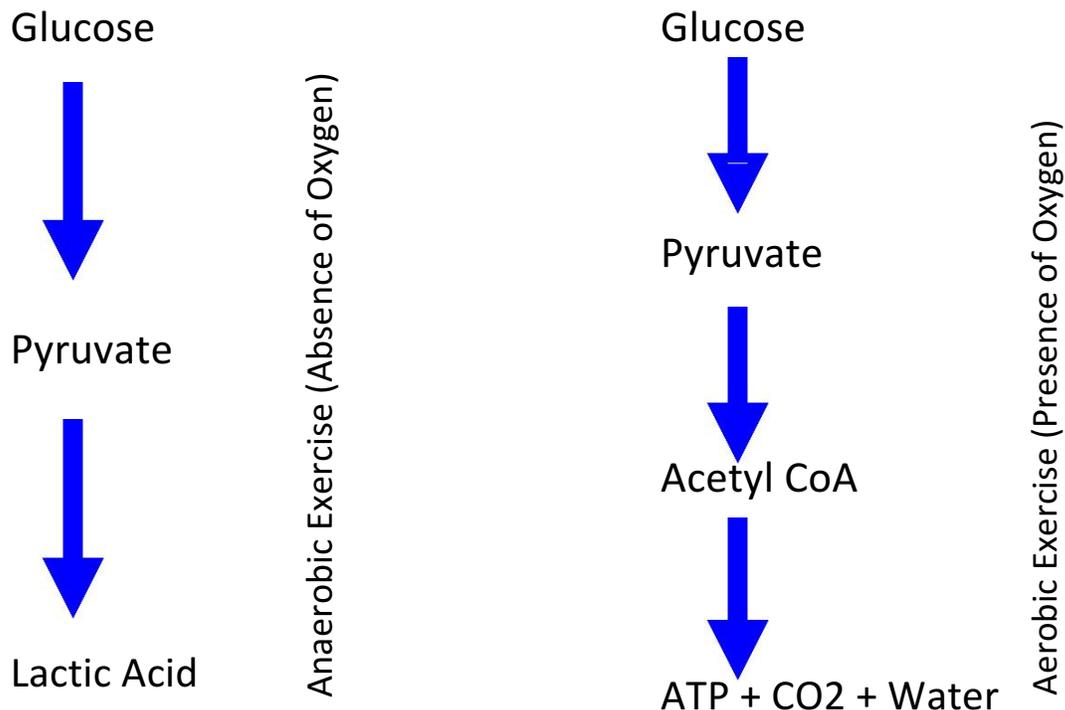
Simply put, metabolism is the conversion of fuel (carbohydrates, fats or proteins) into a source of energy (ATP) which the body can use for exercise and our metabolic rate can be defined as the speed that this process can occur.

When involved in any kind of activity, our metabolic rate increases. However, the type of metabolism we use depends on the type of exercise being carried out.

For example, jogging can be classed as AEROBIC exercise and sprinting can be classed as ANAEROBIC exercise and aerobic and anaerobic exercise use slightly different metabolic pathways and produce different by-products. (See fig 2)

Aerobic exercise basically means exercise in the presence of oxygen and anaerobic exercise means exercise in the absence of oxygen but both types of exercise require a source of energy. ATP is the principle energy 'currency' produced during metabolism but much more ATP is produced during aerobic exercise which is one of the reasons why we can jog for longer than we can sprint.

However, no matter what type of exercise program we are following, there will always be a point at which we can go no further and we need to stop.



**Fig 2:** A simplified illustration showing Anaerobic and Aerobic metabolism and the different by-products they produce

As can be seen in Fig 2, the different types of metabolism produce different by-products that can affect performance and recovery. For example, Lactic Acid in anaerobic exercise, and Carbon Dioxide (CO<sub>2</sub>) in aerobic exercise.

Both of these by-products can affect performance and recovery in different ways and both can be remedied with oxygen.

## **6. Lactic Acid**

The buildup and accumulation of Lactic Acid during anaerobic exercise is thought to contribute to the pain and soreness experienced by sportspeople following strenuous exercise.

During a sprint, there is not much we can do to prevent lactic acid building up but we can take measures to prevent a prolonged accumulation. Such measures include an aerobic 'warm down' to re-introduce oxygen to the muscle cells, or by ensuring a high concentration of oxygen is pre-sent in the cells before and during anaerobic exercise.

Both measures are effective to prevent muscle pains following sport.

## **7. Carbon Dioxide**

Carbon Dioxide (CO<sub>2</sub>) builds up gradually during aerobic exercise and is the principle reason why we 'run out of puff'. There is a constant battle occurring in our cells between CO<sub>2</sub> and oxygen (O<sub>2</sub>) and if CO<sub>2</sub> is allowed to accumulate to toxic levels then cell function can become severely impaired and we are forced to stop our exercise. Such toxic accumulation can only happen when the production of CO<sub>2</sub> via aerobic metabolism outweighs the amount of O<sub>2</sub> we are able to breathe in during the exercise. When this occurs, what is known as an 'oxygen debt' builds up. It is this oxygen debt that we are 'repaying' by the heavy breathing following sport.

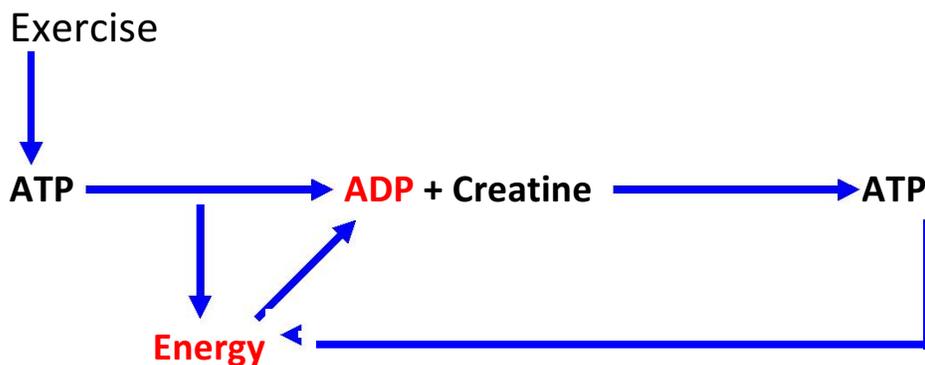
If the threshold of when this oxygen debt becomes too much can be improved and the length of time it takes for us to repay the debt after exercise can be decreased, then in theory, we can train for longer and recover quicker.

To achieve this, we would need an extremely efficient CO<sub>2</sub>-O<sub>2</sub> exchange mechanism, an increased lung capacity or a way of ensuring O<sub>2</sub> levels in the muscle cells remain as high as possible during and after exercise.

## 8. Replacing Creatine Supplementation for Fulvic

Supplementing with creatine is hugely popular among sportspeople and athletes. Many scientific studies have shown its effectiveness for increasing endurance during high intensity training and increasing muscle mass.

Creatine works by allowing the muscle cell to recycle our energy currency, ATP, making it available for further use and therefore allowing the muscle cell to work harder. Usually, when we exercise, our ATP is broken down into ADP and this reaction releases energy. However, once in the ADP form, it takes a while for it to be converted back into ATP to be available as an energy source once again.



A simplified illustration of how creatine works to re-generate ATP from ADP.

The presence of high concentrations of creatine allows the cell to regenerate ATP from ADP much quicker than normal allowing the cell to work for longer periods.

However, although there is a wealth of research behind creatine's use for sport people, there are also concerns regarding its long-term use. Below is a list of reported side effects following creatine supplementation:

1. Kidney damage
2. Muscle cramping
3. Leg pain
4. Stomach problems

Fulvic minerals are an ideal replacement for creatine as this nutrient will offer all of the above benefits of creatine but will also work for **endurance athletes** (creatine has only shown to be effective for high intensity sports and therefore will not work for footballers for example) and it will not cause any of the side effects mentioned above. Indeed, if you suffered with any of the conditions above then fulvic minerals will probably help those too!

Fulvic minerals will provide approximately 45% pure organic oxygen directly to muscle cells which will improve endurance and enhance recovery in a natural way

## Summary

There is no other natural known nutrient that can:

1. Reduce the impact of Carbon Dioxide during sport.
2. Reduce the impact of Lactic Acid during and after sport.
3. Provide optimal protection against the increased production of oxidants.
4. Provide the most powerful electrolyte in existence.
5. Dissolve silica to maintain strength of joints and connective tissue.
6. Provide useable oxygen directly to our cells to accelerate the healing process.

Well there you have it, more science and information behind this unique natural gift from Mother Earth: **Fulvic Acid**.

If you are really interested in being healthy and creating wellness in your life, simply introduce our NuWTR formula into your daily routine today!