

Guidelines for using Creatine Monohydrate

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Introduction

It has been said that creatine is the largest selling sports nutrition supplement ever. This may be so and is probably due to there being much evidence that it works and probably mostly as a result of the hype generated by commercial interests in promoting its sale. In this paper, I have copied most of the information that is supplied by Nutra-Life Health Ltd. about Balance Creatine Monohydrate and then added some of my comments and observations to help you decide if supplementing with creatine is worth experimenting with and how to go about it.

Let me start by stating that my conclusion is that creatine does have a role in high performance sports and also with restoring the strength and energy levels of the elderly and the infirm. However; this is not a blanket endorsement on my part and, as with any nutritional supplement, it should be applied with caution and only where there is a good case for its use. My comments are prefaced with my name in **bold** and the comments are in *italics*.

Description

Creatine Monohydrate is used to improved muscle strength and power through its role in the formation of ATP (Adenosine Triphosphate) the body's essential source of cellular energy. ATP is vital for instant and sustained energy. A depletion of muscular Creatine can lead to reduced muscle power and rapid onset of fatigue.

Studies show Creatine supplementation increases total muscle creatine stores. Therefore supplementing with **Balance Creatine Monohydrate** can help maximise energy production and improve overall performance.

Gary: *Studies most of the benefit that comes with creatine supplementation is during repeated bursts of explosive power lasting less than 8-10 seconds. There is much more uncertainty and debate about its benefit for endurance sports. More about this later...*

Active Ingredients

Per 100g

| | |
|---------------------|-----|
| Energy | Nil |
| Carbohydrate | Nil |
| Protein | Nil |
| Fat | Nil |

Recommended Use

Serving Size: 5g

Loading Phase: One teaspoon (5g) 1-4 times daily for 6 days.

Maintenance Phase: One teaspoon (5g) daily.

Add to 120ml of water. For optimal results combine with a high glycaemic carbohydrate or Balance Ribose. Stir and serve.

Creatine is best taken before workouts to enhance performance and after workouts to improve recovery.

Gary: *There is ongoing scientific debate about the need for a “loading phase”. It is probably unnecessary. My recommendation is simply to take the recommended daily serving by including it in your [Super Smoothies](#) which are packed full of all of the nutrients needed to make best use of this supplement. Ensure there is a little whey protein in the Smoothie. The Super Smoothie with whey and creatine forms the basis of a nutritional programme to restore the health and strength of an elderly person, or when recovering from serious injury or illness.*

This product should be used with a programme of controlled resistance exercise and a balanced nutritious diet containing protein and energy from carbohydrates and fats.

Gary: *Absolutely agree: The most important component for developing physical fitness is the activity-specific training – plus a healthy balanced diet!*

Precautions / Contra-indications

Since the original work done on Creatine supplementation at the Karolinska Institute in Sweden, there have been many studies confirming its safety, when used in the recommended dosage levels.

Few side effects have been reported but they include; upset stomach, muscle cramping, diarrhoea and dehydration. Drinking plenty of water when taking Creatine can minimize most of these side effects.

Gary: *As with anything that is good for you: more is not necessarily better. All things in moderation, including creatine. Stick to the recommended servings and do not exceed.*

Creatine has no effect on hormone levels.

Abuse of Creatine: Any Creatine not used by the body is excreted as Creatinine, a waste product. Doses above 20g daily should not be exceeded long-term since the additional Creatinine may affect your liver and kidneys. Always drink plenty of water while taking creatine.

On November 12, 1999 at the 19th Annual Southwest American College of Sports Medicine Meeting, two studies were presented from the Exercise & Sport Nutrition Lab at the University of Memphis:

Both studies showed that athletes taking an average of 5g of Creatine monohydrate daily for 9 months had no negative effects on markers of renal function or muscle and liver enzymes, compared to athletes not taking Creatine.

Gary: *Again, do not exceed the guidelines and drink plenty of water with it.*

My advice is to cycle the use of creatine: use for two months and then do not use for one month and then go back to its use. For sporting competition; time the 2 month cycle so that you have a month off immediately following the end of a competition phase when you are commencing a fresh build-up to a new competition peak.

Mode of Action

Endogenously, Creatine is biosynthesised in the liver from three amino acids - Arginine, Glycine and Methionine. This creatine, or the type taken as a supplement, is then phosphorylated to form Creatine Phosphate, (CP) the essential ingredient in the ATP shuttle that converts ADP to ATP, and then back to ADP with the release of the immediate energy needed for quick burst activity such as lifting a weight or sprinting.

Other actions include:

Ø Muscle volumisation: Creatine increases the water content thereby increasing their size.

- Buffer Lactic Acid build-up: New research has shown that Creatine by bonding with a hydrogen ion helps to delay the build-up of lactic acid, derived from incomplete metabolism of glycogen in the muscle.
- Enhances Protein Synthesis: Creatine assists anabolism creating an environment where protein synthesis can occur.

Indications

- Improves energy levels, strength and endurance.
- Promotes increases in muscle size.

Gary: *Here's the crunch: creatine helps build bigger muscles that have more explosive power and which may have a higher lactate tolerance; however, this also means that you may get heavier and with weight gain there is an energy cost penalty. So, the longer and more aerobic the activity, the less theoretical benefit one gains from creatine supplementation. Furthermore, activities, like running, or riding a bike up big hills, may be more compromised than other activities, like riding a bike on the flat or paddling a kayak, because they are raising body weight.*

So, if your sport is the shot put, the 500m kayak sprint, track cycling or the 100m running sprint – go for it!

However; if your sport is the 10,000m run or mountain bike racing, I would suggest caution because any weight gain may more than offset any performance gains from the creatine.

My recommendation to every one contemplating the use of creatine for any kind of sports performance is to make sure that you have good baseline measures collected through time trials and actual competition results. Commence a period of creatine supplementation that is outside of any crucial competition and repeat the trials and enter competition; then compare the results. If a significant gain in performance is noted, then continue to use the supplement. Keep a close eye on weight gain and use your judgement and commonsense in deciding if the benefits outweigh any downsides.

References

1. Kreider R, Rasmussen C, Ransom C, Melton C, Greenwood M, Stroud T, Cantler E, Milnor P, Almada A, Greenhaff P. Long-term creatine supplementation does not affect markers of renal stress in athletes.
2. Almada A, Kreider R, Ransom J, Melton C, Rasmussen C, Greenwood M, Stroud T, Cantler E, Milnor P, Earnest C. Long-term creatine supplementation does not affect muscle or liver enzyme efflux in athletes.

