# Creatine’s benefits may extend from gym gains to mental health and ageing



Creatine has garnered considerable attention in the fitness world, embraced by athletes and fitness enthusiasts alike. From the training regimes of Olympians to the humorous portrayals of gym culture in shows like *The White Lotus*, its popularity continues to surge. Although primarily known as a supplement for physical performance, emerging research indicates potential benefits beyond muscle strength, particularly regarding mental health and longevity.

Creatine is a naturally occurring compound synthesized in the liver, kidneys, and pancreas. It can also be obtained through dietary sources such as red meat, fish, and poultry. This substance serves as a key energy source for muscles, working to regenerate adenosine triphosphate (ATP), the molecule crucial for energy transfer in cells. Dr Imtiaz Desai, a Sydney-based exercise physiologist, explains that creatine plays a pivotal role in short-duration, high-intensity activities, such as sprinting and weightlifting, enhancing athletic performance during these bursts of effort. However, it is less effective for endurance-based activities like marathons.

While the average person generally does not require creatine supplementation—except in rare instances such as genetic creatine deficiency—many individuals within fitness circles take it to maximise their workouts. The most commonly used form is creatine monohydrate, noted for its extensive research backing and affordability, typically priced around 50 cents per five-gram serving. This widespread accessibility, however, does not come without caution.

Creatine is considered safe for healthy adults, with a strong body of research supporting its long-term use. However, caution is warranted as the US Food and Drug Administration does not regulate dietary supplements in the same way as pharmaceuticals, raising concerns about product purity and the accuracy of ingredient lists. Individuals are encouraged to look for products that carry an NSF seal, indicating third-party verification for content compliance. Minor side effects such as bloating or gastrointestinal discomfort may occur, particularly in those opting for higher doses—a practice dubbed "loading," which many experts advise against, including Dr Avinish Reddy.

Recent studies suggest that creatine may not contribute significantly to muscle growth as once believed. Desai's own research demonstrated that participants taking creatine experienced negligible differences in muscle gain compared to those not using the supplement following an identical weightlifting programme. The initial weight gain often associated with creatine is largely attributed to water retention rather than true muscle hypertrophy. This raises questions about the supplement's long-term benefits, which may lie in its ability to facilitate more intense training sessions rather than produce immediate visible results.

Despite its associations with athletes, creatine is also being examined for its potential advantages in older adults, particularly in combating sarcopenia—the age-related loss of muscle mass. Experts advocate that creatine can support muscle retention when coupled with regular physical activity, making it especially beneficial for older women post-menopause. Furthermore, the health benefits of creatine extend beyond the physical realm, with researchers exploring its role in cognitive function and mental health. Studies indicate that creatine may aid in alleviating symptoms of depression by enhancing brain energy metabolism and promoting neurotransmitter production, although it is not a standalone treatment.

Interestingly, some findings suggest that creatine could play a role in Alzheimer's prevention, further solidifying its status as a supplement with broader implications. It is particularly relevant for vegetarians and vegans, who may not obtain enough creatine from their diets. However, individual responses to creatine consumption can vary, with estimates suggesting that 20-30% of the population may be classified as "non-responders."

As creatine gains traction among younger populations, concerns regarding its use in adolescents must be addressed. Despite its general safety for adults, medical organisations, including the American Academy of Pediatrics, advise against its use in individuals under 18 due to the unknown long-term effects. The prevalent use of creatine in this age group may reflect broader trends in body image and fitness obsession, leading researchers like Dr Kyle Ganson to explore its connections to muscle dysmorphia among young men.

While the evidence underscores creatine's potential advantages in both physical performance and cognitive health, it's essential to approach its use thoughtfully. For those considering supplementation, particularly adolescents or those with pre-existing health concerns, consulting healthcare professionals is advisable. Ultimately, while creatine can be a valuable tool in achieving fitness goals, foundational factors such as a balanced diet and structured exercise should remain at the forefront of any health regimen.

### Reference Map

1. Paragraphs 1, 2, 3, 4
2. Paragraphs 5, 6
3. Paragraphs 7, 8
4. Paragraph 9
5. Paragraph 10
6. Paragraph 11
7. Paragraph 12

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.theguardian.com/wellness/2025/may/15/what-is-creatine-benefits-drawbacks> - Please view link - unable to able to access data
2. <https://www.axios.com/2025/05/14/creatine-health-lifespan-brain-function> - This article discusses the growing popularity of creatine among aging Americans for its potential longevity benefits. Experts highlight its ability to support muscle retention and cognitive health as people age. Sarcopenia, the age-related loss of muscle mass, can be mitigated by creatine when combined with an active lifestyle. Creatine is especially recommended for women as one of the most important supplements for healthspan. Beyond muscle benefits, emerging research links creatine to improved memory, brain health, increased energy, and even potential applications in depression treatment and Alzheimer’s prevention. While creatine occurs naturally in food like red meat and seafood, substantial daily portions would be required to meet optimal supplement levels, making supplementation more practical. However, it's not essential for muscle growth in the same way protein is. Dosage and effectiveness vary by individual, depending on diet and exercise routines.
3. <https://www.cyclingweekly.com/fitness/creatine-need-to-know> - This article explores the benefits of creatine supplementation for cyclists. Creatine aids in high-intensity, short-duration activities by enhancing energy availability, making it advantageous for cyclists during sprints and bursts of effort. Research led by Dr. Kristyen Tomcik and Professor Louise Burke shows that creatine supplementation combined with a high-carb diet improves cycling sprint performance in races. The typical protocol involves a loading phase (20g/day for 5-7 days) followed by maintenance (3-5g/day), or a consistent 5g/day regimen. While creatine generally supports recovery and cognitive function, potential drawbacks include slight weight gain from water retention and occasional gastrointestinal discomfort. Cyclists should tailor creatine use to their goals and body response, utilizing quality supplements for maximum benefit.
4. <https://www.tomsguide.com/features/i-took-creatine-every-day-for-10-days-like-mark-wahlberg-heres-what-happened-to-my-body> - This article documents a personal trainer's six-week experience using creatine daily, inspired by Mark Wahlberg's endorsement of the supplement. Creatine, a compound produced by the body and stored in muscles, is known to enhance high-intensity exercise performance by replenishing ATP for energy. The trainer observed notable benefits, including increased energy, enhanced workout performance, and muscle support without the side effects commonly associated with pre-workouts, such as nausea. Unlike pre-workouts that rely on caffeine, creatine is a single-ingredient supplement that should be taken regularly and not just before exercise. The author recommends using pure creatine monohydrate, staying well-hydrated, and combining the supplement with a balanced diet and structured workout routine. Although no drastic physical changes were evident in the short term, the trainer felt more endurance and strength during workouts. Importantly, creatine did not disrupt sleep and was well-tolerated. The article concludes that while creatine is effective and safe at recommended doses, long-term use should be managed with periodic breaks, and those with kidney issues should consult a doctor. Most fitness benefits should still root in proper diet and consistent training before adding supplements.
5. <https://www.mayoclinic.org/drugs-supplements-creatine/art-20347591> - This page from the Mayo Clinic provides an overview of creatine, including its uses, effectiveness, safety, and potential side effects. Creatine is a compound the body naturally makes in the liver, kidneys, and pancreas. It acts as a quick fuel source for muscles, helping regenerate adenosine triphosphate (ATP), a molecule cells use for energy. Oral creatine use might allow an athlete to do more work during reps or sprints, leading to greater gains in strength, muscle mass, and performance. Creatine is often used by athletes involved in high-intensity intermittent activities that require rapid recovery during training and competition. The page also discusses safety considerations, noting that creatine is generally safe when used appropriately but may cause side effects like weight gain due to water retention. It also mentions that creatine might not be safe for people with preexisting kidney problems.
6. <https://www.healthline.com/nutrition/creatine-pros-and-cons> - This article from Healthline discusses the pros and cons of creatine supplementation. Creatine is one of the most well-studied supplements, known for its benefits in enhancing high-intensity exercise performance and increasing muscle mass. The article also addresses safety and concerns, noting that when taken in recommended amounts, creatine is generally considered safe for most healthy people. However, previous case reports and animal studies have raised concerns about potential kidney damage. The article also mentions that creatine can cause bloating and gastrointestinal discomfort in some individuals. It advises starting with a lower dosage and gradually increasing it to mitigate these issues.
7. <https://www.webmd.com/vitamins-and-supplements/creatine/> - This WebMD page provides information on creatine supplements, including their uses, effectiveness, safety, and potential side effects. Creatine is a substance that occurs naturally in muscle cells and helps produce energy during high-intensity exercise or heavy lifting. The page discusses how creatine can improve strength, increase lean muscle mass, and aid muscles' recovery during exercise. It also addresses safety concerns, noting that while creatine is generally considered safe for healthy individuals, it may not be safe for people with kidney disease, liver disease, or diabetes. The page advises consulting with a doctor before starting creatine supplementation and mentions potential side effects like dehydration, muscle cramps, and digestive issues.