### Grading Criteria

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>Strong scientific evidence it works</strong></td>
</tr>
<tr>
<td></td>
<td>The A ranking is achieved when there are at least two double blind placebo controlled studies</td>
</tr>
<tr>
<td></td>
<td>with similar methodology, or numerous studies of this quality that may have related but</td>
</tr>
<tr>
<td></td>
<td>not similar methodology (most likely in the form of a meta-analysis). Studies conducted in</td>
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<tr>
<td></td>
<td>animals and reviews that do not provide new evidence do not count, and for epidemiological</td>
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<tr>
<td></td>
<td>evidence to receive an A ranking the effect must remain consistent across no less than 3</td>
</tr>
<tr>
<td></td>
<td>studies.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td><strong>Good scientific evidence it works</strong></td>
</tr>
<tr>
<td></td>
<td>The B ranking is achieved when the body of evidence suggests benefit and is relatively</td>
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<tr>
<td></td>
<td>cohesive but the parameters of A have not been met. This tends to be when multiple studies</td>
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<tr>
<td></td>
<td>have been conducted but their methods varying widely (despite studying the same parameter)</td>
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<tr>
<td></td>
<td>or when animal and in vitro evidence is convincing but human interventions are minimal yet</td>
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<tr>
<td></td>
<td>present. The B ranking is also given to convincing epidemiological evidence that does not</td>
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<tr>
<td></td>
<td>have accompanying interventions proving the mechanism of action.</td>
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<tr>
<td><strong>C</strong></td>
<td><strong>Neutral scientific evidence; unknown if it works</strong></td>
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<tr>
<td></td>
<td>The C ranking is given to supplements that either show benefit from a single human study</td>
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<tr>
<td></td>
<td>(of lacklustre design), exclusively from animal studies, or when numerous trials conducted</td>
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<tr>
<td></td>
<td>on the topic show no cohesiveness as to demonstrate whether the supplement succeeds or fails.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>Some scientific evidence it does not work</strong></td>
</tr>
<tr>
<td></td>
<td>The D ranking is given to supplements that have either one well controlled study (double</td>
</tr>
<tr>
<td></td>
<td>blind placebo controlled trial) or numerous human studies of lesser quality that demonstrate</td>
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<tr>
<td></td>
<td>a failure of the supplement to have an effect while simultaneously having either no human</td>
</tr>
<tr>
<td></td>
<td>evidence to suggest benefit or evidence to suggest benefit of a much lesser quality.</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td><strong>Strong scientific evidence it does not work</strong></td>
</tr>
<tr>
<td></td>
<td>The F ranking is given to supplements that have numerous, well controlled, studies to</td>
</tr>
<tr>
<td></td>
<td>suggest that the supplement fails to affect the target parameter while also having proven</td>
</tr>
<tr>
<td></td>
<td>rationale as to why the supplement fails to affect the target parameter.</td>
</tr>
</tbody>
</table>
**Evidence**

<table>
<thead>
<tr>
<th>A</th>
<th>Muscle Growth (with Exercise)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Creatine is most well known as the ‘king’ of exercise supplements, and this is partially due to robust evidence that shows people who supplement creatine and exercise grow muscle tissue at a faster rate than people who do similar exercises without creatine supplementation. The general benefit of creatine increasing the rate of muscular growth is beyond a shadow of a doubt, but the degree it benefits does seem to differ based on the individual using creatine.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>Improving Strength (Athletes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In concert with the increased muscular growth is increased strength in power-based activities. While a large part of this is due to the increased muscularity, creatine also appears to increase strength in these activities before any additional muscle is even built. The temporary strength increase creatine confers leaves when supplementation is stopped, but the strength gained from the new muscle tissue remains.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>Power-based Sports Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>While creatine has mixed benefits in sports performance overall, sports that have power-based segments such as basketball (jumping) or hockey (sprinting) see localized benefits on these parts due to creatine supplementation. Sports based almost exclusively on power such as sprinting and powerlifting see unanimous benefits from creatine supplementation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>Reducing Depression</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Creatine seems to be effective in fighting depression, with all evidence showing mild benefits in women only. There is a lack of evidence overall on creatine and depression in men, but the limited evidence available suggests that this is either a gender-exclusive effect or is simply much more likely to benefit women with depression than men.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>Cognition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>While the topic of cognitive capacities with creatine is not overly researched, there are a few trials assessing a variety of parameters with generally mild benefits when the subject is in a fatigued state, is vegetarian, or is elderly. Most trials on this general topic are standalones without replication.</td>
</tr>
</tbody>
</table>

**How it became a Supplement**

Creatine was known by biologists for a long time before it was used as a dietary supplement as an extra reserve for energy in a cell where it helps replenish the main cellular energy currency, ATP, in situations where the cell undergoes stress. Due to the presence of creatine in high levels in meat products and meat's historical association with exercise and strength, as well as the general curiosity of seeing what happens when you consume a compound that is so vital in the cell, research started in rodents and it was very quickly apparent that not only could it get to the cell but it could increase muscular strength.

Ever since then creatine has seen consistent sales and usage due to its efficacy and overall benefits, although it is at times somewhat unreliable when it comes to how much people respond beneficially to it. For those lucky few who can get all the benefits of creatine it stands as a testament that sometimes, things that are too good to be true may exist.
**CREATINE**

<table>
<thead>
<tr>
<th>Improving Strength (Elderly)</th>
</tr>
</thead>
<tbody>
<tr>
<td>While creatine may be beneficial to the elderly who are also participating in exercise protocols, for the purpose of reducing falls, it is fully reliant on there actually being some manner of exercise. Furthermore, the degree of benefit seems to be lesser than youth supplementing creatine. Creatine also does not appear to help sarcopenia (age-related muscle loss) when supplemented reactively, with lifetime creatine usage on the risk of sarcopenia not assessed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endurance-based Sports Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Despite the apparent benefits of creatine in sports and exercise based in powerful movements, sports and activities that involve repetitive actions for a prolonged period of time either see minimal benefit or none at all. The benefits of creatine are related to how long one can keep the activity up, with almost unanimous benefits in powerlifting, mixed and moderate benefits in rowing tests, and no apparent benefit (or downside) to marathons and endurance sports. Sports such as hockey and soccer only see benefits to the intermittent bursts of power in these sports, with little to no effect on endurance.</td>
</tr>
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## Pain

Pain is the adverse sensation associated with injury, arthritis, and various forms of nerve injury that impairs well being and day-to-day living. Supplements may either universally reduce pain, or may alleviate the pain associated with a disease state.

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Supplement</th>
<th>Change</th>
<th>Magnitude of Effect Change</th>
<th>Scientific Studies</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Glucosamine</td>
<td>↓</td>
<td>1 1/2 stars</td>
<td>8 studies</td>
<td>There appears to be a decrease in pain, with one meta-analysis noting that over the long term it accounts for a 13 point reduction on a scale of 0-100. Although present, it is not as effective as most painkillers and may be exclusive to osteoarthritis.</td>
</tr>
<tr>
<td>B</td>
<td>Serrapeptase</td>
<td>↓</td>
<td>3-4 stars</td>
<td>1 study</td>
<td>When a decrease in inflammation occurs post surgery, there appears to be a concomitant reduction in pain; it tends to hover around a 1 point reduction on a VAS scale (scale of 1-10).</td>
</tr>
<tr>
<td>B</td>
<td>Curcumin</td>
<td>↓</td>
<td>4 stars</td>
<td>4 studies</td>
<td>There appear to be decreases in pain associated with curcumin at higher doses (400-500mg) which extend to post-operative, arthritic, and general pain symptoms. This dose seems comparable to 2g acetaminophen in potency.</td>
</tr>
<tr>
<td>B</td>
<td>Horse Chestnut</td>
<td>↓</td>
<td>3 stars</td>
<td>1 study</td>
<td>The pain associated with chronic venous insufficiency may be alleviated when that condition is treated by horse chestnut extract.</td>
</tr>
<tr>
<td>B</td>
<td>Marijuana</td>
<td>↓</td>
<td>4 stars</td>
<td>4 studies</td>
<td>There appears to be a reduction in pain associated with the dose of marijuana which confers psychoactive effects.</td>
</tr>
<tr>
<td>B</td>
<td>Type II Collagen</td>
<td>↓</td>
<td>5 studies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### What’s next?

**Want to know what supplements work for which goal?**

For example, you can see above that curcumin is great for inflammation. But what else is great for pain? Our Supplement-Goals Reference has the answers to that question and more. Referencing over 5000 human studies, it is the gold standard for unbiased supplement information.

It is the only unbiased analysis of supplement studies done on humans. No rat studies. No petri-dish studies. Just real studies done on humans.

For example, supplements on pain:

For over 5 years, Examine has been the go to resource for unbiased supplement and nutrition information. And our Supplement-Goals Reference Guide is our most comprehensive and information packed resource.

With over 40,000 customers just like you and a 60 day money back guarantee, it’s a no-brainer and our best selling product.

Best of all, normally $49.99, you can buy it now for just $29 (a 40% discount!)

Get the Supplement-Goals Reference.

So take charge of your health and get the Supplement-Goals Reference Guide now. The decision is up to you.

At over 1000 pages, it is your trusted and unbiased source on what works (and what doesn’t).

Get the Supplement-Goals Reference.
References


Rahimi R. Creatine supplementation decreases oxidative DNA damage and lipid peroxidation induced by a single bout of resistance exercise. J Strength Cond Res. (2011)


**CREATINE**


Rawson ES, Conti MP, Miles MP Creatine supplementation does not reduce muscle damage or enhance recovery from resistance exercise. J Strength Cond Res. (2007)


Zoeller RF, et al Effects of 28 days of beta-alanine and creatine monohydrate supplementation on aerobic power, ventilatory and lactate thresholds, and time to exhaustion. Amino Acids. (2007)


CREATINE


