Protein and Creatine Supplement Use Expands Beyond Niche Demographics

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The consumption of protein and creatine supplements has broadened considerably beyond traditional athletic demographics, presenting a new consideration for general practitioners and specialists. Clinicians should be aware of the increasing prevalence of these supplements in their patient populations, understanding their physiological effects and potential interactions.

KEY TAKEAWAYS

- The Pivot: Protein and creatine supplements are no longer exclusive to athletes, with widespread adoption across various age groups and activity levels.
- The Data: Creatine supplementation has demonstrated efficacy in increasing muscle phosphocreatine stores, supporting short-burst, high-intensity exercise performance.
- The Action: Clinicians should routinely inquire about supplement use during patient consultations to identify potential benefits or contraindications.

Protein and creatine supplements, historically associated with bodybuilding and elite sports, have seen a significant expansion in their user base. This shift is driven by increased public awareness of their purported benefits for muscle synthesis, strength, and cognitive function, extending to general fitness enthusiasts, older adults, and individuals seeking general wellness. This widespread adoption necessitates that healthcare providers possess a foundational understanding of these compounds.

Physiological Mechanisms and Clinical Relevance

Dietary protein, comprising amino acids, is fundamental for muscle protein synthesis, tissue repair, and various metabolic processes. While adequate protein intake can typically be achieved through diet, protein supplements, such as whey, casein, and plant-based options, offer a convenient method to increase daily protein consumption. This can be particularly relevant for individuals with higher protein requirements, such as athletes, or those with inadequate dietary intake, including some older adults at risk of sarcopenia. For instance, a systematic review published in 2015 indicated that protein supplementation, when combined with resistance training, can enhance muscle mass and strength in both younger and older adults.1 The review synthesized data from multiple randomized controlled trials, assessing outcomes such as lean body mass and maximal strength, highlighting the dose-dependent effects and the importance of timing relative to exercise.

Creatine, a naturally occurring guanidino compound, is primarily stored in skeletal muscle as phosphocreatine. It plays a critical role in the rapid regeneration of adenosine triphosphate (ATP), the primary energy currency of cells,

particularly during short, intense bursts of activity. Supplementation with creatine monohydrate has been extensively studied. A meta-analysis from 2003, encompassing 100 studies, demonstrated that creatine supplementation typically increases muscle creatine and phosphocreatine stores by 10% to 40%.2 This elevation in intramuscular creatine has been consistently shown to improve high-intensity exercise performance, increase lean body mass, and enhance strength.2,3 Beyond athletic performance, emerging research is exploring creatine's potential neuroprotective effects and its role in cognitive function, particularly in conditions involving energy metabolism deficits.4 These investigations often involve populations with neurological disorders or those experiencing cognitive decline, where creatine's role in cellular energy dynamics may offer therapeutic benefits.

The safety profile of both protein and creatine supplements is generally favourable when used appropriately. Protein supplements are typically well-tolerated, with gastrointestinal discomfort being the most common reported side effect, often linked to lactose intolerance in whey protein users. Creatine monohydrate is also considered safe for healthy individuals. Concerns regarding renal dysfunction with creatine use have largely been unsubstantiated by clinical research in individuals with normal kidney function. A 2019 position statement by the International Society of Sports Nutrition concluded that creatine monohydrate is safe and effective for increasing muscle mass and strength, with no evidence of adverse effects on kidney or liver function in healthy individuals.5 However, caution is advised for individuals with pre-existing renal conditions, where creatine supplementation could potentially exacerbate kidney stress.6 The mechanism for this potential exacerbation involves increased metabolic load on compromised kidneys, as creatine is metabolized to creatinine, which is then excreted renally.

Clinicians should be prepared to discuss the appropriate use, potential benefits, and any contraindications with patients. This includes assessing dietary intake, activity levels, and underlying health conditions. For example, patients with chronic kidney disease should avoid creatine supplementation due to the theoretical risk of accelerating disease progression.6 Furthermore, the quality and purity of supplements vary widely, underscoring the importance of advising patients to select products from reputable manufacturers that undergo third-party testing. This is particularly relevant given the lack of stringent FDA regulation for dietary supplements, which can lead to products containing undeclared ingredients or inaccurate dosages. Patient education should also cover realistic expectations regarding outcomes, emphasizing that supplements are adjuncts to, not replacements for, a balanced diet and appropriate exercise regimen.

CLINICAL IMPLICATIONS

The expanding use of protein and creatine supplements beyond the gym floor means these are no longer niche products for a select few. General practitioners will increasingly encounter patients across all demographics, from older adults aiming to mitigate sarcopenia to adolescents seeking performance enhancement, who are using these compounds. It is no longer sufficient to dismiss supplement use as irrelevant; clinicians must integrate questions about protein and creatine intake into routine patient histories, much like they would inquire about over-the-counter medications. Understanding the evidence base, particularly the robust data supporting creatine monohydrate for strength and lean mass, allows for informed discussions rather than blanket disapproval. This proactive approach can help identify potential benefits, flag contraindications, and guide patients towards safer, evidence-based choices.

The industry's response to this broader market has been a proliferation of products, often with exaggerated

claims and variable quality. This unregulated landscape places a significant burden on clinicians to discern legitimate products from those that are ineffective or potentially harmful. Advising patients to look for third-party certifications, such as NSF Certified for Sport or Informed-Sport, becomes a practical recommendation to mitigate risks associated with contaminants or inaccurate labelling. Without this guidance, patients are left to navigate a confusing market, often influenced by social media trends rather than scientific consensus. This situation underscores a gap in public health education that clinicians are uniquely positioned to fill.

Ultimately, the integration of protein and creatine into mainstream wellness culture demands a more nuanced clinical perspective. While these are not prescription therapies, their physiological impact is undeniable, and their widespread use warrants professional oversight. Ignoring this trend risks missing opportunities to support patient goals, whether it is improving muscle function in an elderly patient or optimizing recovery in an active individual. Conversely, a lack of awareness could lead to overlooking potential drug-supplement interactions or exacerbating pre-existing conditions. The dry, precise evidence on these supplements is available; it is now incumbent upon the medical community to apply it.

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