

PERBEDAAN TINGKAT KEBUGARAN OLAHRAGAWAN DEWASA SEHAT DENGAN RIWAYAT PENGGUNAAN DAN TANPA RIWAYAT PENGGUNAAN SUPLEMENTASI KREATIN DI GADJAH MADA MEDICAL CENTER (GMC FITNESS) DAN LEMBAH FITNESS UGM

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INTISARI

Latar Belakang: Suplementasi kreatin merupakan praktik umum di kalangan olahragawan, dengan manfaat yang telah terbukti terhadap peningkatan performa otot. Namun, sebagian besar studi dilakukan dalam kondisi terkontrol, dan data dalam setting masyarakat Indonesia masih terbatas. Oleh karena itu, diperlukan penelitian untuk mengevaluasi apakah terdapat perbedaan tingkat kebugaran antara pengguna dan non-pengguna kreatin dalam populasi nyata.

Tujuan: Penelitian ini bertujuan untuk mengevaluasi perbedaan tingkat kebugaran olahragawan dewasa sehat yang menggunakan dan tidak menggunakan suplementasi kreatin, berdasarkan tiga parameter kebugaran utama yaitu massa, kekuatan, dan daya tahan otot.

Metode: Penelitian ini menggunakan desain potong lintang dengan melibatkan 43 partisipan dari GMC Fitness dan Lembah Fitness UGM. Data massa otot diukur menggunakan indeks massa otot skelet dengan *bioelectrical impedance analysis* (BIA), kekuatan otot melalui *handgrip dynamometer*, dan daya tahan otot melalui waktu genggam 10sometric submaksimal. Informasi konsumsi kreatin, status latihan, dan asupan nutrisi dikumpulkan melalui kuesioner. Analisis statistik menggunakan Welch's t-test dan uji non-parametrik sesuai distribusi data, serta ANCOVA dan ANOVA untuk mengevaluasi variabel pengganggu.

Hasil: Hasil analisis menunjukkan tidak terdapat perbedaan yang signifikan antara pengguna dan non-pengguna kreatin pada ketiga parameter kebugaran yaitu indeks massa otot skelet ($p=0.968$), kekuatan otot ($p=0.481$), dan daya tahan otot ($p=0.123$). Hasil ini tetap konsisten setelah dikontrol terhadap variabel pengganggu seperti asupan protein, energi, cairan, serta tingkat dan durasi latihan (seluruh nilai $p>0.05$).

Kesimpulan: Tidak terdapat perbedaan tingkat kebugaran olahragawan dengan riwayat dan tanpa riwayat suplementasi kreatin di GMC Fitness dan Lembah Fitness UGM.

Kata Kunci: suplementasi kreatin, massa otot, kekuatan otot, daya tahan otot, kebugaran fisik

DIFFERENCES IN PHYSICAL FITNESS LEVELS AMONG HEALTHY ADULT RECREATIONAL ATHLETES WITH AND WITHOUT A HISTORY OF CREATINE SUPPLEMENTATION AT GADJAH MADA MEDICAL CENTER (GMC FITNESS) AND LEMBAH FITNESS UGM

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ABSTRACT

Background: Creatine supplementation is a common practice among athletes, with well-established benefits for enhancing muscular performance. However, most studies have been conducted under controlled conditions, and data from real-world community settings in Indonesia remain limited. Therefore, this study aims to evaluate whether there are differences in fitness levels between creatine users and non-users in a real-life population.

Objective: To assess physical fitness among healthy adult athletes who use creatine supplements and those who do not, focusing on muscle mass, strength, and endurance.

Methods: This cross-sectional study involved 43 participants recruited from GMC Fitness and Lembah Fitness UGM. Muscle mass was measured using skeletal muscle mass index (SMI) using bioelectrical impedance analysis (BIA), muscular strength was measured using a handgrip dynamometer, and muscular endurance was evaluated through the duration of an isometric submaximal handgrip test. Information on creatine consumption, training status, and nutritional intake was collected through questionnaires. Statistical analysis included Welch's t-test and non-parametric tests depending on data distribution, as well as ANCOVA and ANOVA to assess confounding variables.

Results: There were no statistically significant differences between creatine users and non-users across all three fitness parameters: skeletal muscle mass index ($p = 0.968$), muscle strength ($p = 0.481$), and muscular endurance ($p = 0.123$). These results remained consistent after controlling for confounding variables such as protein, energy, and fluid intake, as well as training level and duration (all $p > 0.05$). Nevertheless, most creatine users subjectively reported perceived benefits in training performance.

Conclusion: Creatine supplementation did not significantly impact muscle mass, strength, or endurance. These findings suggest that creatine supplementation may

not always be essential for enhancing physical performance, and further exploration is needed to identify other factors that may have a more dominant influence on athletic fitness.

Keywords: creatine supplementation, muscle mass, muscle strength, muscle endurance, physical fitness