

PENGARUH PEMBERIAN BOLU KACIDE *BRANCHED CHAIN AMINO ACIDS* DAN SUPLEMEN MAGNESIUM TERHADAP *FLEXED ARM GIRTH* DAN *ARM MUSCLE AREA* PADA ATLET PENCAK SILAT PPLP DAN PAB DI YOGYAKARTA

INTISARI

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Latar Belakang : Pemenuhan zat gizi atlet rata-rata kurang pada protein. Aktivitas fisik berat seperti latihan power akan menyebabkan hipertrofi otot sebagai bentuk adaptasi untuk meningkatkan kekuatan dan daya tegang. Pemberian suplemen protein dalam bentuk BCAA dapat meningkatkan sintesis protein dan menurunkan kerusakan protein otot. Bolu KACIDE merupakan alternatif suplemen tinggi BCAA. Kejang otot merupakan salah satu dampak penurunan kadar magnesium akibat aktivitas fisik berat dalam jangka waktu yang panjang. Pemberian asupan protein dan magnesium yang adekuat akan memproduksi serat otot yang mampu meningkatkan kinerja dan massa otot, serta menjaga kesehatan massa otot.

Tujuan : Mengetahui pengaruh pemberian bolu KACIDE dan suplemen magnesium terhadap peningkatan *flexed arm girth* dan *arm muscle area* pada atlet PPLP dan PAB pencak silat.

Metode : Metode penelitian adalah kuasi eksperimental dengan *crossover design*. Subjek penelitian berasal dari 3 atlet PPLP dan 11 atlet PAB DIY kemudian dibagi menjadi 2 kelompok. Terdapat 2 periode dimana setiap periode terdiri dari 12 sesi latihan. Subjek diberikan bolu KACIDE dengan suplemen magnesium 30 menit sebelum latihan untuk kelompok intervensi dan bolu KACIDE dengan placebo untuk kelompok kontrol. Setelah menjalankan periode 1, subjek menjalankan washout selama 30 hari, kemudian dilanjutkan *crossover*. Pengukuran *flexed arm girth* dengan pita lila sedangkan *arm muscle area* dengan pita lila dan *skinfold caliper*.

Hasil : *Flexed arm girth* (n=8) kanan mengalami peningkatan 0,21% (intervensi) dan 2,01% (kontrol) sedangkan penurunan bagian kiri 0,88% (intervensi) dan 0,78% (kontrol). Selisih peningkatan *flexed arm girth* kanan (n=8) lebih besar pada kelompok kontrol p=0,552 sedangkan *flexed arm girth* kiri lebih besar pada kelompok intervensi p=0,854 (kiri). *Flexed arm girth* (n=6) mengalami peningkatan 0,77% (intervensi,kanan), 0,19% (kontrol, kanan), dan 2,01% (intervensi, kiri), sedangkan penurunan 0,78% (kontrol, kiri). Selisih peningkatan *flexed arm girth* (n=6) lebih besar pada kelompok intervensi p=0,664 (kanan) dan p=0,519 (kiri). *Arm muscle area* (n=8) mengalami peningkatan 19,46% (intervensi,kanan), 25,18% (intervensi,kiri), 1,06% (kontrol,kiri), sedangkan penurunan 3,99% (kontrol, kanan). Selisih peningkatan *arm muscle area* (n=8) lebih besar pada kelompok intervensi p=0,345 (kanan) dan p=0,753 (kiri). *Arm muscle area* (n=6) mengalami penurunan 7,48% (intervensi, kanan), 6,43% (intervensi, kiri) sedangkan peningkatan 2,2% (kontrol, kanan), serta kondisi stabil (kontrol, kiri). Selisih peningkatan *arm muscle area* (n=6) lebih besar pada kelompok kontrol p=0,423 (kanan) dan p=0,873 (kiri).

Kesimpulan : Tidak terdapat perbedaan signifikan *pre-post test* maupun selisih pada *flexed arm girth* dan *arm muscle area* pada kelompok kontrol dan kelompok intervensi

Kata Kunci : BCAA, suplemen magnesium, *flexed arm girth*, *arm muscle area*

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THE EFFECT OF GIVING BOLU KACIDE BRANCHED CHAIN AMINO ACID AND MAGNESIUM SUPPLEMENTS ON FLEXED ARM GIRTH AND ARM MUSCLE AREA IN PENCAK SILAT ATHLETES PPLP AND PAB YOGYAKARTA

ABSTRACT

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Background : Athlete's nutrition fulfillment, on average, is lacking in protein. Heavy physical activity such as power training will cause muscle hypertrophy as a form of adaptation to increase strength and tension. Providing protein supplements in the form of BCAAs can increase protein synthesis and reduce muscle protein damage. Bolu KACIDE is an alternative to high BCAA supplements. Muscle cramp is one of the effect of reducing magnesium levels due to heavy physical activity over a long period of time. Providing adequate protein and magnesium will produce muscle fibers that can improve muscle mass and performance, and maintain healthy muscle mass

Objective : To gain knowledge on the effect of giving KACIDE sponge and magnesium supplements to increase flexed arm girth and arm muscle area in PPLP and PAB silat athletes

Method : The research method is quasi-experimental with crossover design. The research subjects came from 3 PPLP athletes and 11 DIY PAB athletes and were then divided into 2 groups. There were 2 periods in which each period consists of 12 training sessions. Subjects were given KACIDE sponge with magnesium supplement 30 minutes before exercise for the intervention group and KACIDE sponge with placebo for the control group. After running period 1, the subject ran a washout for 30 days, then continued with the crossover. Flexed arm girth was measured using lila ribbons while arm muscle areas with lila ribbons and skinfold caliper.

Result : The right flexed arm girth (n = 8) experienced an increase of 0.21% (intervention) and 2.01% (control) while a decrease in the left side of 0.88% (intervention) and 0.78% (control). The increment of the right flexed arm girth (n = 8) was greater in the control group $p=0.552$ while the left flexed arm girth was greater in the intervention group $p = 0.854$ (left). Flexed arm girth (n = 6) experienced an increase of 0.77% (intervention, right), 0.19% (control, right), and 2.01% (intervention, left), while a decrease of 0.78% (control, left). The increment of flexed arm girth (n = 6) was greater in the intervention group $p = 0.664$ (right) and $p = 0.519$ (left). Arm muscle area (n = 8) increased 19.46% (intervention, right), 25.18% (intervention, left), 1.06% (control, left), while a decrease of 3.99% (control, right). The increment in arm muscle area (n = 8) was greater in the intervention group $p = 0.345$ (right) and $p = 0.753$ (left). Arm muscle area (n = 6) decreased by 7.48% (intervention, right), 6.43% (intervention, left) while an increase of 2.2% (control, right), and stable condition (control, left). The increment in arm muscle area (n = 6) was greater in the control group $p = 0.423$ (right) and $p = 0.873$ (left).

Conclusion : There were no significant differences in the pre-post test and the delta in the flexed arm girth and arm muscle area in the control and intervention groups.

Keyword : BCAA, *magnesium supplements, flexed arm girth, arm muscle area*

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