

ABSTRAK

EFEK PEMBERIAN SUPLEMEN *WHEY PROTEIN* TERHADAP KADAR PROTEIN KARBONIL PLASMA MENCIT (*MUS MUSCULUS*) YANG DIBERI PERLAKUAN AKTIVITAS EKSENTRIK

Latar belakang: Protein karbonil merupakan marker terjadinya okidasi protein di dalam tubuh. Oksidasi protein terjadi oleh karena kadar ROS yang meningkat pada kondisi stress oksidatif. *Whey protein* mengandung asam amino sistein, yang dapat mensintesis glutation endogen, sehingga mampu menghambat terjadinya stress oksidatif.

Tujuan: Mengetahui efek suplemen *whey protein* terhadap penurunan kadar protein karbonil plasma pada aktivitas fisik eksentrik

Metode: Penelitian ini merupakan penelitian eksperimental dengan *randomized post-test only control group design* dan menggunakan 30 ekor mencit jantan (*Mus musculus*) strain *Balb/c*, dibagi menjadi lima kelompok, yaitu K1 (placebo, langsung diambil darah), K2 (placebo selama 3 hari + lari *downhill*, darah diambil 4 jam setelah lari), K3 (*whey protein* selama 3 hari + lari *downhill*, darah diambil 4 jam setelah lari), K4 (placebo selama 3 hari + lari *downhill*, darah diambil 72 jam setelah lari), K5 (*whey protein* selama 3 hari + lari *downhill*, darah diambil 72 jam setelah lari). Pengambilan darah tersebut digunakan untuk pemeriksaan kadar protein karbonil plasma.

Hasil: Analisis statistik uji *Post Hoc Games Howell* menunjukkan kadar protein karbonil menurun signifikan pada kelompok yang diberi *whey protein*, dibandingkan dengan kelompok yang tidak diberi *whey protein* terutama pada jam ke 72 setelah lari *downhill* ($p = 0,006$)

Kesimpulan: Terdapat efek positif pemberian *whey protein* terhadap penurunan kadar protein karbonil plasma pada aktivitas fisik eksentrik

Kata kunci: *whey protein*, aktivitas eksentrik, protein karbonil

ABSTRACT

EFFECT OF FEEDING WHEY PROTEIN SUPPLEMENTS TO PLASMA PROTEIN CARBONYLS LEVEL IN MICE (MUS MUSCULUS) AFTER ECCENTRIC EXERCISE

Background: Protein carbonyls are markers of protein oxidation by free radicals in the body. Protein oxidation occurs due to elevated levels of ROS in oxidative stress conditions. Whey protein contains the amino acid cysteine, which can synthesize endogenous glutathione, so as to inhibit the oxidative stress.

Objective: to determine the effects of whey protein supplementation on plasma protein carbonyls levels in eccentric exercise

Methods : This study was a randomized experimental post-test only control group design. This study used 30 male mice (*Mus musculus*) strain Balb/c, are divided into five groups, namely K1 (placebo, directly drawn blood), K2 (placebo for 3 days + run downhill, blood is taken 4 hours after a run), K3 (whey protein for 3 days + run downhill, blood is taken 4 hours after a run), K4 (placebo for 3 days + run downhill, blood was taken 72 hours after the run), K5 (whey protein for 3 days + run downhill, blood is taken 72 hours after the run). Blood sample used for examination of plasma levels of protein carbonyls

Results: Statistical analysis Games Howell Post Hoc test showed levels of protein carbonyls decreased significantly in the group given whey protein, compared with the group not given whey protein, especially on the hour to 72 after the downhill run ($p = 0.006$)

Conclusion: There is a positive effect on the administration of whey protein decreased levels of plasma protein carbonyls in eccentric exercise

Key words: whey protein, eccentric exercise, protein carbonyls