

# Efek latihan longmars terhadap kadar Malondialdehida (MDA) pada prajurit Kopassus TNI AD = Effect of longmarch exercise to Malondialdehida (MDA) level of special forces soldiers of Indonesian army

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## Abstrak

Latihan fisik telah diketahui memberikan manfaat terhadap kesehatan. Namun demikian latihan fisik juga berpotensi memberikan dampak negatif seperti cedera dan terjadinya stres oksidatif. Latihan fisik dengan intensitas tinggi dan durasi lama dianggap sebagai salah satu faktor yang menyebabkan terjadinya stres oksidatif. Latihan longmars merupakan salah satu materi pelatihan Komando yang dilaksanakan oleh peserta pelatihan Komando pada tahap gunung hutan. Latihan longmars dilaksanakan dengan berjalan kaki selama 8 hari berturut-turut, kecepatan 5-6 km/jam, membawa beban 35 kg, melewati medan bervariasi (datar, menanjak dan menurun) dan menempuh jarak sekitar 500 km. Latihan longmars sebagai salah satu bentuk latihan fisik di lingkungan militer dengan durasi lama dan intensitas tinggi diduga dapat menyebabkan terjadinya stres oksidatif. Stres oksidatif dapat diketahui dengan pemeriksaan Malondialdehida (MDA) yang merupakan penanda stres oksidatif.

Tujuan: mengetahui rerata kadar MDA dan perbedaan rerata kadar MDA peserta pelatihan Komando sebelum dan setelah melaksanakan latihan Longmars.

Metode: sebanyak 30 subyek penelitian peserta pelatihan Komando dalam kelompok usia 20-30 tahun yang dipilih secara acak mengikuti penelitian ini. Subyek penelitian merupakan prajurit terlatih yang telah melaksanakan program latihan fisik selama 1-4 tahun. Pemeriksaan kadar MDA dilakukan 1 hari sebelum pelaksanaan latihan Longmars dan segera setelah selesai melaksanakan latihan Longmars.

Hasil: rerata kadar MDA sebelum latihan Longmars adalah  $0,729 \pm 0,229$  nmol/mL, rerata kadar MDA setelah latihan Longmars adalah  $0,655 \pm 0,183$  nmol/mL. Tidak terdapat perbedaan bermakna rerata kadar MDA sebelum dan setelah latihan Longmars (  $P 0,191$  ).

Kesimpulan: tidak terdapat perbedaan bermakna kadar MDA peserta pelatihan Komando sebelum dan setelah melaksanakan latihan Longmars. Hal ini kemungkinan disebabkan telah terjadi adaptasi latihan fisik terhadap kadar MDA yang terjadi selama latihan Longmars.

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Background: Physical exercise has been known to provide health benefits. However, physical exercise as well as the potential negative impact of injury and oxidative stress. Physical exercise with high intensity and long duration are considered as one of the factors that cause oxidative stress. Longmarch Exercise is one of the training materials Commando conducted by trainees Commando training in forest mountain stage. Longmarch exercises conducted by walking for 8 consecutive days, speed of 5-6 km / h, carrying a load of 35 kg, over varied terrain (flat, uphill and downhill) and a distance of about 500 miles. Longmarch exercise as one of procedural activity in the Commando training in a military environment with long duration and high intensity could be expected to lead to oxidative stress. Oxidative stress can be determined by examination malondialdehida (MDA) which is a marker of oxidative stress.

Purpose: To determine the mean levels of MDA and the mean differences MDA levels of Commando

training participants before and after implementing Longmarch exercise.

Methods: Subjects of the study were 30 participants in Commando training 20-30 years old were randomly selected to follow become respondent of this research. The research subject is a trained soldier who had been carrying out a physical exercise program for 1-4 years. The level of MDA examination performed 1 day prior to the Longmarch exercise and immediately after completion of the Longmarch exercise.

Results: The mean of MDA levels before Longmarch exercise was  $0.729 \pm 0.229$  nmol / mL, the mean of MDA levels after Longmarch exercise was  $0.655 \pm 0.183$  nmol / mL. There were no significant differences in mean of MDA levels before and after Longmarch exercise (P 0.191).

Conclusion: there is no significant difference of the MDA levels of Commando training participants before and after implementing Longmarch exercise. This is probably due to the body's adaptation that occur during Longmarch exercise.