Manfaat Cold Water Immersion dalam Pemulihan Pasca Latihan Pelaku Olahraga Rekreasional Berdasarkan Perubahan Nilai Vertical Jump dan Aktivitas Enzim Creaatine Kinase = The Role of Cold Water Immersion as Post-Exercise Recovery Method for Recreational Athlete Based on Creatine Kinase and Vertical Jump

Febianto Nurmansyach, author

Abstrak

Latar belakang: Kegiatan olahraga rekreasional di masyarakat Indonesia meningkat pesat. Kegiatan olahraga rekreasional tersebut dapat memberikan manfaat terhadap kesehatan, tetapi bila peningkatan intensitas dan volume latihan tidak disertai dengan pemulihan pasca latihan yang memadai, maka akan menimbulkan masalah kesehatan seperti cedera. Cold water immersion adalah metode pemulihan yang populer digunakan, meskipun efektivitasnya masih kontroversial. Pemeriksaan enzim creatine kinase dan pengukuran nilai vertical jump adalah beberapa parameter yang dapat menilai kondisi pemulihan pasca latihan.

Tujuan: Penelitian ini ingin mengetahui manfaat pemberian cold water immersion dalam pemulihan setelah latihan pada subjek pelaku olahraga rekreasional, berdasarkan pengamatan nilai vertical jump dan aktivitas enzim creatine kinase.

Metode: Desain penelitian adalah non-blinded randomized controlled clinical trial. Randomisasi membagi 20 subjek atlet rekreasional kedalam kelompok intervensi cold water immersion (15 menit, suhu 11-15oC) dan kelompok kontrol passive recovery. Subjek melakukan pemeriksaan baseline enzim creatine kinase dan nilai vertical jump, menjalani protokol latihan sirkut di gym, dilanjutkan dengan protokol pemulihan. Pengamatan nilai vertical jump dan aktivitas enzim creatine kinase dilakukan setelah pemulihan (post-exercise recovery), 24 jam dan 48 jam pasca latihan. Analisis data bertujuan untuk menilai perbedaan rerata nilai vertical jump dan enzim creatine kinase pada waktu pengamatan dengan baseline masing-masing kelompok melalui uji repeated Anova + post-hoc Bonferroni, serta menilai perbedaan rerata variabel enzim creatine kinase dan vertical jump antar kelompok melalui uji-T.

Hasil: Analisis data berhasil dilakukan pada 17 subjek. Kelompok yang mendapatkan intervensi cold water immersion pasca latihan menunjukkan pemulihan yang lebih cepat dibandingkan kelompok kontrol passive recovery pada 24 jam, berdasarkan perubahan nilai vertical jump. Rerata nilai vertical jump kelompok intervensi juga lebih tinggi ($p = 0,039$) dibandingkan kelompok kontrol saat 24 jam setelah latihan. Berdasarkan perubahan aktivitas enzim creatine kinase, cold water immersion dapat mempercepat pemulihan 48 jam pasca latihan dibandingkan passive recovery. Rerata enzim creatine kinase subjek kelompok intervensi lebih rendah ($p < 0,01$) dibandingkan subjek kelompok kontrol saat 48 jam setelah latihan.

Kesimpulan: Cold water immersion dapat digunakan sebagai salah satu metode pemulihan pasca latihan pada pelaku olahraga rekreasional, terutama setelah melakukan latihan atau kegiatan olahraga dengan

volume dan intensitas yang tinggi.
.....Background: Recreational sports have a positive influence on health. However, there will be a concern if the training intensity and volume are increasing without a proper way of recovery. Cold water immersion has been known as one of post-exercise recovery method. Assessment of creatine kinase and vertical jump can be used to monitor the condition of post-exercise recovery.

Aim: To evaluate the role of cold water immersion based on creatine kinase and vertical jump.

Method: Twenty subjects were randomized to the cold water immersion or passive recovery group. Creatine kinase and vertical jump was measured as a baseline, followed by fatigue protocol (circuit training in gym) and recovery protocol in accordance with each group. The changes of creatine kinase and vertical jump was monitored in three consecutive period; post-exercise recovery, 24-hour, and 48-hour post-exercise. The mean difference within groups and between groups of creatine kinase and vertical jump was analyzed using repeated Anova + post-hoc Bonferroni test and T-test respectively.

Results: The intervention group showed faster recovery compare to control group at 24-hour post-exercise based on vertical jump. Intervention group had higher vertical jump ($p = 0,039$) at 24-hour assessment. Based on creatine kinase, the intervention group showed faster recovery at 48-hour post-exercise compare to control group. There were also lower ($p < 0,01$) creatine kinase in intervention group at 48-hour post-exercise measurement.

Conclusion: The use of cold water immersion is recommended as post-exercise recovery method for recreational athletes after high-volume and high-intensity training.