

## Pengaruh cold water immersion terhadap laktat, nyeri otot, fleksibilitas dan tingkat stres pasca latihan intensitas sub maksimal

<b>Title</b>	Pengaruh cold water immersion terhadap laktat, nyeri otot, fleksibilitas dan tingkat stres pasca latihan intensitas sub maksimal
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<b>Abstract</b>	<p>Weight Training adalah metode latihan untuk meningkatkan kekuatan dan kinerja neuromuskular melalui proses hypertrophy, namun juga meningkatkan produksi Laktat, menyebabkan inflamasi otot, meng-gangu metabolisme tubuh sehingga menurunkan performa. Stimulus dingin pada Cold water Immersion dapat mengurangi laju metabolisme, menyerap suhu jaringan lokal, menurunkan kepekaan saraf dan mengu-rangi rasa nyeri sehingga menurunkan resiko terjadinya cedera musculoskeletal dan kelainan metabolisme. Penelitian ini bertujuan untuk menguji pengaruh cold water Immersion 5°C (CWI5°C) terhadap Laktat pada darah, nyeri otot, fleksibilitas dan tingkat stress pasca latihan berbeban intensitas sub maksimal. Pre- dan Post-test dalam penelitian ini menggunakan kelompok kontrol dengan pendekatan cross sectional. Sebanyak 15 sampel kelompok eksperimen diberikan CWI5°C selama 15 menit setelah latihan berbeban, sedangkan 15 sampel kelompok kontrol menggunakan metode Statis Stretching (SS) selama 15 menit. Uji prasarat menggunakan Shapiro-Wilk, sedangkan analisa Bivariate menggunakan Paired Sample T-test dan Independent Sample t-test. Hasil yang diperoleh yaitu metode CWI5°C lebih cepat menurunkan Kadar Laktat (<math>t=2.32</math>, <math>p=0,001</math>), mengurangi nyeri otot (<math>t=5.32</math>, <math>p=0,003</math>) dan menurunkan stress (<math>t=13.02</math>, <math>p=0,001</math>), sedangkan SS meningkatkan fleksibilitas (<math>t=17.98</math>, <math>p=0,001</math>). Dapat disimpulkan cold water Immersion suhu 5°C selama 15 menit mempercepat proses recovery, mengurangi inflamasi otot dan menurunkan stress, sedangkan statis stretching meningkatkan fleksibilitas setelah latihan berbeban intensitas sub maksimal.</p> <p>The effect of cold water immersion on lactate, muscle soreness, flexibility and stress level post-sub-maximal physical exercises</p> <p>Abstract Strength is one of the main components of bio-motor affecting the development of other physical components. Strength training improves strength and neuromuscular coordination, muscle hypertrophy, contrary causes physical stressor, muscle inflammation, produce muscular disease, increases lactate levels, interferes body metabolism, thus decreases performance. Appropriate recovery methods can prevent over-training, musculoskeletal injuries, stress levels. The study examines the effect of cold water immersion 5°C (CWI5°C) on blood lactate, muscle soreness, flexibility, and stress level after high-intensity resistance training. The study design was pre- and Post-test using a cross-sectional approach with the control group. It gave selected 15 samples treated with CWI5°C for 15 minutes directly after high-intensity resistance training, while control samples with static stretching for 15 minutes. The prerequisite test uses Shapiro-Wilk, while the bivariate analysis uses paired sample T-test and independent sample T-test. The prerequisite test uses Shapiro-Wilk, while the bivariate analysis uses paired sample T-test and independent sample T-test. The results showed there were significant differences between the two groups (<math>p=0.001</math>). The CWI-5°C method recover lactate levels faster (<math>p = 0.001</math>), reduces muscle pain (<math>p=0.003</math>), decrease stress (<math>p=0.002</math>), while SS increase muscle flexibility (<math>p=0.001</math>). We can conclude that 15°C cold water immersion for 15 minutes accelerates recovery, reduce muscle inflammation and stress level, while static stretching increases flexibility after high-intensity resistance training.</p>
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