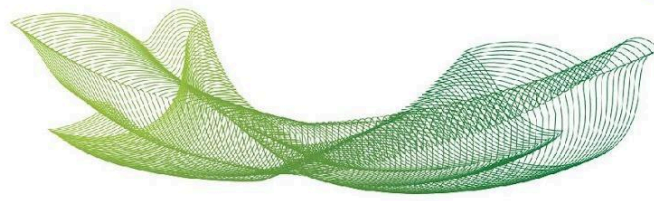


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Título	Effect of acute administration of melatonin immediately after physical exercise on the amino acid profile of rat's skeletal muscle and liver
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Resumo	<p>Introduction Melatonin has been proposed to aid recovery following physical exercise; however, few studies have investigated its effects on tissue amino acid profile.</p> <p>Objective This study aimed to evaluate the effects of post-exercise melatonin administration on tissue amino acid concentration and metabolic regulation.</p> <p>Methods Thirty Wistar rats engaged in a 60-minute swimming session at 90% of their individual maximal aerobic capacity (iMAC), followed by the intraperitoneal administration of melatonin (EM; 10 mg·kg⁻¹) or a vehicle solution (Ex) of equivalent volume. The animals were euthanized at 1, 3, or 24 h post-treatment to facilitate the collection of liver and skeletal muscle samples. Tissue amino acid profiles were analyzed using flow-injection analysis (FIA) in conjunction with targeted mass spectrometry (MS). Statistical analyses were conducted using the Friedman test, two-way analysis of variance (ANOVA), Newman–Keuls post hoc test, and effect size (ES), with significance determined at p<0.05.</p> <p>Results No significant effects were observed in the liver tissue. However, in skeletal muscle, melatonin significantly increased the levels of several amino acids, including arginine, glutamic acid, glutamine, ornithine, proline, and serine. Additionally, glycine levels were elevated 3 h post-exercise (EM3>Ex3; p<0.05), whereas methionine levels were reduced 24 h post-exercise in the melatonin group compared to control groups (EM24<Ex24; p<0.01).</p> <p>Conclusion Melatonin modulated the post-exercise amino acid profile in skeletal muscle, enhancing the levels of key metabolites involved in recovery and metabolic regulation, with no effects observed in liver tissue. These findings suggest a</p>



	muscle-specific role for melatonin in supporting metabolic recovery after exercising.
Fomento	-