

METABOLIC EFFECTS AND USE OF GLUCOCORTICOIDS IN ATHLETES

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Introduction. Glucocorticoids are hormones secreted by the adrenal cortex, playing an essential role in regulating basal metabolism and the inflammatory response. Due to their metabolic effects, glucocorticoids are frequently misused by athletes with the aim of enhancing and improving performance during competitions, which constitutes a violation of anti-doping regulations. The World Anti-Doping Agency (WADA) strictly monitors the administration of pharmaceutical substances, allowing their use only for therapeutic purposes through the granting of a Therapeutic Use Exemption (TUE).

Aim of the study. To analyze and synthesize current scientific data on the metabolic effects and impact of glucocorticoid use on the athlete's body, from physiological, biochemical, pharmacological, and ethical perspectives.

Materials and methods. The paper presents a critical analysis of scientific articles (clinical studies, meta-analyses) published in the last 10 years in electronic databases such as PubMed, ScienceDirect, and Scopus, as well as official reports issued by WADA, to define the medical conditions and real-life situations related to glucocorticoid use in athletes.

Results. Prolonged and/or uncontrolled administration of glucocorticoids, especially in high doses, activates hepatic gluconeogenesis, reduces peripheral glucose utilization, induces insulin resistance, and consequently, due to persistent long-term hyperglycemia, may lead to steroid-induced diabetes mellitus. At the same time, glucocorticoids increase lipolysis and the redistribution of adipose tissue, promoting the development of dyslipidemia and central obesity. Protein metabolism is characterized by accelerated muscle protein degradation, resulting in the loss of muscle mass and strength. The abusive and uncontrolled use of glucocorticoids causes arterial hypertension, hormonal dysfunction, and osteoporosis. From an ethical point of view, the misuse of pharmaceutical substances, including glucocorticoids, by athletes represents a violation of anti-doping regulations and may result in disqualification.

Conclusions. Although glucocorticoids are indispensable in the treatment of many diseases, their uncontrolled use poses a high risk of adverse metabolic effects. Their therapeutic administration must be strictly justified, in compliance with official WADA regulations and with regular metabolic monitoring. Education of athletes and medical staff regarding the risks of glucocorticoid misuse is essential for maintaining both health and the integrity of sports competition.

Keywords: glucocorticoids, metabolism, athletes, adverse effects, doping