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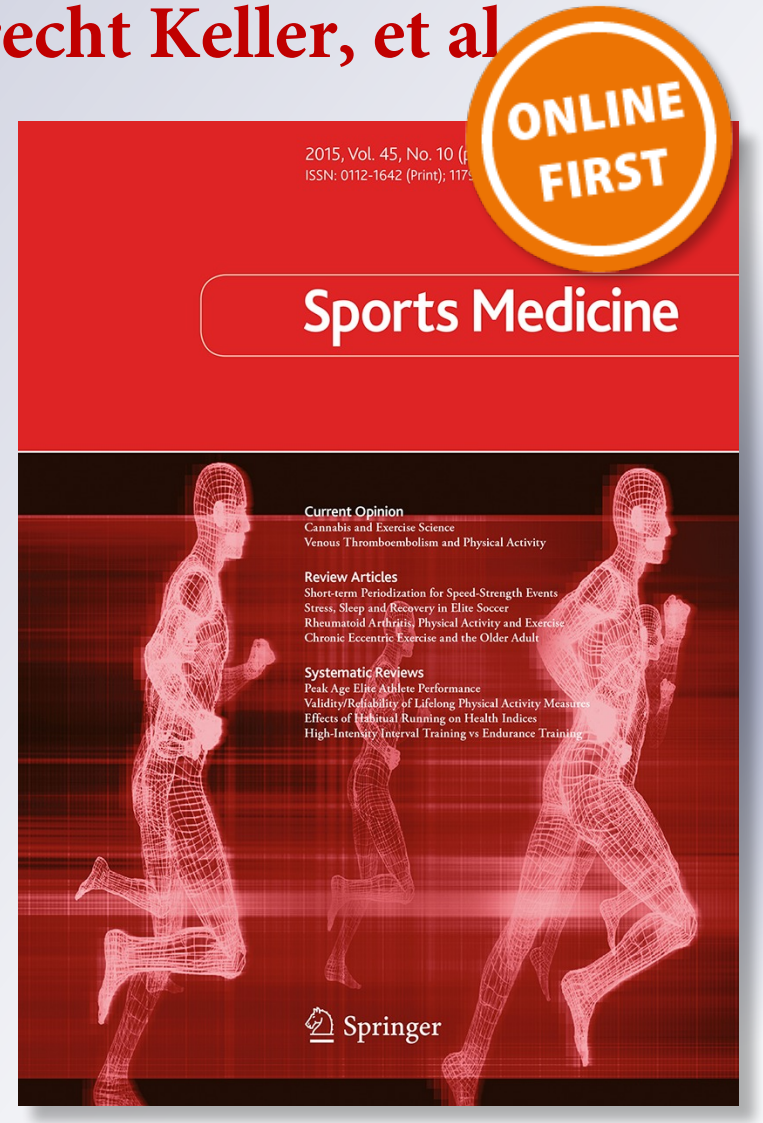

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ORIGINAL RESEARCH ARTICLE

The Urine Marker Test: An Alternative Approach to Supervised Urine Collection for Doping Control

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Abstract

Background Urine sample collection for doping control tests is a key component of the World Anti-Doping Agency's fight against doping in sport. However, a substantial number of athletes experience difficulty when having to urinate under supervision. Furthermore, it cannot always be ensured that athletes are actually delivering their own urine. A method that can be used to alleviate the negative impact of a supervised urination procedure and which can also identify urine as coming from a specific athlete is the urine marker test. Monodisperse low molecular weight polyethylene glycols (PEGs) are given orally prior to urination. Urine samples can be traced to the donor by analysis of the PEGs previously given.

Objective The objective of this study was to investigate the use of the urine marker during urine doping control testing.

Methods Two studies investigated athletes' acceptance of this new method via two questionnaires ($n = 253$). Furthermore, a third study ($n = 91$) investigated whether ingestion of the marker can identify the urine as coming from a specific person and whether the marker interferes with the detection of prohibited substances.

Results and conclusions The results indicate that this new method finds wide acceptance both from athletes who have only heard about the procedure and those who have actually tested the new method. Furthermore, the marker, which can identify urine as coming from a specific person, does not interfere with the detection of prohibited substances.

Key Points

The urine marker can identify urine as coming from a specific athlete.

The urine marker does not interfere with the detection of prohibited substances routinely monitored by a doping control laboratory.

The majority of surveyed athletes feel that the urine marker method is a good alternative to supervised urine collection and that it would help eliminate the problems some athletes experience with the standard doping control procedure.

1 Introduction

Urine sample collection is a key component of the World Anti-Doping Agency's (WADA's) fight against doping, and elite athletes are obliged to provide doping control samples at any time and any place without prior notice. The most common procedure for detecting the consumption of illegal substances is by testing urine [1], although there are discussions about further increasing the number of blood

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