

## A Testosterone/Epitestosterone (T/E) Relationship in Urine Samples obtained from Athletes Attending an International Competition

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**SUMMARY.** A Testosterone/Epitestosterone (T/E) relationship has been studied in urine samples obtained from 98 athletes attending an international competition. Among T/E relationship values, no values higher than 6 has been found. Six is considered the limit set up by IOC and other international sport organizations. Statistical parameters for the population under study were as follows: mean 1.3; SD 0.97; median 1.55; minimum 0.10; maximum 4.12 GC-MS has been used to measure T/E ratio.

**RESUMEN.** "Relación Testosterona/Epitestosterona en muestras de orina de deportistas participantes en un certamen internacional" Se estudió la relación Testosterona/Epitestosterona (T/E) en 98 muestras de orina pertenecientes a atletas participantes en un certamen internacional. En ninguna de las muestras estudiadas se halló una relación T/E mayor de 6. Seis es el límite fijado por el COI y otros organismos deportivos internacionales. Los parámetros estadísticos hallados fueron los siguientes: media: 1.3; desvío estándar: 0.97; mediana: 1.55; mínimo: 0.10; máximo: 4.12. La cuantificación fue llevada a cabo por GC-MS.

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### INTRODUCTION

It is very well known that some athletes may use different substances, as synthetic anabolics, to improve artificially their performance. The development of sophisticated analytical procedures for detection of those products has induced the use of endogenous substances as testosterone.

Epitestosterone is a metabolite of testosterone and the ratio Testosterone/Epitestosterone (T/E) could be employed as a tool to know testosterone intake.

As regards T/E relationship, ranges have been set up from *ca.* 0 up to six<sup>1,2</sup>. Six is considered a negative value with regard to doping practices. In 1998, IOC added that the epitestosterone value should not be higher than 200 ng/ml<sup>3</sup>. Whenever values higher than 6 are obtained a follow-up procedure must be applied to the athlete involved during a determined period so that it could be ascertained whether the

value is of physiological origin caused by some pathology or it is just pointing out to the athlete's unsportsmanlike behavior.

There is also the possibility that, to keep the T/E relationship with an unfair plan in mind, an athlete is likely to have epitestosterone administered, reason for which IOC did set up the above mentioned 200 ng/ml top regulation.

This paper study the sample collected from an international (Latin-American) athletic competition. Our aim was getting basic parameters to be used in further comparisons. Previously, our team had performed this type of research on different types of substances<sup>4,5</sup>.

### MATERIALS AND METHODS

#### *Samples*

Urine samples were collected immediately once the sport activity involved was over. Samples from participating athletes: two athletes per team had been selected by drawing lots.

**KEY WORDS:** Athletes, Epitestosterone, Relationship, Testosterone.

**PALABRAS CLAVE:** Deportistas, Epitestosterona, Relación, Testosterona.

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