

THE RELEASE OF CARDIAC TROPONIN IN BASKETBALL PLAYERS IS INDEPENDENT OF TRAINING LEVEL AND MATURATION STATUS

Ricardo Navarro-Orocio¹, Alejandro Legaz-Arrese², César Vinacua-Salvo², Patricia Muñoz-Iriarte², Iñigo Lacuey-Burguete², Luis E. Carranza-García¹. ¹ Autonomous University of Nuevo Leon, San Nicolás de los Garza, Mexico. ² University of Zaragoza, Zaragoza, Spain.



Introduction

The impact of intermittent exercise on the release of cardiac troponins is controversial, and the influence of several factors, such as training level and maturation status, has not been analysed.

Purpose

This study examines the influence of training level and maturation status on the release of cardiac troponin I (cTnI) in basketball players.

Methods

Thirty-six basketball players:

- 12 professional
- 12 amateur
- 12 junior

Simulated basketball match

Cardiac Biomarker

Rest, immediately post- and at 1, 3, 6, 12, and 24 h post-exercise
cTnI

Results

Table 1. Characteristics of the study population by training status

	Age (years)	Weight (kg)	Height (cm)	VO2max (ml.kg ⁻¹ .min ⁻¹)	Basketball training history (years)	Basketball training frequency (sessions/week)	Basketball training volume (hours/week)
Professional basketball players	27.3 ± 4.1	98.3 ± 12.9	199 ± 7	58 ± 3	17 ± 5	6 ± 0	16 ± 0
Amateur basketball players	29.6 ± 2.9*	83.8 ± 12.9*	184 ± 6*	56 ± 7	13 ± 3*	4.1 ± 1.2*	7.5 ± 3.6*
Junior basketball players	16.6 ± 0.9&	82.8 ± 10.3*	192 ± 8*&	58 ± 3	8 ± 4*&	4 ± 0*	8.0 ± 0*

* Significant differences between professional and amateur or junior basketball players.
& Significant differences between amateur and junior basketball players.

Table 2. cTnI (µg L⁻¹) before and after the simulated basketball match

Pre-exercise	5 min post	1 h post	3 h post	6 h post	12 h post	24 h post	p value
0.008 ± 0.006	0.011 ± 0.011	0.018 ± 0.024	0.029 ± 0.043 *	0.032 ± 0.044 *	0.026 ± 0.038 *	0.016 ± 0.026	0.000

* Significant differences compared with the baseline value.

The basketball match increased cTnI levels (pre: 0.008 ± 0.006, peak post: 0.041 ± 0.057 µg L⁻¹; p = 0.000). There were no differences on the increase of cTnI levels between professionals (0.040 ± 0.066 µg L⁻¹), amateurs (0.012 ± 0.009 µg L⁻¹) and juniors (0.049 ± 0.07¹ µg L⁻¹) (p = 0.179). Three professionals and five juniors (23%) exceeded the URL of cTnI.

Conclusion

The results suggest that basketball match promote a limited release of cTnI not related with training level neither maturation status.