

# Effect of Playing Basketball in Young Basketball Players

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## Introduction

Competitive basketball is considered as an intermittent high-intensity physical activity that requires a well-developed aerobic and anaerobic fitness (McInnes, Carlson et al. 1995). Whilst several studies have examined the physiological demands of adult basketball competition, to date, there has been no studies that have examined the physiological demands of match-play in young basketball players. Therefore the aim of this study was to assess the physiological demands of youth basketball match-play, in order to obtain information useful for training and competition.

## Methods

Twenty basketball-players (body mass 72.4±11.4 kg, height 181.7±6.9 cm, and age 16.8±2 y,  $VO_{2max}$  60.4±5.1 mL·kg<sup>-1</sup>·min<sup>-1</sup>, VT 40.2±4.7 mL·kg<sup>-1</sup>·min<sup>-1</sup>) were observed during match-play. Each match consisting of two 10 min periods of effective play (30 min total play) interspersed with a 2 min recovery interval without substitutions. Heart rate (Polar Team System, Polar Electro Oy, Kempele, Finland) and earlobe blood-lactate concentration (Lactate Pro, Arkray, Tokyo, Japan) were monitored throughout the games. Before and after competition vertical jump (CMJ, Muscle Lab, Bosco System, Riefi, Italy), 15m shuttle running sprint (15mSR, Microgate Polifemo, Bolzano, Italy) and line-drill (LD) performance were assessed in random order in each player (Hoffman, Nusse et al. 2003). Games were performed in an air-conditioned gymnasium in order to keep environmental condition constant.

## Results

During the first and the second half of the experimental match, players attained 86.2±5.3 and 86.7±4.3% of the individual  $HR_{max}$ , respectively ( $p=0.42$ ). The mean match intensity was 71.5 and 105% of the  $VO_{2max}$  and VT, respectively. The mean match blood lactate concentration was 3.72±1.39 mmol·L<sup>-1</sup>. Pre to Post games Counter-movement jump, 15mSR and LD scores were 39.9±5.9 vs. 40.3±5.7 cm, 5.80±0.25 vs. 5.77±0.22 and 26.7±1.3 vs. 27.7±2.7 s, respectively. Line-drill performance significantly decreased post-game ( $p=0.001$ ).

## Discussion/Conclusion

Although the present observations were made using an experimental-match, the intensity attained by players during competition is in line with what has been reported for professional basketball players during highly competitive games (McInnes, Carlson et al. 1995). The intensity measures taken during this study shows that the research design devised for this investigation was ecologically valid. The results of this study also showed that youth basketball imposes physiological stresses similar to those reported for adult basketball. Only LD showed significant post-game decrements. These LD performance decrements suggest that the ability to repeat sprint may be a limiting factor in basketball performance. On the basis of these results, we suggest that changes in repeated sprint performance during match play be empirically tested using specific time-motion analyses.

## References

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