

EPIDEMIOLOGY OF MUSCULAR LESIONS IN YOUNG BASKETBALL PLAYERS

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Background

Basketball is a team sport, which involves frequent changes of direction and physical contacts. The mechanisms of injuries are related to particular game techniques and movements, such as jumps and rebounds (Pfeifer et al. 1992) and mainly concern the lower limbs (Neusel et al. 1996). The most frequent (and studied) injury in basketball players is joint trauma, even in younger player. Less attention is usually given to muscular injuries. Nevertheless, these lesions might cause an early withdrawal from the physical activity and increase the risk of other injuries.

Purpose

Aim of the study is to investigate the incidence of muscular traumas in a young team, in order to develop effective prevention strategies.

Methods

Sixty two athletes (26 females; 36 males) were studied during the period between September 1998 and June 2003 (total of five seasons).

All the participants underwent a sport specific medical check-up and during the period of the study all injuries (whether in training or matches) were recorded.

We defined an injury as a traumatic event that resulted in a lost week of training or a missed match. All athletes were trained in the afternoon, 3 times a week. The whole training session lasted 90 minutes. The participation to the championships expected an average of 23 ± 3 matches played in each season.

Results

The results of the study are shown in table 1 (total injuries) and in table 2 (muscular injuries).

The most frequent injuries are sprained ankles (43%) while the muscular injuries represent a small part of the total injuries (12%)

A total of 9 muscular injuries were observed: 3 contractures: femoral biceps(1), rhomboid and trapezius (1), soleus gastrocnemius(1); 4 stretching: peroneal (2), soleus (1), femoral rectum(1) and 1 strain of first grade of soleus.

Season	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Age	12±1	13±1	14±1	15±1	16±1
Participants	62	62	62	62	62
Total injuries	12	17	12	11	8
Exposition	133	132	130	125	133
Total incidence	1.45	2.07	1.48	1.41	0.97
Male incidence	1.25	1.47	1.27	1.55	0.83
Female incidence	1.73	2.91	1.77	1.23	1.15

Table 1: annual incidence of all injuries.

The Rehabilitation of Sports Muscle and Tendon Injuries

Season	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Muscular injuries	2	0	1	0	6
Exposition	133	132	130	125	133
Total incidence	0.24	0.00	0.12	0.00	0.72
Male incidence	0.00	0.00	0.21	0.00	0.83
Female incidence	0.57	0.00	0.00	0.00	0.57

Table 2: incidence of muscle injuries.

Discussion

The incidence of injuries tends to increase with height and body mass until the post puberal age (≈ 13 yrs), after which the injury incidence tends to decrease with age. This is probably due to the progressive stabilization of the musculo-tendineous apparatus, which typically follows the post-puberal period.

It's noteworthy that muscular injuries of soleus represent 38% of the total muscular lesions.

In all cases, muscular lesions were due to indirect traumas. Direct traumas (muscular contusions) that can be classified as injuries, according to our definition, have not been observed.

The risk determined by the technical gestures of basketball, the intense and fast game represent the main external causes of traumas. Gender is another possible risk factor (Piasecki et al. 2003). In females, besides the greatest quantity of ligament laxity, there is a reduced motor-skills ability, which makes them more vulnerable to injuries.

In males, the increase of high corporeal mass typical of the evolutionary age may impair the movement control. In addition, the game becomes progressively fast, intense and with physical contacts.

Conclusion

The incidence of injuries in young basketball players increases in relation to the typical growth of the evolutionary age, but tends to stabilize in the post-puberal age. It is higher at the age of 13 ± 1 years. Muscular injuries represent a very modest percentage of injuries.

The larger part of muscular injuries involve the lower limbs. Apparently, males are more affected from muscular injuries than females.

References

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