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INJURY INCIDENCE AMONG YOUNG TABLE TENNIS PLAYERS DURING 2005 SPANISH NATIONAL CHAMPIONSHIP

Abstract

With the aim to obtain a registration of injuries in table tennis competition we have collected those that were occurred at 2005 Spanish National Championship. A total of 1300 matches were played in two days of competition. About one-hundred table tennis clubs took part, representing fifteen different regions of the country. That's means 355 young players (198 males and 157 females aged between 9 and 21 years) who participated in this event. Ten injuries were attended. Three of the injured were males and the other seven were females. Injury incidence rate during the championships was 2,81%. Paying attention to gender distribution we can observe an injury incidence of 1,01% in males (30% of all sessions) and 4,45% in females (70% of all sessions). Reviewing these injuries we can verify that the most frequent are acute (88,8%) while chronic injuries only represent 11,2%. All of injuries attended were acute in female players. However, in males, the number of acute injuries represented 50% and the remaining 50% was for chronic injuries. The most serious injury reported (a traumatic meniscus injury) was suffered by a female player who without another alternative left the competition. The remaining injured players completed their participation. These results can help us to confirm that table tennis is considered a low-risk sport.

Key words: *table tennis, competition, injury incidence, young players*

1. INTRODUCTION

Table tennis is a very practiced sport among the general population. It's an individual, asymmetric one, in which several beats are given, with a high velocity and power [1]. In which the following qualities are developed: resistance, concentration and coordination. The most worked quality is velocity: explosive strong. It's which has the smallest pitch, racket and ball among dual racket sports. That's the reason because the resistance that arms have to win when they beat the ball is small. According to Mitchell sports' classification, based on dynamic and static tip in competition, table tennis would be in group IB (Sport of low static component and moderate dynamic component). Competition can last hours or days, and it is possible 4 or 5 matches can be played or more, as it is the case of the competition we have chosen for the study.

2. OBJECTIVE

To know the most frequent injuries in tennis table, in competition, in ages between 9 and 21.

3. METHODS

- The first step was to make one bibliographic review to see the most frequent injuries in this sport.
- The second step was the realization of a data collection by the doctor who covered the concentration. A card was used which contained the following data :

- Name, date of birth, date of attendance, injured body's zone, diagnostic, acute or chronic injury, in competition or previous, made treatment.

- The place of data collection and sanitary benefit was a closed room, isolated of noises. Where was located all the sanitary tools necessary to perform the diagnostic and treatment of different injuries.

4. RESULTS

A sample of n=355 players was followed of 5 different categories, youngest child, alevín, youthful and sub-21 with the distribution gathered in Table 1.

	YOUNGEST CHILD	ALEVIN	YOUTHFUL	SUB-21
MEN	57	66	66	64
WOMEN	35	43	57	31

Table 1. *Participants by category.*

Based on sex, 253 men participated, corresponding to 55.7% of participants, and 166 women who represented 44.2% of the total of players.

During the championship 10 sanitary attentions were carried out. Three were performed in men and seven in women. One of the men was a referee. This is the reason why the global incidence in sport players was of 2.81%. If classification is based on sexual characteristics, an incidence of 1.01% happened in men, and it was of 4.45% in women. (Fig. 1) If we pay attention to the players' age that needed medical aid, we can observe that at the age of 16 a greater lesion incidence occurs. 4 of the total were occurred in 16-year-old players.

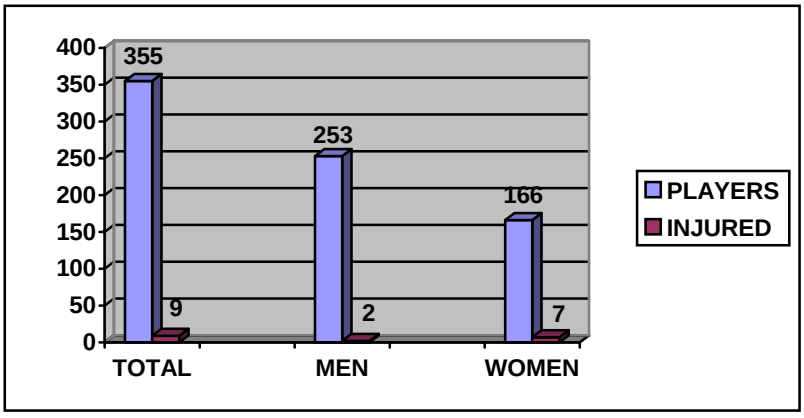

Figure 1. *Injury index*

	Face	Trunk	Upper limbs	Lower limbs
WITH CONTACT			Blisters fingers	Hurt left knee Internal contusion melleolus
WITHOUT CONTACT	Strange body in eye	Strain thoracolumbar Paravertebral muscles	Supraespinatus tendonitis	Meniscal injury Rectus femurus straight strain

Table 2 Type of injuries according to the injury mechanism and injured zone.

The injuries by contact (see table 2) were produced by strike against the table, in the left knee that was the support leg and in internal malleolus of the right ankle. Due to a contact with the racket, a blister in dominant hand in a feminine player, the form of hold caused a reiterated friction of the epidemic weave with the racket. If we pay attention to the proportion we can observe that the injuries produced without contact represent a 66.6% of the total injuries. These are considered the most frequency injuries.

Based on the injury location, we can see the lower limb is the area with most indexes of injuries. The following one in frequency was the upper limb, followed of the trunk and face. In the upper limb we found a very frequent pathology in the table tennis: tendinosis of the supraespinatus, in a man and in the dominant arm, which in addition, it was, the only chronic injury that we gathered.

If we observe the moment at which the injuries took place, 66.6% took place the first day. 60% of the same ones were taken care at first hour of afternoon.

The injuries classification according to the severity shows us that most of them are slight injuries that do not force move away from the game land and the competition. Only one of them caused that the player did not finish the match, had an injury of internal meniscus. A functional bandage was placed to her with the aim to finish the match, but she left the competition.

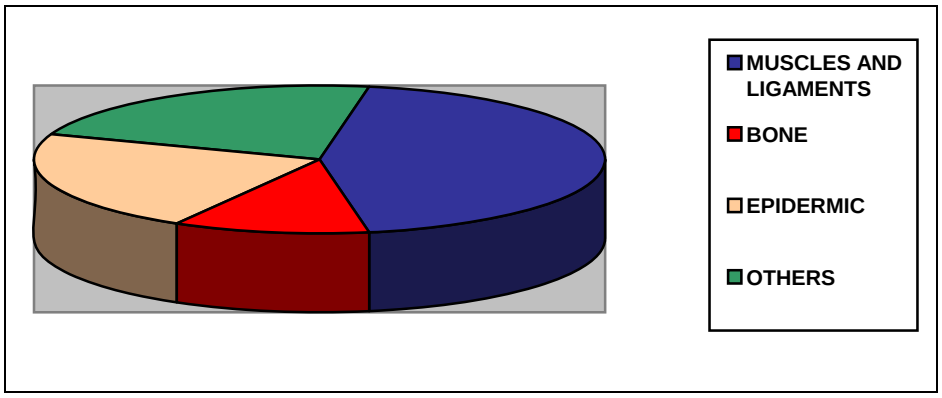

Figure 2 *Injuries according to the injured weave.*

The following results were obtained according to the injured weave (Fig. 2):

- Injuries affecting the muscle : 2
- Ligament and cartilage injuries: 2
- Bone injury: 1
- Epidermic injuries: 2
- Others: 2

5. DISCUSSION

The global lesional incidence has been very low, of a 2.81%. These data agreed with the statistic of the General Mutualidad of Sport Players, that shows us that it is a sport of low traumatologic risk. (Of all the sports the lesional incidence is of 0.19%)[2].

The main producing factors of injuries are biomechanical upheavals and the on use. We found the greater risk of injuries in young people, faced with the veterans, to have a minor experience or even worse technical.

Paying attention to the weave that is injured most frequently we observe it is the muscular and the ligament ones. The same happens in most of the sports. It is probably caused by very hard and intense training with a short time of recovery and mainly to the lack of stretching and heating before and after the training and of the competition. These results vary a little in relation with the data collected in a Spain championship sub-21

where the frequency of muscular injuries was 63.64%, followed of tendon_and ligament injuries [3].

Although the superior member is the most used during the matches, it is not the greatest centre of injuries. The zone of the body where we found the greater number of injuries was the lower limbs, followed of upper limbs and trunk. In the upper limbs the zone with greater pathology is the dominant shoulder (consequence of being an asymmetric sport). In most of the players an asymmetry between arms can be observed, being more developed the dominant arm. Also a maximum force variation is found in dominant member with respect to non dominant member [4], although the resistance that must overcome the upper part when the ball is hit is small in this dual sport with racket. The dominant arm makes greater effort and mainly repetition of the sport gesture, that irritates the sinews and causes muscular overload [4,5,6]. This found difference can have to that our sample is a very young population with less years of training. And that in the bibliographical revision where the dominant shoulder with greater injury is seen, the population had been more years training, even more than 16 years. If we refer to the trunk we see strain level of thoracolumbar paravertebral muscle. Following Balius and Juli sports classification according to the degree of aggressiveness on the spine, the table tennis would be in the group of vertebral indifferent sports [7]. But the other authors as Gallo Vallejo and Galán Rodriguez consider this as sport vertebral negative in power in high level players, by the great number of hours of training in a forced position in the rotation movements[2].

Paying attention to if they are acute or chronic, 90% of the injuries were acute, probably because it is a very young sample of sport players. In players who have been training more than 16 years, the type of injuries we can usually find is chronic [8].

Observing the hour of the injury production, we could verify that the greater number of injuries occurred at the beginning of afternoon of the first day of competition. One of the causes could be that the sport player is more tired at those hours of the day because he has played 3-5 matches in the morning and this fatigue increases the referring at technical gesture. Another one of the reasons is that they have not warmed up enough at the beginning of the afternoon increasing the lesion risk.

Having contrasted the injuries produced during the State Championship with the collection in the bibliographical revision, we can see the following summary table which gathers the injury distribution according to the injured body zone [6, 9, 8, 10, 11, 12, 13] (Table 3).

TRUNK	UPPER LIMBS	LOWER LIMBS	SKIN
Cifosis Scoliosis Osteoarthritis	Epitroclheitis Palmar tendonitis Wrist tenosynovitis Supraspinatus tendinitis	Sprain Ankle Osteocondritis dissecans Plantar fascitis	Ping pong patches

Table 3. *Distribution of injuries based on the different parts of the body when the revision is performed.*

6. CONCLUSIONS

1. Table tennis is a low incidence sport of injuries.
2. Women are more injured that man, in these ages.
3. In early ages acute injuries are frequent.
4. Injuries without contact are most frequent, comparing with contact injuries (with racket or table)
5. The lower limb is the most injured zone of the body.
6. The injuries found in upper limbs are most frequent in the dominant member.
7. The injuries distribution according to the hour rank was greater at the beginning of first day afternoon.

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