Prejudicial aspects of the osteomyoarticular risking in amateur apprentices of tennis: preliminary study

ABSTRACT: This study had as its objective to verify the typology and the corporal location of the osteomyoarticular lesions that appeared in amateur athletes who practice tennis in clubs in the district of Rio de Janeiro, who are aged between 20 and 50 years, with sporting activity for at least one year. A retrospective study was done using a specific validated questionnaire, composed of 26 open and closed questions, with a direct interview to 30 athletes that accomplished their activities in clubs in the district of Rio de Janeiro. The results showed that the ankle was the place of a larger attack of lesions in these tennis amateurs, presenting a percentile of 29.9% of the total of lesions, being followed of elbow (26.6%) and shoulder (23.1%). According to the typology, the tendonitis, mainly of fist, were the most frequent lesions in these individuals, representing a total of 42.9% of all of the lesions, being followed of the strains with a total of 29.9% and of the elbow epicondylitis with 23.3%. With these results, it was proved that, the ankle was the place with a higher level of attacks, being the tendonitis the most common type of lesions in the studied sample.

Keywords: Tennis, Osteomyoarticular Lesions, Motor Disturbance.
INTRODUCTION

In Brazil, in the last years, due to the appearance of great names as Guga Kuerten, Flávio Sareta and Fernando Meligeni, the number of apprentices of field tennis has been increasing so much in the recreational extent as in the competitive. In spite of the whole success that the tennis is providing to their more skilled apprentices, many do not reaches such level due to osteoarticular lesions due to the exaggerating or even inadequate practice of this sport. If we take in consideration as an amateur sport, the incidence of lesions becomes more preoccupying.

The tennis, as most the of the sports, demands great request of the locomotor apparel, mainly in the osteo-ligament aspect, evidencing lesions that show in a very variable way in location terms in the anatomical structures, being most of the cases due to repetitive micro traumatisms happened in competitions and trainings.  

The athletes that practicing tennis are subject to the most different types of lesions, that can be attributed to a series of factors, as biomechanics of the incorrect sport gesture, excessive use of repetitive movements, use of non-appropriate sporting equipment for the modality and/or athlete, floor type, among others. Therefore, it is verified that several intrinsic and extrinsic aspects in the tennis, besides abrupt and constants direction changes, contribute for the increase of the risk of lesions.

Evaluating current alterations of the tennis practice in athletes, Kuhne observed that the most frequent lesions types that affect those individuals are the bubbles, the sunburns and the cutaneous lesions with 65.5% of all of the problems. The cramps with 51.8% of the lesions appear in second place, followed by the dislocations (35.5%), and the sprains (25.5%). More serious lesions as the one of meniscuses or tendon ruptures are little frequent, and with an index around 2% to 4%.

In the literature, few studies evidence in a clear way the typology and the corporal location of the lesions that occurs in tennis apprentices, amateurs or professionals. Front of this was decided to elaborate a study with intention of verifying the frequency of osteoarticular lesions in amateur practicing athletes of tennis in clubs in the municipal district of Rio of January, understood in the age group of 20 to 50 years, with at least one year of practice.

OBJECTIVE

To verify through direct interview, using a questionnaire with 26 questions, the typology and the corporal location of the osteoarticular lesions occurred in amateur athletes during the tennis practice in clubs of the Municipal district of Rio de Janeiro.

METHODOLOGY

The sample was composed of 30 athletes of amateur tennis with age between 20 and 50 years, with mean age of 32.44 year-old, ± 9.65, there are apprentices at least one year, belonging to clubs of the Municipal district of Rio de Janeiro.

The participants were all volunteers, selected by convenience, independent of the sex, of the frequency of lesions presented by apprentice, location and cause or gravity of the same ones.
It is a retrospective study, using a specific, structured and validated questionnaire, composed of 26 questions, open and closed, tends the first ones the objective of characterizing the better aspect of the information on the suffered lesions for the athletes.

Before or after each tennis game, the questionnaire’s questions were individually accomplished with each athlete in a calm and isolated place. On average, each participant had 15 minutes to answer to the questionnaire. To avoid mistakes, was tried to maintain in each interview the same method, staying the way to ask or emphasis of certain aspects, for not suggesting the interviewees.

The study obeyed the norms number 196/96 of National Council of Health, having each participant signed the term of free and known consent.

Due to the characteristics of the study and the aspects of the analysis of the research, the descriptive statistics was used as method of results’ evaluation.

**RESULTS**

For the analysis of the results presented, it was observed that 30 of the interviewed athletes, only 79.2% suffered lesions current of the practice of the tennis, since 6 (19.8%) didn’t reported any lesion type during the interview.

**Graph 1:** frequency of osteoarticular lesions in agreement with the anatomical location

<table>
<thead>
<tr>
<th>Ankle</th>
<th>Hip</th>
<th>Fist</th>
<th>Elbow</th>
<th>Shoulder</th>
<th>H. (fingers)</th>
<th>Muscular</th>
<th>% T. LES</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3%</td>
<td>3.3%</td>
<td>19.8%</td>
<td>3.3%</td>
<td>9.9%</td>
<td>3.3%</td>
<td>9.9%</td>
<td>42.9%</td>
</tr>
<tr>
<td>26.6%</td>
<td>3.3%</td>
<td>23.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>29.9%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>23.1%</td>
<td>19.8%</td>
<td>26.6%</td>
<td>26.6%</td>
<td>23.1%</td>
<td>23.3%</td>
<td>9.9%</td>
<td>29.9%</td>
</tr>
<tr>
<td>13.2%</td>
<td>13.2%</td>
<td>13.2%</td>
<td>13.2%</td>
<td>13.2%</td>
<td>13.2%</td>
<td>13.2%</td>
<td>13.2%</td>
</tr>
<tr>
<td>9.9%</td>
<td>9.9%</td>
<td>9.9%</td>
<td>9.9%</td>
<td>9.9%</td>
<td>9.9%</td>
<td>9.9%</td>
<td>9.9%</td>
</tr>
</tbody>
</table>

**Graph 2:** frequency of osteoarticular lesions in agreement with the typology

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>42.9%</td>
<td>23.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>13.2%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

In the table 1 and graph 1, can be met and analyzed the results. In a topography way, the ankle is the most affected area, attacking 29.9% of the amateur apprentices, being followed by the elbow lesions that were positioned in second place, with 26.6% of the sample. The shoulder lesions are followed with 23.1%, the fist lesions with 19.8% and the hand lesions (fingers) with 13.2% of the participants of the study.

With smaller indexes frequency, appear the muscular lesions and the lesions of knees with the same proportion (9.9% each). Already the hip lesions and of column, with smaller attacks, presented similar frequencies, being found in 3.3% of the apprentices.

In a general way, the general aspects of lesions, mainly in what refers to the topography and typology of the lesions, can be observed in the table 1. In the graph 2, where the typology of the lesions is analyzed, it can be observed that the tendonitis presents the largest frequency, with a total of 42.9%, mainly affecting the fist articulation with 19.8%. As described in the table 1, in a general way, the sprains with 29.9%, were positioned in second place, following by the epicondylitis with 23.3% and of the distentions with 13.2%. In relation to the other lesions referred in the table.
1, as the dislocation, the bursitis, the stretching, the contracture, the ligament rupture, the Osteochondritis, the fissure and the disk hernia, is observed that these presented the minimum value of 3.3% of the total compromising for lesion.

**DISCUSSION**

In this study a reasonable index of corporal lesions was observed in tennis apprentices. Among the most frequent factors that causes lesions, can be mentioned: inadequate training technique, type of the racket’s cable, tension used in the racket’s strings, muscular weakness, intense force of manual apprehension when seizing the racket, use of inadequate shoes, abrupt stop movements accomplished with the feet, fast exits and constant changes of direction, different types of floor and the lack of synergism among agonistic/antagonistic. As could be verified, the lesions can elapse as much of intrinsic as extrinsic factors.

In this study the compromising of the inferior extremities prevailed, evidenced by the ankle (29.9%). Pacheco and Cabral found that ankle sprain as the most common lesion being responsible for approximately 25% of the lesions of this sport. This corporal area, besides being the more assaulted, presented in our study two varieties of lesions, sprain and tendonitis, being the first the predominant lesion as it can be observed in the table 1. However, if it was analyzed the lesion type without considering the topography or attack place, the tendonitis prevail with 42.9% of the total of the lesions attacking the fist, the shoulder, the ankle, the hip, the elbow and the hands.

Diverging of the results obtained in this research, Larsen in a research in which 160 questionnaires were used, found that the most frequent type of lesion as “tennis elbow” with 18.2%, and of this total one 66% of the lesions were due to the “overuse.”

Another accomplished study, using 160 amateur tennis players of the State of São Paulo, verified the incidence of the orthopedic lesions in competitive tennis players, being 64 athletes female and 96 male, with age between nine years and seventy eight years (27.6 year-old average). Through questionnaires sent by mail, was found the occurrence of 244 lesions in 122 of the athletes that answered to the same. The muscular lesions were the most evident, with attack in 23.8% of the interviewees. The foot and ankle (19.7%) lesions came next, and elbow (16.8%), shoulder (14.8%), knee (12.3%), column (7.3%), hand and fist (3.7%) and other areas of the body with 1.6%. In spite of the corporal compromising, among the causal factors was the lateral epicondylitis of the elbow and the ankle sprains as the most frequent. The tennis players stood back of the trainings and games on average for five weeks and four days, however, that removal varied in agreement with the location of lesion attack. The ones that determined larger time of removal of the games were the intra-articular of knee.

Another more recent study verified that the most frequent types of lesions that affect the tennis athletes are the cutaneous lesions as bubbles and sunburns with 65.5% of the attacks, following by the cramps (51.8%), the dislocations (35.5%) and the sprains (25.5%). The most serious lesions as meniscuses or tendon ruptures were less frequent, meeting a percentile around 2% to 4%

**VI. CONCLUSION**

It was concluded in this study that the most attacked place independent of the type of lesions in amateur athletes of tennis of this sample was the ankle, being followed by the compromising of the elbow and shoulder.

In relation to the typology, in other words, the etiological cause of the process of the lesion, this study verified that tendonitis was the most frequent, following by the sprains and epicondylitis, being followed the distentions in fourth place and in smaller frequency the dislocations, bursitis, stretchings, contractures, ligament ruptures, osteochondritis, fissures and disk hernia.

**REFERENCES**

5. Pacheco I, Cabral S. Avaliação do uso de 3 diferentes tipos de tratamento farmacológico na entorse do tornozelo em atletas, Revista Brasileira de Medicina do Esporte 2000;6(5):211.