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Original article

STATISTICAL ANALYSIS OF SPECIFIC TEAM SPORTS TRAUMATOLOGY - HANDBALL

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Abstract

Rough contact sports such as Handball and Rugby, imply permanent contact between the players that, in some of the game that had led to a higher intensity and physical load, this meaning that injuries are more likely to occur frequently than five or ten years ago. Sports represents the physical activity that implies form a certain level of training situations, can lead to traumatic injuries. With the development of the two team sports, also increased the dynamics and experience, presence of competitions both for verifying the level of training of players as well as for obtaining positive results, that bring benefits.

The word sports has a remote history and has its origin in the latin *deportare*, that by its primary sense, means to go out through the gate, namely to go outside the city walls to be able to practice sport activities. From here we can notice the desire and inclination of people to effectuate these activities from the oldest times, activities that had been perpetuated in the present days under different forms in organized setting by the presence regulations, federations, Olympic committees etc., that lead their progress.

In this study, the questionnaire has been applied to handball players that activate in the first echelon. Applying the questionnaire was followed by obtaining data on traumas that the players have had, with the goal to make a comparison between impudence and severity with other studies made in Europe in order to determine if the handball players in Romania tend to have higher risk injuries than players from foreign championship

Key words: Injuries; traumatology; dynamism; handball.

Introduction

This research is based on a statistical analysis between studies made on handball players from Romania's championship, and other studies conducted at the European level in order to find if there are differences between the gravity, type and frequency of these two research domains. The study was conducted at the end of the regular season in order to have a perspective of the evolution of their well being during this year.

I have applied a questionnaire to each player in order to collect data about their injuries from these past two years, along with other subjects, such as the time that they've happened, what type of protective gear they use and the conditions of their appearance.

All the data collected had been interpreted and charted this giving the opportunity of comparing my results with other studies that I have found on handball players from other European countries.

Sports encourage diversity in a cultural world. Even if countries begin to come closer to each other keeping their identity, sport is the one that teaches us that cultural differences must be accepted, but also cherished and perpetuated

The handball game is characterized by a continuous physical contact, variations in running tempo, one on one situations, sudden direction changes conjuncted with difficult elements of specific technique and coordination elements as dribble, throwing and passing the ball by using different handling methods

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Being a contact sport, is inevitable the appearance of traumatic injuries in various areas of the body and with sundry severity, thus I have proposed through this paper to find out which are the main injuries that can appear, their gravity and ways to prevent them.

Injuries caused by physical contact represents much from the total of traumas occurred, here having and extremely important role the referees that can intervene and assure the well being of the athletes by applying the bylaws when injuries are being produced and by keeping a fair play. Recent studies show the fact that morphological characteristics, especially in contact sports. (AlexandruOprean, 2017)

Statistics made during the summer Olympic games in 2012 revealed, in the case of handball players, an injury rate of 21,8%, more exactly 76 of the total 349. Handball represented one of the sports with the higher injury risk alongside taekwondo, football, hockey and cycling. A series of other studies made at European level that have implied 22 teams with a total of 217 players with ages between 16 and 18 years, showed a increased injury frequency during the games, 40,7 injuries/1000 played hours. (N. Wedderkopp, 1997)

Besides shoulder acute traumas as sprains, another common injury in the handball game is the one of the rotators muscles area. Generally speaking there are three types of injuries in that area for the athletes that use the throwing mode. (Michelle M. Ouellette, Nathan K. LeBrasseur, Jonathan F. Bean, & apud Economopoulos K.J, 2012)

Shoulder region has a increased incidence in what concerns overuse symptoms in this team sport.

Methods

This study has been made by applying a questionnaire with subjective and objective items that refer to the traumatic injuries historic that have occurred in sporting practice from the past two seasons and from their career. The questionnaire had been given to a sample of 23 professional handball athletes that steadily play in the first Romanian

Results

The data obtained had been interpreted and the results disclosed for the handball players that have been questioned, regarding the most severe traumas from their career, high percentages for ankle sprains,

Scapular-humeral joint is heavily and continuously used during the game and practice hours, and studies show acute pain in this region at about 35 to 45% of the ones who play this sport at a high performance level. (Pieper, 1998)

Handball players that perform approximative 48.000 associated throwing moves in training and official competitions period with a ball that weights from 425 to 475 grams, at an average speed of 130km/h. (R. Seil, 1988). Repetitive nature and angle variation of the throwing arm, can provoke the appearance of some adaptive changes of the arm, that consists in growing of external rotation and reduction of internal rotation comparing with the opposite arm that is dutiful of a high impact forces

The appearance of traumas is inevitable in this sport that implies continuous rough physical contact and sometimes without the will to protect the opponent. The subject of this research is to highlight the main traumas that can appear in this game after interpreting the results that have been obtained and compare them with other studies made at European and International level in higher leagues with the purpose to show synopes and differences in physical preparation of the athletes, where there can be observed, or a series of other reasons that can be shown in training and competitions, that could lead to traumatic injuries.

. Injuries occurred on the fingers are to happened due to badly catching of the ball, and mainly there are being treated by the players themselves without specialized assistance. These traumas provoke long term loss to the team, many of them being signaled at the end of the season. (Nielsen AB, 2007).

league with the objective to observe their traumas and to make an analogy with a series of other studies made at European and International level with the purpose to determine the differences in what concerns the type and frequency, and finally to confirm or infirm the hypothesis.

muscle and tendons ruptures alongside articulatory lesions.

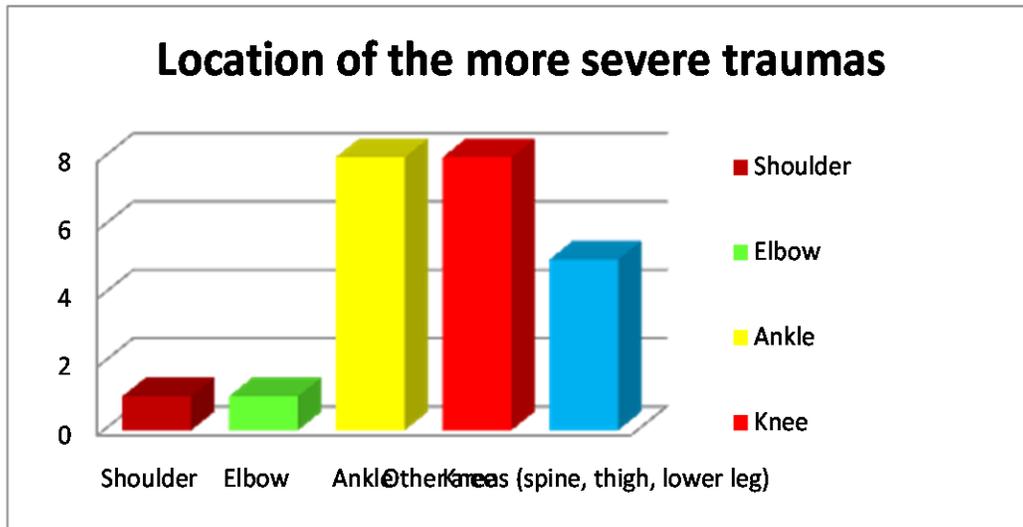


Figure 1. The most severe injury of the player

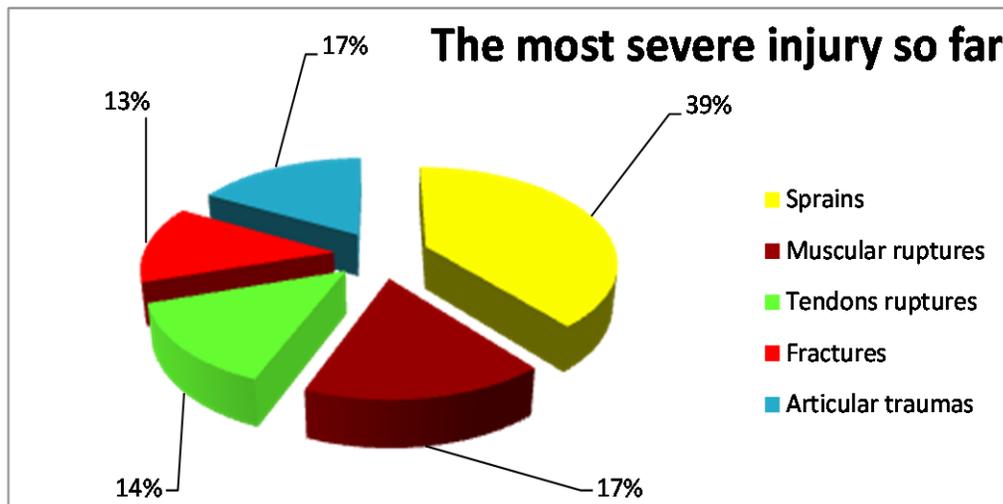


Figure 2. Location of the most severe injury of the players

Further discussions with the subjects of this research, highlighted that the majority of the injuries happened after incorrect movements, overuse and rough contact with the opponent.

As a location, most of the injuries occurred in the ankle area, knee, thigh and spine. The variety of affected areas denote a series of causes that have led to producing these traumas such as overuse, harsh contact and inappropriate preparing of the body.

Likewise the traumas that appeared in the last two seasons has been analyzed as far as that goes handball players.

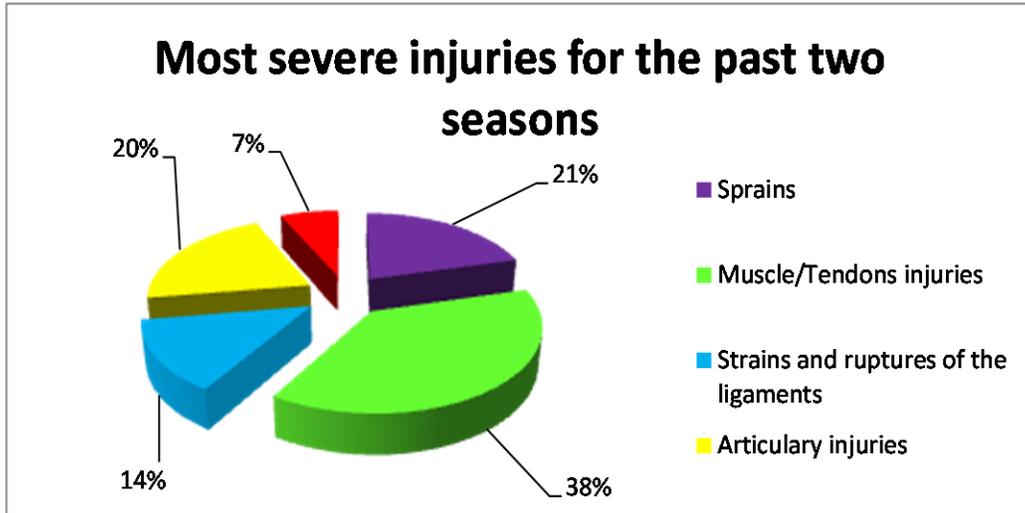


Figure 3. The most severe injuries form the past two seasons of the players

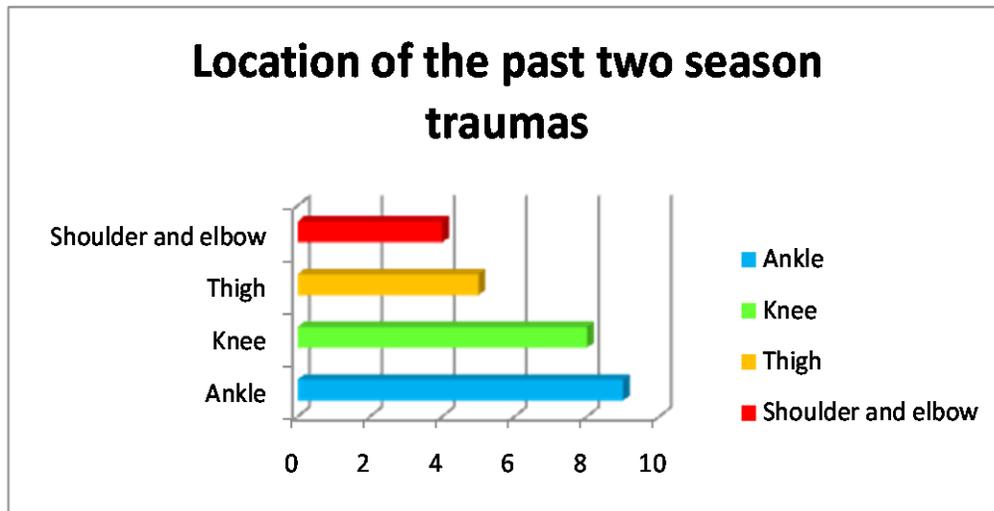


Figure 4. Location of the past two season injuries

Figure 5. The moment in which the traumas have produced

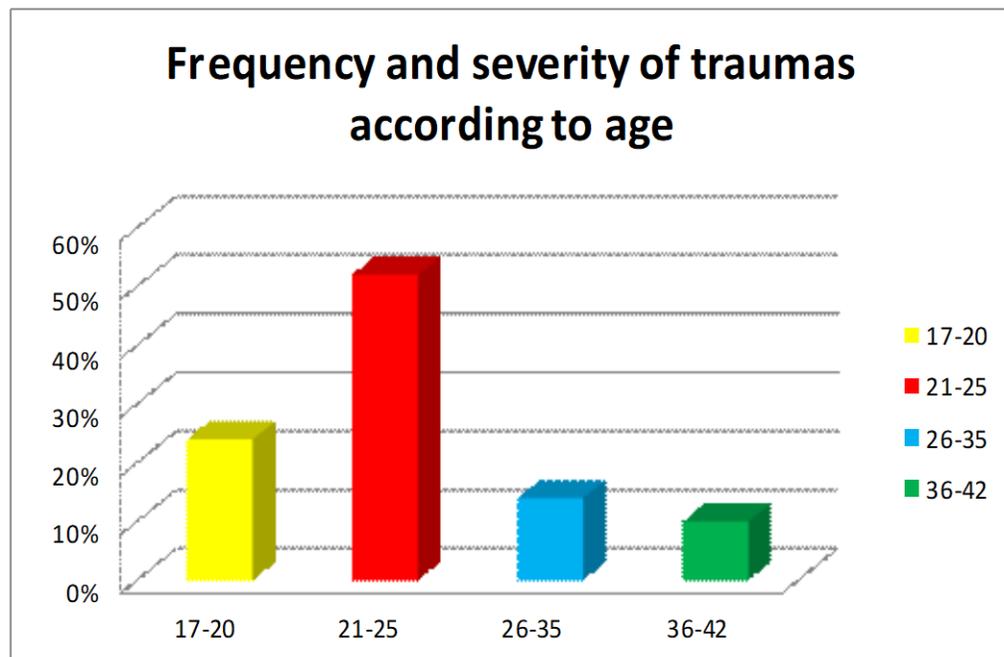
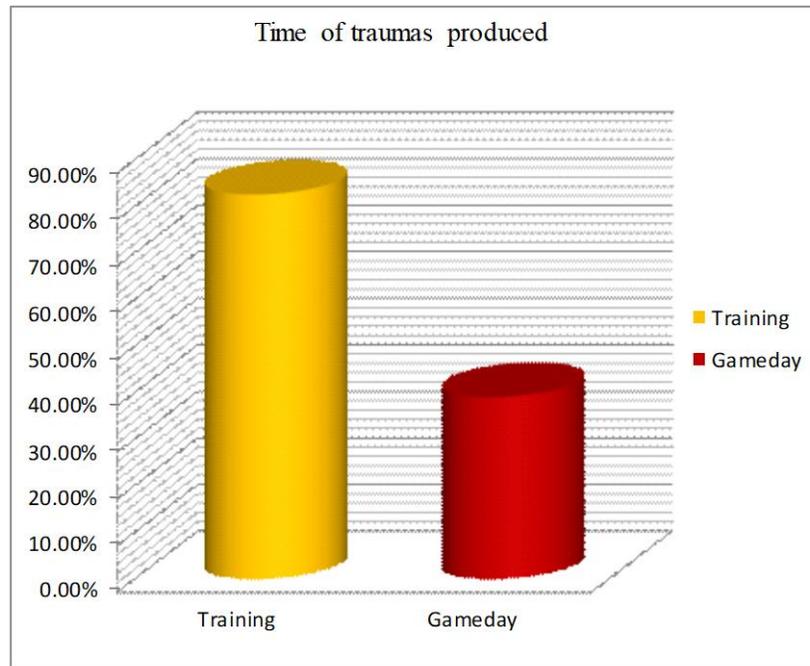


Figure 6. Frequency and severity of traumas according to the age of the athletes

Discussion

We can notice the highest share in muscle and tendon lesions, represented by thigh, shoulder, Achilles, patellar and iliotibial tendons, tendinitis and strains, all due to overuse and lack of proper preparation of the body, or the rough contact with the opponent.

Articular traumas represents 20% of the total traumas recorded and represents mostly partial or total cartilage rupture, especially the meniscus.

The location of the past two season traumas, we have as main affected areas the knees and ankles.

The moment of the production of the injuries is considered extremely important and can offer information about the level or quality of the training process, and also about the level of involvement in training situations that purports active opponent.

Grethe Myklebust, professor at Oslo Sports Trauma Centre of Research, after a study made on handball players from superior Norwegian leagues has obtained data on injury rate of athletes express 15,2 injuries/1000 played hours including 11,9/1000 played hours and 0,16/1000 trained hour.

The graphic number 5 shows notable differences between the two parts of the study thus higher proportions in relation to Romanian handball players that have had injuries during training (over 80%).

Other study made by professors G. Langevoort, G. Myklebust, J. Dvorak, A. Junge on major international competitions (European and World championships), show a 87% injury rate, the main areas affected being on the upper limbs (head) and the lower one especially knees and ankles, being provoked by harsh contact with the opponent these being seen on players with ages between 25 to 32

Data obtained after interpreting the questionnaires applied to the handball players from Romanian championship shows that the main category of traumatic injuries are on the players with ages from 21 to 25 years of age, having once again differences for the two parts of the study.

Studies made in the Danish handball championship shows the main cause as overuse with an average absence time period of 4 weeks.

To conclude we can say that there are differences between these parts of the paper and a confirmation of the hypothesis for acute traumas because of overuse. Handball players from the National Championship sets a series of acute muscular, tendon, ligaments and cartilages injuries

for players with ages between 21 and 25 years with recovery periods from 3 to 6 months.

Due to these information obtained it is obvious that there are shortages in these athletes training especially in late youth period, alongside insufficient spirit of conservation of the opponents and ways to retrieval that could lead to appearance of these acute traumas.

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