

operational improvements have resulted in the parameters tested at the end of research when compared with the initial sample experiment.

Experimental program effectiveness was demonstrated by the analysis of statistical indicators for evidence of motricitate, psihomotricitate, speed, agility and physical evidence, on the one hand but also by analyzing statistics for the indices we developed questionnaires and personality inventories.

In this sense the experiment group subjects had higher indices obtained from a group of control subjects at final testing, at a threshold $p < 0.005$, with a mean of 95%, thus confirming the hypothesis that the means and methods used in the original proposed program affect the positive personality characteristics of medical students.

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THE STUDY OF THE INJURY'S INCIDENCE AT THE KNEE LEVEL IN DIFFERENT SPORTS

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Abstract

This is a retrospective type of study which has as its purpose the examination of the sports injury's incidence at the knee level. Also, it incorporates the statistical datas from the observation files of the orthopedic sections from the Emergency Hospital of Bucharest in the period of 2010-2014. In the research had been included 400 patients with trauma of the knee articulation, all of them being either practitioners of the team sports (volleyball, basketball, handball, football) or individual sports (athletics, gymnastics). Each of the patients had been registered at a sports club. For every patient, had been recalled the following datas: sex, the sport, diagnosis and the location of the wound.

Keywords: injury, sport, knee, diagnosis.

1. Introduction

The large number of contusions at the knee articulation level resulted because of the sports traumas, this whole thing being a continual process in specialized studies. The sports traumas at the knee

articulation level are accompanied by long periods of recoveries and can also leave behind morphological and functional sequelae, with consequences either on the sports activities or on the personal and social life of every individual. However, this type of effects can only happen if they had not been diagnosed on time and treated properly.

In the practice time of the sport can occur a multitude of possibilities of getting injured. The localization of the well-known injuries over time is the following:

- hands and fingers - 14%
- ankle - 10%
- knee - 7%
- elbow - 5%

The remaining part of 64% are quoted as diverse, because more than half of these are located as muscle or tendon contusions. From my point of view, taking into consideration the severity of the problem, by converging these figures we have the following results:

- 48% are contusions;
- 36% sprains;
- 8% sprains and fractures;
- 8% muscle and tendon ruptures and afflictions

Although, the injuries at the knee level do not have the biggest incidence, the consequences that take place on the sports activities subsequently can be much more severe, reaching the extreme situations, even though a patient is giving up on the sports activities of performance.

In sports practice are known a multitude of reasons leading to injuries. From this multitude of causes, we would like to list some of them, considered by us very important.

The traumatic risk as a concept, takes into account the intensity of the diverse sports practices (the number of hours per week) and the number of years of practices. Various investigations that had been done, had highlighted two essential components of traumatic risk: the physical commitment and the amount of attention.

The physical commitment, more or less violent, is based on the following facts:

- **sex** – it seems that girls tend to get twice as fewer injuries as boys
- **the amount of practice** – three times fewer accidents for the top athletes than the athletes that are graded lower, the difference is made by the distinctive number of hours of practice;
- **the held place** (if we speak about team sports)

The amount of attention

- **The time of the day when take place the competitions and the trainings.** On the scheduled timetable of 7PM to 8PM, there are about three times more accidents than on different scheduled timetables. In this period of time, is manifested more strongly the syndrome of hypoglycemia.
- **The number of extra players** (in case of team sports). It had been noticed that there has to be found a direct relationship between the number of extra players and the number of accidents. Thus, the number of accidents is increasing directly proportional with the number of extra players. It is not necessary that the number of extra players to be high, but that those players who enter the game to be prepared to be part of the competition.
- **Absence of physical contact.** The absence of a nearby opponent or teammate determines a decrease of the attention level.. Approximately 60% among the knee sprains appear in the absence of physical contact., and half of the serious accidents are happening in the absence of physical contact with an opponent or teammate.

2. Procedures used for the actualization of the study

This study is based on the anatomoclinical study of the knee affections in the sports pathology. For this research, the diagnosis was established with the help of the clinical examination. The study is kind of a retrospective one and its aim is to analyse the incidence of the sports injuries at the knee level, including statistical datas from the observation files of the orthopedic sections from the Emergency Hospital of Bucharest in the period of 2010-2014.

In the research, had been included 400 patients with trauma of the knee articulation, all of them being either practitioners of the team sports (volleyball, basketball, handball, football) or individual sports

(athletics, gymnastics). Each of the patients had been registered at a sports club. For every patient, had been recalled the following datas: sex, the sport, diagnosis and the location of the wound.

3. Results

Out of those 400 patients included in the study, 305 were males and 95 females, which is a male/female ratio of 3,2:1. This proportion is explainable in order to the number of the male players which is as always higher than the one of the female players, that is because the majority of the athletes included in the study were football players, this being a reserved sport for most of the male players.

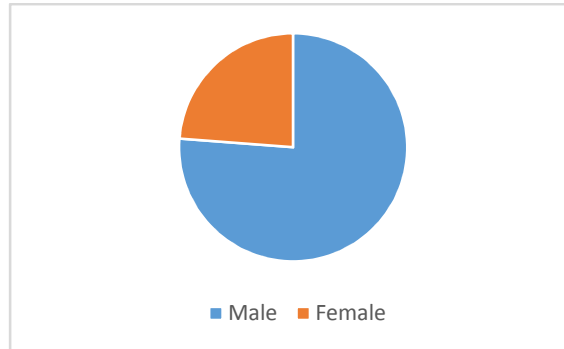


Fig. no. 1 – The sex distribution of the patients included in the study

Regarding the practiced sports, the distribution of the patients is the following:

- Football – 237 cases
- Handball – 65 cases
- Basketball – 37 cases
- Volleyball – 31 cases
- Gymnastics – 18 cases
- Athletism – 15 cases

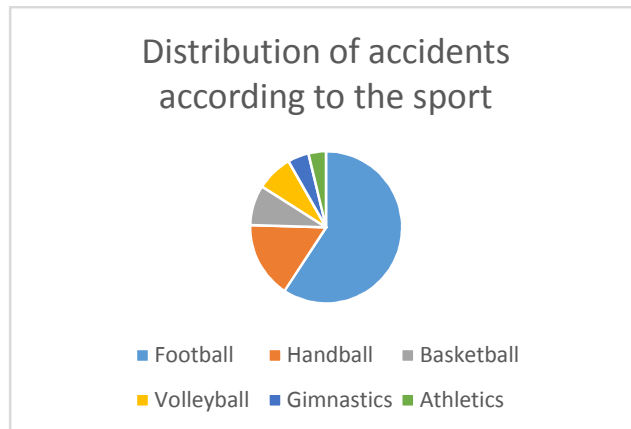


Fig. No. 2 – The accidents distribution based on the sport

Regarding the sex distribution for each sport, the datas show the following:

	Males	Females
Football	227	10
Handball	43	22
Basketball	16	18
Volleyball	8	23
Gymnastics	2	16
Athletism	9	6

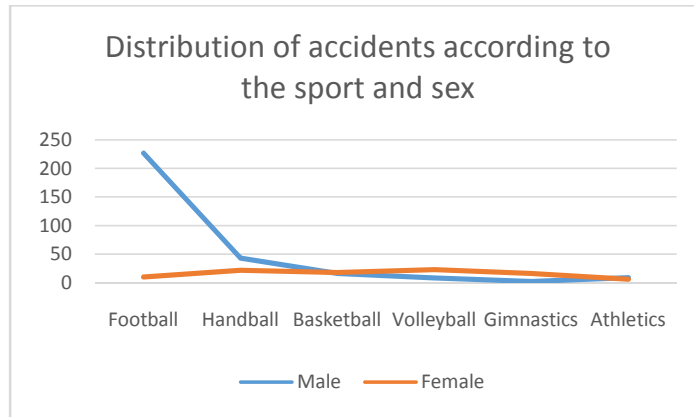


Fig. no. 3 – The accidents distribution based on the sport and sex

In the case of football, the difference between the number of female patients and male patients is understandable due to the difference in the number of practitioners of that specific sport, which is on the side of the male players. The sex ratio is in this case 22,7:1.

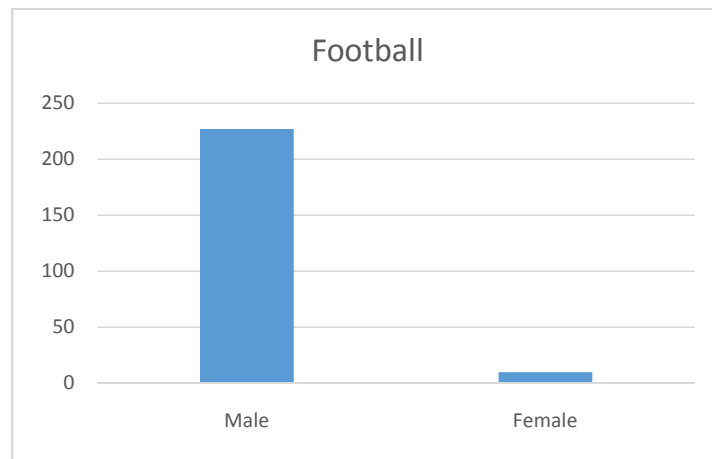


Fig. no. 4 – The injuries at the knee level in football

In the case of handball, the commonness of the situation is still on the side of the male players, but the difference is less as high as in the situation of the football players, with a sex ratio of 1,95:1.

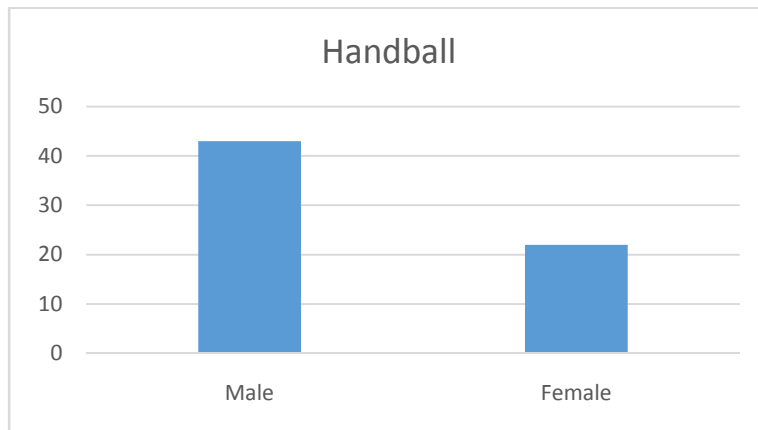


Fig. no. 5 – The injuries at the knee level in handball

Regarding basketball, the statistics are reversed, but the difference between the cases of females and males are very low. In this situation the sex ratio is 1:1,125.

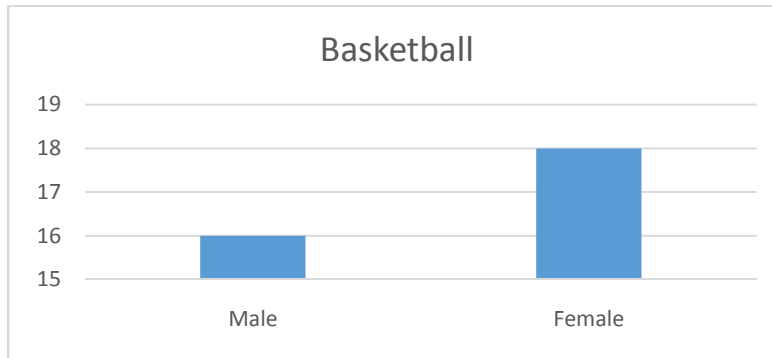


Fig. no. 6 – The injuries at the knee level in basketball

Regarding volleyball, the cases are numerous for the females, the difference being much more higher for this sport. With a sex ratio of about 1:2,875.

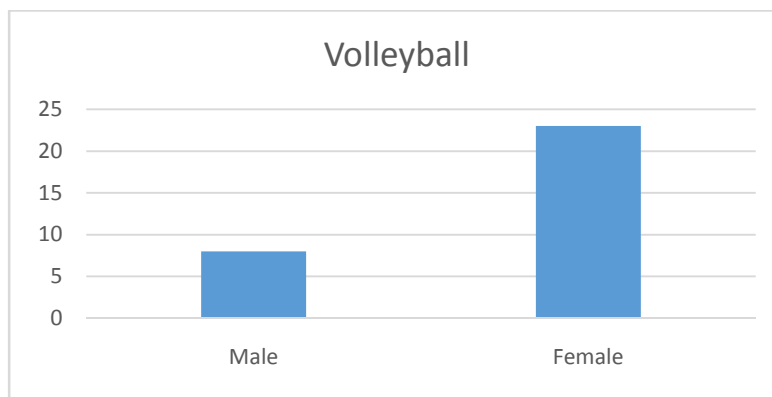


Fig. no. 7 – The injuries at the knee level in volleyball

In the situation of the gymnastics, where obviously the majority of the practitioners are females, the difference being kept for the studied group. Hereby, the sex ratio is 1:8.

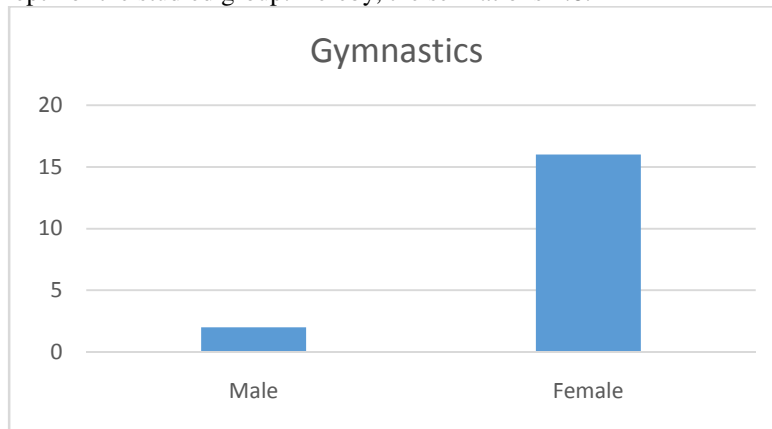


Fig. no. 8 – The injuries at the knee level in gymnastics

In the situation of athletics, the statistics are altered again, the majority of the cases being male patients. The sex ratio is 1,5:1.

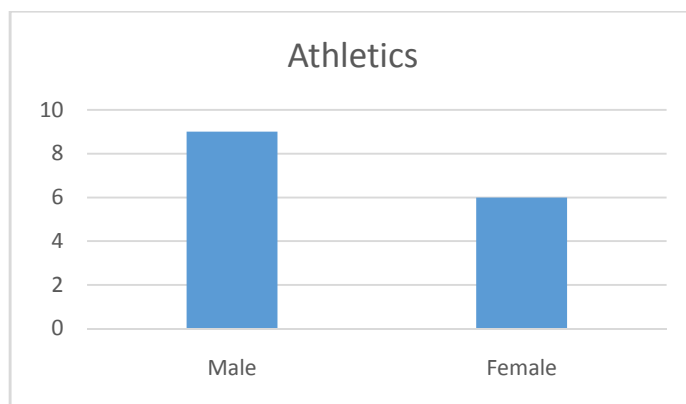


Fig. no. 9 – The injuries at the knee level in athletics

4. The deduction

After following the collected data, it can be stated that the risk of appearing knee injuries to male players is higher than the one for the female players, but a great impact upon this result is represented by the lofty number of football players, which is about 56,75% out of the total cases and 74,42% out of the total male patients included in the research.

As I was pointing out in the introduction, the sex of the athletes is crucial in the production of the diverse injuries, because in the situation of the females, the physical engagement is lower than for the males.

Although, the incidence of the injuries at the knee articulation level is higher for the females for 3 out of 6 sports included in the study (basketball, volleyball, gymnastics), the global incidence being significantly higher for males than for females. As Loes (3) stated, this may be due to the big number of male practitioners of football and handball, comparable with females, both being sports with a high risk of producing injuries that are followed in this research. The two sports are responsible for 75% out of the total cases included in the study.

The results of the study are compatible with the ones presented by De Loes 1995, 1997 and 2000 (2, 3, 4), Backs in 1991 (2) Kujala and colab. 1995 (7), Arendt and Dick 1995 (1), Myklebust and colab. 1997 (8), Hutchinson and Ireland 1995 (6)

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