

STUDENTS' INJURIES AT THE FACULTY OF SPORT AND PHYSICAL EDUCATION - AN ANALYSIS OF TWO STUDY PROGRAMS

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Abstract. *The aim of this research is to analyze the injuries of the students of the Faculty of Sport and Physical Education, as well as to determine, if possible, if the increase in the number of injuries is caused by increased pressure, brought by a new study program, when doing exercises. The sample was composed of 207 participants, who attended the Faculty of Sport and Physical Education, University of Nis, aged 23 years ± 6 months. The questionnaire was the main measuring instrument for the evaluation of injuries. The participants were asked to answer by circling options concerning the location of their injury, the classes during which the injury occurred, as well as the type of injury. All the gathered data have been represented numerically and in percentages, and used for further analysis. The analysis of the gathered results showed that there is a higher index of injury during practice with students who have studied according to the Undergraduate academic study program, and that there is a difference in the rate of injuries in certain classes between the two study programs. The results of this study show that an increase in the intensity of work and increase in the teaching hours led to higher risk of injury. Future research, dealing with similar topics, on the basis of this research may compare students' injuries in both the old and new school system, which gives this study a special significance.*

Key words: *questionnaire, location, type, injury index.*

INTRODUCTION

Study programs at the Faculty of Sport and Physical Education, University of Niš, were changed in the 2007/2008 school year. The Bologna process of reform of higher

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education in Serbia moved from a four-year study program of Undergraduate Studies (US) to the study program of Basic Academic Studies (BAS). All of the courses that were taught during two or three semesters became one semester long with a larger number of classes. Reducing the number of semesters in which certain courses are held means less time for the curriculum realization, therefore bigger pressure on the educational process. The increased number of classes makes the implementation of the curriculum easier, but it certainly represents an extra effort for teachers and students. It is therefore necessary to answer if the BAS program carries a higher risk of injury during exercise because of greater student engagement.

The injuries that usually occur by the mechanical forces action while performing any sport can be defined as sports injuries, no matter if they are created during a competition or training (Đurašković, 2002). According to the definition of the National sports association of sports colleges, an injury is one that is “made during match or sport training, which requires medical care of trained coach or team doctor and causes at least one day of absence from the sports field, not including the day of injury” (Dick, Agel, & Marshall, 2007, 174).

According to most statistics, football takes first place in the number of sport injuries, which can probably be attributed to the global popularity of football (Beachy & Rauh, 2014). Some studies claim that a football injury is an injury because of which a player is unable to actively participate in a football match or training. Others believe that football injuries are those that require medical care, while some studies define sports injuries in football as a combination of these two definitions (Hagglund, Walden, Bahr, & Ekstrand, 2005).

Doing sport exposes a body and the entire locomotor apparatus to great effort and it can lead to numerous injuries. Some of the injuries are common for particular sports and they are quite frequent (Conić & Delibašić, 2008). Basketball is a sport game that requires quick and sudden changes of direction, where the knee joint is constantly exposed to physical stress that can lead to injuries (Zedde, Mela, Prete, Masia, & Manunta, 2014). Swimmer's shoulder is injury which is most seen in water sports (swimming, water-polo) and it represents the condition gradually occurring due to the repetition of the same movement, the arm swing (Tovin, 2006). Athletes belong to the high-risk group prone to muscle-skeletal injuries. Runner and jumper's knees are typical injuries in this sport (Arroll & Edwards, 1999; Rudavsky & Cook, 2014). Forms of distortions, dislocations, contusions and fractures often occur in skiing. One of the most common injuries is skier's thumb and it represents the partial or complete rupture of a big toe ulnar collateral ligament (Mahajan & Rhemrev, 2013).

The core of all studies in the field of prevention is monitoring sport injuries because they firstly point to the types of injuries, their forms, causes and the mechanisms of their formation. Sport became safer because they changed the rules of the game, they improved the equipment and training regime (Oblaković Babić & Dikić, 2008).

The aim of this research is to analyze Faculty of Sport and Physical Education students' injuries, as well as to determine, if possible, if the increase in the number of injuries is caused by bigger pressure, brought by a new study program, during exercises.

METHODS

The participants in this study consisted of fourth-year students (the eighth semester) of the Faculty of Sport and Physical Education, University of Niš. The sample of participants in this study was 207 (127 undergraduate students and 80 BAS students), aged 23 years \pm 6 months.

A questionnaire was the measuring instrument used in this study. It contained the basic information about the participant such as gender, age and involvement in sport. The participants, who were injured, circled the location of injury, the class during which the injury occurred, as well as the type of an injury. Interviews with the students of the Faculty of Sport and Physical Education, University of Nis were carried out in the amphitheater of the Faculty. The students of Undergraduate Studies were interviewed in the last week of the eighth semester which led to the most objective responses. Interviews with the BAS students were held in the same period one year later.

After the interviews had finished and the questionnaires had been checked, all of the data were numerically displayed and showed by the injury index. Tabulated data were used for further analysis and comparison.

RESULTS

Table 1 represents the injury results of Undergraduate Studies students. The table shows the numeric and percentage data on the type of injury and the course where the injury occurred. The analysis of the results shows that most of the injuries were recorded during Gymnastics practice (38), while the fewest injuries are seen during Anthropomotrics practice (0). The most frequent type of injury is a sprain (50), and fractures are not so common (4). If the overall number of injuries (106) is divided by the number of interviewed students (127), the injury index is 0,83 per interviewed student.

Table 1 Numeric and percentage data on the type of injury (US)

| Subjects | Contusions | Wounds | Luxations | Sprains | Fractures | Total (number-percentage) |
|---|------------|--------|-----------|---------|-----------|------------------------------|
| Handball (number of injuries) | 2 | 8 | 4 | 11 | 3 | 28-26% |
| Gymnastics (number of injuries) | 8 | 11 | 2 | 16 | 1 | 38-36% |
| Martial arts (number of injuries) | 0 | 0 | 0 | 1 | 0 | 1-1% |
| Skiing (number of injuries) | 1 | 1 | 1 | 4 | 0 | 7-7% |
| Anthropomotrics (number of injuries) | 0 | 0 | 0 | 0 | 0 | 0-0% |
| Athletics (number of injuries) | 0 | 0 | 2 | 5 | 0 | 7-7% |
| Basketball (number of injuries) | 0 | 2 | 3 | 6 | 0 | 11-10% |
| Volleyball (number of injuries) | 3 | 1 | 2 | 5 | 0 | 11-10% |
| Dance (number of injuries) | 0 | 0 | 1 | 0 | 0 | 1-1% |
| Rhythmic gymnastics (number of injuries) | 0 | 0 | 0 | 2 | 0 | 2-2% |
| Total (number-percentage) | 14-13% | 23-22% | 15-14% | 50-47% | 4-4% | 106 |

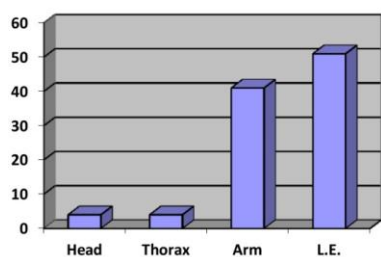
Table 2 shows the results, with the same data as in the previous table, for BAS students. According to the results, most of the injuries were recorded during Gymnastics practice (24), while the fewest injuries were seen during Dancing classes (0) and Rhythmic Gymnastics lessons (0). The most frequent type of injury is a sprain (30), and fractures are not so common (1). If the overall number of injuries (75) is divided by the number of interviewed students (80), the injury index is 0,94 per interviewed student.

Table 2 Numeric and percentage data on the type of injury (BAS)

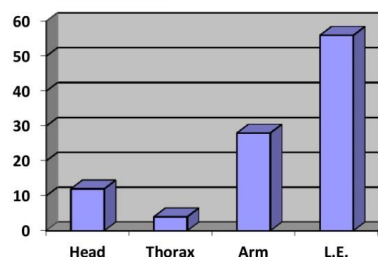
| Subjects | Contusions | Wounds | Luxations | Sprains | Fractures | Total (number-percentage) |
|---|------------|--------|-----------|---------|-----------|------------------------------|
| Handball (number of injuries) | 3 | 2 | 2 | 3 | 0 | 10-13% |
| Gymnastics (number of injuries) | 7 | 6 | 1 | 10 | 0 | 24-32% |
| Martial arts (number of injuries) | 7 | 2 | 2 | 2 | 1 | 14-19% |
| Skiing (number of injuries) | 4 | 0 | 1 | 6 | 0 | 11-15% |
| Anthropomotorics (number of injuries) | 0 | 0 | 0 | 1 | 0 | 1-1% |
| Athletics (number of injuries) | 2 | 1 | 0 | 2 | 0 | 5-7% |
| Basketball (number of injuries) | 1 | 0 | 0 | 3 | 0 | 4-5% |
| Volleyball (number of injuries) | 2 | 0 | 1 | 3 | 0 | 6-8% |
| Dance (number of injuries) | 0 | 0 | 0 | 0 | 0 | 0-0% |
| Rhythmic gymnastics (number of injuries) | 0 | 0 | 0 | 0 | 0 | 0-0% |
| Total (number-percentage) | 26-35% | 11-15% | 7-9% | 30-40% | 1-1% | 75 |

The injury location percentage data of BAS and US students is shown in Graphs 1 and 2. The data in Graph 1 shows 106 injuries of the US students. The biggest percentage of those injuries is located in the lower extremities (51%), followed by arm injuries (41%), while head injuries and thorax injuries occur at the same rate (4%).

The data in Graph 2 shows 75 injuries of the BAS students. The biggest percentage of those injuries is located in the lower extremities (56%), followed by arm injuries (28%), head injuries (12%) with thorax injuries occurring the least (4%).



Graph 1 The location of injury (US)



Graph 2 The location of injury (BAS)

DISCUSSION

A research, which had a similar aim, led to the conclusion that the injury index of Kinesiology students who followed the old curriculum was 1.01 injury per interviewed student, while the injury index of the students who followed the new program was 0.97 injuries per interviewed student (Trošt-Bobić, Ružić, & Ciliga, 2009). By comparing the two curriculums they concluded that there is a difference in the frequency of injuries during certain lessons. The results of the same research have shown that the biggest number of injuries has prevailed in the area of the lower extremities, followed by arm injuries and head injuries, no matter which study program the student followed, the old or the new one.

These results match the results of our research if we talk about the location of injuries (Graph 1 and Graph 2), but the results are quite different in terms of the injury index. Our research shows that the injury index increased by 0.11 during BAS. There are no big differences between the two curriculums if we talk about injury locations. In both cases, the biggest number of injuries is seen in the area of the lower extremities (51% US; 56% BAS) arms (41% US; 28% BAS), while the frequency of chest injuries remained unchanged (4% US; 4% BAS). On the other hand, the difference between the locations of head injuries is noticeable because there is a higher frequency of injuries among the students who followed the BAS program (4% US; 12% BAS). If the difference of the injury frequency in certain lessons between students of two curriculums (US and BAS) is observed, we can conclude that there are not many similarities (Table 1 and Table 2).

The research of Hong Kong University students also shows that the greatest frequency of injuries is in the lower extremities and hands. The results show that 67% of injuries occur in the area of the lower extremities, and 28% in the arms. (Chan, Fu, & Leung, 1984).

The increase in time and intensity of work of the participants such as handball, athletics, basketball and volleyball, will lead to an increased risk of injuries that occur in the area of the lower extremities, as indicated in previous studies that dealt with the most common injuries in these physical activities. (Arroll & Edwards, 1999; Ćirić & Stanković, 2010; Drakos, Domb, Starkey, Callahan, & Allen, 2010; Šolaja, Šolaja, & Milankov, 2013; Zedde et al., 2014). The increase in time and intensity of work of the participants such as martial arts will lead to bigger frequency of injuries in the arm area (Ziaee, Shobbar, Lotfian, & Ahmadijad, 2015).

CONCLUSION

The results of this study give pieces of information on the number of injuries and their location by course for both study programs, and they show that the increase of intensity of work and more classes leads to more injuries (the injury index shows that). The main contribution of this paper is to point out the necessity of reducing the risk of injury. If the number of lessons is better combined during a work week and if better security measures are implemented (better security of working areas, greater assistance while working, better physical preparation of students) the risk of getting hurt will be reduced. This paper provides a good starting point for further research to determine whether the implementation of some measures which reduce the risk of injury will yield positive results. Future research, dealing with similar topics, can compare students' injuries in old and new study programs, and this paper can help a lot in those studies. It gives unique importance to this research.

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POVREDE STUDENATA FAKULETA SPORTA I FIZIČKOG VASPITANJA – ANALIZA DVA STUDIJSKA PROGRAMA

Cilj ovog istraživanja je da se analiziraju povrede studenata Fakulteta sporta i fizičkog vaspitanja, kao i da se utvrdi da li je eventualno povećanje broja povreda izazvano većim opterećenjem na vežbama koje sa sobom nosi novi studijski program. Ukupan uzorak činilo je 207 ispitanika, studenata Fakulteta sporta i fizičkog vaspitanja Univerziteta u Nišu, starosti 23 godine \pm 6 meseci. Kao merni instrument za procenu povreda korišćen je anketni upitnik. Ispitanici su davali odgovore zaokruživanjem opcija koje se tiču lokacije povrede, predmeta na kojem je povreda nastala, kao i o tipu povrede. Svi podaci su predstavljeni brojačano i procentualno i služili su za analizu. Analizom dobijenih rezultata došlo se do zaključka da ne postoji razlika u lokaciji povreda, ali da dolazi do povećanja indeksa povreda na vežbama kod studenata koji su studirali po novom studijskom programu, i da postoji razlika u zastupljenosti povreda na određenim predmetima između dva studijska programa. Rezultati ovog istraživanja nam pokazuju da je povećanje intenziteta rada i povećanje fonda časova dovelo do povećanja rizika od povreda. Buduća istraživanja, koja se bave sličnom tematikom, mogu na osnovu ovog rada da upoređuju povrede studenata i u odnosu na stari, i u odnosu na novi sistem školstva, što ovom radu daje poseban značaj.

Ključne reči: anketni upitnik, lokacija, tip, indeks povreda.