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Injuries related to taekwondo training - short report based on experiences from Primary School No. 31 with sports championship classes in Bydgoszcz (Poland)

Wąs Sławomir

Primary School No. 31 with sports championship classes in Bydgoszcz (Poland)

Siedlecki Zygmunt

<https://orcid.org/0000-0003-1584-2027>

Department of Neurosurgery, Neurotraumatology and Pediatric Neurosurgery, The Ludwik Rydygier Collegium Medicum in Bydgoszcz, The Nicolaus Copernicus University in Toruń

Corresponding address:

Mgr Wąs Sławomir

Primary School No. 31 with sports championship classes in Bydgoszcz (Poland)

Mieczysława Karłowicza 2 Street

85-092 Bydgoszcz

Poland

tel.: + 48 606 361 203

e-mail: slawomir_was@op.pl

Abstract

Taekwondo has become a very popular sport in Poland and around the world, and training in this martial art begins with young children. Taekwondo trainings are organized in kindergartens and schools, clubs and master classes are organized in sports schools, and children take part in competitions. Taekwondo, like any martial art, carries a potential risk of injury. According to the literature, lower limb injuries are the most common, as in taekwondo the lower limbs are mainly used. Head and spine injuries as a result of falls are also described. The author emphasizes that despite the injuries described in the literature and the frequency of occurrence defined as about 2.5 - 8%, injuries in the sports school in Bydgoszcz are significantly less frequent. The author also points out that there are also injuries (fractures) of the upper limbs, which are ignored by numerous international publications. Despite this, it should be emphasized that taekwondo is a safe sport discipline. Its prevalence among school children is a favorable phenomenon.

Key words: taekwondo, injuries, sport, trauma

Introduction

Taekwondo is a Korean martial art practiced in many countries of the world and has gained popularity. The sport achieved full status at the Sydney Olympics in Australia in 2000 and attracts participants of all ages [1]. In many countries, including Poland, taekwondo is practiced already at school age. And school sports clubs are very popular. In primary schools, sports classes in taekwondo are organized, summer and winter training camps and day camps are also organized. Beginner starts with the rank of "white belt" and when he is sufficiently proficient in Taekwondo skills, he progresses through several higher ranks according to the colored belts (in ascending rank: Yellow, Orange, Green, Purple, Blue, Brown, Red) and black belts [1].

Taekwondo, just like any other sport, including martial arts, has a positive effect on physical fitness, condition, strength and endurance [2]. It has a positive effect on psychological development, but is associated with the risk of injuries and body injuries. It can be assumed that more training should correlate with a lower frequency of injuries, which is confirmed by studies showing a significant inverse relationship between children's rank in Taekwondo and their aggression [1,2]. Martial arts fighters practice two to four times a week. As the skill level increases, the physical requirements of combat, as well as the generated strength, increase. More skilled athletes are likely to use dangerous techniques or perform basic techniques with greater strength and speed. Therefore, it is also possible that the injury rate may be higher in elite athletes [3]. Interestingly, a recent karate injury study found that the incidence of injuries increases with the player's rank and the number of years of practice [3].

The aim of this manuscript was to evaluate the frequency of injuries sustained while practicing taekwondo, mainly among children in schools.

Own experience in the field of injuries at School No. 31 in Bydgoszcz

In the years 2017-2022 (5-year follow-up period), no significant injuries were found that would require hospital treatment, surgery, and long absenteeism from training. In 2022, there was one case of a radial bone fracture that required immobilization with a plaster dressing and a 3-month training break. It was an isolated case of such an injury.

Discussion and literature review

Schlüter-Brust et al. (2011) noted that although taekwondo is becoming an increasingly popular sport, there is a lack of reliable epidemiological data on taekwondo-related injuries [4]. To do an epidemiological study of different types of injuries in professional and amateur Taekwondo athletes, and to find the relationship between Taekwondo style [4], skill level, weight class and warm-up, and the incidence of injuries. In their research, Schlüter-Brust et al. (2011) analyzed injury data using a 7-page questionnaire from 356 randomly selected Taekwondo athletes. He recorded a total of 2,164 injuries in 356 athletes. Most injuries are contusions and sprains of the lower limbs. Schlüter-Brust et al. (2011) highlighted that taekwondo players have an increased risk of injury compared to recreational athletes [4]. Taekwondo style, weight class and tournament frequency have an impact on an athlete's injury profile. Warm-up procedures have been found to have a positive

effect on the incidence of injuries. According to Schlüter-Brust et al. (2011), taekwondo in general can be considered a rather mild and non-traumatic sport [4].

Kazemi et al. (2004) noted that areas of special concern for injuries in taekwondo include the head and neck as well as the lower limbs [5]. Kazemi et al. (2004) was the first to identify dysfunction and injuries of the spine joints and highlighted their importance in this sport (not just lower limb injuries) [5].

The same author - Kazemi et al. (2009) found that the head, foot, and thigh were the three most common sites for reported injuries in this study, respectively [6]. The author stressed that the changes to the regulations did not appear to increase the reported cases of head injuries and thus did not increase the risk of serious injuries among players in this group. Players with colored stripes are at a higher risk of injury, especially in the form of injuries, possibly due to more aggressive tactics and a lack of control. Younger athletes (under 18) sustained more injuries than older athletes, possibly for the same reason [6]. The vast majority of injuries were sustained by all players due to receiving a kick or executing one. According to Kazemi et al. (2009) this is expected in a sport that focuses on the use of the lower limb as a primary weapon [6].

Ji (2016) collected data from 512 taekwondo athletes. He found that the foot, knee, ankle, thigh, and head were most frequently injured during taekwondo exercises, with contusions, strains, and sprains being the main injuries diagnosed [7]. Ji (2016) emphasized that it is desirable to reduce the possibility of lower limb injuries in order to prolong participation in taekwondo [7]. In addition to the lower extremities, injuries to other specific parts of the body, including the head or neck, can be important factors limiting the duration of participation. Therefore, it is imperative to deal with these issues before starting taekwondo training [7].

In turn, Xiao (2022), based on the analysis of taekwondo training in China, found that the most common places of injuries were the feet and joints [8]. The nature of the injuries is mainly soft tissue injuries, ligament rupture and muscle strain. The most serious injuries are damage to the kidneys and perineum [8].

Limos et al. (2022) noted the importance of Poomsae in the prevention of injuries during taekwondo training. Poomsae is a non-contact form of taekwondo that includes exercise, technique, skill, and art. It combines kicks, blocks, stance, punches and punches demonstrated against an imaginary opponent [9]. It is a practice of self-defense, belt promotion and preparation for contact sparring actions. According to Limos et al. (2022)

Chronic injuries from overuse are common among Poomsae taekwondo athletes because they participate in repetitive stress to achieve mastery of the forms used in competition [9].

Conclusions

Based on my own experience and a review of the literature, it can be assessed that taekwondo is a safe sport.

The following two conclusions can be made:

1. at the school stage (in children), injuries are rare, the frequency of injuries increases with the age of the players and the achievement of professionalism. Therefore, in schools and kindergartens, taekwondo is safe and beneficial
2. Poomsae as a non-contact form of taekwondo appears to be an optimally safe option, although it should be remembered that it is not completely non-traumatic.

Conflicts of interest: The author declares that he has no conflict of interest.

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