

Is the Portuguese Karate practice safe?

António VENCESBRITO^{*1,5,6,7}, Maria António CASTRO², Eduardo Jorge VALENTE³, Félix ROMERO¹, & Abel FIGUEIREDO^{4,7}

¹ Sports Sciences School of Rio Maior – Polytechnic Institute of Santarém (Portugal)

² Coimbra Health School – Polytechnic Institute of Coimbra (Portugal)

³ Hospital Center of Barreiro-Montijo EPE (Portugal)

⁴ Superior School of Education – Polytechnic Institute of Viseu (Portugal)

⁵ Investigation Unite of Polytechnic Institute of Santarém (UIIPS) (Portugal)

⁶ Investigation Center in Life Quality (CIEQV) (Portugal)

⁷ International Martial Arts and Combat Sports Scientific Society—IMACSSS (Poland)

5th IMACSSS World Scientific Congress Abstracts, Rio Maior (Portugal), October 6-8

Section: Coaching, training and health issues in MA&CS

Type: Oral communication

1. Introduction

In Portugal, as in all over the world, the practice of martial arts and combat has been growing in recent decades. The reasons for this are related to the search for development of self-defense skills and the sportive competitiveness but also the health benefits given by the sport practice. However, as in other sports a risk of injuries for the practitioners associated with the training and competition for the practitioners exists. A recent study carried out in Iran showed that karate practitioners during training have an incidence rate of injury per athletes of 16.1% and 20.2 per 100 athletes (Ziaee, Shobbar, Lotfian, & Ahmadinejad, 2015). The most common location of the injuries were in the head and neck followed by the trunk, lower and upper limb, where the contusion was the most common type of injury. In competition, a study about the injury rate in three British Shotokan Karate Championships found a rate of injury of 0.09 per bout and 0.13 per competition, where 57% of the injuries were in the head (Critchley, Mannion, & Meredith, 1999). More recently the existence of a risk of injury of 0.32 per competition was referred with the head and face being the most common injured place (Boostani et al., 2012). The risk of injuries must be a concern during training and competition as well as the repercussions that these have on regular or competition karate practitioners. In the Portuguese reality of karate practice this acknowledgment didn't exist until now, but it is necessary to permit the trainers and practitioners to develop their karate practice safety, preventing the occurrence of injuries and minimizing the risk. This work shows the general results of a retrospective study that identify and characterize the typology and risk of injuries in the Portuguese karate practitioners.

2. Methodology

490 karate practitioners, representing nine different karate styles, answered a questionnaire of "morbidity" (De Loes & Goldie, 1988; Pastre, et al., 2004), in which participants recorded their demographic data and injury episodes occurred in the last three sport seasons. The questionnaire was focused on six dimensions of analysis of injuries (anatomical injury location, type, mechanism, time, severity, time of occurrence on the sport season). In the sample 21.6% were female and 78.4% were male, with an average age of 25.7 and 32.4 respectively, a height of 163 cm in female and 173 cm on male, weight of 57.3 kg on female and 73 kg on male, week training time: 5.3 h, and an average of years of practice of 13.2 in female and 16.1 in male. From all sample 27.7% have a kyu level, 68.5% are between 1^o and 4^o Dan and 3.8% are between 5^o and 6^o Dan. SPSS version 20

* Email: abrito@esdrm.ipsantarem.pt

(SPSS Inc, USA) was used for statistical analysis. Descriptive statistics and non-parametric Kruskal Wallis test were used, and data is presented in percentage.

3. Results

From the whole sample 47.8 % did not suffer any injury. The other 52.2% of karateka reported one or more than one injury case, in a total of 415 injuries, which corresponds to an injury absolute risk of 0.131 with 1.3 tax of injury by 1000h of training per 46 weeks. Most of the injuries occurred in the lower limb (56.5% (knee-20%; ankle and foot-22%)), followed by upper limb (27.8% (hand - 12%)) and trunk (14.6% (low-back - 7%; shoulder - 7%)). Only 1.2% of the injuries happen in the head. The mechanism responsible for most injuries was the offensive kick (10%), punch (10%), and explosive articular action (10%) with excessive muscle stretching (9%). Other mechanism as falls and jumps are referred to. Injuries occurred primarily during the training of karate skills (83%), and mostly are muscular (40.7% - muscle strain, contracture, rupture or tendinitis) or articular (26.1% - luxation and sprains), but 33.2% are indeterminated and referred as an unexpected pain. The injuries are mainly referred to as having a moderated severity (42.3%) causing a practice interruption between 8 and 21 days. Nevertheless 40.1% of the injuries are severe, causing a time loss from practice greater than 21 days.

4. Discussion and conclusion

The karate practice in Portugal, like in any part of the world, has an associated risk of injury to their practitioners, but it seems that this risk is inferior to those referred in other countries, in training or in competition. However, we must consider that the investigation methodologies were different and the social environment of the populations studied may cause some differences in the karate practice. The high incidence of injuries in the head referred by some studies does not occur in the Portuguese karate practitioners. This fact should be associated with different methodologies and objectives of training and maybe a less aggressive practice of karate in Portugal with a different preparation of the karateka's. Similar to other studies was the fact that a higher incidence of injuries exists in the lower and upper limbs extremities followed by back injuries (lumbar spine). The injuries occur primarily during the periods of general preparation of the Portuguese karateka, in regular training classes. The localization of the injuries, the moments of occurrence and their severity could be associated with a poor physical preparation to respond with safety when performing the karate skills, especially in the situation of kumite. A reduced flexibility, explosive force, velocity and control training are some of the reasons that could limit and make unsafe the karate practice and some of this could justify the typology of injuries in the Portuguese karateka.

The Portuguese trainers are responsible for the safety in the karate practice inside the Dojo, so they must be aware of all factors that involve the karate training involves, according with different populations of karateka's and their objectives of practice. This will allow better and safer karate training.

References

- Boostani, M. H., Erfani, M., Boostani, M. A., Zare, N., Faghihi, H., & Rezaei, A. M. (2012). Sport Injuries in Karate Competition. *Journal of American Science*, 8(12), 637-639
- Critchley, G. R., Mannion, S., & Meredith, C. (1999). Injury rates in Shotokan karate. *British Journal of Sports Medicine*, 33(3), 174-177
- De Loes, M., & Goldie, I. (1988). Incidence rate of injuries during sport activity and physical exercise in a rural Swedish municipality: incidence rates in 17 sports. *International Journal of Sports Medicine*, 9(6), 461-7.
- Pastre, C. M., Carvalho Filho, G., Monteiro, H. L., Netto Júnior, J., & Padovani, C. R. (2004). Lesões desportivas no atletismo: comparação entre informações obtidas em prontuários e Inquéritos de Morbidade Referida. *Revista Brasileira de Medicina do Esporte*, 10(1), 1-8.
- Ziaee, V., Shobbar, M., Lotfian, S., & Ahmadinejad, M. (2015). Sport injuries of karate during training: An epidemiologic study in Iran. *Asian Journal of Sports Medicine*, 6(2): e26832.

Key words: Injury; Karate; combat sports; martial arts.

