

INJURIES IN THAI BOXING

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Abstract As with many other combat sports, Thai boxing requires high levels of exertion which may result in various injuries. Their types and extent determine the nature of help required during rehabilitation. The aim of the study was to assess the risk of injury and indicate factors causing injury in Thai boxing. To this end, we conducted a survey among the members of the Nauk Muay Association of Physical Culture in Szczecin. Our respondents reported inappropriate technique as the most common cause of injuries. The second leading cause of injuries was an excessively ambitious approach in training. Injuries – most frequently bruises in lower extremities – were most often sustained during sparring. The incidence of injury was statistically significantly related to male gender and sporting experience; men were also most likely to sustain bruises from all types of trauma.

Key words thai boxing, injures, muay-thai

Introduction

The popularity of martial arts and combat sports can be partly attributed to the natural human needs for physical activity and competition. Although initially conceived as a form of physical and mental development, many martial arts have transformed into combat sports with a focus on typical sport competition. Regardless of these ideological differences, both forms of activity are based on direct contact with another person.

Muay Thai or Thai boxing, popular in Southeast Asia, is one of those martial arts which have been transformed into a combat sport. Although the Thai word “muay” means “boxing”, it denotes an entire combat system based on fast punches and clinch fighting (Roza, 2013). Consisting of direct-combat using fists, feet, knees, and elbows, it is also used in mixed martial arts (MMA), which is the basis of strike training (Hill, 2008).

Mobilization of osteoarticular and muscular systems in the body during heavy physical exertion, or the direct mechanical force of strikes and kicks, can lead to injuries, i.e. damage to tissues in any area of the body (Gawroński, 1998). Athletes, in their desire to achieve the best possible results and maximize exercise abilities, often neglect minor injuries and tend to cut recovery time short. Usually, traumas are caused by inappropriate warm-up, excessive

training load, incorrect technique, direct combat contact, the poor state of a sports facility, and too early resumption of training following injury. The degree and complexity of injuries determine the form of specialized assistance and rehabilitation.

There are relatively few papers on injuries in Muay Thai. Kordi (2009) reported that in amateur Thai boxers and kick-boxers aged 16–26, head injuries were most frequent at 13% of all injuries in that study. Incidence increased with the level of advancement, and was greater in the full contact formula than in light contact. An increasing degree of contact in training was positively correlated with the incidence of injuries.

Another study on injury rates in combat sports showed that Muay Thai does not differ in this regard from karate, taekwondo, kickboxing, and related sports (Evans, 2006). The surveyed annual percentage of injuries was 2.43 per 1000 amateurs and 2.79 per 1000 professionals. In addition to bruises to the head, concussion was the most frequent head trauma. However, no information exists in literature about injuries of the osteoarticular or muscular systems in this sport. The aim of the study was therefore to assess the risk of injury and identify factors responsible for injury in Thai boxing training.

Materials and methods

The material consisted of data obtained from respondents from the Nak Muay Association of Physical Culture in Szczecin. The study was conducted in accordance with the guidelines set out in the ethics policy at the University of Szczecin (Sieńko-Awierianów, Eider, 2014). The research group was represented by 40 people: 35 men (87.5%) and 5 women (12.5%), diverse in terms of expertise. The respondents included those training for pleasure and those actively taking part in local, national, and international competitions. For the purpose of this study, we selected a diagnostic survey method described by Pilch, Bauman (2010). A questionnaire of our own design consisted of 25 questions about gender, age, place of residence, level of training, injuries related to Thai boxing, and the resumption of training following injury. The collected data were analyzed statistically using Spearman's rank correlation (Statistica 9.0) (Cięższyk, Boichanka 2008).

Results

In the study, there were no women aged <18 or >40 years. All were in the groups aged 19–25 years (80%) or 26–41 years (20%). Men were mostly aged 19–25 or 26–41 years (37% each). Men under 18 years of age comprised 20% of the studied male population, while only 6% were aged 40–65 years (Figure 1).

The group was dominated by individuals with secondary education (42.5%), followed by university (40%), primary (12.5%), and vocational education 5% (Figure 2).

The motivation of 41% of respondents to train in Thai boxing was the need for self-realization, followed by health benefits (39.3%), better figure (18%), and suggestions from friends (1.6%). None of the students started training Thai boxing out of fashion or to socialize with others (Figure 3).

As many as 35% of respondents trained 5 times a week, 30% 3 times a week, 17.5% every day, 10% 2 times a week, and 7.5% 4 or 6 times a week (Figure 4).

Other forms of physical activity than the classes in Thai boxing were declared by 75% (regularly), and 20% (occasionally) of respondents, while only 5% did not take any part in any other forms of exercise.

According to the subjective opinion of the respondents on their advancement in Thai boxing, 35% described themselves as intermediate, 27.5% as advanced, 22.5% upper-intermediate, and 15% at a basic level (Figure 5).

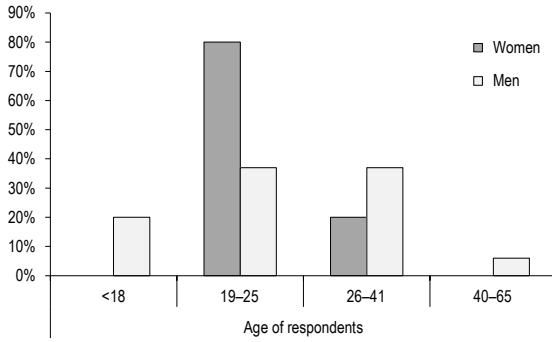


Figure 1. Age of respondents in the study group

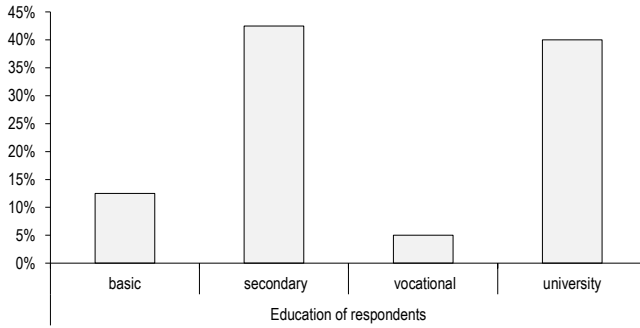


Figure 2. Education levels in the study group

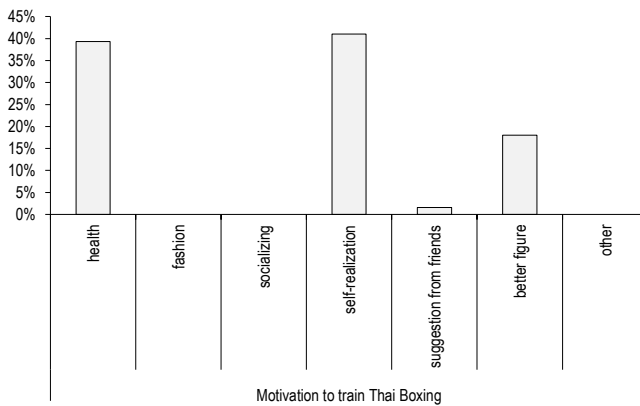


Figure 3. Motivation of the respondents to train Thai boxing

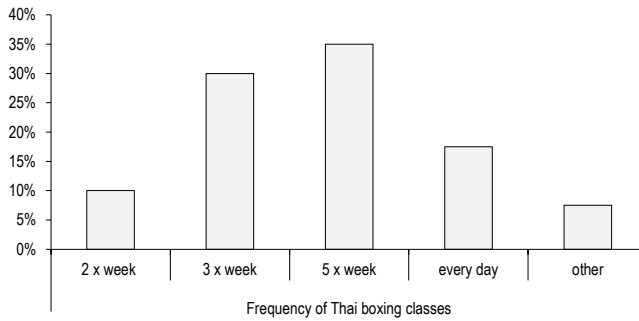


Figure 4. Weekly frequency of training sessions among the respondents

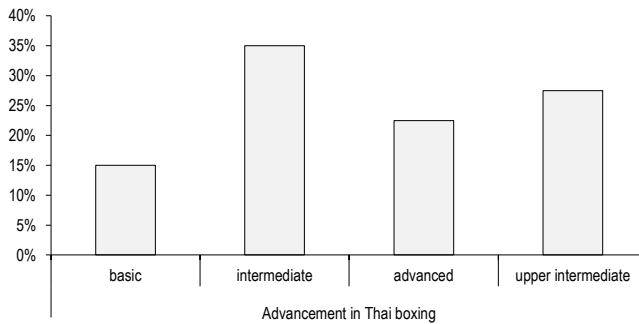


Figure 5. Self-declared advancement of the respondents training Thai boxing

The most of respondent – 52.5% did not take part in any competitions, while 47.5% competed on a regular basis (mainly Polish Muay Thai championships, Polish K-1 championship, and Muay Thai league). Injuries during the Thai boxing classes were sustained by 55% respondents, and as many as 72.5% knew someone who had suffered injury during Thai boxing classes or competitions.

Most often, injuries occurred during sparring (69.2%). Occasionally, injuries occurred during a clinch fight (13.5%) and the training proper (9.6%). Injuries were least frequent during learning Thai boxing techniques (5.8%) and weight training (1.9%). According to the respondents, injuries did not occur during warm-up, endurance training, or post-workout relaxation (Figure 6).

The areas of the body most exposed to injury were the lower extremities, i.e. thighs and legs (19.3%), knee joints (18.1%), and the head (13.3%). The areas of the body less prone to injury included the ankle (9%), elbow and rib (7.8% each), neck (7.2%), and upper extremities, i.e. arms and forearms (6.6%), with the wrist and shoulder (4.2%) and hip joints (2.4%) the least frequently injured (Figure 7).

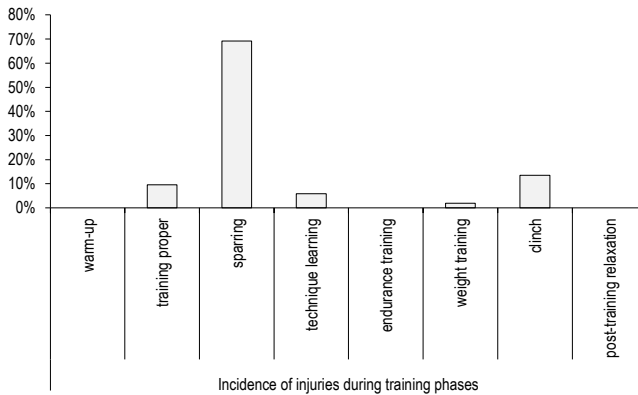


Figure 6. Frequency of injuries depending on the stage of training

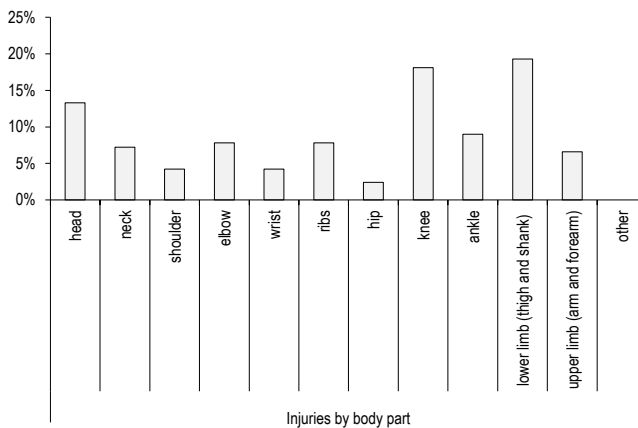


Figure 7. Body parts reported by respondents to be most exposed to injury in Thai boxing

The reported injuries sustained during Thai boxing classes were mostly bruises (53%), followed by sprains and dislocations (18.2%), and damage to the ligaments (15.2%). Fractures constituted 7.6% of total injuries. Other injuries (meniscal tear, cuts) comprised 6% of all injuries (Figure 8).

As many as 72.5% of respondents believed that it was possible to avoid injury during the classes. Other respondents stated that the accident could not have been foreseen.

The respondents differed in their subjective explanation of injury causes. According to 22.5% the injury was caused by incorrect technique, 20.2% indicated an overly ambitious training regimen, 19.1% recklessness, 13.5% ignoring the coach's instructions, 11.2% insufficient concentration, 5.6% inadequate rest, 4.5% neglecting the first signs of injury, while 3.4% indicated insufficient engagement in warm-up (Figure 9).

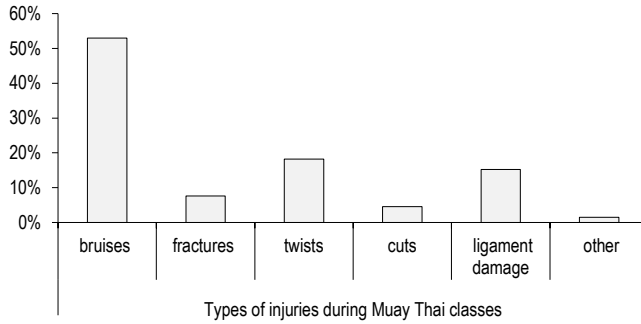


Figure 8. Reported types of injuries during Thai boxing classes

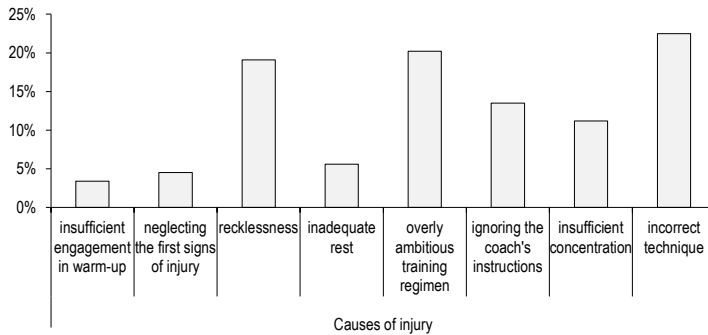


Figure 9. The causes of injury reported by the respondents

Among the respondents who were injured during the Muay Thai classes, 41% needed specialized medical care, while the majority (59%) only needed to cease training for some time. Those respondents who needed specialized medical treatment were diagnosed with the use of ultrasound (26.9%), X-ray (26.9%), magnetic resonance imaging (9.6%), and arthroscopy (3.8%). 32.7% required only basic medical examination (Figure 10).

The most of injured respondents (46.2%) required rehabilitation. The reported periods of rehabilitation were: 2 weeks (35.5%), about a month (29%), 3 months (22.6%), and more than 3 months (12.9%) (Figure 11).

An injury was accompanied by a fear of performing certain training activities in 28.2% of respondents, and no such effect was reported by the remainder of the respondents (71.8%).

The most common physical therapies following injury included physical treatment and specialist massaging (33.3% each), and rehabilitation exercises (18.2%). Less frequent were physiotherapy and kinesiology taping (6.1% each).

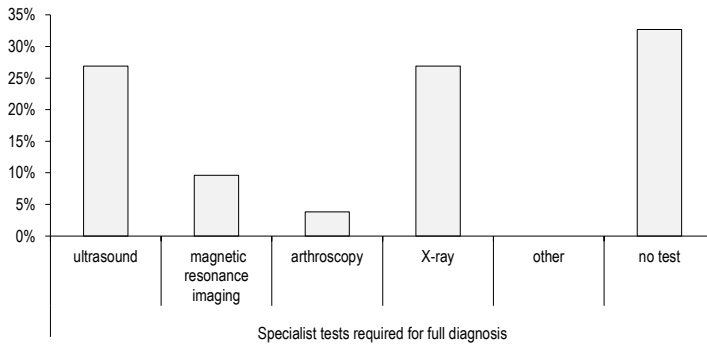


Figure 10. Diagnostic tests used in injured respondents

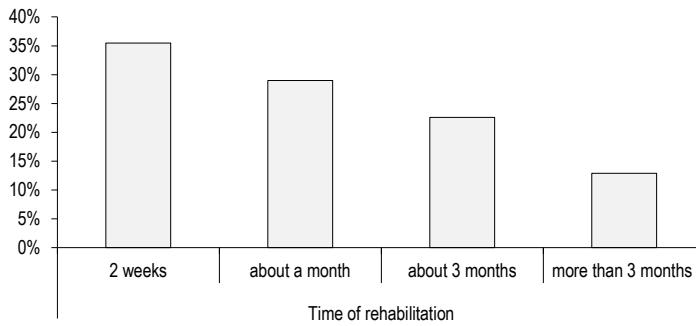


Figure 11. The duration of rehabilitation following injury

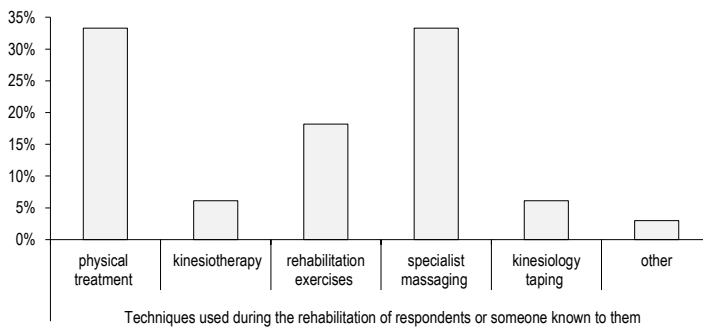


Figure 12. Types of rehabilitation after injuries

Spearman rank correlation coefficients were calculated to establish potential correlations between the incidence of injury sustained during Thai boxing classes, the training phase, type of injury, and: age, gender, attendance at classes, and degree of advancement. Statistically significant correlations (at $\alpha \leq 0.05$) were found only between injury incidence and gender ($r_s = 0.52$), injury incidence and the degree of advancement ($r_s = 0.45$) (with injuries more frequent among men and more experienced fighters), and the type of injury and gender (with men receiving more bruises) ($r_s = 0.45$). In other cases, correlations were statistically insignificant.

Discussion

Although Thai boxing is popular enough for the general public to be aware of the existence of this sport, it still remains relatively unpopular and as such is rarely examined by researchers. A few available studies on this subject, e.g. by Delph (2005) or Evans (2006), indicate a lower level of trauma in people practicing the discipline than in our study.

According to our results, Muay Thai may be considered a sport with a high rate of injuries, as more than half of respondents had been injured, and nearly three-quarters of them knew someone who had suffered from injury. Evans (2006) showed that male Thai boxers who took part in competitions had more head and neck injuries (21.42/1000) than women (16.91/1000). In addition to bruises, concussion was the most frequent head trauma. The results obtained in our work partially overlap with the results of Evans, as bruises were the most common injuries among the respondents (53%). This high number results from defenses against kicks, with legs against low- and middle-kicks, and poorly aimed kicks. e.g. shank hitting the elbow or knee. It is also worth noting that an increasing severity of fighting in Thai boxing is associated with less protective equipment.

According to our respondents, injuries most often occurred in the lower limbs, i.e. in thighs and shanks (19.3% respondents). According to Widuchowski (1998), knee injuries constituted 15–30% of all damage to the human body in sports. Our respondents also reported a relatively high incidence of knee injuries 18.1%. Three Muay Thai basic kicks: low-kick, middle-kick, and high-kick require the rotation of the knee and hip, while the weight is transferred to the support leg; this causes excessive load of the knee. In addition, low kicks, with a primary goal to disable the locomotive ability of the opponent, are aimed at the inner and outer thigh, and are able to damage the joints of the opponent.

Sparring proved to be the most risky part of Muay Thai training, i.e. the simulation of real combat. Respondents most frequently ascribed the injury to incorrect technique (22.5%) and excessive ambition (20.2%). Inappropriate technique is often an underrated problem in combat sports; it includes both the technique of keeping guard, footwork, punches, and kicks. Inadequate aspirations during training often involve the excessive use of force in relation to the sparring partner.

Conclusions

1. The surveyed combat sportsmen from the Nak Muay association were mostly men aged 19–41 years, with secondary and higher education, living in large urban areas, representing mainly the intermediate and upper-intermediate levels of advancement in Muay Thai.

2. The most common motivations of the respondents in training this sport were the need for self-fulfillment and health benefits.

3. More than half of the respondents sustained an injury during Thai boxing classes, most commonly bruises to the lower limbs (legs and thighs).

4. Sparring proved to be the most injury-prone part of Muay Thai training, usually due to incorrect technique and a lack of imagination while exercising.

5. Rehabilitation was used by 53.8% of the injured respondents, with the recovery time after injury lasting most often two weeks. The most common therapy was based on specialized massage and physical treatment.

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