



# Upper Limb Injuries in Jiu-Jitsu Athletes



Cesar Miranda, MD1; Faloppa Flavio, MD1; Santos Joao, MD1; Leandro Marcio, MD1; Fernandes Carlos, MD1; Edson Tinoco, MD2; Thales Seabra, MD2 - 1Hand Surgery, Federal University of São Paulo, São Paulo School of Medicine, UNIFESP-EPM, São Paulo, Brazil, Sao Paulo, Brazil; 2Orthopedics and Traumatology, Hospital Espanhol, Salvador, Brazil.

**Objectives:** -To research upper limb injuries in Jiu-Jitsu athletes, correlating them with: the number of training hours, graduation, practice time, time away from the sport, treatment performed, affected sites.

## Material and Methods

A hundred and seven jiu-jitsu athletes were evaluated by a protocol pre-established in Hand Surgery and Upper Limb of Federal University of São Paulo. The injuries were recognized using the protocol application, clinical examination, complementary examinations. The athletes were enumerated, correlating the name, age, gender, practice time of jiu-jitsu, number of training hours a day, number of training days per week, graduation, hand dominance, affected side and to follow the affected upper limb - hand, elbow or shoulder.

Segment examination was performed to diagnose injuries of the upper limb by inspection, palpation, mobility, stress maneuvers (Figures 1,2), and special tests.



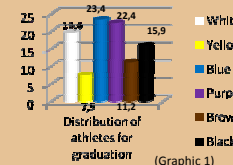
Figure 1- PIF maneuver stress demonstrating collateral ligament injury.



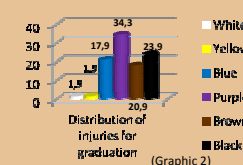
Figure 2- Stress radiography demonstrating collateral ligament injury.

## Results

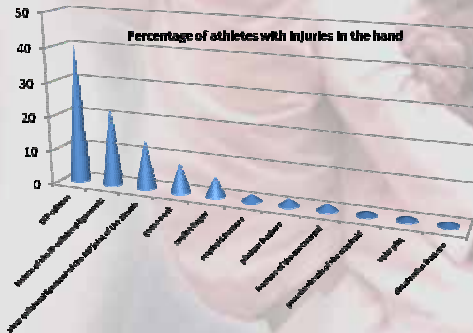
Regarding gender, 96.3% were male and 3.7% women. The average age of athletes was 24. Workout time per day was two hours. Average number of training days per week was five. There was statistically significant correlation between injury and graduation (graphics 1 and 2).



(Graphic 1)

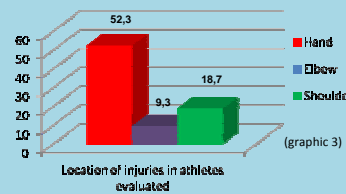


(Graphic 2)



Of the 107 athletes tested, 67 (62.6%) had or have a history of upper limb injury, and of these only 25.4% underwent treatment. Fighters injury patients, 89.6% were right-handed, 9% were left-handed and 1.5% ambidextrous. The lesions affect bilaterally the upper limbs in 68.2%, 15.2% in the right side and 16.7% in the left side.

The most affected segment of the upper limb is represented by graphic 3.



(graphic 3)

Percentage of athletes with injuries in the hand is represented by graphic 4.

In the elbow, we find ligament injuries as the most frequent (60% of cases) and dislocations with 30%.

In the shoulder, damage to the acromion-clavicular joint were the most frequent (55%), followed by the gleno-humeral dislocation (35%).

When comparing athletes with and without injury, it was found that injured athletes were older (25.6 years old on average), had more time to practice the sport (6.2 years on average), more hours of training per day (2.5 hours) and greater number of workout per week, (4.6 days). The non-injured athletes had a mean age of 21.1 years old, average practice time of 1.94 years, number of hours of training per day an average of 1.71 hours, and average number of sessions per week of 3.6 days. In the group of athletes who had lesions in the hand, these differences were also observed. However, in the group with lesions in the elbow, these differences did not appear, and the group of athletes with shoulder injuries was no difference in practice time and the number of hour/day training a week

## Conclusions

Jiu-jitsu, as well as other contact sports, has a high incidence of injuries. The most affected anatomical segment in this study was the hand, with skin lesions, followed by ligament and volar plate, the most prevalent. The shoulder was the involvement of second place injuries, and the acromion-clavicular dislocations the most frequent. In relation to the fighters, mostly the elite, we observed resistance to seeking care for injuries and the presence of multiple lesions in the upper limb. The high incidence of these lesions is brought about by excesses in training and the demands of the sport itself, has been found that the greater the number of time, training and graduation, the greater the incidence of injuries.