Functional Performance of the Upper Limb and the Most Common Boxing-Related Injuries In Male Boxers: A Retrospective, Observational, Comparative Study With Non-Boxing Population

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Disclosures

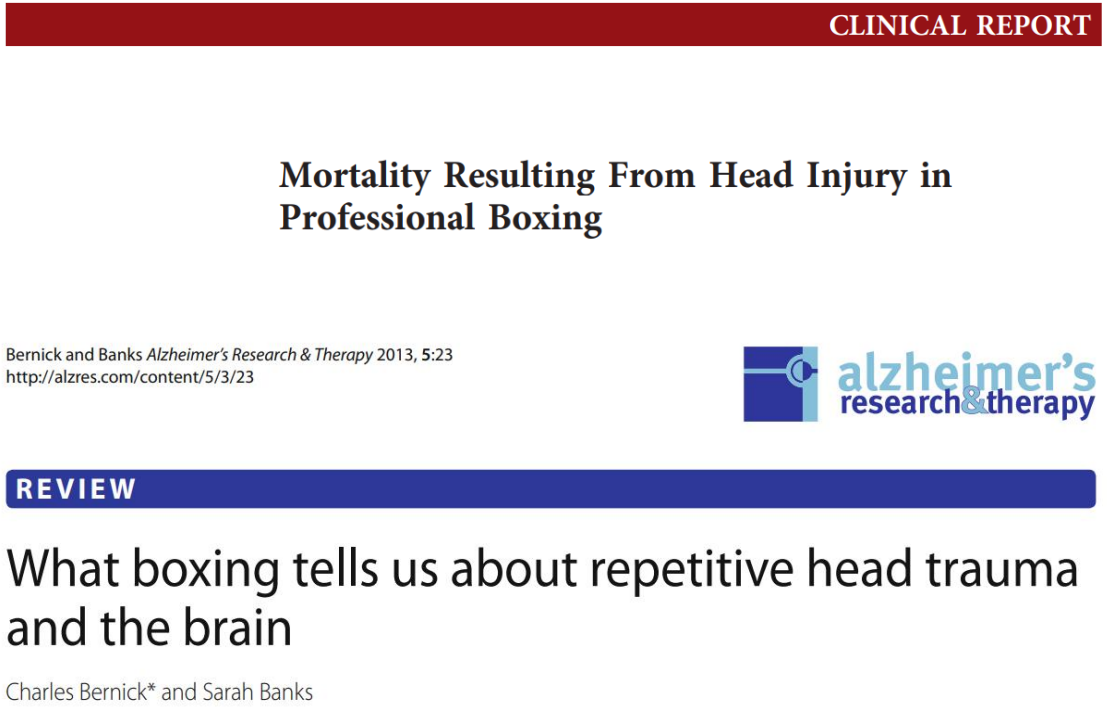
I have no financial interests or relationships to disclose.

Background

- Boxing was first established in 688 BC as an Olympic Game in Greece

- Modern training includes heavy bag and sparring

- Injuries during boxing raise concerns recently, especially regarding head trauma and CTE



CLINICAL REPORT

Mortality Resulting From Head Injury in Professional Boxing

Bernick and Banks *Alzheimer's Research & Therapy* 2013, **5**:23
http://alzres.com/content/5/3/23

alzheimer's research&therapy

REVIEW

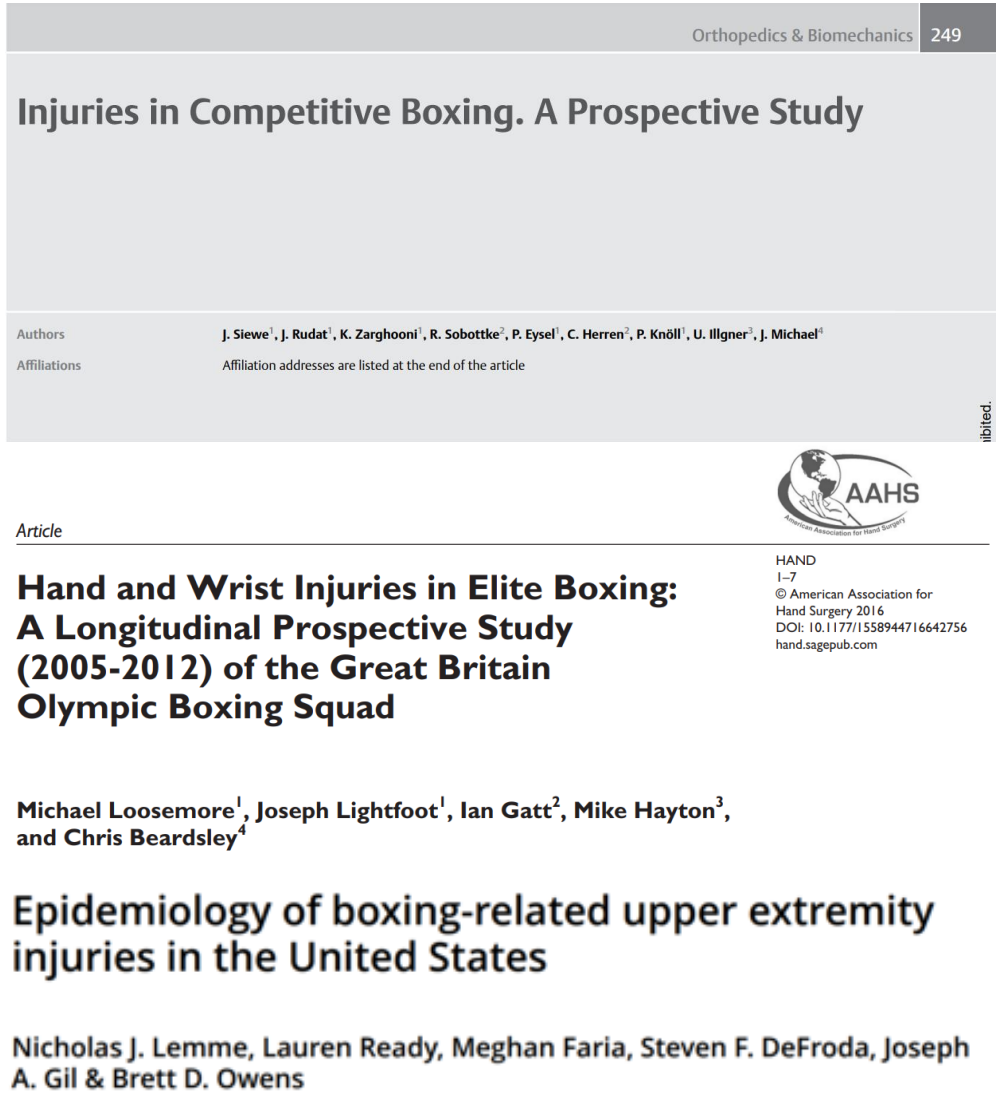
What boxing tells us about repetitive head trauma and the brain

Charles Bernick* and Sarah Banks

Background

Upper-limb trauma consists 25-70%

- Carpometacarpal instability
- Skier's thumb
- Boxer's knuckle
- Shoulder dislocation
- Hand fracture
- Carpometacarpal bossing



Orthopedics & Biomechanics 249

Injuries in Competitive Boxing. A Prospective Study

Authors J. Siewe[1], J. Rudat[1], K. Zarghooni[1], R. Sobottke[2], P. Eysel[1], C. Herren[2], P. Knöll[1], U. Illgner[3], J. Michael[4]

Affiliations Affiliation addresses are listed at the end of the article

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Article

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Hand and Wrist Injuries in Elite Boxing: A Longitudinal Prospective Study (2005-2012) of the Great Britain Olympic Boxing Squad

Michael Loosemore[1], Joseph Lightfoot[1], Ian Gatt[2], Mike Hayton[3], and Chris Beardsley[4]

Epidemiology of boxing-related upper extremity injuries in the United States

Nicholas J. Lemme, Lauren Ready, Meghan Faria, Steven F. DeFroda, Joseph A. Gil & Brett D. Owens

Objectives

- To evaluate the upper limb functional status
- To report the incidence of the most common upper-limb injuries in boxing
- To recognize predisposing factors for upper-limb injuries in boxing

Methods

An electronical questionnaire was sent to the two groups containing:

- The DASH and PRWE score
- Demographic questions
- Questions regarding training methods
- Common upper limb injuries

Exclusion criteria:

- ❖ Age >35 years old
- ❖ Female Gender
- ❖ Martial arts (for the non-boxers group)

Questionnaire

Part 1-Demographic data:

Age, Weight, Gender, Heavy bag drills, Sparring, No of matches,
Years of training, Length of bandages, Headgear

Part 2-Common Injuries:

Shoulder/elbow/wrist/finger fx/dislocations, carpal tunnel syndrome, wrist clunking, wrist ganglion, thumb injuries, boxer‘s knuckle, concussion, upper limb surgery, no of doctor visits, USWP

Part 3-Functional Status:

PRWE and DASH scores

Participants

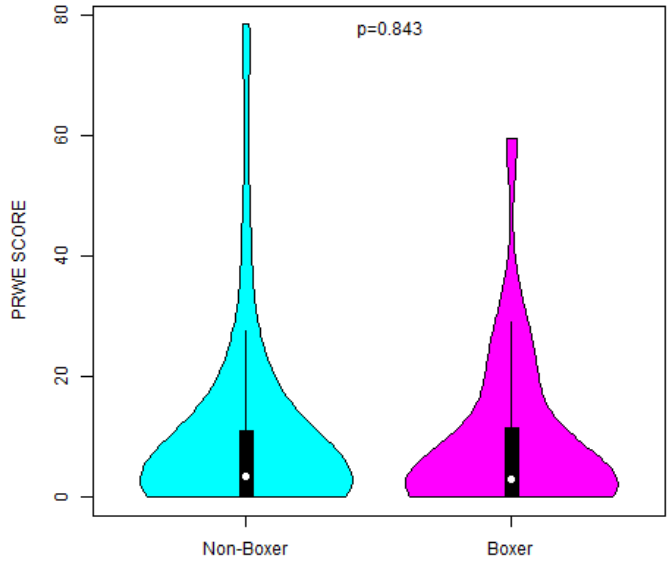
The questionnaire was sent through the Hellenic Boxing Federation to 113 boxers.

147 students and military recruits answered the questionnaire for the non-boxers group.

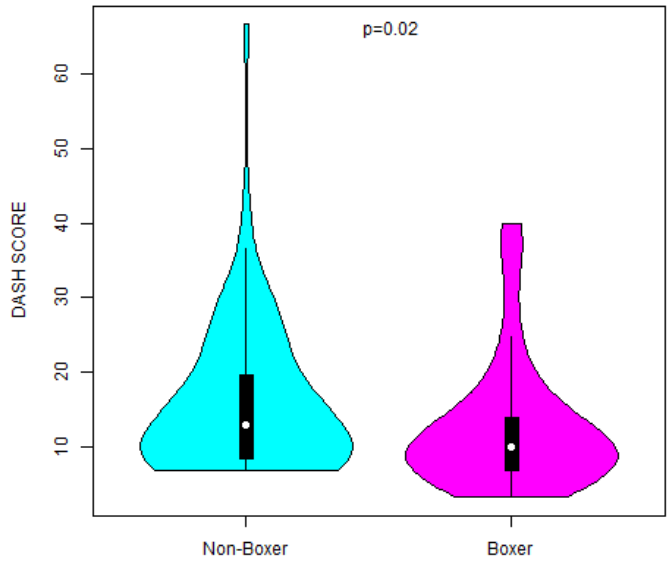
After exclusion and inclusion criteria were met, 62 boxers and 75 non-boxers were left in the two groups.

Results DASH/PRWE

No difference was found between the two groups regarding the PRWE score



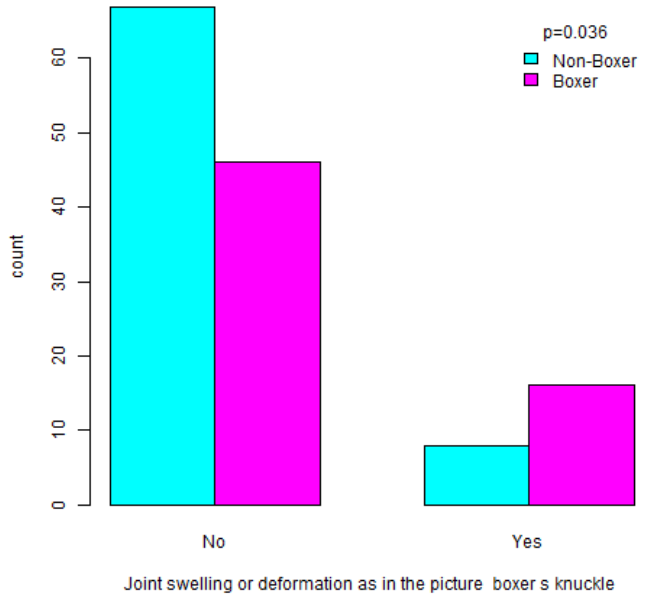
The DASH score was found lower in the boxers group

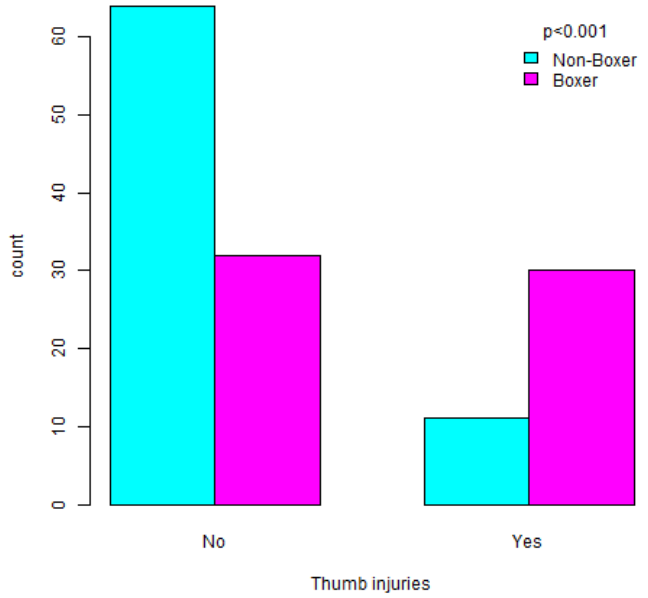


Results-Injuries

Boxer's knuckle (p=0.036) and thumb injuries (p<0.001) were significantly higher among boxers

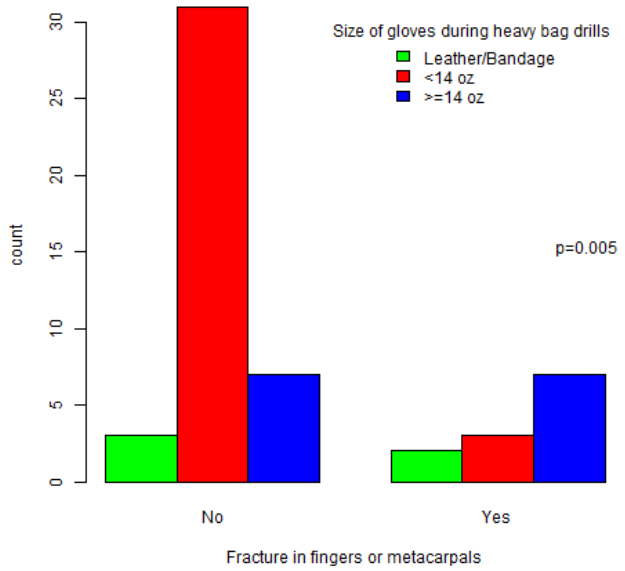
In agreement with the international research

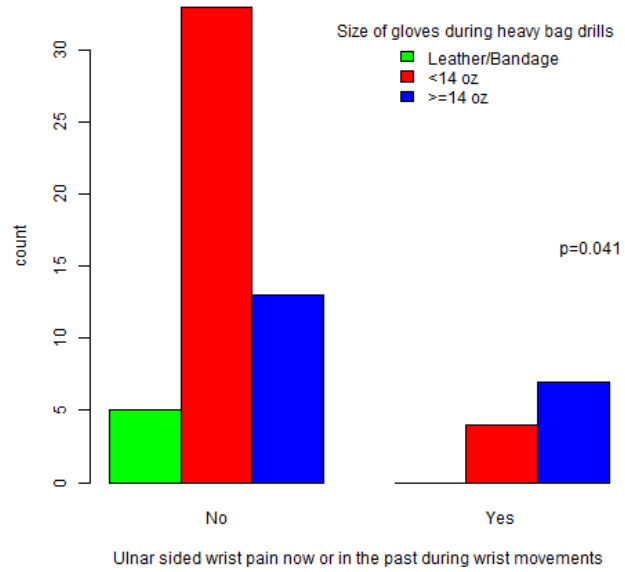




Results-Glove Size

- Change of Rules in 2013 by AIBA
- Prohibition of head gear, change of point system, bigger size gloves
- Lemme et al (2018) found a lower injury rate after the rule change





- Our study found a correlation between size of gloves and finger fractures (P= 0,005) and ulnar sided wrist pain (P= 0,041). Increased size led to more injuries, possibly due to glove instability during the hits and allowance for higher impact force.

Conclusions

- There is a consensus in the current research that upper limb injuries consist a major part of boxing injuries, with the rate of injury being much higher during competitive boxing.

- No long term functional consequences were identified overall.

- However, particular injuries yield bad outcomes in the long term.

Finger fractures and wrist clunking were linked to poorer functional status in our study.

- Further studies are needed in regard of the functional status of veteran boxers and the correlation of gloves' size to injuries.

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