SportsMed Update

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Contents:

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In American football, elbow, wrist and forearm injuries account for 4% of all injuries – ligamentous injuries to the elbow and wrist are particularly common, whereas fractures of the forearm account for the most severe injuries

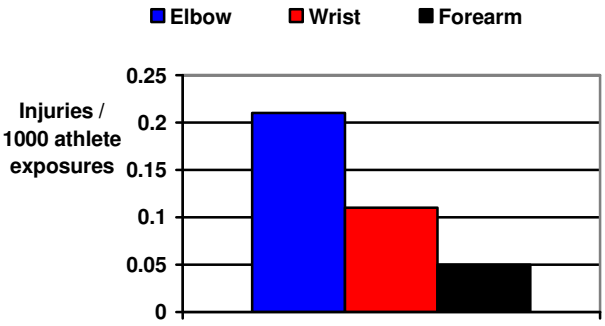
Title: Upper extremity injuries in the National Football League. Part II: elbow, forearm, and wrist injuries
Authors: Carlisle JC, Goldfarb CA, Mall N, Powell JW, Matava MJ
Reference: Am J Sports Med 2008; 36(10): 1945-1952
Type of study: Retrospective case series
Keywords: injury, upper limb, elbow, forearm, wrist, epidemiology, American football

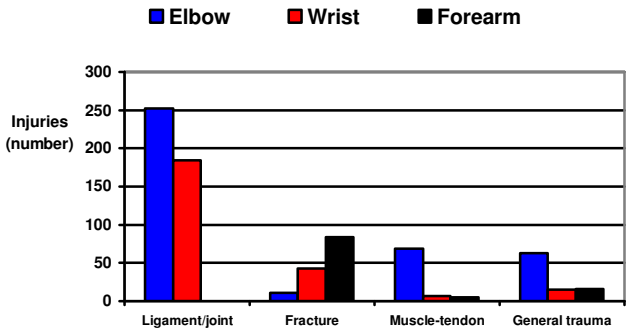
EB Rating: 6/10 **CI Rating: 7/10**

Background: In general, the epidemiology of upper limb injuries in sports, including American football, has not been well studied
Research question/s: What is the incidence, and what are the types, causative mechanisms and duration of time lost after upper extremity injuries in professional American football players?

Methodology:
- Subjects: American football players in the National Football League over a 10-year period (1996-2005) A retrospective review of all documented injuries to the elbow, forearm and wrist was performed
- Experimental procedure: The basis of the methods for this study were the injury records (859 injuries, 4% of all reported injuries) in the League's injury surveillance database – data from 10 yrs were analyzed to document the anatomical site injured, type of injury, athlete position, and activity at the time of injury
- Measures of outcome: Anatomical site of injury (%), type and mechanism of injury

Main finding/s:





- Games vs. practice: In all three areas game injuries were more common (2.8 times) compared with practices
- Days lost: Mean days lost were as follows: forearm (42 days), wrist (27 days), elbow injuries (22 days) lost
- Mechanism: The most common mechanism responsible for injuries was tackling (24%)

Conclusion/s:
- In American football, elbow, wrist and forearm injuries account for 4% of all injuries – ligamentous injuries to the elbow and wrist are particularly common, whereas fractures of the forearm account for the most severe injuries

Methodological considerations:
Case series, diagnosis and injury treatment not standardized, recurrence of injuries not documented well

The most common anatomical area for overuse injuries in endurance motorcyclists is the wrist, hand and forearm – transient carpal tunnel syndrome is particularly common and can affect 30-50% of endurance motorcyclists after a race

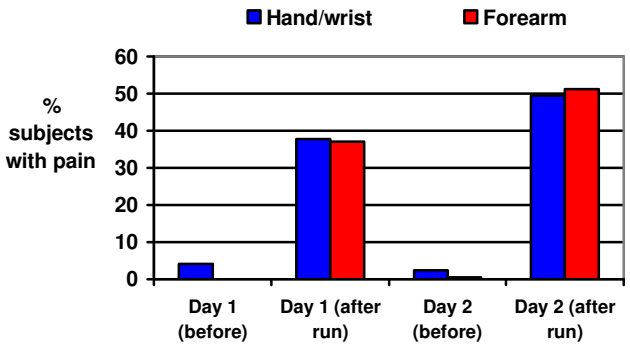
Title: The enduro motorcyclist's wrist and other overuse injuries in competitive enduro motorcyclists: a prospective study
Authors: Sabeti-Aschraf M, Serek M, Pachtner T, Auner K, Machinek M, Geisler M, Goll A
Reference: Scand J Med Sci Sports 2008; 18: 582-590
Type of study: Prospective cohort study
Keywords: overuse injury, endurance motorcyclists, hand, forearm, wrist, carpal tunnel syndrome

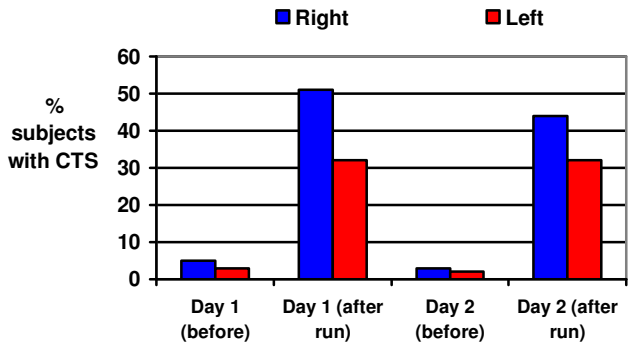
EB Rating: 7/10 **CI Rating: 7.5/10**

Background: Endurance motorcycling is a sport that is associated with a high risk of acute traumatic injury – however, overuse injuries have not been well studied
Research question/s: What is the profile of overuse injuries in endurance motor cycling, in particular overuse injuries of the forearm and wrist?

Methodology:
- Subjects: 170 motorcyclists (Phase 1) and 128 motorcyclists (Phase 2) participating in a 2-d endurance event
- Experimental procedure: Phase 1: Subjects were requested to report painful body parts before and after the runs on each of the 2 days (VAS. Pain vs. no pain). Phase 2: A subgroup of subjects were assessed for pain (VAS: wrist and forearm), grip strength, and symptoms of carpal tunnel syndrome (CTS: parasthesia, Phalen's test, Tinel test, hand elevation test, white finger syndrome) before and after each run on the two test days
- Measures of outcome: Phase 1: Frequency (%) of overuse injuries, Phase 2: Frequency of specific overuse injuries of the forearm (CTS), differences between professional and amateur riders

Main finding/s:
- Phase 1: The predominant areas for overuse injuries were the hand/wrist and forearms





- No differences between professional and amateur motorcyclists were observed

Conclusion/s:
- The most common anatomical area for overuse injuries in endurance motorcyclists is the wrist, hand and forearm – transient carpal tunnel syndrome is particularly common and can affect 30-50% of endurance motorcyclists after a race

Methodological considerations:
Well conducted study

There is a high prevalence of use of medication (43% before a match and 69% during the tournament) by elite football players during a World Cup - nutritional supplements are used by about 32% players before matches and by 42% during the tournament

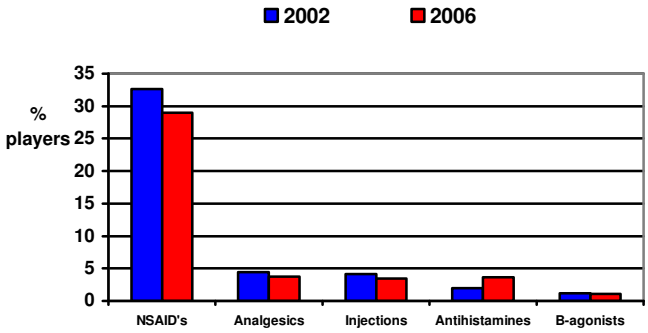
Title: The use of medication and nutritional supplements during FIFA World Cups 2002 and 2006
Authors: Tscholl P, Junge A, Dvorak J
Reference: Br J Sports Med 2008; 42
Type of study: Prospective cohort study
Keywords: medication, supplement, use, elite athletes, football

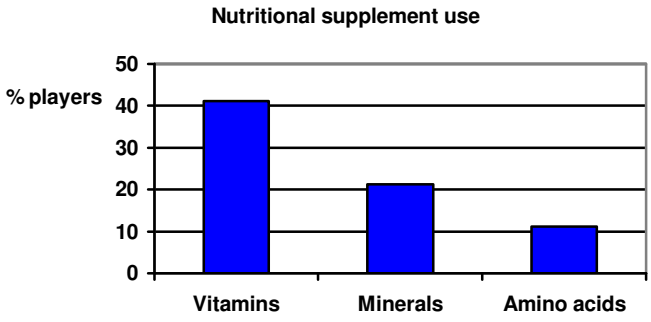
EB Rating: 7/10 **CI Rating: 8/10**

Background: The patterns of use by elite athletes of medication and nutritional supplements just before and during international competitions are largely unknown
Research question/s: What is the pattern of use of medication and nutritional supplements in elite male football players before and during international tournaments?

Methodology:
- Subjects: 23 elite football players from 23 countries participating in 2944 matches during two FIFA World Cup tournaments (2002 and 2006)
- Experimental procedure: The primary data collection was the reports on players' medication intake which was requested form each team physician before matches. All medication [non-steroidal anti-inflammatory drugs NSAID's, injections (corticosteroid and local anesthetic), analgesics, muscle relaxants, respiratory agents, intestinal agents, anti-microbial agents, and others] and nutritional supplements taken in the 72 hrs before each match were reported
- Measures of outcome: Substance use (%, and per player per match)

Main finding/s:
- Overall substance use: 10384 substances (43% medicines, 57% nutritional) (1.8 substances/player/match)





Conclusion/s:
- There is a high prevalence of use of medication (43% before a match and 69% during the tournament) by elite football players during a World Cup - nutritional supplements are used by about 32% players before matches and by 42% during the tournament

Methodological considerations:
Well conducted study, reported data by team physicians

Poor exercise capacity, limited heart rate reserve during exercise and an abnormal exercise electrocardiogram are exercise test variables that are associated with an increased risk of all-cause mortality in both patients with and without existing cardiovascular disease

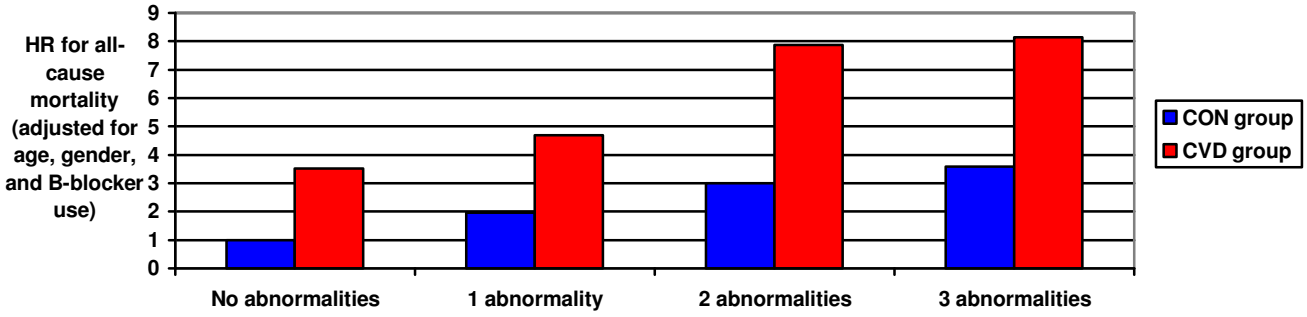
Title: Long-term mortality with multiple treadmill exercise test abnormalities: comparison between patients with and without cardiovascular disease
Authors: Aijaz B, Babuin L, Squires RW, Kopecky SL, Johnson BD, Thomas RJ, Allison TG
Reference: Am Heart J 2008; 156: 783- 789
Type of study: Prospective cohort study
Keywords: mortality, exercise test, exercise capacity, heart rate reserve, ST depression

EB Rating: 8/10 **CI Rating: 8/10**

Background: It is established that poor exercise capacity, abnormal heart rate responses, and electrocardiographic abnormalities during treadmill exercise are independent predictors of mortality
Research question/s: Is there an incremental increase in mortality when three independent parameters during treadmill exercise (poor exercise capacity, abnormal heart rate responses, and electrocardiographic abnormalities) are combined in patients with and without known cardiovascular disease (CVD)?

Methodology:
- Subjects: 10897 patients (male=8190, female=2707) who underwent treadmill exercise testing (1986-1991) were divided into those with cardiovascular disease (CVD: male=1862, female=415) and no CVD (CON: male=6328, female=2292)
- Experimental procedure: Abnormal exercise test parameters (exercise capacity: < 74% of age- and gender-predicted value, heart rate reserve: <68 beat/min, and horizontal or down-sloping ST depression >1 mm) were related to all-cause mortality (mean follow-up of 16 years).
- Measures of outcome: Hazard ratio for all cause mortality (adjusted) in the CVD and CON groups

Main finding/s:



- An increased risk of mortality ($p<0.0001$) was observed for poor exercise capacity and limited heart rate reserve in both groups – only an abnormal exercise electrocardiogram was associated with an increased risk of mortality in the CON group ($p<0.0001$)

Conclusion/s:
- Poor exercise capacity, limited heart rate reserve during exercise and an abnormal exercise electrocardiogram are exercise test variables that are associated with an increased risk of all-cause mortality in both patients with and without existing cardiovascular disease

Methodological considerations:
Well conducted study, single center study, mostly Caucasians

In patients with known bronchial asthma, exercise-induced bronchoconstriction is not influenced by acid in the oesophagus - short-term inhibition by proton pump inhibitors also does not alter this response

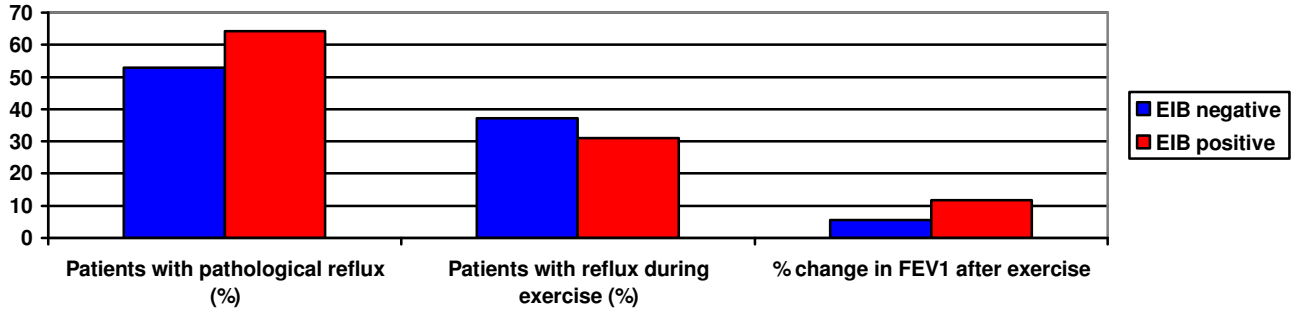
Title: Acid reflux into the oesophagus does not influence exercise-induced airway narrowing in bronchial asthma
Authors: Ferrari M, Bonella F, Benini L, Ferrari P, De Lorio F, Testi R, LO Cascio V
Reference: Br J Sports Med 2008; 42: 545-550
Type of study: Case control study
Keywords: asthma, exercise-induced bronchoconstriction, gastro-oesophageal acid reflux, exercise

EB Rating: 7/10 **CI Rating: 7.5/10**

Background: There may be a relationship between increased bronchial responsiveness (as expressed by exercise-induced bronchoconstriction - EIB) and gastro-esophageal reflux (which can be induced by exercise)
Research question/s: Does the presence of acid in the oesophagus influence exercise-induced bronchoconstriction - EIB?

Methodology:
- Subjects: 45 patients (male=28, female=17) with bronchial asthma
- Experimental procedure: All the subjects underwent 1) spirometry, 2) an exercise challenge on a bicycle ergometer, and 3) 24 h oesophageal pH monitoring (with an exercise test during that time). Acid exposure time (%), number of acid reflux episodes, number of patients with pathological reflux (%), and % patients with reflux during exercise were recorded. Subjects with EIB (FEV1 % decrease after exercise $\geq$ 15%, EIB+ve=28) were then retested after a 2 week treatment course with omeprazole 40 mg/daily
- Measures of outcome: At baseline (FEV1, acid exposure time, number of refluxes measured during 24 h pH monitoring, spirometry results in patients with and without reflux during exercise)

Main finding/s:



- Results following gastric acid inhibition by omeprazole: The ΔFEV1 did not change significantly

Conclusion/s:
- In patients with known bronchial asthma, exercise-induced bronchoconstriction is not influenced by acid in the oesophagus - short-term inhibition by proton pump inhibitors also does not alter this response

Methodological considerations: