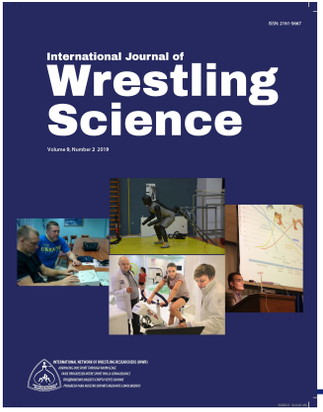

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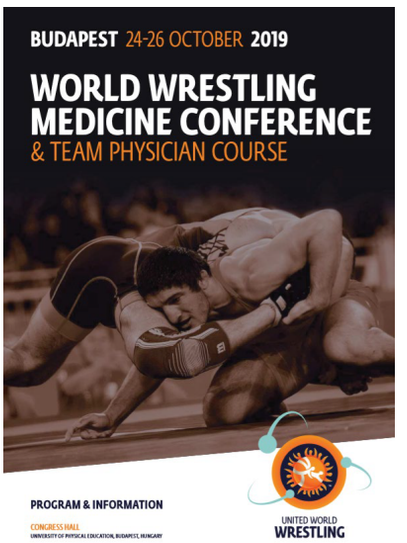

MUSCULOSKELETAL INJURIES, MECHANISM, RESULTS & PREVENTION

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MUSCULOSKELETAL INJURIES, MECHANISM, RESULTS & PREVENTION

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MUSCULOSKELETAL INJURIES

Multimodal aspect of the trauma
Complex modus
Movement/strength/balance/
technique/self-control/weight/age
Definition mild-severe injuries
Short term - long term results
Rehabilitation
Prevention

Wrestling, what are the **common injuries**?
Difference between what Wrestling professionals think and general public
Importance of the **public work**
Shoulder Neck
Elbow
knee
Head/face

Statistics, trying to get an overview
- the majority of the injuries are mild (88,5%)
- Short time therapy
- Mild skin injuries and contusions in the face and head area (58,8%).

In general
- the knee joint (12,9%)
- the elbow (6,7%)
- Affected neighbour-joints

Example, possibility of a complex injury
- shoulder instability after multiple trauma
-recurrence of cervical pain
Main role the early training

Common injuries
Definition of the diseases
speaking about the same thing
- Contusion, ligament injury
- Distortion, ligament bone cartilage damage
- Skin injuries-Epistaxis (Taping, Pressing bandages)

Contusion
- A step before fracture?
- Haematoma
- Change of the microstructure of the bone
- Soft tissue edema
- Bone edema
- Aseptic bone necrosis after repeated trauma
- Influence on the blood supply of the bone

seldom severe injuries

- Severe affections maximal 11,5 %
  - – Joint luxation, reposition (patella, elbow, finger)
  - – Deep/wide face skin injury, stiches, wound care
  - – Ligament or tendon rupture
  - – Thorax contusion, rib fracture, x ray control, pneumothorax
  - – Contusion, severe pain knee, elbow
  - – Distortion ankle joint

Still low frequency of severe health affections

- Compared to other sports disciplines, which are classified as “not so dangerous” in common language, is our sport Wrestling, especially through the body education from the early childhood not a risky and dangerous sport discipline and indicated for every age.

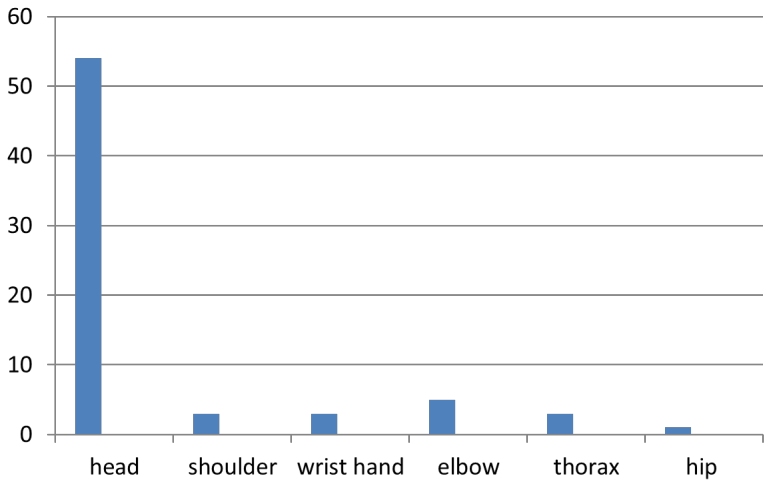
Prevention 1

- Strength and Stabilization exercises in the most affected joints
  - – Medical doctors
  - – Physiotherapists
  - – nutritionists

Athens Cadet World Ch. 2017

57 (90,5%) non severe (frequent mechanism of affection)

– Head/face skin lac., epistaxis	31 (54%)
– Arm shoulder contusion	3 (5,2%)
– Wrist/hand distortion	3 (5,2%)
– Elbow contusion	5 (8,7%)
– Thorax contusion	3 (5,2%)
– Hip contusion	1 (1,7%)
– Knee distortion	5 (8,7%)
– Ankle distortion	3 (5,2%)



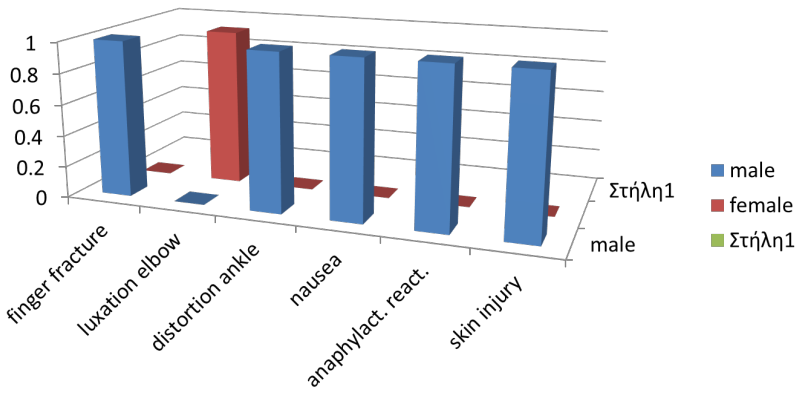
90.5% participation of affected areas with non severe injuries-Athens

Athens Cadet World Ch. 2017

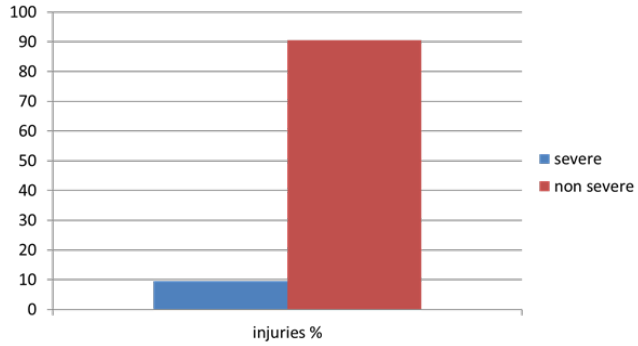
6 (9.5%) severe injuries incl.moderate

- – Male: MCP/Dig III prox. phalanx Fracture, immo.
- – Female: Luxation left elbow, reposition
- – Male: distortion left ankle
- – Male: Nausea
- – Male: Anaphylactic reaction, iv therapy
- – Male: wide face skin laceration, stiches

83.4% during competition 16.6% other



Athens Cadet World Ch. 2017-
Severe injuries

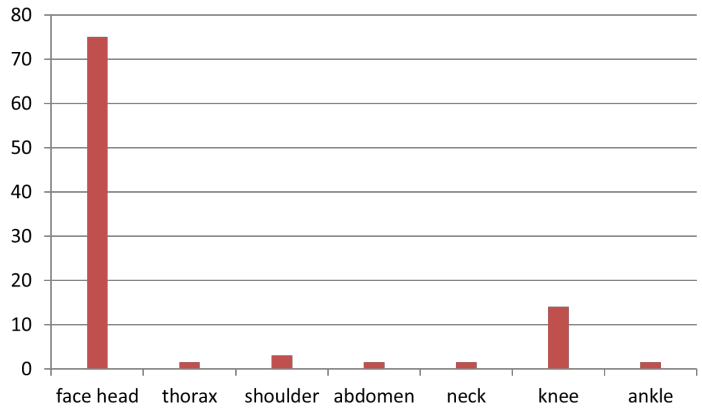


% Severe–non-severe injuries-Athens

64 **(87.7%) non severe** (frequent mechanism of affection)

– Face/head skin lac., epistaxis	48 (75%)
– Thorax contusion	1 (1.5%)
– Shoulder contusion	2 (3.1%)
– Abdomen contusion	1 (1.5%)
– Cervix Neck distortion	1 (1.5%)
– Knee distortion	9 (14%)
– Ankle distortion	1 (1.5%)

Trnava Junior World Ch. 2018



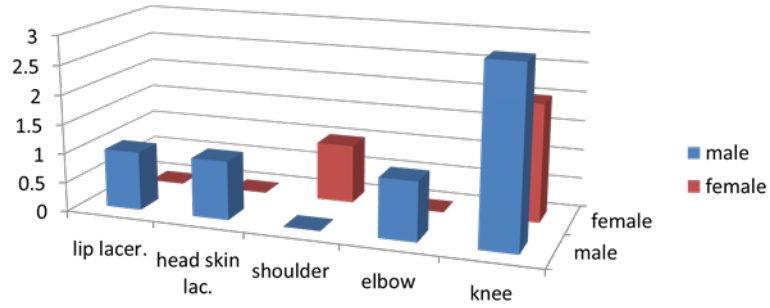
87.7% participation of affected areas with non-severe injuries-Trnava

9 **(12.3%) severe injuries**

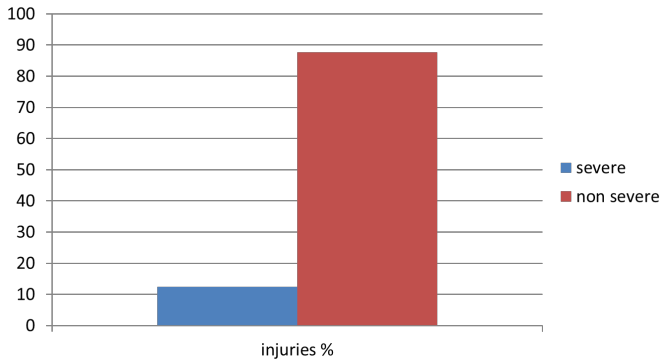
Trnava Junior World Ch. 2018

- Female: knee distortion
- Female: acute shoulder pain
- Female: acute knee pain
- Male: Elbow luxation, repo
- Male: wide lip laceration, stitches
- Male: Knee distortion
- Male: wide skin laceration, head parietal, stiches
- Male: medial collateral ligament partial rupture
- Male:medial collateral lig. Injury knee contusion

77.8 % during competition 22.2 % during training



Trnava Junior World Ch. 2018-Severe injuries

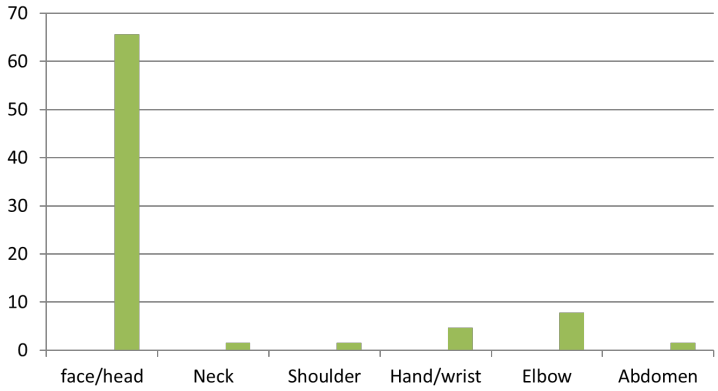


% Severe – Non-severe injuries Trnava

64 **(87.7%) non severe** (frequent mechanism of affection)

Bucharest Senior European Ch. 2019

- Face/head skin lac., epistaxis 42 (65.6%)
- Neck distortion 1 (1.5%)
- Shoulder contusion 1 (1.5%)
- Hand/wrist contusion 3 (4.7%)
- Elbow contusion 5 (7.8%)
- Abdomen contusion 1 (1.5%)
- Knee distortion 7 (10.9%)
- Ankle distortion 3 (4.7%)
- Forefoot distortion 1 (1.5%)



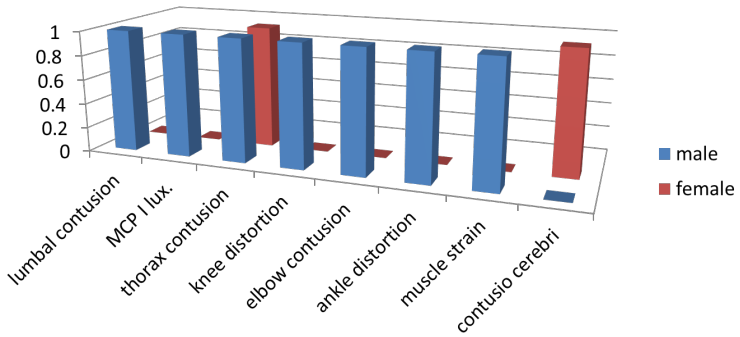
87.7% participation of affected areas with non-severe injuries-Bucharest

9 (12.3%) severe injuries incl.moderate

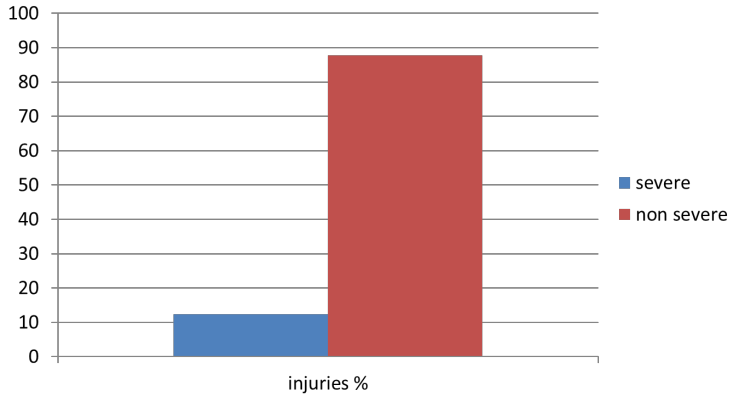
- Male: Lumbal spine contusion, during training
- Male: MCP I luxation , repo
- Male: right hemithorax contusion
- Male: knee distortion
- Male: left elbow contusion
- Male: left ankle distortion
- Male: left M. triceps brachii contusion
- Female: Thorax contusion, sternoclavicular
- Female: Contusio cerebri

Bucharest Senior European Ch. 2019

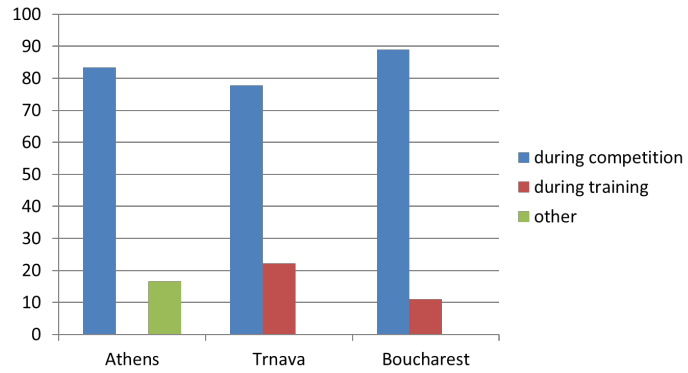
89% during competition 11% during training



Bucharest Senior European Ch. 2019
Severe injuries



% Severe – Non-severe injuries Bucharest 2019



Injury during competition or training

Mostly male athletes became severe affected during competition or training

- Are female athletes more careful?
- Does weight or age play a role?
- What is the limits of permission to wrestle?
  - An example (Veteran, man, final match BP 180/100, Pulse 88/min, allowed)

Past evidence

- Differences between statistics in injury reports
- Depending on School, College, Sportsclub
- Example study 2000
  - Shoulder 24%
  - Knee 17%
  - Neck/spine 11%
  - Foot/ankle 11%
  - Hand/wrist 11%
  - Head 8%
  - Elbow 7%
  - Leg/femur 3%

Necessary Prevention

Example shoulder

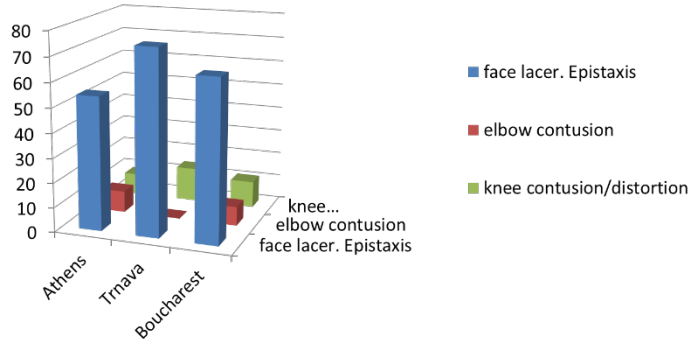
- Diagnostic steps, qualification med. Doctor, physiotherapist, trainer
- Flexibility
- Strength
- Shoulder neck area, neighbour muscle groups
- Coordination
- Endurance

Sec.example Junior Ch. 2004
(literature)

- Skin injuries 15%
- Contusio29%
- Muscle strain 11%
- Epistaxis 8%
- Luxation 5%
- Fracture 3%

Frequent affections of low severity

- Athens (Cadet)
  - Face (lacerations, wounds, epistaxis) 54,4%
  - Elbow (contusion) 8,8%
  - Knee (distortion, contusion) 8,8%
- Trnava (Junior)
  - Face (lacerations, wounds, epistaxis) 75%
  - Knee (distortion, contusion) 14%
- Boucharest (Senior)
  - Face (lacerations, wounds, epistaxis) 65,6%
  - Elbow (contusion) 7,8%
  - Knee (distortion, contusion) 10,9%



Frequent affections of low severity
similar results in Cadet, Junior, Senior Championships

Epigenetic features: do they play a role to the beginning of arthritis in sports?

ParadeigmataPalaiopathologyidiopathic predispositionto degenerativechanges in sports?

Skoliosis Predisposition
•Early diagnosis
•Muscle nerve disbalance
-dominant body side
-Bone Muscle assymetry
Tendency to develop musculoskeletal diseases like tendopathy, apophysitis, lower back pain, inguinal pain

Mostly non-surgical strategies necessary in competitive Wrestling
•Skin wound care, disinfection, bandaging
•Cold elements use
•Ligament injury Taping
•Analgesics, pharmaca
•Local injections mostly xylocaine

Lower frequent appear surgical therapies
skin laceration care, stitches
Reposition of luxated joints, elbow, fingers interphalangeal joints
operative Tendon reconstruction (Achilles tendon)

Low Number of Surgical intervention or hospital transfer in all three Championships
•Under 10% stitches
•3 transfers to the hospital
•One fracture finger
•One MCP I lux. and 2 elbow lux.
•One indication to surgery knee severe ligament injury junior female during competition

Wrestling is not a dangerous Sport
•Researching the tendencies concerning the art and frequency of sports injuries in wrestling
•Necessary long term comparisons to further results
•An example: 1995 Injury frequency
in wrestling in D. 0,71/1000
In Volleyball 29/1000

Prevention 2
•Excellent hygienic conditions on wrestling mates, athletes rooms and clothing
•Education

Prevention3
•controlled vaccination against infectious diseases like Hepatitis B
•Controversial discussion about vaccination

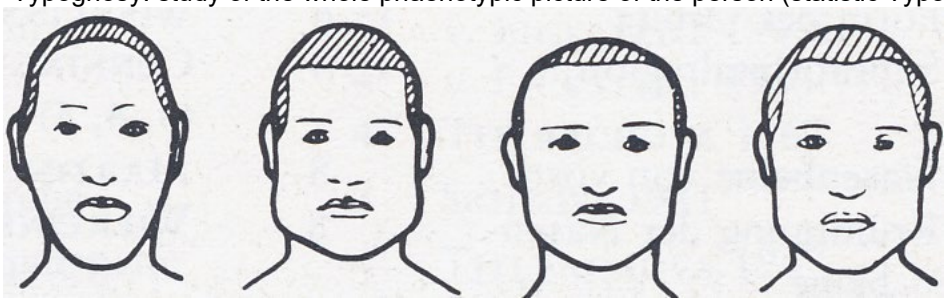
Interaction
•focused teaching of behavioural strategies for participants, athletes, trainers and referees
- wound contagiousness

•Hepatitis B , HIV
– controlling of aggression in play

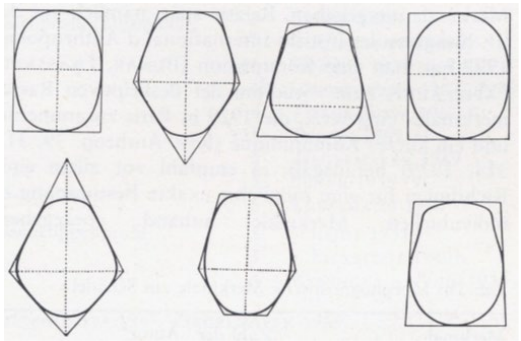
Anthropological aspect
•Behavioural differences in acting reacting, consideration of the group or the public
•Aggression before, during, after the match
•Education regarding injury mechanisms and self-perception
•Learning to “hear the own body”
•Learn to respect the opposite athlete, group

Aggression self control in different disciplines
•Men
•Women
•Age groups
•Training
•Official Championship
•Retrospective and prospective interaction with trainer, referee

Morphology
•Morphognosy: study of certain features based on prepared schemata
•Typognosy: study of the whole phaenotypic picture of the person (statistic Typognosy)



Morpho diagnostic Methods Anthropological research
Morphologic Comparison, examples in the Forensic Anthropology
Diagnostic of body changes in diff. age groups



Human Ethology in sports
•Definition-Biology of the Human Behaviour (EIBL-EIBESFELDT 1984)
•Traditional physiology of behavioural characteristics
•Ecological, Genetic, Phylogenetic parameters

Research in Communication / Mimetic Individual-Social parameters (Observation/documentation)

Giving special Importance to certain points from the Doctor’s side
• Medical plan concerning equipment for National and international Championships
• Early inspection of the training rooms, medical control room, Hygienic status, cooperation with local ambulance and local hospital.
• Interaction with the medical staff, concerning qualification, experience capacity, reliability
• Interaction with UWW members, referees