

Sports Injuries in (Professional and Youth)- Handball

**European Project
„Safety in Sports“**

Basic Data

Epidemiology

Analysis

Prevention

Team

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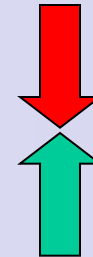
German Handball Federation (DHB) Lecturer

Benefit of Sport

Popular sport

Frequency of injuries

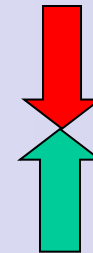
Health and well-being



Competitive sports

Frequency of injuries

Performance enhancing



Safety in Sports - General Objectives

Reduction of sports injuries
increase of the benefit of sports

Development, testing and implementation of injury prevention measures & safety promotion strategies in sports

Handball and Basketball were chosen because...
...the disciplines needed to be widespread in Europe and
...show high absolute numbers of injured athletes.

This is especially the case for team sports where 1:1 situations are characteristic.

Safety in Sports

Main Steps

Inventory on the burden of sports injuries,
existing prevention measures and safety
promotion strategies

Assessment of identified preventive measures
and promotion strategies in handball and
basketball:

best preventive measures
+ best promotion strategies
= injury prevention toolkit

Implementation and testing of injury prevention toolkits
in handball (in coll. with Norway, Czech Republic) and
basketball (in coll. with Sweden, Slovenia)

General guidelines for the development and
implementation of sustainable injury prevention
toolkits in sports (all sports)

Safety in Sports
“Safety in Sports Network”

Injury Prevention Measures

Group A:

Training programmes (e.g. Proprioceptive/neuromuscular, athletic conditioning)

Group B:

Political and technical strategies (e.g. fairplay, change in attitude/awareness, rules)

Group C:

Equipment and facilities (e.g. PSA, orthosis, taping, ground conditions)

Group D:

Medical Support (e.g. physiotherapy, medical check-ups, PPE)

Group E:

Complex strategies

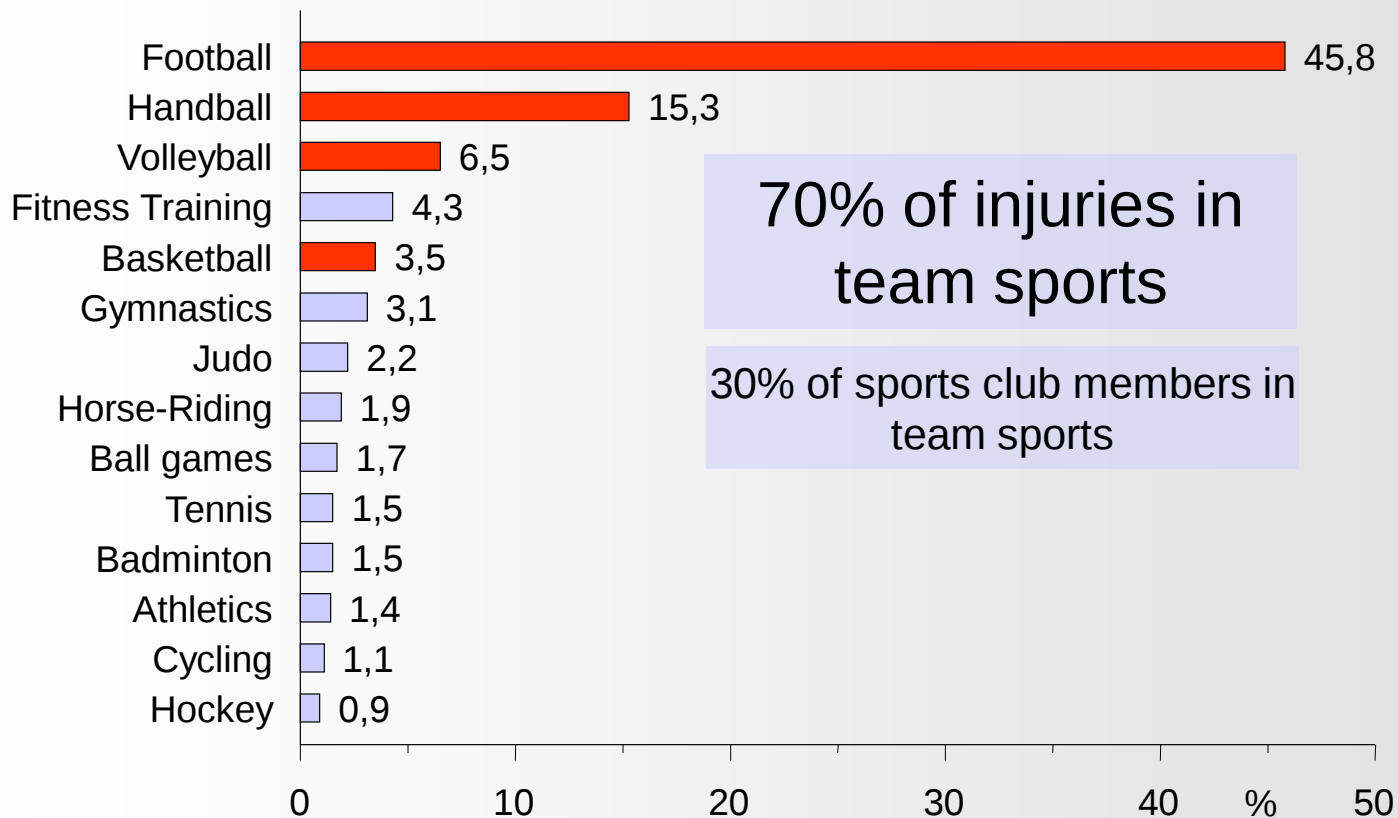
Safety Promotion Strategies

1. Media (leaflets, brochures, DVD, website)
→ coaches and athletes
2. Participation exhibition (Construction of different interactive stations, for instance, to give information about prevention measures)
→ coaches
3. Educational module injury prevention
→ coaches
4. Informational module „Safety Promotion“
→ functionaries, stakeholders, coaches educators



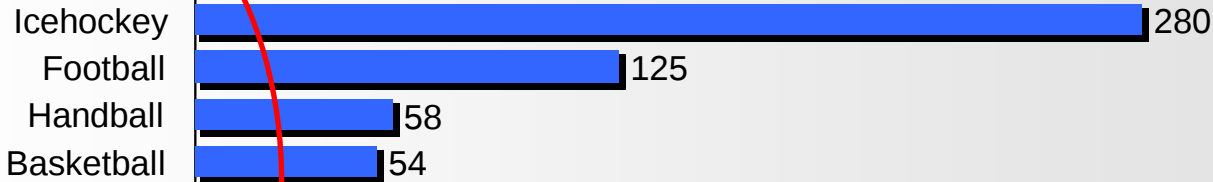
Sports Injuries in Club Sports

(Germany n=170.000)

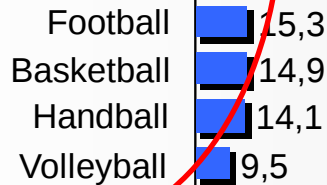


Injury rates in sports

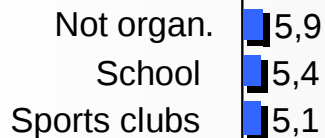
Professional



Competitive



All sports



0 50 100 150 200 250 300

Injuries/ 100 Athletes/ Year

„Injury Career“ Daniel Stephan

- 1999: metacarpus fracture
- 1999: torn ligament in the foot
- 2000: thumb operation
- 2000: rupture of capsule at ankle joint
- 2000: splintering of the bone at the thumb of the operated hand (abdication of world championship 2001)
- 2002: Achilles tendon irritation
- 2003: Achilles tendon rupture (abdication of world championship 2003)
- 2004: elbow injury (abdication of world championship 2005)
- 2006: tendon rupture in the right shoulder
- 2008: end of career



Methodical Considerations for Professional Handball

Survey of injured professional handball players (n=298)

Injured body areas

Competition and training

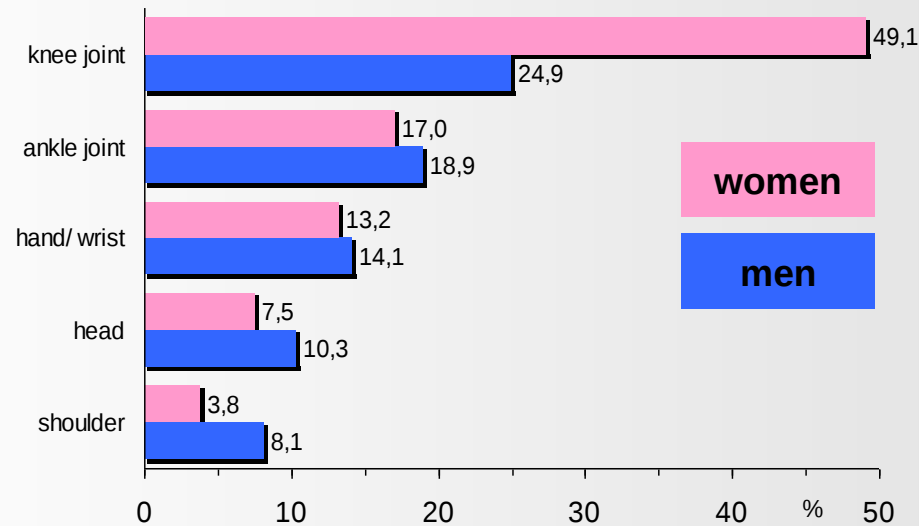
Playing position vs. injury position

Situation and mechanism

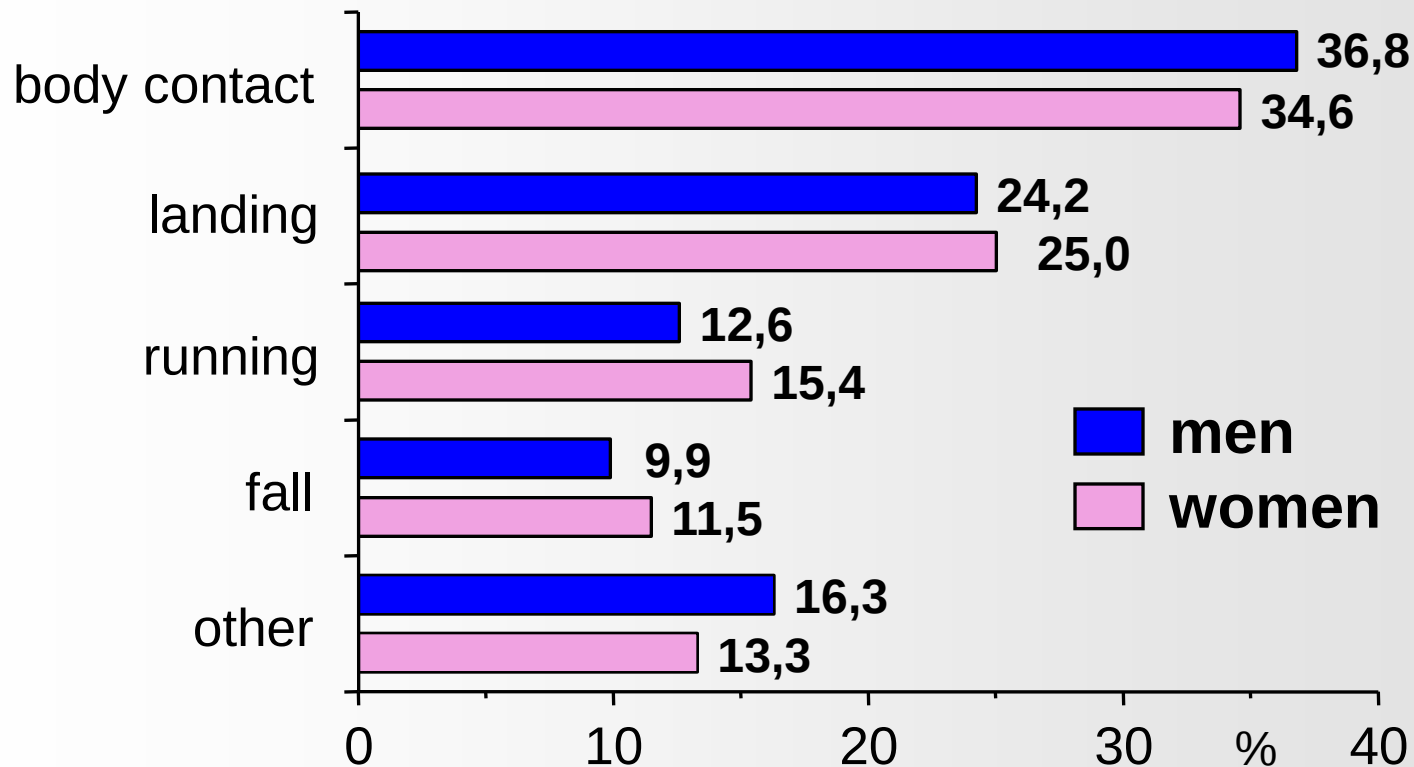
Specific analysis considering each position

Preventive training measures

Epidemiology & Injury Mechanisms



Injury Situation and Mechanism



Position Specific Analysis

backcourt



pivot players



defence



wing players



goalkeeper



Wing Players...

...injure their knee, ankle joint and shoulder
uncontrolled landings and falls as well as collisions.

Video analysis show that even **modest contacts** can be sufficient to make the players lose body-control.



Backcourt

situation → mechanism → injured body region

landing → distort / intercept → knee/ shoulder

body contacts → blunt force → hand/ shoulder

feints → twist/ distort → ankle joint/ knee



Pivot

situation → mechanism → injured body region

landing → distort/ intercept → knee/ shoulder

body contacts → blunt force → hand/ head/ shoulder



Defence

- Injur. body regions: Hands and lower extremities
- Mechanisms: Body contacts and landings
- Explanations: (Re)acting too late, too slow and too poorly coordinated
Lack of block coordination



Goalkeepers...

... typically sustain injuries of the lower extremities.

Main mechanisms are landing, slipping, falling (altogether approximately 70%).

Explanation: Goalkeepers have too little attention and body tension during the landing phase after the save.



Injury Prevention in Handball

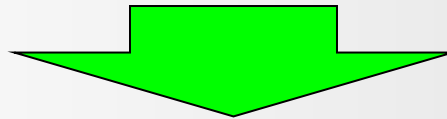
Awareness of position-specific injury risks



Inclusion of preventive ideas into training



Minimization of injury-risk $\leftrightarrow$ **Improvement of performance**



Basic Training

Coordination/sensomotoric skills

Core stabilisation

Defence

Agility

Offence

Landing and cutting

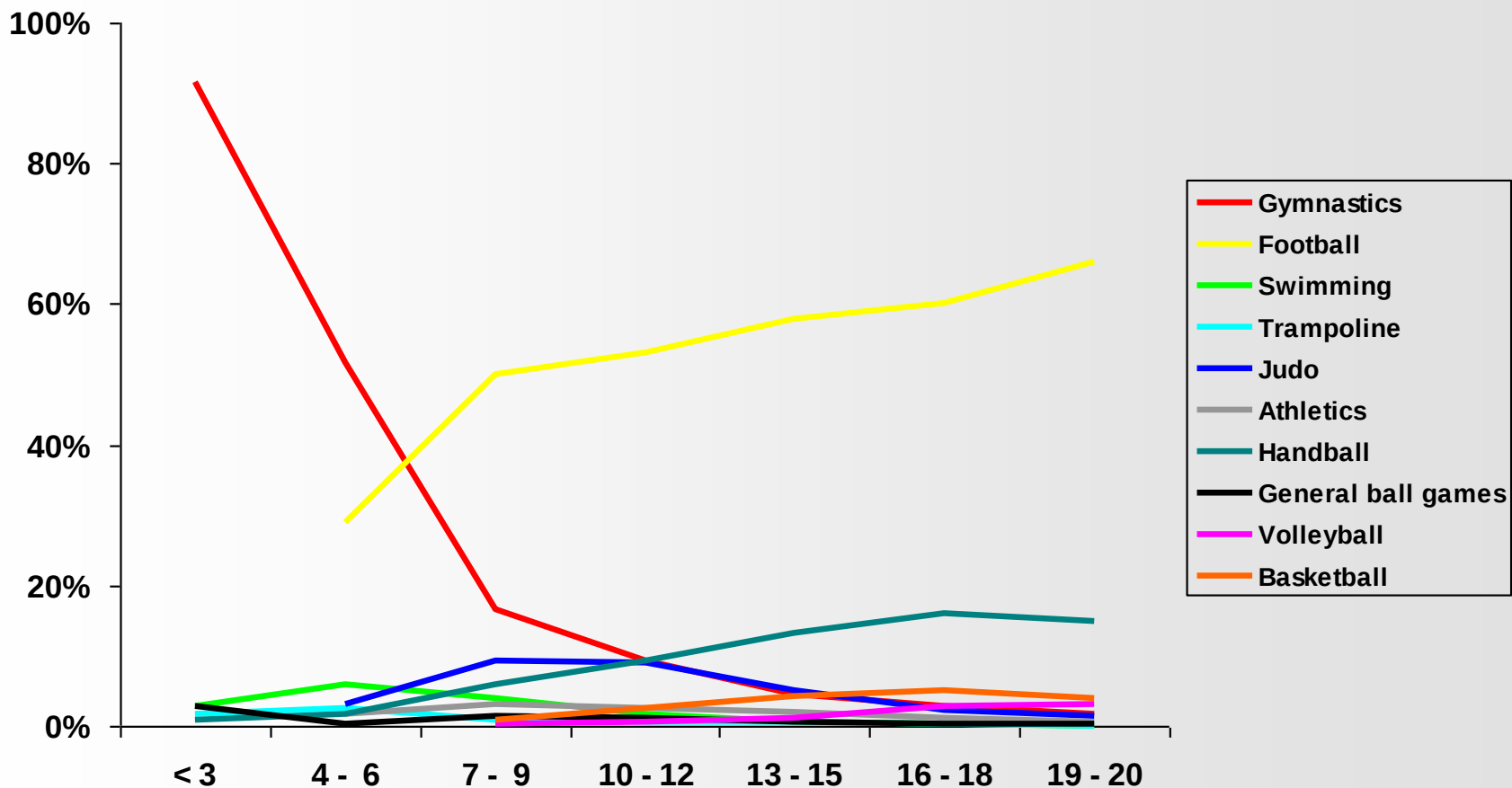
Goalkeeper

Training of landing safely after the save

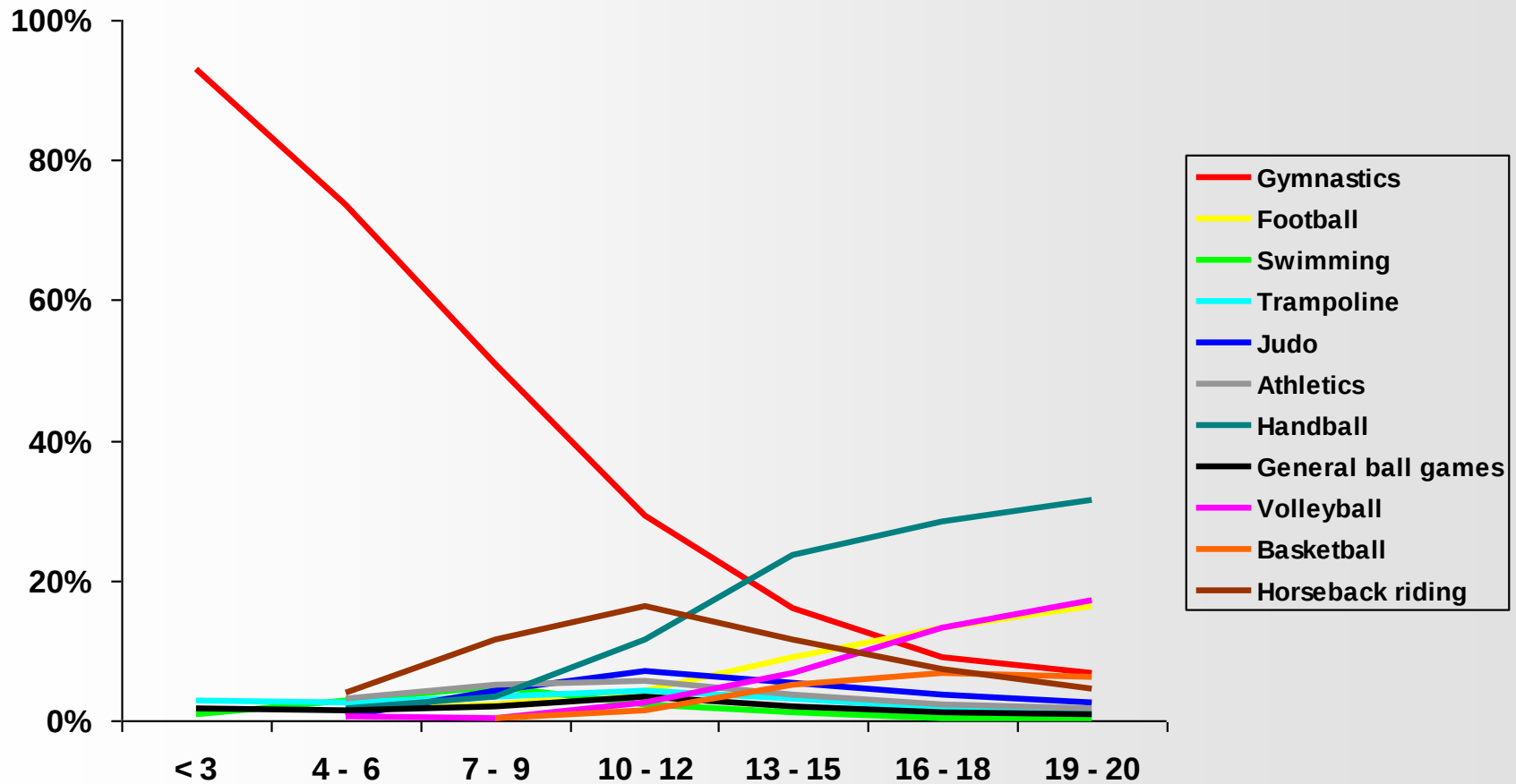
Preventive Training Programmes



Male Sports Injuries



Female Sports Injuries



Importance of Motion and Sport Children and Youth

Complex and individual development

motoric → condition and coordination

cognitive → cogitation and compliance

affective → fun and self-confidence

social → interpersonal skills

Optimal by avoiding injuries

Sports Injury prevention by means of preventive training-measures

**prepare the athlete more adequately for
the demands of the respective sport**

**specific training measures which
are tailored onto the respective sport**

**measures will only be accepted if they avoid injuries
and improve performance at the same time**

Prevention starts in youth