

# Entering the Field of Sport Neuropsychology in Germany - a Pilot Project

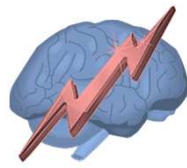
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## Background

- About 300 000 traumatic brain injuries (TBI) per year in Germany – 80 % mild (MTBI)
- Many of them happen while doing sports: Ca. 50 - 60/100.000 per year
- Typical physical, cognitive, emotional and/or sleep symptoms disappear in 80 to 90 % after a short time like minutes to hours, max. after 7-14 days.
- **Anyway a MTBI is not to be underestimated:**
  - General increase of injury probability after MTBI
  - 4 to 6 times higher risk of having a new – maybe more serious head injury – after MTBI
  - Cumulative/additive effects of several mild traumatic brain injuries increase the risk of having longer lasting or chronic impairments
- Internationally (e. g. IOC, FIFA) and especially in the USA, the topic has been discussed for years, however in Germany it is rarely noticed by neuropsychologists.



## Goals

- Establishing an **ambulance for sports neuropsychology** in our region
- Improve the regional medical care system by offering a **prevention program**
- Comprehensive **workshops and trainings** to popularize the topic nationwide to improve prevention
- Development of a **neuropsychological test battery** for typical cognitive dysfunctions related to concussions with German standards
- **Data collection for research** on the question of short-term and long-term effects of concussions
- **Most of all: emphasize the role and possible contribution of neuropsychologists in this field**

## Method



## Single Case Data (so far)

- Baselines for 24 handball players (male), 19 basketball players (female) and 12 soccer players (male). More teams are planned.
- Clinical assessment and treatment in 10 cases after MTBI during a game (2 female, 8 male). Only three of them participated in the baseline testing before.

- **Medium age:** 29 (range 19 – 51);  
**Reasons for MTBI:** falls (3), collisions (3), check and subsequent fall (3), ball-hit (1);  
**Prior MTBIs:** 6 out of 10

	None	< 1'	1-5'	6-15'	> 15'
LOC	6	1	1	2	0
PTA	1	1	0	5	3
RTA	4	4	1	1	0

- Time between MTBI and neuropsychological assessment in days:  
0 – 0 – 0 – 2 – 3 – 6 – 11 – 21 – 44 – 47

### Reported Symptoms:

Physical	Cognitive	Emotional	Sleep
Headache (6)	Drowsiness (8)	Irritability (1)	Trouble falling asleep (2)
Pressure in head (2)	Feeling slowed down (5)	Nervousness (1)	
Neck pain (1)	Confusion (2)	Emotional lability (2)	
Balance problems (2)	Difficulties with concentration (4)	Sadness (2)	
Nausea / vomiting (1)	Difficulties with memory (4)		
Blurred vision (2)	Fatigue / low energy (2)		
Sensitivity to light / noise (3)			
<b>Total number: 17</b>	<b>Total number: 25</b>	<b>Total number: 6</b>	<b>Total number: 2</b>

### Neuropsychological and psychometric assessment results:

- All athletes showed difficulties with divided attention and visual information processing speed!
- Two showed symptoms of a clinically relevant depression and one showed symptoms of an anxiety disorder!

### Interventions:

- ✓ Education and reassurance, management of expectations and normalization
- ✓ Individual Return-to-Play-Plan (RTP)
- ✓ Assisting the RTP-process, monitoring the athlete's way back to work or school
- ✓ Specific advices for the daily routine
- ✓ Interventions concerning depression and anxiety
- **Nine of ten athletes returned to play/competition successfully! One retired.**  
Mean number of days between MTBI and return to training were 21 days (range 3 - 56 days) and to return to play were 51 days (range: 7 – 212 days).

## Conclusions

- Neuropsychologists should be included among other health care professionals for evaluation and clinical management of athletes who sustain a sport-related concussion
- Early interventions, tracking recovery over time, monitoring the reintegration process, treating emotional problems is important for an athlete's well-being
- Comprehensive neuropsychological evaluation is especially helpful in the post-concussion management of athletes with persistent symptoms and complicated courses
- Installation of the project in our neuropsychological practice was so far successful but is still developing
- A computer program alone is not sufficient in this complex area! The Neuropsychologist's possible contribution should be more emphasized!