

Team physicians needs and demands on medical care for paralympic athletes

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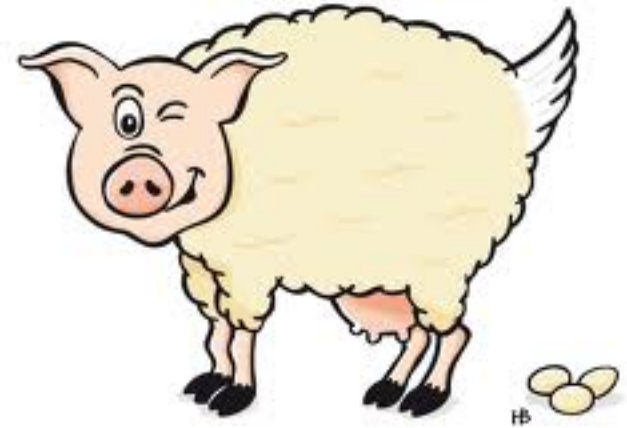
Sport is suitable for disabled , if:

spezific movements apply to remaining function

- To strenghten remaining functions and training balancing movements
- important to have no highter injury risk (compairing no-disabled sport – ski alpine)
- No increase of the disability

Needs and Demands

Sportsmedicine
Anti-Doping
Rescue Medicine
General medicine
Orthopaedics
Orthotics and Prothetics
Psychological knowledges
Classification of athletes



All-in-one-device suitable
for every purpose
„eierlegende Wollmichsau“
„Pic-sheep-dog laying eggs“



Needs and Demands in my 20 year experience

- Medical coaching the whole year
- Education training in Anti Doping
- Race doctor (Emergency Medicine)
- Medical treatment in training and competition
- Classification of athletes

Dysmelia lefti hand



Racer with spine injury Th10/11 – LW 10



B2



Evaluation of alpine skiing injuries in disabled competition skiers

- From the years 1994 to 2004 disabled alpine skiing-related injuries of the German disabled national team were reviewed. The background was to demonstrate the injury pattern of disabled Alpine skiing and evaluate potential risk factors as well as to compare these injury patterns and incidence with the group of non-disabled skiing.

Results



- 1995 No injuries
- 1996 Injury of the Plexus brachialis (LW2)
-conservative treatment -
restitutio ad integrum

Results 1997

- Femur-Fracture (LW 3 double below knee amputee – skiing with 2 prostheses)
Caused by a direct impact fall
- Therapy: operative treatment by nail;
post-OP infection and 3 Re-OP's;
since 1998 no infection and good function

Results 1998

Paralympics Nagano

- ACL-rupture partial (LW 5/7)
caused by rotation-trauma in deeply flexed,
seated position
- Therapy:conservative;
today very good function,
no problems

Results 1998

Paralympics Nagano

Class LW 11



- Acromio-clavicular-separation type
Rockwood II
Fall with extended arm in abduction
- Therapy : conservative;
restitution ad integrum

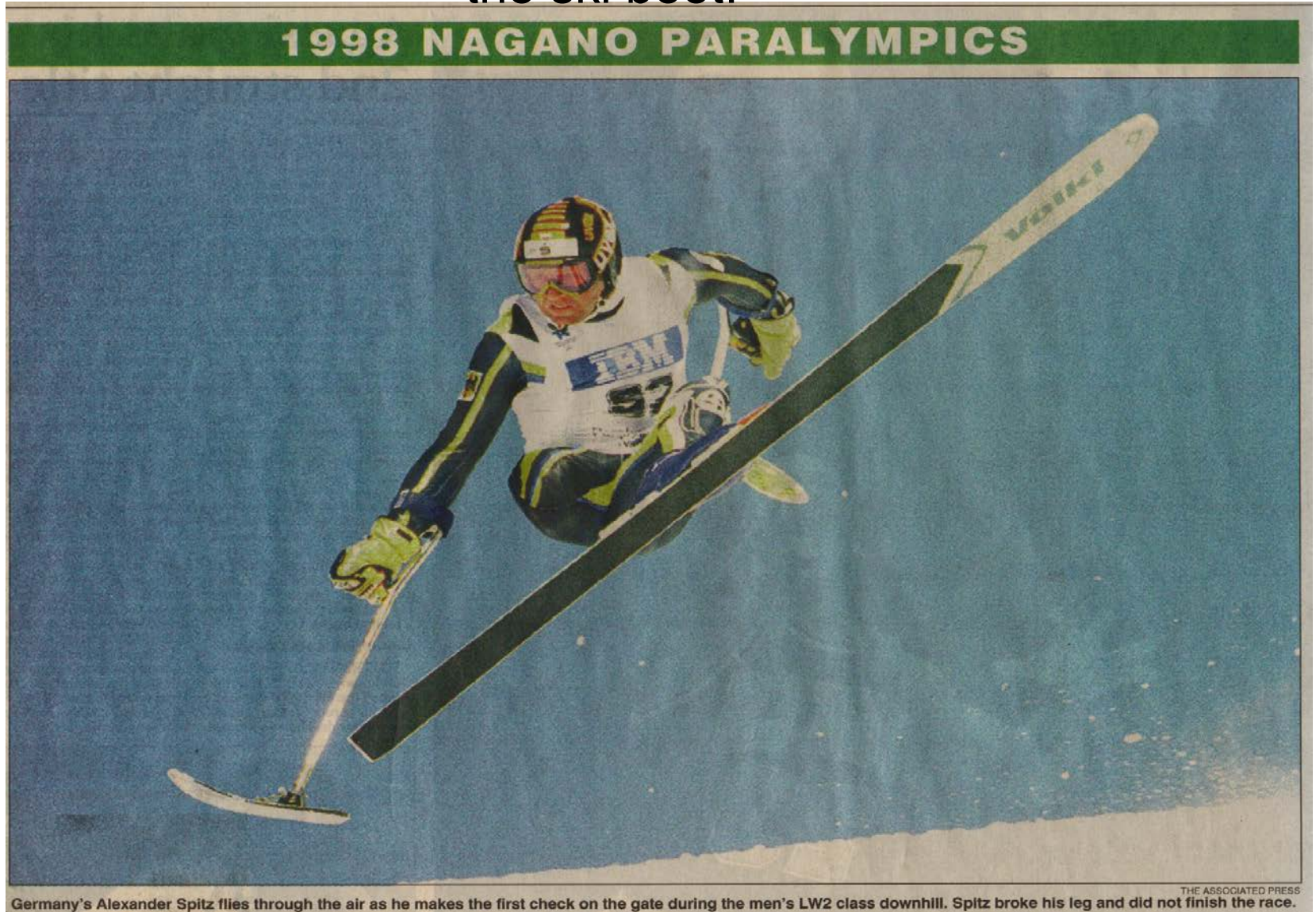
Results 1998

Paralympics Nagano



- Clavicula-Fracture
- Therapy:
conservative
treatment; no
problems

Athlete class LW 2: sprain fracture of the calcaneus in the ski boot!



Germany's Alexander Spitz flies through the air as he makes the first check on the gate during the men's LW2 class downhill. Spitz broke his leg and did not finish the race.

Why happened this fiacso ?

actual analysis Nagano:

We arrived to late
Chancing the clocks
heavy wet snow
less of speed training
and competitions



Germany's Alexander Spitz flies through the air as he makes the first check on the gate during the men's LW2 class downhill. Spitz broke his leg and did not finish the race.

The necessary action as result of this disaster was:

We started with an assesment of physical in cooperation University Goettingen and University Munic (Dr. Spitzenpfeil)
Speedtraining before paralympics and world-championships
Early arrival in time zone

Results

1999 and 2000

- 1999
No injury
- 2000
Athlete class LW 2:
Distorsion of the plexus brachialis and
anterior luxation of the shoulder (outtrigger
interlocked at the gate)
Therapy : conservative; no problems till
now

Results 2001

- LW 10:
Clavicula-fracture
Therapy: conservative;
restitutio ad integrum
- LW 2
Fracture shoulder
tuberculum majus and
anterior luxation
Therapy: conservative

Konsequenz: in training courses are flags in GS and SG not tightened

Results 2002

Paralympics Salt Lake City

- LW 12
wrist fracture
(Radiusfraktur loco
typico)
Therapy: conservative ,
plaster cast, restitutio ad
integrum



Injuries 2002-2006

- 2003: Shoulder Luxation LW 11
- 2004-2005: no injuries
- 2006: Fracture of the Tibiahead LW 6/8
(free skiing after end of training)

- 2007, 2008: no major injuries
- 2009: fracture of the Tibia (B2) training Slalom
Therapy: OP by Tibia Nail – intensive
recreation training – 7 month later bronze
medal paralympics Vancouver downhill
- 2009: ACL rupture (LW 4 incomplete lesion
after spine injury) – Athlete retired





Paralympics in Vancouver

- 2010: No Major Injuries !
- 2011 No injuries
- 2012: fracture of the cost (sitski)
- 2013 fracture of the cost (sitski)

But : A and B- Team Germany only 8
Athletes in Review

- Contusion cerebri and fracture of the cost 11 (LW 12-1)
- Neck distorsion (LW 10-1)



Comparison with non disabled skiers



Comparison with non disabled skiers



Results Injury Rate & Mechanism German Ski Team

The injury rate of the german national alpine ski team account 0,03%.

This injury rate comparable with the injury rate of non disabled skiers.

There is no difference in the mechanism of the injuries in disabled skiing as well as in non disabled skiing execept the plexus brachialis distorsion and a higher rate of shoulder and thorax (cost) injuries in the sitting classes and in class LW 2.

Typical medical problems: Paralympics Turino

- Paralympic village at Sestriere 2000 m high
- Humidity 35 %
- Difficult adaptation to dangerous climate climatic 2000 m above sea level
- High Physical loading, difficult regeneration

Medical problems and treatment Paralympics Turino

- Overload problems - high muscular tension, functional disorders upper and lower extremity as well as functional spine disorders and non-severe contusions
Therapy: Antiinflammatory drugs, muscle relaxans, salves, magnetic field therapy, infiltrations (local anesthetic and homöopathic , (or corticoid intraarticular), kinesio tape and other functional bandages
- Physiotherapie!!

General medicine Disorders caused by:

low atmospheric pressure

low humidity

Herpes labialis and infections of the
respiratory tract

Therapy: Acyclovir, Paracetamol,
Homöopathic Therapy, Antibiotics

Major problem

Paralympics in Turin

- Athlet hasn't realised that he has an ulcer at the gluteal area; gets fever 38,5 ;
first diagnosis urogenital infection
Therapy: Antibiotics.
At the investigation an gluteal/ tochanter major ulcer is apparent;
Medical treatment : Debridement sterile; Athlet kommt
athlet gets exsiccosis (ignores all warnings)
- Septic shock
Pulse 160, RR 90, Temp. 40,6 !
- In paralympic clinic : Infusion; Transfer after stabilisation
the same night to Turin, blood culture; Therapy with 3
specific antibiotics and additional antimycotic therapy.
Transfer par airplane after 5 days to Germany Hamburg
spine and paraplegic center



Prävention by Team-Management

- Trainer
- Co-Trainer
- Serviceteam
- Waxler
- Medical Team:
 - Team physician
 - Physiotherapists
 - prosthetist/orthotist?

Prevention wear



back protector

Shoulder protector

Elbow and
forearm protector





Prävention

- assessment of physical for disabilities
- Isokinetic-Test, endurance, springiness, coordination
- Individuell training plans:
muscle developement, stretching, endurance-training, Wet-
West-Training....., coordination, core-training, sports specific
technics
- Medizinische supervision and care:
physiotherapist at every train in the field
team doctor supervision (phone, skype,sms –pictures)
team doctor on site at special evants like speedtraining or the
main events

- We have to install a world wide network of paralympic physicans



Anti Doping

In Germany twice a year the athletes get an education training about anti-doping rules and forbidden substances

If athletes take drugs they have to contact me and give me the information

I give support for examination of use or TUE if necessary

There are DBS-meetings about anti doping every year

What to do as race doctor ?

- Contact with Fis TD about the slope
- Control of the rescue possibilities and rescue party (e.g. helicopter landing)
- If there is an emergency case the doctor is the boss on slope – not the FIS TD!!
- One case... – fall at the 3rd gate without reason - Unconscious state – no pulse radial , left side dilated pupils ?????!!!!!!??



Thank you for your attention

www.orthopaedie-norheim.de