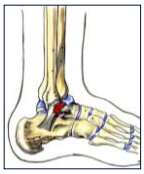
Rehabilitering og forebygging av akutte ankelskader

Grethe Myklebust



Oslo Sports Trauma
RESEARCH CENTER

Oslo Sports Trauma
RESEARCH CENTER

Oslo Sports Trauma
RESEARCH CENTER

One example…

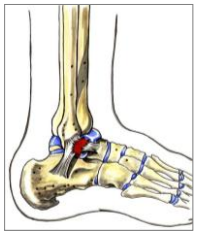
- Volleyball player – one-leg landing
- Ankle distorsion
  - What kind of injury?
  - What kind of treatment?
  - Why this treatment?
- How avoid a new injury?

Oslo Sports Trauma
RESEARCH CENTER

Oslo Sports Trauma
RESEARCH CENTER

Acute injury – clinical evaluation

- Type of injury?
- Which structure?
- Treatment
  - PRICE



Oslo Sports Trauma
RESEARCH CENTER

Treatment

- Acute treatment
  - **PRICE**
  - Medical treatment (?)
- Rehabilitation
  - Early
  - Functional

"ICE"- principle Paul Trickett 1965

" The immediate application of ice, or one of the newer " brick cold" substances, is the basic in controlling edema and pain, especially in conjunction with compression wraps or bandages. In the case of an injured limb,elevation is important. Perhaps this initial stage of trauma management can best be kept in mind by remembering the word "ICE" : I = ice; C= compression ; E = elevation, Adherence to ICE will greatly facilitate recovery."

PRICE

PROTECTION & REST

ICE

COMPRESSION

ELEVATION

Paul Trickett 1965; Svein Nilsson 1967

PRICE- principle - P & R

P= protection

- Avoid further injury
- Protect intact tissue

R= rest

- Gradual starting with activity and exercises

PRICE principle - I

- **I= ice treatment**
  - Reduce pain (analgesi)
  - Reduced local metabolism (hypometabolisme)
  - Response from blood vessels- (vasoconstriction)

Price principle - C

- **C= compression**
- Reduce swelling by preventing bleeding

Rucinski et al 1991

PRICE prinsippet - E

- **E = elevation**
  - Reduce swelling
- 

Acute ankle sprains – ice treatment

- Design: RCT, n=89 (33/45)
- Purpose: Compare two ice treatment regimes
- Outcome measures: Pain (VAS), ankle function (Binkley's scale), swelling (figure of eight method)
- Method: 20min eller 10-10-10 min 48 hours
- Results:
  - Intermittent treatment, less pain on activity first week (>0.05)
  - One week after, no sign. differences in terms of function, swelling, or pain at rest

Bleakley et al 2006 BJSM

Price principle - recommendations

- Leg 30cm higher than heart
- Ice 30 min. every second hour
- Elevasjon through the night
- 48 hours

Sports Injuries , Bahr & Mæhlum 2006

NSAIDs?

NSAIDs is given for strengthening the effect of PRICE -treatment

- Reduce pain
- Reduce inflamation
- Return to sport as soon as possible

Side effects

Tape & orthosis

Rehab exercises


10 min 5 days a week for 10 weeks

Rehab exercises


10 min 5 days a week for 10 weeks

One example…

- Volleyball player – one-leg landing
- Ankle distorsion
  - What kind of treatment?

PRICE AND PAIN KILLERS

  - Why this treatment?

REDUCE PAIN AND SWELLING & RETURN TO SPORT AS FAST AS POSSIBLE

- How avoid a new injury?

Is it possible to avoid a new injury?

Why do lateral ankle sprains occur?

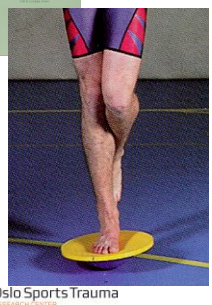
PREVIOUS INJURY

Why do lateral ankle sprains occur?

- Reduced mechanical stability (Freeman, 1965)
- Reduced functional stability (Freeman, 1965)
- Foot position (Robbins et al., 2000)

Oslo Sports Trauma Research Center

Prevention of ankle injuries
- div. VI soccer in Sweden



THREE GROUPS:
- control
- orthosis
- training

TRAINING GROUP:
- Players with previous injuries trained on a balance board
- First: 10 min 5 times weekly for 10 weeks
- Then: 5 min 3 times weekly

Oslo Sports Trauma Research Center

Tropp H. Thesis, Linköping University, 1985

Prevention of ankle injuries
- div. VI soccer in Sweden

Group	# of players	# with new sprains	% with new sprains
Control	171	30	17
Orthosis	60	2	3
Training	142	7	5

Significantly fewer sprains in orthosis ($p<0.05$) and training groups ($p<0.05$), chi-square.

Oslo Sports Trauma Research Center

Tropp H. Thesis, Linköping University, 1985

Prevention of ankle injuries
- div. VI soccer in Sweden

Group	Players with previous injury	# with new sprains	% with new sprains
Control	75	19	25
Orthosis	45	1	1
Training	65	3	3

Significantly fewer sprains in orthosis ($p<0.05$) and training groups ($p<0.05$), chi-square.

Oslo Sports Trauma Research Center

Tropp H. Thesis, Linköping University, 1985

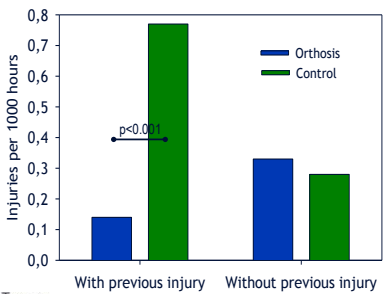
Orthoses & ankle injuries
- div. I-IV soccer in South Africa

- RCT
- Group: 629 players
- Screening of all players (former ankle sprains, stability)
- Orthosis: Semi-rigid Sport Stirrup ankle brace
- Injury: Min. one day absence

Oslo Sports Trauma Research Center

Surve I, Schwellnus MP, Noakes T, Lombard C: Am J Sports Med. 22:

Orthoses & ankle injuries
- div. I-IV soccer in South Africa



Oslo Sports Trauma Research Center

Sprains per 1000 h, Surve et al: Am J Sports Med. 22: 601-606, 1994

ABBA-study

the effect and cost-effectiveness of a preventive balance board training program on the risk to sustain acute lateral ankle injury

EALM Verhagen, MSc
AJ van der Beek, PhD
LM Bouter, PhD
W van Mechelen, MD, PhD
R Bahr, MD, PhD

Oslo Sports Trauma RESEARCH CENTER

Study design

three fixed measurements (n=1127 players)

September	January	May
baseline	*mid-season*	*end-season*
questionnaire	questionnaire	questionnaire

continuous measurements

Balance Board training program
training & game exposure
injuries
intervention group

Normal training routine
training & game exposure
injuries
control group

Verhagen et al. Am J Sports Med 2004

Balance Board training program

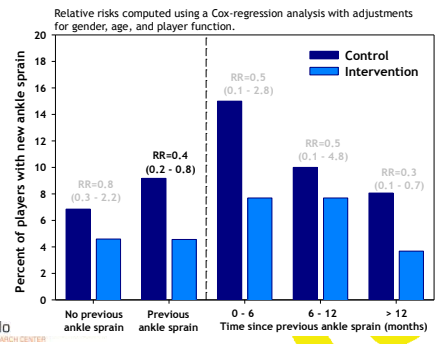
Oslo Sports Trauma RESEARCH CENTER

Verhagen et al. Am J Sports Med 2004

Balance Board training program

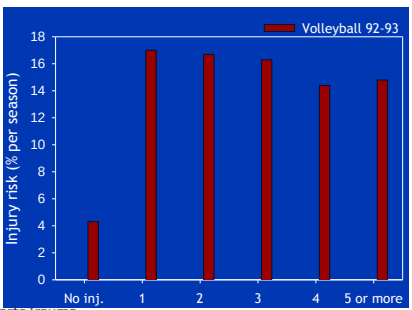
Oslo Sports Trauma RESEARCH CENTER

Verhagen et al. Am J Sports Med 2004



Oslo RESEARCH CENTER

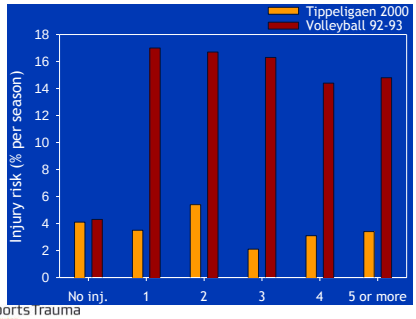
Previous injury as a risk factor



Oslo Sports Trauma RESEARCH CENTER

Bahr R. Scand J Med Sci Sports 7: 166-171, 1997

Previous injury as a risk factor



What is important for the athlete?

- PRICE treatment at once
- Correct diagnose
- Knowledge on tissue healing
- Functional rehabilitation
  - Individual
  - Quality
    - Training
    - Instruction
    - Information
    - Communication

Take-home messages

- Start PRICE treatment as soon as possible
- Start ankle movements early
- No swelling: Start balance training: **10 - 5 - 10**
- An appropriate orthosis or tape should be worn at least until completion of rehabilitation
- Taping and bracing prevents ankle injuries – at least in athletes with previous injury

Junior Handball Prevention Study

- Girls and boys (16-17 yrs)
- Cluster-randomized to two groups:
  - Intervention: N= 958
  - Control: N= 879
- Test the effects of a structured warm-up program in junior handball
  - on knee & ankle injuries

Olsen et al. BMJ 330 (7489): 449, 2005

Løp & teknikk

Olsen, Myklebust, Engebretsen, Holme & Bahr. BMJ 330 (7489): 449,

Balanse & styrke

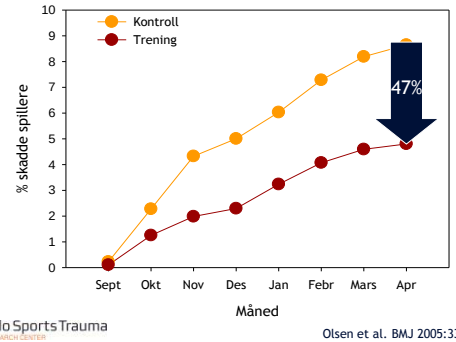
Olsen, Myklebust, Engebretsen, Holme & Bahr. BMJ 330 (7489): 449,

Oppvarming for unge håndballspillere

15-20 min: Løp, teknikk, balanse, styrke/spenst

Olsen et al. BMJ 2005:330:449-54

Kne- og ankelskader kan halveres



Oslo Sports Trauma RESEARCH CENTER

Olsen et al. BMJ 2005:330:449-54