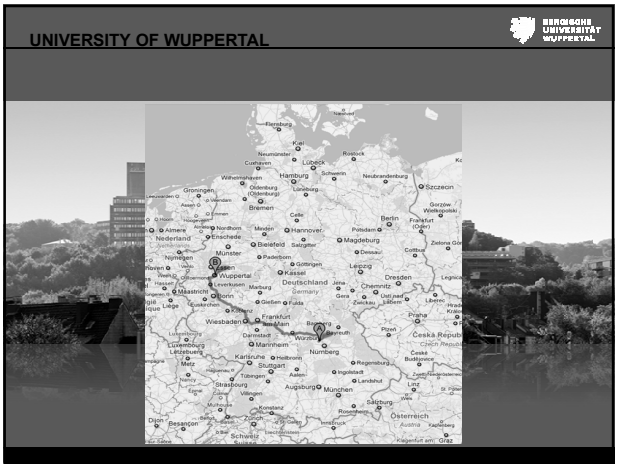

Compression Clothing –
The benefits for performance and recovery
BERGISCHE UNIVERSITÄT WUPPERTAL
Billy Sperlich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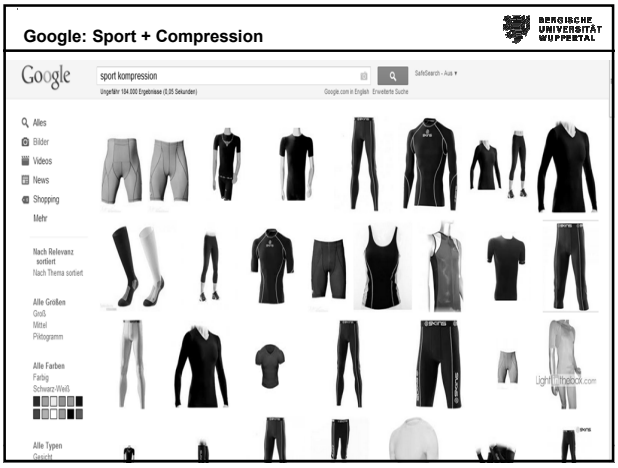
Google: Sport + Compression
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Google
sport kompression

Question

Is there a performance and recovery benefit when wearing compression textile?

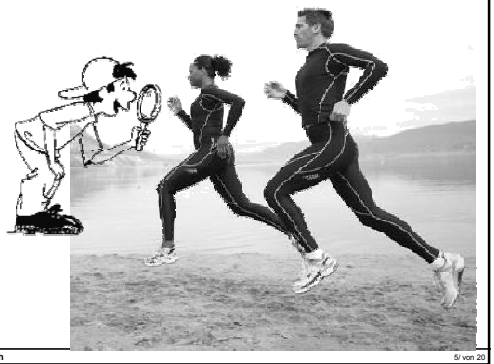
A: Yes, absolutly

B: NO!

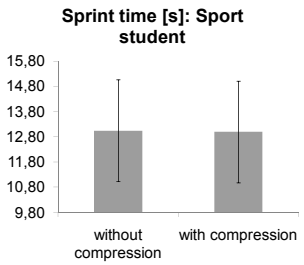
C: Maybe

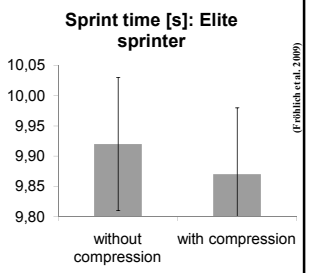
D: In an airplane

What´s the scientific bases?



Short but IMPORTANT briefing…





(Fröhlich et al. 2009)

Sport students 100-m-time: 13.04±2.02s
Increase due to compression: 0.05 s.
Effect size Cohen´s d:
13.04 – 12.99/2.02 = 0.025.

Mens 100m Olympic final: 9.92±0.11s
Increase due to compression: 0.05 s.
Effect size Cohen´s d:
9.92 – 9.87/0.11 = 0.45

Short but IMPORTANT briefing…

The „significance“ of an outcome does not provide information regarding the (practical) relevance!!!

Research

PubMed – National Library of Medicine NLM

33 Studies regarding „Compression & exercise“

Performance

1) Max. power/strength
2) Sprint
3) Jumping height
4) TLim
5) VO_2
6) VO_{2max}
7) HR
8) pO_2, SO_2
9) Lactate
10) RPE

Recovery

1) Recovery of max. strength/power
2) Recovery of sprinting
3) Recovery of jumping heigth
4) Body temperature
5) Creatin kinase
6) Further marker of muscle damage
7) Lactate
8) Plasma pH
9) HR
10) Muscle swelling
11) DOMS

Sperlich et al. 2011
Ali et al. 2010
Duffield et al. 2010
Jakeman et al. 2010a
Jakeman et al. 2010b
Kraemer et al. 2010
Sear et al. 2010
Sperlich et al. 2010
Davies et al. 2009
Higgins et al. 2009
Houghton et al. 2009
Kemmler et al. 2009
Pearce et al. 2009
Silver et al. 2009
Duffield et al. 2008
French et al. 2008
Montgomery et al. 2008a
Montgomery et al. 2008b
Scanlan et al. 2008
Ali et al. 2007
Duffield et al. 2007
Bringard et al. 2006
Gill et al. 2006
Meton et al. 2006
Trenell et al. 2006
Bernhardt et al. 2005
Chatard et al. 2004
Doan et al. 2003
Kraemer et al. 2001a
Kraemer et al. 2001b
Kraemer et al. 1998
Kraemer et al. 1996
Barry et al. 1987

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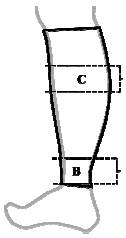
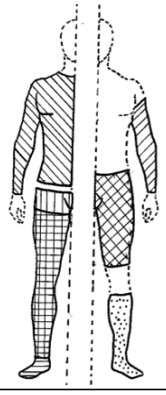
Types of compression

- 18 studies recorded actual compression
- 10 studies with „graded“ compression

SIGVARIS
CRAFT



Sperlich et al. 2010, 2011



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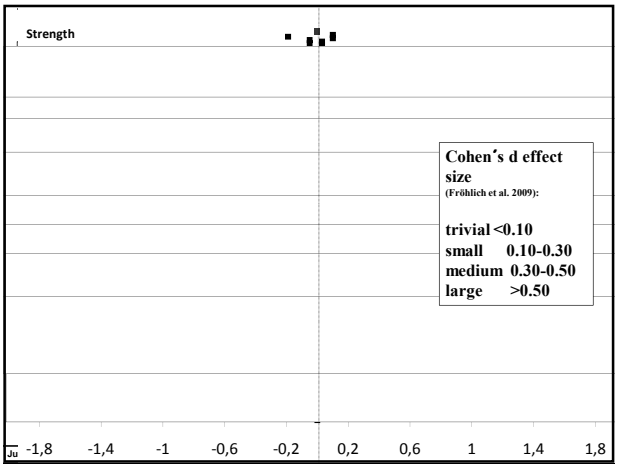
Overview 1:
Compression & Performance



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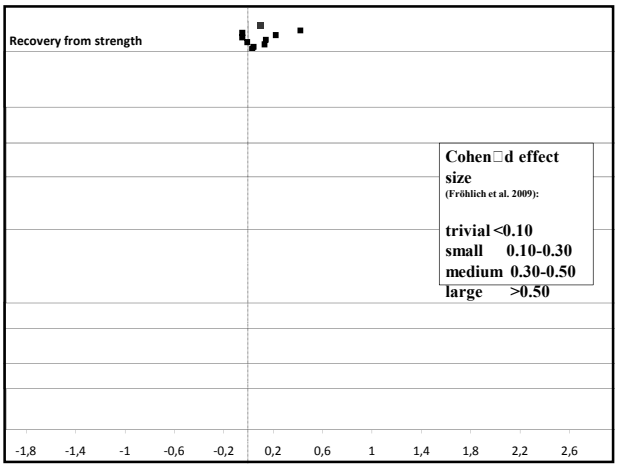
Overview 2:
Compression & recovery



So, what´s the answer?

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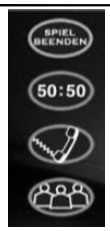

Is there a performance
benefit

Wrong question!

C: Maybe

D: In an airplane

It´s not a general matter…. rather….

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WHICH SPORT DICIPLNES (MAY) BENEFIT FROM WEARING COMPRESSION?

Neuralogical Mechanisms

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1) Proprioception ↑ Aimonetti, 2000

↓

Increased Coordination

Bernhardt, 2005

2) Muscle pain ↓ Friden, 2001; Kraemer, 2010

↓

Improved perception

French, 2008
Trendell, 2006

Example skiing

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Muscle Oscillation ↓ Kraemer (1998)

↓

Decreased muscle fatigue

Doan (2003); Bringard (2006)

Youtube.com

Example skiing

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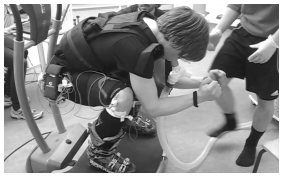

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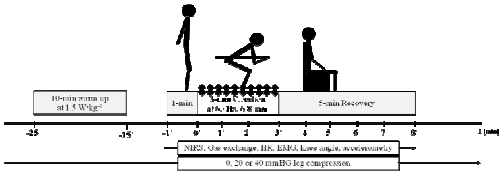
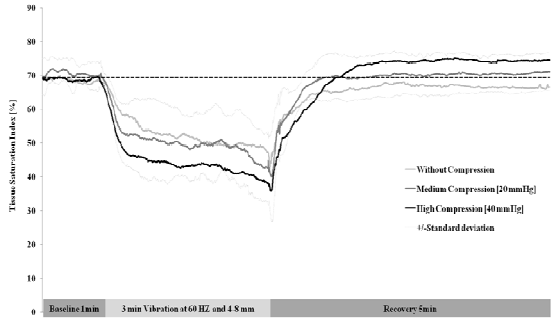
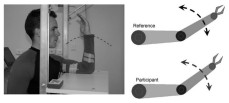


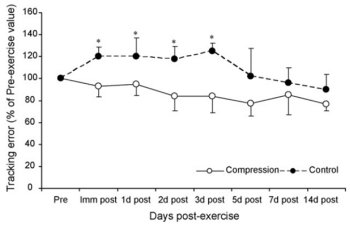
Example skiing



Example Basketball/Baseball/Bowling/Soccer….

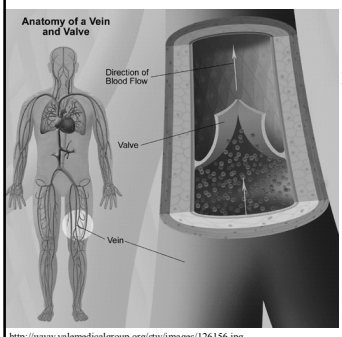
Precision:





Pearce, 2009

Mechanisms



http://www.yalemedicalgroup.org/stw/images/126156.jpg

Muscleperfusion ↑ Lewis, 1976; Stanton, 1948

↓

Increased Oxygenation Bringard, 2006

Lactate/H^+ Ionen removal Berry, 1987

↓

Venous return ↑

Stroke volume → Sperlich, 2010


Thank you!
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