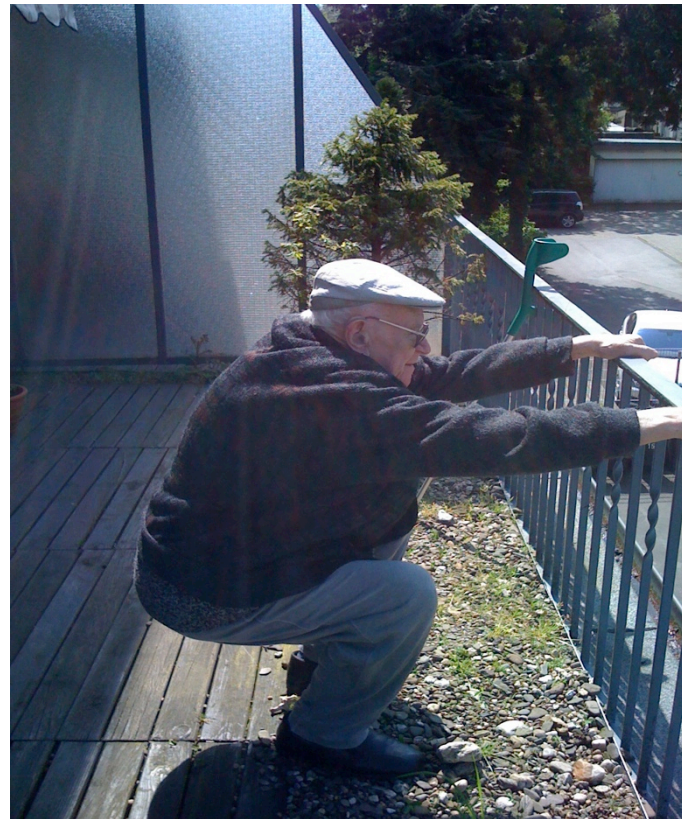
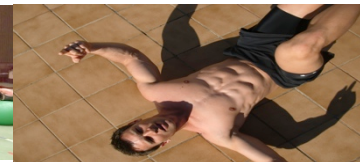
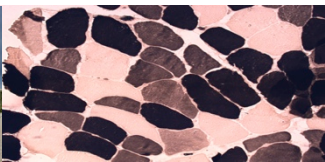
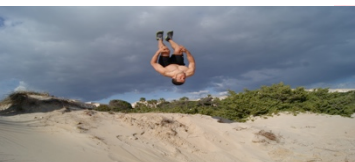


Kraft im Alter

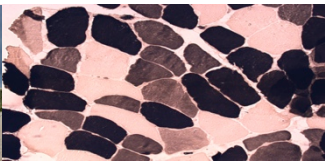
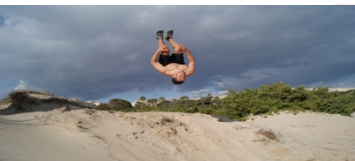


Dr. Stephan Geisler
Deutsche Sporthochschule Köln



Demografische Daten

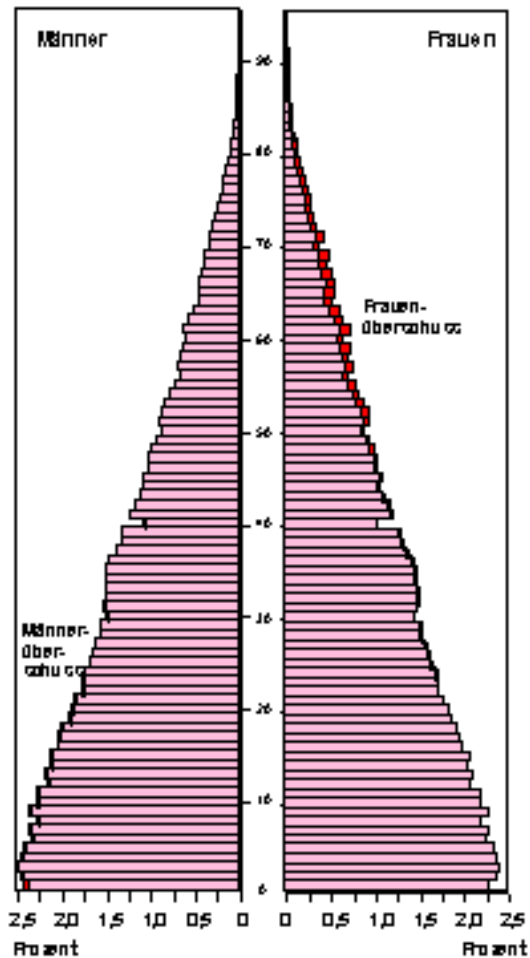
0-14 Jahre	15,57%
davon männlich	6.635.328
davon weiblich	6.289.994
15-64 Jahre	67,82%
davon männlich	28.619.237
davon weiblich	27.691.698
über 65 Jahre	16,61%
davon männlich	5.336.664
davon weiblich	8.456.615



Demografische Daten

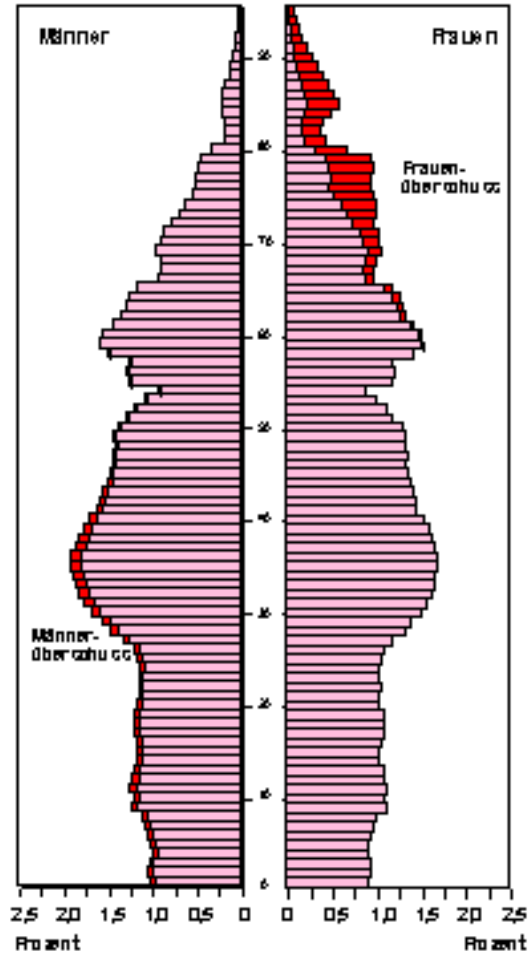
Altersaufbau der Bevölkerung in Deutschland
1910 (in %)

Alter in Jahren



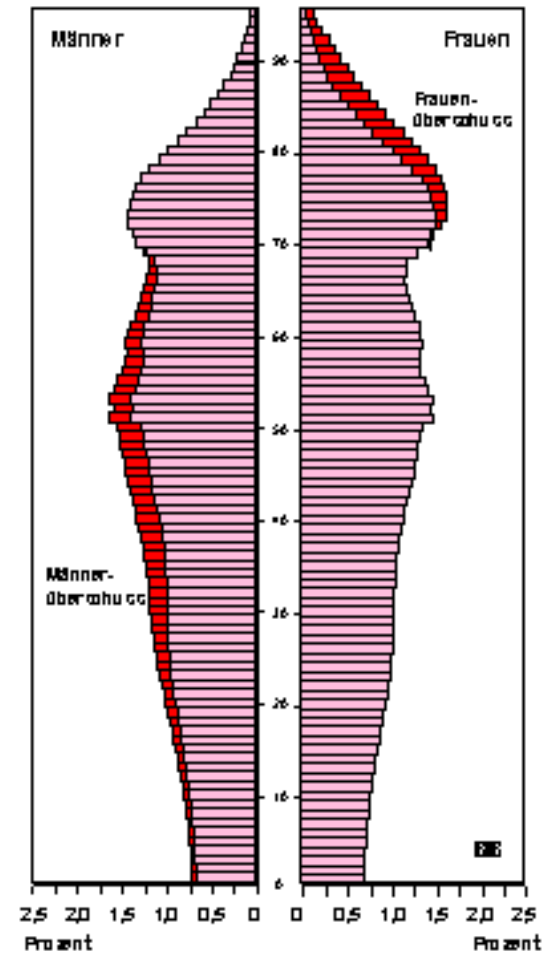
Altersaufbau der Bevölkerung in Deutschland
1998 (in %)

Alter in Jahren



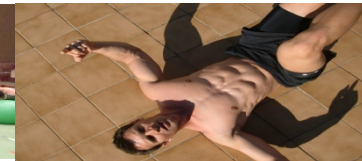
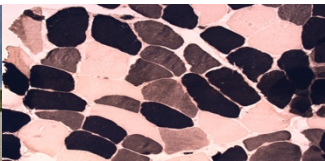
Prognostizierter Altersaufbau der Bevölkerung in
Deutschland 2050 (in %)

Alter in Jahren

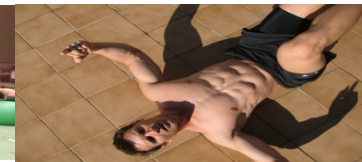
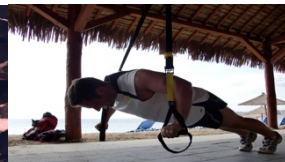
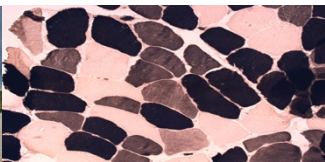
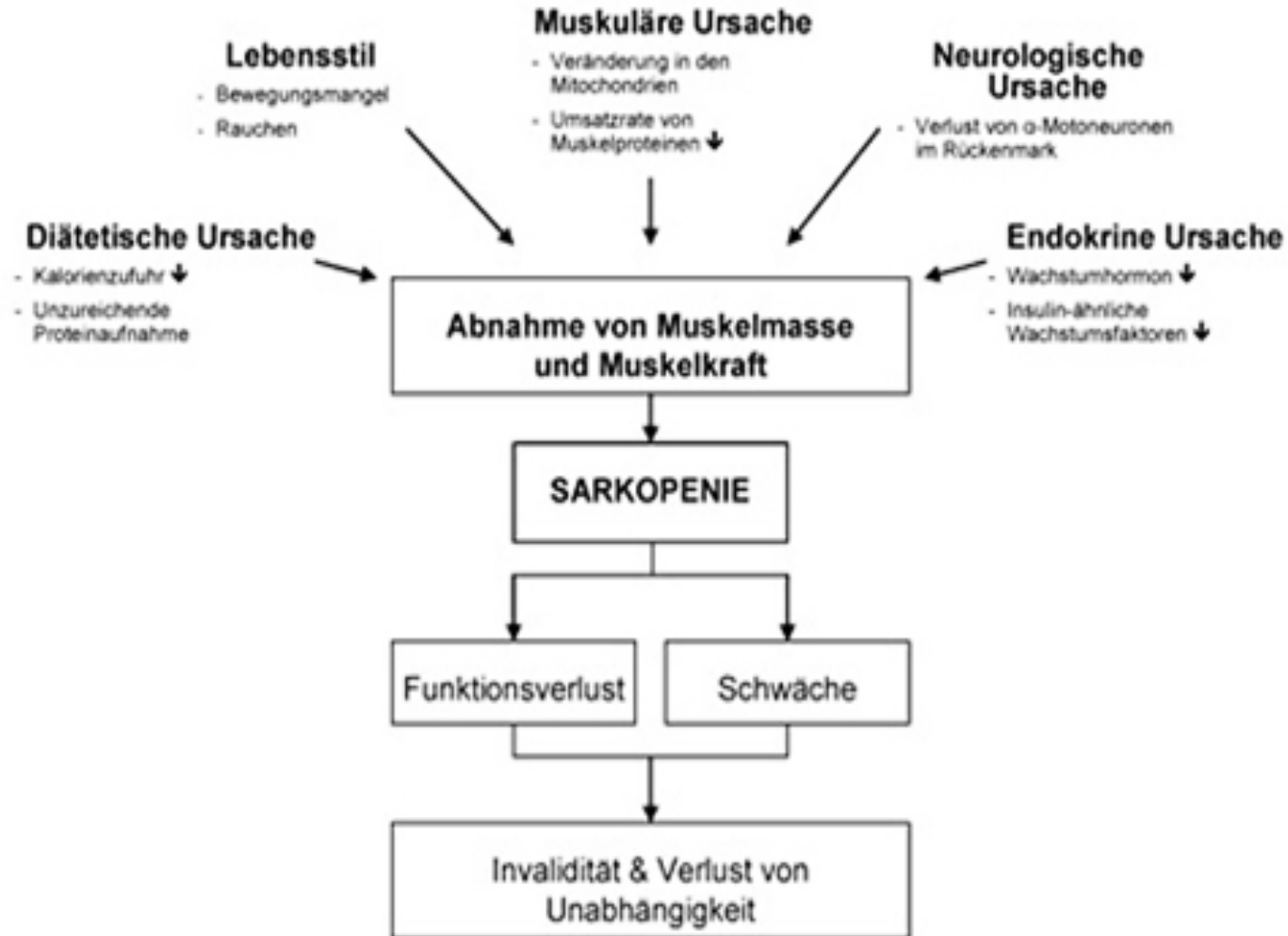


Gesundheitliche Probleme im Alter

- Sarkopenie
- Diabetes Mellitus Typ II
- Herz-Kreislauf Erkrankungen
- Arthrose
- Osteoporose
- Tod



Sarkopenie



Sarkopenie

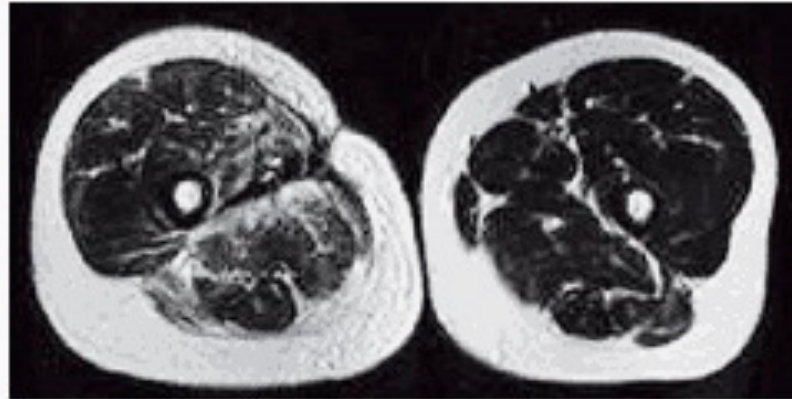


Abbildung 2 - MRI von einem Mann (32 Jahre) der Oberschenkelmuskulatur (Bild von Prof. Dr. Chris Boesch, MR-Zentrum, Inselspital Bern, Schweiz)

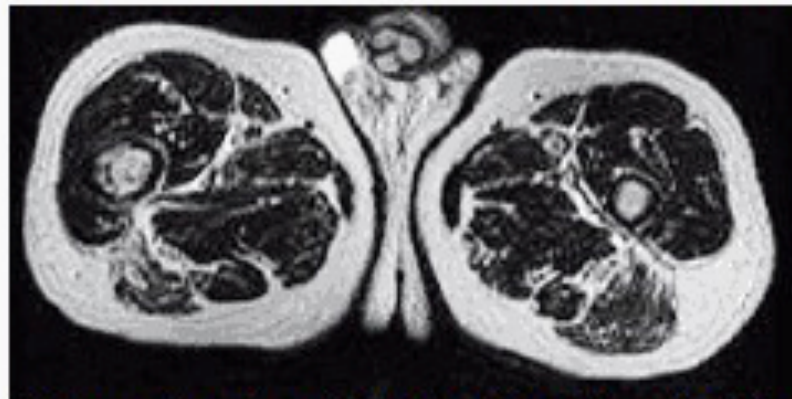
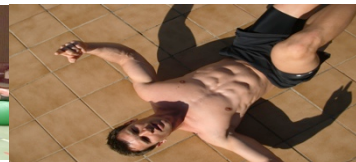
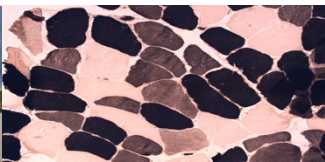
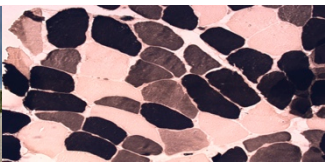


Abbildung 4 - MRI von einem Mann (81 Jahre) der Oberschenkelmuskulatur (Bild

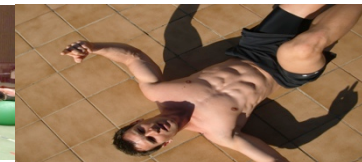
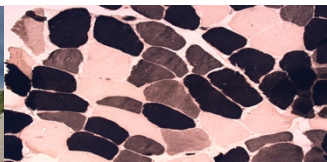
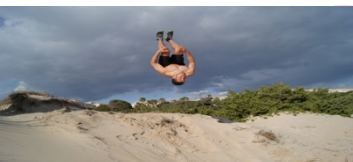
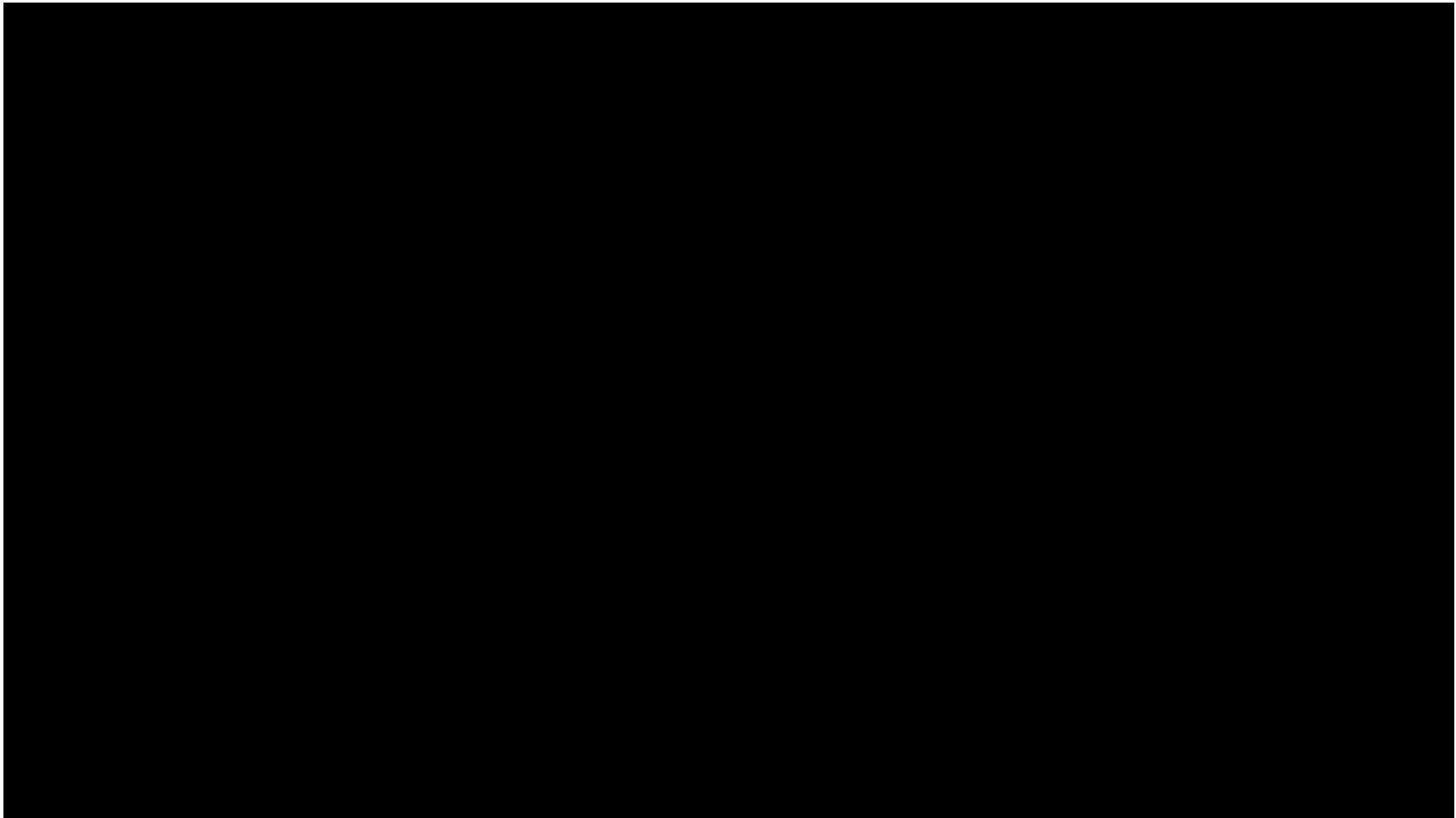


Sarkopenie

- Zwischen 60 und 95 Jahren weisen 48% der Männer und 30% der Frauen eine Sarkopenie auf [Kyle et al., 2001], bei über 80-Jährigen liegt bereits in 60% eine Sarkopenie vor [Dorrens & Rennie, 2003].
- **Durch die weiter steigende Lebenserwartung wird die Sarkopenie als eines der grössten Probleme des öffentlichen Gesundheitswesens der industrialisierten Nationen bezeichnet (Lynch, 2004).**

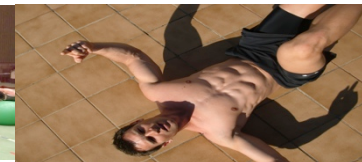
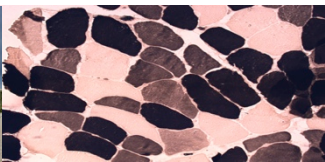


Krafttraining im Alter???



Trainierbarkeit

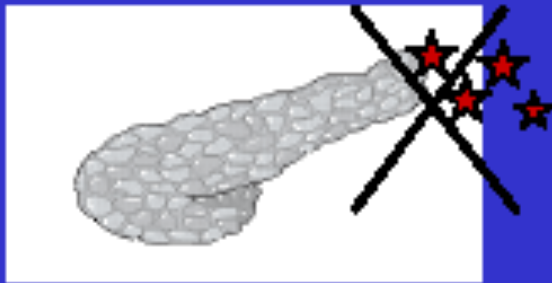
- Nach 12 Wochen ist der Muskel grösser, die Muskelkraft und die spezifische Kraft verbessert [Frontera et al., 2003] und die Syntheserate an kontraktile Eiweisse erhöht [Schulte & Yarasheski, 2001].
- 22 Wochen Krafttraining bei älteren Männern führt dazu, dass die Kraft praktisch wieder gleich gross ist wie bei jüngeren Männern [Candow, 2005]. Absolutes Minimum sind 2 Trainingseinheiten pro Woche.



Diabetes Mellitus

Zuckerstoffwechsel beim Diabetiker

Typ 1: Keine Insulinsekretion
aus den B-Zellen

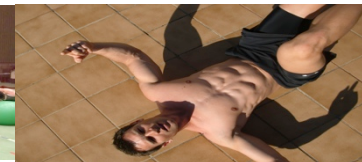
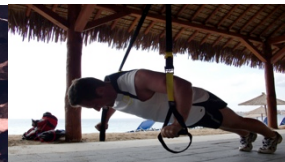
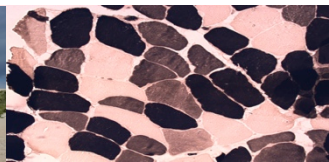
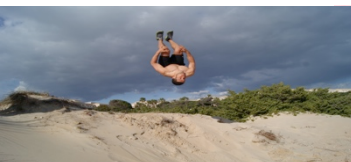


Typ 2: Die Zielgewebe sprechen
nicht mehr (genügend) auf das
ausgeschüttete Insulin an



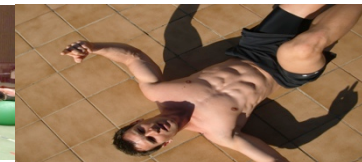
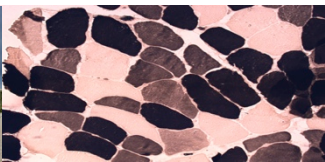
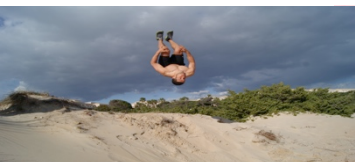
Beide Diabetestypen führen also

1. zu einem Mangel an Glucose in den Zielgeweben
2. zu einem Überschuß an Glucose im Blut

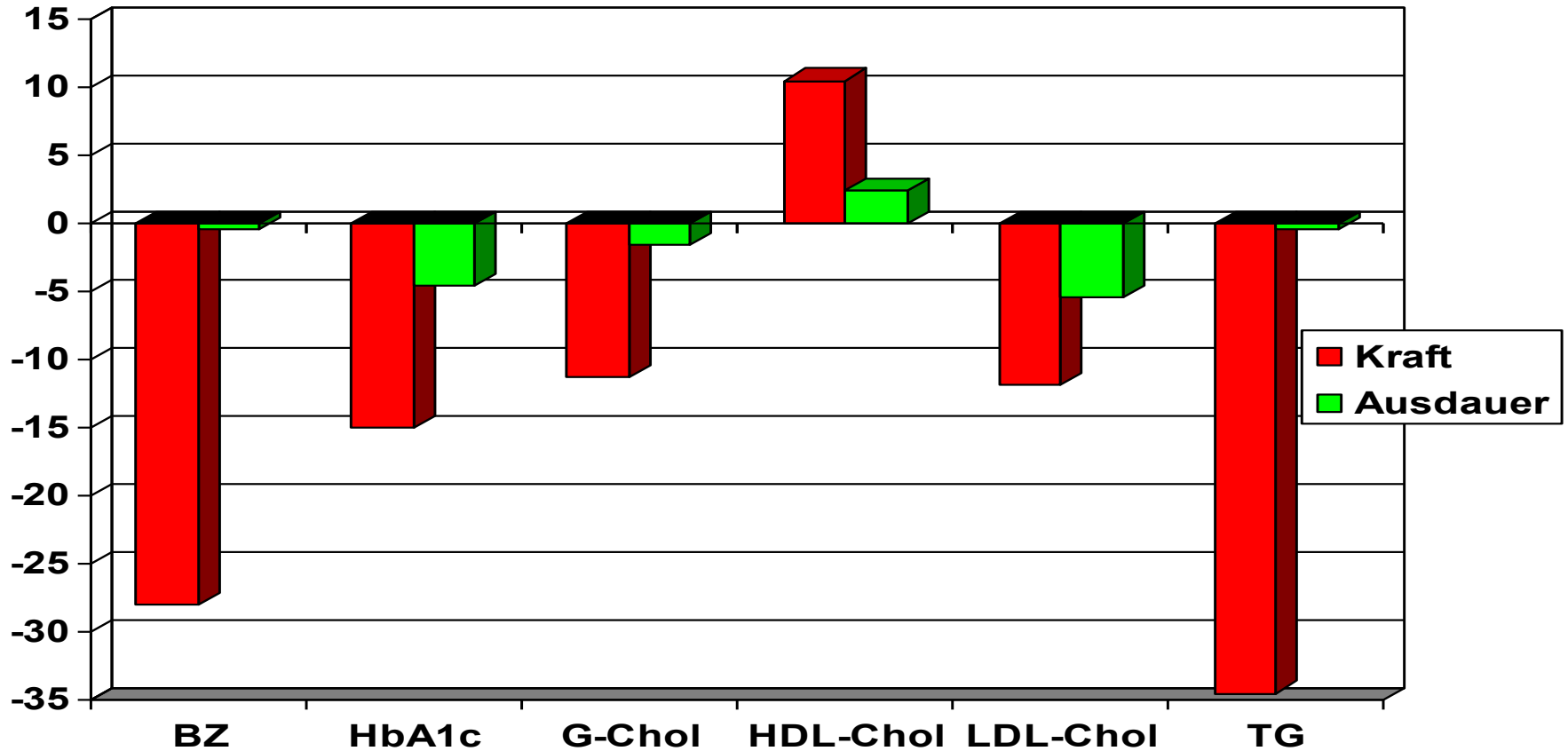


Ziele der Diabetiker-Behandlung

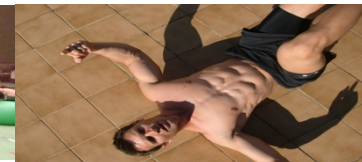
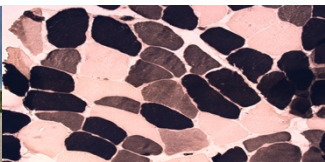
- Vermeidung von Folgeschäden wie:
- Arteriosklerose (Herzinfarkt, Schlaganfall)
- Nierenschädigung (Dialyse)
- Netzhautschädigung (Erblindung)
- Nervenschädigung (Sensibilitätsstörung)
- Hauterkrankungen (Infektionen, schlechte Wundheilung)
- Tod



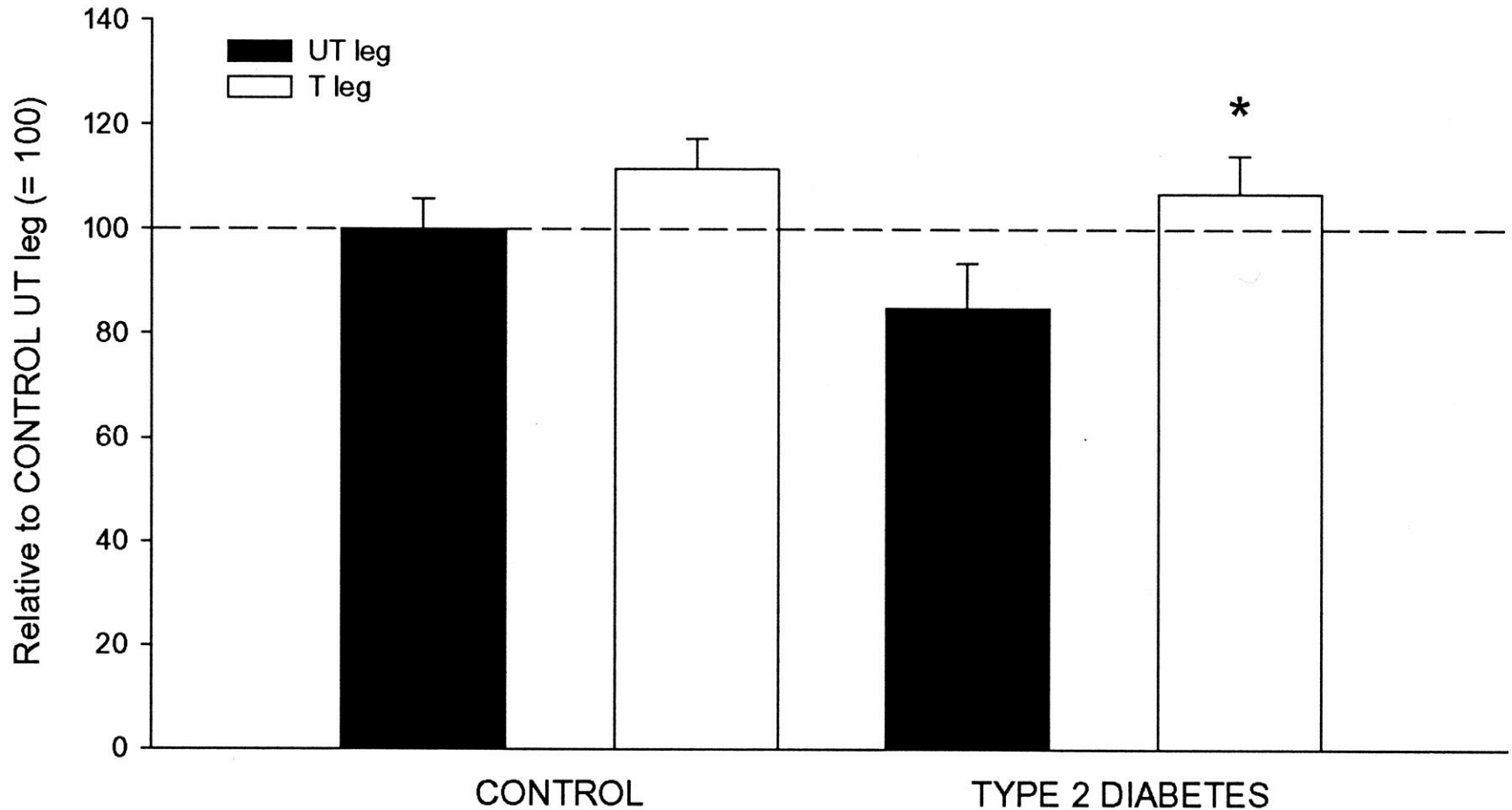
Krafttraining bei Diabetes



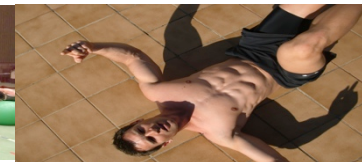
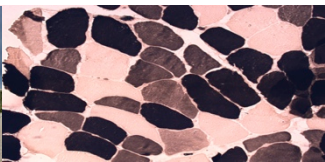
Cauza E, Hanusch-Enserer U, Strasser B, Ludvik B, Metz-Schimmerl S, Pacini G, Wagner O, Georg P, Prager R, Kostner K, Dunky A, Haber P.
Arch Phys Med Rehabil 2005 Aug;86(8):1527-33



Glut 4



- Strength training increases insulin-mediated glucose uptake, GLUT4 content, and insulin signaling in skeletal muscle in patients with type 2 diabetes.
- [Holten MK, Zacho M, Gaster M, Juel C, Wojtaszewski JF, Dela F.](#)

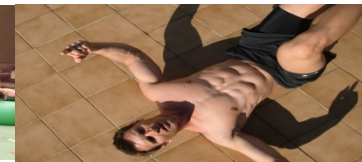
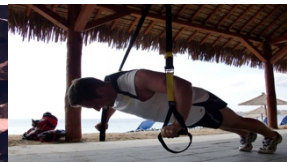
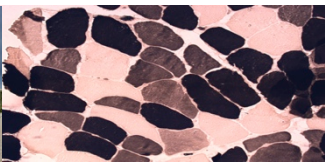


KHK

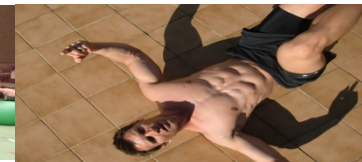
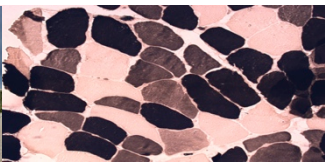
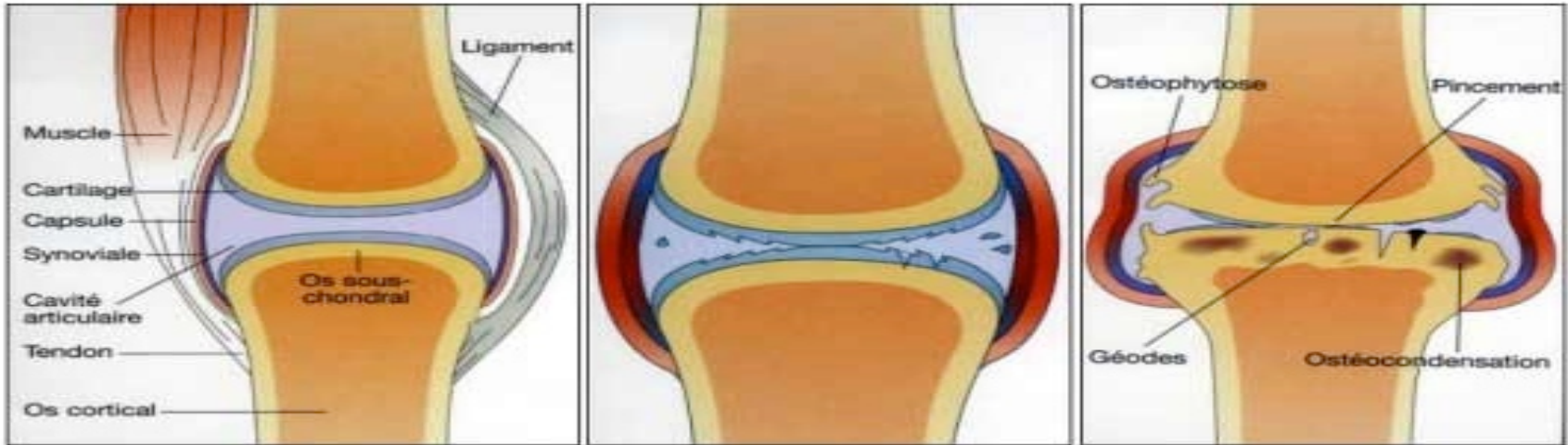
SAMPLE USE ONLY

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MEDICAL ART



Arthrose



Arthrose

Kraft- und Koordinationstraining verbessert Gangbild und Kraft bei Gonarthrose

- Reduzierung der Schmerzen:

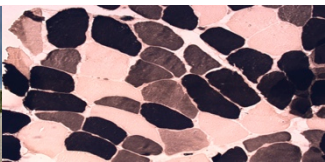
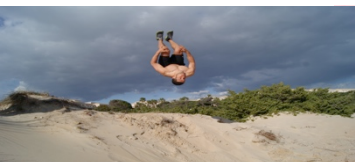
Focht et al. J Aging Phys Act. 2006

- Selbstempfundene Schmerzreduktion:

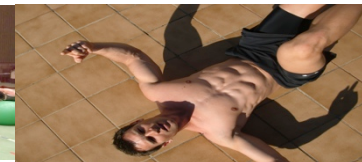
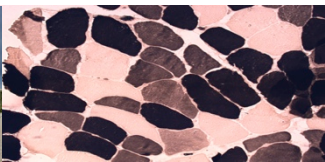
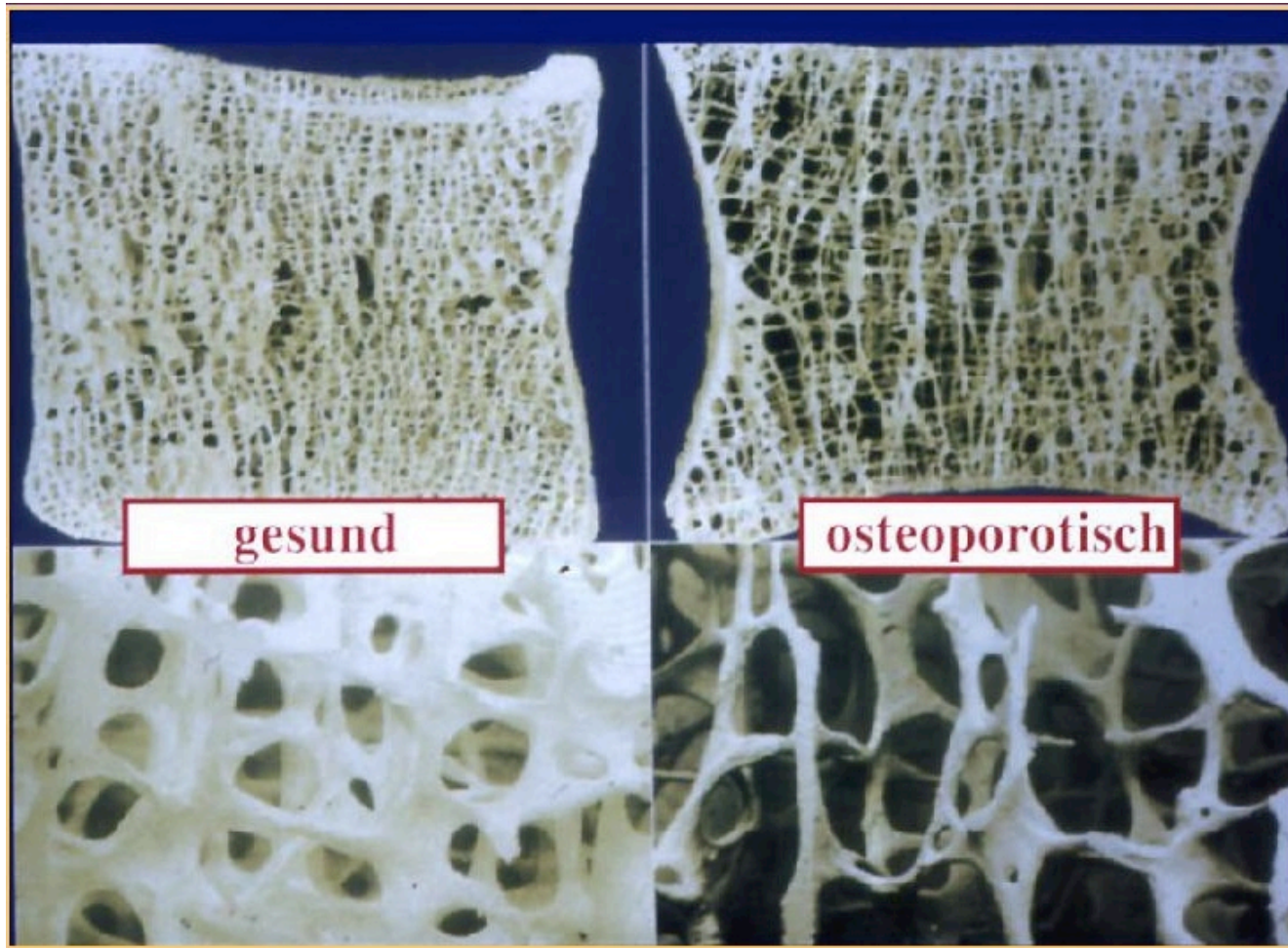
Lange et al. Arthritis Rheum. 2008

- Kraft-Kraft/Proprio-Gangbild:

Lin et al. J Orthop Sports Phys Ther. 2009



Osteoporose



Osteoporose

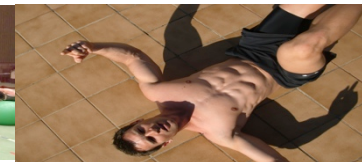
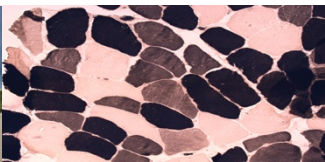
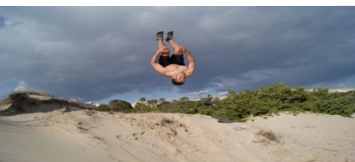


J Bone Miner Metab (2010) 28:251–267
DOI 10.1007/s00774-009-0139-6

REVIEW ARTICLE

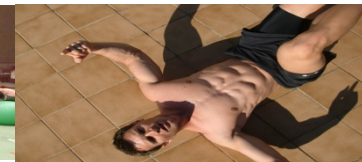
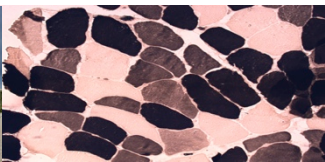
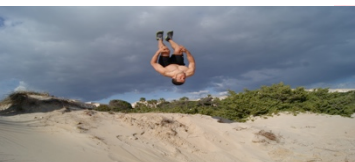
Effects of different impact exercise modalities on bone mineral density in premenopausal women: a meta-analysis

Marrissa Martyn-St James · Sean Carroll



Johann Martin

- www.athletenclub-hamburg.de
- Weltmeister Gewichtheben „Master-Class“
- Meister des Sports



Trainingsempfehlung

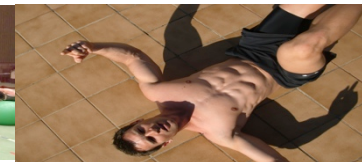
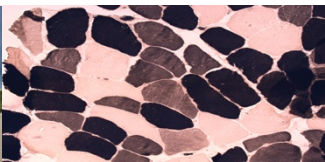
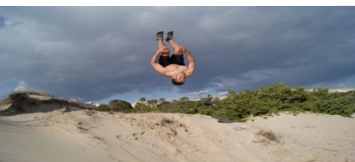
- Krafttraining für Ältere... Ist etwas NIX NEUES!!!
- Krafttraining für Ältere sollte auf die ADL (Multi-Joint) abgestimmt sein
- Krafttraining für Ältere braucht keine hohe Intensität (obwohl möglich)
- Sicherheitsregeln beachten!

Artikel im Journal: *Medicine&Science in Sports&Exercises* (2010)

Dose–Response Relationship of Resistance Training in Older Adults: A Meta-Analysis

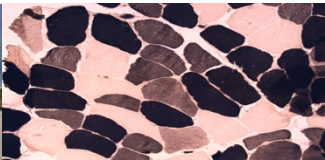
SIMON STEIB, DANIEL SCHOENE, and KLAUS PFEIFER

Institute of Sports Science and Sports, University of Erlangen-Nuremberg, Erlangen, GERMANY



Fazit:

Kraft ist nicht alles –
aber ohne Kraft ist alles NICHTS!



Stay Strong – Bleiben Sie kernig!



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