BLSV – Online Fortbildung

Concurrent Training

Billy Sperlich

Integrative6 experimentelle Trainings- und Bewegungswissenschaft
Julius-Maximilians-Universität Würzburg

PDF: Link in Bio

sportsandscience

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Vielen Dank!

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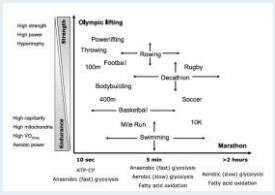
Spektrum der Sportarten



- Trainingsziel / Sportart
- Kalender
- Trainingsumfang bzgl. Kraft-, Ausdauer-, Schnelligkeitstraining
- Tradition
- Ernährung pre-, intra-, posttraining
- Regeneartion
- Support-System

- Je nach Sportart: Trainingsmix

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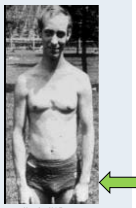
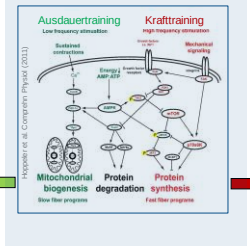
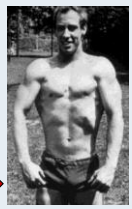
Spezifität







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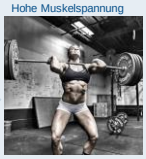
Spezifisches Training & Muskelplastizität

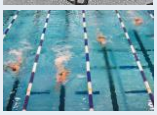
Wiederholte Kontraktion

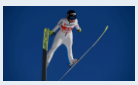
Mitochondrienbiogenese

Proteinsynthese

Hohe Muskelspannung







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Hohe Plastizität auch im Altersgang

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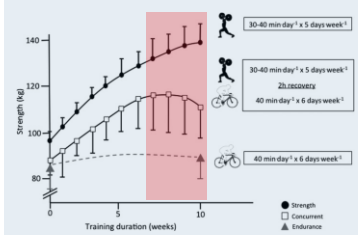
Wie alles begann…

Interference of Strength Development by Simultaneously Training for Strength and Endurance

Robert C. Hickson

Subjects and training program. Nine healthy men age 18 to 27 yr (mean = 23 yr) volunteered for the study. None of the subjects had been training regularly for six months or longer, but most were active in recreational sports. The



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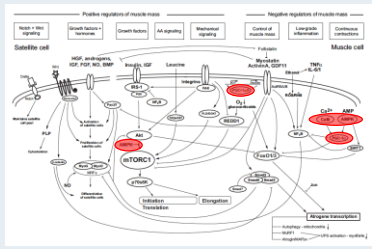
Komplexität der Signalwege in der Skelettmuskelanpassungen

Molecular networks in skeletal muscle plasticity

Hans Hoppeler*

= hemmende Signalwege, die in Bezug auf CT meist Erwähnung finden



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Wie viel „Mensch“ steckt in den Publikationen?

REVIEW ARTICLE

The Molecular Bases of Training Adaptation

Vernon G. Coffey and John A. Hawley

Paragraph „Concurrent Training“

- 16 „Original Research“ Quellen
  - Human: 4x
  - Rodents / Rats: 1x
  - Isolated rat muscles: 1x
  - Cell Culture: 9 x

- Riedy and colleagues[270]: rodent skeletal muscle
- Stone and co-workers[271]: rats
- Pulman and colleagues[272]: human
- Coffey VG, Zhong Z, Shield A, et al.: human
- Coffey VG, Shield A, Canny BJ, et al. : human
- Browne GJ, Proud CG. [273]: mammalian cells
- Ryazanov AG. : rat or rabbit cells
- Horman S, Browne GJ, Krause U, et al. : rat cells
- Rose AJ, Broholm C, Kiilerich K : human
- Atherton and co-workers [46]: isolated rat muscles
- Browne GJ, Proud CG [277]: cell culture
- Wang X, Li W, Williams M, et al. [212]: cell culture
- Sandri M, Sandri C, Gilbert A, et al. [169]: cell culture
- Daitoku H, Yamagata K, Matsuzaki H, et al. [278]: cell culture
- Matsuzaki H, Daitoku H, Hatta M, et al. [279]: cell culture
- Southgate RJ, Bruce CR, Carey AL, et al. [280]: human muscle biopsy; cell culture (retracted)

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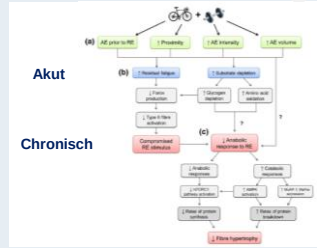
Akute und chronische Inteferenz

REVIEW ARTICLE

Interference between Concurrent Resistance and Endurance Exercise: Molecular Bases and the Role of Individual Training Variables

Jackson J. Fyfe · David J. Bishop · Nigel K. Stepto



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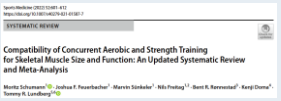
Übersichtsarbeit



SYSTEMATIC REVIEW

Compatibility of Concurrent Aerobic and Strength Training for Skeletal Muscle Size and Function: An Updated Systematic Review and Meta-Analysis

Moritz Schumann · Joshua F. Feuerbacher · Marvin Sünkeler · Nils Freitag · Bent R. Rønnestad · Kenji Doma · Tommy R. Lundberg

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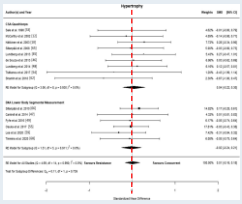
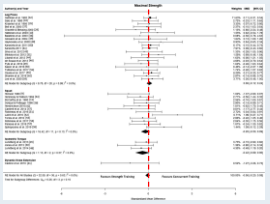
Effekte von Kraft & Ausdauer vs. Kraft auf…

Hypertrophie



Maximalkraft



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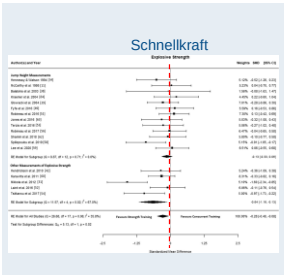
Effekte von Kraft & Ausdauer vs. Kraft auf…



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Wie „spezifisch" sind diese Aussagen?

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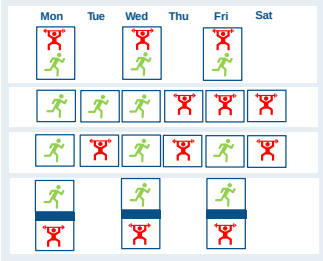
Ausdauer-/Krafttraining – Timing?



"Interference effect"

"it is unclear how much interference effect occurs when simultaneously training for three disciplines of swimming, cycling and running." (Extebarria, Mujika, Pyne Sports 2019)

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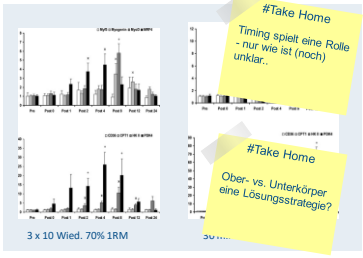
Timing

The mRNA (biologic messenger that translates exercise stimuli into anatomical, biochemical, and physiological adaptations) returns to pre-exercise levels within 24 h



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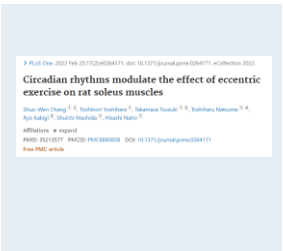
Timing



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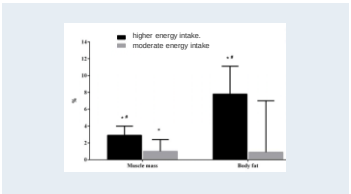
Ernährung - Hypertrophie



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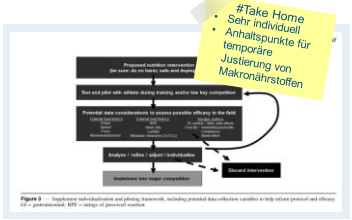
Mikro-, Meso-, Makrozufuhr an Kohlenhydrat/Protein/Fett



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Spezifisches Training & Muskelplastizität

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Vielen Dank!

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/billysperlich

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