

1-1-2014

# Research Review: Effect of supervised, periodized exercise training versus self-direct training

Mike Climstein

*Bond University*, [mike.climstein@sydney.edu.au](mailto:mike.climstein@sydney.edu.au)

Joe Walsh

Follow this and additional works at: [http://epublications.bond.edu.au/hsm\\_pubs](http://epublications.bond.edu.au/hsm_pubs)



Part of the [Sports Sciences Commons](#)

---

## Recommended Citation

Mike Climstein and Joe Walsh. (2014) "Research Review: Effect of supervised, periodized exercise training versus self-direct training" *Network,,* .

[http://epublications.bond.edu.au/hsm\\_pubs/667](http://epublications.bond.edu.au/hsm_pubs/667)

# Research Review

## Fitness gains: Self vs PT-trained

**Title:** Effect of Supervised, Periodized Exercise Training versus Self-Directed Training

**Author:** Dr's Storer et.al (University of California Los Angeles, USA)

**Source:** *Journal of Strength & Conditioning Research*, pre-publication, 2014

**Introduction:** University is back in full swing, which means I have a new cohort of enthusiastic students studying to be doctors, exercise and sports scientists, researchers, physiotherapists and researchers. The stress placed upon students to excel is well established, however many individuals forget that the professors are also stressed – from time-to-time at least... I recommend to all of my students that they have a good balance of study and personal wellbeing, whether that be achieved via surfing, swimming, yoga or weight training – just so long as the stresses are kept in balance. One can't be hypocritical, so I practice what I preach and either surf or hit the gym every day during the week to maintain that all-important balance.

When training I can't help but listen to the 'guidance' being provided around me, quite often by unqualified individuals who are, to be polite, less than accurate. Yet, quite a number are hesitant, for any number of reasons, to procure the services of a personal trainer to help them achieve their goals.

Ultimately, individuals want to be confident that time and money spent on a personal trainer will be worth the investment. This new research conducted by Dr Storer and his colleagues supports the notion that it is. Although there are literally thousands of research findings on the effects of aerobic exercise and progressive resistance training, surprisingly, a review of the literature identified a scarcity of support for personal trainers.

**Method:** As this was a traditional research project, 34 individuals (healthy males, 30 to 44 years of age with three months of exercise experience) who

were members of a commercial health and fitness facility volunteered to participate in the study. They were randomised into two groups, one of which was to complete 12 weeks of periodised exercise training under the guidance of qualified personal trainers (TRAINED) and the other of which was to complete 12 weeks of periodised exercise training without any guidance (SELF). The researchers were interested in gains in lean body mass (measured by dual energy x-ray absorptiometry (DXA)), muscular strength (1-RM), muscular power (vertical jump height), and aerobic capacity (i.e.  $VO_2$  max assessed using a treadmill). To further support the integrity of the findings by eliminating any potential 'testing bias', the study used 'blinded investigators', meaning the researchers that did the pre- and post-testing were not aware of which group the participants were in.

**Results:** Not surprisingly, nine subjects withdrew from the study at various points (5 from TRAINED, 4 from SELF) due to either moving out of the area or inability to meet the training commitments. The training volume completed by the TRAINED group averaged 150 minutes during their planned session. Subjects in the SELF group completed 172 minutes of exercise per week, with the majority of their training spent in resistance training (39 per cent) followed by jogging (27 per cent) and 'other activities' (29 per cent). Both groups had very high compliance to the three day per week training requirement. Over and above this, the TRAINING group completed an additional 1.8 days per week of further training, while the SELF group completed 1.3 extra days per week over the 12-week training period.

With regard to lean body mass, the TRAINED participants gained an average of 1.3kg in lean muscle mass over the 12 week period, whereas the SELF group demonstrated a 0.0kg increase in lean muscle mass, which represents quite a significant difference between the two groups. Additionally, the TRAINED group improved their percentage body fat by approximately 2.0 per cent over the 12 weeks compared to only 1.0 per cent improvement in the SELF group.

With regard to muscular strength, the TRAINED group significantly increased both their chest press strength and leg press strength by 42 per cent and 35 per cent, respectively. The SELF group, however, increased their chest press strength and leg press strength by only 19 per cent and 23 per cent respectively. The estimated peak and average leg muscle power was increased significantly in the TRAINED group by 6 per cent and 10 per cent, whereas the SELF group only increased by 0.6 per cent and 0.1 per cent, which represents quite a dramatic difference in improvement between the two groups. With regard to maximal aerobic capacity, the TRAINED group increased their relative  $VO_2$  max (ml/kg/min) significantly by 7 per cent. Conversely, the SELF group only increased their  $VO_2$  max by 0.8 per cent.

The authors concluded that this was the first study to describe the effectiveness of supervised, periodised training in a commercial health and fitness facility.

**Pros:** This is an excellent study which lends empirical evidence/support to the benefits associated with using personal trainers. It is interesting that the self-training group completed approximately

15 per cent higher volume of exercise yet demonstrated far fewer gains than the PT-trained group in all parameters assessed. If time spent training had a direct positive correlation with results achieved, as might be expected, the SELF group should have had greater improvements than the TRAINED group. In fact, the opposite was the case and in quite dramatic fashion across the board. Clearly, the TRAINED group was more 'economical' with their training time. With more economical use of time and spectacularly better results, the findings reported in this Research Review would make excellent information to discuss with a client or prospective client who maybe considering training on their own, without the support of a personal trainer.

**Cons:** It would have been interesting to see whether the TRAINED group could maintain the benefits, or even further improve the gains, without the supervision. **n**

#### EXERCISE AS TREATMENT FOR CHRONIC DISEASE

Fitness professionals may be interested in attending the Exercise As Treatment conference scheduled for 1 May at Bond University on the Gold Coast. The conference will address the evidence and rationale of different types of exercise for chronic diseases. Visit [www.exerciseastreatment.net.au](http://www.exerciseastreatment.net.au) for details.

*Dr Mike and Joe Walsh are supported in writing their Research Reviews by Human Kinetics.*



#### Associate Professor Mike Climstein, PhD FASMF FACSM FAAESS AEP

Dr Mike is the program director of Clinical Exercise Science and co-director of the Water Based Research Unit at the Faculty of Health Sciences and Medicine at Bond University, QLD. He is recognised as one of Australia's leading accredited exercise physiologists working with patients suffering from a wide array of chronic diseases and disorders. For more information on this, or any recent Research Reviews, email [michael\\_climstein@bond.edu.au](mailto:michael_climstein@bond.edu.au).



#### Joe Walsh, MSc

Joe is a highly experienced sport and exercise scientist, currently working as a principle investigator on a series of observational studies investigating the demographics of various cohorts of master athletes. Joe's research interests include mathematical modelling, in particular use of Monte Carlo Methods and Markov Chains for modelling sports performance. He and Dr Mike have authored many scientific publications with findings presented at international conferences in Europe, Asia and North America.



## EDUCATION

### NETWORK'S ELITE FUNCTIONAL TRAINER CONTINUING EDUCATION FOR HIGH PERFORMERS

Discover a new and unique approach to integrated movement with the Fitness Australia-approved, Elite Functional Trainer certification.

Developed by one of the global fitness industry's leading experts in functional training, Chuck Wolf, this course teaches you how to use functional anatomy, movement analysis and advanced program design to enhance your clients' performance.

- ▶ Delivered online – anywhere, anytime, at your own pace and around your busy schedule
- ▶ Combine your knowledge and experience with the latest science in functional movement to maximise your clients' performance
- ▶ Consists of five individual but interconnected modules – complete all five to become an Elite Functional Trainer.

#### READY TO TAKE YOUR SKILLS TO THE NEXT LEVEL?

Head to [www.fitnessnetwork.com.au/functional-trainer](http://www.fitnessnetwork.com.au/functional-trainer) or phone **1300 493 832** to talk to one of our friendly career consultants.

