

# Scientific breakthrough reveals secret to successful exercise programmes

January 18 2013

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Cyclists during the trial which identifies an optimum athletic training intensity.

Do you feel like exercise just leaves you fatigued without any real improvements? A study of cyclists by scientists at the University of Stirling has uncovered the secret to successful training, a discovery which could help us all lead healthier lives.

Health and Exercise scientists from Scotland's University for Sporting Excellence put 12 cyclists through their paces during a 29-week trial to determine optimum [athletic training](#) intensity.

"Quantity and quality of training has provided a quandary for coaches and athletes for many years, but this study is the first of its kind to

provide an answer to the problem," explained Dr Stuart Galloway, who led the study.

Split into two groups, six cyclists completed a block of 80% low and 20% [high intensity training](#) whilst the second group pedalled at 55% low and 45% moderate intensity.

After a four week [rest period](#), the groups then switched over and the results showed the block combining high and low intensity exercise sessions increased both power and performance twice as much as the block with low and moderate intensity training.

Dr Galloway added: "It is a case of training smarter. We found in these [cyclists](#) that if you can make the hard sessions harder and the easy sessions easier then you will likely see better progress. [Amateur athletes](#) tend to spend a lot of their training in a [moderate intensity](#) bracket which in our study showed much smaller improvements.

"For the wider public, most people were advised to do moderate-level [intensity exercise](#) for around three hours a week then more recently, high intensity bouts of exercise such as spin cycling classes or interval running have been presented as the best option. We would suggest that while high intensity is still important, it's the combination with low intensity which has the biggest impact."

This combination is also beneficial when it comes to aiding recovery, a vital component in improving physical health.

Dr Angus Hunter, senior lecturer in exercise physiology and co-author on the study, said: "Muscle fatigue can be detrimental to a successful long-term [exercise](#) programme, but our study suggests that a much quicker recovery occurs when adopting the low and high intensity combination. Your muscles may be fatigued more quickly when you

work at a high intensity, but they recover more quickly too.

"We understand that for an athlete, their training intensity will vary depending on whether they are building towards a competition or in the off-season, but this study offers a good model to enable you to hit your peak."

The full study, completed in partnership with colleagues at University College Dublin, can be viewed in the [Journal of Applied Physiology](#).

Provided by University of Stirling

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