



THE REHAB ROOM

PLYOMETRICS

Heavy legs off the bike?

The last article I wrote featured the benefits of strength training in the endurance athlete. Following on from this theme, this month we will look at how plyometric training has been found to improve motor control in the triathlete when running off the bike. Plyometric exercises are explosive exercises that take a muscle from a lengthened contracted state to a shortened contracted state in the shortest possible time. They aim to improve speed and power and have been thought to improve running economy by improved muscle co-ordination and activity.

Cycling prior to running has been found to have a negative effect on some people's muscle control and ability to run, when compared to the muscle activity patterns in just running alone. This altered muscle control and activity has been associated with exercise related leg pain and possibly injury.

In 2011, a study by a group of Australian sports medicine professionals looked at the effects of plyometric training in improving motor control and running efficiency off the bike. The study looked at 15 well trained triathletes and then using electrical activity muscle testing identified those that had abnormal muscle activity upon running off the bike. 8 of the 15 athletes displayed these abnormal patterns.

These 8 athletes were then split into a plyometric training group and a control group and underwent an 8 week training programme involving 3x30 mins plyometric sessions a week. The control group just continued their normal training. Plyometric exercises included drills such as bounding, skipping, hopping, hurdling and scissor jumps.

Neuromuscular control (ie – how the muscles operate and co-ordinate) was corrected in 100% of all athletes involved in the plyometric programme. However, only 40% of the control group saw this improvement. Running economy did not differ between the groups.

This suggests that a plyometric programme can help correct altered muscle patterns often observed in running off the bike to more normal patterns observed in a sole run. Whilst this did not change running economy there may be a role for injury prevention.

To note is that a plyometric programme must be gradually introduced, starting with gentle basic movements and progressing to more complex and intense ones over time. A decent baseline level of strength, flexibility and balance is needed prior to commencing. Being injury free is important. It has been suggested you need to be able to squat 60% of your body weight for 5 reps before starting basic plyometric exercise which any athlete should be able to do. Plyometric exercise depth and intensity will differ from athlete to athlete depending on their demands, so an endurance athlete may need as an aggressive programme as a sprinter or jumper but a coach or conditioner should be able to guide you on this.

Here is a link to the paper mentioned above should you want more info:

<https://ojs.ub.uni-konstanz.de/cpa/article/viewFile/4441/4130>

Happy racing!

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Examples of plyometric exercises:

