

# **The Effect of Skins Compression Garments on Post-Exercise Blood lactate in Competitive Triathletes**

Balmoral Triathlon Club, Sydney. June 2003.

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## **Aim:**

The objective of this study was to show reduced fatigue after sustained endurance exercise in trained athletes wearing Skins. Blood lactate was used as a marker of physiological fatigue as it indicates prior exercise intensity. Blood lactate recovery has also been shown to indicate restoration of muscle physiology; a second objective of this study was to show that blood lactate removal is accelerated whilst wearing Skins.

## **Methods:**

Eight members of the Balmoral Triathlon Club, Mosman, Sydney (n = 8) of similar age and body size carried out the study. (Mean age was 23.5 years +/- 3 years and average weight 70 kgs +/- 9.9 kgs) were studied over four periods of exercise, each Saturday morning for four weeks. On each study, the group cycled 57.2kms, which included hills and level terrain and on each occasion the group completed the distance on average in 2 hrs 15 minutes. The average speed for the distance was 25.4 kph. In the study there were two females and six males.

The first study (T1) involved all subjects (n=8) not wearing any skins or long garments during the course of the ride. One cyclist (CTRL1) after T1 remained not wearing Skins during the next 3 tests. Another cyclist (CTRL2) remained in Skins for the remaining 3 tests. Each of the remaining group of n=6 and including the two females wore skins for the next 3 test groups. In test 2 (T2), the group (n=7) wore Skins with exception of CTRL1 (n=1).

In test 3 (T3) half of the group (n=3) wore skins whilst the remaining part of that group (n=3) either wore cycling nicks or other manufacturers long Lycra style tights. In test 4 (T4) the group (n=6) changed over with the group not wearing Skins in T3 wearing them for this test and the group who did wear Skins in T3, removing them for T4.

The Skins garments used had a compression rate of average 12mm Hg at the calf and a MCV of 10mm Hg at the thigh. Compression garments were used only on the legs and the athletes were all lightly framed in body size.

## **Results:**

During testing some subjects when not wearing Skins chose to wear similar long tight products. The results occurring from three subjects who chose to wear such garments were included in the Not Wearing Skins group and these garments appeared to play no significant part in either reducing or elevating blood lactate readings. One subject whose

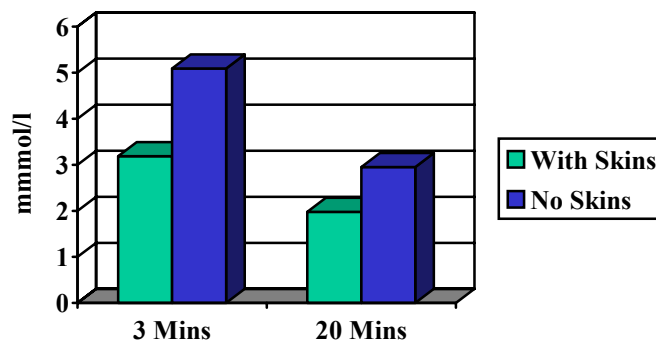
blood lactate concentration was completely recovered at 20 minutes was excluded from the study.

In T1, (n=7, No Skins) blood lactate readings at 3 minutes immediately post activity averaged 4.52mmol/l (range: 2.7 - 6.4mmol/l). At twenty minutes post activity the average blood lactate reading was 3.37mmol/l (range: 3.37 - 4.7mmol/l).

In T2, (n=7, Skins) the average BL was 3.0 mmol/l at 3 minutes and 2.1 mmol/l at 20 minutes. In T3-Skins, the average BL at 3 minutes (n=4) was 3.3 mmol/l and 1.3mmol/l at 20 minutes. T3- No Skins (n=3) averaged 6.0 mmol/l at 3 minutes and 2.7 at 20 minutes. In T4-Skins (n=4) the average BL at 3 minutes was 3.03mmol/l and 2.56mmol/l at 20 minutes. The T4-No Skins group averaged 4.8mmol/l at 3 minutes and 2.76mmol/l at 20 minutes.

In every test, the group wearing skins had both a better 3-minute post activity as well as a 20-minute post activity. Fig 1 shows the relationship between the overall wearing of Skins and not wearing Skins from the four-week study period. The improvements can be identified as being a drop by percentage value between not wearing Skins and wearing Skins of 37% (from 5.09mmol/l average to 3.19mmol/l at 3 minutes) and a reduction of 38% at 20 minutes (from 2.95mmol/l to 1.98mmol/l).

**Figure 1: Post-Exercise Blood Lactate in Triathletes with and Without Skins Compression Garments**



**Conclusion:**

The test results show a reduction in blood lactate during/immediately after road cycling (57kms) over 2 hours 15 minutes of 37% when wearing Skins as opposed to not wearing Skins. With post recovery at 20 minutes we see a reduction in blood lactate levels of 38% between subjects wearing Skins and not wearing Skins.