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Evaluation of the T/LH Ratio

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Evaluation of the T/LH Ratio

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Administration of exogenous testosterone can be detected in urine by the ratio of testosterone to epitestosterone (T/E) as well as by the ratio of testosterone to luteinizing hormone (T/LH) [1-4]. Only the T/E ratio has been officially adopted by the International Olympic Committee (IOC). The IOC applies the criterion that a urine specimen with a T/E > 6 is positive.

To determine the practical value of the T/LH ratio we studied the effect of exercise on the T/LH ratio. Five male well trained caucasians participated in an exercise test of 5.5 hours on a bicycle ergometer, that was designed to simulate a race course of the 'Tour the France'. Urine specimens were collected during the whole day to determine effects on the T/LH during exercise and post-exercise, as well as during the day before to determine pre-exercise values and intra- and interindividual variation.

Pre-exercise, the urinary excretion values of T and LH and the T/LH ratio showed intra- and interindividual variation. During exercise, the LH level decreased significantly, the T/LH ratio increased significantly ($p < 0.05$).

The T/LH ratios of two different sport populations were also compared. Cyclists were found to have significantly higher T/LH ratios than bodybuilders ($p < 0.001$).

References

- 1 Donike, M., K.-R. Bärwald, K. Klostermann, W. Schänzer and J. Zimmermann. In *Sport: Leistung und Gesundheit*. Eds. H. Heck, W. Hollmann, H. Liesen and R. Rost. pp. 293 -298. Nachweis von exogenem Testosteron. Cologne, Germany: Deutscher Arzte-Verlag, 1982.
- 2 Boer, D. de, E.G. de Jong, J.M. van Rossum, R.A.A. Maes, C.M.G. Thomas and M.F.G. Seegers. Doping control of testosterone and human chorionic gonadotrophin: A case study. *J. Int. Sports Med.* 12(1): 46 -51, 1991.
- 3 Brooks, R.V., G. Jeremiah, W.A. Webb and M. Wheeler. Detection of anabolic steroids administration to athletes. *J. Steroid Biochem.* 11: 913 - 917, 1979.
- 4 Kicman, A.T., R.V. Brooks, S.C. Collyer et al. Criteria to indicate testosterone administration. *Brit. J. Sports Med.* 24: 253 - 264, 1990.