

PubMed

Format: Abstract

Full text links

Full text
THIEME CONNECT

Horm Metab Res. 2017 Jan;49(1):58-63. doi: 10.1055/s-0042-115176. Epub 2016 Sep 2.

Short-Term Detraining does not Change Insulin Sensitivity and RBP4 in Rodents Previously Submitted to Aerobic Exercise.

Marschner RA¹, Pinto G¹, Borges J¹, Markoski MM¹, Schaan BD¹, Lehnen AM¹.

Author information

Abstract

Elevated serum retinol binding protein 4 (RBP4) levels were previously described in insulin-resistance states. Exercise training can improve insulin sensitivity and RBP4, but the time-response effect of exercise detraining on RBP4 has not been studied. Thus, we examined the effects of exercise training and short-term detraining on insulin resistance, serum RBP4 levels, and GLUT4 expression in spontaneously hypertensive rats (SHR). Thirty-two male SHR, 4 months old, were submitted to 10-week treadmill training, 5 times/week or kept sedentary, followed by a 2- and 4-day detraining period. Body weight, insulin tolerance test, maximum speed in a maximal exercise test, serum RBP4 (ELISA), and epididymal fat GLUT4 expression (Western blot) were measured. Although all rats gained weight (43%, $p=0.004$) only the trained group showed a reduction ($p<0.001$) of epididymal fat weight. Detraining did not change these parameters. Exercise training increased insulin sensitivity (26%, $p=0.001$) and maximum exercise capacity (80%, $p<0.001$), benefits not lost after detraining. RBP4 levels were reduced in response to exercise training (45%, $p<0.001$); detraining did not change these benefits. Trained rats had increased GLUT4 expression (microsomal, ~226%; $p<0.001$ and plasma membrane, ~55%; $p=0.011$). A slight reduction in GLUT4 expression in the plasma membrane (~28%, $p=0.041$), but not in the microsomal fraction, was observed after 4 days of detraining. Exercise training is associated with reduced RBP4 levels, increased insulin sensitivity, and epididymal fat GLUT4 expression. Even short periods of detraining (4 days) were shown to be associated with reversal of higher plasma membrane GLUT4.

© Georg Thieme Verlag KG Stuttgart · New York.

PMID: 27589346 DOI: [10.1055/s-0042-115176](https://doi.org/10.1055/s-0042-115176)

[PubMed - in process]

LinkOut - more resources

PubMed Commons

[PubMed Commons home](#)

0 comments

[How to join PubMed Commons](#)

