Reviewer's report

Title: Training exercise at the aerobic/anaerobic metabolic transition prevents glucose intolerance in neonatal alloxan treated rats

Version: 1 Date: 20 November 2007

Reviewer: Helena Barros

Reviewer's report:

General
The study “Training exercise at the aerobic/anaerobic metabolic transition prevents glucose intolerance in neonatal alloxan treated rats “ has several interesting features, but needs additional work to be published.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Background- What is the relevance of the following sentences found in page 3 -4 for the study? These explanations might be important to be summarized and fit into the methods section.

“At 60 days old, the rats which received alloxan at the 2nd day of life presented slightly increased serum glucose, in the fed state, whereas those which received the drug at the 4th and 6th days had shown significantly higher serum glucose than the controls. In previous studies we (Oliveira et al. 2004) analyzed the model developed by Kodama et al. (1993)[4] and verified that male Wistar rats which received alloxan (200 mg/Kg body weight) at 2 days of age recovered themselves from the glucose intolerance at the 90th day [5]. Other metabolic disturbances such as high circulating FFA concentration persisted through the whole experimental period."

Methods-
The maternal deprivation required for 6 days old pups to be in a 16 hs fasting influences the animals behaviors and results in a dysregulation of the HPA axis at multiple levels when adults. How dis the authors control for that?

Substitute ..... followed by Newman-Keuls test or Friedman test, where appropriated…. for followed by Newman-Keuls test or Friedman test, where appropriate.

Results- it is important to include the calculated F values for each factor (alloxan AND exercice) and for interaction in the 2 W-ANOVAS. It seems that for water intake and food intake the animals submitted to T consume more than animals not trained irrespective to the diabetes condition.

Explain the lack of face validity of the model, because the A animals show decreased weight, no change in water intake, no change in insulin resistance
(during most of the time).

Figure 1- should present group data instead of one animal example for each, control and alloxan groups.

Figure 2 legend and others- correct “TC= Treinad control”

Fig 3- Not all legends “C=Control; TC= Treinad control; A= Alloxan e TA= Treinad alloxan. “ b = C vs A; c = C vs TA; d = A vs TA; e = TC vs TA

make sense-please review if a three way ANOVA is not the best analysis to be applied.

The sentence” Our results show that the sedentary control group (A) showed higher body weight than the other groups while the trained alloxan group (AT) presented the highest food intake without transforming this energy in body weight gain” in discussion is not supported by the results presented and is incorrect when one looks at results in table 1 and the sentence “Group C presented higher area under the curve of body weight than the other groups (CT, A, AT). AT group presented higher food intake when compared with the sedentary groups (C and A).”

Other sentences in discussion are also without the support of evidence. Therefore, the results of the study regarding the effects of exercise on HOMA and glucose tolerance do not support the conclusions of the authors.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests