Reviewer's report

Title: Chromium supplementation in non-obese non-diabetic subjects is associated with a decline in insulin sensitivity

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Reviewer: Emanuela Setola

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“Chromium supplementation in non-obese non diabetic subjects is associated with a decline in insulin sensitivity” by Masharani U et al.

In the present manuscript, the Authors want to test whether a chronic chromium supplementation could influence insulin sensitivity in non-obese non-diabetic subjects.

31 non-obese non diabetic subjects were randomly assigned to placebo or chromium picolinate 500 #g twice a day. They measured insulin sensitivity by euglycemic hyperinsulinemic clamp.

Authors observed no significant change in insulin sensitivity between two groups after 16 weeks, otherwise they found a significant association between high serum chromium levels and worsening in insulin resistance.

They concluded that chromium therapy did not improve insulin sensitivity and that subjects who have high serum chromium levels had a decline in insulin sensitivity.

The study design is well conducted and conclusion are appropriate to the aim, otherwise major concerns are raised:

Major Compulsory Revisions:

1 - It is necessary that Authors give more explanations about the calculation of the sample size for this study. In particular the Authors draws conclusions different from existing literature despite they evaluate a very small group (even if with a very good methods as euglycemic hyperinsulinemic clamp).

2 - It should be useful to show statistical significances on tables or figures, in particular even average of serum and urine chromium levels in both groups at baseline and after treatment.

3- It is useful that the Authors provide more informations about euglycemic hyperinsulinemic clamp: The Insulin Infusion during the clamp, The Glucose Infusion Rate during the Steady state period and the Endogenous glucose production

4- Explain in the Methods section how diet and physical activity were evaluated (which type of questionnaire?)
Editor

This is an interesting manuscript with new results but some part are lacking and the manuscript needs revision before being published on.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests'