

## **Author's response to reviews**

**Title:**Differences in muscle activity during hand dexterity tasks between women with arthritis and a healthy reference group

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**Author's response to reviews:** see over

Dear Editor!

We have made all the changes that you required. The changes are marked in green in the manuscript and a point by point are listed below.

- 1) In addition, the handling Associate Editor feels that the first point raised by Ref 1 Hiske van Duinen ("Most of my concerns are related to this first big concern: there is a big difference between the arthritis groups and the control group in their maximal forces. In flexion the patient groups can only produce about 30% of the maximal force of the control group, in extension 60% and 77.6%, respectively (RA and HOA). During isometric contractions under normal conditions, the surface EMG is usually more or less linearly correlated with the amount of force that is produced. This relation is not as straightforward during dynamic contractions, but it will be close to this. If we keep this in mind and we look at the amount of EMG (as a % of the EMG during the maximal contractions) that is produced in the different tasks and we try to recalculate the amount of N force that has been produced if this were closely related to the kind of tasks that had been done during the maximal contractions, we can see that the control group, even though producing much lower EMG as a % of MVC-EMG, produced higher forces. For example for the use of the pen, they produced about 30 N flexion force and about 7 N extension force, while the patient group (HOA) produced about 18 N flexion force and 8 N extension force.") has not yet been completely addressed and we ask you to clearly explain in your point-by-point response how you have properly changed your manuscript according to this concern.

We have tried to further clarify the answer on page 10-11, this is green marked.

- 2) Please kindly include information that consent was obtained from individuals for publication of the images.

We have obtained consent from patients for publication of these images, and we have also added - Consent was obtained from individuals for publication of the images under the figure text on page 15, green marked. Signed consents are attached from participants showed on figure 1.

**Reviewer: Cheryl Metcalf**

- 3) Figure 1 is still unclear. Although the activity is clear, the hand posture remains occluded in many cases.

We have taken new photos - which we hope provide better and clearer positions. See figure 1.

- 4) Figure 2 - I was not able to see here this had changed while viewing it through the BMC online portal.

The figures 2 a-d are attached as single figures (2a, 2b, 2c, 2d) for a better overview .  
We also attached the figure again on a single page.

All the best

Sofia Brorsson