Author's response to reviews

Title: Semi-automated segmentation and quantification of adipose tissue in calf and thigh by MRI: a preliminary study in patients with monogenic metabolic syndrome

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Author's response to reviews: see over
Dear Iratxe Puebla,

Thank you for your response and consideration. Please find attached our responses to the reviewer comments for the research article we submitted to BMC Medical Imaging: “Semi-automated segmentation and quantification of adipose tissue in calf and thigh by MRI: a preliminary study in patients with monogenic metabolic syndrome”.

We have made the suggested changes to the title, section headings, abstract and conclusions section as recommended in your email. In addition, two changes have been made to the acknowledgments section:

- Page 15, line 19: “(NA5320)”
- Page 15, line 20: “through the Ontario Genomics Institute”

Responses to reviewer comments are detailed in the attachment and include reference to any related changes that have been suggested by them.

Thank you for your consideration once again. Please let us know if we can be of further assistance.

Sincerely,

Salam A. Al-Attar,
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and

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“Connectivity Analysis Tool Enables SEMI-Automated Segmentation and Quantification of Adipose Tissue Magnetic Resonance Images in Patients with Monogenic Metabolic Syndrome”

Response to Reviewers’ Comments

REVIEWER 1

We thank the reviewer for the kind remark and past recommendations.

REVIEWER 2

We thank the reviewer for the thoughtful suggestions and comments made.

Comment 1: “My only further request is about comment 3. I understand the need to reduce image dynamic to meet the requirements of the used software. This is a common problem in medical image processing where general-purpose software libraries are used. However, this should be noticed in the paper.”

Response to comment 1: This suggestion has been added to the discussion section, page 12, line 19 – page 13 line 2.

Comment 2: “I ask to change the sentence (page 7, line 15) “Images were further standardized to an 8-bit type with a distance in pixels set at 1.00 pixel/mm.” In “Images were further standardized with a distance in pixels set at 1.00 pixel/mm and the image dynamic was reduced to an 8-bit type to match the requirements of the used software.””

Response to comment 2: Done.

REVIEWER 3

We thank the reviewer for the review and comments.

Major comments and responses

Comment 1: “Page 12, line 8ff: ‘inclusion of only adipose tissue connected to the initial subcutaneous seed point: this seems not to be correct! As can be seen in Figure 3, there is also adipose tissue included which is lying between the muscles without any connection to subcutaneous adipose tissue!’”

Response to comment 1: Being that images presented in Figure 3 are 3-dimensional in nature, with a thickness of 51 mm (17 slice images of stack X 3mm-thick slice image), there will be connected infiltration present which
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may not be evident from the 2-dimensional representation as could be seen in an image such as that of the figure. Furthermore, upon analysis, the tightest signal range is usually sought, in order to minimize any random signals that may show up as “connected infiltrated” but are may in fact be false signal calls.

Below is a 3D sample of an image stack (a similar representation to what is seen in red in figure 3). Starting from the top left image and going all the way to the bottom-right, the image is rotated in a counter clockwise fashion, demonstrating the fact that any infiltrated signals thresholded (colored in red) are in fact connected to the subcutaneous layer.

Comment 2: “Figure 3: the upper, original spin echo image and the esc+inf image are still from different slice positions! Please include identical slice position for both!”

Response to comment 2: The slice images presented are identical (slice #9).

Minor Essential Revisions

Comment 1: “Page 5, line 16: again: please don’t write ‘matched’, when it isn’t matched at all! Replace by comparable”

Response to comment 1: As we previously responded, we agree that it would be ideal to have a perfect match, but we feel that the difference here is minimal.
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Comment 2: “Page 6, last line: ‘œMRI scanned images‘œ replace by ‘œMR images‘œ”

Response to comment 2: Done.

Comment 3: “Page 7, line 22: signal intensity instead of image intensity”

Response to comment 3: Done.