

Ultrasound Measurement of Brain Tissue Movement in Humans: A Systematic Review - Response to Reviewers (R1)

We would like to thank the reviewers for their analysis of the manuscript and for the suggestions to improve its content and clarity. We sincerely hope that the reviewers will be satisfied with the information given in our replies and with the revisions to the manuscript, but will be glad to receive and address any further comments that might arise.

Reviewer #1:

An interesting review on the measurement of brain tissue movement using ultrasound. Brain tissue movement is not something which is normally investigated in the imaging department, and its clinical value remains unclear. Although the review is based on studies by only 7 authors, its worthy of publication as it is a rare investigative procedure. This is subject to proof reading for language as it is littered with several incorrect usage of words.

REPLY – *Thank you to reviewer 1 for their positive comments regarding the manuscript and for acknowledging the importance of it. The authors have carefully reviewed the manuscript. We have made grammatical, structural, and language changes to ensure that the manuscript reads coherently and avoids the use of incorrect words. We have highlighted our changes in our revised manuscript.*

Reviewer #2:

In general very thorough and clear systemic review, clear language, only few comments.

REPLY – *Thank you to Reviewer 2 for your positive comments.*

1) In the abstract, the abbreviation BTP is mentioned for the first time without explaining the meaning of it.

REPLY – *Thank you for highlighting this, the expansion of BTP has now been added to the abstract.*

2) In the introduction: third paragraph line 10 needs proof reading (is supported...)

REPLY – *Thank you for highlighting this, we have now revised the sentence to read: “This theory describing the balance between arterial blood volume and venous drainage is supported by numerous MRI findings (3-9).”*

3) In summary of studies: line 21, the abbreviation WHM should follow the name of it.

REPLY – *Thank you for highlighting this, the abbreviation of WMH has now been added.*

4) On page 8, the last sentence before study population section: should be updated, because you have mentioned that this technique has not been furtherly studied however, I found more recent articles about the (cMUT)

FOR EXAMPLE: An experimental protocol for assessing the performance of new ultrasound probes based on CMUT technology in application to Brain imaging(Article)

REPLY – *Thank you for identifying this and for providing an example article. The authors have discussed this and have chosen not to include the example provided as it used a non-human model and could confuse readers. However, as recommended, the authors have updated the sentence to remove the section which stated that the techniques have not been furtherly studied. Instead, the authors have restructured the paragraph to discuss the new technologies and have commented that further evaluation of studies using the new technologies would be required to find their use in BTP measurements. The sentence now reads: “These studies both offer alternatives to TPI, each with their own advantages, however evaluation of further studies using them is required to determine their practical application to BTP measurements.”*