Reviewer's report

Title: The interest of gait markers in the identification of subgroups among fibromyalgia patients

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Reviewer: Peter M Tiidus

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Major Compulsory Revisions

This study investigated whether gait markers were useful for identification of subgroups among fibromyalgia patients. In so doing they found that stride frequency (SF), stride regularity (SR) and CCP (a measure of power) could be used to discriminate between subgroups of fibromyalgia patients. They based these findings on "cluster analysis". I have two issues which the authors should address in their manuscript.

1. While there were some statistically significant correlations between CCP, SF and SR and outcome measures such as VAS weekly pain, FIQ score etc. (as outlined in Table 4), none of these come across as really strong predictive correlations (range in r scores from 0.26-0.42). As such the authors should address the relatively weak correlations found and how useful such weak predictive factors would be when making definitive categorizations for individuals. In other words how much potential error would there by and if this is considerable, how useful are these predictive variables even if they are statistically significant.

2. The "cluster analysis" indicated that subgroups of fibromyalgia patients could be potentially identified by looking at specific gait measures such as SF, SR and CCP. However there is no indication that these somewhat arbitrary categorizations based on this particular analysis technique are any more useful for clinicians or others dealing with fibromyalgia patients than the various categorizations listed at the start of the manuscript which were dismissed by the authors as "not demonstrating sufficient reliability and clinical relevance to be useful for every day practice". I am not convinced that the categorizations provided by this study are any more useful for clinical practice and see no justification for their use. Indeed the measures proposed by the study would in my opinion be much more difficult for clinicians to accurately assess in a patient and would provide little more in the way of reliability and useful categorization than others already developed and which may be easier to administer and assess by individual clinicians. The authors need to address these issues fully to make this study more relevant. Otherwise it is just another footnote which indicates that yes there may be such differences (albeit one which may be prone to variability and error) but their assessment would be difficult and offer no real further significant benefit for clinicians.
Level of interest: An article of limited interest

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'