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What Was the Primary Outcome?

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We read the paper by Sattler and coworkers with great interest. The authors are to be commended for undertaking a physical therapy trial in the acute postoperative setting after total knee replacement (TKR). They are also to be commended for the prospective registration of their trial (1), as is encouraged for rehabilitation trials (2). However, the authors' reporting of outcomes makes the interpretation of the findings difficult.

A "primary outcome" measure is the prespecified outcome considered to be of greatest importance to relevant stakeholders (3), and it is generally the outcome for which efficacy is primarily assessed. There seems to be some confusion as to what was the primary outcome in the trial by Sattler et al. The trial registry (1) lists three prespecified primary outcomes in the following order: 10-meter walk test [primary outcome 1], 6-minute walk test [primary outcome 2], and EuroQol 5 [primary outcome 3]) – all collected 2 days, 2 weeks, and 4 months after TKR.

In the published report, however, only the 6-minute walk test is defined as the primary outcome, without an indication of which timepoint (2 days, 2 weeks, or 4 months) was the prespecified timepoint of primary interest. A clinically meaningful between-group difference in walking distance, as assessed by the 6-minute walk test, was observed at the 2-day follow-up only. Could the authors please clarify this primary-outcome confusion?

References

1. <https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=372832>
2. Wade D (2016). Registration of all rehabilitation clinical trials: an ethical and editorial imperative. *Clin Rehabil* 30(3): 211-2.
3. David Moher, Sally Hopewell, Kenneth F Schulz et al (2010). CONSORT 2010 Explanation and Elaboration: updated guidelines for reporting parallel group randomised trials. *BMJ* 340: c869.

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Article Author Response

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Article Author(s) to Letter Writer(s)

The authors thank Prof. Bandholm and colleagues for their interest in our research on TKR rehabilitation in the acute setting. We agree about the importance of prospective registration of trial outcomes to ensure the integrity of any research findings.

The issue of 3 primary outcomes being listed at the time of initial trial registration was first brought to our attention by the editors of *JBJS* prior to publication. We responded by noting that the 6-minute walk test was prospectively chosen as our primary outcome prior to commencing participant recruitment for this trial. It was an unfortunate oversight to not amend the registration with ANZCTR at that time.

Although the authors initially considered multiple outcomes to be primary, we decided to use the 6-minute walk test as the most clinically relevant outcome measure across all time points. All time points were considered relevant, and a difference of 50 meters in the result of a 6-minute walk test was considered clinically meaningful across all time points based on literature on the topic, as discussed in our article.

Evidence of the prospective selection of the 6-minute walk test as the primary outcome was that we used it for power analysis to determine the sample size of the population for our study; therefore, that outcome was chosen prior to participant recruitment and prior to commencement of the trial. All outcomes registered with ANZCTR, both primary and secondary, were reported on in our manuscript. Further, the other two primary outcomes listed in error in the trial registration also showed statistically significant results in favour of the pedalling-based group.

We contacted ANZCTR in December 2018 with a request to update the outcome listings in accordance with the reasons cited above, but we are still awaiting a response.

The authors appreciate your enquiry and note its accuracy. We hope that this explanation satisfactorily explains the quality of the methodology of our research.