Reviewer’s report

Title: Improving the sensitivity of the hop index in detecting functional limitations in the anterior cruciate ligament deficient by transforming the one leg hop for distance scores

Version: 1 Date: 9 September 2005

Reviewer: Eva Ageberg

Reviewer’s report:

General
This is a pilot study on improving the sensitivity of a commonly used functional performance test (the one-leg hop test for distance) by transforming the data. The study is interesting and relevant in its field, however, I believe that considerable re-writing is required before the manuscript can be considered for publication.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Background
1. Necessary information and rational for the study is included in the background. However, considering the high number of pages (5 pages) it needs to be shortened and held more concise. Some parts may be moved to the Discussion.
2. Page 5, paragraph 2, line 3 f.b.: “… the opposite limb can be used as a control.” Various methods of assessing neuromuscular function have shown that both legs are affected after a unilateral ACL injury (see for example Gauffin et al, Int J Sports Med 1990, Lysholm et al, Scand J Med Sci Sports 1998, Roberts et al, J Orthop Res 2000, Urbach & Awiszus, Int J Sports Med 2002, Wojtys & Huston, Am J Sports Med 2000, Zätterström et al, Am J Sports Med 1994). In addition, if a patient hops a very short distance (e.g., 10 cm) in both legs, the limb symmetry index will show a normal value, although the hop distance is abnormal in relation to reference values of a control group of uninjured subjects (a discussion on this latter is to some extent included on page 14). For these reasons, limitations in using a limb symmetry index, where the uninjured leg is used as control, should be included in the Introduction and/or Discussion.
3. Page 8, lines 6-8: “… and ultimately its clinical utility in determining and individual with an ACLD knee readiness to return to sports and/or need for reconstructive surgery.” It is well known that not just one test can be used to determine whether a patient needs surgery or not, or to determine readiness to return to sports. This decision is made based on several variables (objective and subjective variables) and varies depending on for example individual factors and country. See also comment on limitations on limb symmetry index above. Therefore, I believe that this part of the sentence should be rephrased or omitted.

Methods
More information is needed on subjects and test procedure:
4. Include information on subjects’ age and activity level (before injury and at test occasion in the patients).
5. Why were no women included in the study?
6. Page 9, line 2: 6 weeks post injury seems to be a rather short time period after the injury. Was this time period considered to be ethically acceptable (i.e., the risk of sustaining an injury while performing the hop test)?
7. Page 9, line 5: “…confirmed at time of surgery.” Does this mean that the injury was confirmed after the study was performed? Were more patients included at first, and excluded after surgery due to
the inclusion criteria, i.e., isolated, complete ACL injury? In addition, injury to the ACL is often associated with other lesions, which probably means that several patients were excluded after the injury was confirmed. More information on the design of the study is required.

8. Hop test: Were trial hops allowed? How was the hop distance measured, e.g., toe to heel?

Results

9. The results section should be kept more straightforward and concise. Provide only answers to the questions you have posed. The results currently contain parts that should be included in the discussion, i.e., interpretation of results and in relation to other studies (e.g., page 12 first paragraph), or in the method section (e.g., page 12, paragraph 2). Please change throughout the Results.

10. Pages 11 and 12: Do not include references in the results. The results of your study in relation to other studies should be discussed in the Discussion.

Discussion

The main findings of the study are well summarized. However, the Discussion needs to be extended.

11. Some parts in the Introduction may be moved to the Discussion (see comment above).

12. Parts in the Results, where the results are interpreted and discussed in relation to other studies, should be included here (see comment above).

13. Include a discussion on limitations of the method (see comments above).

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Background

14. Page 4, line 7: What is meant by “dynamic function”? Do you mean tests that stress dynamic (or functional) joint stability? Do you mean tests on the activity/participation level, according to the International Classification of Functioning (ICF) (http://www3.who.int/icf/icftemplate.cfm)? Please clarify and use an accurate term (see for example Williams GN et al, JOSPT, 2001). Since measures of impairment, such as range of motion, proprioception, and muscle strength, are also of importance, I suggest that the sentence be changed to: “... physical impairments to also include test of...”

15. Page 7, paragraph 2, lines 5 and 9: Please include a reference on transformation of data and how it is used, after these sentences.

Methods

16. Page 10, paragraph 1: Are scatterplots, associations, and relationships an established method of assessing sensitivity? Please provide a reference, if possible.

17. Page 10, paragraph 2: Are the interpretations of correlation coefficients based on previous studies or clinical considerations? Please provide a reference or an explanation for these cut-offs.

Results

18. Page 10, line 1: Move this information to the method section/subjects.

19. Page 10. Include a table containing hop distance scores for both legs and both groups, including means (SD), mean difference (SD).

20. Page 10, line 2 f.b.: What is “average limb performance”? Average of the right and left legs? Please clarify.

Discussion

21. To determine an abnormal performance, a single test is not sufficient. Include a discussion on this subject.
22. A discussion on the need for further study is currently included in the conclusions. I suggest that this is moved to the Discussion.

Conclusions
23. Please see comment above in “Discussion”.

Figures
24. Figure legends, Figure 1, lines 1 and 3: Remove “… moderate-strong…” and “very strong”, since these are interpretations of the results (which should be included in the discussion).
25. Figure legends, Figure 2, lines 1-2: Remove “… moderate-strong…” (see above).
26. Figure 1: Please use different line styles for the regression lines for the two groups, in order to make it clearer.

Tables
27. Please be consistent in using headings in Tables 1-3 (Table 1: ACLD Knees, Normal Knees Table 2: ACLD, CONTROLS, Table 3: none)
28. Table 4: Please present data according to standards, e.g., mean (SD).

Discretionary Revisions (which the author can choose to ignore)

Title
29. Since patient first language is usually recommended, I suggest that the title is changed to: Improving the sensitivity of the hop test index in detecting functional limitations in patients with ACL deficiency by transforming the one leg hop for distance scores.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests.