

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	The Adductor Strengthening Programme is successfully adopted but frequently modified in Norwegian male professional football teams: a cross sectional study
<b>AUTHORS</b>	Stensø, Joakim; Andersen, Thor Einar; Harøy, Joar

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Yoshio Nakata University of Tsukuba, Faculty of Health and Sport Sciences
<b>REVIEW RETURNED</b>	26-Feb-2022

<b>GENERAL COMMENTS</b>	<p>The present study described the survey results of the Adductor Strengthening Programme in Norwegian male professional football teams. The issue is fascinating, and the results are worth publishing. My major and minor concerns are as follows.</p> <ol style="list-style-type: none"><li>1. The authors used the RE-AIM framework; however, the detail of each dimension was unclear in methods, results, and discussion. How did the authors evaluate Reach, Efficacy, Adoption, Implementation, and Maintenance? More clearly showing is helpful for readers.</li><li>2. The reviewer thinks the authors focused on Implementation among the RE-AIM dimensions. If this thought is correct, please clearly show the rationale for focusing on the Implementation dimension in this study.</li><li>3. Table 4 appeared in discussion. It should be shown in results.</li><li>4. On page 17, in the first sentence of the data sharing statement subsection, “date” should be “data.”</li></ol>
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<b>REVIEWER</b>	Aristides M. Machado-Rodrigues Universidade de Coimbra
<b>REVIEW RETURNED</b>	28-Feb-2022

<b>GENERAL COMMENTS</b>	<p>General Comment 1: The purpose of the present article was to use the RE-AIM framework to investigate attitudes, beliefs, and behaviour to the ASP among injury prevention delivery agents (i.e., staff with main responsibility for implementing and conducting injury prevention exercises); in addition, to identify a real-world application of the ASP protocol used in a professional team setting. This is an interesting question and it is vital that more good quality research is published on the health and sport.</p> <p>General Comment 2. In general, the abstract summarizes the paper properly; however, further information is needed on the methods section (for example, the age of participant, some description of the analytical approach...and so on!!)</p>
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	<p>General Comment 3. At the introduction section, the purpose of the study was stated clearly; the reason for this focus could be improved using further eclectic studies on health and sport injuries worldwide; furthermore, rates and magnitude of association between constructs could be clearly included on that section. Furthermore, the manuscript would benefit if the authors could present the hypothesis of the present research (e.g. potential expected results).</p> <p>General Comment 4. The methods section provides important information about the different procedures used in this research. However, further details are needed, for examples about sampling, and about the used tools (...validation magnitude/rates of the questionnaire ...etc...).</p> <p>General Comment 5. The main results were reported. In some parts of this section, it would be important avoid redundant content with tables.</p> <p>General Comment 6: The discussion section could be improved since in some parts appear to simply be a confirmation of the results; there is too much focus upon describing the results rather than discussion/ interpretation/ explanation of findings.</p> <p>Specific comment 7: I would like to see the authors discuss in detail other sources of variation, particularly related to instrumental criteria/analytical approach, and also its association with educational and socio-geographic variables, and so on!</p> <p>General Comment 7: The conclusion was stated clear.</p> <p>General Comment 8: In general, the quality of writing is satisfactory.</p> <p>General Comment 9: The references are ok but some of them might be updated with more recent bibliography.</p>
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### **VERSION 1 – AUTHOR RESPONSE**

**Reviewer: 1**

**Prof. Yoshio Nakata, University of Tsukuba**

Comments to the Author:

The present study described the survey results of the Adductor Strengthening Programme in Norwegian male professional football teams. The issue is fascinating, and the results are worth publishing. My major and minor concerns are as follows.

**Response to the Reviewer:**

Thank you. Your feedback is much appreciated.

Comment 1. The authors used the RE-AIM framework; however, the detail of each dimension was

unclear in methods, results, and discussion. How did the authors evaluate Reach, Efficacy, Adoption, Implementation, and Maintenance? More clearly showing is helpful for readers.

**Response to the Reviewer:**

To clarify the details of each RE-AIM dimension, we have re-worded and edited the subheadings in the Results and the Discussion sections. This includes

- Mentioned the given RE-AIM dimension in each relevant subheading
- Moved the Maintenance dimension to the last part of the Discussion section.

Moreover, to clarify the content of each dimension and how they were evaluated, we have added the following text to the Introduction section:

“Gaining knowledge on attitudes, beliefs, and behaviour to injury prevention exercises are important when evaluating their implementation in the real-world setting.<sup>7 10</sup> For this purpose, integrating the Reach Efficacy Adoption Implementation Maintenance (RE-AIM) framework<sup>8 9</sup> is recommended, ideally evaluated across all levels of the sport setting hierarchy.<sup>9</sup> In brief, the framework evaluates the proportion of a targeted population that is aware of a given intervention (Reach), the interventions positive outcomes (Effectiveness), the proportions that has adopted the intervention (Adoption) and implemented it as intended (Implementation), and the extent to which it is sustained (Maintenance).<sup>8 9</sup> Note that the specific RE-AIM implementation dimension is different than the general term implementation used broadly in this article, referring to all activities designed to put the intervention into practice.<sup>10</sup>”

Furthermore, to improve understanding about evaluation of the data, we have added the following text to the Methods section:

“Data consisted of categorical nominal variables, presented as proportions, including for the specific RE-AIM dimensions.”

Comment 2. The reviewer thinks the authors focused on Implementation among the RE-AIM dimensions. If this thought is correct, please clearly show the rationale for focusing on the Implementation dimension in this study.

**Response to the Reviewer:**

We understand well that it may seem that the implementation dimension has been the main focus in this article, but this is only partly correct. This article refers to two different understandings of implementation. First, implementation defined as all activities used to put the ASP into practice, and second, implementation as a specific RE-AIM dimension being the proportion (%) using the ASP as intended and in line with the original protocol. All RE-AIM dimensions have been evaluated, but the implementation dimension has received more attention due to the secondary study aim, which is: To identify a real-world application of the

ASP. To show a rationale for the latter, we have added the following text in the Introduction section:

“... which to our knowledge, previously has not been conducted for any single-exercise injury prevention programme.”

To more clearly show readers the different meanings of implementation, we have also added the following text in the Introduction section:

“Note that the specific RE-AIM implementation dimension refers to the extent to which an exercise or a programme is used as intended in the real-world setting.<sup>9</sup> The general term implementation also used in this article, however, refers to all initiatives applied to put an exercise or a programme into practice.<sup>10</sup>”

Comment 3. Table 4 appeared in discussion. It should be shown in results.

**Response to the Reviewer:**

As suggested by the reviewer, table 4 has been moved to the Results section. Also, to adhere to the requirements of a Results section, we have omitted the part of the table where the original ASP protocol was presented for comparison, as this was not a new finding in the current study. We have made minor changes to the table text, too.

Comment 4. On page 17, in the first sentence of the data sharing statement subsection, “date” should be “data.”

**Response to reviewer:** Thank you for noticing. The misspelling has been corrected accordingly.

**Reviewer: 2**

**Dr. Aristides M. Machado-Rodrigues, Universidade de Coimbra**

General Comment 1: The purpose of the present article was to use the RE-AIM framework to investigate attitudes, beliefs, and behaviour to the ASP among injury prevention delivery agents (i.e., staff with main responsibility for implementing and conducting injury prevention exercises); in addition, to identify a real-world application of the ASP protocol used in a professional team setting. This is an interesting question and it is vital that more good quality research is published on the health and sport.

**Response to the Reviewer:**

Thank you. Your positive feedback is much appreciated.

General Comment 2. In general, the abstract summarizes the paper properly; however, further information is needed on the methods section (for example, the age of participant, some description of the analytical approach....and so on!!)

**Response to the Reviewer:**

The following has been added to the abstract's Methods section:

"The questionnaire was designed to cover all five dimensions of the Reach Adoption Effectiveness Implementation Maintenance (RE-AIM) framework and, were pilot tested prior to the survey."

General Comment 3. At the Introduction section, the purpose of the study was stated clearly; the reason for this focus could be improved using further eclectic studies on health and sport injuries worldwide; furthermore, rates and magnitude of association between constructs could be clearly included on that section. Furthermore, the manuscript would benefit if the authors could present the hypothesis of the present research (e.g. potential expected results).

**Response to the Reviewer:**

We acknowledge that some of these recommended changes may have added value to the article. Nevertheless, we consider the Introduction to point out the major challenges currently faced with in sports injury prevention research, and why the current study is relevant. Regarding formulating a hypothesis, at this stage in the process, we think there is a risk of bias and have decided to leave it out. Also, we choose not to provide a hypothesis since we think the specific aims of the study sufficiently cover the objective of the study.

General Comment 4. The methods section provides important information about the different procedures used in this research. However, further details are needed, for examples about sampling, and about the used tools (...validation magnitude/rates of the questionnaire ...etc...).

**Response to the Reviewer:**

Even more details could have been presented in the Methods section; however, we still consider the details provided to bring enough information about sampling and the tools used. Also, validation has been discussed in more detail in the Discussion section. Respectfully, we have not made any changes to the Methods section.

General Comment 5. The main results were reported. In some parts of this section, it would be important avoid redundant content with tables.

**Response to the Reviewer:**

Thank you for your input. We have carefully edited the manuscript in the Result section to avoid duplicate information. Please see Results section.

General Comment 6: The discussion section could be improved since in some parts appear to simply be a confirmation of the results; there is too much focus upon describing the results rather than discussion/ interpretation/ explanation of findings.

**Response to the Reviewer:**

Thank you for this valuable input. Therefore, to improve the Discussion section presenting less results and include improved discussion of our results in comparison with existing literature, we have amended some parts of this section in order to improve the content. The re-written parts are under the subheadings Reach, Effectiveness and Adoption.

Specific comment 7: I would like to see the authors discuss in detail other sources of variation, particularly related to instrumental criteria/analytical approach, and also its association with educational and socio-geographic variables, and so on!

**Response to the Reviewer:**

Unfortunately, we are respectfully not certain what you want us to discuss further based on this comment. Therefore, we have chosen not to make changes in the manuscript regarding this. We are, however, willing to discuss further or change specific aspects of the Discussion section if the reviewer could specify the lackings.

General Comment 8: The conclusion was stated clear.

**Response to the Reviewer:**

Thank you.

General Comment 9: In general, the quality of writing is satisfactory.

**Response to the Reviewer:**

Thank you.

General Comment 10: The references are ok but some of them might be updated with more recent bibliography.

**Response to the Reviewer:**

Thank you for noticing. After removing reference no. 10 where it was used incorrectly on two occasions, we have double-checked the bibliography and made sure that all references have been used in the correct place throughout the article and accordingly in the reference list. We have also made an updated literature search to look for any recent missing literature, which we could not find. If the reviewer still thinks that there are lack of important studies referenced in the article, please notify so we can add and change accordingly.

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Yoshio Nakata University of Tsukuba, Faculty of Health and Sport Sciences
<b>REVIEW RETURNED</b>	11-May-2022

<b>GENERAL COMMENTS</b>	I appreciate the authors for revising what I asked. The revised manuscript is acceptable.
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<b>REVIEWER</b>	Aristides M. Machado-Rodrigues Universidade de Coimbra
<b>REVIEW RETURNED</b>	22-May-2022

<b>GENERAL COMMENTS</b>	<b>GENERAL COMMENTS TO THE AUTHOR:</b>  General Comment 1: The purpose of the present article was to use the RE-AIM framework to investigate attitudes, beliefs, and behaviour to the ASP among injury prevention delivery agents (i.e., staff with main responsibility for implementing and conducting injury
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	<p>prevention exercises); in addition, to identify a real-world application of the ASP protocol used in a professional team setting. In general, the authors did a important effort to improve the manuscript, and therefore, it should be emphasized.</p> <p>General Comment 2. In general, the abstract summarizes the paper properly.</p> <p>General Comment 3. At the introduction section, the purpose of the study was stated clearly, as well as the reason for this focus.</p> <p>General Comment 4. The methods section could provide further detailed content about the different procedures used in this research.</p> <p>General Comment 5. The main results were clearly reported.</p> <p>General comment 6: In my opinion, the discussion was improved. However, I would like to see the authors discuss further sources of variation which are closely related to the afore-mentioned constructs.</p> <p>General Comment 7: The conclusion was stated it in a pragmatic way.</p> <p>General Comment 8: In general, the quality of writing is satisfactory.</p> <p>General Comment 9: The references still might be updated.</p>
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## VERSION 2 – AUTHOR RESPONSE

### Reviewer: 1

**Prof. Yoshio Nakata, University of Tsukuba**

#### Comments to the Author:

I appreciate the authors for revising what I asked. The revised manuscript is acceptable.

#### **Response to the Reviewer:**

Thank you. The acceptance is much appreciated. Your suggestions improved the quality of the manuscript.

### Reviewer: 2

**Dr. Aristides M. Machado-Rodrigues, Universidade de Coimbra**

Comments to the Author:

**GENERAL COMMENTS TO THE AUTHOR:**

General Comment 1: The purpose of the present article was to use the RE-AIM framework to investigate attitudes, beliefs, and behaviour to the ASP among injury prevention delivery agents (i.e., staff with main responsibility for implementing and conducting injury prevention exercises); in addition,



to identify a real-world application of the ASP protocol used in a professional team setting. In general, the authors did an important effort to improve the manuscript, and therefore, it should be emphasized.

**Response to the Reviewer:**

Thank you. Your positive feedback is much appreciated.

General Comment 2: In general, the abstract summarizes the paper properly.

**Response to the Reviewer:**

Thank you.

General Comment 3: At the introduction section, the purpose of the study was stated clearly, as well as the reason for this focus.

**Response to the Reviewer:**

Thank you.

General Comment 4: The methods section could provide further detailed content about the different procedures used in this research.

**Response to the Reviewer:**

To provide further details about the tools used, i.e., the questionnaire, and further details about the sampling procedure and the analysis, we have added the following texts to the Methods section, under Survey, Data collection and Analysis respectively:

“, based on previous questionnaires used in studies investigating implementation of preventative training in elite and sub-elite sport’s settings.”

“We collected contact information to the delivery agents either through our network of contacts or by contacting the team’s directly.”

“Open-ended text responses were analysed with a quantitative content analysis, using a structured code form counting frequencies of variables mentioned. The code form was also used to categorise whether the participants had a positive, negative, or neutral attitude.”

General Comment 5: The main results were clearly reported.

**Response to the Reviewer:**

Thank you.

General comment 6: In my opinion, the discussion was improved. However, I would like to see the authors discuss further sources of variation which are closely related to the afore-mentioned constructs.

**Response to the Reviewer:**

We have amended the Discussion regarding both the analytical approach, educational variables, and geographical variables respectively, by adding the following texts to the Discussion section under Methodological considerations.

“Regarding data collection methods, we chose to develop and conduct a survey for the following reasons. Firstly, a survey is an appropriate tool to collect responses from individuals living in a widespread geographical area. Secondly, it is suitable when investigating several variables at the same time, such as all the RE-AIM dimensions, and thirdly, a survey provides a cost-effective and relatively seamless data collection method. Therefore, a survey using a questionnaire was considered appropriate to accommodate the research questions in our study.”

“... original ASP intervention study was conducted among Norwegian male football teams. This may have led to a “word of mouth” effect in the Norwegian football community, which to some extent can explain the higher ASP awareness level and adoption rates in this study.”

“In contrast to the other members of the medical and coaching staff, physiotherapists are educated and trained in health science with special emphasis on injury prevention and rehabilitation. Therefore, it is not unlikely that some of the variations in ...”

Also, we added the following text in the Discussion section under Adoption:

“The discrepancy in ASP and NH adoption rates are interesting, as they share the same exercise characteristics, and both were originally studied in clinical trials including Norwegian male football teams. One variation, however, that may explain some of the discrepancy in adoption rates is the six-year’s difference between our data collection and the data collection of the NH adoption. This is likely due to evidence-based efforts to prevent injuries having improved among practitioners in elite teams in recent years.”

General Comment 7: The conclusion was stated it in a pragmatic way.

**Response to the Reviewer:**

Thank you.

General Comment 8: In general, the quality of writing is satisfactory.

**Response to the Reviewer:**

Thank you.

General Comment 9: The references still might be updated.

**Response to the Reviewer:**

As stated during the previous review, we have double-checked the bibliography and made sure that all references have been put in the right order and place throughout the manuscript, and accordingly in the reference list. Also, we have made an updated literature search to look for any recent missing literature which we could not find.