

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Players' and Coaches' knowledge and awareness of the BokSmart Safe Six Injury Prevention Programme: an ecological cross sectional questionnaire study
<b>AUTHORS</b>	Sewry, Nicola; Verhagen, Evert; Lambert, Mike; Van Mechelen, Willem; Brown, James

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Phil Kearney University of Chichester United Kingdom
<b>REVIEW RETURNED</b>	17-Jul-2017

<b>GENERAL COMMENTS</b>	<p>This paper has presented valuable results evaluating the effectiveness of a targeted marketing campaign in promoting knowledge and use of an injury prevention programme in youth rugby. The findings are of particular value for groups promoting similar programmes.</p> <p>Specific comments.</p> <p>Page 5 line 32: Suggest including a link to the Safe Six exercise programme at the end of the first sentence in this paragraph (e.g., I found this helpful: <a href="http://images.supersport.com/content/BokSmart%20Safe%20Six%2006%20A4%20format.pdf">http://images.supersport.com/content/BokSmart%20Safe%20Six%2006%20A4%20format.pdf</a>)</p> <p>Page 5 line 35: Suggest altering sentence to read: "... (deemed the "pre" marketing period). Subsequently in 2015"</p> <p>Page 5 line 42: Suggest altering paragraph beginning "Thus, the aim..." to read: "This study had three aims. Firstly, to determine...approach. Secondly, to evaluate whether...programme. Finally, to explore the reasons"</p> <p>Page 5 line 54: You state that participants were "required" to complete a questionnaire; this may be a poor choice of words, given your statements regarding consent on the next page. Please review.</p> <p>Page 6 line 34: Supplementary material I. Unfortunately, I do not appear to have had access to this supplementary material. Consequently, a portion of the method which I was unclear on (page 7 line 55 to page 8 line 6) remains unclear. Please include the supplementary material with your revision.</p> <p>Page 6 line 35: "it's" should read "its"</p>
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Page 6 line 56: Given that your analyses focused on players and on coaches, I initially presumed that questionnaires from those of an "unknown role" were removed from analysis. However, examining the numbers in Tables 1 and 2 show that you 4248 respondents with a known role (112 coaches + 4136 players; Table 1), but 4257 respondents were listed in Table 2. Please confirm explicitly how respondents of an unknown role were treated.

Page 7 line 12: Suggest adding an explicit link within this sentence to Table 2.

Page 7 Table 2: By providing only a combined percentage, you are making a particularly interesting result less obvious (i.e., % coaches unaware of Safe Six decreases from 52% to 23% to 10%, while % players unaware decreases from 74% to 62%, then remains steady at 64%). Since you independently discuss is players and coaches, I suggest you amend you table to provide a separate % for each role.

Page 7 line 32: Why have you only focused on 2015 here? Only have three coaches respond "No" in 2016 provides a reason, but what about 2014? Please provide values for 2014 also.

Page 7 Table 3: You appear to have a high proportion of players (over 60% I make it) who could not be linked to a specific coach. Consequently, your analysis and conclusion is based on a minority of your sample. I suggest that you identify this small subsample as a limitation, and urge caution in interpreting this particular result.

Page 7 line 55 to page 8 line 6: Your description here is not clear. You describe participants being asked to "name" the exercises, and then to "correctly complete". As I do not have access to your questionnaire within the supplementary material, I do not understand what you have written here and what the problem is in presented percentages in Table 4. Please clarify.

Page 8 Table 4: If I am interpreting Table 4 correctly, then between 14 and 22 of the 47 coaches (or of the 36 who said that they were familiar with BokSmart) could correctly list each exercise. As you state in your discussion, these results clearly show that the ability to name the exercises was poor. Your results section on this point would benefit from making such a statement within the results (e.g., page 8 line 5).

Page 8 Table 5: You analysed 1599 responses to this question, but only 1412 respondents stated that they knew what the Safe Six was (Table 2). Did you screen the questionnaire respondents to remove individuals who reported not knowing what the Safe Six programme was? Please account for this discrepancy.

Page 8 line 29: "In the last 6-8 weeks have you ever used" the Safe Six exercises is a low standard to set. For future research, consider reviewing the response options for this question (i.e., always - mostly - rarely - never). The implication of the phrasing of the question is that you are likely to overestimate the implementation of the programme; this point should be considered in your discussion.

Page 8 Table 5: I do not understand why you have given a combined % here since your discussion is of coaches and of players separately. Suggest provide number of respondents and % for both types of respondents instead of a combined %.

Page 9 line 29: Please rephrase "This indicates that with their results" to clarify what you are referring to; in the context of the previous sentence, your message is unclear.

Page 9 line 34: You assume that the percentage of repeat participants is minimal. My primary comment is that this statement appears out of place here. I suggest moving it to the limitations. A more minor comment is whether you have any analysis that supports your assumption of minimal repeat participants? This analysis would be especially valuable on the coaching populations, as repeat participants may offer an alternative explanation for why the coaches' knowledge has routinely increased.

Page 9 line 38-41: In addition to poor knowledge of the exercises, in 2016 over half of the players reported not using the exercises even once in the past 6-8 weeks (when presumably training may have intensified in preparation for the tournament). Given that the majority of coaches reported using Safe Six during this period, this finding may be as a result of players not being able to recognise the exercises (see also earlier comment about who was included in the analysis of table 5) rather than players not actually using it. Regardless, there is an interesting mismatch between player and coach views that is worthy of further comment. The possibilities are that (a) coaches are showing social desirability bias, or (b) coaches are using the exercises but not educating their players about the exercises. If (b) is correct, then potentially more explicit messaging is required on the "knowledge transfer" assumption. Please consider whether additional information could be included within this paragraph.

Page 10 line 22: Suggest move reference [16] to the end of the preceding sentence.

Page 10 line 22: Suggest replace "This indicates" with "Such findings indicate"

Page 10 line 28: Suggest reorder start of paragraph for clarity: While technology-based reach can be high, full utilization may be low. For example, an application focused on reducing ankle sprains had a low compliance once downloaded [17]. Therefore...

Page 10 Limitations: As stated earlier, suggest including two further limitations: (1) A high proportion of players (>60%) could not be linked to specific coaches, and therefore caution is urged when interpreting the relationship between coach and player awareness; and (2) it is assumed that there was a low percentage of repeat participants due to xyz (see above).

Page 10 line 39: Suggest rephrase to: "...usage and exposure, and not observed behaviour. Therefore, the..."

Page 10 Conclusion: Recommend that a specific statement relating to the usage results (for players, higher in 2015 post targeted marketing, but back to 2014 levels in 2016) be added to the conclusion (and the abstract if space allows).

<b>REVIEWER</b>	Alex Donaldson La Trobe University, Australia No competing interest
<b>REVIEW RETURNED</b>	08-Aug-2017

<b>GENERAL COMMENTS</b>	My major concern with this manuscript is an ethical one. It seems that all the player participants werer 'required to complete a questionnaire' yet all players were under the age of 18 (some under the age of 13) and some were 'Learners with Special Education Needs. I have serious reservations as to whether it is appropriate for youth/children, particularly if they have some form of special education needs, to be required to participate in a research study without the consent of a parent or responsible adult.
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<b>REVIEWER</b>	Scott W. Talpey Assistant Professor, Department of Exercise Science/Human Performance, Southern Connecticut State University. United States. Honorary Research Fellow, School of Health Sciences and Psychology. Federation University Australia, Australia.
<b>REVIEW RETURNED</b>	23-Aug-2017

<b>GENERAL COMMENTS</b>	<p>Thank you for the opportunity to review this manuscript. This study investigated the impact of a targeted marketing campaign on coach and player knowledge and awareness of the BokSmart Safe Six Injury Prevent Program. I found this manuscript to be well written. I believe that the new information produced from this study will provide sporting bodies with a better understanding of how to best implement injury prevention programs to enhance athlete safety. Below are my specific comments.</p> <p>1: Introduction-</p> <p>A: It is my thought that the introduction could benefit by providing greater detail about how the "Safe Six" was initially developed and why it should be implemented in youth rugby. This information would provide other sporting bodies with valuable information that can be used to develop injury prevention exercise programs. For example:</p> <p>* Has the "Safe six" been specifically designed for implementation in youth rugby? This is unclear in the introduction.</p> <p>* Are the exercises in the "Safe Six" designed specifically to mitigate the risk of common injuries that occur in rugby (i.e nordic hamstring curls for hamstring injury prevention)?</p> <p>B: There are other popular injury prevention exercise programs, most notably the FIFA 11+, that have a tremendous reach. It would be valuable for the reader of this manuscript to understand how other popular programs have been marketed in an attempt to enhance their implementation.</p> <p>2: Methods</p> <p>A: Was the language used in the survey the same for both players and coaches? Would a player from an U16 club who may have been 14 years old be able to understand the questions and answer appropriately?</p>
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	<p>B: Can the authors please clarify how the survey was administered? Electronically using IPAD's etc. or hand written with responses transferred into SPSS for statistical analysis? This is unclear in the manuscript.</p> <p>C: How far in advance of the youth week tournaments was the targeted marketing campaign administered? Additionally, it is unclear if all of the tournaments were played on the exact same week. For example, if the marketing campaign was administered 1 week prior to the U13 Craven week but 2 months prior to the U17 sevens week the exposure to the marketing campaign would differ for the players and coaches of the respected age groups which would could influence their knowledge and attitudes toward the program. Can the authors please clarify.</p> <p>D: Generally, how long did the survey take to complete?</p> <p>3: Results:</p> <p>A: Typo on page 6 line 56</p> <p>B: Within figures 1 &amp; 2 there are actually two separate graphs. Could these be labelled 1(a) &amp; 1(b); 2(a) &amp; 2(b).</p> <p>4: Discussion:</p> <p>1: Page 9, lines 34- 36: The authors state " It must be noted that the percentage of repeat participants completing the questionnaire in subsequent years is assumed to be minimal (as with all studies using the SARU week rugby tournaments as the cohort)". References for the other studies using this cohort should be provided.</p> <p>2: Because assessing the fidelity of the program was an aim of the questionnaire, it would be worth mentioning (maybe in the methods) if the marketing campaign targeted educating players and coaches on the specific exercises.</p> <p>3: Page 9 lines 52-55: The finding that players were interested in the preventative benefits of the safe six while coaches were interested in the performance related benefits is an important outcome. Has previous research demonstrated that improved performance related outcomes (strength, speed, change of direction speed etc.) can be obtained through implementation of the program? Was performance enhancement a marketing strategy used to improve coach uptake?</p>
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## VERSION 1 – AUTHOR RESPONSE

### Reviewer: 1

General overview.

This paper has presented valuable results evaluating the effectiveness of a targeted marketing campaign in promoting knowledge and use of an injury prevention programme in youth rugby. The findings are of particular value for groups promoting similar programmes.

Specific comments.

Page 5 line 32: Suggest including a link to the Safe Six exercise programme at the end of the first sentence in this paragraph (e.g., I found this helpful:

<http://images.supersport.com/content/BokSmart%20Safe%20Six%206%20A4%20format.pdf>)

RESPONSE: THANK YOU, WE HAVE INSERTED A LINK TO THE BOKSMART WEBSITE WITH THE PROGRAMME, VIDEOS AND POSTERS FOR THE SAFE SIX. WE AGREE THIS MAKES IT EASIER TO UNDERSTAND IF A READER IS INTERESTED IN KNOWING MORE.

Pg 5 para 3

“Following the success of the BokSmart programme, BokSmart further developed and implemented the Safe Six exercise-based injury prevention programme in the beginning of 2014 (<http://boksmart.sarugby.co.za/content/safe-six>).”

Page 5 line 35: Suggest altering sentence to read: "... (deemed the "pre" marketing period). Subsequently in 2015"

RESPONSE: THANK YOU, WE HAVE CHANGED IT TO THE ABOVE STRUCTURE.

Page 5 line 42: Suggest altering paragraph beginning "Thus, the aim..." to read: "This study had three aims. Firstly, to determine...approach. Secondly, to evaluate whether...programme. Finally, to explore the reasons"

RESPONSE: THANK YOU, WE HAVE ADJUSTED TO YOUR SUGGESTION AND IT READS MUCH BETTER NOW.

Pg 5 para 4

“This study had three aims. Firstly, to determine the change in the knowledge of coaches and players of the Safe Six programme, compared to the launch year, following a targeted marketing approach. Secondly, to evaluate whether a coach-targeted intervention approach is associated with player knowledge and awareness of the Safe Six programme. Finally, to explore the reasons why coaches and players use the Safe Six programme.”

Page 5 line 54: You state that participants were "required" to complete a questionnaire; this may be a poor choice of words, given your statements regarding consent on the next page. Please review.

RESPONSE: THANK YOU FOR POINTING OUT THIS ERROR, WE HAVE ADJUSTED TO “INVITED”:

Methods Pg 5 para 5

“The players and coaches of all South African teams attending the SARU youth week tournaments in 2014, 2015 and 2016 were invited to complete a questionnaire (not the same players every year, but all players at all tournaments every year).”

Page 6 line 34: Supplementary material I. Unfortunately, I do not appear to have had access to this supplementary material. Consequently, a portion of the method which I was unclear on (page 7 line 55 to page 8 line 6) remains unclear. Please include the supplementary material with your revision.

RESPONSE: APOLOGIES, WE HAVE ENSURED THE SUPPLEMENTARY MATERIAL IS NOW ATTACHED. WE HAVE ALSO ADJUSTED THIS PARAGRAPH TO BE MORE SPECIFIC REGARDING THE KNOWLEDGE AND BEHAVIOUR, TO ENSURE THE QUESTIONNAIRE REMAINS MORE SUPPLEMENTAL AND NOT A NECESSITY.

Pg 6 para 2

“The BokSmart Safe Six is targeted at the coach and therefore the questionnaire (supplementary material I) assesses knowledge (of the BokSmart Safe Six) and its transfer to behaviour (reported usage of the BokSmart Safe Six) of the coaches, as well as the barriers and facilitators in this process. The questionnaire also assesses the fidelity of knowledge by requiring the participants to correctly name the exercises included in the BokSmart Safe Six programme. Following this, the BokSmart coach-targeted approach would assume that this knowledge of the programme would transfer from the coach to the player, and therefore, the questionnaire also assesses the knowledge and behaviour of the players regarding the BokSmart Safe Six.”

Page 6 line 35: "it's" should read "its"

RESPONSE: THANK YOU WE HAVE CHANGED THIS.

Page 6 line 56: Given that your analyses focused on players and on coaches, I initially presumed that questionnaires from those of an "unknown role" were removed from analysis. However, examining the numbers in Tables 1 and 2 show that you 4248 respondents with a known role (112 coaches + 4136 players; Table 1), but 4257 respondents were listed in Table 2. Please confirm explicitly how respondents of an unknown role were treated.

RESPONSE: THE “UNKNOWN ROLE” RESPONDERS WERE EXCLUDED FROM THE ANALYSIS, AS THE PLAYERS AND COACHES WERE ANALYSED SEPARATELY. THE TOTAL IN THE TABLE WAS CORRECT, HOWEVER WE HAVE NOW ADJUSTED THE NUMBERS IN THE TABLE TITLE TO ILLUSTRATE THE NUMBER OF RESPONDERS IN THE ANALYSIS, THE UNKNOWN ROLES AND THE BLANKS.

Pg 7

” Table 2: Responses to the question “Have you ever heard of the BokSmart Safe Six?” (n=4050, unknown role=245, blank=207).”

Page 7 line 12: Suggest adding an explicit link within this sentence to Table 2.

RESPONSE: THANK YOU, WE HAVE DONE SO.

Pg 7 para 3

“For players, the awareness of the Safe Six increased significantly in 2015 (1.74 times [1.49; 2.04]) and in 2016 (1.54 times [1.29; 1.84]) compared to 2014 (Table 2).”

Page 7 Table 2: By providing only a combined percentage, you are making a particularly interesting result less obvious (i.e., % coaches unaware of Safe Six decreases from 52% to 23% to 10%, while % players unaware decreases from 74% to 62%, then remains steady at 64%). Since you independently discuss is players and coaches, I suggest you amend you table to provide a separate % for each role.

RESPONSE: THANK YOU WE HAVE CHANGED THE TABLE TO REPRESENT THIS, AND THE DETAIL NOW IS REPRESENTED MUCH BETTER AND ISN'T LOST.

Page 7 line 32: Why have you only focused on 2015 here? Only have three coaches respond "No" in 2016 provides a reason, but what about 2014? Please provide values for 2014 also.

RESPONSE: THE REASON WE FOCUSED ON 2015 WAS THAT IT WAS THE TARGETED MARKETING PERIOD AND THEREFORE WE DEEMED IT THE ONLY TIME IT WAS TRULY PERTINENT TO DETERMINE IF THE KNOWLEDGE TRANSFER WAS THERE BETWEEN PLAYERS AND COACHES. 2015 WAS THE MARKETING PERIOD AND THEREFORE ANSWERED OUR RESEARCH QUESTION OF COACH TO PLAYER KNOWLEDGE TRANSFER WHEN A PROGRAMME IS TRULY IMPLEMENTED AND MARKETED.

Page 7 Table 3: You appear to have a high proportion of players (over 60% I make it) who could not be linked to a specific coach. Consequently, your analysis and conclusion is based on a minority of your sample. I suggest that you identify this small subsample as a limitation, and urge caution in interpreting this particular result.

RESPONSE: THANK YOU, WE HAVE NOW INCLUDED THIS IN THE LIMITATIONS.

Pg 11 para 4

"44% of players could not be linked to a coach to determine the player/coach knowledge transfer, and this must be considered when interpreting those results."

Page 7 line 55 to page 8 line 6: Your description here is not clear. You describe participants being asked to "name" the exercises, and then to "correctly complete". As I do not have access to your questionnaire within the supplementary material, I do not understand what you have written here and what the problem is in presented percentages in Table 4. Please clarify.

RESPONSE: THANK YOU FOR THIS COMMENT, THE PARAGRAPH HAS BEEN CHANGED TO MAKE IT EASIER TO READ AND UNDERSTAND. THE QUESTIONNAIRE HAD PLACE FOR SIX ANSWERS (SIX EXERCISES) AND SO SOME PARTICIPANTS WROTE IN INCORRECT ANSWERS.

Pg 8 para 2

"The participants were asked to name the six exercises, this was open-ended and retrospectively coded correct or not. The correct answers were tallied and the results are shown in Table 4. It was not possible to calculate percentages because of incorrect answers and some players answering more than others. The overall finding was that the players had a poor ability to name the exercises."

Page 8 Table 4: If I am interpreting Table 4 correctly, then between 14 and 22 of the 47 coaches (or of the 36 who said that they were familiar with BokSmart) could correctly list each exercise. As you state in your discussion, these results clearly show that the ability to name the exercises was poor. Your results section on this point would benefit from making such a statement within the results (e.g., page 8 line 5).

RESPONSE: THANK YOU, WE HAVE NOW INCLUDED A STATEMENT FOR THIS (AS SEEN IN THE PREVIOUS COMMENT).

Pg 8 para 2

"This result showed poor ability to name the exercises."



Page 8 Table 5: You analysed 1599 responses to this question, but only 1412 respondents stated that they knew what the Safe Six was (Table 2). Did you screen the questionnaire respondents to remove individuals who reported not knowing what the Safe Six programme was? Please account for this discrepancy.

RESPONSE: WE SCREENED THE QUESTIONNAIRE TO REMOVE THE RESPONDENTS WHO HAD NOT HEARD ABOUT THE SAFE SIX, BUT KEPT THE RESPONDENTS WHO DID NOT ANSWER THAT QUESTION IN THE EVENT THAT THE RESPONDENT MERELY FAILED TO ANSWER THAT QUESTION (THERE WERE 207 BLANKS). WE HAVE ALSO INCLUDED A STATEMENT BEFORE THE TABLE TO MAKE THIS CLEAR:

Pg 8 para 3

"If a participant had answered "no" to "have they ever heard of the BokSmart Safe Six" they were screened to not be included in this question, however if they left that question blank, they could be included."

Page 8 line 29: "In the last 6-8 weeks have you ever used" the Safe Six exercises is a low standard to set. For future research, consider reviewing the response options for this question (i.e., always - mostly - rarely - never). The implication of the phrasing of the question is that you are likely to overestimate the implementation of the programme; this point should be considered in your discussion.

RESPONSE: THANK YOU FOR THIS INPUT, WE WILL CONVEY THIS TO THE PROGRAMME IMPLEMENTERS AND QUESTIONNAIRE DEVELOPERS (SA RUGBY). WE HAVE ALSO INCLUDED A SENTENCE REGARDING THIS IN THE DISCUSSION.

Pg 10 para 2

"Furthermore, when considering the reported use of the exercises, in 2016 more than half of the players reported not using the exercises, whereas the majority of coaches reported that they did use the exercises. Whilst the question might over-estimate the implementation of the exercises, the knowledge transfer from coach to player appears to have decreased."

Page 8 Table 5: I do not understand why you have given a combined % here since your discussion is of coaches and of players separately. Suggest provide number of respondents and % for both types of respondents instead of a combined %.

RESPONSE: THANK YOU FOR THIS COMMENT, WE HAVE CHANGED THE TABLE AND INCORPORATED THIS SUGGESTION.

Page 9 line 29: Please rephrase "This indicates that with their results" to clarify what you are referring to; in the context of the previous sentence, your message is unclear.

RESPONSE: THANK YOU FOR THIS, THIS SENTENCE HAS BEEN DELETED.

Page 9 line 34: You assume that the percentage of repeat participants is minimal. My primary comment is that this statement appears out of place here. I suggest moving it to the limitations. A more minor comment is whether you have any analysis that supports your assumption of minimal repeat participants? This analysis would be especially valuable on the coaching populations, as repeat participants may offer an alternative explanation for why the coaches' knowledge has routinely increased.

RESPONSE: THIS STATEMENT HAS BEEN MOVED TO THE LIMITATIONS SECTION. WE DO NOT HAVE ANALYSIS ON THESE REPEAT PARTICIPANTS, HOWEVER SA RUGBY HAVE ASSURED US IT IS A LOW % OF PLAYERS. HOWEVER, THE COACHES AT TOURNAMENTS HAVE NEVER BEEN ASSESSED AND THERE COULD BE AN INCREASED NUMBER OF REPEAT PARTICIPANTS, THIS WE HAVE NOW ADDED TO THE LIMITATIONS SECTION.

Pg 11 para 5

“It must be noted that the percentage of repeat players completing the questionnaire in subsequent years is assumed to be minimal (as with all studies using the SARU youth week rugby tournaments as the cohort), however the coaches have never been assessed and there could be more repeat participants”

Page 9 line 38-41: In addition to poor knowledge of the exercises, in 2016 over half of the players reported not using the exercises even once in the past 6-8 weeks (when presumably training may have intensified in preparation for the tournament). Given that the majority of coaches reported using Safe Six during this period, this finding may be as a result of players not being able to recognise the exercises (see also earlier comment about who was included in the analysis of table 5) rather than players not actually using it. Regardless, there is an interesting mismatch between player and coach views that is worthy of further comment. The possibilities are that (a) coaches are showing social desirability bias, or (b) coaches are using the exercises but not educating their players about the exercises. If (b) is correct, then potentially more explicit messaging is required on the "knowledge transfer" assumption. Please consider whether additional information could be included within this paragraph.

RESPONSE: THANK YOU FOR THIS COMMENT, WE HAVE INCLUDED ADDITIONAL INFORMATION REGARDING THIS POINT IN THE PREVIOUS SECTION RELATING TO THE KNOWLEDGE TRANSFER.

Pg 10 para 2

“Furthermore, when considering the reported use of the exercises, in 2016 more than half of the players reported not using the exercises, whereas the majority of coaches reported that they did use the exercises. Whilst the question might over-estimate the implementation of the exercises, either the coaches are showing social desirability bias or the knowledge transfer from coach to player appears to have decreased. If it is the latter, at least the exercises are still being implemented.”

Page 10 line 22: Suggest move reference [16] to the end of the preceding sentence.

RESPONSE: THANK YOU, WE HAVE MOVED THIS REFERENCE.

Page 10 line 22: Suggest replace "This indicates" with "Such findings indicate"

RESPONSE: THANK YOU, WE HAVE REPLACED THIS.

Page 10 line 28: Suggest reorder start of paragraph for clarity: While technology-based reach can be high, full utilization may be low. For example, an application focused on reducing ankle sprains had a low compliance once downloaded [17]. Therefore...

RESPONSE: THANK YOU FOR YOUR COMMENT, WE HAVE ADJUSTED THIS PARAGRAPH AS SUGGESTED.

Pg 11 para 3

“While technology-based reach can high, full utilization may be low. For example, an application focused on reducing ankle sprains had a low compliance once downloaded.[17]”

Page 10 Limitations: As stated earlier, suggest including two further limitations: (1) A high proportion of players (>60%) could not be linked to specific coaches, and therefore caution is urged when interpreting the relationship between coach and player awareness; and (2) it is assumed that there was a low percentage of repeat participants due to xyz (see above).

RESPONSE: THANK YOU. THE LIMITATIONS SECTION NOW READS:

Pg 11 para 5

"This was a cross-sectional study with self-reported knowledge, usage and exposure. Therefore the results must be interpreted in this context. 44% of players could not be linked to a coach to determine the player/coach knowledge transfer, and this must be considered when interpreting those results. It must be noted that the percentage of repeat players completing the questionnaire in subsequent years is assumed to be minimal (as with all studies using the SARU youth week rugby tournaments as the cohort), however the coaches have never been assessed and there could be more repeat participants."

Page 10 line 39: Suggest rephrase to: "...usage and exposure, and not observed behaviour. Therefore, the..."

RESPONSE: THANK YOU, THIS HAS BEEN AMENDED.

Page 10 Conclusion: Recommend that a specific statement relating to the usage results (for players, higher in 2015 post targeted marketing, but back to 2014 levels in 2016) be added to the conclusion (and the abstract if space allows).

RESPONSE: THANK YOU, WE HAVE INCLUDED A STATEMENT IN THE CONCLUSION.

Pg 11/12 final sentence of the page

"Reported usage of the programme increased in 2015 (i.e. the marketing period), but decreased to the pre-marketing levels in 2016."

**Reviewer: 2**

My major concern with this manuscript is an ethical one. It seems that all the player participants werer 'required to complete a questionnaire' yet all players were under the age of 18 (some under the age of 13) and some were 'Learners with Special Education Needs. I have serious reservations as to whether it is appropriate for youth/children, particularly if they have some form of special education needs, to be required to participate in a research study without the consent of a parent or responsible adult.

RESPONSE: WE APOLOGISE FOR THE MISLEADING WORDING. NO PARTICIPANT WAS "REQUIRED" TO COMPLETE THE QUESTIONNAIRE. THIS HAS NOW BEEN CHANGED IN THE REVISED MANUSCRIPT TO "INVITED TO COMPLETE". TO PUT THE ETHICS INTO CONTEXT, SA RUGBY REQUIRES THAT PARENTS/GUARDIANS AND PLAYERS PROVIDE WRITTEN CONSENT BEFORE THE START OF EACH TOURNAMENT. THE CONSENT COVERS HANDLING OF INJURIES, MEDICAL MATTERS, DRUG TESTING AND USE OF DATA FOR RESEARCH. OUR ETHICS COMMITTEE HAVE EXAMINED THIS INFORMED CONSENT AND CLEARED THE STUDY. EVEN THOUGH THE PLAYERS (AND PARENTS/GUARDIANS) GAVE THEIR CONSENT BEFORE THE TOURNAMENT, THEY WERE NOT FORCED TO COMPLETE THE QUESTIONNAIRE. THE CIRCUMSTANCES ALLOWED THEM TO HAND IN A BLANK QUESTIONNAIRE, IF THEY CHOSE TO, WITHOUT ANYONE KNOWING, SO THERE WAS NO PEER PRESSURE TO PARTICIPATE. THE QUESTIONNAIRE HAS NO PERSONAL IDENTIFIER ON IT. THIS IS THE PROCEDURE THAT WAS APPROVED BY THE HUMAN RESEARCH ETHICS COMMITTEE AT OUR UNIVERSITY.

### Reviewer: 3

Please leave your comments for the authors below

Thank you for the opportunity to review this manuscript. This study investigated the impact of a targeted marketing campaign on coach and player knowledge and awareness of the BokSmart Safe Six Injury Prevent Program. I found this manuscript to be well written. I believe that the new information produced from this study will provide sporting bodies with a better understanding of how to best implement injury prevention programs to enhance athlete safety. Below are my specific comments.

#### 1: Introduction-

A: It is my thought that the introduction could benefit by providing greater detail about how the "Safe Six" was initially developed and why it should be implemented in youth rugby. This information would provide other sporting bodies with valuable information that can be used to develop injury prevention exercise programs. For example:

\* Has the "Safe six" been specifically designed for implementation in youth rugby? This is unclear in the introduction.

\* Are the exercises in the "Safe Six" designed specifically to mitigate the risk of common injuries that occur in rugby (i.e nordic hamstring curls for hamstring injury prevention)?

RESPONSE: THANK YOU FOR THIS COMMENT, WE AGREE THE INTRODUCTION DID NEED A SENTENCE ON THIS. WE HAVE ADDED A SENTENCE TO ADDRESS THIS.

Pg 5 para 3

"The Safe Six was developed using clinical knowledge and research to address the most commonly occurring injuries in rugby union, and was designed to be implemented by rugby players of all ages."

B: There are other popular injury prevention exercise programs, most notably the FIFA 11+, that have a tremendous reach. It would be valuable for the reader of this manuscript to understand how other popular programs have been marketed in an attempt to enhance their implementation.

RESPONSE: THANK YOU FOR THIS COMMENT, WE ARE CURRENTLY UNAWARE OF ANY STUDIES THAT HAVE LOOKED AT MARKETING TECHNIQUES FOR INJURY PREVENTION PROGRAMMES AND THEIR TRANSLATION INTO IMPLEMENTATION/AWARENESS, SO UNFORTUNATELY, WE COULD NOT INCLUDE ANY.

#### 2: Methods

A: Was the language used in the survey the same for both players and coaches? Would a player from an U16 club who may have been 14 years old be able to understand the questions and answer appropriately?

RESPONSE: EVERY PARTICIPANT, REGARDLESS OF AGE OR ROLE, COMPLETED THE SAME QUESTIONNAIRE. THE LANGUAGE USED IN THE QUESTIONNAIRE WAS SIMPLE AND EASILY UNDERSTOOD. THE QUESTIONNAIRE IS ATTACHED AS SUPPLEMENTARY MATERIAL.

B: Can the authors please clarify how the survey was administered? Electronically using IPAD's etc. or hand written with responses transferred into SPSS for statistical analysis? This is unclear in the manuscript.

RESPONSE: THANK YOU FOR YOUR COMMENT. WE HAVE ADDED A SENTENCE IN THE METHODS TO ADDRESS THIS.

Pg 6 para 3

“Hard copies of the questionnaire were distributed to players and their hand written responses were transferred into Excel for data entry and then into SPSS for statistical analysis.”

C: How far in advance of the youth week tournaments was the targeted marketing campaign administered? Additionally, it is unclear if all of the tournaments were played on the exact same week. For example, if the marketing campaign was administered 1 week prior to the U13 Craven week but 2 months prior to the U17 sevens week the exposure to the marketing campaign would differ for the players and coaches of the respective age groups which would influence their knowledge and attitudes toward the program. Can the authors please clarify.

RESPONSE: THE YOUTH WEEKS (EXCEPT THE SEVENS TOURNAMENT) ALL TAKE PLACE WITHIN 2 WEEKS OF EACH OTHER, AND THE TARGETED MARKETING APPROACH BEGAN APPROXIMATELY 10 WEEKS BEFORE THESE TOURNAMENTS AND RAN UNTIL THEY FINISHED. FOR THE SEVENS TOURNAMENT, THE COACHES AND UNIONS PARTICIPATING, ALSO RECEIVED A TARGETED MARKETING APPROACH BEGINNING 8 WEEKS BEFORE THEIR TOURNAMENT. THIS TOURNAMENT OCCURS FOUR MONTHS LATER IN THE YEAR. AN EXTRA SENTENCE HAS BEEN INSERTED IN THE METHODS TO ADDRESS THIS.

Pg 6 para 2

“This targeted marketing took place during the ten weeks leading up to all the tournaments in 2015.”

D: Generally, how long did the survey take to complete?

RESPONSE: THE QUESTIONNAIRE TOOK A MINUTE OR TWO IF THE PARTICIPANT DID NOT KNOW ABOUT THE SAFE SIX. IF THEY DID KNOW ABOUT THE SAFE SIX, IT TOOK ABOUT FIVE MINUTES TO COMPLETE.

3: Results:

A: Typo on page 6 line 56

B: Within figures 1 & 2 there are actually two separate graphs. Could these be labelled 1(a) & 1(b); 2(a) & 2(b).

RESPONSE: THANK YOU FOR PICKING UP THESE ISSUES, WE HAVE HOWEVER CHANGED THAT PARAGRAPH SO THE TYPO HAS BEEN ELIMINATED. WE HAVE ADJUSTED THE GRAPHS.

4: Discussion:

1: Page 9, lines 34- 36: The authors state " It must be noted that the percentage of repeat participants completing the questionnaire in subsequent years is assumed to be minimal (as with all studies using the SARU week rugby tournaments as the cohort)". References for the other studies using this cohort should be provided.

RESPONSE: THANK YOU FOR THIS, THE OTHER REVIEWER HAS ASKED THIS TO BE MOVED TO ANOTHER SECTION, SO IT IS NOW IN THE LIMITATIONS, HOWEVER I HAVE ADDED THE REFERENCES IN AS WELL.

2: Because assessing the fidelity of the program was an aim of the questionnaire, it would be worth mentioning (maybe in the methods) if the marketing campaign targeted educating players and coaches on the specific exercises.

RESPONSE: THANK YOU FOR THIS COMMENT, WE HAVE INCLUDED TWO SEPARATE SENTENCES IN THE METHODS SECTION TO ADDRESS THIS:

Pg 6 para 2

“In 2015, before the youth week tournaments, a targeted marketing approach was taken, using emails (including the full Safe Six programme) to the respective youth week coaches;”

“The social media marketing included copies of the Safe Six posters (details regarding the exercises, repetitions and images) and links to YouTube instructional videos.”

3: Page 9 lines 52-55: The finding that players were interested in the preventative benefits of the safe six while coaches were interested in the performance related benefits is an important outcome. Has previous research demonstrated that improved performance related outcomes (strength, speed, change of direction speed etc.) can be obtained through implementation of the program? Was performance enhancement a marketing strategy used to improve coach uptake?

RESPONSE: THIS INSIGHT INTO THE PROGRAMME IS MUCH APPRECIATED. THERE IS CURRENTLY AN RCT UNDERWAY TO DETERMINE THE EFFECTS OF THE SAFE SIX PROGRAMME. AT THIS STAGE WE DO NOT HAVE DATA TO ANSWER YOUR QUESTION, BUT HOPE TO BE ABLE TO WHEN THE RCT IS COMPLETE LATER THIS YEAR. THE PERFORMANCE ENHANCEMENT WAS NOT A MARKETING STRATEGY. THE FOCUS WAS ON THE PROPOSED REDUCTION IN IN

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Phil Kearney University of Limerick Ireland
<b>REVIEW RETURNED</b>	08-Sep-2017

<b>GENERAL COMMENTS</b>	<p>Thank you for addressing the comments that I posted. There are just a couple of additional points to adjust your revision, but I do not need to see another draft once these changes are made.</p> <p>Table 1 lists 254 unknown players, while Table 2 lists 245. I presume one is a typo.</p> <p>Table 1 lists 112 + 4136 = 4248 individuals of a known role. Table 2 lists 4050 individuals of a known role. Please resolve.</p> <p>Page 8 lines 10-22: There is considerable repetition within this paragraph. Suggest rewriting to read: “The participants were asked to name the six exercises; this question was open-ended and retrospectively coded correct or not. The correct answers were tallied and the results are shown in Table 4. It was not possible to calculate percentages because of incorrect answers and some players answering more than others. The overall finding was that the players had a poor ability to name the exercises, and these were then assessed to be correct and tallied up.” to “The overall finding was that the players had a poor ability to name the exercises. Multiple participants could name some of the six exercises, but not all of them, and different combinations of the exercises.”</p>
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<b>REVIEWER</b>	Dr. Scott Talpey Exercise Science Department Southern Connecticut State University School of Health Sciences and Psychology, Federation University Australia No Competing Interest
<b>REVIEW RETURNED</b>	25-Sep-2017

<b>GENERAL COMMENTS</b>	<p>Thank you for providing me with the opportunity to review the revised version of this manuscript. As previously stated better understanding of how to improve the reach of injury prevention programs will be valuable information to sport governing bodies.</p> <p>I believe that the authors of the manuscript have adequately addressed the comments provided in the initial review.</p>
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### **VERSION 2 – AUTHOR RESPONSE**

COMMENT: Table 1 lists 254 unknown players, while Table 2 lists 245. I presume one is a typo. Table 1 lists 112 + 4136 = 4248 individuals of a known role. Table 2 lists 4050 individuals of a known role. Please resolve.

RESPONSE: THANK YOU FOR YOUR COMMENTS. THESE NUMBERS ARE NOT ACTUALLY TYPOS, IT JUST HAPPENED THAT WAY. AS FOR THE SECOND, THERE WERE FEWER RESPONDENTS WHO COMPLETED THAT QUESTION, HENCE THE "BLANK=207" WHO DID NOT ANSWER THE QUESTION, AND THEN OF THOSE WHO DID ANSWER, THERE WERE ONLY 245 WHO DID HAD AN UNKNOWN ROLE.

Page 8 lines 10-22: There is considerable repetition within this paragraph. Suggest rewriting to read: "The participants were asked to name the six exercises; this question was open-ended and retrospectively coded correct or not. The correct answers were tallied and the results are shown in Table 4. It was not possible to calculate percentages because of incorrect answers and some players answering more than others. The overall finding was that the players had a poor ability to name the exercises, and these were then assessed to be correct and tallied up." to "The overall finding was that the players had a poor ability to name the exercises. Multiple participants could name some of the six exercises, but not all of them, and different combinations of the exercises."

RESPONSE: THANK YOU, WE HAVE CHANGED THE WORDING TO THE ABOVE.