

AUTHORS RESPONSE TO REVIEWER COMMENTS

Comments from reviewers have been presented in **bold text**; and comments from reviewers #1 and #2 have been listed as C1.X and C2.X, respectively, with ascending numbers used to label these comments. Responses to comments are in plain text and have been labelled using a similar format (e.g. R1.1 indicates the response to comment 1.1). Where revisions have been made they are referred to using line numbers (i.e. the original line numbers that align with the text) of the revised manuscript, and these changes have been highlighted in the revised manuscript using **bold red text**.

Please note that all line references in the following responses are referring to the line numbers placed by us in the original document, and not those inserted by the manuscript submission system.

Reviewer #1 (Ray Stefani)

C1.1: This paper provides a very thorough examination of strategies for low to high uses of the Super Shot during the last five minutes of each quarter when that two-goal shot becomes available. The simulations are well done. The paragraph on page 15, beginning with line 222, provides a very important summary for coaches and netball strategists, emphasizing the importance of team-specific strategies for using and defending the new two-goal Super Shot. Specific team-by-team simulations are well done. This paper is very important for Netball coaches to use to understand their options.

R1.1: Thank you for the kind words made on our work. No amendments made based on this comment.

C1.2: The authors suggest a shorter title, “Shot selection strategies in Super Netball’s ‘Power 5’ period”. I think the shorter title better captures the paper’s contribution and draws the reader to discover the results.

R1.2: We appreciate this suggestion and have encompassed the suggestion made here with some elements of the original title (i.e. *Examining scoring outcomes with variable shot selection strategies in Super Netball’s ‘Power 5’ period via numerical simulation*) to a revised title of – “Simulating shot selection strategies and scoring outcomes in Super Netball’s ‘Power 5’ period”. We felt the need to keep the terminology around *simulation* and *scoring outcomes* to encompass these key elements of the paper. The short title for the paper has remained the same.

C1.3: The authors must change all the numbered references to numbered superscripts to follow IJSSC formatting. Also, the information following each figure number should not be italicized. The authors should carefully follow IJSSC formatting rules throughout.

R1.3: Apologies for the inaccuracies in the referencing style. We aimed to follow the Vancouver guidelines linked in the journals author guidelines – however it appears we followed the HSS style for Vancouver in-text citations (i.e. numbers in square brackets), whereas IJSSC follows the STM style (i.e. superscripted numbers). This has been amended throughout the revised manuscript.

We have also altered table and figure captions to not be italicised throughout the revised manuscript.

C1.4: In my work on the USA's two-point basketball shot versus the three-point shot, I found that about $\frac{1}{2}$ of the two-point shots are successful and about $\frac{1}{3}$ of the three-point shots are successful, resulting in about one point per shot. According to the authors' Table 1, the standard one-goal shot is successful 91% of the time while the Super Shot counting two goals is scored 52% of the time, each very close to one point/goal per shot also. The authors may find interest in a blog I published with our NY Times newspaper, which I uploaded. A second-order effect presented itself when the three-point shot began. For the first years of the new option, teams would select the best option of two shots instead of just one. The teams got off more shots than before with only one option, and scores rose, at about one point per shot, until the three-point shot reached 25% of the shots. As teams became more aggressive with three-point shots, moving from 25% to 33% of the shots, a team had to give up promising two-point shots, taking more time per shot, creating fewer shots per game and having lower scores per team, reaching the previous total, given about one point per shot. Of course, when both teams do the same, margins don't change. As the authors mention, the choice is team-specific. I wonder if second-order effects are present with the Super Shot.

R1.4: Thank you for pointing out this work and the similar context with respect to basketball and the 3-point shot. We agree here and believe that there are likely some secondary effects of the Power 5 period that teams will experience (e.g. longer times taken to set-up Super Shots resulting in less shots being taken, more effort being placed on positioning for Super Shots that could result in higher turnovers etc.) – and that our simulation approach could not account for such secondary effects without a deeper understanding of what is occurring. We have therefore included a discussion around this concept as a limitation to the study and noted that understanding the secondary effects on this rule change is an avenue for further research (see line 263-271) – something that our research group is aiming to look at in the near future.

Fourth, our simulations did not consider any strategic changes (either by attacking or defensive teams) that would impact the ability to set-up shots in the inner versus outer circle in the Power 5 period. It is plausible that teams would adapt their defensive

strategy to limit the higher value two-goal Super Shots during the Power 5 period, thus making it more difficult for shooting circle players to obtain good positions in the outer circle. This may have a secondary effect of teams requiring more time to set-up Super Shot opportunities, potentially reducing the total number of shots taken in the Power 5 period. Understanding potential secondary effects of the Power 5 period is an avenue for future work in the area.

C1.5: In the copy I was sent, after the references, additional but not numbered copies of Figures 1 and 2 are included. Following those are 11 pages of supplemental material. I do not think that supplemental material belongs in IJSSC. However, the authors could add a small number of tables to summarize important data from those extra eight figures, if needed.

R1.5: We believe that the additional copies of the main figures at the end of the manuscript are automatically generated and added by the manuscript submission system. We chose to also include the main figures within the manuscript to hopefully ease the burden on reviewers in viewing the figures (i.e. not being interrupted by the need to scroll to the end of the manuscript to view the figures).

According to IJSSC guidelines (section 4.3 at <https://journals.sagepub.com/author-instructions/SPO>), supplemental material can be hosted alongside articles. We have therefore decided to keep these supplemental figures as we believe the detail captured in these would outweigh any sort of summary that we could develop in a table format.

C1.6: The numerical margins in Figure 2 are very hard to read. Some margins could be placed in a table.

R1.6: The large number of simulation categories (i.e. zero, low, moderate, high, all-out) combined with the large combination of teams made these data difficult to display in a table – whereby any tabular layout becomes over-bearing to manage and read.

To hopefully improve part of the legibility of Figure 2 we have increased the size of the axes and subplot labels in the figure (see Figure 2 at line 144). Given the scale of this figure, we understand that it may be difficult to grasp individual margins for teams and/or simulation conditions. However, the overall goal of this figure was to demonstrate that the margins and distributions remained close to and centred around zero (i.e. see line 140-142), and feel that its current format is best to achieve this.

C1.7: Page 3, lines 3 and 4 would better emphasize the new shot as “opportunity for teams to gain two goals per shot versus one goal per shot during the final five minutes of each quarter, referred to as the Power 5 period”.

R1.7: We have amended this sentence in the revised manuscript to encompass this suggestion (see line 2-3):

In 2020, Australia’s elite-level netball league introduced the ‘Super Shot’ — an opportunity for teams to gain two versus one goal per shot during the final five minutes of each quarter (i.e. Power 5 period).

C1.8: Page 4, lines 24 etc. should read “ ‘the ‘Super Shot’3. This was ‘in play’ during the Power 5 period (the last five minutes of each quarter), providing an opportunity to gain two goals from the outer (i.e., 3.0m – 4.9m) circle instead of only one goal as before from the inner (i.e., 0m-3.0m) circle”.

R1.8: We have amended this sentence in the revised manuscript as suggested (see line 25-27):

This was ‘in-play’ during the Power 5 period (the last five minutes of each quarter), providing an opportunity for teams to gain two goals from the ‘outer’ (i.e. 3.0m-4.9m) circle instead of only one goal as before from the inner (i.e. 0m-3.0m) circle.

C1.9: Some pages have single, upper right, page numbers which disagree with the format Page x of y. Remove superfluous page numbers.

R1.9: We believe the additional page (i.e. those listed as *page X of Y*) and line numbers are those automatically added by the manuscript submission system. Much like our thought process with including the figures in-text, we included our original line and page numbers to hopefully make the review process simpler – particularly given that the line numbers added by the submission system do not necessarily line up with the text. We have removed the superfluous page numbers from our document, but have felt the need to keep our line numbers present. The reason for this is that throughout this response document we refer to our line numbers in directing reviewers to our changes – and we cannot identify the lines generated by the manuscript submission system until the manuscript is submitted.

Reviewer #2 (Hayden Croft)

C2.1: Line 10: Reword this sentence: “their scoring, but at a cost of more volatile and potentially low scoring.” Doesn’t quite make sense to me.

R2.1: We have attempted to improve the clarity of this sentence in the abstract (see line 8-11):

A greater tendency for attempting Super Shots was a high-risk:high-reward strategy, where this strategy could result in both high and low scoring outcomes (i.e. increased scoring volatility).

C2.2: Query: Should 3rd person past tense be used throughout this article? Or is it acceptable to use “We” throughout?

R2.2: Our preference is to use active language throughout the paper as we believe this is easier to follow for readers. We have not made any changes in this context with the revised manuscript – but are open to guidance from the journal editors should changes be required.

C2.3: Methods: There is not equipment section or reference to software used outside of the {SuperNetballR} package. What is this run with and how are the simulations run. As this is a Sport Science and Coaching journal better descriptions are needed.

R2.3: All analyses and simulations were conducted using custom Python scripts. We have included a sentence at the beginning of the Data Analysis section (see line 62) flagging this. A number of Python packages were used throughout these scripts. Our feeling is that listing all of the included packages is unnecessary – but are open to any further comments on inclusions to assist with an understanding of the analytical process.

C2.4: Line 142-7: This title is too long, it should only be a sentence and the rest of the title should go into the body of text.

R2.4: We have removed the final sentence of the caption for Figure 2 and placed in the main body of the text in the revised manuscript (see line 145-149). We made the decision, however, to keep the descriptive detail of what the various points, lines and shaded regions represent in the figure captions. It is our perspective that, while long, this added information will assist readers in understanding the complexities of these detailed figures.

C2.5: Line 174 and throughout: “adopting a higher tendency” reword to something like.... Attempting more shots from....

R2.5: We have purposefully been careful with the wording around *attempting more shots* when discussing the simulated Super Shot strategies as this was not exactly what the

simulations were programmed to do. As noted in the Data Analysis section (see line 78-87 specifically), the decision on whether a Super Shot was/was not attempted was driven by random number generation – where the chances of a Super Shot being attempted was greater in the higher tendency simulations. In theory (and likely in most cases), we would expect to see a greater number of simulated Super Shots with the higher tendencies – but this was not a guarantee (i.e. by random chance there may be simulations where more Super Shots were taken with a lower tendency). Nonetheless, we have included the suggested terminology in this comment alongside our original description to provide this likely practical perspective of what is happening with higher tendencies (see line 162-163 and 177-178):

We found that teams can increase their average scoring within Power 5 periods by adopting a higher tendency for taking Super Shots (and typically attempting a greater number of Super Shots) relative to taking none at all.

Our findings suggest that adopting a higher tendency (and typically attempting a greater number of Super Shots) to take Super Shots can elevate a teams average scoring in the Power 5 period.

C2.6: Discussion section: This needs some evaluation of your results against the literature to give context to the results. It reads like a deeper reporting of the results at times with no comparison to the wider body of literature.

C2.7: References: The literature incorporated into this paper is very limited and doesn't provide enough of a rational nor a theoretical background for the work and discussion. This needs to be addressed.

R2.6/7: Given the focus on existing literature in both C2.6 and C2.7, we have provided the response to these together. We agree that references to existing literature within this paper are scarce – however, when developing this paper our aim was to have an applied netball focus. The rationale for the work was driven by this applied (rather than theoretical) context, whereby we aimed to identify potentially relevant shooting strategies that could be adopted within teams match tactics. Our hope is that this rationale is communicated in the second paragraph of the introduction (see line 29-45). We also found making comparisons to existing literature difficult while trying to maintain an applied netball focus – whereby there is minimal to no published literature (to our knowledge) examining scoring strategies and/or tactics in elite-level netball. There is potential for comparisons to the adoption and use of the three-point shot in basketball (e.g. see comment 1.4 from reviewer #1) – however did not feel that this comparison would assist in answering the applied aims of this particular study (i.e. identify potential shooting strategies in the netball-specific context).

Our response here is aiming to provide some context as to why minimal references to existing literature is included in this paper. As noted in some earlier comments, we are open to further discussion around this point (with both editors and reviewers) should

additional theoretical grounding or comparison to existing literature be deemed a necessary addition to the manuscript.