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OPEN PEER REVIEW

Changes in Children's Physical Fitness Following the COVID-19 Pandemic: A Retrospective Study

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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1 Original submission

1 comment · 14 Dec 2024

Referee 1 Reviewer

MINOR REVISION 14 Dec 2024

Firstly, please send me the Word file.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear Reviewers:

Thank you for allowing us to resubmit a revised version of our manuscript entitled “Changes in children’s physical fitness following the COVID-19 pandemic: A retrospective study.” We appreciate your time and effort dedicated to providing feedback and are grateful for the insights, which have remarkably improved our manuscript.

We have incorporated most of the suggestions. Considering major revisions were required, not all revisions could be described here. I apologize for the overlooks and misses and would appreciate your reconsideration.

Reviewers' Comments:

Reviewer 1:

Question: First, please send me the Word file of the article.

Author response: Thank you for your valuable comments. It has been attached, as requested.

Reviewer 2

Question: Please consider rewriting these two sentences, there is a little bit distance in regards to meaning implications; I do understand this but because your paper would be seen by many, I am sure of that as you worked amazingly well and point the most important part of every society, our beloved future ones it might benefit from more clearance.

Author response: Thank you for your valuable comments. We appreciate your thoughtful feedback and have implemented the suggested revision as outlined below:

Original: Recently, there has been an unprecedented increase in people’s interest in sports and health in Japan. Participation in physical exercise or health-related activities provides long-term physical and mental benefits.

⇒ Revised: There has been an unprecedented surge in sports and health in Japan. This trend is encouraging for adults and children representing our future because engaging in physical exercise and health-related activities offers substantially extended physical and mental benefits (lines 43–45).

Question: What a great methodology you guys employed I genuinely loved every single wording and the smoothness of the fellow, would you mind please put alpha(α) significant level for intermediate level readers as well, as I am sure at this point this paper would shine significantly.

Author response: Thank you for your valuable comments. I have modified it as follows:

To enhance the clarity of our research methods, we have included additional text and a supplementary file:

⇒ ・For detailed information about the physical fitness tests, refer to reference 14 or the supplementary file (lines 104–105).

・Supplementary file

Grip strength

Stand upright with your feet shoulder-width apart, arms relaxed at your sides, and grip the grip strength meter as firmly as possible, ensuring it does not make contact with your body or clothing.

Perform the test twice, alternating between the right and left hands. Record the results for each side, and then average the two scores.

Sit-ups

Lie flat on your back on the mat, gently crossing your arm on your chest, and clasp your hands. At the signal “go,” raise your torso from the supine position, ensuring your elbows and thighs make contact. Then, quickly return to the initial position.

Perform as many sit-ups as possible within a 30-s period.

Trunk forward flexion

The subject sits upright, positioning both legs between the boxes with their back and buttocks pressed firmly against the wall. Place both hands with palms down, shoulder-width apart, with the center of the palms hanging over the front edge of the cardboard between the boxes.
Next, the subject slowly bends forward, keeping both hands on the cardboard, sliding the entire box forward as far as possible, and releasing the cardboard once the maximal forward bend is reached.
The test can be performed twice, recoding better results.

Side steps

Stand with your feet straddling the center line. At the “start” signal, side-step to the right, crossing or stepping on the line, and then return to the center line. Repeat the process for the left side.
Continue side-stepping for 20 s, earning one point for each line you pass (right, center, left, center = 4 points). The test can be performed twice, recording better results.

20-m shuttle run

At the sound of the electronic signal, start running toward the 20-m line. If your feet cross or touch the line before the next signal, immediately turn and run back toward the starting position. The interval between the electronic signals starts gradually but shortens progressively every minute. The test ends when the participant can no longer maintain the required pace or fails to touch the line with either foot twice consecutively. The number of successful touches is recorded.

50-m run

Measure the time taken from the starting signal until the torso reaches the finish line. The starting position is a standing start (junior high school students use a crouching start). Only one attempt is allowed.

Standing long jumps

Position yourself with feet slightly apart, aligning your toes with the front

edge of the takeoff line. Jump forward, taking off with both feet simultaneously. The test can be performed twice, recording the better jumps.

Softball throws

Stand within a circle (2 m in diameter) drawn on the ground and throw the ball without stepping on or crossing the line. Elementary school students use softball no. 1, while junior high school students use handball no. 2.
test allows two attempts, recording the better throw.

Question: I have a little problem with your assumption here because mainly although it would be observable to be able to deduct such line of reasoning in ontological perspective but as a matter of fact you didn't counter argument so far yet, still the fact that different changes in ages, different sex hormones and imbalance result of as a result to it would have in growing pattern, and unfortunately you didn't mention this problem in your literature view in introduction as well, my decisiveness here is just because of the fact that I believe this work would grab amazingly significantly attention both in my beloved country Japan and other part of the world as you may know we might have similarly epidemic again unfortunately, so please revise this part and take to consideration these changes, you work as above and beyond but ethically as you did this phenomena I obligated myself to help it blooms in history.

Author response: Thank you for your valuable comments. I have modified it as follows:

Original: Therefore, we assumed that student body shape would have a similar influence on the results, allowing for an appropriate comparison of athletic performance (Table 1). However, the analysis did not include height, weight, and lifestyle habits.

⇒ Revised: Children's athletic abilities are influenced by various factors. To minimize such factors and ensure the comparability of results, we analyzed the athletic performance of groups with similar body types (Table 1) (lines

117–120).

Question: Would you mind please rephrasing I do get it it’s the most efficient way but it may
interfere with other. Concepts

Author response: Thank you for your valuable comments. I have modified it as follows:

Original: This method was the most effective method for confirming the difference between two uncorresponding normal distributions (16).

⇒ Revised: Considerably, this method was the most effective for determining differences in physical fitness records between the two samples: children in 2014, 2022, and 2023 (16) (lines 126–128).

Question: I would kindly suggest that please rethink about this part, because one of hypothesis that subliminally you have tried to show was about significance lower physical fitness drop in regards to our beloved next generation improvements, but there is a lack of detailed explanation when it comes to these variables, for example if in 2023 explosive variable was not dropped it means the strength of lower body at least in this text was the same and for endurance as well, there are pretty much high information about how fast endurance can be gained in such a short time especially if developed well, which eventually would hurt the main hypothesis about pandemic disadvantages, which I mean in short if these variables can be boost in short time why they tested and did not explained well, in the opposite point of view of yours, but this is a suggestion as these wording is clear enough and would pass down what you have tried to show, it is up to you, one of my suggestion in your review part is to please consider representing this article in educational system and health department so not only this amazing article would bloom in scientific field it would also be beneficial in much higher stance for policy makers so we

can grab more attention on what you have tried to bringing attention to which is taking care of our beloved next generation more, thank you.

Author response: Thank you for your valuable comments. I have modified it as follows:

Table 5 presents the results of an unpaired t-test comparing physical fitness exam data from June 2023 with those from 2014. The fourth graders in Table 5 correspond to the same cohort evaluated as the third graders in Table 3. The comparison between 2023 and 2014 revealed no significant differences in explosive physical abilities, such as standing long jump and softball throw, across most groups. However, in measures of muscle endurance and overall endurance, 3rd- and 4th-year students in 2023 demonstrated considerably inferior performance compared with their 2014 counterparts (this analysis compares records from the same school year and is not a longitudinal follow-up of the same group).

When the performance of the third-grade cohort from 2022 was compared with their performance as fourth graders in 2023, no significant improvement was observed in the *p*-value. In contrast, comparing the results of the same grade levels across 2022 and 2023 showed an overall improvement in the *p*-value. However, these improvements were not sufficient to be deemed statistically significant (lines 198–225).

⇒ Table 5 presents the results of an unpaired t-test comparing physical fitness data from June 2023 with those from 2014. The fourth graders in Table 5 correspond to the cohort evaluated as the third graders in Table 3. The comparison between 2023 and 2014 reveals no considerable differences in explosive physical abilities, such as standing long jump and softball throw, across most groups. However, in measures of muscle and overall endurances, 3rd- and 4th-year students in 2023 demonstrated notably inferior performance compared with their 2014 counterparts (this analysis compares records from the same school year and is not a longitudinal follow-up of the same group).

When the performance of the third-grade cohort from 2022 was compared with their performance as fourth graders in 2023, no significant

improvement was observed in the p-value. In contrast, comparing the third and fourth graders in 2022 and 2023 (i.e., the same grade, not a follow-up survey), the p-value for 2023 appears to be improved compared to 2022; however, this is not a significant improvement.

In examining muscular endurance through sit-ups, the records of the 3rd-year boys in 2022 did not considerably differ from those in 2014. However, once these boys progressed to 4th-year students in 2023, their athletic ability improved. Meanwhile, there was no improvement in the sit-up records for the girls.

Regarding the 20 m shuttle run (whole-body endurance), the records of the 3rd-year boys in 2022 showed no significant difference compared with 2014. Nonetheless, once these boys became the 4th-year students in 2023, their performance significantly declined when compared with 2014. However, for girls, while their records as 3rd-year students in 2022 were significantly inferior to those in 2014, no significant difference remained by 2023, indicating improvement in their performance.

When examining explosive events, there was no significant difference in the 50-m run between the records for the same group of 3rd-year students in 2022 and 4th-year students in 2023, compared with their 2014 performance. As for the standing long jump, while the 4th-year boys' performance showed no significant difference from their 2014 records, the difference for girls widened, indicating a great decline in their performance. (lines 178–205).

Question: That's why I love your work thank you.

Author response: Thank you for your kind words and support.

Question: My next suggestion for your next work is exactly this part which now I am sure you know it, please consider to read Prof Andrew Huberman, circadian rhythm and how we can put self reward and help our

beloved children next generation to engage in life with their energy and keep this balance in their inner motivation activation as I believe you guys are capable to do so, it would be amazing study, thanks so far everything was amazingly smooth and I enjoyed every word of yours, I even delayed my review to be able put more ethical distance so I can be more decisive but even with 24 hours delay I have to mention you did fantastic job, thanks.

Author response: We deeply appreciate your compliment and guidance. Accordingly, we will thoroughly review the relevant literature to enhance our understanding and conduct further research in this area.

Question: Please make sure you have downloaded and/ or used brief land (journal) citation here. https://brieflands.com/journals/ij-pediatrics/knowledgebase.html#references

Author response: Thank you for your valuable comments.
We sincerely apologize for the inconvenience. Although we have downloaded the journal from the specified location, we could not install and utilize it because of compatibility issues with the PC environment in Japan.
We have double-checked that the references are listed per the journal's regulations.

Reviewer 3

Question: Change all subjects (I, We ..) to researcher/s
Author response: Thank you for your valuable comments.
⇒ We have replaced all instances of "subjects" with "researchers" throughout the manuscript to align with the recommended terminology and enhance clarity.

Question: Restatet

Author response: Thank you for your valuable comments.

Original: Following the COVID-19 pandemic, the results of the 2022 and 2023 physical fitness exams were found to be substantially inferior in several aspects compared to the results of similar exams in 2014.

⇒ Revised: Following the self-restraint period during the COVID-19 pandemic, the 2022 and 2023 physical fitness exam results were substantially inferior in several aspects, compared with the results from similar exams conducted in 2014 (lines 29–31).

Question: Developing

Author response: Thank you for your valuable comments, we have made the necessary revisions.

Original: the development of

⇒Revised: Developing

Question: Rewrite

Author response: Thank you for your valuable comments.

Original: Therefore, we assumed that student body shape would have similar influence on the results, allowing for an appropriate comparison of athletic performance (Table 1).

⇒ This section has been significantly rewritten to enhance clarity and provide a more accurate explanation of the methodology and assumption regarding the influence of body shape on athletic performance (Table 1) (lines 117–120)

Question: Rewrite

Author response: Thank you for your valuable comments.

Original: The physical fitness test data obtained were completely

anonymous and not linked to any other data. There is no personally identifiable information in the dataset. As this was a retrospective review of past data, informed consent was not required.
⇒Revised: The obtained data comprised the results of exercise examinations and physical fitness test data from annual events related to health and physical education and were completely anonymous. Owing to the retrospective nature of the study, informed consent was not required (lines 89–91).

Question: In
Author response: Thank you for your valuable comments.
Original: according to
⇒Revised: in

Original: Comparing the third-grade group's results from 2022 with their 2023 results as fourth graders,

⇒Revised: This section has been significantly rewritten to clarify the comparison between the third-grade group’s results from 2022 and their results in 2023 as fourth graders.)

Question: Restate
Author response: Thank you for your valuable comments.
Original: This study therefore differs from the survey results of the Japan Sports Agency (13), which showed an increase in obesity.
⇒ Revised: Therefore, this study cannot be compared to the survey results of the Japan Sports Agency (13), which demonstrated an increase in obesity (229–230).

Question: Based on the abstract provided, the study design is a retrospective epidemiological study. Therefore, the appropriate checklist to use for peer review is the STROBE-cohort checklist. Let's proceed with the peer review using this checklist:

Peer Review Using STROBE-cohort Checklist:

Author response: Thank you for your valuable comments.

Thank you for pointing this out. We have ensured the appropriate checklist (STROBE-cohort checklist) is used for peer review, aligning with the retrospective epidemiological design of the study.

Due to character limitations in the summary, not all points could be addressed, we have added the missing details in the main text.

2 Revision 1

1 comment · 18 Feb 2025

SHIMAL HAMZA HAMAD CHOMANI Reviewer

ACCEPT 18 Feb 2025

All comments have been revised. Now the paper is ready for publication.