

General comments

The manuscript investigates the effects of high-intensity interval training (HIIT) on judo performance, explicitly focusing on SJFT and CMJ. However, several significant revisions are needed. The title and abstract should be revised for clarity and specificity, with a clear outline of the study's objectives and results. The introduction must provide a more detailed background on HIIT, its relevance to judo, and the study's novelty. The methods section requires more information on participant training backgrounds, the HIIT protocol's specifics, and proper statistical analysis methods. The results should clearly present both time effects and group \times time interaction effects, while the discussion should compare findings to existing research and explore potential mechanisms. Additionally, sections on limitations, key findings, and practical applications should be added. These revisions will strengthen the manuscript's contribution to judo performance and sports science.

Specific comments:

TITLE

I recommend rewriting your title to clearly reflect the main finding of your experiment. Although HIIT is recognized by professionals, please avoid using abbreviations in the title.

ABSTRACT

- Please add an introductory sentence to your abstract highlighting the importance of sport-specific high-intensity interval training (HIIT) in enhancing athletic performance. Why do you think this method could be beneficial for judokas? Build this sentence based on previous studies to highlight its relevance. It is essential to provide readers with the importance of your experiment in the opening sentence.
- The objective of the study is vague. Please rewrite it to clearly define the purpose and scope of your research. You have two objectives. Clearly outline them.
- Provide age and anthropometric measures of the participants including height and weight as well as their levels (trained, professional, club-level, provincial-level, national-level,).
- You have already categorized your groups as UI and MU, so labeling them again as Tori and Uke may create confusion. Consider using consistent terminology throughout to ensure clarity.
- Please mention the intensity of the HIIT intervention and rest periods (active, passive?).
- What is the reactive strength index modified (RSImod)? While we know it is a method for monitoring countermovement jump (CMJ) performance, you should clearly define it at the outset and explicitly state that CMJ performance will be reported using RSImod.
- You have also evaluated body composition measures. Please mention them here.

INTRODUCTION

L22, remove “ability” after agility.

L23-24, rewrite sentence as follows: The ability to repeatedly perform high-intensity intervals, enabling judokas to gain an advantage by knocking down opponents or securing holds on the floor, has become essential for achieving excellence in judo.

- At the start of the introduction, focus on two key aspects: 1) Defining high-intensity interval training (HIIT) and 2) Explaining its relevance as a practical training approach for judokas. Elaborate on the specific characteristics of judo competition, linking them to the demands and benefits of HIIT. Finally, introduce your proposed intervention and its potential impact on judo performance.

- Remove general information including yearly competitions required for qualification, etc. Focus on the main objectives.

- Provide a brief overview of the different types of HIIT. Then, based on the specific demands of judo competition, identify and justify the most suitable HIIT type for judokas.

- L38, there are various types of high-intensity interval training (HIIT), classified based on the duration and intensity of both the activity and rest intervals. Please provide a complete introduction to these HIIT variations, as your general statement does not sufficiently cover them.

- L41-42, HIIT consisting of the above... Use references specifically related to sport-specific HIIT, particularly for judokas. Clearly specify which performance measures have been evaluated.

- L43-45, Your study focuses on athletes, so avoid including information about recreationally active individuals.

- L50, remove “indeed” from the beginning of the sentence.

- L52, your study examines the effect of HIIT on SJFT and CMJ. Remove any references to unrelated physiological parameters, such as VO_2max .

- L52, If Franchini et al. [5] have already investigated judo-specific HIIT and its effectiveness in enhancing SJFT, what is the rationale for testing it again? Clearly explain the novelty of your study and how it extends or differs from previous research.

- L56-60, Please explain the significance of CMJ and SJFT in judo performance. Specify the parameters measured in SJFT and discuss how improvements in SJFT and CMJ contribute to success in judo competitions.

- L62-64, In this section, avoid discussing mechanisms unless your study specifically investigates them. Instead, focus on the significance of the parameters under investigation.

- L64-67, You should emphasize the specific objectives of your experiment rather than making general comments about the overall study direction.

- L68-74, this paragraph is vague. You may re-write it as follows:

in Taiwan, only the top-performing first-grade collegiate judo athletes are chosen by coaches to compete in official matches, while other athletes are assigned the role of sparring partners. These sparring partners practice Ukemi (falling techniques) repeatedly during training. Ukemi is a key skill in judo that helps prevent injuries from falls and includes various types, such as Mae-ukemi, Ushiro-ukemi, Yoko-ukemi, and Forward Rotating Ukemi. However, the impact of practicing Ukemi on athletes' overall athletic performance has not been fully established. Understanding these effects could help coaches create more targeted and effective training programs for the upcoming season.

METHODS

- Include an “study design” section separated from “participants” section.
- How did you determine the sample size? Did you use specific software, such as G*Power? If so, please include the relevant criteria used for the calculation.
- Was the habitual training of the participants the same? How did you assess their homogeneity? Were the participants' conditioning levels similar? Please explain how you evaluated this. This is crucial, as differences in participants' conditioning levels can impact adaptive outcomes and influence the statistical results and conclusions.
- Please rewrite the HIIT protocol to include the following information:
 1. The habitual training of the participants, including frequency, duration, type, intensity, and total volume.
 2. Detailed information about the HIIT program, such as the intensity of activity and rest, the duration of activity and rest periods, the number of sets, the number of repetitions per set, and the duration and intensity of rest intervals between sets. Also, specify the time of day and the days of the week (e.g., Saturday, Sunday) when the sessions were conducted.
 3. How was the intensity of the HIIT monitored? Did you use methods such as RPE (Rating of Perceived Exertion) or lactate measurements?
 4. The specific season of the annual training cycle during which the experiment was conducted.
- Rewrite “Statistical analyses” section. Your analysis method is not relevant. You have three groups and you have to use ANOVA to compare differences among groups. More importantly, you have two levels and three groups. You should use a 2×3 (time \times group) repeated measure ANOVA using post-hoc test. More importantly, you have to test normality and homogeneity of the distribution using Shapiro-Wilk test and Levene's test, respectively. Moreover, you have to mention sample size calculation here.
- L170, re-write it as follows:

Table 2 presents body composition measure from pre- to post-training.

- L180, re-write it as follows:

Table 2 presents CMJ measures from pre- to post-training.

- In section “results,” please mention time effects. Then compare the magnitude of changes in different groups over the training period.
- Please mention F ratios, P values, and *d*.

DISCUSSION

This section requires significant revision. You should begin by clearly presenting the results for each variable, including both the time effects (i.e., the changes within each group over time) and the group \times time interaction effects (i.e., the differences between groups over time). After presenting the results, discuss the outcomes in the context of how HIIT influenced each variable under investigation. Compare your findings with previous studies to highlight consistencies or discrepancies in the results.

Additionally, consider discussing potential mechanisms that could explain the observed outcomes. For example, if HIIT improved performance measures like SJFT or CMJ, explore how factors such as improved cardiovascular fitness, muscle recruitment, or neuromuscular adaptation might have contributed to these effects.

Finally, provide practical suggestions based on your findings. For example, if HIIT significantly enhanced specific performance metrics, you could recommend incorporating certain HIIT protocols into judo training routines to optimize athletic performance.

- Add a limitations section.
- Rewrite conclusions exactly according to your findings.
- Write Key points of your findings.
- Write a “practical applications” section.