MAJOR OVERALL COMMENTS

1. Writing - The overall quality of writing is low and needs significant improvements. I recommend that the current investigators collaborate with an additional author who has strong English writing skills.
2. Methods – important details are missing throughout the methods. The recent meta-analysis by Clemente et al. 2025 provides an excellent example of the detail required, particularly around inclusion and exclusion criteria and 'data items'. See: Impact of Lower-Volume Training on Physical Fitness Adaptations in Team Sports Players: A Systematic Review and Meta-analysis
3. Systematic review – it seems as though this part of the paper is almost forgotten about. The results could describe the study and training protocol characteristics in greater detail, while the discussion could then elaborate on these findings. For example, more information on the number of direction changes and type of direction changes across the studies would be beneficial.

SPECIFIC REVISIONS

TITLE, lines 1-3: I suggest a more suitable and descriptive title is: The chronic effects of change of direction during repeated-sprint training on jump performance, sprint speed, and change-of-direction ability in team sport athletes: a systematic review and meta-analysis

ABSTRACT & KEY WORDS

Lines 5-10: objectives can be more concise. For example, "Our purpose was to evaluate the effect of…."

Line 11: Again, consider ways to make your writing more concise, particularly important for the abstract. For example, "This investigation adhered to the PRISMA guidelines…."

Lines 19-21: presenting an interpretation of the effect size would provide more practically useful information for practitioners rather than the P-value and I^2.

Lines 26-27: This last sentence is a little vague. Provide a practical application about how practitioners can prescribe RST with COD to maximise its effectiveness.

Line 28-29: select key words that aren't in the title

INTRODUCTION

Overall, the introduction could more clearly explain how the research fills a knowledge gap.

Line 32: Spelling error, Repeated-Sprint Training (RST) should be Repeated-sprint training

Line 35: this definition is incorrect as rest period should be < 60 seconds. Additionally, RST protocols with change of direction can take longer than 7 seconds. I'd recommend following the definition set by Girard et al (2011) and Thurlow et al. (2023):

- Repeated-sprint ability—part I
- The Acute Demands of Repeated-Sprint Training on Physiological, Neuromuscular, Perceptual and Performance Outcomes in Team Sport Athletes: A Systematic Review and Meta-analysis

Lines 37-39: these are just two of many adaptations. I suggest editing this sentence to state, "RST is an effective multi-component training modality, known to enhance a range of physical qualities including…. Maximal oxygen uptake, intermittent running performance, sprint times, repeated-sprint ability…" and so on.

Line 39-42: RST has been around for >20 years, so yes whilst there has been more growth in recent years, I don't feel that this sentence is a true reflection. I suggest removing or rephrasing. Additionally, evidence would be needed to support the notion that it improves speed and strength. I'm not aware of any research that shows it improves strength, but it does improve power.

Lines 42: this sentence is an example of the large improvement in grammar and writing that is required for publication. It should read "Thurlow et al. (citation) categorised RST as…

Lines 42-47: Thurlow et al classified RST into three forms: straight line sprints (STR), shuttle sprints (SHU) and multidirectional sprints (MD). You have lots of abbreviations, which are confusing. For consistency with literature and to improve readability, I suggest abbreviating as follows: repeated sprint training with changes of direction (RST with COD); repeated-sprint training with one change of direction (RST with 1-COD); and repeated-sprint training with multiple changes of direction (RST with >1-COD)

Lines 53-59: rather than Alemdaroglu et al. single study, I suggest referencing Thurlow et al. 2023 acute demands meta-analysis here, as it synthesises all of the evidence on the acute effects of RST with COD. Furthermore, a sentence or two describing how these differences in the acute demands of RST influences chronic adaptations.

METHODS

Study selection, lines 71-78: The current inclusion-exclusion criteria is lacking detail.

- Population is not clear – age, sports, gender, performance level (I suggest that you define performance level based on guidelines set by McKay et al. (Defining Training and Performance Caliber: A Participant Classification Framework).
- Intervention is not clear – what specific protocols are included including the duration and frequency of interventions. Additionally, were RST interventions performed as stand alone interventions, alongside normal training practice, or were there other interventions also included (e.g., RST and plyometric training). Additionally, what are conditions were included and excluded (diet control, environmental conditions) etc.
- Outcomes – be more specific about what tests and testing equipment are included (e.g., countermovement jumps measured on force plates only or otherwise?); make it clear why these outcomes were selected and others were excluded, such as tests of aerobic fitness and other physical qualities. Furthermore, I suggest separating the sprint test results into 10 m, 20m and 30 m times if there is sufficient data.
- Study design – what level of control was applied (e.g., what training was permitted the controlled groups).

I suggest that all of this information is supplied in a table that contains both the inclusion and exclusion criteria to make it easy to follow. An excellent example of this is by Clemente at al. (Impact of Lower-Volume Training on Physical Fitness Adaptations in Team Sports Players: A Systematic Review and Meta-analysis)

Line 88: please change the wording of this sentence to – An example of the database search process is presented in Figure 1.

Line 91: manual searches <u>were</u> conducted – use past tense

Statistical analysis

Please consider using Hedges G, rather than Cohens D, as it accounts for small sample bias.

Please report prediction intervals, which provide the likely effect size of a new (similar) study based on the included studies and informs practitioners about the expected results in future training interventions. See Borg et al (Meta-analysis prediction intervals are under reported in sport and exercise medicine).

RESULTS

The figures are well constructed, but the inclusion of a prediction interval would improve them, further. See physical adaptation meta-analysis by Thurlow et al. 2024 for examples.

Literature search, lines 141-148: Duplicates are removed at the first stage of screening. Please follow the prisma flow diagram correctly https://www.prisma-statement.org/prisma-2020-flow-diagram

DISCUSSION

Overall, more practical applications of the findings are needed throughout the discussion – how can coaches use each findings to improve the prescription of RST with COD?

Line 224: Should read; "The purpose of this systematic review and meta-analysis was to evaluate the effect of RST with COD on…"

Lines 224-229: the first paragraph of he discussion is vitally important. It should provide readers with a strong insight into the investigation, results and practical applications. Currently, it is far too vague and brief, please amend.

Lines 247-257: the authors should focus on evaluating the results of their SR & MA with the practical applications of the findings rather than discussing the individual studies within it.

Limitations

Lines 323-325: extracting data from graphical representations is common in MA so I don't think that this is worth mentioning as a limitation. There are more important limitations to address.

Lines 325-327: why were these studies non-compliant. Provide this information so that readers can determine their impact on the results.

Lines 327: what type of variation? Be specific

Some important limitation have been missed. In particular, difference in testing methodology between studies, such as sprint testing where sprint times over short distances may vary up to 50–60 % due to differences in equipment and methodology. See Haugen and Buchheit (Sprint Running Performance Monitoring: Methodological and Practical Considerations).

CONCLUSIONS

Line 337: it's meant to be a systematic review and meta-analysis, so I suggest describing it as such.

Lines 338-342: in your results you state that subgroup analysis revealed significant effects for both RS-OCOD and RS-MCOD on jumping ability, but here you state that RS-OCOD had non-significant impacts on physical capabilities. This needs amending. Again, I would suggest interpreting the effect size rather than the P-value here and throughout the discussion.

Line 339: Please use the term "physical qualities" rather than sport performance indicators or capabilities as these are different concepts. Apply throughout the manuscript.

Lines 341-342: Provide practical applications of your findings for coaches. Additionally, some insight into future areas of research is needed.

REFERENCES

Bottom references are cut off from the submission

TABLE 1: font size can be reduced to better fit the text into the table.

Studies should be changed to study.

Abbreviate years as yrs,

Abbreviate frequency as freq. change outcome to outcomes