

# INPLASY PROTOCOL

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**Review Stage at time of this submission:** Data extraction.

**Conflicts of interest:**  
None declared.

## Straight speed and acceleration optimal distances and reference values. A systematic review, and meta-analyses

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**Review question / Objective:** To summarize the sprint reference acceleration and speed values for different sprint distances and suggest optimal unification of ice-hockey straight sprint testing.

**Eligibility criteria:** The title and abstract screening was done by two researchers (PS and RR) who selected a set of articles for full text screening, where the inclusion criteria were: 1) male or female ice-hockey players; 2) any cross-sectional or intervention study; 3) tests of ice-hockey sprinting over any distance or any battery of conditioning tests that included straight-line sprints; and, 4) results reported straight-line sprint distance, speed, time, or acceleration. In the case of disagreement between the evaluating authors, the final decision was made by a third author (MV). The full text screening exclusion criteria were: 1) if the article was not in English; 2) the testing did not include straight-line sprinting; 3) the reported values did not include data distribution; 4) the study reported only maximum speed without skating time or average speed; 5) the end of the sprint was defined by the point the player stopped sprinting; 6) the measurement was made with a stopwatch; and, 7) the study had high bias estimation. The maximum speed test was not included due to the uncertain velocity conditions at beginning of testing distance. The bias estimation was performed using the JBI (Joanna Briggs Institute) Critical Appraisal Checklist for Analytical Cross Sectional Studies (supplementary material 1).

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 May 2022 and was last updated on 03 May 2022 (registration number INPLASY202250010).

### INTRODUCTION

**Review question / Objective:** To summarize the sprint reference acceleration and speed values for different sprint distances and

suggest optimal unification of ice-hockey straight sprint testing.

**Rationale:** Ice-hockey requires high acceleration and sprint abilities but it is

unclear what the optimal distance is for measuring these capabilities.

**Condition being studied:** Objective report of ice-hockey straight sprint in cross-sectional or intervention studies, reporting sprint distance with time, sprint average velocity, or acceleration.

## METHODS

**Search strategy:** Original articles in PubMed, Scopus, Web of Science and ProQuest and by hand search in Google Scholar.

**Participant or population:** Ice hockey players male and female.

**Intervention:** Cross sectional studies.

**Comparator:** Sprint average velocity, or acceleration.

**Study designs to be included:** Sross-sectional or intervention studies.

**Eligibility criteria:** The title and abstract screening was done by two researchers (PS and RR) who selected a set of articles for full text screening, where the inclusion criteria were: 1) male or female ice-hockey players; 2) any cross-sectional or intervention study; 3) tests of ice-hockey sprinting over any distance or any battery of conditioning tests that included straight-line sprints; and, 4) results reported straight-line sprint distance, speed, time, or acceleration. In the case of disagreement between the evaluating authors, the final decision was made by a third author (MV).The full text screening exclusion criteria were: 1) if the article was not in English; 2) the testing did not include straight-line sprinting; 3) the reported values did not include data distribution; 4) the study reported only maximum speed without skating time or average speed; 5) the end of the sprint was defined by the point the player stopped sprinting; 6) the measurement was made with a stopwatch; and, 7) the study had high bias estimation. The maximum speed test was not included due to the uncertain velocity conditions at

beginning of testing distance. The bias estimation was performed using the JBI (Joanna Briggs Institute) Critical Appraisal Checklist for Analytical Cross Sectional Studies (supplementary material 1).

**Information sources:** PubMed, Scopus, Web of Science and ProQuest and by hand search in Google Scholar.

**Main outcome(s):** Participant descriptions, test parameters and test results (mean and SD or other description of data distribution) were extracted to an Excel sheet, where the test results were sorted by sprint distance, and age category.

**Data management:** Excel sheet, where the test results were sorted by sprint distance, and age category. The extracted data describing sprint times (s) were transformed to average velocity (m/s) and average acceleration (m/s<sup>2</sup>) for the sprint distance.

**Quality assessment / Risk of bias analysis:** The bias estimation was performed using the JBI (Joanna Briggs Institute) Critical Appraisal Checklist for Analytical Cross Sectional Studies.

**Strategy of data synthesis:** The average acceleration and velocity values were pooled by distance ranges. The normality and equality of variance (Bartlett's test) of the original data was checked using the reported distribution in the original articles and weighted means with confidence intervals and standard error were calculated for each distance range.

**Subgroup analysis:** By distance ranges.

**Sensitivity analysis:** The normality and equality of variance (Bartlett's test) of the original data was checked using the reported distribution in the original articles and weighted means with confidence intervals and standard error were calculated for each distance range.

**Language:** English.

**Country(ies) involved:** Czech Republic.

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**Keywords:** anaerobic, exercise, condition, testing, sport training.

**Contributions of each author:**

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