

# INPLASY PROTOCOL

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**Support:** None.

**Review Stage at time of this submission:** Preliminary searches.

**Conflicts of interest:**  
None declared.

## Can Sports Participation Be A Protective Factor Against Suicide-Related Outcomes in Adolescents: A Systematic Review

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**Review question / Objective:** To examine the association between sports participation and suicide-related outcomes in adolescents in observational studies.

**Condition being studied:** Suicide-related outcomes: suicidal ideation, suicide plans, and suicide attempts. Suicidal ideation (or suicidal thoughts), which was defined as any thoughts about ending one's own life, is considered the first step on the road to suicide. As suicidal ideation becomes more frequent and planned, the risk of taking actual suicidal action increases. Suicide attempts, which is defined as an act of self-harm with the intention of presumed or actual death, may or may not result in death.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 March 2023 and was last updated on 19 March 2023 (registration number INPLASY202330072).

### INTRODUCTION

**Review question / Objective:** To examine the association between sports participation and suicide-related outcomes in adolescents in observational studies.

**Rationale:** The suicide-related outcomes of adolescents have become a serious public health problem worldwide. Emerging evidence suggests that sports participation

may interact with suicide-related outcomes. Despite the fact that numerous studies have explored the association between sports participation and suicide-related outcomes in adolescent populations, there is no systematic review to summarize the extant evidence. Therefore, this systematic review aims to examine the association between sports participation and suicide-related outcomes in adolescents in observational studies.

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## METHODS

**Search strategy:** Three search fields focusing on adolescent population, sports participation, and suicide-related outcomes were connected using 'AND'.

**Participant or population:** Adolescents (age 12-18 years).

**Intervention:** Not applicable.

**Comparator:** Not applicable.

**Study designs to be included:** Observational studies (cross-sectional study, prospective cohort study, longitudinal study).

**Eligibility criteria:** Studies were included in this systematic review if they met the following criteria: 1) observationally designed and published in peer-reviewed journals; 2) conducted to explore the association between sports participation and suicide-related outcomes among adolescents (aged 12-18 years), and 3) performed to report any type of effect size [e.g., odds ratio (OR) correlations, t-tests, and Chi-squared tests]. Variables related to sports participation such as physical activity, aerobic exercise were excluded because sports participation is a complex concept that has been reported to also involve sedentary behaviour and light physical activity [35,36]. Furthermore, non-English publications, case reports, expert opinions, comments, conference abstracts, etc. were excluded.

**Information sources:** An online systematic literature search will be done from the time of database inception from 3 electronic databases (Web of Science, PubMed, and EBSCOhost).

**Main outcome(s):** Data extracted included study design (cross-sectional, prospective cohort study, longitudinal study), first author's name, year of publication, participants' sample size, gender ratio, age (mean or range), exposure variables, outcome variables, and most adjusted odds ratios (ORs) with 95% confidence intervals (95% CIs) of associations between sports participation and suicide-related outcomes.

**Quality assessment / Risk of bias analysis:** Studies included in this systematic review were assessed for quality by the Strengthening the Reporting Guidelines for Observational Studies in Epidemiology (STROBE), a 22-item reporting guideline for observational studies, which contains the following six instructions to measure the quality of included studies: 1) Study Aim; 2) Issues Explored; 3) Study Design; 4) Sample Size; 5) Participant Characteristics; and 6) Results. Each study was rated based on its summary score in the six instructions in STROBE, in which 0-2 represents poor, 3-4 represents good, and 5-6 represents excellent.

**Strategy of data synthesis:** In accordance with previous methodological approaches, codes reporting the association between sports participation and suicide-related outcomes in observational studies were expressed as a percentage. This percentage represents the proportion of studies that support the association between sports participation and suicide-related outcomes. Referring to previous relevant studies, this association was defined as 'non-existing' if only 0-33% of the studies supported the association. If 34-59% of studies supported the association, then the association was considered as 'unclear'. When 60-100% of the studies support the association, then the association was defined as 'existing'. Furthermore, the association was referred

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to as 'consistent in literature' if it was reported in four or more studies.

**Subgroup analysis:** Subgroup analysis will be carried out according to gender.

**Sensitivity analysis:** The Strengthening the Reporting Guidelines for Observational Studies in Epidemiology will be applied to assess the quality of included studies by two reviewers independently.

**Language restriction:** English.

**Country(ies) involved:** China, Belgium.

**Other relevant information:** None.

**Keywords:** suicide; sports activity; evidence synthesis; adolescents.

**Dissemination plans:** The results of this protocol will be published in international peer-reviewed journals.

**Contributions of each author:**

Author 1 - Sitong Chen.

Author 2 - Meilin Huo.

Author 3 - Zhen Yang.

Author 4 - Li Yang.