

INPLASY PROTOCOL

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The effects of exercise and physical activity during and after childhood cancer: an umbrella review

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Conflicts of interest:
None declared.

Review question / Objective: To examine the effects of exercise and physical activity during and after childhood cancer.

Condition being studied: We are going to explore the effects of exercise or physical activity interventions on childhood cancer patients and childhood cancer survivors.

Information sources: Two review team members independently screened the titles and abstracts of the retrieved publications to select the eligible publications. Disagreements were resolved through discussion with a third author, who acted as a referee.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 July 2022 and was last updated on 07 July 2022 (registration number INPLASY202270035).

INTRODUCTION

Review question / Objective: To examine the effects of exercise and physical activity during and after childhood cancer.

Rationale: Cancer begins with genetic change in single cells, which then grows into a mass (or tumor). This mass can invade other parts of the body and put the life of the individual at risk if left untreated. According to the World Health Organization, approximately 400.000

children and adolescents of 0-19 years old develop cancer every year. Pediatric cancer survivors frequently experience adverse health events related to the disease and its treatment. There is increasing evidence that exercise or physical activity can help manage the side effects derived from cancer treatment.

Condition being studied: We are going to explore the effects of exercise or physical activity interventions on childhood cancer patients and childhood cancer survivors.

METHODS

Search strategy: Two independent investigators performed an algorithmic searching on Cochrane Library, PubMed and Embase databases. The reference lists of the eligible publications were also screened for identifying any eligible to the research question publications which did not appear in the initial searching.

Participant or population: Participants that were diagnosed with any type of cancer before they reach 19 years old of age.

Intervention: Exercise or physical activity programs. These programs contained resistance, aerobic training or a combination of them, flexibility, functional, balance and motor skill training, physiotherapy practice sessions, yoga interventions and physical activity games.

Comparator: Assessment of health and physical activity outcomes in children with any type of cancer or in childhood cancer survivors before and after their participation in an exercise/physical activity program regardless of whether there was a control group or not.

Study designs to be included: Systematic reviews and Systematic reviews with Meta-analysis.

Eligibility criteria: Systematic reviews that examine the effects of exercise or physical activity during or after childhood cancer with no restriction on whether there was a control group or not.

Information sources: Two review team members independently screened the titles and abstracts of the retrieved publications to select the eligible publications. Disagreements were resolved through discussion with a third author, who acted as a referee.

Main outcome(s): Any health and physical activity outcome will be included. These outcomes can be fatigue, muscle strength, aerobic capacity, pain, body structure and function, body composition, body mass index (BMI), activity and participation levels, psychosocial health, health-related quality of life (HRQOL), cardiorespiratory fitness, cardiovascular fitness, cardiovascular function and structure, flexibility, physical fitness, physical functioning, functional capacity, physical capacity, biochemical indicators, coordination, bone mineral density, brain volume and structure, general health domain and any possible adverse effects.

Data management: Two review team members will independently extract data from the eligible publications in an appropriate table. Disagreements will be resolved through discussion with a third author, who will act as a referee. The data that will be included in the final data extraction table are: a) year of publication, b) first authors' name, c) number and design of studies that are included in the systematic review, d) the population characteristics (i.e., the participants' age, type and stage of cancer), e) the intervention characteristics (i.e., type, duration, frequency and intensity of the exercise interventions and the settings where the interventions have taken place) and f) the outcome measures data (i.e. narratively reported study-level data and/or meta-analyzed data).

Quality assessment / Risk of bias analysis: The risk of bias assessment will be performed by two independent assessors and any disagreements will be resolved through discussion with a third author who will act as a referee. The results of the risk of bias assessment will be extracted in relevant tables and figures.

Strategy of data synthesis: For the eligible systematic reviews, a summarized description of outcome data will be provided.

Subgroup analysis: Subgroup analyses will not be considered, however, it will be taken into account in the narrative data synthesis, pending the data availability.

Sensitivity analysis: Sensitivity analyses will not be considered, however, it will be taken into account in the narrative data synthesis, pending the data availability.

Country(ies) involved: Greece.

Keywords: childhood cancer, childhood cancer survivors, pediatric cancer, pediatric cancer survivors, exercise, physical activity, umbrella review.

Contributions of each author:

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