

# INPLASY

## Effects of exercise intervention on executive function in overweight and obese children: A systematic review and meta-analysis

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### ADMINISTRATIVE INFORMATION

**Support** - National Natural Science Foundation of China (NSFC).

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

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202470043

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 July 2024 and was last updated on 11 July 2024.

### INTRODUCTION

**Review question / Objective** The incidence of childhood overweight and obesity is increasing year by year, and childhood overweight and obesity leads to reduced executive function, therefore, the efficacy of exercise interventions to improve executive function in overweight and obese children has received increasing attention, and the purpose of this systematic evaluation is to accurately evaluate the efficacy of exercise interventions on executive function in overweight and obese children.

P: Overweight children or obese children

I: exercise intervention

C: non-motorized intervention

O: executive function (inhibitory control, working memory, Cognitive flexibility).

**Condition being studied** The incidence of childhood overweight and obesity is increasing year by year, and childhood overweight and obesity leads to reduced executive function,

therefore, the efficacy of exercise interventions to improve executive function in overweight and obese children has received increasing attention, and the purpose of this systematic evaluation is to accurately evaluate the efficacy of exercise interventions on executive function in overweight and obese children.

### METHODS

**Participant or population** Overweight children or obese children.

**Intervention** Exercise intervention.

**Comparator** Non-motorized intervention.

**Study designs to be included** RCT or intervention study or longitudinal study or cohort study or prospective.

**Eligibility criteria** Inclusion criteria:

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- 1、The type of study must be an RCT or intervention study or longitudinal study or cohort study or prospective study
  - 2、Study subjects must be overweight or obese children

Exclusion criteria:

- 1、Very small sample size
- 2、Children who are not overweight or obese
- 3、Unable to access full text to extract valid ending data.

**Information sources** PubMed、embase、Cochrane、WOS.

**Main outcome(s)** Executive function (inhibitory control、working memory、Cognitive flexibility) .

### **Data management**

EndNote:

- Step 1: Eliminate duplicate literature
- Step 2: Reading the Title and Abstract Initial Screening of Literature
- Step 3: Read the full text to further screen the literature
- Step 4: Include the remaining literature in the Meta-analysis.

**Quality assessment / Risk of bias analysis**  
Cochrane TOOL.

**Strategy of data synthesis** Heterogeneity was present, random effects were chosen to combine the data; fixed effects were chosen to combine the data in the absence of heterogeneity.

**Subgroup analysis** Subgroups based on patient nationality, content of exercise intervention, and other factors.

**Sensitivity analysis** After deleting any of them, the combined results of the rest of the literature are not much different from what they would have been without deletion, which means that the sensitivity analysis has been passed.

**Country(ies) involved** China.

**Keywords** Overweight and obese children、executive function、exercise intervention.

### **Contributions of each author**

- Author 1 - Wang PENGfei.  
Author 2 - Rao FENGshuo.  
Author 3 - Xing KAllin.