

INPLASY PROTOCOL

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None declared.

Network meta-analysis on effect of different exercise interventions on improving social dysfunction in children and adolescents with autism spectrum disorder(ASD)

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Review question / Objective: Using network Meta-analysis to assess the relative validity of exercise interventions on social dysfunction in children and adolescents with Autism Spectrum Disorder (ASD) . **Participants:** the children and adolescents with ASD aged between 3-18 years old; **Intervention:** all kinds of sport programs such as jogging, runing, swimming and horse-back riding; **Comparison:** the patients with ASD receive regular physical activity; **Outcome:** the scale results of the social skills of the patients with ASD, such as VABS: Vineland Adaptive Behavior Scale; ABC: Autism Behavior Checklist; SRS: Responsiveness Scale; SSIS: Social Skill Improvement System Rating Scale; GARS: Gillian Autism Rating Scale; **Study:**RCT and qRCT study.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 September 2022 and was last updated on 18 September 2022 (registration number INPLASY202290085).

INTRODUCTION

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with ASD aged between 3-18 years old; **Intervention:** all kinds of sport programs such as jogging, runing, swimming and horse-back riding; **Comparison:** the patients with ASD receive regular physical activity; **Outcome:** the scale results of the social skills of the patients with ASD, such as VABS: Vineland Adaptive Behavior Scale; ABC: Autism Behavior Checklist; SRS:

Responsiveness Scale; SSIS: Social Skill Improvement System Rating Scale; GARS: Gillian Autism Rating Scale; Study: RCT and qRCT study.

Condition being studied: Children and adolescents with autism spectrum disorder (ASD).

METHODS

Search strategy: 1) participants: ("Autism Spectrum Disorder" or "Autism" or "Asperger" or "PDD-NOS" or "loner") ; 2) intervention: ("physical exercise" or "outdoor activity" or "sport games" or "aerobic" or "anaerobic" or "jog" or "walk" or "yoga" or "judo" or "riding" or "dance" or "ball games" or "water sport" or "dance" or "martial arts") ; 3) outcome: ("social skills" or "social behavior" or "social ability" or "social competence" or "interpersonal skills" or "social isolation" or "social anxiety" or "social dysfunction" or "social disorder" or "social segregation") . the time of search: 06-20-2022.

Participant or population: The subjects included in the article must be children and adolescents with ASD diagnosed by authoritative institutions, aged from 3 to 18 years, with the same characteristics before and after the experiment, and no limitation on nationality, gender or race.

Intervention: The intervention measures were exercise therapy, including aerobic, anaerobic, structured exercise and other physical exercises.

Comparator: The intervention measures were exercise therapy, including aerobic, anaerobic, structured exercise and other physical exercises, while the control group received routine rehabilitation.

Study designs to be included: RCT and QRCT.

Eligibility criteria: The patients from special education school or diagnosis criteria for DSM-IV: American Psychiatric Association

Di-agnostic and Statistical Manual of Mental Disorders, 4th ed; DSM-V: American Psychiatric Association Di-agnostic and Statistical Manual of Mental Disorders, 5th ed; ADOS-2: Autism Diagnostic Observation Schedule, 2nd ed; ICD-10: International Classification of Disease, 10th ed; NVIQ \geq 85: Nonverbal Intelligence Quotient Standard Scale measured by the Leiter International Performance Scale-Revised.

Information sources: Cochrane Library, PubMed, EBSCO, Science Direct, CNKI, Web of Science.

Main outcome(s): VABS: Vineland Adaptive Behavior Scale; ABC: Autism Behavior Checklist; SRS: Responsiveness Scale; SSIS: Social Skill Improvement System Rating Scale; GARS: Gillian Autism Rating Scale.

Quality assessment / Risk of bias analysis: Cochrane 5.1 handbook.

Strategy of data synthesis: Review Manager 5.4 and Stata SE 17.0 software were used for traditional meta-analysis, and R 4.2.1 was used for network Meta-analysis. $I^2 > 50\%$ and $P < 0.01$ were considered to have heterogeneity, and there was heterogeneity to select the pooled effect size of random effects model, while there was no heterogeneity to select the pooled effect size of fixed effects.

Subgroup analysis: Age of subjects over 3/6/12 years old; once intervention time: over 30/45/60 mins ; the kinds of sport program: individual/team sport; aerobics/ anaerobics.

Sensitivity analysis: The heterogeneity sources of the articles were explored, and the sensitivity analysis of the included studies was conducted. Stata software was used to remove the included studies one by one, and the effect size of the remaining studies was pooled to check the impact of the results.

Country(ies) involved: China.

Keywords: physical activity interventions; children and adolescents with ASD; social dysfunction; network meta-analysis.

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