

# Relationship between both cardiorespiratory and muscular fitness and health-related quality of life in children and adolescents: a systematic review and meta-analysis of observational studies

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## Abstract

**Background:** No review to date has evaluated the association between physical fitness and health-related quality of life (HRQoL) in healthy children and adolescents. The aims of this systematic review and meta-analysis were to examine the relationship between both cardiorespiratory fitness (CRF) and muscular fitness (MF) and HRQoL in healthy subjects under 18 years of age and to describe the dimensions of HRQoL in which these relationships are more robust. **Methods:** The Medline, Embase, Cochrane Library, SCIELO, SPORTDiscus and PEDro databases were systematically searched to collect observational studies that examined the relationship between CRF and HRQoL and between MF and HRQoL in participants under 18 years of age without any diagnosed medical condition. Pooled effect sizes (ES) were estimated for the associations between both CRF and MF and the various HRQoL dimensions. **Results:** The pooled ES (95% CI) estimates for the relationship between CRF and HRQoL were as follows: 0.19 (0.10 to 0.27) for physical well-being, 0.19 (0.07 to 0.32) for psychological well-being, 0.20 (– 0.14 to 0.55) for perceived health status, 0.10 (0.00 to 0.20) for self-perception/self-esteem, 0.07 (– 0.05 to 0.19) for quality of family relationship, 0.14 (0.04 to 0.25) for quality of peer relationship, 0.17 (0.04 to 0.29) for everyday functioning at school and 0.20 (0.12 to 0.28) for total HRQoL score. The pooled ES (95% CI) estimates for the relationship between MF and HRQoL were: 0.25 (0.12 to 0.37) for physical well-being, 0.11 (0.04 to 0.17) for psychological well-being, 0.08 (0.01 to 0.15) for quality of family relationship, 0.14 (0.03 to 0.25) for quality of peer relationship, and 0.09 (0.03 to 0.14) for total HRQoL score. **Conclusions:** Our data suggest that both CRF and MF are positively associated with HRQoL, mainly in physical, psychological and peer relationships. Moreover, CRF is positively associated with school dimensions and MF is positively associated with family relationships. Trail registration Protocol PROSPERO registration number: CRD42015025823.

## Author keywords

Adolescents  
Children  
Health-related quality of life  
HRQoL  
Meta-analysis  
Physical fitness

Physical well-being  
Psychological well-being  
Strength