

SUPPLEMENTARY FILES

Lima TR, De Marco JCP, Miranda CC, Martins PC, Gonçalves L, Pedrosa MS, Pelegrini A, Silva DAS. Muscle strength in Brazilian children and adolescents from 2020 to 2024: An updating systematic review of the Brazilian Report Card Project. *Rev Bras Cineantropom Desempenho Hum* 2026, 28:e109296. DOI: <http://doi.org/10.1590/1980-0037.2026v28e109296>

Supplementary File 1. Descriptors and strategy used in the systematic search according to the investigated databases.

First block

English-language descriptors: "muscle strength"; "resistance training"; "muscular contraction"; "weight training"; "muscular endurance"; "muscle power"; "muscular fitness"; "upper limb strength"; "lower limb strength"; "musculoskeletal fitness"; "isometric strength"; "dynamic force"; "isometric contraction"; "isotonic contraction"; "physical fitness".

Spanish-language descriptors: "fuerza muscular"; "entrenamiento de resistencia"; "contracción muscular"; "entrenamiento con pesas"; "resistencia muscular"; "potencia muscular"; "aptitud muscular"; "fuerza explosiva de las extremidades inferiores"; "fuerza explosiva de las extremidades superiores"; "fuerza isométrica de las extremidades inferiores"; "fuerza isométrica de las extremidades superiores"; "fuerza de las extremidades superiores"; "fuerza de las extremidades inferiores"; "aptitud musculoesquelética"; "fuerza isométrica"; "fuerza dinámica"; "contracción isométrica"; "contracción isotónica"; "aptitud física".

Descriptors in Portuguese: "força muscular"; "treinamento resistido"; "contração muscular"; "treinamento com pesos"; "resistência muscular"; "potência muscular"; "aptidão muscular"; "força explosiva dos membros inferiores"; "força explosiva dos membros superiores"; "força isométrica dos membros inferiores"; "força isométrica do membro superior"; "força do membro superior"; "força do membro inferior"; "aptidão musculoesquelética"; "força isométrica"; "força dinâmica"; "força dinâmica"; "contração isométrica"; "contração isotônica"; "aptidão física".

Second block

English-language descriptors: “adolescent”; “adolescents”; “school-age”; “child”; “children”; “young”; “youth”; “childhood”; “school-children”; “teen”; “teenager”; “school-teenager”; “preschool children”.

Spanish-language descriptors: “adolescente”; “adolescentes”; “edad escolar”; “niño”; “niños”; “joven”; “juventud”; “infancia”; “niños de escuela”; “adolescente”; “escuela-adolescente”; “niños preescolares”; “niñas preescolares”.

Descriptors in Portuguese: “adolescente”; “adolescentes”; “idade escolar”; “criança”; “crianças”; “jovem”; “juventude”; “infância”; “escolares”; “adolescente-escolar”; “crianças pré-escolares”.

Third block

English-language descriptors: “Brazil”; “Brazilian”.

Spanish-language descriptors: “Brasil”; “Brasileño”.

Descriptors in Portuguese: “Brasil”; “Brasileiro”.

Number of studies identified according to the investigated database

Pubmed (total, n = 869)

Date of search: 03/26/2025

Applied filters: *in the last 5 years, English, Portuguese, Spanish (PubMed filters).*

Note: Limit searches according to the period of interest (2020/2024 - in view of the availability of an available filter); Studies in English, Portuguese and Spanish.

((("muscle strength" OR "resistance training" OR "muscular contraction" OR "weight training" OR "muscular endurance" OR "muscle power" OR "muscular fitness" OR "upper limb strength" OR "lower limb strength" OR "musculoskeletal fitness" OR "isometric strength" OR "dynamic force" OR "isometric contraction" OR "isotonic contraction" OR "physical fitness")) AND (adolescent OR adolescents OR "school-age" OR child OR children OR young OR youth OR childhood OR "school-children" OR teen OR teenager OR "school-teenager" OR "preschool children")) AND (Brazil OR brazilian)

EMBASE (total, n = 447)

Date of search: 03/26/2025

Applied filters: [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND (2020:py OR 2021:py OR 2022:py OR 2023:py OR 2024:py)

Note: Limit searches according to the period of interest (2020 - 2024); Only information from the Embase database.

('muscle strength'/exp OR 'muscle strength' OR 'resistance training'/exp OR 'resistance training' OR 'muscular contraction'/exp OR 'muscular contraction' OR 'weight training'/exp OR 'weight training' OR 'muscular endurance' OR 'muscle power'/exp OR 'muscle power' OR 'muscular fitness'/exp OR 'muscular fitness' OR 'upper limb strength' OR 'lower limb strength'/exp OR 'lower limb strength' OR 'musculoskeletal fitness' OR 'isometric strength'/exp OR 'isometric strength' OR 'dynamic force' OR 'isometric contraction'/exp OR 'isometric contraction' OR 'isotonic contraction'/exp OR 'isotonic contraction' OR 'physical fitness'/exp OR 'physical fitness') AND ('adolescent'/exp OR adolescent OR 'adolescents'/exp OR adolescents OR 'school-age' OR 'child'/exp OR child OR 'children'/exp OR children OR young OR 'youth'/exp OR youth OR 'childhood'/exp OR childhood OR 'school-children'/exp OR 'school-children' OR teen OR 'teenager'/exp OR teenager OR 'school-teenager' OR 'preschool children'/exp OR 'preschool children') AND ('brazil'/exp OR brazil OR 'brazilian'/exp OR brazilian) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND (2020:py OR 2021:py OR 2022:py OR 2023:py OR 2024:py)

SCOPUS (total, n = 190)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024); Studies in English, Portuguese and Spanish.

((("muscle strength" OR "resistance training" OR "muscular contraction" OR "weight training" OR "muscular endurance" OR "muscle power" OR "muscular fitness" OR "explosive strength of lower limbs" OR "explosive strength of upper limbs" OR "isometric strength of lower limbs" OR "isometric upper limb strength" OR "upper limb strength" OR "lower limb strength" OR "musculoskeletal fitness" OR "isometric strength" OR "dynamic force" OR "isometric contraction" OR "isotonic contraction" OR "physical fitness") AND (adolescent OR adolescents OR "school-age" OR child OR children OR young OR youth OR childhood OR "school-children" OR teen OR teenager OR "school-teenager" OR "preschool children") AND (Brazil OR brazilian))

Web of Science (total, n = 774)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024); Studies in English, Portuguese and Spanish.

((("muscle strength" OR "resistance training" OR "muscular contraction" OR "weight training" OR "muscular endurance" OR "muscle power" OR "muscular fitness" OR "explosive strength of lower limbs" OR "explosive strength of upper limbs" OR "isometric strength of lower limbs" OR "isometric upper limb strength" OR "upper limb strength" OR "lower limb strength" OR "musculoskeletal fitness" OR "isometric strength" OR "dynamic force" OR "isometric contraction" OR "isotonic contraction" OR "physical fitness") AND (adolescent OR adolescents OR "school-age" OR child OR children OR young OR youth OR childhood OR "school-children" OR teen OR teenager OR "school-teenager" OR "preschool children") AND (Brazil OR brazilian))

SCIELO (English language; total, n = 38)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024);

((muscle strength) OR (resistance training) OR (muscular contraction) OR (weight training) OR (muscular endurance) OR (muscle power) OR (muscular fitness) OR (explosive strength of lower limbs) OR (explosive strength of upper limbs) OR (isometric strength of lower limbs) OR (isometric upper limb strength) OR (upper limb strength) OR (lower limb strength) OR (musculoskeletal fitness) OR (isometric strength) OR (dynamic force) OR (isometric contraction) OR (isotonic contraction) OR (physical fitness)) AND ((adolescent) OR (adolescents) OR (school-age) OR (child) OR (children) OR (young) OR (youth) OR (childhood) OR (school-children) OR (teen) OR (teenager) OR (school-teenager) OR (preschool children)) AND ((brazil) OR (brazilian))

SCIELO (Portuguese language; total, n = 0)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024);

((força muscular) OR (treinamento resistido) OR (contração muscular) OR (treinamento com pesos) OR (resistência muscular) OR (potência muscular) OR (aptidão muscular) OR (força explosiva dos membros inferiores) OR (força explosiva dos membros superiores) OR (força isométrica dos membros inferiores) OR (força isométrica do membro superior) OR (força do membro superior) OR (força do membro inferior) OR (aptidão musculoesquelética) OR (força isométrica) OR (força dinâmica) OR (contração isométrica) OR (contração isotônica) OR aptidão física)) AND ((adolescente) OR (adolescentes) OR (idade escolar) OR (criança) OR (crianças) OR (jovem) OR (juventude) OR (infância) OR (escolares) OR (adolescente-escolar) OR (crianças pré-escolares)) AND ((Brasil) OR (brasileiro))

SCIELO (Spanish language; total, n = 0)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024);

((fuerza muscular) OR (entrenamiento de resistencia) OR (contracción muscular) OR (entrenamiento con pesas) OR (resistencia muscular) OR (potencia muscular) OR (aptitud muscular) OR (fuerza explosiva de las extremidades inferiores) OR (fuerza explosiva de las extremidades superiores) OR (fuerza isométrica de las extremidades inferiores) OR (fuerza isométrica de las extremidades superiores) OR (fuerza de las extremidades superiores) OR (fuerza de las extremidades inferiores) OR (aptitud musculoesquelética) OR (fuerza isométrica) OR (fuerza dinámica) OR (contracción isométrica) OR (contracción isotónica) OR (aptitud física)) AND ((adolescente) OR (adolescentes) OR (edad escolar) OR (niño) OR (niños) OR (joven) OR (juventud) OR (infância) OR (niños de escuela) OR (adolescente) OR (escuela-adolescente) OR (niños preescolares) OR (niñas preescolares)) AND ((Brasil) OR (brasileño))

SportDiscus (total, n = 384)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024);

("muscle strength") OR ("resistance training") OR ("muscular contraction") OR ("weight training") OR ("muscular endurance") OR ("muscle power") OR ("muscular fitness") OR ("explosive strength of lower limbs") OR ("explosive strength of upper limbs") OR ("isometric strength of lower limbs") OR ("isometric upper limb strength") OR ("upper limb strength") OR ("lower limb strength") OR ("musculoskeletal fitness") OR ("isometric strength") OR ("dynamic force") OR ("isometric contraction") OR ("isotonic contraction") OR ("physical fitness")) AND (("adolescent") OR ("adolescents") OR ("school-age") OR ("child") OR ("children") OR ("young") OR ("youth") OR ("childhood") OR ("school-children") OR ("teen") OR ("teenager") OR ("school-teenager") OR ("preschool children")) AND (("Brazil") OR ("brazilian"))

LILACS (English; total, n = 49)

Date of search: 03/26/2025

Note: Limit searches according to the period of interest (2020 - 2024);

("muscle strength") OR ("resistance training") OR ("muscular contraction") OR ("weight training") OR ("muscular endurance") OR ("muscle power") OR ("muscular fitness") OR ("explosive strength of lower limbs") OR ("explosive strength of upper limbs") OR ("isometric strength of lower limbs") OR ("isometric upper limb strength") OR ("upper limb strength") OR ("lower limb strength") OR ("musculoskeletal fitness") OR ("isometric strength") OR ("dynamic force") OR ("isometric contraction") OR ("isotonic contraction") OR ("physical fitness")) AND (("adolescent") OR ("adolescents") OR ("school-age") OR ("child") OR ("children") OR ("young") OR ("youth") OR ("childhood") OR ("school-children") OR ("teen") OR ("teenager") OR ("school-teenager") OR ("preschool children")) AND (("Brazil") OR ("brazilian"))

Supplementary File 2. National Heart, Lung and Blood Institute's quality assessment tool for observational cohort and cross-sectional studies.

Criteria	Yes	No	Other (CD; NA; NR)
1. Was the research question or objective in this paper clearly stated?			
2. Was the study population clearly specified and defined?			
3. Was the participation rate of eligible persons at least 50%?			
4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?			
5. Was a sample size justification, power description, or variance and effect estimates provided?			
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?			
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?			
8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?			

9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?			
10. Was the exposure(s) assessed more than once over time?			
11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?			
12. Were the outcome assessors blinded to the exposure status of participants?			
13. Was loss to follow-up after baseline 20% or less?			
14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?			

CD: cannot determine; NA: not applicable; NR: not reported.

Reference

NATIONAL HEART, L.; INSTITUTE, B. Quality assessment tool for observational cohort and cross-sectional studies. **Bethesda: National Institutes of Health, Department of Health and Human Services**, 2014.