

**Title:** Adults' exercise-related "all-or-nothing" thinking and leisure-time physical activity: A scoping review (protocol)

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**Keywords:** physical activity, exercise

## **Abstract**

**Objective:** This scoping review will document the existing literature on the connection between adults' exercise-related "all-or-nothing" thinking and volitional, leisure-time physical activity.

**Introduction:** While numerous publications examine the impact of physical activity on cognitive flexibility as an executive function, significantly less research has considered the reverse relationship and opposite question: whether and how rigid "all-or-nothing" thinking impacts people's decision to engage in physical activity. It is possible that when individuals believe physical activity must be done in a specific, prescribed manner it creates an "all-or-nothing" mindset, which may be a barrier to adopting and sustaining a more physically-active lifestyle. As physical activity is vital to sustained health and well-being, identifying the ways in which such "all-or-nothing" beliefs and thinking may impact people's participation in physical activity is a critical factor in understanding how to better promote adults' physical activity.

**Inclusion criteria:** Eligibility for inclusion requires research participants to be adults (18+ yo) who have the ability to participate in voluntary, leisure-time physical activity. The study should describe – and, ideally, measure – "all-or-nothing" thinking about informal leisure time physical activity. Therefore, studies focused on children, adolescents, or individuals participating in organized athletic groups or pursuits will be excluded.

**Methods:** Searches will be conducted in June of 2024 in the databases listed below, using a specific set of keywords that include terms related to both “all-or-nothing” thinking and physical activity.

- Ovid MEDLINE (MEDALL Ovid MEDLINE® ALL 1946 to ...)
- Embase.com
- SportDiscus (Ebsco)
- CINAHL Complete (Ebsco)
- PsycInfo (Ebsco)
- Scopus.com

A human-focused search concept will be added to the base search in several of the databases where appropriate. Full search criteria are available in Appendices. Manuscripts need to be available in English for consideration. Using Covidence, titles and abstracts will be reviewed for relevance. Any disagreement between authors regarding advancement to full-text reviewing will be flagged and resolved, either by discussion between two reviewers, or arbitration by a third reviewer.

Of the remaining papers, full-text articles will be reviewed for inclusion. Any reason for exclusion will be cataloged and require agreement from each reviewer. Following identification of eligible papers from the full-text search, we will supplement the search by employing backward and forward citation tracking of eligible papers using “citationchaser” (Haddaway, Grainger & Gray, 2021); from this supplementary search, additional papers may be eligible for inclusion. Data will be extracted for analysis from all eligible papers. All of these methods will follow the PRISMA guidelines for scoping reviews.

## **Introduction**

While numerous publications examine the impact of physical activity on cognitive flexibility as an executive function, significantly less research has considered the reverse relationship and opposite question: whether and how rigid “all-or-nothing” thinking impacts people’s decision to engage in physical activity. It is possible that when individuals believe physical activity must be done in a specific, prescribed manner it creates an “all-or-nothing” mindset, which may be a barrier to adopting and sustaining a more physically-active lifestyle. As physical activity is vital to sustained health and well-being, identifying the ways in which such “all-or-nothing” beliefs and thinking may impact people’s participation in physical activity is a critical factor in understanding how to better promote adults’ physical activity.

A preliminary search of MEDLINE, the Cochrane Database of Systematic Reviews and *JBI Evidence Synthesis* was conducted and no current or underway systematic reviews or scoping reviews on the topic were identified.

The purposes of this scoping review are to (1) assess and map the extent of the literature on “all-or-nothing” thinking as it relates to volitional, leisure-time physical activity among adults, and (2) identify gaps that may exist.

We focus on volitional, leisure-time physical activity to identify how people’s own beliefs about exercising and being physically active may influence their decision to engage – or not – in physical activity. This focus relates to our team’s long-term intervention goals to examine whether changing “all-or-nothing” thinking into “everything counts” thinking may improve adults’ decisions to engage in voluntary, leisure-time physical activity. We will exclude studies that focus on formally structured athletes (professional or organizational) because the decision to engage in physical activity, as well as the type and level of physical activity, is largely determined by factors external to the person (e.g., coaches, training and game schedule, teammates). Similarly, we will exclude studies that focus on children and adolescents, as their physical activity is also likely to be determined by factors external to their own beliefs (e.g., parents, schools). We will also exclude studies focusing on eating disordered populations, as an existing literature already documents rigid thinking patterns in this population and our research is explicitly about exercise and physical activity, not eating. We will also exclude studies that focus on populations with cognitive impairments, as our research team's long-term goal is to examine "all-or-nothing" thinking and its potential impact on volitional physical activity among a more general adult population.

## **Review question**

The scoping review will first assess the degree to which the published literature describes “all-or-nothing” thinking in the context of voluntary, leisure-time physical activity among adults. Secondary questions will address (a) any variety in how “all-or-nothing” thinking is conceptualized and measured, and (b) the nature of the link between “all-or-nothing” thinking and voluntary, leisure-time physical activity.

## **Eligibility criteria**

### ***Participants***

#### *Inclusion criteria:*

- *Adults, age 18+*

#### *Exclusion criteria:*

- *Professional, collegiate or competitive athletes*
- *Samples selected for eating disorders*
- *Participants undergoing physical therapy*
- *Cognitive impairments*

We will exclude studies that focus on formally structured athletics (professional or organizational) because the decision to engage in physical activity, as well as the type and level of physical activity, is largely determined by factors external to the person (e.g., coaches, training and game schedule, teammates). Similarly, we will exclude studies that focus on children and adolescents, as their physical activity is also likely to be determined by factors external to their own beliefs (e.g., parents, schools). We will also exclude studies focusing on eating disordered populations, as an existing literature already documents rigid thinking patterns in this population and our research is explicitly about exercise and physical activity, not eating. We will also exclude studies that focus on populations with cognitive impairments, as our research team's long-term goal is to examine "all-or-nothing" thinking and its potential impact on volitional physical activity among a more general adult population.

### **Concept**

As a purpose of this scoping review is to assess and map the extent of the literature on "all-or-nothing" thinking as it relates to volitional leisure-time physical activity, our concept includes:

#### *Inclusion criteria:*

- *Studies that assess "all-or-nothing" thinking and related terms and concepts as they pertain to forms of exercise and physical activity*
- *Studies that assess cognitive flexibility and related terms and concepts as predictors of voluntary, leisure-time physical activity*
- *Studies that examine cross-sectional relationships of cognitive flexibility and physical activity*
- *Papers that describe or assess **exercise-related** "all-or-nothing" thinking and cognitive flexibility and related terms and concepts*

#### *Exclusion criteria:*

- *Exclude studies that only assess cognitive flexibility as an executive function, for example as measured through a non-exercise-related computer task.*
- *Exclude studies where measures are of coping planning or other forms of planning, as a large literature already exists on this topic.*
- *Exclude studies that examine physical activity as a predictor of subsequent cognitive flexibility/rigidity.*

### **Context**

#### *Inclusion criteria:*

- *Exercise*

- *Physical activity*
- *Leisure time recreation*
- *Focus is on voluntary leisure activities*

*Exclusion criteria:*

- *Exercise impacting cognitive function/mental health*
- *Eating or feeding behaviors*
- *Physical therapy as an organized therapeutic*
- *Professional, collegiate or competitive athletes*
- *Outcomes/dependent measures are metrics of athletic performance*

**Types of Sources**

This scoping review will consider as primary sources peer-reviewed publications and a broad scope of study designs, including clinical trials, longitudinal designs, cross-sectional studies, and measure development studies. Reviews, commentaries, and opinion pieces will not be used as sources in data extraction and tables, but will be “tagged” in Covidence for potential use in other parts of the scoping review (introduction, discussion).

*Including, but not limited to:*

- *Peer-reviewed publications*
- *Clinical trials, if the intervention addresses “all-or-nothing” thinking*
- *Measure development studies*
- *Cross-sectional studies*
- *Longitudinal studies*
- *Commentaries*
- *Observational studies*
- *Qualitative, focus groups*

*Exclude:*

- *“Grey” literature (e.g., dissertations, conference proceedings)*
- *Reviews, commentaries, or opinion pieces will be excluded as sources of data extraction; however, they will be retained to check references for other papers that may meet criteria for data extraction, or to use in other parts of the scoping review (e.g., introduction, discussion)*

**Methods**

The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews.

### ***Search strategy***

The search strategy will aim to locate published studies. An initial limited search of PUBMED was undertaken between January and April 2024 to identify articles on the topic. The text words contained in titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for Ovid MEDLINE, Embase, SportDiscus, CINAHL, PsycInfo, and Scopus. The search strategy, including all identified keywords and index terms, will be adapted for each included database and/or information source. The reference list of all included sources of evidence will be screened for additional studies.

Searches will be conducted in June of 2024 in the databases Ovid MEDLINE, Embase, SportDiscus, CINAHL, PsycInfo, and Scopus, using a specific set of keywords that include terms related to both “all-or-nothing” thinking and physical activity. Full search criteria are available in Appendices. Manuscripts need to be available in English for consideration. Using Covidence, titles and abstracts will be reviewed for relevance. Any disagreement regarding advancement to full-text reviewing between authors will be flagged and resolved, either by discussion between two reviewers, or arbitration by a third reviewer.

Of the remaining papers, full-text articles will be reviewed for inclusion. Any reason for exclusion will be cataloged and require agreement from each reviewer. Following identification of eligible papers from the full-text search, we will supplement the search by employing backward and forward citation tracking of eligible papers using “citationchaser” (Haddaway, Grainger & Gray, 2021); from this supplementary search, additional papers may be eligible for inclusion. Of the eligible papers, data will be extracted for analysis. All of these methods will follow the PRISMA guidelines for scoping reviews.

One limitation regarding our search strategy is the exceptional difficulty of accurately capturing all of the relevant literature due to non-consistent language used within the thinking and physical activity space. Some seemingly relevant terms and phrases are so broadly used that their inclusion in the search criteria would create an undue burden of literature to review. On the other hand, it is possible that authors - especially those in other countries - may use terms and phrases to refer to all-or-nothing thinking as it relates to leisure time physical activity that we were completely unaware of. The authors recommend that future research in this space work on establishing a clear and concise language to be used in regard to “all-or-nothing” thinking as it pertains to physical activity.

### ***Study/Source of Evidence selection***

Following a pilot test, each titles and abstracts will then be screened by at least two independent reviewers for assessment against the inclusion criteria for the review.

Following the search, all identified citations – with duplicates removed – will be collated and uploaded into EndNote (Clarivate Analytics, PA, USA) to facilitate access to the full-text articles. Full-text articles will be imported back into Covidence for full-text review. Potentially relevant sources will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI) (JBI, Adelaide, Australia) (Munn et al., 2018). The full text of each selected citation will be assessed in detail against the inclusion criteria by at least two independent reviewers. Reasons for excluding sources of evidence at full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion, or with an additional reviewer/s. The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (Tricco et al., 2018).

### ***Data Extraction***

For each study that passes full-text review, the research team will extract the following information, and record in an Excel database:

- Study ID
- Authors
- Publication Year
- Publication Title
- Journal
- DOI
- Citation
- Study aim
- Study sample
- Sample size
- Study setting
- Age of sample
- Gender composition of sample
- Racial/ethnic composition of sample
- Country of sample
- Health condition(s) of sample, if any
- Study design
- Measure of “all-or-nothing” thinking
- Measure of physical activity (method, and timeframe)
- Key conclusions

## **Data Analysis and Presentation**

We intend to present the data in tabular form, including study authors and year, sample characteristics (e.g., gender, age), sample size, study design, measure of “all-or-nothing” thinking, measure of physical activity, and key findings. A narrative summary will discuss how the published literature describes “all-or-nothing” thinking in the context of voluntary, leisure-time physical activity among adults. Secondary questions will address (a) any variety in how “all-or-nothing” thinking is conceptualized and measured, and (b) the nature of the link between “all-or-nothing” thinking and voluntary, leisure-time physical activity.

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## **Conflicts of interest**

Michelle L. Segar runs a behavioral science-focused consulting and speaking company.

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## Appendices

### ***Appendix I: Search strategy***

Ovid MEDLINE

MEDALL Ovid MEDLINE® ALL 1946 to 6/20/2024

1.

exp Exercise/ OR \* Sports/ OR \* Sedentary Behavior/ OR exp \* Running/ OR \* Bicycling/ OR \* Swimming/ OR exp \* Walking/ OR \* Weight Lifting/ OR exp \* Racquet Sports/ OR ("physical activit\*" OR "resistance training" OR "work out\*" OR "working out" OR exercis\* OR gym OR inactivity OR run OR running OR sedentary OR sport OR swim OR swimming OR walk OR walking OR workout\*).tw.

917341

2.

exp Perfectionism/ OR ((absolutist OR all-or-nothing OR binary OR black-and-white OR flexible OR inflexible OR rigid\* OR dichotomous OR distorted) adj1 (thinking OR thoughts OR beliefs\*).tw. OR ("abstinence violation" OR "activity substitution" OR "cognitive distortion" OR "cognitive error\*" OR "everything counts" OR perfection\* OR mindset\* OR mind-set\*).tw.

10936

3.

exp "Wounds and Injuries"/ OR injur\*.ti.

(1 AND 2) NOT 3 619 results 6/20/24

## ***Appendix II: Data extraction instrument***

- Study ID
- Author(s)
- Publication Year
- Publication Title
- Journal
- DOI
- Citation
- Study Aim
- Study Sample
- Sample Size
- Study Setting
- Age of Participants
- Gender Composition of Participants
- Ethnicity of Sample
- Country of Sample
- Health Condition(s) of Sample (if any)
- Study Design
- Measure of AON Thinking
- PA Measure
- PA Assessed How Long After AON Measure
- Key Conclusions re: AON and PA