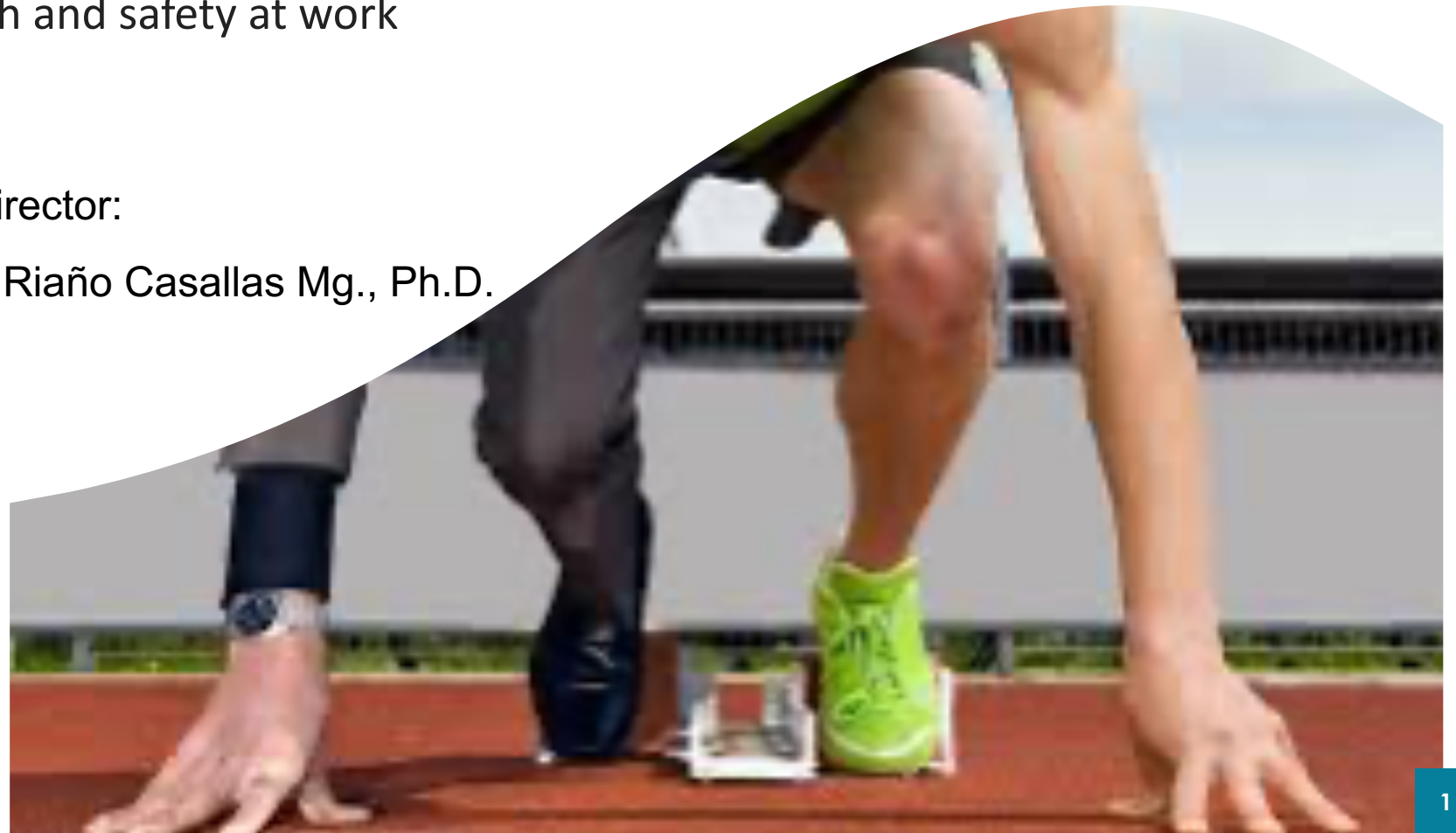


Presented by Ingrid Julieth González Cardozo, Physiotherapist.

Candidate for Master Health and safety at work

Thesis Director:

Administrator., Martha Isabel Riaño Casallas Mg., Ph.D.





Physical activity in workplace: Strategies and economics analysis in Health



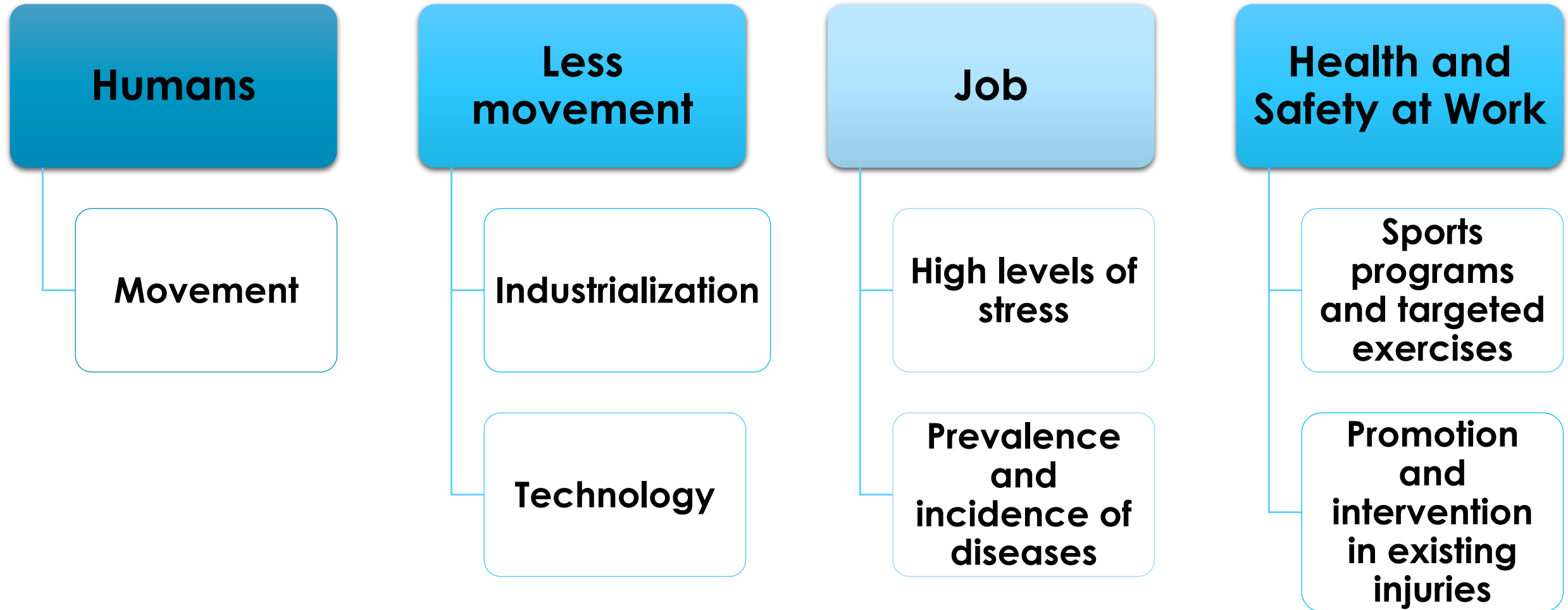
UNIVERSIDAD NACIONAL DE COLOMBIA

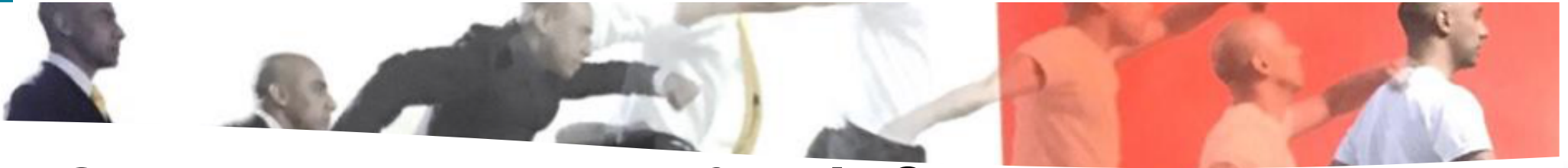
CONTENT

- Introduction
- Methodology
- Results
- Analysis and discussion
- Limitations
- Conclusions

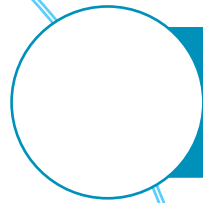


Introduction

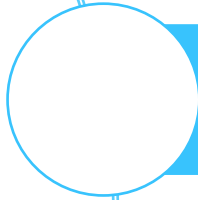




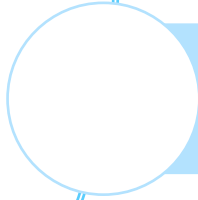
Why a Cost-Effectiveness Study? (Tompac, 2008)



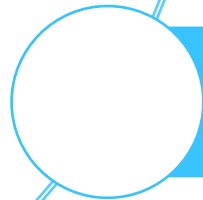
Cost-benefit



Cost-Utility



Cost-Minimization

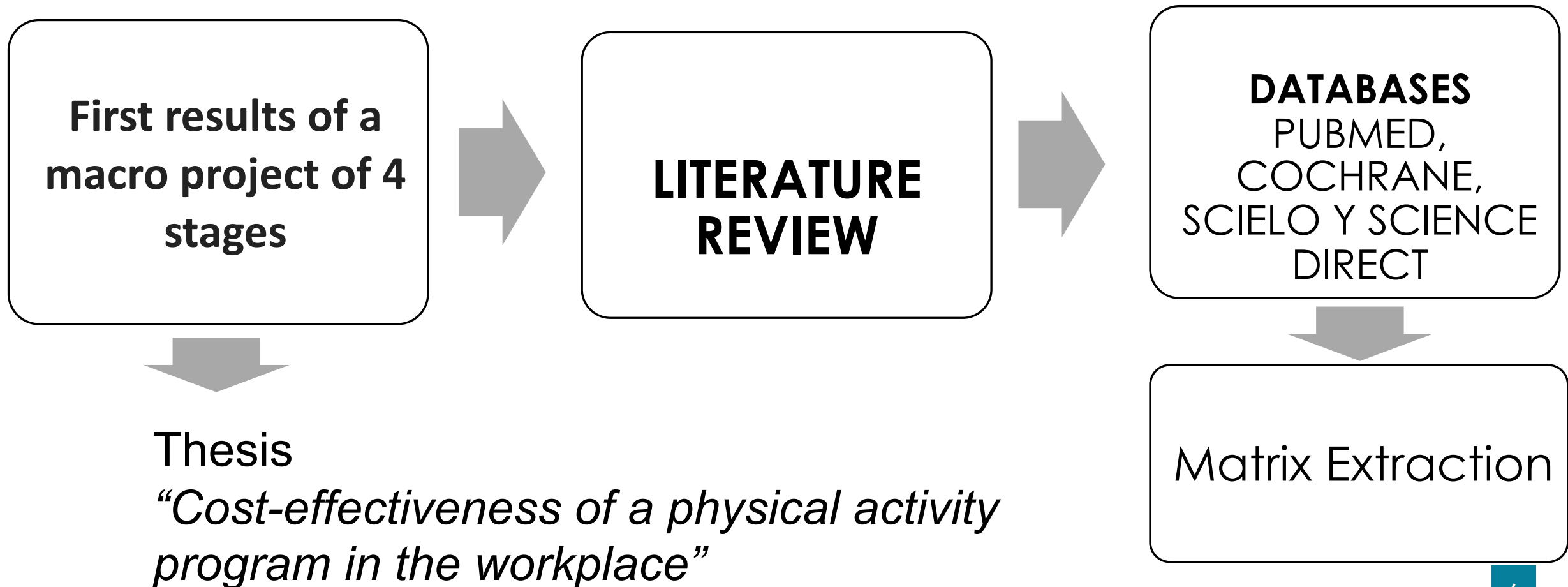


Cost-Effectiveness





Investigation methodology (Jiménez, 1998)



Reference Framework

Inclusion criteria

- Articles that analyze cost-effectiveness, cost-benefit, cost-utility and interventions or protocols in health in workers
- Physical activity, sport and sedentary levels in workers

Exclusion criteria

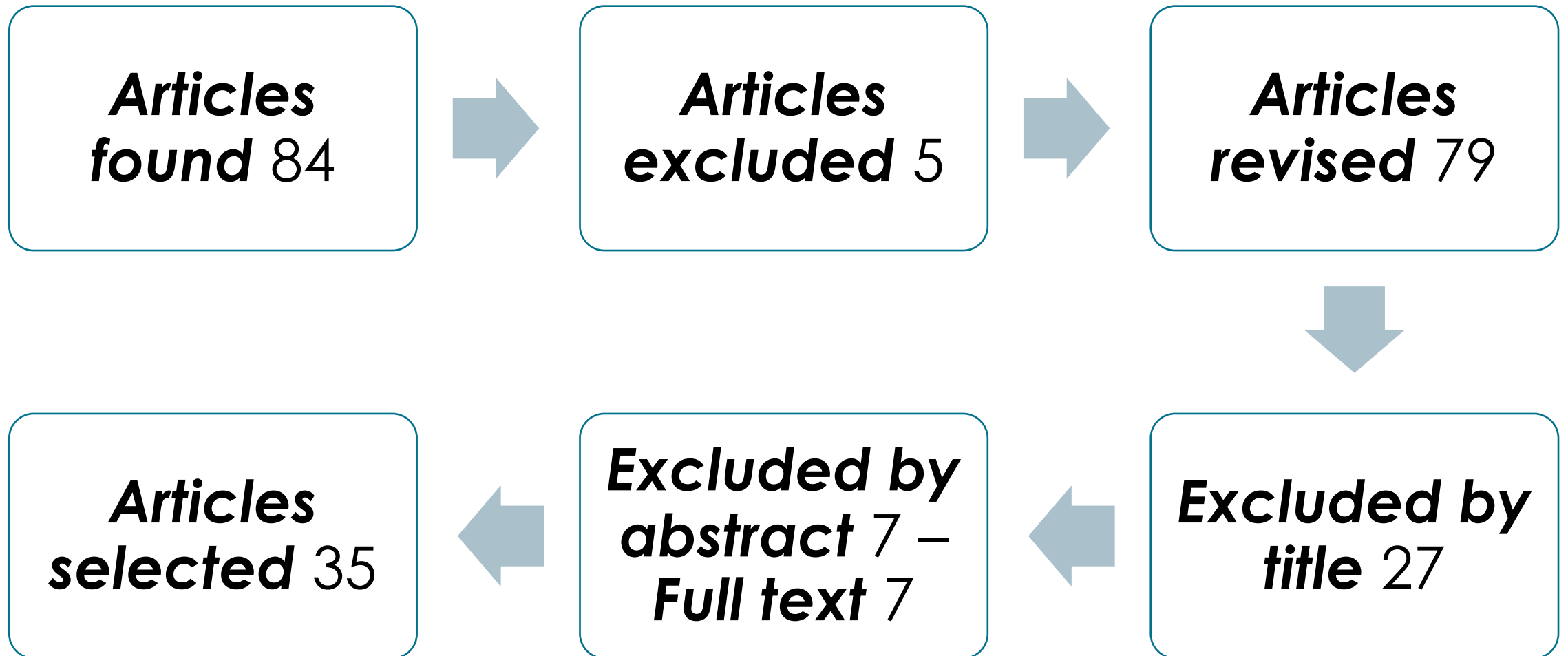
- Physiotherapeutic interventions or studies of cost-effectiveness, cost benefit in the field of physical activity in hospitalized patients or children

Reference Framework

Search Descriptors

- (physical activity OR sport OR movement) AND (health for physical activity) AND (Work-Life Balance OR Workplace) AND (employee AND workers) NOT (Clinical OR hospital OR childhood OR children OR drug OR students OR nutrition OR psychology)
- cost-effectiveness OR Cost-benefit OR Cost-utility) AND (physical activity OR sport OR movement) AND (health for physical activity) AND (Work-Life Balance OR Workplace) AND (employee AND workers) NOT (Clinical OR hospital OR childhood OR children OR drug OR students OR nutrition OR psychology)

databases Scielo, Pubmed, Science Direct y Cochrane



Results

Cost-Effectiveness

- Results in health, provide criteria for efficiency, productivity and health conditions

Cost-Benefit

- Evaluate the best intervention in terms of Profitability and health conditions in terms of cost

Effectiveness

- Programs that measure health impact with self-report and measurement changes between study and control groups

Interventions

- Successful strategies that improve the physical conditions of workers

Prevention of occupational risk factors

- Conceptual and literature reviews, meta-analysis and studies that identify the need for health interventions



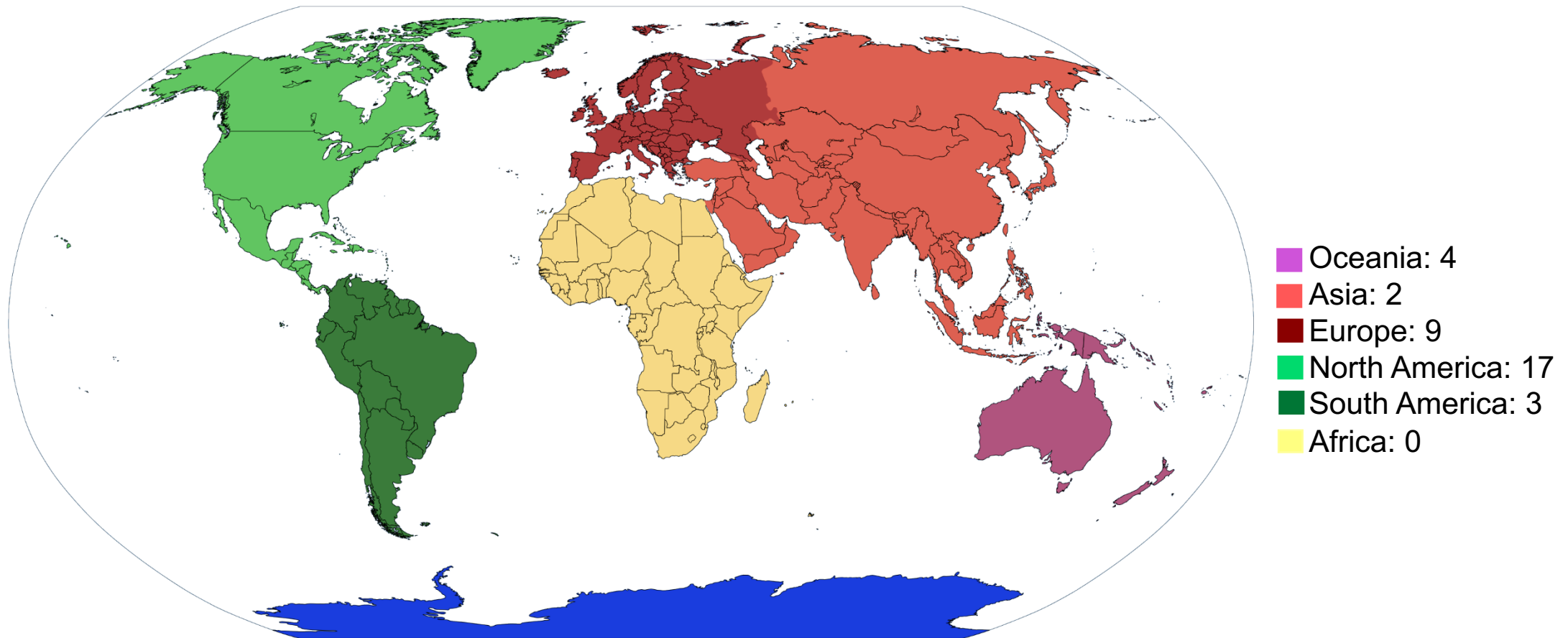
Results



Research found by item

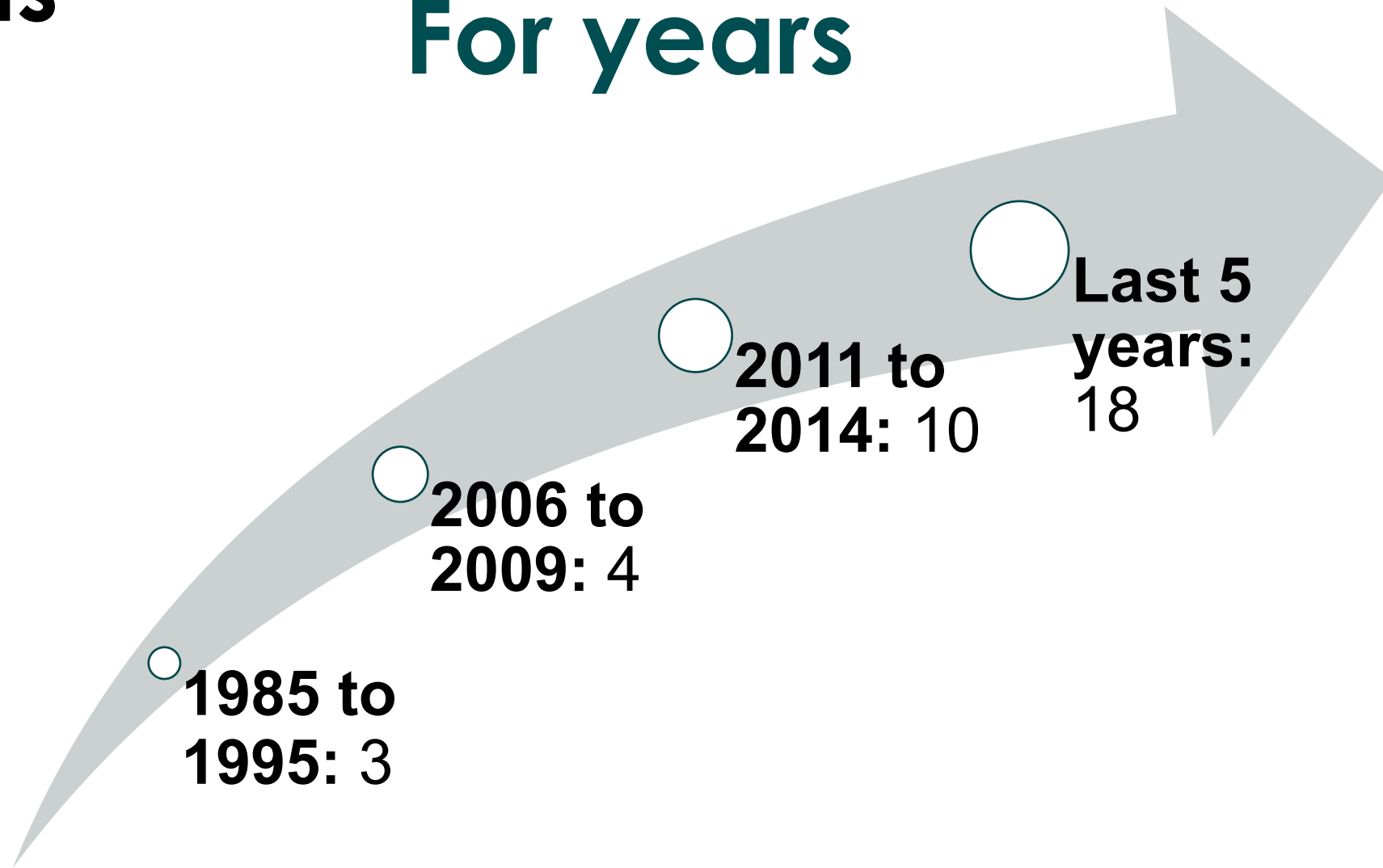
- Cost-effectiveness: 3
- Cost-Benefit: 2
- Effectiveness: 7
- Interventions: 15
- Prevention of occupational risk factors: 8

Results



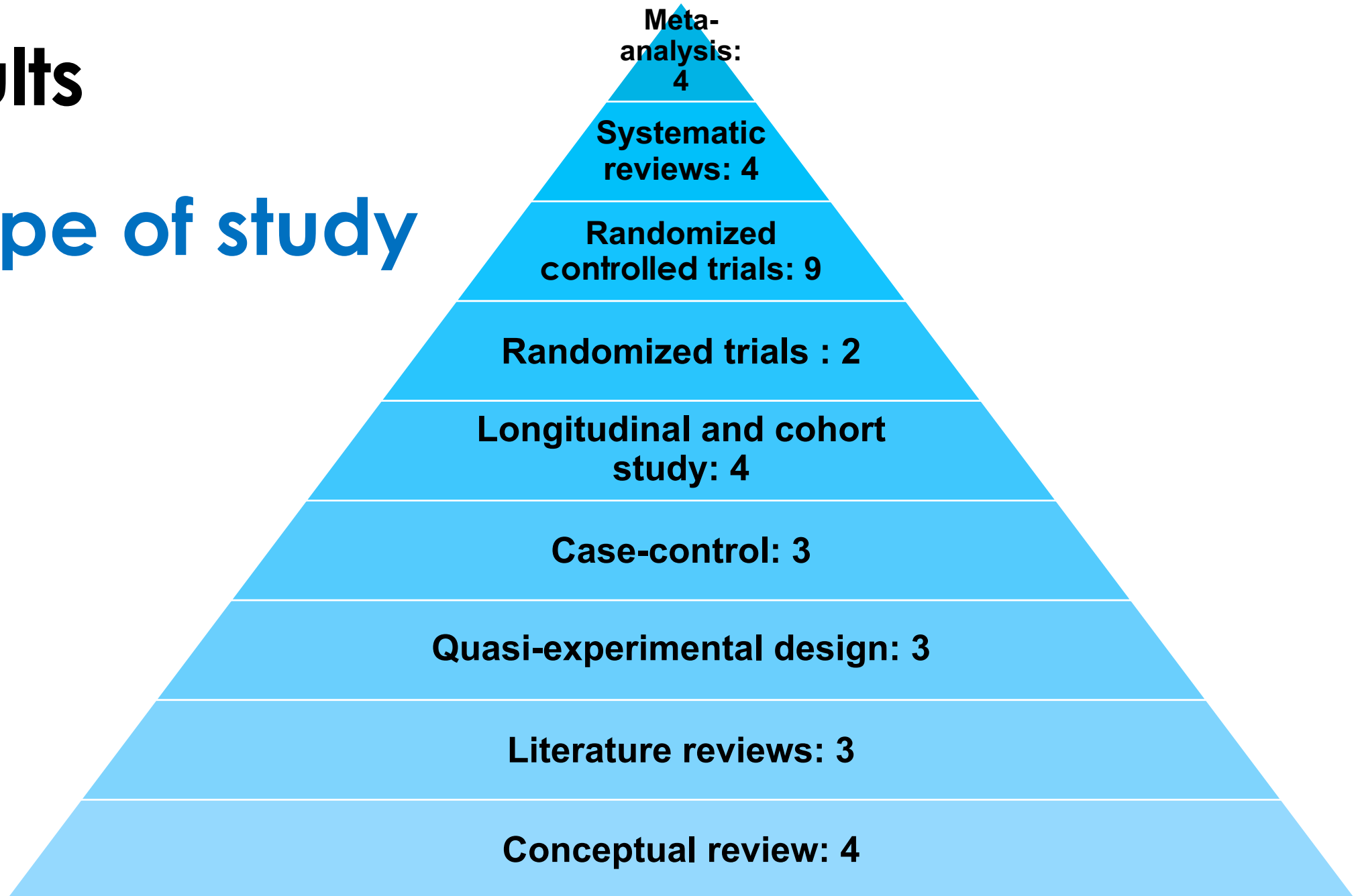
Results

For years



Results

Type of study



Analysis and discussion

- Not difference whether workers Exercise indoors or outdoors; **The important thing is to be supervised by a physical activity expert**, to prevent injuries
- Physical activity reduces cardiovascular, musculoskeletal and other stress-related diseases in workers, **to increase productivity and reduce absenteeism.**



Analysis and discussion

- Self-report tests provide information on lifestyle, levels of physical activity and Health **problems but are often far from reality**
- **The support of senior management is essential** in the success of prevention and promotion strategies in Health not only providing spaces and professional staff, but must be involved in the programs



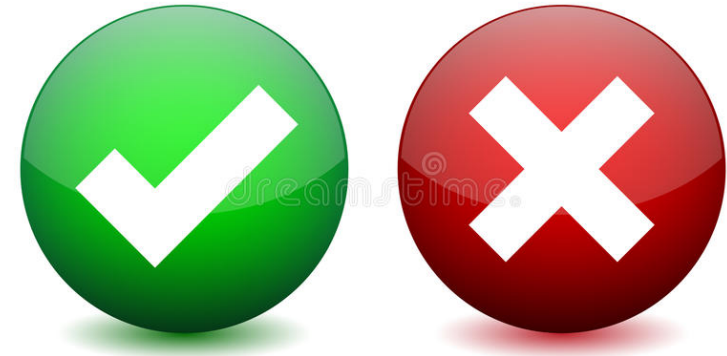


Limitations

- Poor results from economic Studies because the tests show missing cost data
- Some research includes activity at work as physical activity, which is wrong and results biased

Sedentary activities	1 to 1,5 METs
Light physical activity	1,5 to 2,9 METs
Moderate physical activity	3 to 5,9 METs
Vigorous physical activity	≥ 6 MET

Limitations



- Changes in workstations such, pauses at work of **5 to 15 minutes without physical activity** do not appear to influence the decrease in risk factors related to workers' health
- **Cost-effectiveness studies do not evaluate interventions,** but rather analyze workers' self-reporting in which only the population is characterized and described or self-training is used by employees outside the workplace.

Conclusions

There are not cost-effectiveness assessments of physical activity and sports programs in the workplace related to economic analysis, and which provide information on whether the program is profitable for the company

The company must assume costs due to workers with some type of alteration or occupational illness that prevents them from developing their work. In addition to counteracting the development of these workers with their work, family, social and personal spheres

Conclusions

Future research must be oriented towards economic studies that allow the positive impact analysis of workers' health compared with the investments made by companies



"An ounce of prevention is really more effective than a pound of cure"

A man in a dark suit and tie is crouching in a starting position on a red running track. In the background, a dense city skyline with various skyscrapers is visible under a cloudy sky. A dark grey curved banner is overlaid on the bottom left of the image, containing white text. A small blue vertical bar is positioned to the left of the text.

Thank you
e-mail: ijgonzalezc@unal.edu.co

References

1. Vilela BL, Benedito Silva AA, de Lira CAB, Andrade M dos S. Workplace Exercise and Educational Program for Improving Fitness Outcomes Related to Health in Workers. J Occup Environ Med [Internet]. 2015;57(3):235–40. Available from: <http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00043764-201503000-00002>
2. Cohen WS. Health Promotion in the Workplace A Prescription for Good Health. 1985;
3. Tompa E, Culyer AJ, Dolinschi R. Economic Evaluation of Interventions for Occupational Health and Safety: Developing Good Practice. 2008;295. Available from: https://books.google.ie/books/about/Economic_Evaluation_of_Interventions_for.html?id=Ho2BEfO7s1MC&pgis=1
4. DeCS. Descriptores en ciencias de la salud [Internet]. Consulta al DeCS. Available from: <http://decs.bvs.br/cgi-bin/wxis1660.exe/decserver/>
5. PubMed. Medical Subject Headings [Internet]. Available from: <https://www.ncbi.nlm.nih.gov/mesh>
6. Van Dongen JM, Coffeng JK, Van Wier MF, Boot CRL, Hendriksen IJM, Van Mechelen W, et al. The cost-effectiveness and return on investment of a combined social and physical environmental intervention in office employees. Health Educ Res. 2017;32(5):384–98.
7. Van Dongen JM, Van Berkel J, Boot CRL, Bosmans JE, Proper KI, Bongers PM, et al. Long-term cost-effectiveness and return-on-investment of a mindfulness based worksite intervention. J Occup Environ Med. 2016;58(6):550–60.
8. Meijer EM, Sluiter AEJK, Heyma AEA, Frings-dresen KSÆMHW. Cost-effectiveness of multidisciplinary treatment in sick-listed patients with upper extremity musculoskeletal disorders : a randomized , controlled trial with one-year follow-up. 2006;654–64.
9. Sultan-Taïeb H, Parent-Lamarche A, Gaillard A, Stock S, Nicolakakis N, Hong QN, et al. Economic evaluations of ergonomic interventions preventing work related musculoskeletal disorders: a systematic review of organizational-level interventions. BMC Public Health. 2017;17(1):935.
10. Kirkham HS, Clark BL. Which modifiable health risks are associated with changes in productivity costs 2015;0(0).
11. Taylor WC, Paxton RJ, Shegog R, Coan SP, Dubin A, Page TF, et al. Impact of Booster Breaks and Computer Prompts on Physical Activity and Sedentary Behavior Among Desk-Based Workers : A Cluster-Randomized Controlled Trial. 2016;(3):1–15.

12. Oakman J, Keegel T, Kinsman N, Briggs AM. Persistent musculoskeletal pain and productive employment; A systematic review of interventions. *Occup Environ Med.* 2016;73(3):206–14.
13. Puig-ribera A, Bort-roig J, González-suárez AM, Martínez-lemos I, Giné-garriga M, Fortu J, et al. Patterns of Impact Resulting from a ‘ Sit Less , Move More ’ Web-Based Program in Sedentary Office Employees. 2015;1–15.
14. Østbye T, Stroo M, Brouwer RJN, Peterson BL, Eisenstein EL, Fuemmeler BF, et al. The steps to health employee weight management randomized control trial: Rationale , design and baseline characteristics ☆. *Contemp Clin Trials* [Internet]. 2013;35(2):68–76. Available from: <http://dx.doi.org/10.1016/j.cct.2013.04.007>
15. Palmer KT, Harris EC, Linaker C, Barker M, Lawrence W, Cooper C, et al. Effectiveness of community and workplace based interventions to manage musculoskeletal related sickness absence and job loss: A systematic review. *Rheumatology.* 2012;51(2):230–42.
16. Vidya SJ, Anjana SB. EFFECT OF YOGIC EXERCISES ON SYMPTOMS OF MUSCULOSKELETAL DISORDERS OF UPPER LIMBS AMONG COMPUTER USERS : A RANDOMISED CONTROLLED TRIAL. 2011;65(10):424–9.
17. Morgan PJ, Collins CE, Plotnikoff RC, Cook AT, Berthon B, Mitchell S, et al. Efficacy of a workplace-based weight loss program for overweight male shift workers: The Workplace POWER (Preventing Obesity Without Eating like a Rabbit) randomized controlled trial ☆. *Prev Med (Baltim)* [Internet]. 2011;52(5):317–25. Available from: <http://dx.doi.org/10.1016/j.ypmed.2011.01.031>
18. Prall J, Ross M. The management of work-related musculoskeletal injuries in an occupational health setting: the role of the physical therapist. 2019;15(2):193–9.
19. Brinkley A, Mcdermott H, Grenfell-essam R, Munir F. It ’ s Time to Start Changing the Game : A 12- Week Workplace Team Sport Intervention Study. 2017;1–11.
20. Berko J, Goetzel RZ, Roemer EC, Kent K, Marchibroda J. Results From the Bipartisan Policy Center ’ s CEO Council Physical Activity Challenge to American Business CEO Council on Health and Innovation. 2016;58(12):1239–44.
21. Pedersen SJ, Kitic CM, Bird M, Mainsbridge CP, Cooley PD. Is self-reporting workplace activity worthwhile ? Validity and reliability of occupational sitting and physical activity questionnaire in desk-based workers. *BMC Public Health* [Internet]. 2016;1–6. Available from: <http://dx.doi.org/10.1186/s12889-016-3537-4>
22. Pui S, Tin P, Lam WWT, Yoon S, Zhang N, Xia N. Workplace Health Promotion : Assessing the Cardiopulmonary Risks of the Construction Workforce in Hong Kong. 2016;1–15.
23. Carr LJ, Leonhard C, Tucker S, Fethke N, Benzo R, Gerr F. Total Worker Health Intervention Increases Activity of Sedentary Workers. *Am J Prev Med* [Internet]. 2015;1–9. Available from: <http://dx.doi.org/10.1016/j.amepre.2015.06.022>

24. Pérez Marín ML, Yélamos Rodríguez F, Rodríguez Pérez MA. Intervención con un Programa de Ejercicio Físico en la empresa. Med segur trab [Internet]. 2015;61(240):342–53. Available from: http://scielo.isciii.es/scielo.php?script=sci_arttext&%5Cnpid=S0465-546X2015000300004&%5CnIng=es&%5Cnnrm=iso&%5CntIng=es
25. Hernán A, Marit S, Oivind S, Asgeir M, Lars-kristian L, Elin E, et al. Efectos favorables de la actividad física regular motivada en el trabajo sobre la tensión arterial y el perfil lipídico. Med y Segur del Trab. 2015;61(239):162–71.
26. Moreno-Collazos, Jorge Enrique; Cruz-Bermúdez HF. Asociación entre los motivos y la práctica del ejercicio en participantes de un programa de actividad física laboral. Rev Fac Med . 2015;63, 4(4):609–15.
27. Atlantis E, Chow C, Kirby A, Singh MAF. Worksite intervention effects on physical health : a randomized controlled trial. 2015;21(3).
28. Physiol A, Metab N, Ucsf F, Tudor-locke C, Hendrick CA, Duet MT, et al. Implementation and adherence issues in a workplace treadmill desk intervention. 2014;1111(September 2013):1104–11.
29. Iyabara ELENHM, Oki MASA. Health and fitness benefits of a resistance training intervention performed in the workplace. 2014;26(3):811–7.
30. Verweij LM, Proper KI, Weel ANH, Hulshof CTJ, Mechelen W Van. Design of the Balance @ Work project : systematic development , evaluation and implementation of an occupational health guideline aimed at the prevention of weight gain among employees. 2009;17:1–17.
31. Franklin PD, Rosenbaum PF, Carey MP, Roizen MF, Franklin PD. Using Sequential Email Messages to Promote Health Behaviors : Evidence of Feasibility and Reach in a Worksite Sample. 2006;8:1–13.
32. Businesses S. Implementation of a Worksite Wellness Program Targeting. 2015;57(1):14–21.
33. Fountaine CJ, Piacentini M, Gary A. Occupational Sitting and Physical Activity Among University Employees. 2014;
34. Goetzel RZ, Henke RM, Tabrizi M, Pelletier KR, Loeppke R, Ballard DW, et al. Do Workplace Health Promotion (Wellness) Programs Work ? OUTCOMES EXPECTED FROM HEALTH. 2014;56(9):927–34.
35. Smith LP, Ng SW, Popkin BM. No time for the gym? Housework and other non-labor market time. Soc Sci Med [Internet]. 2014;120:126–34. Available from: <http://dx.doi.org/10.1016/j.socscimed.2014.09.010>
36. Lusk SL. Meta-analysis of workplace physical activity interventions. 2010;37(4):330–9.
37. Blue CL Conrad KM, Adherence to Worksite Exercise Programs: An Integrative Review of Recent Research. 1995;76–86.
38. Gebhardt DL, Crump CE. Employee Fitness and Wellness Programs in the Workplace. Am Psychol. 1990;45(2):262–72.