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## Title

### ***Preventable incidence cases from non-communicable diseases attributable to insufficient physical activity in Chile***

## Abstract

Objectives: Lack of sufficient physical activity (PA) has been associated with an increased risk of several non-communicable diseases (NCDs) and all-cause mortality. This study aimed to estimate the number of preventable incidence cases of NCDs attributable to insufficient PA in the Chilean population. Study design: Comparative risk assessment modelling study. Methods: This study examined data from 5834 participants aged  $\geq 20$  years from the Chilean National Survey (2016–2017). PA was assessed by the Global Physical Activity Questionnaire (GPAQ), and metabolic equivalent of tasks (METs) were assigned according to PA intensity. Estimated incidence cases of NCDs in Chile in 2019 were obtained from the Global Burden of Disease study. Relative risks for breast cancer, colon cancer, ischaemic heart disease, diabetes and stroke were obtained from a published meta-analysis and applied to the prevalence of insufficient PA estimates through the potential impact fraction equation. Results: High levels of PA ( $\geq 8000$  MET-min/week) could potentially avoid more than 22,000 (64.6 %) incidence NCD cases, ranging from 498 (10.1 %) preventable cases of breast cancer to 5629 (14.7 %) cases of diabetes. Other modelled scenarios also showed to reduce the incidence cases of all five NCDs but to a lesser extent; where at least PA recommendation was achieved, preventable NCDs were reduced by 6522 cases (18.7 %), and where a 10 % relative reduction in insufficient PA level in the population was achieved, preventable NCDs were reduced by 651 (1.8 %) cases. Conclusions: The study results provide estimates for the incidence cases of preventable NCDs attributable to insufficient PA, highlighting the important role of PA in NCD prevention in Chile. © 2023 The Royal Society for Public Health

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