

# Prevent Severe COVID-19

## Physical activity prevents severe outcomes

Unfortunately, the COVID-19 pandemic has continued to dominate our lives in many ways. We have learned many things over the past 2 years about this virus. We found the elderly, immunocompromised, and obese with metabolic dysfunction are at greatly increased risk of severe outcomes (ICU/death). We can't change our age or immune status, but we can modify our metabolic status. What if physical inactivity is our biggest risk factor? Could exercise be our most effective "medicine" against COVID-19? Could this be our best protection against severe outcomes (besides vaccines)?



### Abstract

**Objectives:** To compare hospitalisation rates, intensive care unit (ICU) admissions and mortality for patients with COVID-19 who were consistently inactive, doing some activity or consistently meeting physical activity guidelines.

**Methods:** We identified 48 440 adult patients with a COVID-19 diagnosis from 1 January 2020 to 21 October 2020, with at least three exercise vital sign measurements from 19 March 2018 to 18 March 2020. We linked each patient's self-reported physical activity category (consistently inactive=0–10 min/week, some activity=11–149 min/week, consistently meeting guidelines=150+ min/week) to the risk of hospitalisation, ICU admission and death after COVID-19 diagnosis. We conducted multivariable logistic regression controlling for demographics and known risk factors to assess whether inactivity was associated with COVID-19 outcomes.

**Results:** Patients with COVID-19 who were consistently inactive had a greater risk of hospitalisation (OR 2.26; 95% CI 1.81 to 2.83), admission to the ICU (OR 1.73; 95% CI 1.18 to 2.55) and death (OR 2.49; 95% CI 1.33 to 4.67) due to COVID-19 than patients who were consistently meeting physical activity guidelines. Patients who were consistently inactive also had a greater risk of hospitalisation (OR 1.20; 95% CI 1.10 to 1.32), admission to the ICU (OR 1.10; 95% CI 0.93 to 1.29) and death (OR 1.32; 95% CI 1.09 to 1.60) due to COVID-19 than patients who were doing some physical activity.

**Conclusions:** Consistently meeting physical activity guidelines was strongly associated with a reduced risk for severe COVID-19 outcomes among infected adults. We recommend efforts to promote physical activity be prioritised by public health agencies and incorporated into routine medical care.

*Exercise is medicine. We usually think about exercise and the effects it can have on chronic diseases, but is exercise effective against our newest infectious disease? This study tested the hypothesis that consistently meeting physical activity (PA) guidelines (>150 minutes per week of moderate-to-vigorous PA) before a diagnosis of COVID-19 would lead to more favorable outcomes among adults. The study was conducted at Kaiser Permanente in Southern California, which is an integrated health care system serving some 4.7 million residents at 15 medical centers. All Kaiser patients have their exercise habits assessed (frequency and duration) at every outpatient visit using an Exercise Vital Sign (EVS). The researchers identified 48,440 adults with a COVID-19 diagnosis and correlated outcomes with the exercise vital sign identifying physical activity habits. The data for this study was gathered before vaccines were available.*

*When compared with those who reported being consistently inactive, those who were consistently meeting PA guidelines had lower odds of being hospitalized, requiring ICU admission, and dying from COVID-19. Even activity levels that did not meet the PA guidelines were significantly associated with reduced odds of hospitalization and death. Being consistently inactive was a stronger risk factor for severe COVID-19 outcomes than any of the underlying medical conditions and risk factors identified by CDC except for age and a history of organ transplant. Physical inactivity was the strongest risk factor across all outcomes, compared with the commonly cited modifiable risk factors, including smoking, obesity, diabetes, hypertension, cardiovascular disease, and cancer.*

*Once again, exercise is proving to be an effective intervention. It is likely that after vaccines, exercise is the most effective protective measure we can take to prevent severe outcomes from COVID-19. Unfortunately, public health messaging to promote physical activity during this pandemic continues to be sorely lacking and in many cases, public health messages are promoting inactivity, possibly putting the population at higher risk of severe outcomes.*

Sallis R, Young DR, Tartof SY, et al. Physical inactivity is associated with a higher risk for severe COVID-19 outcomes: a study in 48 440 adult patients. British Journal of Sports Medicine 2021;55:1099-1105.