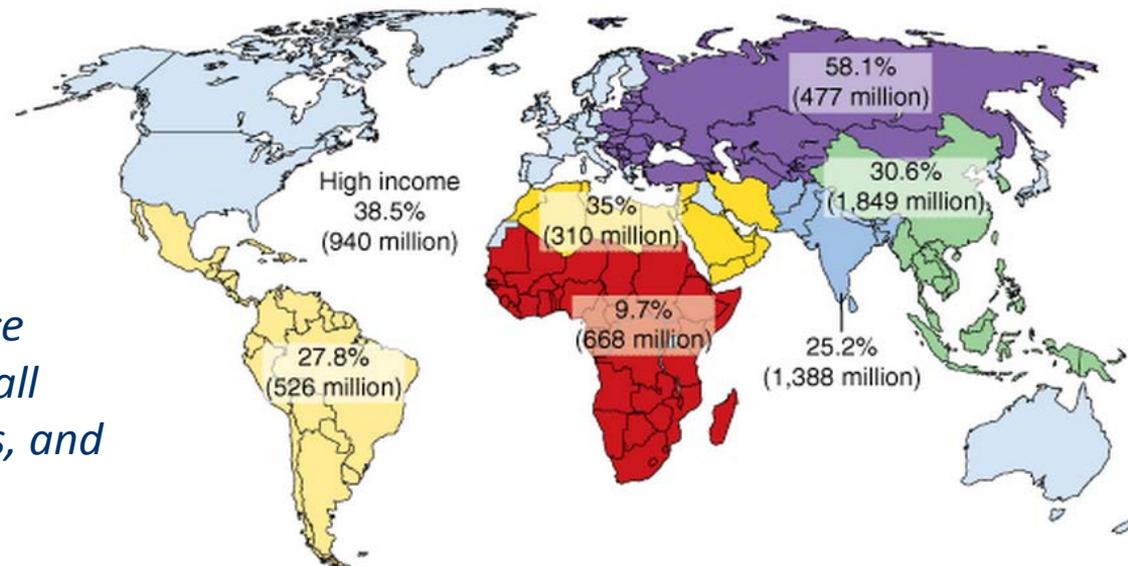

Prevention of cardiovascular diseases (CVDs) at workplace: is physical inactivity a major risk factor ?

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CVDs: first cause of death worldwide, today and tomorrow

- In 2008, 17.3 million people died from CVDs worldwide = 30% of all global deaths (*WHO, 2011*). In 2030, 23.3 millions people will die from CVDs.



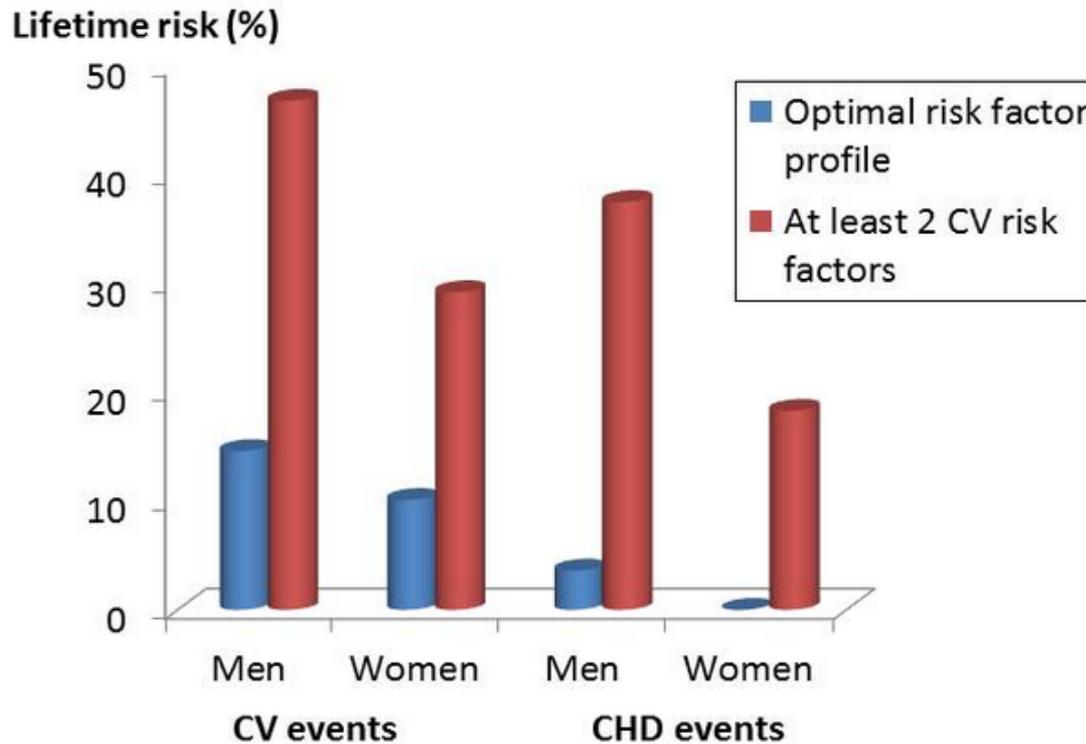
CVDs rise takes place worldwide, among all races, ethnic groups, and cultures



Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine*, 17th Edition: <http://www.accessmedicine.com>

Higher risk of CVDs in males

Lifetime risk of cardiovascular (CV) and Coronary Heart Diseases (CHD) events at age 55 years.



Optimal risk factor management was defined as: total cholesterol <4.7 mmol/L, untreated blood pressure <120/80 mmHg, non-smoker and without diabetes

CVDs and occupational factors

CDC Home



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

*CDC morbidity and mortality weekly report,
2014, 63(30), 645-649*

- Blue collar workers are 40% more likely to report a history of coronary heart disease or stroke than white collars.
- Prevalence rates were highest in
 - ***Accommodation and food services***: hotels, recreational vehicle parks, boarding houses, and restaurants
 - ***Administration, support, waste management and remediation services***: travel agents, security services, commercial and residential building upkeep, landscaping services, and waste management jobs

Risk factors related to CVD incidence

■ Occupational risk factors

- work stress
- shift work
- exposure to particulate matter, noise and secondhand smoke

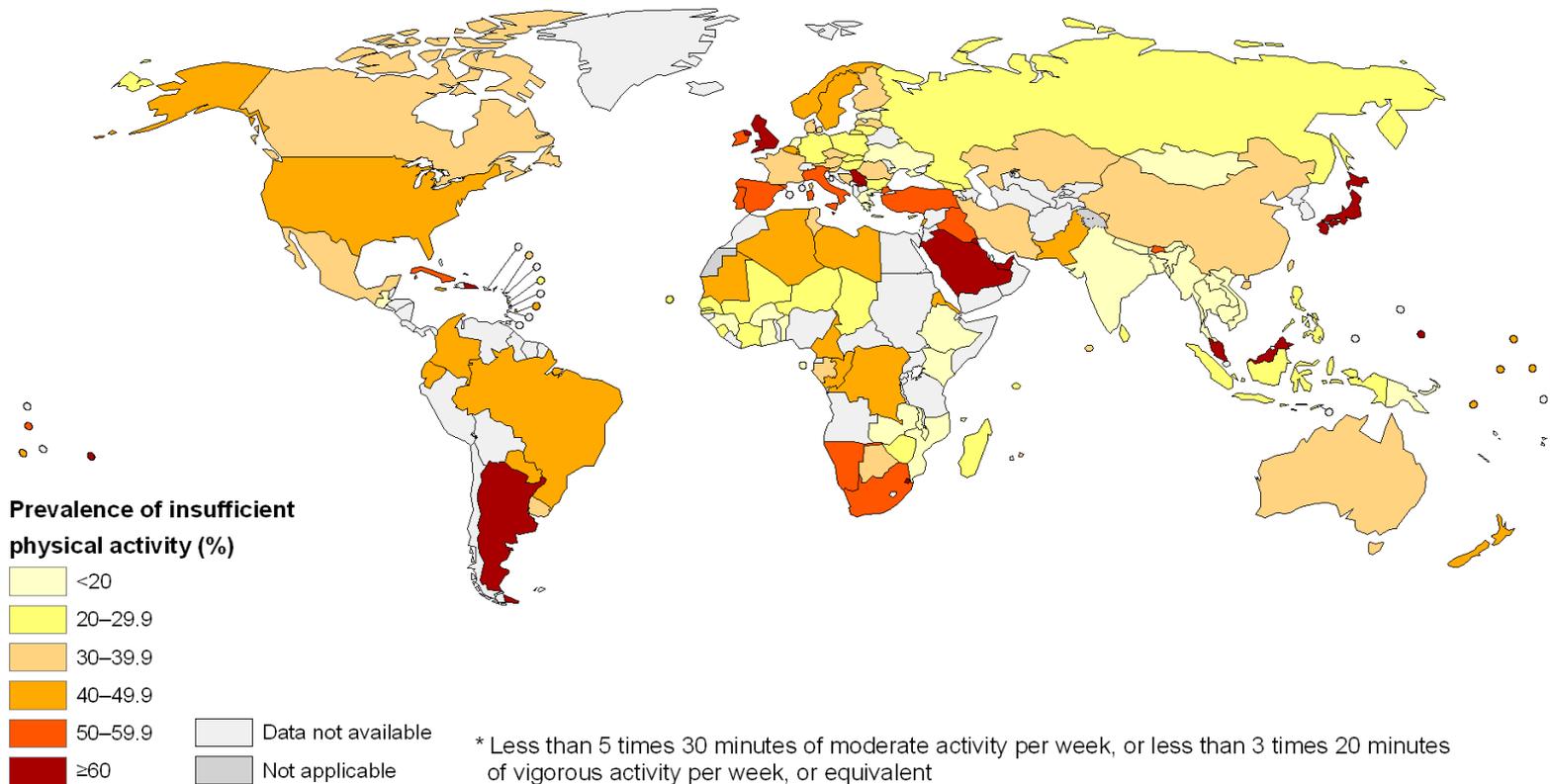
■ Behavioural risk factors account for 80% of coronary heart disease and cerebrovascular disease (*WHO, 2011*)

- unhealthy diet
- physical inactivity
- tobacco use
- harmful use of alcohol

Physical inactivity: a worldwide public health issue

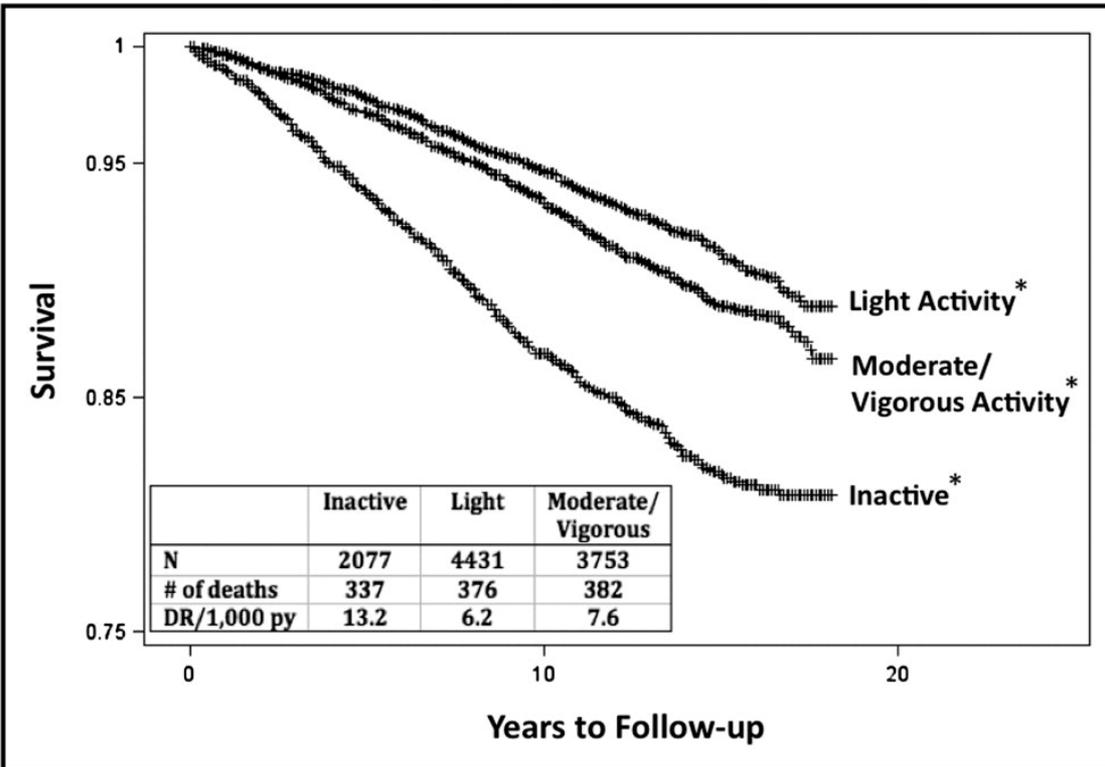
- Physical inactivity is the 4th leading risk factor for death worldwide (*WHO fact sheet 2014*) : approximately 3.2 million people die each year due to physical inactivity

Prevalence of insufficient physical activity, ages 15+, age standardized, both sex, 2008 (WHO, 2011).



Physical inactivity, a major risk factor of CVDs

Survival curves according to physical activity intensity.



CVD mortality rate is **significantly higher in inactive** as compared to light and moderate/vigorous physical activity groups

This result highlight the clinical importance of prescribing physical activity to prevent CVD mortality

*All curves are significantly different from each other ($p < 0.05$).

DR = death rate; py = person-year.

Key prevention : encourage physical activity

- Adults who sit less have lower risk of early death, particularly from CVD
(Katzmryk PT et al., 2009; Patel AV et al., 2010).
- Doing more than 150 minutes of moderate physical activity or an hour of vigorous physical activity every week reduces risk of CHD by about 30%
(Bauman A et al., 2005; PAGAC, 2008, Sofi F et al., 2008; Nocon M et al., 2008).
- Regular exercise improves risk factors for cardiovascular disease:
 - reduction in body weight and blood pressure
 - reduction in “bad ” (LDL and total) cholesterol
 - increase in “good” (HDL) cholesterol
 - increase in insulin sensitivity
 - Enhanced vasodilatation and vasomotor function in the blood vessels

Physical activity based interventions and prevention

- Encourage active travel. Walking to workplace: - 13% risk of CHD (*Sesso HD et al., 2000*)
- Provide health-education materials and raising awareness of the importance of regular physical activity : health and wellness campaigns improved body fat, blood cholesterol and glucose levels, physical activity in truck drivers (*Transportation research board, 2007*).
- Provide a pedometer: beneficial effect of a pedometer-based physical activity challenge on activity and CVD related health indices in sedentary workers (*Chan CB et al., 2004*).
- Provide activity-permissive workstations (height-adjustable desks, walking, standing or cycling desks) to reduce sitting time in office workers: - 89 minutes/8-hour workday (*Neuhaus, Am J Prev Med. 2014*)
- Incorporating some activity, such as standing or walking, into productive work tasks: 3.1% less sedentary time (*Parry, PLoS One. 2013; 8(11)*)

Conclusions

- CVDs are and will be for the next 20 years the leading cause of death in the world
- Blue collars are more at risk than white collars
- Physical inactivity is one of the major risk of CVD
- Sedentarity at work greatly contributes to physical inactivity
- It is crucial to develop prevention programs at workplace to reduce sedentarity and increase physical activity
- Previous simple interventions at workplace proved effective in reducing CVD risk and/or sedentarity