



THE GEORGE INSTITUTE  
for Global Health AUSTRALIA

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# Keeping our workers healthy and physically active as they age

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*Affiliated with*



# Physical activity and health: historical perspective

"All parts of the body which have a function, if used in moderation and exercised in labours in which each is accustomed, become thereby healthy, well-developed, and age more slowly, but if unused and left idle, they become liable to disease, defective in growth and age quickly."

*Hippocrates, 400 BC. Island of Kos (Greece)*



# Incidence of coronary heart disease per 1000 London transport workers per year *Morris et al, 1954*

Drivers 2.7



Conductors 1.9



Controlling for age, drivers of double-decker buses — who sat still for 90% of their shift — had substantially more heart disease than conductors, who would typically pound up and down as many as 750 steps to and from the top deck every working day.



# Why is physical inactivity such an important public health issue?

## Physical inactivity:

-4th leading risk factor for the prevention of non-communicable disease, preceded only by smoking, hypertension, and high blood glucose levels (*WHO 2009*)

-accounted for more than 3 million preventable deaths globally in 2010 (*WHO 2010*)

# More steps = longer life

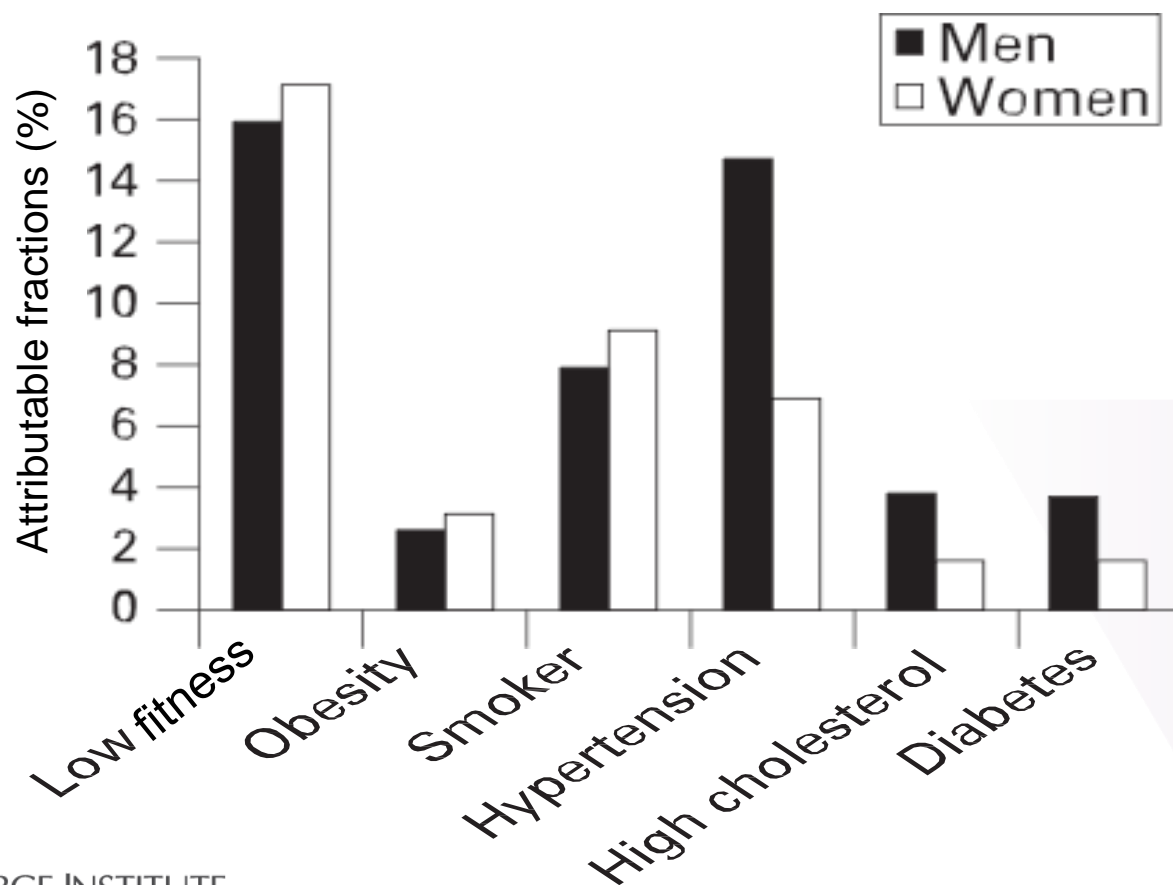
RESEARCH ARTICLE

## Objectively Measured Daily Steps and Subsequent Long Term All-Cause Mortality: The Tasped Prospective Cohort Study

Terence Dwyer<sup>1,2,3</sup>, Angela Pezic<sup>3</sup>, Cong Sun<sup>3,4</sup>, Jenny Cochrane<sup>2</sup>, Alison Venn<sup>2</sup>, Velandai Srikanth<sup>5</sup>, Graeme Jones<sup>2</sup>, Robin Shook<sup>6</sup>, Xuemei Sui<sup>6,7</sup>, Andrew Ortaglia<sup>6,8</sup>, Steven Blair<sup>6,7,8</sup>, Anne-Louise Ponsonby<sup>2,3,4\*</sup>

- >2500 people, mean age 58 years
- Wore pedometers at baseline and year 3
- Followed up for 15 years to see who died
- ↑steps from 1,000 to 10,000/ day= 46% ↓ in risk of early death
- ↑steps from 1,000 to 3,000/ day= 12% ↓ in risk of early death

# Low fitness increases risk of mortality



# Exercise is medicine

Exercise is life  
Exercise is health  
**Exercise Is Medicine**



Health benefits with regular physical activity



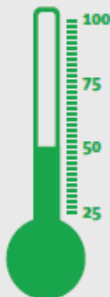
Almost **50%**  
Reduction in the incidence of diabetes

**DECREASES DEPRESSION**

As effectively as medications or behavioural therapy



Almost **50%**  
Reduction in the incidence of High Blood Pressure



ALMOST **50%**  
REDUCTION IN **BREAST CANCER**  
MORTALITY AND RISK OF RECURRENCE

Exercise is life  
Exercise is health  
**Exercise Is Medicine**



Health benefits with regular physical activity



**40%**

Reduction in the risk of Heart Disease

**1/3**

Reduction in the risk of developing Alzheimers Disease



**60%**

LOWER RISK OF **COLON CANCER**

**27%**

LOWER RISK OF **STROKE**

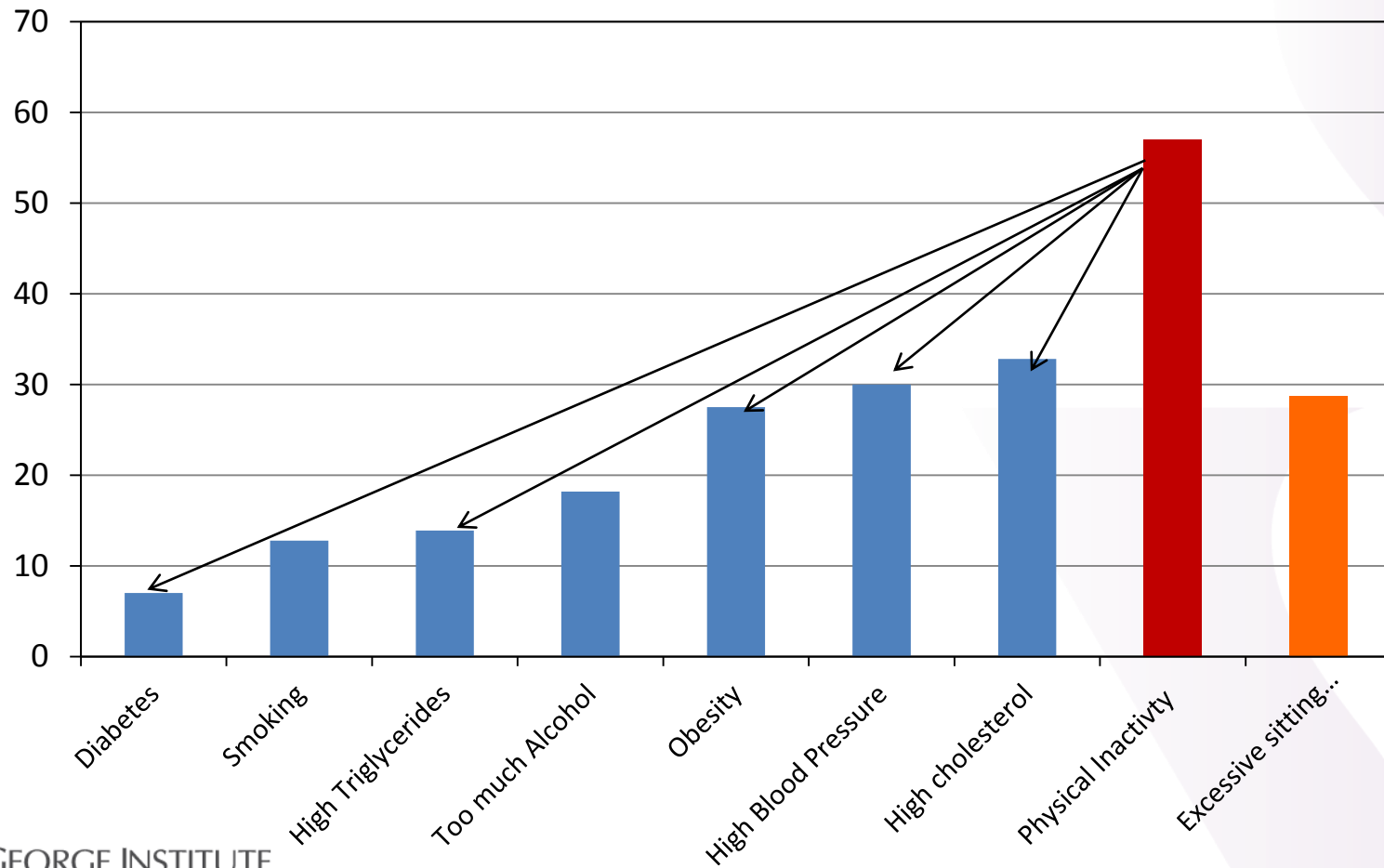
**ALL YOU NEED IS:**  
**VIGOROUS INTENSITY CARDIO** 20 mins X 3 days  
**OR MODERATE INTENSITY CARDIO** 30 mins X 5 days  
**PLUS STRENGTH TRAINING** 8-12 reps X 2 days\*

\*Do between 8 and ten different exercises

Third Party Logo to go here

# CVD risk factor prevalence, Australia, most recent data

(Sources: Australian Bureau of Statistics; Australian Institute of Health and Welfare)





# Physical Activity Guidelines

**TABLE 2.4 ACSM Guidelines for Exercise Prescription**

Quality	1975	1995
Frequency	Three times per week	Three to five times per week
Intensity	60-90% $\dot{V}O_{2max}$	40-85% $\dot{V}O_{2max}$
Duration	20-30 min	20-30 min

Data from Department of Health and Human Services 1996.

## Physical Activity and Health

1996

A Report of the Surgeon General  
Executive Summary



The President's Council on Physical Fitness and Sports

## Physical Activity 1999 Guidelines for Australians

Scientific Background Report



Australian Government  
Department of Health

2012

AUSTRALIA'S PHYSICAL ACTIVITY AND  
SEDENTARY BEHAVIOUR GUIDELINES

# Physical activity guidelines for older adults

## What should you do?

For a healthy heart and mind

To keep your muscles, bones and joints strong

To reduce your chance of falls

Be Active

Sit Less

Build Strength

Improve Balance

VIGOROUS

MODERATE



RUN



WALK



TV



GYM



DANCE



SPORT



CYCLE



SOFA



YOGA



TAI CHI



STAIRS



SWIM



COMPUTER



CARRY BAGS



BOWLS

MINUTES PER WEEK

75 OR 150

VIGOROUS INTENSITY

(BREATHING FAST  
DIFFICULTY TALKING)

MODERATE INTENSITY

(INCREASED BREATHING  
ABLE TO TALK)

OR A COMBINATION OF BOTH

BREAK UP SITTING TIME



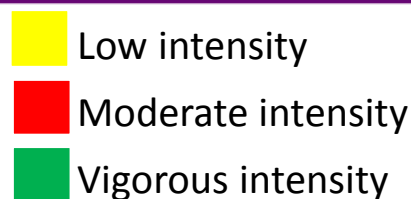
2 DAYS PER WEEK

Something is better than nothing.

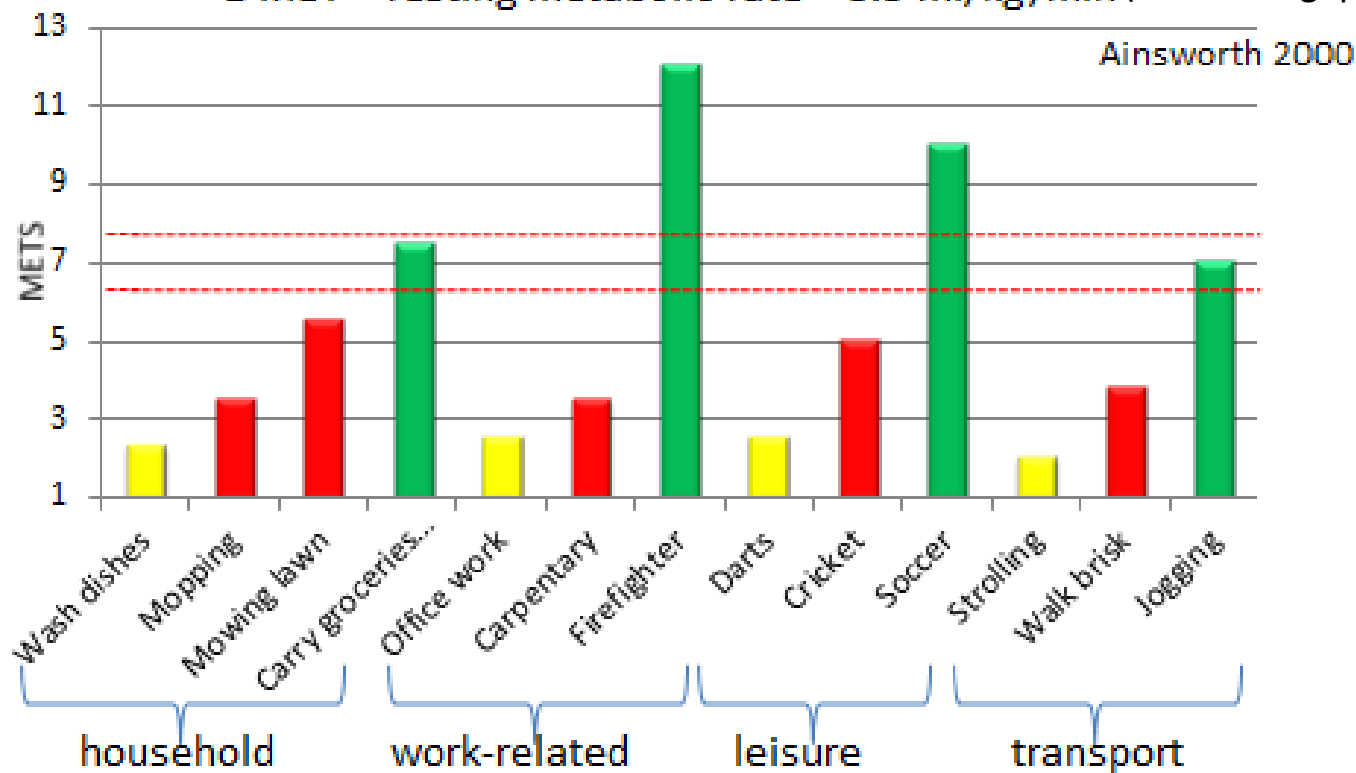
Start small and build up gradually:  
just 10 minutes at a time provides benefit.

MAKE A START TODAY: it's never too late!

# Physical activity domains and intensity

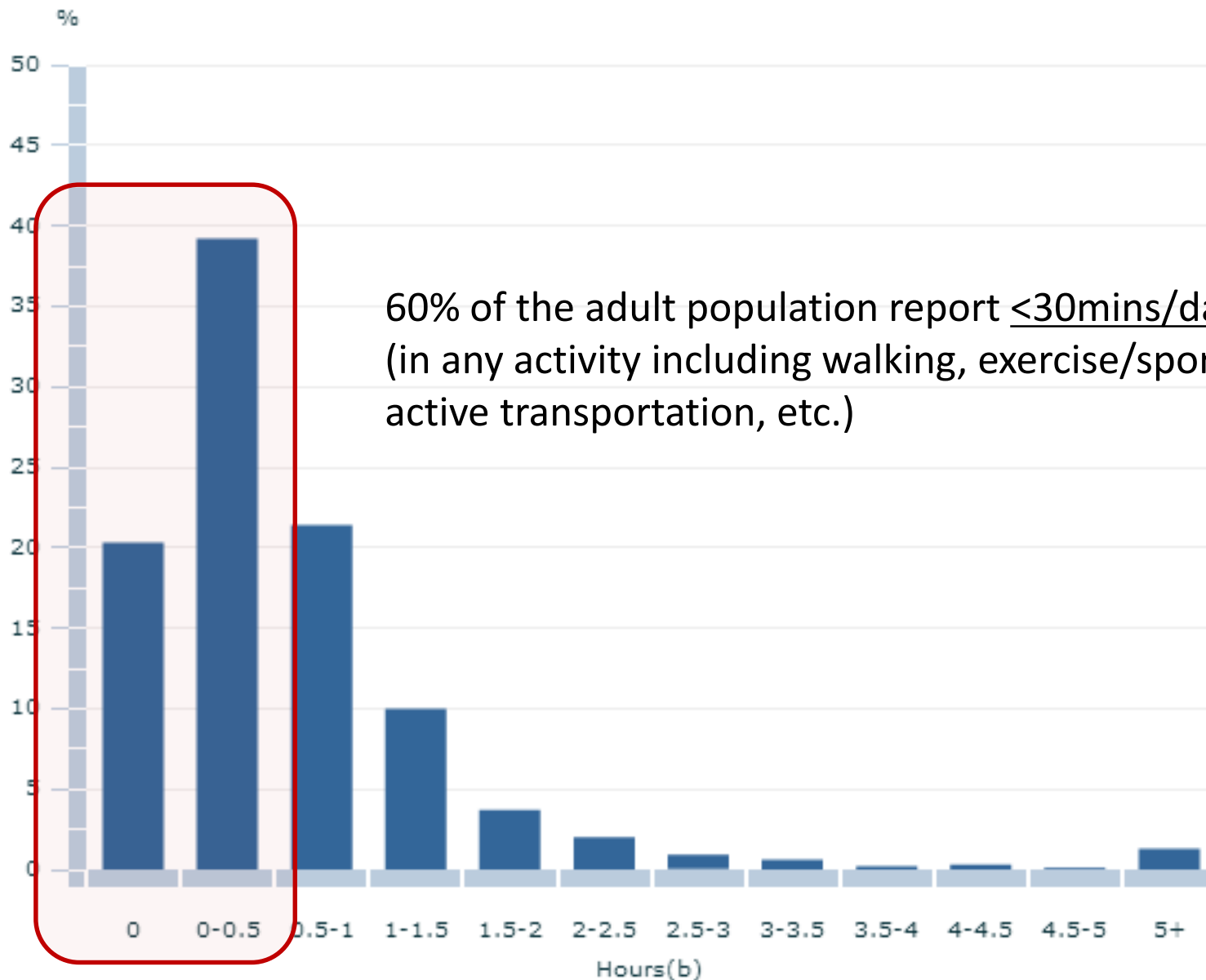


1 MET = resting metabolic rate = 3.5 ml/kg/min (as in sitting quietly)



# Australian Health Survey 2012

Persons 18 years & over - Average daily duration of physical activity(a), 2011-12



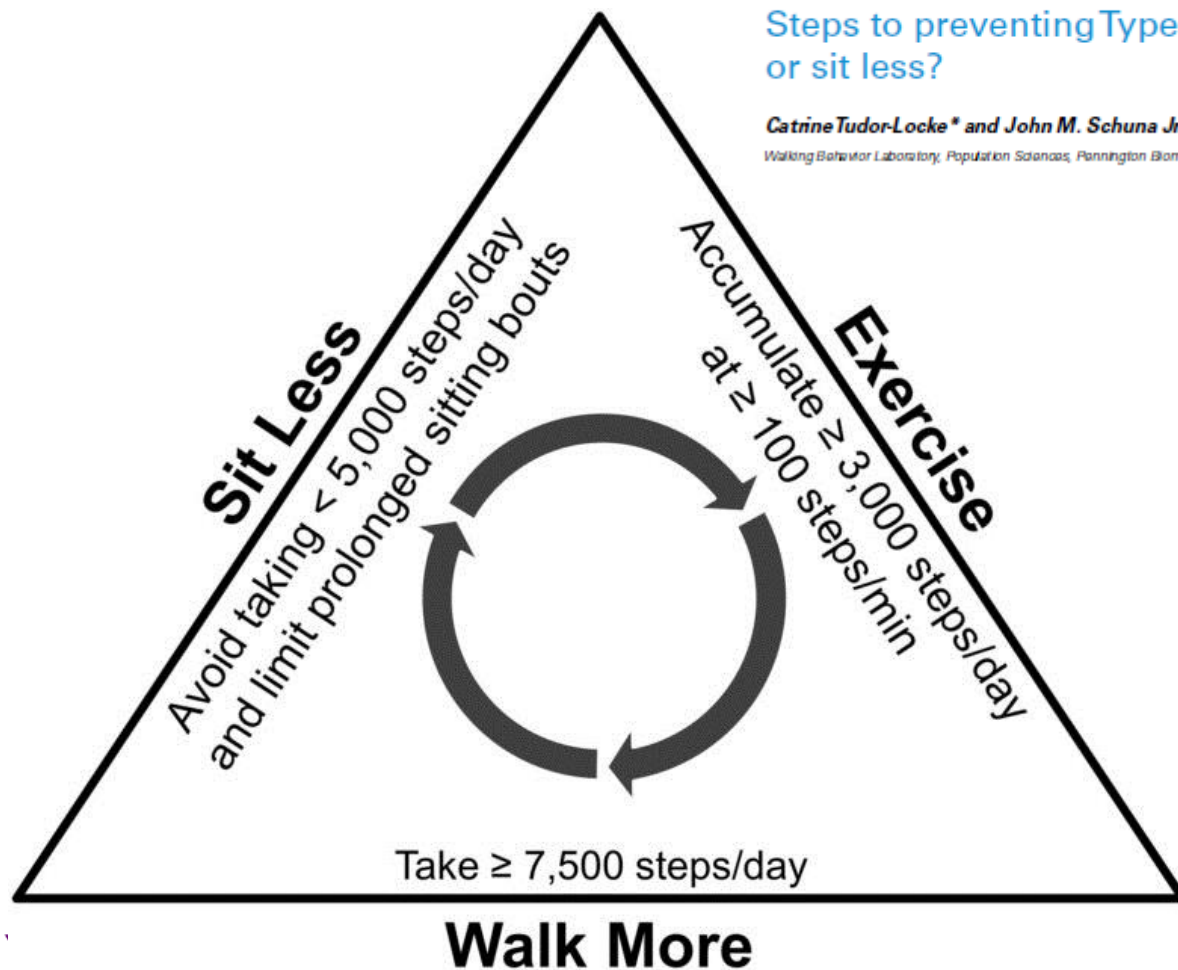
# A simple message: *Walk more, sit less, exercise!*



## Steps to preventing Type 2 diabetes: exercise, walk more, or sit less?

Catrine Tudor-Locke\* and John M. Schuna Jr.

Walking Behavior Laboratory, Population Sciences, Pennington Biomedical Research Center, Baton Rouge, LA, USA



# The benefits of active workplaces

Increased opportunity for physical activity in the workplace is associated with:

- Improved employee engagement and morale
- Increased concentration and productivity
- Improved team relationships
- Reduced stress levels
- Reduced sickness-related absenteeism
- Improved corporate image

*Reference: The Health and Productivity Institute of Australia (2010). Best-Practice Guidelines Workplace Health in Australia, p 6.*

# Active workplaces



Active workstation



Sit and stand desks

- Active commuting
- Walking or standing meetings
- Use stairs not lift
- Stand up while talking on phone



# Global Corporate Challenge Corporate wellness programme

<https://www.gettheworldmoving.com>

## HOW IT WORKS

### FORM TEAMS OF 7

Employees sign up in teams of 7 and tap into the collective accountability that already exists in your workplace.



### SIMPLE SIGN UP

Time is valuable, so the GCC's sign up is short and sweet and includes bespoke marketing material guaranteed to maximise anticipation and participation.



### STARTER KIT

Every participant receives two GCC Pulses, which are engineered with total flexibility in mind (everything counts), they track daily activity straight out of the box; No set up. No downloads. No charging.



### GCC ME

An employee's dynamic, virtual, scale model of themselves which brings to life the positive impact their new habits and behaviours are having in real time.



### THE 100-DAY JOURNEY

GCC's first challenge is a 100-day virtual tour around the world, which sets a daily target of 10,000 steps and provides a journey of discovery and reward. The more active you are in the real world, the further you progress in our virtual world.



### GCC NUTRITION

A personalised suite of scientifically developed tools that change employees' relationship with nutrition so they can sustainably achieve and maintain a healthy weight.



### GCC SPRINT

An individual challenge designed to maintain physical activity levels during the holiday season, typically when people need our help the most.





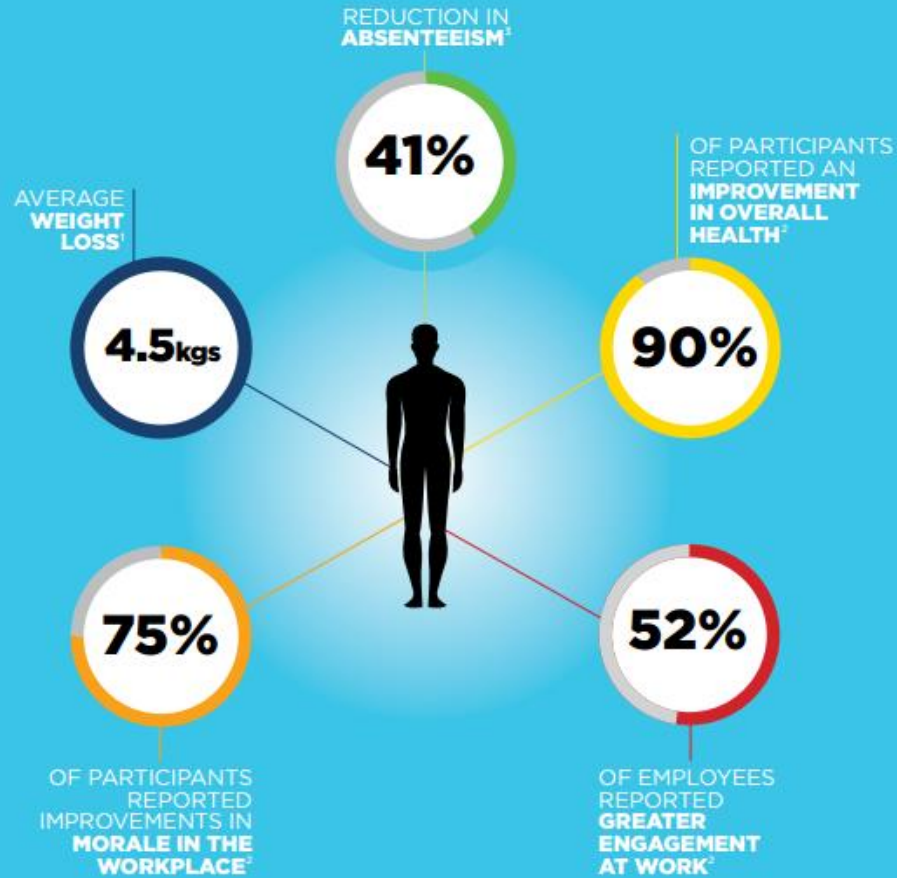
# WHAT THE NUMBERS SAY

**1 MILLION**  
PEOPLE

**EVERY**  
INDUSTRY

**4,000+**  
ORGANISATIONS

**185**  
COUNTRIES



# Physical activity and older people (60+)

Health conditions associated with age:

- CHD
- Diabetes
- Stroke
- Sarcopenia
- Falls
- Insomnia
- Depression
- Low back pain
- Dementia
- Cancer

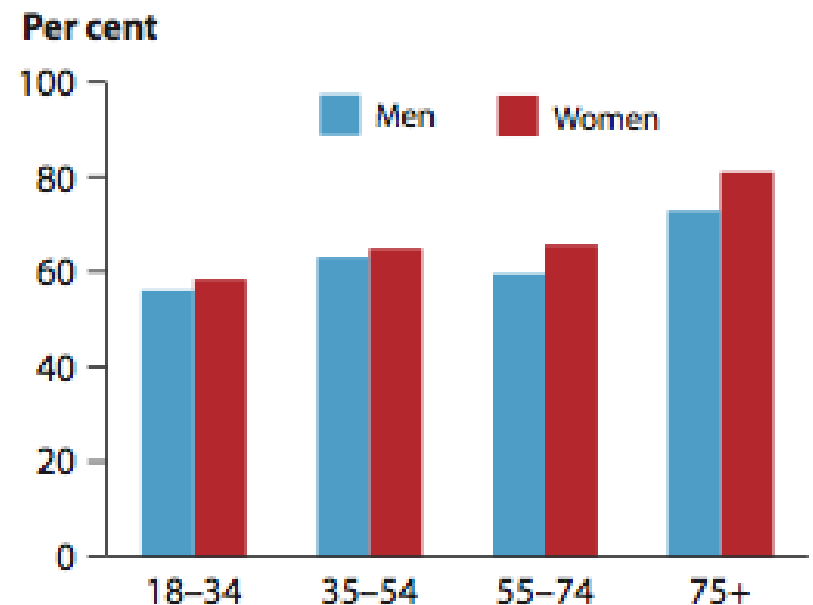
**PHYSICAL ACTIVITY HAS A ROLE IN THE  
PREVENTION OR MANAGEMENT OF ALL  
THESE CONDITIONS!**

# Physical inactivity increases with age



**Physical inactivity.** The percentage of adults who did not participate in sufficient regular physical activity to gain a health benefit. The recommended minimum level of activity is 150 minutes per week of walking or other moderate or vigorous activity, over at least five sessions.

- In 2007–08, most adults (62%) did not do the recommended amount of physical activity.
- Physical inactivity increased with age—76% of people aged 75 and over did not meet the guidelines, compared with 57% of people aged 18–34.
- Women were slightly more likely than men to be physically inactive.



# Combining Physical Activity Promotion and Fall Prevention for Healthy Ageing

## **Background**

- Older people are particularly inactive.
- Encouraging older people to be more active may also increase risk of falling (*Ebrahim et al, 1997 & Lawton et al, 2008*)
- Should physical activity programs for older adults include fall prevention components?

## **Aim**

- To evaluate the impact of a physical activity promotion and fall prevention intervention on physical activity and mobility goal attainment compared with an advice brochure



# Study methods



## **Participants:**

- 130 people aged 60+ years
- Users of the internet; live at home; leave the house regularly

## **Intervention group:**

- Fall prevention advice brochure
- QuickScreen fall risk assessment
- Safe mobility advice
- Wear Fitbit activity tracker
- Fortnightly phone-based health coaching for 6 months

## **Control group:**

- Fall prevention advice brochure only



# Conclusions

- Physical activity is essential for optimising health and preventing many chronic diseases throughout the lifespan
  - Inactivity is a major public health problem that requires the attention of researchers, clinicians, policy makers and employees
  - A 1% gain in the proportion of the population that is sufficiently active:  
= \$8 million saved in healthcare costs  
=122 deaths prevented/year from heart disease, diabetes and colon cancer
- Stephenson J, et al. (2000). Canberra: Comm DoH & Aged Care*

**“move more, sit less, live longer!”**

Thanks for your attention!

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