Is Physical (In)Activity an Occupational Exposure?

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HOW OCCUPATIONAL EPIDEMIOLOGY REVOLUTIONIZED SCIENTIFIC UNDERSTANDING OF CHRONIC DISEASE (PART 1)

The London Bus Drivers Studies of the 1950s

“The Man Who Invented Exercise”

FT
FINANCIAL TIMES

The very first results we got were from the London busmen. And there was a striking difference in the heart-attack rate. The drivers of these double-decker buses had substantially more, age for age, than the conductors. – Jerry Morris

HOW OCCUPATIONAL EPIDEMIOLOGY REVOLUTIONIZED SCIENTIFIC UNDERSTANDING OF CHRONIC DISEASE (PART II)

The Whitehall Studies of the 1960s & 1980s

- Foundational to "social epidemiology"
- Mortality and chronic disease risk followed organizational hierarchy
- One explanation of observed associations is a gradient of job stress and/or job control

Lingering questions…

- Was it the bus drivers' physical activity that increased their disease risk?
- Was it their stress?
- Was it something else?
  - Diet
  - Diesel PM
  - Etc.

Physical activity and cardiovascular mortality – disentangling the roles of work, fitness, and leisure. Niklas Krause. Scand J Work Environ Health 2010;36(5):349-355 doi:10.5271/sjweh.3077

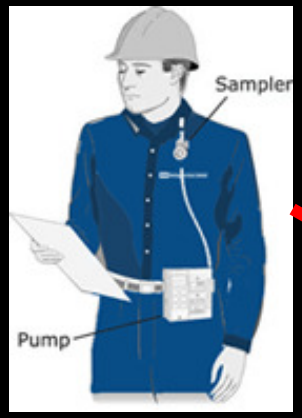
"…more research is needed to differentiate between beneficial and detrimental levels [of] OPA and how overexertion at work, job stress, and prolonged work time may put workers at risk…"

Physical activity and cardiovascular mortality – disentangling the roles of work, fitness, and leisure. Niklas Krause. Scand J Work Environ Health 2010;36(5):349-355 doi:10.5271/sjweh.3077

"…Furthermore, new research should differentiate between specific vulnerable populations such as aging, female, and manual workers, or those with existing chronic conditions like CVD…"

(aha moment)

Wait a minute… OPA is an occupational exposure! Why don't we measure it more often?



Pilot Study

- 33 healthcare workers
- >= 50 years of age
- OPA measured with Fitbit Flex™ devices
- Surveys
- Focus Groups

Pilot Question 1: Does the device itself impact OPA levels?

Method

- Fitbit data blinded for 6 weeks & unblinded for 10 more

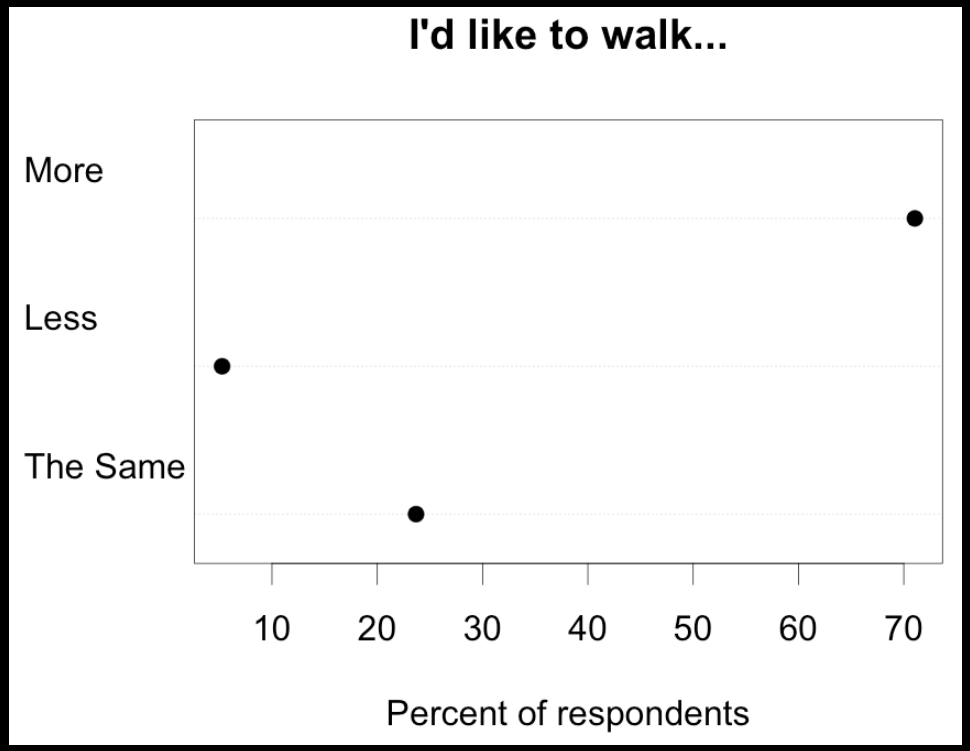
Result

- OPA declined, on average, over the course of the study
- Access to data (alone) may not be enough

Pilot Question 2: Do workers want more or less OPA?

- Survey question:

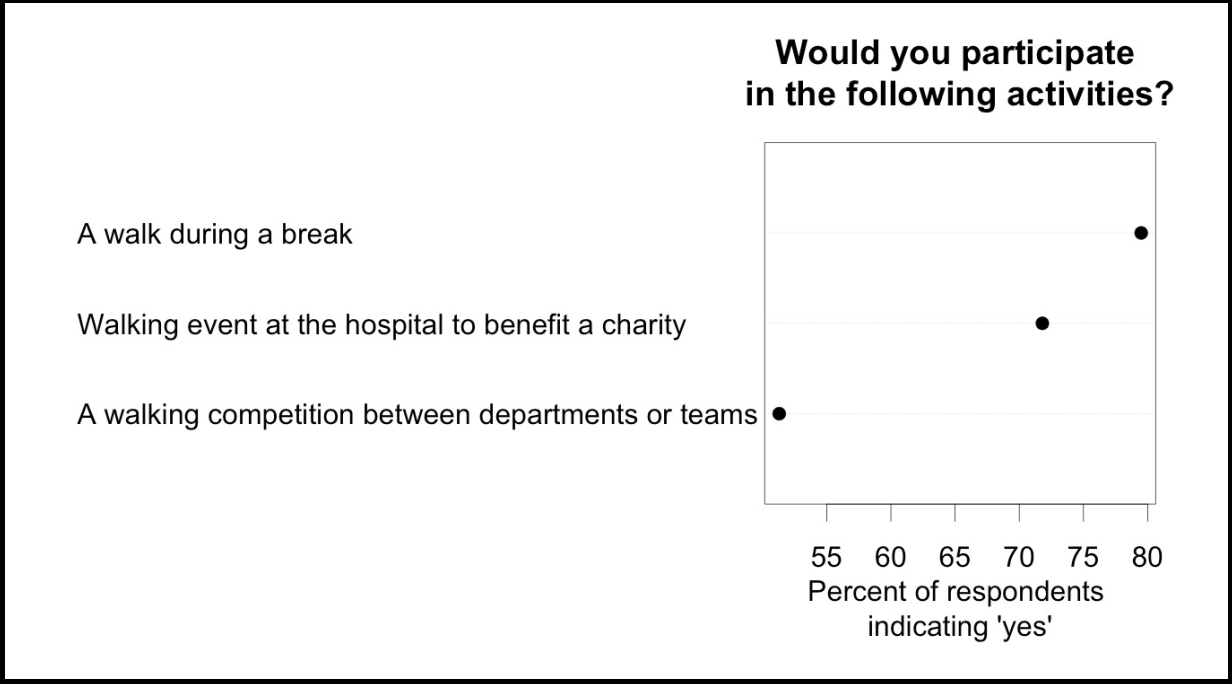
  "While I'm at work I'd like to walk…" More/Less/The Same



Pilot Question 3: What might be some ways to increase OPA levels?

- Survey question:

  "Would you ever consider participating in any of the following activity at work?"



Pilot Question 4: How do workers think and feel about OPA?

- **On taking breaks:**

I keep meaning to, but then I'll think, I'll just finish this, and then somebody will come up. Or I'll just finish this. And then it gets close to going home time and I'll just not. I'll just finish stuff up then. There are a lot of us in our area that are really bad about not getting up for lunch. We eat at our desks.

Pilot Question 4: How do workers think and feel about OPA?

- **On the built work environment:**

If you enjoy flowers and don't mind the traffic, walking around University Hospital, they have all these like hidden gardens. Some are visible, but some are kind of like you wouldn't know they are there. And they have some beautiful, beautiful flowers.

Take Home Points!

1. Research with workers has informed our fundamental understanding of the impacts of physical activity and stress on health

Take Home Points!

2. OPA can be measured and modified through the hierarchy of controls

Take Home Points!

3. Occupational physical activity and occupational stress are common occupational exposures that may relate to each other in complex and meaningful ways