

# Effective Use of Wearable Activity Trackers to Improve Health

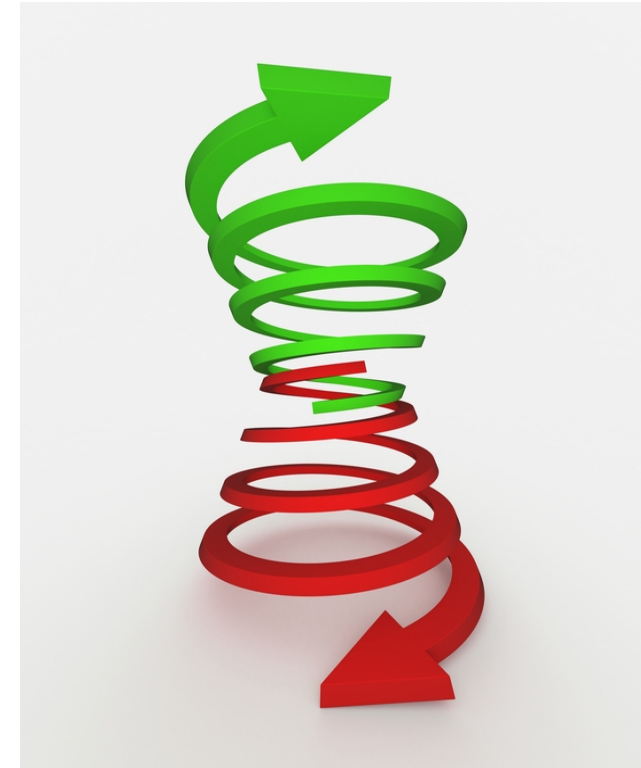
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# Health: What is at Stake

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- Chronic diseases
  - Diabetes, osteoporosis, obesity, cardiovascular disease, cancer
- Functioning and disability risk
  - Physical, social, mental
- Longevity
  - Number of disablement years
  - Into the future: New generation is first of its kind to be expected to live less than their parents



# Physical Activity: Physical and Preventative Medicine

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- ✓ Improve cardiovascular health
- ✓ Strengthen bones
- ✓ Improve mood and overall quality of life
- ✓ Build and maintain muscle mass
- ✓ Increase energy

This translates to:

- Less hospital visits
- Independent living
- Lower recurrence of health problems
- Reduced reliance on prescription drugs

**THE BOTTOM LINE:** Extensive research showing that physical activity reduces the risk of developing health complications, lessens the severity of disease symptoms, and lowers risk of disease recurrence



# Who is Active?

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- ~50% of all older adults report engaging in no physical activity, and total physical activity can decrease as much as 33% (28 min/wk) over a 10 yr follow up.
- ~25% of older adults are regularly active (other estimates at ~10%).
  - Walking is among the most common activities.
- Participation in exercise-type activities is much lower.
- \*\*\*These individuals are the ones who SHOULD be targeted for exercise programming. Often that the ones who participate are the ones who are already active. Therefore, we need to reach and connect with those that we don't see and aren't motivated to engage\*\*\*

# Why Aren't People Active?

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- Time
- Resources
  - Financial, transportation, facilities
- Knowledge
  - What to do
  - What the benefits are
- Confidence and physical capacity
- Social support
- Not important to them/already feel they are active



How do we overcome these?

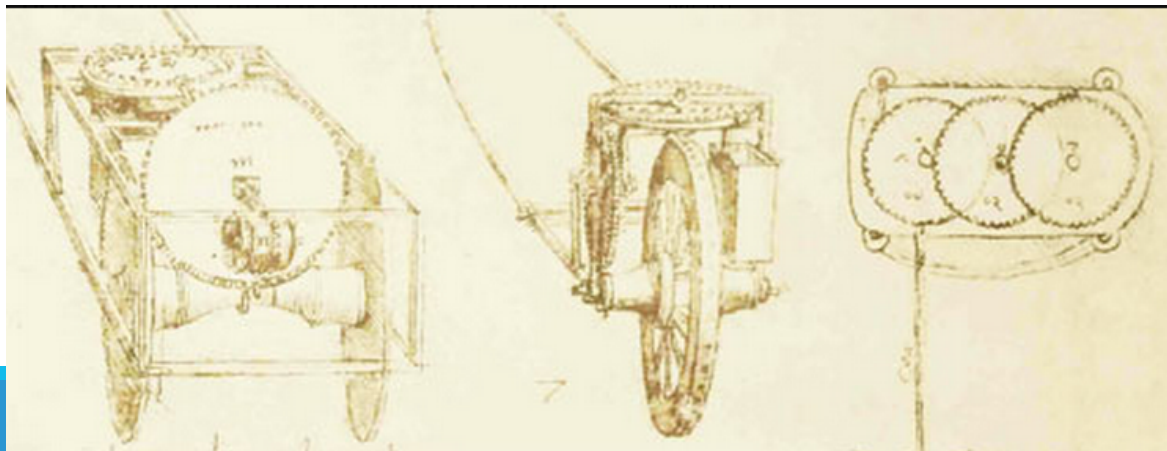
...or rather...

How can these be turned into something that promotes activity?

# Wearable Activity Trackers

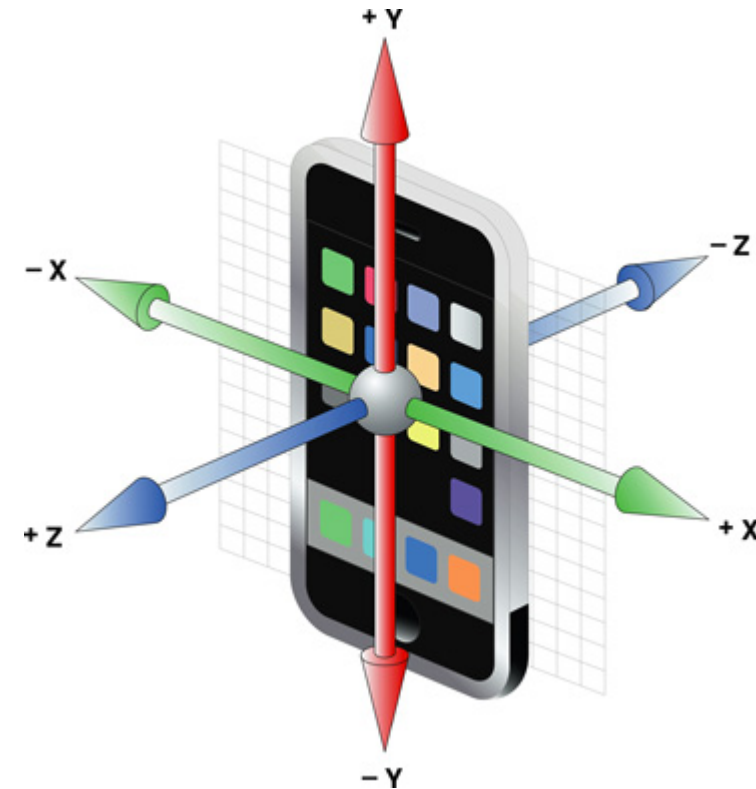
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- The earliest step counters date back to Leonardo Da Vinci, and have evolved from there.
- What do activity trackers provide to promote physical activity?
  - Awareness, feedback, motivation
- Self-monitoring one's activity is a great way to increase awareness of current habits and also provide information to increase activity or meet current recommendations



# Present technology - Accelerometry

- Most activity trackers utilize accelerometer-based technology
  - Uses a sensor to detect frequency, duration, and strength/intensity of motion
    - Cell phones utilize this technology to change orientation of the phone depending on the way it is held
  - Enables more information to be monitored
- What does this mean for activity trackers?
  - They can collect more information about your activities, the types of movement, and the quality of movement



# What Can I Do With Activity Trackers?

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- Steps are a good measure of overall activity, but they don't tell the whole story.
- Intensity of movement
  - Related to health and fitness improvements
- Frequency of activity
  - How long do we spend inactive?
  - Prolonged periods of time spent sedentary are related to chronic disease
- Sleep
  - More sleep = better health
- Track food and water intake



# Interpreting Activity Tracker Information – What is Good?

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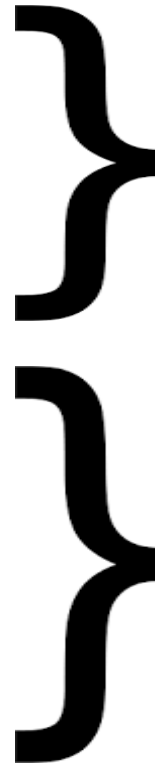
- Steps
  - Roughly 2,000 steps in a mile
  - 10,000 steps ~ 5 miles
- Intensity
  - 150 minutes/week in moderate intensity activity
  - 75 minutes/week in vigorous intensity activity
- Most activity trackers combine intensity levels to provide an “active time” or “time spent in moderate-vigorous physical activity”



# Interpreting Activity Tracker Information – What is Good?

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- Body mass index: ↓ 0.4 kg/m<sup>2</sup>
- Blood pressure
  - Systolic: ↓ 3.8 mmHg
  - Diastolic: ↓ 0.3 mmHg
- Cholesterol
  - Total: ↓ 0.09 mmol/L
  - LDL: ↓ 0.06 mmol/L
  - HDL: ↑ 0.06 mmol/L
- Fasting glucose: ↓ 0.03 mmol/L








Observed with ~2,000 step/day increase

Not significant with increasing steps/day. Physical activity intensity is more important

# Making the Most of Activity Trackers

- Friends
- Goals
  - Set personal accomplishments
  - Weight goals
- Challenges
  - Individual (“badges”)
  - Social network (i.e. 7 day challenge)



Friends <span>+</span>			
7 Day Step Total			
1		Elizabeth C.	94,419 >
2		You	71,353 >
3		Tina	71,069 >
4		Nick	65,474 >
5		Michael N.	57,727 >

# Exploring the Capabilities...



# Making the Most of Activity Trackers

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- There are lots of extra features, visuals, and information that can overwhelm people or keep them from using activity trackers
- Consistency is the most important aspect
  - Be consistent in wearing the device
  - Gain an awareness of your consistency from day to day
- These are not intended to be the “bearer of bad news”
- Discrete option of wearing at the waist, or on the wrist

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# Closest Guess???



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Thank You for Your Time!

Any Questions?