



A New Office Workplace Design Has Positive Effects on Employee Physical Activity: Credible Evidence from a Natural Experiment

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Agenda

- 01** Site & Neighborhood Background
- 02** Global HQ Building Design and Certification
- 03** Natural Experiment of Employee SB and PA

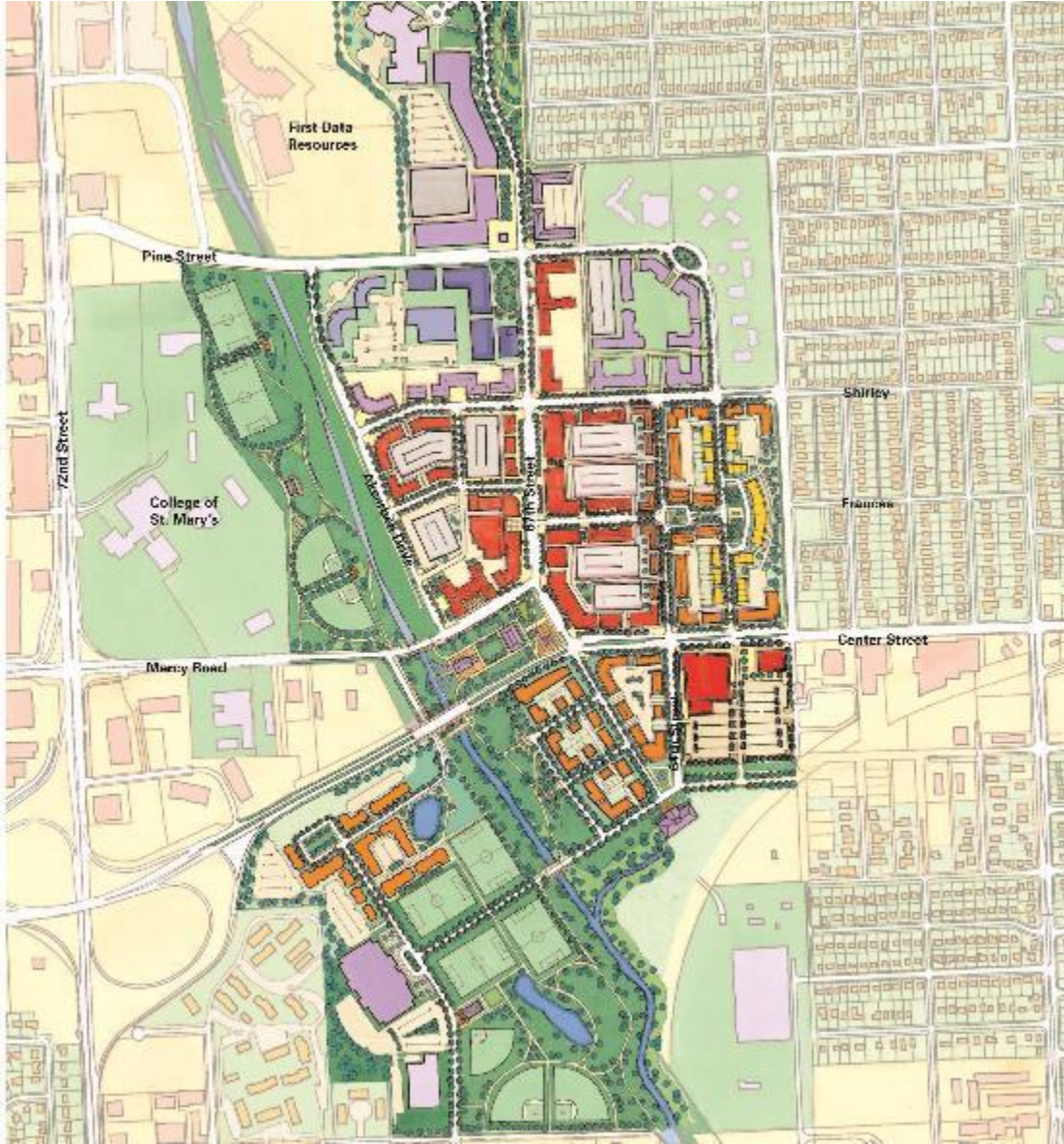
Site & Neighborhood Background



Site History – Aksarben Racetrack



Master Plan for Aksarben Village



Innovation Hub



Walkable Urban Neighborhood



Mobility Options

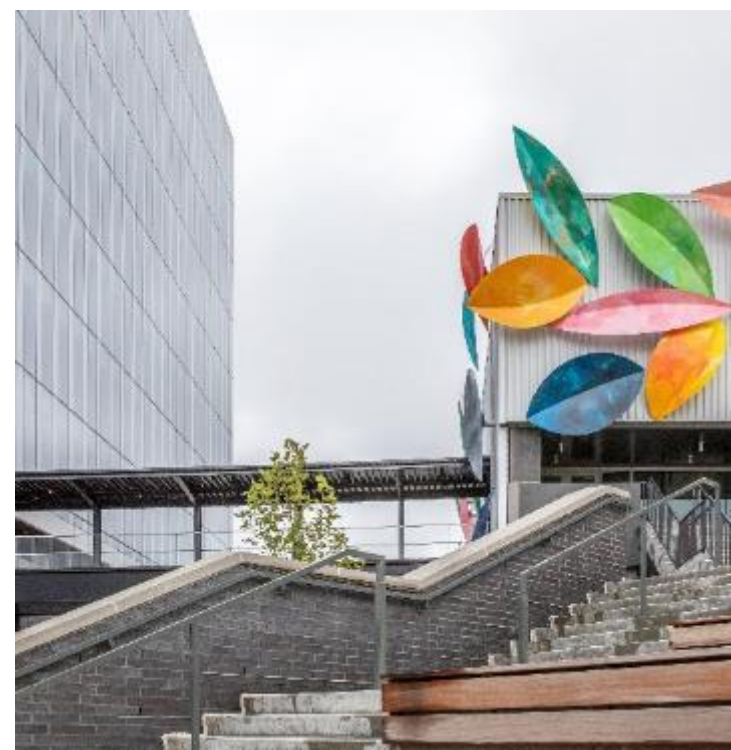


The Inner Rail



The Food Hall





The HDR logo is displayed in white on a dark blue glass facade of a building. The logo consists of the letters 'HDR' in a bold, sans-serif font. The building's facade is composed of vertical blue glass panels, and the interior lights are visible through the windows.

HDR

Global HQ Building Design and Certification

The number '1917' is displayed in a large, light-colored font on a white, perforated metal facade of a building. The facade is illuminated from within, creating a glowing effect. The building is a modern structure with a glass and metal exterior, and the number '1917' is prominently featured on the ground floor.

1917

Multi-Use Building



Interior Active Stairs







Health Impact Categories



**IMPACTS
COMMUNITY
HEALTH**



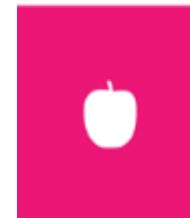
**REDUCES
MORBIDITY +
ABSENTEEISM**

**INSTILLS
FEELINGS OF
WELLBEING**



**SOCIAL EQUITY
FOR VULNERABLE
POPULATIONS**

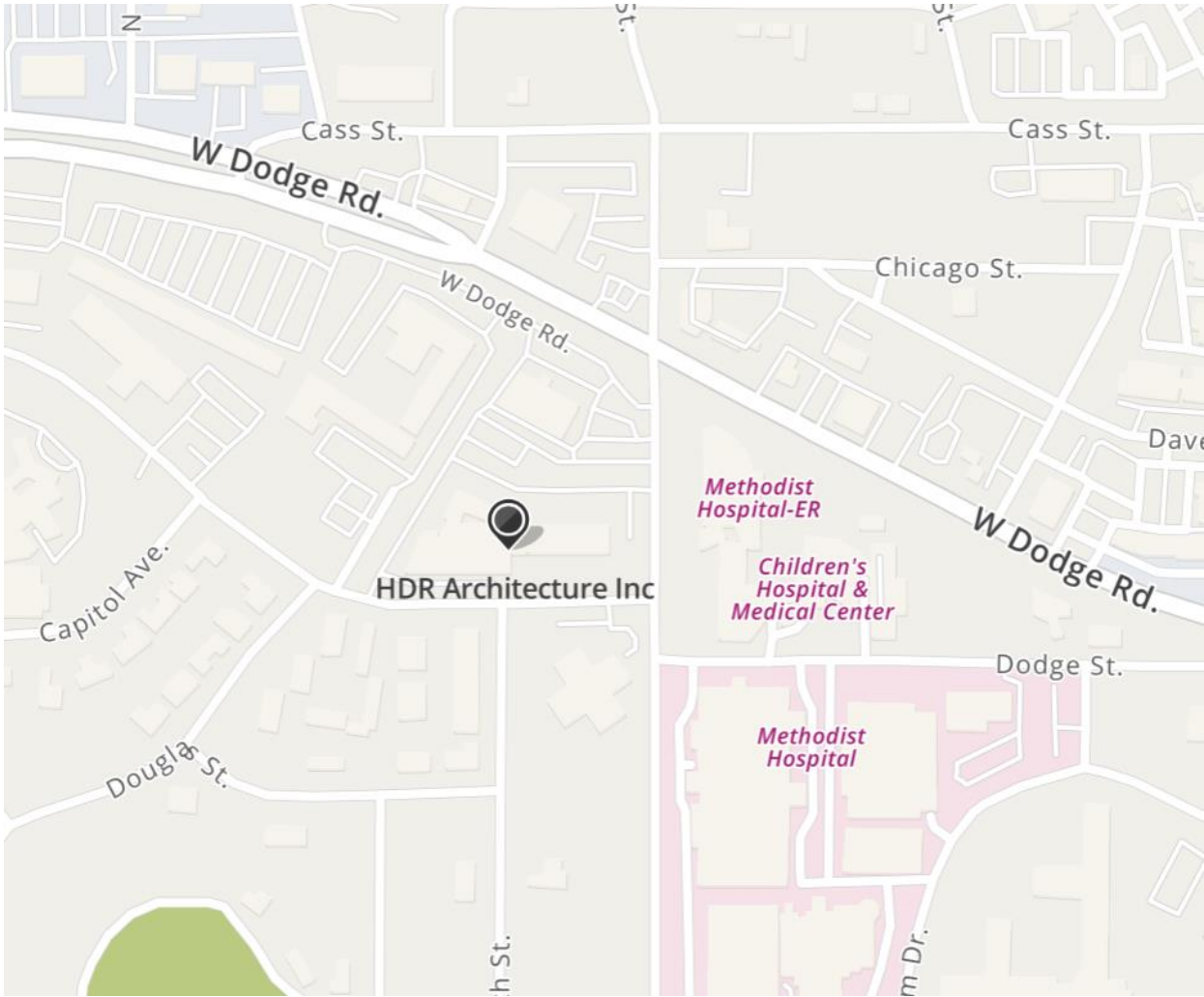
**PROVIDES HEALTHY
FOOD OPTIONS**



**INCREASES
PHYSICAL
ACTIVITY**

**PROMOTES
OCCUPANT
SAFETY**

Global Headquarters, 1972-2018



Natural Experiment of Employee Sedentary Behavior & Physical Activity

The image shows a bright, modern office space. The ceiling is a vibrant blue with exposed ductwork and several white pendant lights. Large windows on the left side offer a view of the outdoors. In the foreground, there are several long, light-colored tables with grey chairs. In the background, a white counter area, likely a cafe, is visible with a sign that says "CAFE 150". Several people are seen walking or sitting at the tables, engaged in work or conversation.

Why Focus on SB and PA?



Study Hypotheses

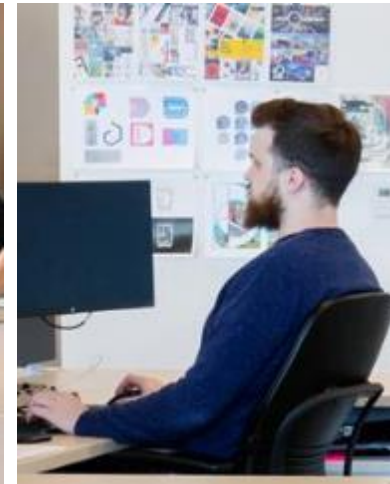
Hypothesis 1

The holistic design and neighborhood location of the new HDR HQ in Omaha will

- A. **Reduce sedentary behavior** among employees during work time, and
- B. **Increase physical activity** among employees during work time.

Hypothesis 2

A programmatic Step Challenge program will have incremental desirable effects on these health behaviors during work time.



Research Design

Natural Experiment

- **Intervention Group (Omaha NE)**
Employees moved in Nov-Dec 2018 from an older facility in an automobile-centric location to the new HDR HQ facility in recent highly walkable mixed-use development
- **Control Groups (Denver CO, Arlington VA)**
Employees continued to work in facilities that did not move during the 2018-2019 time period



Accelerometer-Measured SB and PA Outcomes

- Time in SB
- Breaks from SB
- Length of SB bouts
- Time in LPA
- Time in MVPA

Control Variables

- Age
- BMI
- Wear time
- Gender
- Race/ethnicity



Statistical Analysis
(Difference in Difference)

Specific Measures

DAILY WORK TIME IN...



Sedentary Behavior



Light Physical Activity



Moderate-to-Vigorous
Physical Activity (MVPA)

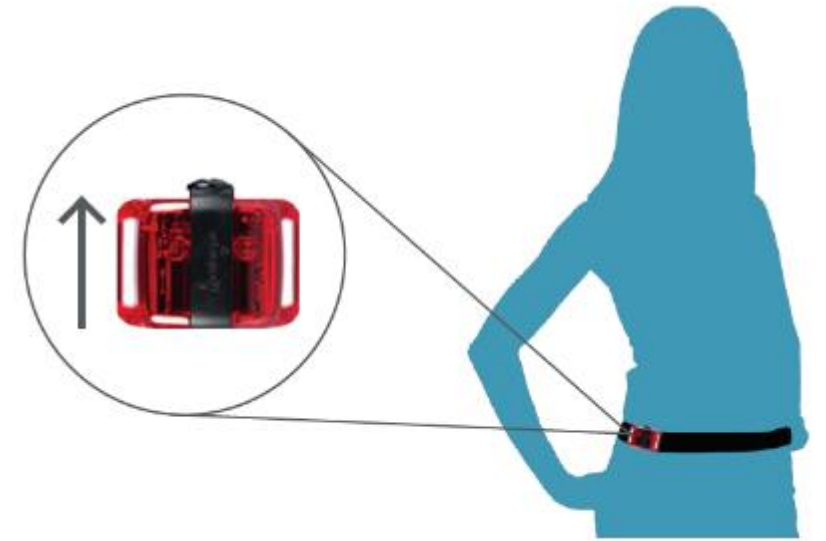
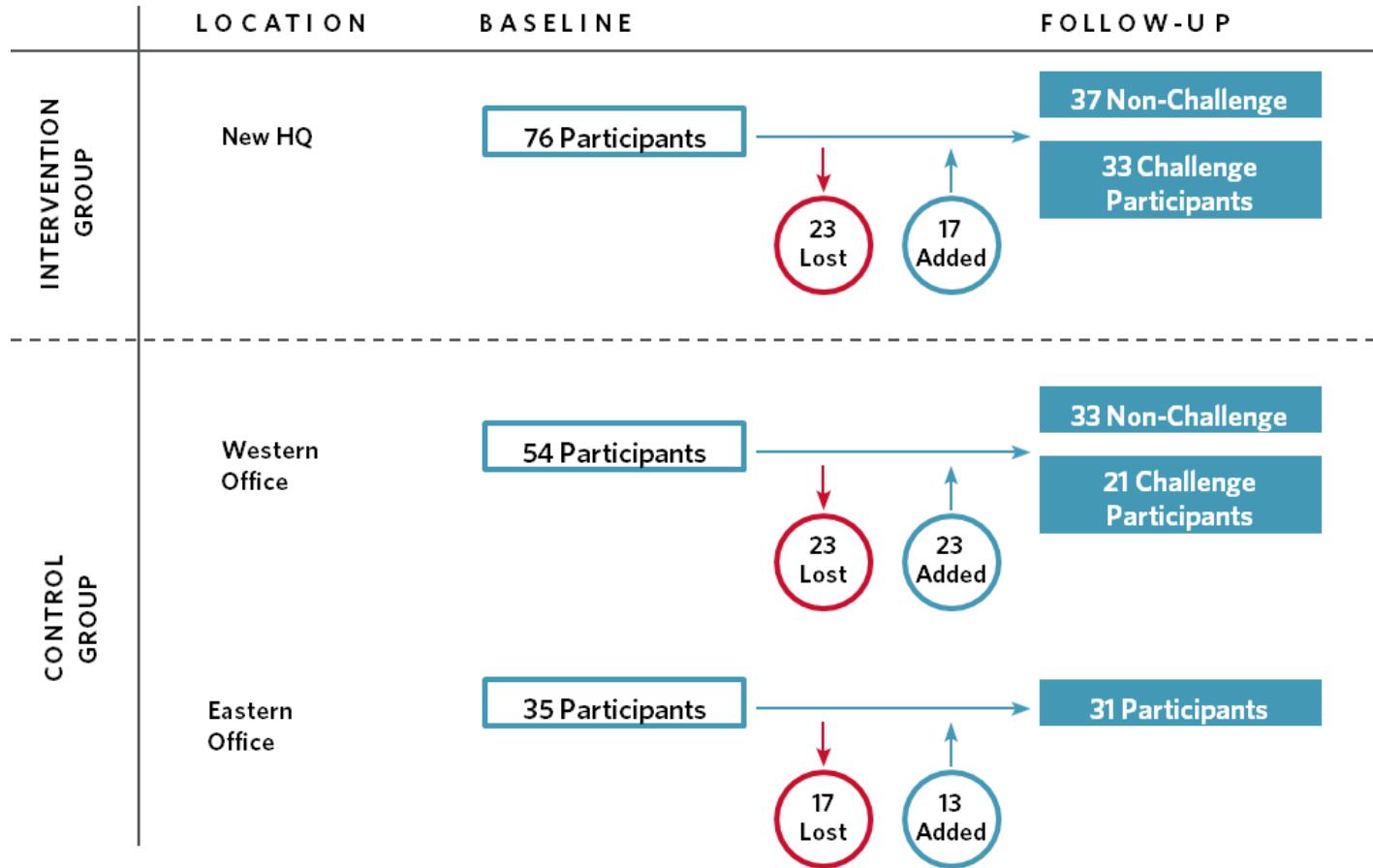
OVERALL WORK-TIME...

- Steps per Minute
- Steps per Work Day

DAILY ACTIVITY PATTERNS

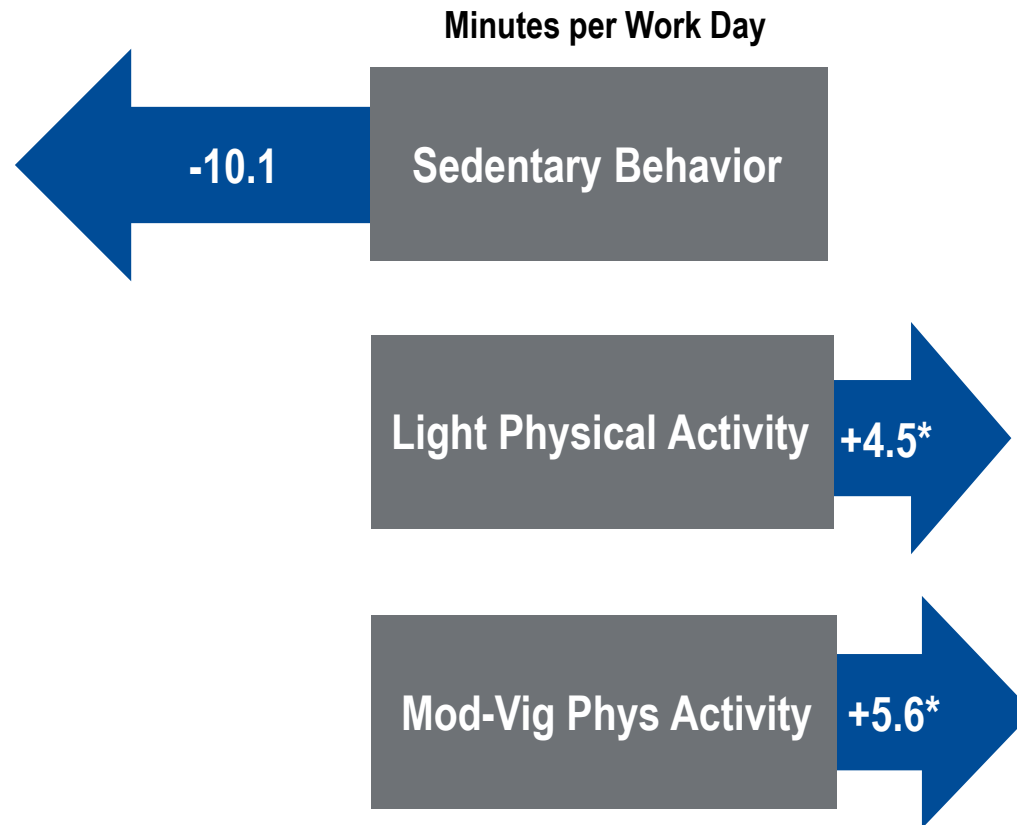
- Number of Sedentary Bouts
- Average Length of a Sedentary Bout
- Number of Sedentary Breaks
- Average Length of a Sedentary Break

Participants



Research subjects wore accelerometer devices that produce objective sedentary and physical activity measures.

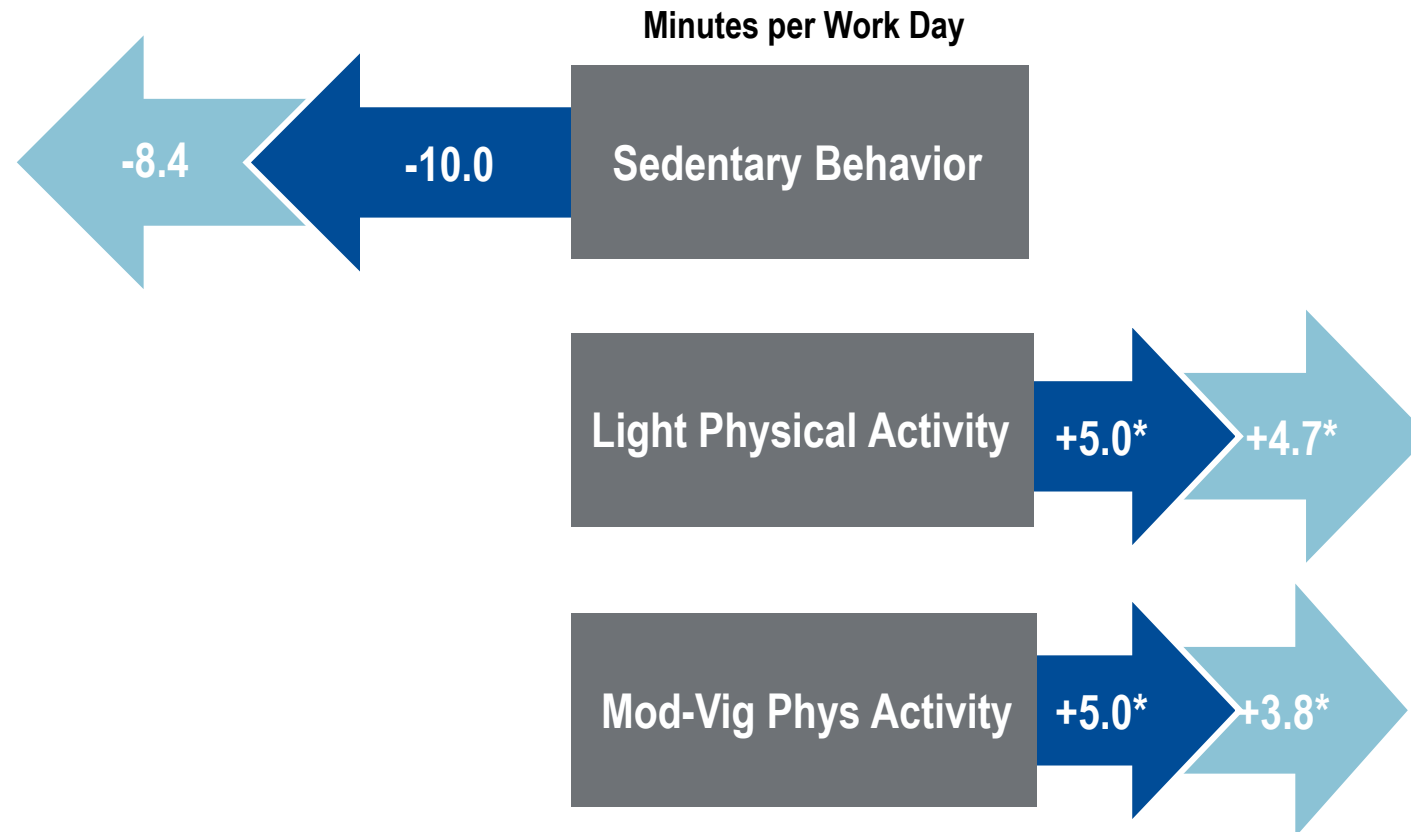
Results—Built Environment



 HQ Environmental Intervention

*Untransformed estimates

Results—Built Environment + Programmatic



 HQ Environmental Intervention

 Step Challenge Program (incremental)

*Untransformed estimates



Key Take-Aways

- Neighborhood and office design play a role in improving employee physical activity-related behaviors
 - Environmental and programmatic interventions work even better in tandem
- In planning and designing workplace environments, purposefully incorporate holistic health and wellness goals
- More generalizable studies are still needed; seek opportunities to integrate evaluation in development projects



Thank you!

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