

Using Wireless Scales in Weight Loss Studies





Introduction

Connect and Measure

Wireless scales can connect to research study technology platforms, creating a virtual connection between coordinators and participants. The primary value of wireless scale is that, once connected, they can transmit data directly to the researcher with little effort needed from the participant. This can reduce or eliminate the need for in-person visits for weigh-ins. It also has the value of giving researchers more complete data, since participants do not have to take any additional steps to transmit their measurements to the research team.

In order to make the study convenient for the participating employees, we provided participants in 3 of the 4 study arms with wireless scales for ongoing home use (the control group did not receive scales). This reduced the need for in-person visits to assess weight change. It also made self-report of weight unnecessary and improved the accuracy of measurement.

Wireless home scales are accurate to 0.2 lbs.± and allow for multiple users. The scales have ID recognition features that prevent transmission of other household members' weights to the study investigators.

Each participant in the study was sent a Withings* wireless scale, along with instructions on how to set it up, connect to Wi-Fi, and connect to the UPenn technology platform. They were sent text message reminders to weigh themselves first thing in the morning, every day, on the scale. An experienced research coordinator provided technical support throughout the study. (In this study, in-person weights were also collected by trained research staff every 6 months at the participants' worksites.)

The use of wireless scales provided accurate weight data to the study on an ongoing basis and reduced the expense of scheduling in-person data collection. Technical support was key to ensure that the devices were connected properly, enabling transmission of participants' daily weights to the study center.

**Withings is the brand used in the study at the University of Pennsylvania, more options can be found by searching "wireless scale options" in your browser, and find resources on page 5.*

The Study

Our research team at the University of Pennsylvania Prevention Research Center (UPenn PRC) conducted research on the most effective strategies to promote weight loss in overweight/obese employee populations. We designed and implemented an 18-month intervention study with a 6-month follow-up at three large employers in Philadelphia. Employees were randomly assigned one of four different strategies: financial incentives for meeting weight loss goals, environmental change messages that promoted healthy eating and physical activity, combined incentives and environmental change messages, and a "usual care" control group that involved using the worksite's wellness resources and programs. The study compared how effective each strategy was for achieving weight loss.

Benefits of the Withings Digital Scale:

- **Ability to measure full body composition**
- **Ability to view progress over time, with stored data**
- **Wi-Fi enabled**
- **Affordable (under \$100)**
- **Track nutrition on the smartphone app****
- **Daily calorie budget based on your weight goal****
- **Up to 8 people can use the scale****

*** The Healthy Weigh study did not use these features.*

How to use this guide:

- **Design your study using similar tools.**
- **Use the directions for installation as a model for communication with study participants, who will be using a digital scale and a smartphone.**

Using a Wireless Scale

How we used the scale and software

This study used a web-based platform to enroll, communicate with, and track participant weight change. Wireless scales were used by participants in the three treatment groups (but not the control group) to digitally transmit daily/weekly weights. All daily weigh-ins were tracked through a remote website platform.

We asked participants to weigh themselves daily on the wireless scale, and every 6 months we asked them to come in for an in-person weight check – usually held at their workplace for convenience.

Our study used Withings scales and followed their instructions, but other brands use similar technology, and that technology is evolving rapidly. Users of the toolkit should search out the best option(s) available when designing their research. (See “Publications & Resources” on page 5.)

What you need:

- **A wireless scale**
- **Online account (comes with the brand you purchase)**
- **Computer, tablet or mobile phone**
- **Health Mate app or similar app on a mobile device**
- **Web-based platform to collect data - we used the University of Pennsylvania - Way to Health platform**
- **Technical support team available to the study participants**

1

Participant receives the scale at home, and configures it according to directions for daily weigh-ins.



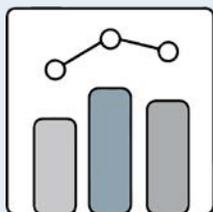
2

The research team connects with the participants through a web-based platform and app to collect data.



3

The weigh-in data is gathered and analyzed by the research team.



Using a Wireless Scale

Instructions for using the Wireless Scale

We provided support to the participants of the study, including detailed instructions to set up the connection between the scale and their mobile phone. It's important to make sure the participants' mobile phones are compatible with the scale before they get started.

1. **Download the Health Mate app**
2. **Set up an account**
3. **Connect the device**
4. **Tap Scales > Wireless Scale**
5. **Tap Install**
6. **Turn on the scale (make sure the battery tab has been removed)**
7. **Tap Next "Wireless Scale Connected"**
8. **Enter the account information and confirm your password**
9. **Set up Wi-Fi network**



Multiple Users

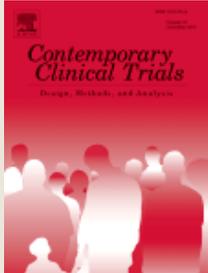
Most wireless scales can manage up to eight users on one scale. You can either "Share Your Scale" in one account, so that everyone has access to the data of the others, or you can set each person up with their own Health Mate app, keeping their data private.

Note that the "Share your scale" option is only available if you have originally set up the scale in Wi-Fi. If you've set it up in Bluetooth, you'll have to install the scale from scratch on the new account.

Data Collection and Security

Withings provides data collection products to accurately track a participant's activity, blood pressure, weight, sleep, and temperature. The manufacturers have designed the system with banking-grade encryption methods—and Withings employees cannot access identifiable personal health data without user consent. Contact the support and logistics team if you plan to use a wireless scale in your research, so they can make sure you have the tools you need for your study.

Publications & Resources



K Glanz, P.A.Shaw, K Hoffer, A Chung, J Zhu, R Wu, Q(Erin)Huang, Ji (Rebekah) Choi, K.G.Volpp. **The Healthy Weigh study of lottery-based incentives and environmental strategies for weight loss: Design and baseline characteristics.** *Contemporary Clinical Trials*, 2019 Jan; 24-30

[DOI: 10.1016/j.cct.2018.10.013](https://doi.org/10.1016/j.cct.2018.10.013)

The best smart scales for 2020: Withings, Fitbit, Garmin, Eufy and JaxJox

by Sarah Mitroff

cnet.com - Health and Wellness

April 4, 2020

<https://www.cnet.com/health/best-smart-scale-for-2020-withings-fitbit-garmin-eufy-jaxjox-compared/>

What Are the Best Digital Bathroom Scales?

By Karen Iorio Adelson

New York Times - The Strategist

February 19, 2019

<http://nymag.com/strategist/article/best-digital-smart-scales-for-bathroom.html>

Smart scales measure a lot more than weight

By Julianne Ross

CNN Underscored

January 4, 2019

<https://www.cnn.com/2019/01/04/cnn-underscored/best-smart-scales/index.html>

Steinberg D, Tate D, Bennett G, Ennett S, Samuel-Hodge C, Ward D. **The efficacy of a daily self-weighting weight loss intervention using smart scales and email.** *Obesity Journal*, March 20. 2013, 21:9,1789-1797

<https://doi.org/10.1002/oby.20396>



Acknowledgements



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The UPenn Prevention Research Center would like to thank the staff and participants from the following employers: The largest health insurer in the Philadelphia area, Independence Blue Cross (IBC); the regional public transportation authority in Philadelphia, Southeastern Pennsylvania Transportation Authority (SEPTA); and the City of Philadelphia, the largest employer in Philadelphia.

Visit <https://www.upennprc.org/research-prc/healthy-way-study-core-research-project/> to learn more about the study.



This study was supported by Cooperative Agreement Number, 1U48DP005053, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or HHS.

