

Measures of Health

Sydney Kantor

November 4th, 2022



**Icahn School
of Medicine at
Mount
Sinai**

Financial Disclosures:

I have no disclosures.



Objective

- Conduct an online search for quantitative measures of health
- Search list included:
 - “Measure of health”
 - “Measuring women’s health”
 - “Measuring men’s health”
 - “At home health measurements”
 - “Common health metrics”
 - “Easy health measure”
 - “How can I check my health”



Weight Measurement

BMI

- Calculation of weight and height that calculated body fat
- Higher BMI → higher risk for certain diseases
 - i.e. heart disease, high blood pressure, etc...

Waist Circumference

- Measurement taken around the abdomen
 - Around the navel for men, level with the least width for women
- More fat around ones waist rather than their hips puts them at a higher risk for:
 - Heart disease, type 2 diabetes, etc...
- Risk increased with waist size
 - Greater than 35in for women, greater than 40in for men



Assessing Your Weight and Health Risk

HEART MATTERS

British Heart Foundation

More than a magazine: information, inspiration and support

What's the best way to measure body fat?

Being overweight or obese increases your risk of many health problems. But it's not just the amount of fat: where it is matters too.

Fat around the abdomen (belly) is linked to even higher risks of diabetes, heart and circulatory disease and cancer.



10-Second Balance Test

The New York Times

WHY NOT TRY

Can You Pass the 10-Second Balance Test?

This simple, often neglected skill can pay huge dividends later in life.

By Hilary Achauer
Published Aug 12, 2022 Updated Aug 13, 2022

THE IRISH TIMES

Your Fitness

Can you pass the 10-second balance test? Maybe it's time to try these five exercises

Balance training is an important, but often-neglected skill – one that affects our longevity and quality of life

Hilary Achauer
Mon Aug 29 2022 - 06:01

NEWS 10-second balance test may predict how long you'll live

HEALTH NEWS

Researchers found that people who couldn't stand on one foot were nearly twice as likely to die in the next 10 years.

June 23, 2022, 4:43 PM EDT





By Linda Carroll



10-Second Balance Test

Original research

Successful 10-second one-legged stance performance predicts survival in middle-aged and older individuals

Claudio Gil Araujo ,¹ Christina Grüne de Souza e Silva ,¹
Jari Antero Laukkanen ,^{2,3} Maria Fiatarone Singh ,⁴
Setor Kwadzo Kunutsor ,^{5,6} Jonathan Myers ,⁷ João Felipe Franca ,¹
Claudia Lucia Castro ¹



10-Second Balance Test

Article first published June 21, 2022 in the British Journal of Sports Medicine

- Inability to balance is associated with a twofold risk of death from **any cause** within 10 years
- Strength and balance tend to decrease with age, quickly diminishing after the mid-50's
 - Results in **frailty**
- Balance training affects both longevity and quality of life
- Balance can be impacted by many things, including:
 - Cataracts
 - Slowing of the nerve signals from feet to brain



Five Do-It-Yourself Tests

1. One legged standing test
2. Sit-to-stand test
 - Average time per age: 60's- 11.4 seconds, 70's- 12.6 seconds, 80's- 14.8 seconds
 - Evaluates **lower extremities strength & long-term health**
3. Push-up test
 - Useful for measuring **musculoskeletal health**
 - Male participants (average age 40) unable to complete 10 push-ups were at a significantly higher risk for **cardiovascular disease** compared to men who could do >40
4. Six-minute walk test
 - How far can you walk in 6-minutes? Under 350ft can indicate other health issues relative to **cardiovascular and lung health**
5. Cognitive test
 - Self-Administered Gerocognitive Exam (SAGE) an at home 10-15min
 - Help detect early signs of **cognitive, memory, or thinking impairments**



Measuring Heart Rate Variability

- Smartwatches track and measure:
 - Steps, distance traveled, active minutes, floors climbed, calories burned, heart rate & heart-rate zones, sleep time & quality, & pace.
- HRV- Amount of time between each heartbeat
- Values needed for measuring HRV:
 - Resting and max heart rate, exercise, and sleep patterns
- Varies by age and individual
- **Higher HRV = Healthier Lifestyle**
 - Can be a reflection of how much **stress** your body is under and an insight into overall **fitness level**

CNET Your guide to a better future

Most People Aren't Tracking This Key Health Metric (and They Should Be)

You've likely measured your heart rate or pulse, but what about your heart-rate variability?



Mercey Livingston

July 10, 2022 9:00 a.m. PT

5 min read



Sarah Tew/CNET

Scales Can Measure More than Just Weight

1. Bone Mass

- Low bone mass increases risk of fractures
- Increased bone density helps reduce osteoporosis

2. Total body water percentage

- Measures extracellular water
- Too much extracellular water may indicate possible malnutrition, heart, liver, or kidney disease

3. Body fat percentage

- Lower percentage of body fat is indicative of better health while a higher percentage puts one at a greater risk for cardiovascular disease
- For women, too low a percentage can cause amenorrhea

4. Muscle mass

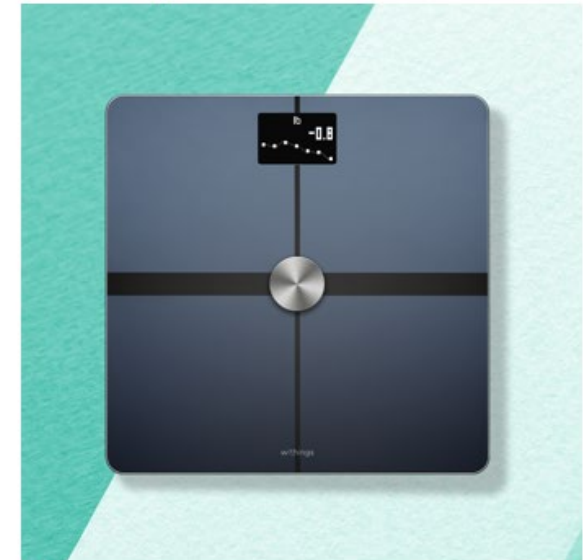
- Higher muscle mass increases metabolic rate, prevents falls, and can protect against developing diabetes

Women'sHealth

Why You Might Want To Get A Scale That Measures More Than Just Your Weight

It's all about getting an overall snapshot of your health.

BY EMILY ABBATE PUBLISHED: MAY 15, 2019



Next Steps

- How can technologies and imaging measure similar health indicators, including
 - **Overall fitness**
 - **Frailty**
 - **Body measurements**
 - **Body composition**



Thank you



**Icahn School
of Medicine at
Mount
Sinai**