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HABITS ACADEMY→(HTTPS://HABITSACADEMY.COM/) How to Master the Invisible Hand That Shapes Our Lives

Looking back, the most surprising thing about Robert Wadlow was his normal height and weight at birth. When he was born on February 22, 1918, Wadlow weighed 8 lbs 6 ounces (3.8 kg) and was 20 inches tall (0.51 m).

There was nothing normal about what happened next.

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Within six months, Wadlow had doubled in height and quadrupled in weight. As a one-year-old, he was over 3 feet tall and weighed the same as the five-year-olds in his neighborhood. By the age of five, Wadlow had exploded to 5 feet 6 inches tall. On his first day of kindergarten he wore clothes made for a seventeen-year-old.

Wadlow suffered from an overproduction of human growth hormone caused by hyperplasia of his pituitary gland. To put it more simply: most humans have an internal feedback loop that regulates the production of growth hormone, but Wadlow's feedback loop was broken.

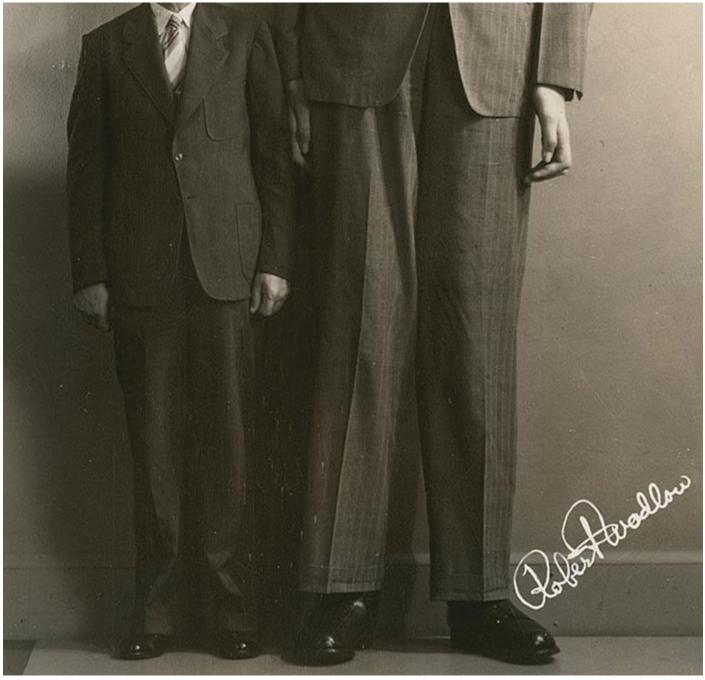
Instead of regulating and balancing the production of growth hormone, Wadlow's pituitary gland reinforced the production of the chemical. The more he grew, the

more his body released growth hormone. It was like a car going downhill without a brake. His growth kept picking up speed.

By the age of 12, Wadlow was over 7 feet tall (2.18 m) and weighed nearly 300 pounds (130 kg). When his uncontrolled growth propelled him over 8 feet (2.54 m) at the age of 18, he went on a tour around the United States with Ringling Brothers Circus.

Sadly, but not unexpectedly, the rest of his body could not keep pace. Wadlow outgrew his nervous system and began to lose feeling in his legs and feet. His immune system began to shut down. When Wadlow died at the age of 22, he was the tallest human in recorded history at 8 feet and 11.1 inches (2.72 m) and by all indications he was still growing.





Robert Wadlow pictured with his normal-sized father, who was 5 feet 11 inches (1.82 m). (Photographer: Unknown)

The Hidden Power of Feedback Loops

The human body is governed by a wide range of feedback loops. These systems maintain a careful balance of everything from the amount of water in your cells to

the amount of hormones released into your bloodstream.

Feedback loops are always running in the background of our lives, but they influence our bodies and minds in profound ways. When each process works as intended, our bodies function properly and we remain balanced. When something in the system breaks, we steadily slip away from equilibrium. In extreme cases, things spiral out of control — like the growth of Robert Wadlow.

Here's the important part:

Feedback loops are not only at the core of human biology, but also at the center of human behavior. Like the biological processes mentioned above, psychological feedback loops often run unnoticed in the background of our daily lives. They can influence everything from how fast we drive to how frequently we take our medications to how often we check social media. In fact, I would say that feedback loops are the invisible forces that shape human behavior.

In this article, we're going to talk about how you can harness the hidden power of these systems and use feedback loops to stick with good habits and break bad ones (https://jamesclear.com/habits).

The Two Types of Feedback Loops

"Feedback loops provide people with information about their actions in real time, then give them a chance to change those actions, pushing them toward better behaviors." —Thomas Goetz

We can divide feedback loops into two different types:

- 1. Balancing Feedback Loops: we will use these to moderate bad habits.
- 2. Reinforcing Feedback Loops: we will use these to build good habits.

Generally speaking, balancing feedback loops are associated with maintaining equilibrium or oscillating around a desired level. Meanwhile, reinforcing feedback loops are associated with continuous increases or decreases. Let's break down each type and discuss how to use it to improve your habits.

1. Balancing Feedback Loops

Balancing feedback loops pull behavior back on track and help to stabilize a system around a desired level. These systems can be very effective at both moderating bad habits and kickstarting good habits.

Here's a common example:

Let's say you are driving just a little too fast and you pass a digital radar sign that says, "Your Speed Is..." and displays the current speed of your car as you pass.

You might not expect it, but these signs are incredibly reliable and effective ways to change the behavior of drivers. On average, "Your Speed" signs decrease the driving speed by 10 percent. Not only that, but drivers continue to drive more slowly for miles down the road.

These signs are one example of a balancing feedback loop. The output of your current behavior (driving too fast) becomes the input for your new behavior (slowing down).

The thermostat is another example:

Imagine that you set your thermostat to 68 degrees Fahrenheit (20 degrees Celsius). When the temperature of the room dips below your setting, the heater comes on and warms up the room. When the temperature rises above your setting, the air conditioning kicks on and cools the room. The thermostat acts as a balancing feedback loop and keeps the temperature oscillating between a narrow range.

How can we apply balancing feedback loops to governing bad habits and building good ones?

Here are a few examples:

- Want to spend less time staring at a screen? Buy an outlet timer (https://jamesclear.com/go/outlet-timer) and set it to turn off one hour before your desired bedtime each night. When the power shuts down, this feedback loop is reminding you not to spend too much time staying up late and staring at your computer screen or television.
- Want to improve your posture? Assume an upright stance and place a piece of tape across your shoulder so that it tugs on your shirt if your shoulders sag. This simple balancing feedback loop will trigger a reminder to stand up

straight each time you feel a tug.

• Want to make more sales? The paper clip strategy (https://jamesclear.com/paper-clips) is a simple way to build a feedback loop that will measure your progress on daily sales calls. (In fact, it can work for any repeated task.)

Balancing feedback loops are fantastic at regulating bad habits because, similar to a thermostat, they can attack the problem from two sides. On one side, they can keep unproductive or unhealthy behaviors in check by making you aware of your mistakes (like displaying your speed or automatically shutting off your outlets). On the other side, they can remind you to perform good behaviors rather than slipping back into old patterns (like a piece of tape pulling on your slumping shoulder or a paper clip sitting in a bin on your desk).

2. Reinforcing Feedback Loops

Reinforcing feedback loops increase the effect of a particular system or process. These systems can be great for building good habits (https://jamesclear.com/habits) and achieving peak performance (https://jamesclear.com/goldilocks-rule) because they naturally amplify and strengthen their own behavior.

Here's one example from my own life:

I am the happy owner of a Honda Accord. On the dashboard of my car, there is a light that circles the speedometer. This light changes color based on how I am driving. If I drive aggressively and accelerate quickly, the light is white. If I

accelerate moderately, the color changes to light green. If I drive in a fuel efficient manner, the light turns bright green. Whenever I see the green light around my speedometer, I know that I'm saving gas and driving in the most fuel efficient way possible.

When I first bought the car, I didn't think much of it, but now this simple light has essentially turned driving into a game where I am constantly trying to live in the green zone. The light is a reinforcing feedback loop that emphasizes many good behaviors: I save gas, I save money, and I probably drive safer and more slowly as well.

Compound interest is another example of a reinforcing feedback loop:

Let's say you start with \$1.00 and get paid 10 percent interest each year. After one year, you have \$1.10. The next time around, you get paid 10 percent interest on \$1.10 and now you have \$1.21. And so the cycle continues with each run through the feedback loop compounding into larger and larger growth. Of course, reinforcing feedback loops can amplify the impact of harmful behaviors as well. The more people hear an untrue rumor, the more the rumor spreads. Gossip is a self-reinforcing feedback loop.

How to Build Your Own Feedback Loops

I would like to offer a simple three-step method for building feedback loops in your life.

- 1. Measure
- 2. Compare
- 3. Adiust

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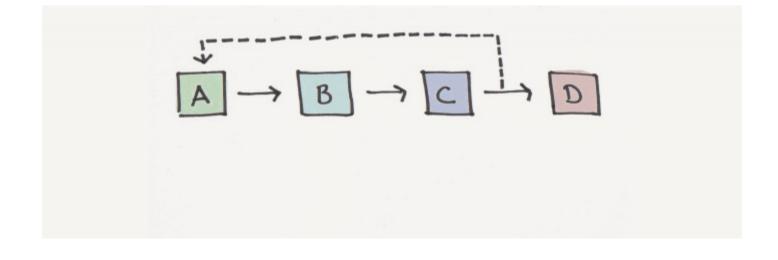
Let's break down each step of this framework.

Measurement is the foundation of every feedback loop. All feedback loops have one key characteristic: the output from one cycle becomes the input for the next cycle. In other words, all feedback loops measure something and that measurement becomes the starting point for the next cycle of behavior. Data improves awareness and awareness is the first step to behavior change.

Comparison is essential for making sense of your feedback loop.

Measuring something is useless if it's not relevant to you. Remember the "Your Speed Is..." sign from earlier? That reading of your current speed is only relevant when compared to the actual speed limit. It is the comparison between where measurement says you are and where you want to be that makes the next step clear. Effective feedback loops help you make comparisons that are personal and relevant.

Adjustment is the action that closes the feedback loop. Adjustments should be made as quickly as possible. The more rapid the change, the tighter the feedback loop. In the words of Seth Godin, "The best way to change long-term behavior is with short-term feedback."



Why Some Feedback Loops Work While Others Fail

One bad habit that commonly frustrates physicians is when a patient doesn't take their medications as frequently as prescribed. A few years ago, a company called Vitality launched a new product called the GlowCap (https://www.youtube.com/watch?v=zuz6xau5MJ8), which was intended to help solve this problem.

Here's how WIRED Magazine described the product:

"The device is simple. When a patient is prescribed a medication, a physician or pharmacy provides a GlowCap to go on top of the pill bottle, replacing the standard childproof cap. The GlowCap ... connects to a database that knows the patient's particular dosage directions—say, two pills twice a day, at 8 am and 8 pm. When 8 am rolls around, the GlowCap and the night-light start to pulse with a gentle orange light. A few minutes later, if the pill bottle isn't

opened, the light pulses a little more urgently. A few minutes more and the device begins to play a melody—not an annoying buzz or alarm. Finally, if more time elapses (the intervals are adjustable), the patient receives a text message or a recorded phone call reminding them to pop the GlowCap. The overall effect is a persistent feedback loop urging patients to take their meds."

-WIRED

When feedback loops fail, it is often because of one of these three problems:

- 1. Measurement isn't automatic.
- 2. Comparison is irrelevant.
- 3. Feedback is slow.

The GlowCap solves all three of these problems and that makes it an excellent feedback loop. First, it tracks your consumption and reminds you when to take your pills automatically, so you don't have to worry about measurement. Second, it is specifically tailored to your prescription, which makes it instantly relevant to your needs. Third, it provides feedback quickly when you get off track: first the light, then the music, and finally the text message or phone call. Solving these three problems is essential to building an effective feedback loop.

Rapid Feedback Leads to Rapid Change

Here's a simple fact: most people, most of the time, don't know where they stand on the issues that are important to them.

People want to lose weight, but don't know how many calories they eat each day. People want to learn a new language, but they don't know how many hours they practiced last month. People want to write a best-selling book, but don't know how many words they wrote last week. People want to build a successful business, but don't know how many sales calls their team made yesterday. People want to get stronger, but don't know how much weight they lifted at the gym last week. Most people don't measure things, and a feedback loop can't happen without measurement.

My argument is that we should spend less time letting feedback loops shape our lives in invisible ways and more time designing the feedback loops we want and need.

In the unexamined life, it can be easy to slide into a downward spiral of bad habits and unproductive behaviors because of poorly designed feedback loops that trigger us to eat more, smoke often, and worry too much. Thankfully, the reverse is true as well. Carefully designed feedback loops can help us stick with good habits and regulate behaviors that would be unhealthy if they spiraled out of control.

Feedback loops influence everything from the bodies we live in to the choices we make on a daily basis, but most of the time we are victims of the feedback loops that surround us not the architects of them.

FOOTNOTES

- 1. One study conducted in Garden Grove, California, noted a 14 percent decline and community leaders decided to install dozens of signs across the city.
- 2. Thanks to Thomas Goetz and his article (https://www.wired.com/2011/06/ff_feedbackloop/) in WIRED magazine on feedback loops. In particular, his examples of the "Your Speed Is..." sign and the GlowCaps product helped spark my ideas for this article.



Thanks for reading. You helped save a life.

Whenever you buy one of <u>my books (https://jamesclear.com/books)</u>, join the <u>Habits Academy</u> (<u>https://habitsacademy.com</u>), or otherwise contribute to my work, 5 percent of the profits are donated to the Against Malaria Foundation (AMF).

With each donation, AMF distributes nets to protect children, pregnant mothers, and families from mosquitos carrying malaria. It is one of the most cost-effective ways to extend life and fulfills my bigger mission to spread healthy habits and help others realize their full potential.

MALARIA NETS DISTRIBUTED

30739

PEOPLE PROTECTED

317

YEARS OF ADDITIONAL LIFE

9

LIVES SAVED

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