APPIFIED

Culture in the Age of Apps

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Health/Fitness

LoseIt!

Calorie Tracking and the Discipline of Consumption

NATASHA SCHÜLL

App: LoseIt!
Developer: FitNow
Release Date: July 2010 (Current Version: 9.1.11)
Category: Health and Fitness
Price: Free / Premium $39.99/yr
Platforms: Android/Blackberry/iPhone
Tags: diet, agency, self-regulation
Tagline: "Helps you stay in your calorie budget"
Related Apps: MyFitnessPal, MyPlate, MyDietCoach, Lifesum, FatSecret, CalorieKing

LoseIt! appifies weight management—and, by extension, health—through features that mitigate the tedium of tracking and budgeting caloric intake. The premise is that users will make better decisions about what and how much to eat when equipped with a digital assistant to keep track of the cumulative caloric consequences of these mundane choices. This review is concerned with the assumptions about human agency and the technological mediation of health that inhere in the app's design logic, marketing appeals, functional affordances, and user practices.

I approach these assumptions in a genealogical spirit, stepping back in time to explore a trio of artifactual antecedents to the LoseIt! app: a sixteenth-century "static chair" for home use, the Victorian bathroom scale, and portable calorie counting tools. Each, in its respective historical context, participates in a nervous social debate over proper self-conduct in relation to changing norms of health consumption and the risks of dependency on external devices. A consideration of these earlier instruments and debates lays the groundwork for an examination of contemporary weight management apps, allowing us to better grasp what is—and is not—novel about their design features, the demands they make on users, the associations they draw between mundane comportment and health, and the ways they fail.

Body in the Balance: The Static Chair

For over thirty years, the sixteenth-century Venetian physician Santorio meticulously weighed his body, all he ate and drank, and the bodily waste he produced. He began after learning, to his astonishment, that for every eight pounds of food and drink he consumed he evacuated only three.[1] To account for the difference, he drew on the classical theory of "insensible perspiration," or the wafting of moisture through the skin's pores. Because it was imperceptible, argued Santorio in his 1614 *Ars de Statica Medicina*, the only way to determine—and manage—these worrisome quanta was via rigorous weighing.[2]

The doctrine of static medicine derives from the Hippocratic notion of bodily health as an essentially preservative endeavor: a body that weighs the same amount every day is a healthy body. "If there daily be an Addition of what is wanting, and a Subtraction of what abounds, in due Quantity and Quality, lost Health may be restor'd, and the present preserved," wrote Santorio (Dacome 2001, 474).[3] To support this self-balancing act, he devised several tools, including a table and bed that doubled as scales and a contraption he called the "static chair" that hung from the beams of his home (see fig. 1); seated here, he took all of his meals.[4]

For over a century, Santorio's methods inspired self-experimenters around the world—from Benjamin Franklin to King Frederick of Prussia—to build their own static chairs in the quest for the equilibrium of health (Dacome 2012, 385).[5] Thus reads an entry from the "tedious calculations" made by the South Carolina physician John Lining in the 1740s:

> eat 10 6/8 Ounces of roasted Lamb, Bread and Shallots, drank 40 Ounces of Punch, and used no Exercise; in these Two Hours made 3 3/8 Ounces of Urine and, being exposed to the Wind, perspired only 12 Ounces, though I sweated a little all the Time. (qtd. in Kuriyama 2008, 417)

Confinement to a chair was a small price to pay for access to the critical variable of "insensible" matter that, daily, departed Lining's body and demanded replenishment in equal measure.

More than a tool of accounting, the static chair was also a tool of behavioral regulation, notes Lucia Dacome (2001, 467); it "mechanically enforced the control of ingestion." Santorio advised would-be weighers that, prior to sitting in the chair to eat, they place at the opposite end of the hanging beam a weight equivalent to that of the food and drink they wished to consume so that once

Frontispiece, *De Statica Medicina*, 1615

the meal had been consumed, the seat would drop below the level of the table, "sanctioning the end of the meal"—as depicted in the much replicated frontispiece of a seated figure in the chair, his hand extended toward an unfinished meal now out of reach (Dacome 2012, 381).

A century after the publication of Santorio's treatise, medical authorities began to object to the power his weight-tracking system vested in the chair itself. They worried that dependency on the chair—both as a tool of measurement and an enforcer of conduct—would atrophy users' natural sense of when and how much to ingest, ultimately depriving them of agency. In 1712 Scottish medical writer and apothecary John Quincy cautioned that adherents of the chair should avoid "the Exactness of the Sanctorian Calculations," lest they become obsessed with "how often they must weigh themselves, and whether they ought to drink and eat by the Ounce" (quoted in Dacome 2001, 478). Excessive self-scrutiny and submission to the dictates of the chair, warned the famous doctor George Cheyne, could pervert both one's appetite and one's capacity for self-regulation. "I do not dine and sup by the clock but by my chair," read a satirical letter in *The Spectator* penned by the political essayist Joseph Addison. The protagonist confessed that he had become slave to his static chair in an effort never to deviate from his ideal weight (of 200 pounds). "I used to study, eat, drink, and sleep in it; insomuch that I may be said, for these last three years, to have lived in a pair of scales." He concluded grimly that he found himself "in a sick and languishing condition."

At stake in Addison's satire was the "sick and languishing" condition of society in a context of rapid commercial expansion and rising consumption that posed new risks to the health of citizens and demanded of them new kinds of vigilance over their bodies. In league with anti-luxury campaigners, medical practitioners regarded "the over-consuming body as a body that was bound to perish, and warned that an over-consuming society was a society affected by a terminal disease" (Dacome 2001, 490). Healthy consumption was to be achieved by cultivating inner restraint, not by recourse to external technology. Along these lines, Quincy advocated "self-control rather than weighing on the Sanctorian chair" (480).

Truth Telling: The Bathroom Scale

Given that the static chair was not an object of widespread use, these heated warnings may seem out of proportion with its historical reality. But the stakes were high when one considers that the act of self-weighing was becoming

"part of well-bred people's daily practices of well-being" (Dacome 2001, 490) in the burgeoning consumer society. By the mid-1700s it had become fashionable for customers at certain London coffee shops (including women, by century's end) to periodically record their weight in store ledgers, and soon scales began to spread from learned and aristocratic homes to bourgeois European households.

As scales became more mundane, the way they supported health changed: instead of helping people keep their weight steady, they helped keep people honest about the consequences of their consumption habits. Weight was no longer a number to stabilize but rather an index of self-discipline, with the scale serving as a sort of lie detector or "materialized conscience," as Hillel Schwartz observes in his historical account of dietetics, *Never Satisfied* (1986, 17). If in the static tradition weighing had been performed to track the discharge of excessive, potentially polluting elements that threatened to *destabilize* weight (Kuriyama 2008, 433), now it was performed to track the intake of excessive, potentially polluting elements that threatened to *increase* weight.

As fatness became increasingly suspect in the Victorian era and "people began to accept the notion that the body when weighed told the truth about the self" (Schwartz 1986, 147), coin-operated penny scales came to occupy quotidian venues—railroad stations, pharmacies, fairgrounds—where they publicly chimed, sang, and flashed users' weights. Over time they became more muted and discreet and, eventually, moved into the personal sphere of the home bathroom, where unclothed bodies could be more precisely and routinely weighed (165). Stepping on the scale became a private reckoning with the effects of dietary choices on one's health and the fitness of one's figure, to be practiced "from the cradle to the grave," as one scale maker advertised (169; Crawford 2015). Anticipating the solutionism of present-day app developers, scale makers rebuked those naysayers who insisted that "dieting must be an act of internal regulation" (Schwartz 1986, 96) and sanctioned the daily use of self-gauging technology as an ethical way to live in consumer society.

Budgeting Diet: Calorie Counting

Reinforcing the transfer of cultural anxiety from the toxic residues of excrement to the superfluities of consumption, a new variable in the nexus of health and weight soon rose to dominance: the calorie, understood as a unit of energy contained in food and expended through bodily movement. "As a

habit of seeing through and beyond food, calorie counting gave dieters a power which no scale could equal" (Schwartz 1986, 177). In the 1930s, pocket-size calorie-counting notebooks and calculators gave material form to this new scale. Precursors to today's digital apps, these gadgets facilitated self-discipline by keeping track of the accretion of small acts of consumption throughout the day. As Santorio's chair measured the exit of insensible evaporation out of the body, calorie-counting systems measured the entry of insensible energy value into the body.

The focus on calories also shifted the temporality of one's attention: instead of assessing consumption choices retroactively as scales did, with calorie counting "dieters could truly anticipate the future: so many extra, invisible calories would mean so much extra, invisible fat," writes Schwartz. "Counting calories was like compounding interest; it assumed an appreciation of promises and futures—how long a walk it would take to burn off a chunk of chocolate, how many flights of stairs to climb off a piece of pie" (134). Calorie-counting notebooks and portable calculators—and, now, apps—are aspirational rather than static; they allow dieters to calculate the risk of present consumption choices against their desired future weight.[6] To this day, the calorie has remained a coin of the realm of health—which has itself become a financialized "regime of anticipation" (Adams et al. 2009) characterized by an unwavering actuarial stance.

As we will see, what digital apps bring to the task of health is not simply an easier means of recording and tracking energy intake but the capacity to automatically sense and factor in its expenditure, and to inform users of their input/output ratios at any given point in the day. Driven by always-on algorithms, weight management apps seek to automate the vigilance required of citizens who wish to be fit and healthy, notifying them in real time so that they can adjust their behavior in accordance with weight goals.

Logging to Lose: The App

Upon first launching LoseIt! (whose icon depicts the face of the humble, analog step scale), users supply the following information: current weight and height, sex and age, goal weight, and how quickly they wish to lose weight. The app then calculates a customized daily calorie allowance that appears henceforth atop the screen alongside a tally of calories consumed, calories expended through exercise, and calories remaining in one's "budget." Rather

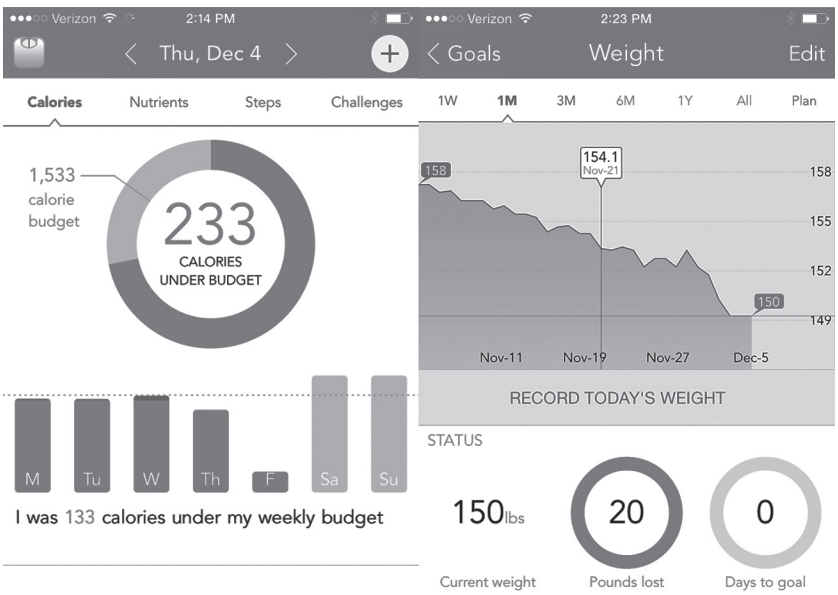
like a stock market ticker, this set of values changes as users move their bodies and log items they have consumed.

Although the app automates many aspects of weight management, the act of logging itself (initiated by pressing "Log" on the app's dashboard) is one that users must diligently perform—although most often they need not manually enter the caloric value of meals as most food items can be found by searching the app's vast, constantly updated database. For instance, "egg" returns 1,308 results that can be narrowed with further descriptors. The database includes most restaurant chains (a cheeseburger from Applebee's is 970 calories; clam chowder from Panera is 630) as well as some relatively obscure dining venues (the quinoa-hijiki salad with tofu from Dojos in Manhattan's East Village clocks in at 300 calories). Name-brand, packaged items can be logged simply by scanning their barcodes. The app learns over time to present up front the items most frequently logged by a user.

To remind users to log in the first place—something calorie-counting technologies of the past could not do—LoseIt! texts them at set intervals with such messages as "An empty log is a lonely log"; "You bite it—you write it!"; "Time to weigh in!"; and "Take another 200 steps for bonus exercise points." More nudging happens through the "Social" feature: here app users can link their accounts and motivate each other to complete goals, join groups that follow certain diets, or participate in challenges (from the simple "log something every day" to the daunting "eat vegan for three months").

Beside "Log" and "Social" in the lower dashboard appears "My Day," where users can visualize their status with respect to assorted values: color wheels and bars indicate if they are under, over, or within their allotted daily and weekly budgets for calories (see fig. 2); a pie chart reveals the proportions of fat, carbohydrates, and protein in their consumption of nutrients; and "Steps" indicates paces for a given day—data synchronized in real time with smartphone step counters or other fitness devices. "This is how I know as the day goes along how I'm doing," says one user of the "My Day" feature. The ability to constantly check one's status evokes the obsessiveness of Santorian weighing, yet the object is not to preserve one's current weight but to reach a future weight.

This aspirational temporality is most salient in Loseit!'s "Goals" feature, which draws on users' current weight (entered manually or automatically synched from their wireless scales) to graph losses and upticks over time, representing the future as a dotted line that converges with their desired weight—a point that moves farther or closer depending on how fast they wish to lose



LoseIt!'s calorie budgeting screen (left) and "Goals" feature (right), representing future weight on a graph

weight and how rigorously they stick to their caloric budgets. With this feedback, the app imports future consequences into the present, allowing users to adjust as they go, making trade-offs between food and exercise. "I use the data to slow down my eating during the day or make better food choices if I am nearing my daily caloric limit," notes one user review; "I might have a lighter lunch if I see I had a high-calorie breakfast, or go for an extra run." Instead of using ropes and pulleys to maneuver users out of physical reach of their unfinished meals, the app provides information and sends notifications; it offers itself as a digital compass for navigating the confounding, tempting, and sometimes toxic landscape of everyday consumer choices, promising to supplement users' shortsighted perspective with a continuous, informatic gaze able to compute the consequential aggregate of their small daily actions.

LoseIt! has been downloaded millions of times, with users rating the app an average 4.5 out of 5 stars. It consistently places in the top ten "health and fitness" apps on both Google and Apple stores. "More than 60,000,000 pounds and counting!" boasts the LoseIt! website, presenting a live counter that ticks up by approximately one pound per second. Despite minor differences in fea-

tures and functionality, LoseIt! and its competitors—including MyFitnessPal, the longest-running and current leader in the market—share a common logic of health in which we must be as conscious of caloric intake as possible, in real time. If we do not log calories as they are consumed, we risk consuming too much, thereby delaying the attainment of our aspirational weight.

Dangers of Dependency: User Testimonials

Sitting on her couch with her laptop and iPhone, Krista told me how she had come to be in the top one percent of users for a popular calorie-tracking app. In her mid-thirties, after meeting a romantic partner who liked rich Italian food, Krista gained seventeen pounds; she gained another eight when her mother died. "I decided I needed a little counter," she recalled. Krista had never done Weight Watchers or followed a diet program, but she came across the Loseit! app and discovered that she found it compelling to log her calories throughout the day. "It became an addiction a little bit, I had to do it every day. It got really *granular* for me."

Krista pulled up the app on her laptop and reviewed data from a random day a few months back. Breakfast: Greek yogurt, blueberries, and chia seeds. Lunch: beet greens, a small baked potato, and great northern beans. Dinner: more beet greens and beans, fried with egg whites in olive oil. "It was pretty much a perfect day," she commented, "not just the calories but the nutritional ratios." The satisfaction Krista took in accumulating sequential days of caloric "perfection" motivated her to modulate her diet and lose weight. "I describe myself as an *incrementalist*—I pay attention to small bits and how they add up." She went on to draw an analogy between calorie tracking and quantified trading, her professional field: "It's like machine learning on yourself. It's recursive because you're trying to achieve these numbers and ratios and you learn through trial and error, so the app feeds into how you behave over time. It has this algorithmic component to it." What Krista describes is not the atrophying of a shift in natural appetite that Cheyne feared in the 1700s but, rather, a subtle shift in of her appetite: "It starts external and objective and then it becomes internalized—so you can just look at your plate and intuitively know the calorie value."

Countering this benevolent narrative of habit change, some charge that weight management apps insinuate themselves so thoroughly into users' routines that they wrest agency from users and enslave them in obsessive loops

of logging (Zomorodi 2016). The questions Addison raised in 1711 in his cautionary caricature of the overzealous self-weigher are just as relevant in today's appified context: What are the risks of ceding calculative and regulative control to an external device? Might one's will wane? Do these devices promote or endanger health? User testimonials posted to the iTunes app store, Amazon.com, and other online review sites speak to these questions. One woman who lost forty pounds with the app's assistance comments, "I probably don't need to use it anymore because I know when I am going over my calories but I just can't stop using the app. It's my little helper. I need it to keep me on track."

Some users speak of this need as an "addiction," using the term in a lighthearted, positive fashion:

- I couldn't have lost these 14 lbs. without the app, and now I'm addicted to it (instead of food!).
- I love this little app. It is so fun and addicting to add food and exercise then watch the calories go up or down.
- Am I the only one addicted to this? I find myself checking in several times a day.
- Nope, not the only one! Just recently started using the app again, and I'm on the darn computer all the time.
- Definitely not the only one. I am very addicted to this now but I figure there are worse things to be addicted to!

Others speak of addiction in a darker sense—not to describe the pleasure of checking and entering numbers but a reluctant enslavement to the device and its routines. "This app has me in my seat too much—and that's what I have to change in the first place," writes one poster, calling to mind Addison's satire of the man who could not unseat himself from his Santorian weighing chair. One former user confessed that he spent the majority of his days compulsively recording everything that passed his lips—"even the 'calories' of vitamin tablets, even glasses of water. . . . At the end of the day it would tell me how much I would weigh in five weeks time if my net calories were the same as that day. I was glued to the app—I panicked if it stopped working."

Another writes that use of calorie counting apps by those with eating disorders is so common that deleting such apps becomes, for many, a milestone of recovery. Echoing Anthony Giddens's (1991, 105) argument that eating disorders are "extreme versions of the control of bodily regimes which has now become generic to circumstances of day-to-day life," a reviewer of LoseIt! ob-

serves that the app is not merely an accessory to pathological eating but also its trigger and accelerator: "Even if you don't have an eating disorder when you initially download this app, it can so easily become addictive and get out of control. It's not rational or okay in any way to be congratulated on a starvation diet by an app masquerading as a top class 'health and well-being' app." She goes on: "There are some mobile phones that come with MyFitnessPal built in and you *cannot delete the app*. How dangerous is that?" What is appified here is not health, she suggests, but pathology, echoing the fears around dependency and the inducement of a "sick and languishing" state that were articulated around weighing practices in the 1700s.

Conclusion

And yet, in the contemporary world there are subtle differences in the ways that health and the project of selfhood are conceived. Health, once understood as a baseline state temporarily interrupted by anomalous moments of illness, has been recast as a perpetually insecure state that depends on constant assessment and intervention (Dumit 2012; Lupton 2013). In the era of so-called lifestyle disease (e.g., chronic conditions such as obesity, type 2 diabetes, heart disease), we are all potentially sick and must cultivate "continuous reflexive attention" (Giddens 1991, 102) to our quotidian decisions: what to eat, how much to move, when and how long to sleep. At the same time that well-being is construed as deriving from mundane market choices, consumers are understood to constitutionally lack the knowledge, foresight, or inner will to reliably make the *right* choices.[7] Everyday health and fitness apps like LoseIt! present themselves as a partial solution to this double bind of contemporary self-regulation, offering us a way to fulfill the cultural demand for self-management while delegating a portion of the tedious, nebulous labor involved in meeting that demand.

Notes

1. That vapors escaped the human body was not a revelation, but the magnitude was shocking—and troubling, given the importance of systemic equilibrium in the humoral tradition (Kuriyama 2008, 416; see also Renbourn 1960).

2. Santorio, a friend and colleague of Galileo, is known for introducing the quantitative approach to medicine and for inventing various measurement instruments, including

a precursor to the modern thermometer as well as the pulsilogium—a pulse-rate meter considered to be the first machine of precision in medical history.

3 . Female bodies were thought unable to reach this ideal of health, being inherently unstable and always fluctuating (to a large degree due to menstruation)—never static (Dacome 2012, 475).

4 . Until Santorio, scales had been instruments of commerce, used to weigh items such as animals, coins, gems, and grains (Dacome 2001, 468). While human figures appear on scales in ancient depictions of the "weighing of souls" and in various historical cases of witch weighing, it is only with the static chair that physical health, rather than salvation, came to be at stake in weighing (469; Schwartz 1986, 11).

5 . *Ars de statica medicina* (1615) was reprinted some forty times and was translated into English (1676), Italian (1704), French (1722), and German (1736).

6 . In the 1970s the Weight Watchers program attempted to make food choices easier by assigning numerical value to foods and offering prepackaged meals of set caloric value.

7 . While some health policy makers continue to advocate for the cultivation of inner resolve and self-control, this position has waned in the wake of behaviorism's mid-century rise, which popularized behavior change as best achieved by altering the environmental contingencies of choice making rather than through inner forces such as "willpower" (Rutherford 2009).