



## Personal Weight Control: Quality Management at Home

Richard J. Schonberger

Independent Researcher/Author/Speaker, Bellevue, WA

### ABSTRACT

*This article offers a process control procedure for managing our own body weight—in steady state; or in a stair step fashion for losing weight; or, in certain cases, gaining weight. It will be shown that this proposition is eminently cogent and worthy of attention. Early discussion focuses on a single, long-term case study, to be seen as fairly convincing in itself, both for the simplicity of the method and for its effectiveness in achieving one's weight-control goals. The main intent is to raise awareness of healthcare professionals as to the merits of the method, such that they may recommend it to their patients as a simple-to-use home health regimen, as suggested by a reputable healthcare publication.*

*As part of this research, I sought a few laypersons' viewpoints as to the method's applicability: a small-scale survey, asking twelve miscellaneous parties (largely others living in the author's large condo building) to examine a brief written explanation of the method and asking for their opinions. It turns out that one of those twelve eagerly related her own, very similar, many-year regimen for personal weight control.*

*The article is largely expository. Thus, the survey was aimed merely at soliciting off-the-cuff viewpoints—realism, as it were—rather than any sort of proof. Included among the replies of those surveyed were a few references to the lack of/need for motivation to pursue such a weight-control regimen. To help nullify that “excuse” (valid, to be sure), and generate motivations for people to employ the weight-control method, is to raise awareness of the merits of the method among the public—especially family members who have had minimal success in controlling their own weights—doing so via healthcare professionals who themselves have become aware and of positive opinion as to its efficacy.*

*Earlier drafts of the paper included references and examples that relate to formal statistical process control (SPC) methods of assessing conformance to plan. Such methodology was seen, however, as demeaning as to a central feature of the method, that being its simplicity of application—a necessary ingredient given that its primary users would be lay people—in their own homes—and not science-oriented professionals.*

*The paper begins with the person who served as the initial model for this research, then adds in the person who also turned out to be a model of the methodology.*

**KEYWORDS:** *home-based personal weight control, healthcare, control limits, conformance, quality management, continuous process improvement (CPI), method simplicity, case studies*

### INTRODUCTION

Those of us who have become advocates of certain methodologies in the arena of continuous process improvement (CPI) sometimes are given to speculation on their potential use in our personal lives: for example, in regulating complex family activities in our homes; or coordinating one's hectic commuting arrangements; or best ways of preparing ourselves for competitive events. Occasionally, such speculations show up as asides in our professional writings. Extant as well are occasional whole articles on CPI/quality management as applied to home-based matters; see, for example, Levitt, *Quality Progress*, 2022, on applications for training one's dog; and Paulise,

2022, on use of 5S for easing transition from COVID-19 to normalcy.

Also, more directly relevant to this article is Sen, et al, *Examination of a board game approach to children's involvement in family-based weight management vs. traditional family-based behavioral counseling in primary care*, 2018; Alkhawaldeh, et al, *Behavioral approaches to treating overweight and obesity in adolescents*, 2017; and Johns, et al., *Weight change among people randomized to minimal intervention control groups in weight loss trials*, which addresses “the assumption that, without intervention, people will gain weight.”

Considerable other research offers more in the way of theory;



for example, Miller, et al., *Recent advances in understanding body weight homeostasis in humans*, 2018.

### **CASE STUDY: ONE MAN'S 30-PLUS YEARS OF MAINTAINING SAME WEIGHT VIA A QUALITY-MANAGEMENT REGIMEN**

The subject/model for this case study is a male now in his 'eighties, which we'll call "X". In his early years, from teens on up into his 'thirties/'forties, his bodily weight ranged widely, sometimes in the lower 100s but ballooning (after marriage, as it were) up to around 180 or more pounds.

Meanwhile, X's higher education had begun in industrial engineering, then moved on into management science, during which he became conversant with extant quality management procedures, as well as joining relevant professional organizations. His professional life included academic positions, plus many years of applied research in wide-ranging manufacturing and service contexts—in which he frequently was both an observer and an advocate/facilitator of CPI applications in operational contexts.

X has no specific records of when he gravitated toward applying CPI basics for controlling his own personal weight, but does recall that, early on, he set as the nominal value, 150 pounds (seemingly suitable for his height and weight), with control limits of plus/minus three, that is 147 to 153 pounds. As with CPI as applied in the field, which requires frequent measurement, X ascertained control by weighing himself every morning (exceptions being when staying at others' homes or in hotels, when a scale was not readily available). He is certain, however (and his wife verifies), that he has maintained that weight, and plus/minus limits, with hardly any days of fore- or back-sliding, for nearly 40 years. To ensure this degree of control, X plans ahead. For example, on a day when a big evening dinner is imminent, he breakfasts and lunches light and foregoes snacking in between. Yes, he does allow himself to snack, and may do so deliberately if the scale reading in the morning shows his weight down to, say, 147 or 148 pounds. And on days when the morning scale shows 152 or 153, he simply reduces food intake the rest of the day.

X has followed this regimen for all those years for reasons of personal satisfaction, and the clarity of knowing that it makes for better-quality health; plus, its being so easy and painless to get results.

### **SURVEY: IS THIS PERSONAL WEIGHT-CONTROL METHOD VIABLE FOR OTHERS?**

The survey form, consisted of a one-and-one-half page, double-spaced summary of the method, titled, "Personal Weight Control: A Quality-Management Regimen." It describes the method with lay terminology, followed by a second page, labeled "Seeking Your Opinion on ... A Simple, Effective Regimen for Personal Weight Control." That page offers this author's name and condo number, explains why

I'm asking for opinions (mentioning the intention of having a paper published in a journal), explains that the opinions may "be useful for adding 'color' to the article," and notes that all responses are treated as anonymous. The page ends with these brief questions:

*I see the procedure as something ... (check one):*

----- *I plan to employ for myself and/or another family member or friend*

----- *I may try out in the future*

----- *I'm unlikely to try out*

*Please explain/add comments briefly below*

*Thank you.*

I personally handed out the survey form to ten casually known residents of my 24-floor condo building, plus two acquaintances reached by email; and it unearthed widely varying viewpoints.

An affirmation. One of my acquaintances who was surveyed via email responded with her own full-page email. Here are her first three paragraphs, starting with the notation that she checked X on the top line of the survey form:

X in top line that I will use this.

Actually, this is the plan I have used for sixty years, and it works brilliantly. I weigh myself every morning (unless out of our house) three ways: leaning left to weigh the least, leaning right to weigh most, and standing evenly. (I do this because our scale is so sensitive to body position.) I always weigh naked, before breakfast, after bath rooming. I write my weight in my calendar and on my Exercise Chart and on my blood sugar chart.

I do this every day because it lets me see the effects of yesterday's food and exercise. Instant, reliable feedback. I've read studies saying that people who weigh every day sustain their weight loss longer/better than people who weigh once a week. Absolutely.

I'm an exercisaholic and health food freak, so my weight stays between 122 and 124 for months—122 ½ every day for a week at a time.

In a follow-on email she added this: "I weigh myself every day so my weight can't sneak up on me."

Another respondent checked "unlikely," in explanation saying that "My weight is within plus/minus 2 pound [and] within those bounds for the past two decades."

Other responses: Overall, the twelve responders' check marks include four saying "I plan to employ....," three, "I may try out ....," and five, "I'm unlikely to try out."

In handing out the survey, I soon found the need to explain that it's not about *weight reduction/taking off pounds (or the contrary)*. Rather, I point to the sentence on the "Seeking

Your Opinion” page stating that it “aims toward stabilizing one’s personal weight.” Yet, irrelevantly, one who checked “unlikely” said, *I don’t intend to diet....Others in the unlikely category: I’m not a disciplined weighing daily person; and I never had problems regarding my weight control. Nor my family members.* Still another used the comments space for a rant about people who *are overly concerned about ‘look’; and who are overweight and don’t exercise and lack good habits such as ‘hiking over TV, ... dark leafy greens over french fries and halibut over burger. Then we don’t need to control [weight].*

Of those checking, “I may ...” one person criticized the study in that others may not have *the same motivation* as the person cited in the paper. Still another person also cited the *motivation* issue—which has the look of an excuse, given that the regimen is so simple to use.

Another respondent, this one having checked, “I plan to employ,” states, *My husband has been thinking of getting a scale and adopting your [regimen].* In other words, it just requires a scale, though for those who prefer to write down their weight daily, it also takes paper and pencil. The simplicity angle serves also to counter the lack of motivation excuse.

## RECORD-KEEPING, OR NOT

In his weight-control pursuit, our subject, X, never wrote down his daily weights, nor plotted them on any sort of control chart, as is a prescribed practice in professional quality management. Further, the choice of plus/minus three was not based on any notions of standard-deviation-based control limits and conformance measures (e.g., see “How to Calculate the Sigma Level of a Process,” in Bicheno and Holweg, 2023). Accordingly, this paper omits delving into discussion of such topics as statistical process control—except to borrow bits of relevant verbiage that would likely be easily understood by lay persons, e.g., control chart, control limits, variation, and conformance.

Although X did not employ process control charts, a mockup of such, using made-up data may serve as a useful visual aid herein. Such is shown in Figure 1 with 15 days’ weights, which may be somewhat similar to variation patterns that our subject experienced in his decades of use of the methodology. On five of the 15 days the plotted scale reading has him right on the target of 150 pounds. The other 10 days show a rather random-looking pattern with only two days at the upper control limit of 153 and just one at the lower limit of 147; and the remaining days at the in-between weights of 148, 149, 151, and 152. In short, this 15-day sample should be considered as *in conformance*.

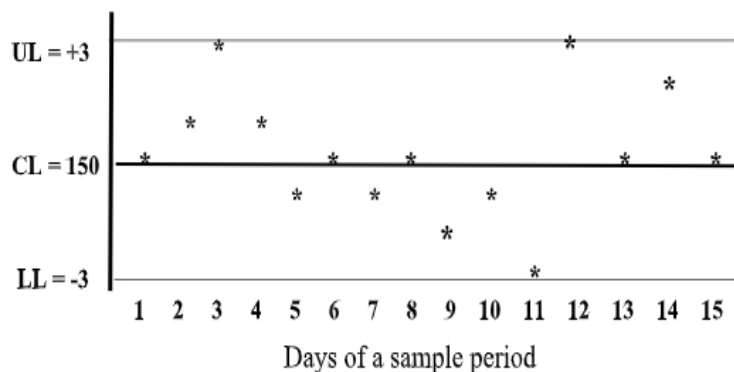


Figure 1. Example Weight Control Chart for One Individual

## IN-PRACTICE CONSIDERATIONS

The simple methodology presented in these pages should be readily adoptable by almost anyone. The choice of control limits, such as the plus/minus three of this paper, may be fitting for many. However, for children the range should, generally, be narrower, thus to match the much lower common weights for our youth than the 150 pounds for X, the adult subject of the opening case study. For example, for a youth averaging around 75-pounds a plus/minus of two may be quite appropriate. On the other hand, in the case of a youth who has severe weight problems, with all the typical anxieties and pressures about dieting, it might be appropriate to ease into the regimen via control limits of, say, plus/minus five pounds—to be reduced following successes in maintaining conformance. Similarly, to deal with the physical and emotional eating malady known as bulimia—bouts of binge eating followed by severe dieting—a beginning stage should

be one of wider control limits. With anorexia—intense fear of gaining weight, often including deliberate vomiting after food consumption—the first stage of the weight-control method should probably employ relaxed control limits as well.

In cases involving goals of progressive weight loss or gain, the method should entail stages of planned change in the direction of ultimate goals. Figure 2 presents a visual example with a first, then a second 7-day stage of improvement for a hypothetical person pursuing weight reduction, from a nominal of 155, downward to a goal of 150 pounds. The first weight-loss segment, with center line at 155 pounds, shows rather random weights around that number, but with three of the weights on days 4 through 7 being close to the lower limit of 152. This could encourage the individual enough to evolve to the pre-set goal, shown in segment 2, of 150 pounds—in which, as is shown for days 8 through 14,

there is considerable success in maintaining conformance. (Inasmuch as days 8-14 show a downward trend toward the lower control limit the person could consider eating less.) In such two-or-more stages of progress toward one's weight goal, a milestone might be similar to that of our case-study subject, X: a goal of steady state with little or no personal inclination to change, and over a considerable period of time.

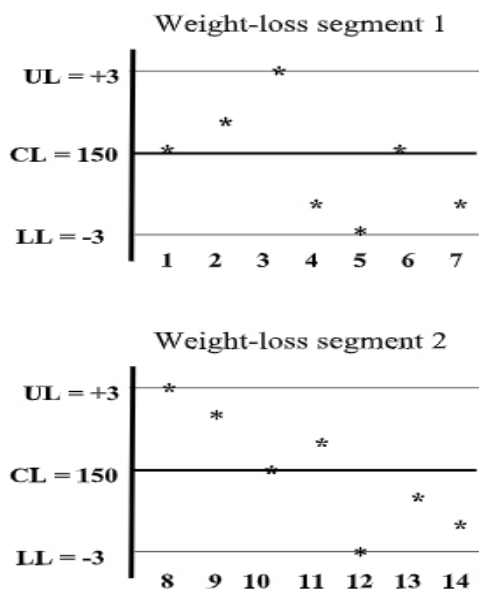


Figure 2. Two-Part Weight-Loss Segments for One Individual

### SUMMARY REMARKS

It seems likely that other persons here and there have developed their own versions of the weight-control methodology described in the case study. It would seem that, in the general population, there are rather few issues more ubiquitous—that is, of nearly daily concern—than that of our own weight. Thus, I would close this article with a hope that these ideas on quality management at home, targeted at personal weight control, will find their way beyond the pages of this journal.

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