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From Average to Ideal

The Evolution of the Height and Weight Table in the United States, 1836–1943

This article examines the historical origins of the notion of "ideal" body weight by tracing the evolution of the gender-specific height and weight table in the United States from 1836 to 1943. Fewer than 200 years ago, weight was not regarded as an important health issue. At the turn of the twentieth century, low body weight, not overweight, was the leading concern of medical practitioners. With the rise of actuarial science, weight became a criterion insurance companies used to assess risk. Used originally as a tool to facilitate the standardization of the medical selection process throughout the life insurance industry, these tables later operationalized the notion of ideal weight and became recommended guidelines for body weights. The height and weight table was transformed from a "tool of the trade" into a means of practicing social regulation.

Scales are a means to determine one's "fit"—how one measures up physically and, in some cases, morally to others. Introduced to the United States from Germany in 1885, the penny scale first appeared in drugstores and groceries and eventually sprouted up in railroad stations and subways, movie theaters, banks, and office buildings (Schwartz 1986: 186). The penny scale allowed Americans to measure their body weight to the nearest pound, promoting the shift from a subjective to a numeric approach to evaluating weight. This new invention heralded an era in which weight was quantified into pounds of flesh, and a new concern emerged—the fight against fat. As Americans at

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the turn of the twentieth century wondered how much they should weigh, the life insurance industry responded with height and weight tables as the answer.

The first height and weight table, constructed by the Belgian mathematician Lambert Adolphe Jacques Quételet (1836: 36), appeared in 1836 but proved impractical because it listed only one average height and weight for each year of age represented. Similarly, in 1846 John Hutchinson, a British surgeon, published a table of the average weights of 30-year-old men for each inch of height from 5 feet 1 inch to 6 feet (Symonds 1908a, 1908b; Weigley 1984). While this table was used throughout the life insurance industry as a guide to evaluate applicants, revisions were made based on medical experience. For example, Minturn Post and Isaac L. Kip, medical examiners for the Mutual Life Insurance Company of New York, constructed a table for American men, departing from the English standards set by Hutchinson, and offered "what the best authorities regard as the most desirable proportion of the height of individuals to their weight" (Fish 1867: 136).

These early tables revealed some of the limitations brought on by the paucity of data and variety of medical experience. Each company relied on its own data to produce an individualized standard for evaluating life insurance applicants. A more uniform approach was not possible until 1889, when both the Actuarial Society of America and the Association of Life Insurance Medical Directors of America were founded, allowing medical directors and actuaries throughout the industry to share data and exchange ideas (Dublin 1943: 403). Then, at a pivotal moment in 1895, the Association of Life Insurance Medical Directors of America appointed George R. Shepherd, medical director of the Connecticut Mutual Life Insurance Company, as the chair of a committee designated to create a standard, industry-wide height and weight table.

Over the next few decades, life insurance companies combined medical experience and actuarial data to construct standardized height and weight tables. According to Brandreth Symonds, chief medical director of the Mutual Life Insurance Company of New York at the turn of the twentieth century, the life insurance industry was responsible for the growing commercial significance of weight in relation to height (Weigley 1984). By the 1940s the height and weight table was transformed from a record of national averages of weight in relation to age, sex, and height to the guide for "ideal" weight. Height and weight tables developed and periodically revised through

the years by the Metropolitan Life Insurance Company had a steady presence in medical reference books throughout the twentieth century. In this article, drawing on theoretical elements from Ludwik Fleck and Michel Foucault, I examine the major players and processes involved in the evolution of the height and weight table in the United States from 1836 to 1943.

I turn to Foucault, who throughout his work focuses on how a particular truth, that of a healthy weight in this case, comes to attain an influence over members of society. He argues that each society has its own "regime of truth," which establishes the rules that separate truth from falsehood and assigns power to the true (Foucault 1980: 133). Truth in this manner is a system designed to produce and regulate ideas. This article is an investigation of the various institutional regimes, such as the life insurance industry composed of medical and actuarial specialists, that were involved in the development of height and weight tables and what forces in turn influenced their actions.

These forces, which contributed to the development of scientific "truths," like the height and weight table, correspond to Fleck's notion of thought style, essentially the chief opinion of a distinct time and place. According to Fleck (1979), every era has its predominant opinion as a result of cultural traditions, prevailing sociopsychological attitudes, and the existing accumulation of knowledge. Prominent attitudes regarding weight, as shaped by the thought style, permeated the entire social body.

The height and weight table, created within a historical context shaped by the investigation of the relation between weight and mortality, became an instrument of power, in the Foucauldian sense, by creating a system of classification on the basis of body weight. How did the height and weight table, originally used as a tool to facilitate the standardization of the medical selection process throughout the life insurance industry, turn into a guideline of recommended weights for American men and women? More simply, how did the table go from average to ideal?

Medical Selection Process

The Foucauldian element of power was present in the life insurance industry, a business driven by economic incentives. Foucault, who views knowledge as a source of power, questions the motivation of scientific inquiry. Scientific investigation, he suggests, is not a neutral activity by its very nature,

because science advances knowledge as well as the status of the possessor of this knowledge, implying a self-serving motivation. This view of knowledge as power can help explain the life insurance industry's interest in height and weight tables as tools to improve the quality and efficiency of the medical selection process.

Funds earned by mutual life insurance companies depended on premiums paid by policyholders. It was optimal for the insurer for the policyholder to live as long as possible so that the annual payments for premiums would exceed the company's future obligation and thus earn a profit. For that economic reason, in the early history of life insurance only individuals whose physical conditions met the high standards set by the company were insured.[1] These standards were created and enforced by medical departments within each company via the medical selection process of prospective policyholders.

As the prime means to determine insurability, the ultimate purpose of the medical selection process was to eliminate poor risks and, in effect, reduce the death rate among policyholders. Initially, the medical examiner, yielding his approval power, depended on the applicant's self-provided statement of present physical condition and personal and familial medical health histories. With time and expanding business, however, life insurance companies began to question the validity of medical reports written by family physicians. Medical examiners affiliated with the life insurance companies soon were required to examine all applicants. In this examination, the medical examiner paid particular attention to the build of the applicant and cases of tuberculosis in the applicant's immediate family.

The applicant's body weight was an important indicator of health and well-being and subsequently an important factor in the acceptance or denial of an applicant for life insurance. The focus on weight arose from the common belief that weight was a visible physical indicator of an individual's health. Weight was perceived as a valuable resource in the case of disease, trauma, or emergency (Weigley 1984). Thinness was discouraged, as plumpness and roundness of size characterized well-balanced health. For example, John Gardner (1875: 83–84) presented this common medical opinion of body weight in post–Civil War America: "The popular expression applied to persons of a rounded form, moderate embonpoint, clear skin, and a ruddy color,—that they are 'in good condition,'—accords with science. This condition is most commonly accompanied by healthy internal organs, a very

desirable and hopeful state. . . . Yet, until it [fat] becomes burdensome, it is generally disregarded." Due to the threat of tuberculosis throughout the nineteenth and early twentieth centuries, medical examiners were cautious with young, underweight individuals, who were regarded as more susceptible to this and other deadly, infectious diseases, and often denied them policies. As a result, selection was "more liberal" toward applicants of heavy builds, especially when applicants were under the age of 30 (Ward 1932: 219–21).

According to William Rankin Ward, a physician affiliated with Mutual Benefit Life Insurance Company since 1905, while height and a general indication of body build were recorded in the medical reports, the accurate measurement of weight was not. This is not surprising, because documenting weights was not standard practice in the medical community. The New England Hospital for Women and Children started an inconsistent practice of recording weights in 1874. In American research hospitals, including Massachusetts General and the New England Hospital for Women and Children, systematic lists of weights or even changes of weight were not recorded until the 1880s (Stearns 1997: 27). Forms were introduced in 1886 for recording vital information, including pulse, temperature, respiratory rate, weight, and height. The space for weight was often the only one left blank.

Due to limited knowledge regarding the effects of weight on longevity during the nineteenth century, weight was judged subjectively. According to the historian Hillel Schwartz (1986: 89), life insurance agents after the 1830s extracted larger premiums from people "of great width," often relying on their subjective assessment of the applicant's build in relation to expected mortality risk. Consequently, medical examiners lacked consistency in their selection criteria for body weight. In 1858 a reference to weight appeared in the medical reports at Mutual Benefit Life Insurance Company (Ward 1932: 219). The historian Shephard B. Clough (1946), commissioned by Mutual Life Insurance Company of New York to chronicle the company's history on the occasion of its centennial anniversary, indicated that questions regarding body weight—specifically overweight—had been added to Mutual Life's application, as evident in Thomas A. Edison's application in 1874. More questions were added with regard to family history of health and degenerative diseases by 1899.

Depending on professional clinical experience and the traditions in medical selection, each medical director was responsible for the mortality rate in his company (Rogers 1907). However, reliable data on the mortality

rates of various risk groups were deficient or nonexistent. Medical directors based their selection practices on their individual impressions and the medical histories of applicants, facing the challenge of assigning values of risk to them. With the growth of "substandard" business, the individual method of selection by medical directors became burdensome. An individual who belonged to a group whose rate of mortality was greater than that expected among a normal group of insured lives was termed *substandard*. Possible hazards that could classify an individual as substandard included certain occupations, physical condition, or family medical history. According to Oscar H. Rogers (1908: 8) of the New York Life Insurance Company: "Constant application to the work of selection soon fatigues the mind of the Medical Director. His perceptions become less acute, and his liability to errors increases. I have known good men to make as high as two or more errors in a single day." Unfortunately, there was no standard in the life insurance industry that explicitly specified what constituted a medical risk. This problem of consistency often resulted in an applicant rejected by one life insurance company becoming insured by another. The issue was blatantly exposed during a meeting in 1892 between the chief medical director of the New York Life Insurance Company, Rogers, and an agent. The agent complained that the mortality rates of Rogers's rejected applicants were better than those of persons he had accepted (Abbott 1930: 280). This prompted Rogers to address problems of medical selection. According to Rogers (1908: 3), as stated in his 1907 address at the eighteenth annual meeting of the Association of Life Insurance Medical Directors of America, "The difference of opinion among Medical Directors who are experts in matters of selection are clearly shown by the lack of uniformity of action among them."

Therefore, in association with Rufus Weeks, the actuary of the New York Life Insurance Company; Frederick W. Frankland, a distinguished English actuary; and Arthur Hunter, who later became chief actuary of the company, Rogers began an investigation of rejected applicants for life insurance by the New York Life Insurance Company between the years of 1870 and 1889 (Rogers 1908; Abbott 1930: 281). For over three years they gathered the physiological histories of as many as 25,000 rejected applicants and constructed mortality ratios. In addition, they initiated a systematic investigation of insured lives, classified by risk. In regard to the results of this vast undertaking involving both insured and rejected cases, Rogers (1908: 6) declared that "we found ourselves in 1896 in position to place definite valuations on a

wide range of border-line and substandard cases." The New York Life Insurance Company slowly began to expand its business to offer substandard policies based on the classification of risk analyzed in the investigation. According to the historian Lawrence Fraser Abbott (1930: 282), on July 1, 1896, the company issued its first substandard policy.

Along with Hunter, Rogers in 1904 devised the numerical system of selection to expedite the evaluation of applications while maintaining consistency in the process (Maclean 1951: 259). In this system each risk factor, including weight and physical condition, was expressed numerically in comparison to an established standard set by the life insurance company. The summation of these risk factors determined the insurability of the applicant, allowing for the employment of lay underwriters to review applications. The numerical system was used throughout the industry and catapulted substandard business into a feasible and profitable segment of life insurance.

The Revised Table

The body itself becomes a primary focus of institutional regimes due to the inherently dualistic nature of productivity and subjectivity. According to Foucault (1995: 26–28), power relations define the body in economic terms as both a productive body and a subjected body. Here the body of the applicant is subject to the medical examiner's gaze. Knowledge and power are intricately intertwined in a power-knowledge relation, for power is correlated with a field of knowledge and knowledge provides the framework for power relations. Knowledge of the body is therefore a product of power-knowledge. The development of the height and weight table allowed the medical director to assign risks to applicants, subjecting the body to classification. This subjectification, when aimed at controlling the population and disciplining the individual, is referred to as biopower, which figures prominently as the table signaled the rise of discipline (Foucault 1988: 140–43).

At the eighth annual meeting of the Association of Life Insurance Medical Directors of America in 1897, Shepherd presented a table—the product of that fateful meeting in 1895—based on the heights and weights of 74,162 accepted male applicants in the United States and Canada (Shepherd 1907; Symonds 1908a, 1908b; Weigley 1984).[2] This table, which Shepherd's committee had created as a tool for medical examiners, soon was adopted as a standard throughout the life insurance industry, yet not without reserva-

tions. Shepherd (1907) concluded that a variation of 20 percent, either above or below the average listed in the table, should be considered an insurance risk. In response, Symonds (1908a, 1908b) reported that in fact the lowest incidence of death coincided not with those of average weights but with those who were 5 percent below the average and, for those under the age of 30, 5–10 percent above the average.

At the seventeenth annual meeting of the Association of Life Insurance Medical Directors of America in 1906, Edward H. Hamill stated in a discussion of Shepherd's report on weight and longevity, "In so far as lightweights are concerned we must confess that we are more afraid of them than of overweights" (Shepherd 1907: 60). In most cases, the presence of tuberculosis, particularly if the applicant was young and underweight, made the applicant an insurance risk and thus uninsurable. Alternatively, substandard insurance was most often offered to applicants who exceeded industry weight standards (Dublin 1943: 408).[3] Thus weight was measured in terms of mortality risk, a definition that would become solidified with actuarial science.

Due to a smaller applicant pool of women policyholders, a table of average heights and weights of women was not developed until 1908. Until then women's weight standards were inferred from the men's tables. For example, Shepherd suggested "at the age of 20 women are lighter than men by six to nine pounds. This difference gradually diminishes with advancing age" (Symonds 1908b: 161). Having amassed a sizable pool of 59,525 female policyholders between 1897 and 1902 from both the Mutual Life Insurance Company of New York and the New York Life Insurance Company, Faneuil S. Weisse (1909), the medical statistician and future medical director of the Mutual Life Insurance Company of New York, created a table of standard weights for women. Likewise, in another study of almost 105,000 insured women, Rogers (1911) created a table of the average weights for women that closely paralleled that of Weisse.

As debate over risk continued and burgeoning business provided more data for analysis, more tables emerged. In 1908 the statistician Louis I. Dublin (1966: 192) compiled what would become the Standard Table of Heights and Weights for Men and Women for the Mutual Life Insurance Company of New York. Like other tables of the time, the weights listed were derived from the average weights for each inch of height from life insurance policyholders. Overweight and underweight were considered 10–15 percent above or below that average, in contrast to the 20 percent variation specified by

Shepherd in 1897. This shifting categorization of body weight exemplified the alterable nature of classification.

Concerns over the reliability of these height and weight tables as accurate assessments of mortality risks troubled Rogers, however. In 1910, at the twenty-first annual meeting of the Association of Life Insurance Medical Directors of America, Rogers (1911) suggested that the average weight specified for men and women according to age in these tables was not the most favorable with regard to mortality. He concluded that "our present table based on *average* weights is too high by about 7 percent" (ibid.: 64). Though he did not recommend an immediate change to the weight standards, Rogers was sure that future data would clarify the question.

Meanwhile, further issues in the selection process plagued medical directors. The subjectivity of weight judgments, as well as mishaps in transferring information onto examination forms and faulty scales, produced inaccuracies. In response, Weisse (1912), as medical director of Mutual Life Insurance Company of New York, constructed a table detailing the average weights and chest and abdominal measurements for each inch of height based on a study of 3,035 men insured by Mutual Life between 1907 and 1911. Symonds agreed to the necessity of such a table in 1911 at the twenty-third annual meeting of the Association of Life Insurance Medical Directors of America. He emphasized the twofold benefit to be derived from the inclusion of a mathematical formula devised by Weisse that detailed the relation between these measurements "If the height and these measurements are given, we can approximate the weight. If the weight given in the examination differs from that, we know that something is wrong and we can insist upon an actual scale weight" (quoted in Weisse 1912: 136). Weisse's table was used to uncover fraudulent or merely inaccurate weight information of prospective policyholders.

This was also an issue of concern for Charles P. Clark (1930), a medical director of Mutual Benefit Life Insurance Company who focused on the relationship among body measurements such as height, body circumference, and weight (see also Stone 1957).[4] Along with the mathematical department, Clark investigated 10,000 random cases and, as a result, developed a table that underwriters could use to estimate an applicant's weight from the recorded height and build measurements. This table "on the theoretical chest and waist measurements for various heights and weights" aided the underwriters in detecting possible inaccuracies in weight, allowing for the proper classifi-

cation of an applicant on the basis of risk (Stone 1957: 137). Clark's table was used not only at Mutual Benefit but in medical departments throughout the life insurance industry.

Medical and Actuarial Knowledge Combine

Scientific discovery, according to Fleck (1979), is a result of the social process of modification and transformation of conflicting ideas within and between institutional players. A shared thought style allows for this exchange of ideas. Such was the case with the formation of the Association of Life Insurance Medical Directors of America and the Actuarial Society of America in 1889, which allowed medical directors and actuaries to accumulate data and exchange ideas more readily. These organizations allowed insurance companies to construct height and weight tables based on mortality studies of policyholders from the United States and Canada and solidified the insurance industry as the authority on height and weight table construction.

The Specialized Mortality Investigation of Risks, a study of mortality rates reported in 1903 by the Actuarial Society of America, began the collaboration between medical departments and actuarial divisions that became essential as the industry moved to standardize the selection process and expanded substandard business through use of Rogers's numerical system. Gradually implemented throughout the life insurance industry, the numerical system, developed by the New York Life Insurance Company to ease the selection process, depended on the company's mortality experience, as recorded by the actuarial division.

Despite common allegations and the perception that actuarial knowledge was unscientific, life insurance companies kept accurate and reliable records to construct mortality tables (Zelizer 1979). As a record of past experiences, the mortality table displayed the annual death rate for each age in the company (Maclean 1951: 76). Life insurance companies depended on gathered actuarial knowledge to determine premium rates for policyholders. It must be remembered that the insured population was not representative of the total American population but was limited to a sample that could afford to pay the cost of premiums. Actuarial divisions were the source of large samples of data on a cross section of the population; however, poor risks, such as those at both extremes in weight, were eliminated by the selection process (Lotka 1949). Simply stated, life insurance companies accepted only

applicants in good health. Those recovering from severe illness or suffering from a variety of medical impairments, such as heart disease, hypertension, tuberculosis contact, or excessive drinking habits, were rejected for standard life insurance policies (Dublin and Lotka 1936). Applicants with minor medical impairments that demonstrated slight reduction in longevity were often offered policies at a higher premium.

While this Specialized Mortality Investigation in 1903 reported on mortality rates by risk group, such as various classifications accounting for weight, disease, family history, and occupations, the question of borderline cases and substandard business prompted the close collaboration between the medical director and the actuary. Traditionally, the medical director was responsible for the assessment of individual risks. The actuary then translated these risks into values of insurability in terms of the total population. In 1908, at the nineteenth annual meeting of the Association of Life Insurance Medical Directors of America, Rogers (1909) recommended that the medical director and the actuary work in collaboration. A shared understanding of the methods of selection and evaluation of risks between the medical department and the actuarial division was necessary to conduct a specialized investigation of mortality risks properly.

In 1909 the Actuarial Society of America and the Association of Life Insurance Medical Directors of America initiated an industry-wide investigation into mortality risk assessment (Dwight 1910). The Medico-Actuarial Investigation, as it was called, covered data from policies issued between 1870 and 1909. The goal of the investigation, as stated by Edwin W. Dwight (1916: 35), medical director of the New England Mutual Life Insurance Company, was to "enable the Medical Director and the Actuary to meet on common ground." The need for the development of a uniform selection standard and augmented information on borderline cases of risks, initially offered from the specialized investigation, propelled this investigation (Hunter 1911). In particular, the Medico-Actuarial Investigation focused on the mortality experience of 900 classes of weights (Symonds 1912). In contrast to the Specialized Mortality Investigation of 1903, the Medico-Actuarial Investigation grouped risks together. For example, Hunter (1911) explained that a man who had appendicitis and owned a brewery was classified with the group that had that medical impairment and a hazardous occupation, rather than placed in two separate groupings, one based on his disease and the other on his occupation.

Based on information on 221,819 male and 136,504 female policyholders, the study concluded that under the age of 25, underweight was disadvantageous to health due to the increased susceptibility of the individual to pulmonary infections (Weigley 1984). Therefore moderate overweight until the age of 35 was tolerated, but increasing weight with age was not. A table of the average weights for men and women was published as a result of the Medico-Actuarial Investigation.

Data gathered from the Medico-Actuarial Investigation was often used during the 1920s and 1930s by third parties (Weigley 1984). The Life Extension Institute, organized by the insurance industry in 1914 and dedicated to scientific reporting and providing public health information, such as personal hygiene tips, produced its own version of the height and weight table. This table accounted for shoes and clothing worn during weighing by subtracting one inch of height and five pounds for men and one and one-half inches and four pounds for women (Fisher and Fisk 1932).[5]

The Medical Impairment Study of 1929 continued the trend of investigating the relation of body build to longevity, confirming that younger adults who were either underweight or significantly overweight had an increased mortality rate. In contrast, older individuals seemed to benefit from a slight underweight status, as increasing weight with age resulted in increased mortality (Dublin and Lotka 1936).

While clinical and statistical evidence confirmed the dangers of obesity, such as heart disease, diabetes, gallbladder disease, and even greater susceptibility to fatal accidents, the lowest mortality rates belonged to those individuals whose weights were slightly below the average listed in the tables (Metropolitan Life Insurance Company 1937). In the case of young underweights, the threat of tuberculosis and pneumonia as the prime causes of mortality diminished due to improved sanitation. As a result, extra weight in young individuals lost its advantage. According to Donald B. Armstrong (1949: 15) of the welfare division of the Metropolitan Life Insurance Company, moderate underweights ages 25 years and over showed the best longevity records. Longevity therefore was designated the main criterion of ideal weight.

With the development of organized medicine at the turn of the century and intense reform of medical education beginning in the 1870s, the medical community stood poised to tackle growing public concerns with weight.[6] Yet, due to the lack of organization required to collect the large quantities of data, the medical community failed to monopolize the creation of height

and weight tables. It was possible for a faction of the medical elite to construct height and weight tables independently. Professor of physical education Thomas D. Wood of Columbia University, for instance, prepared height and weight tables for men and women that were published in *Food, Nutrition, and Health* in 1925. While Wood's tables were used throughout the 1920s and 1930s in publications for Teachers College (Weigley 1984), it was the life insurance industry that took the initiative, surpassed the medical community in establishing weight guidelines, and secured an authoritative voice in height and weight table construction.

From Average to Ideal

There is something to be learned of the individual in the social body. Power gains dominion over the living body by employing regulatory measures. As Foucault argues, power manifests itself in objectification. According to Foucault, the individual is subject to valuation by institutional regimes to improve the well-being of the social body. It is the responsibility of certain institutions to ensure the health of the whole, for "the biological traits of a population become relevant factors for economic management, and it becomes necessary to organize around them an apparatus which will ensure not only their subjection but the constant increase of their utility" (Foucault 1984: 279). The height and weight table became the focal point of a system of regulatory measures instituted by life insurance welfare divisions.

This brings to light the notion of docility, in which Foucault (1995: 136) points to the emergence of the "useful body," one that is obedient and can be manipulated and thus improved. The body is an object to control by means of the instrument of power: normalization. By normalization, Foucault means the ability to judge based on differentiation and thus to determine membership of the social body and possibly exclude those deemed unfit. Membership in the social body is contingent on establishing degrees of normality, thereby creating a system of classification that imposes a measurable homogeneity (ibid.: 184). Consequently, disciplines arise that are aimed at improving the social body and thus the generation of a form of domination. Public concern about fat and an increased sense of urgency regarding death and disease by the start of the twentieth century allowed for this domination by the scale.

The idea of altering weight according to a table's recommendation in order to improve mortality rates became plausible because a nonfatalistic

attitude toward death emerged in the nineteenth century. As the onslaught of infectious diseases diminished with improved sanitation and personal hygiene, death and disease became preventable social ills. As infant mortality decreased between 1880 and 1920, the medical community shifted its attention from infectious to degenerative diseases.[7] Howard Wilcox Haggard (1934: 398), a professor of applied physiology, reflected on this shift: "The increase in cancer and disease of the heart and blood vessels is mainly a consequence of a longer average life, which is a result of greater freedom from infection." Physicians faced new diseases in the wake of increased life expectancy, and as Dublin and Alfred J. Lotka (1937: 5) remarked, "Much attention is being paid to the effect of diet upon health; the newer knowledge of nutrition has placed in the hands of the medical profession . . . another weapon against disease." Much of this research, though, focused not on weight but on food quality and the health benefits of newly discovered vitamins and minerals (Levenstein 1988: 147–60).

Capitalizing on this knowledge, the life insurance industry developed programs and published pamphlets to promote longevity and improve the well-being of the policyholding social body. Thus, with the Metropolitan Life Insurance Company as a prime supporter of public health, insurance companies stood poised to be active players in the fight for improvements in the mortality experience of their policyholders. This was done for the purpose of preventing "death as a cause of destitution," with the goal of "lengthen[ing] the average life so that more and more wage earners will live to support their families through years of dependence" (James 1947: 393). In reality, insurance companies wanted wage earners to live longer and provide profits from continued premium payments.

So, driven by not altogether altruistic motives, insurance companies established welfare divisions designed to implement programs aimed at extending the average life span of policyholders, with many programs specifically targeted at industrial policyholders (ibid.).[8] For example, through the use of educational booklets, movies, and national campaigns, the Metropolitan Life Insurance Company worked "to raise health department standards throughout the country, to secure more adequate funds for health purposes, and to arouse public support for new and promising methods of disease prevention and treatment" (Dublin and Lotka 1937: 6; Metropolitan Life Insurance Company 1943b).

Women were often targets of these promotional activities due to their

control over domestic affairs, and by the 1930s they formed a substantial portion of life insurance policyholders. Insured women were homemakers, factory workers, stenographers, and clerks (Dublin and Marks 1938). Amid promotional campaigns on the dangers of obesity and the cultural ideal of the thin, athletic beauty, the Metropolitan Life Insurance Company noticed a three- to five-pound decrease in the average weights of insured women from 1922–23 to 1932–33 (Metropolitan Life Insurance Company 1939). Attributing this decrease to the influence of the thin actresses in motion pictures and the growing interest in nutrition, Metropolitan Life declared that "the trend reflects a condition that augurs well for the future health of our population" (ibid.: 4).

Aesthetic and health concerns generated an interest in body weight. Advances in the science of nutrition and "the wartime need to use food wisely" propelled the concerns about overweight and obesity as national health problems (Metropolitan Life Insurance Company 1942: 6). By the 1940s many in the medical profession shared the sentiments of Michael G. Wohl (1945: 791) of the Temple University School of Medicine: "Obesity, or excessive corpulence, is not only an unlovely condition, it is a dangerous condition: it increases susceptibility to a number of diseases . . . [and] reduces life expectancy." The nutritional researcher Elmer Verner McCollum and his colleague Nina Simmonds (1925: 93) tactfully proposed this evaluation of body weight, which incorporated both culturally aesthetic and medical perspectives:

> What we call a normal weight is not an arbitrary established standard like fashion in dress, but is a weight which corresponds with a bodily symmetry with which we have long associated certain qualities which are universally admired. . . . A certain amount of fat is essential to an appearance of health and beauty. It is one indication that the state of nutrition is good. . . . We all agree that excessive fat makes one uncomfortable and unattractive.

During the war, women played a prominent role, for "the drain on man power has, as a result, called for more and more women to participate actively in the war effort" (Metropolitan Life Insurance Company 1943a: 6–7). In 1942 the Metropolitan Life Insurance Company constructed a table of proposed ranges of ideal weights for women ages 25 and over with respect to frame size (table 1). With increased knowledge of the health dangers of obesity, it

Table 1 Proposed range of ideal weights for women, ages 25 and over, Metropolitan Life Insurance Company

Height (with shoes)	Weight in pounds (as ordinarily dressed)		
	Small frame	Medium frame	Large frame
5' 0"	105–13	112–20	119–29
5' 1"	107–15	114–22	121–31
5' 2"	110–18	117–25	124–35
5' 3"	113–21	120–28	127–38
5' 4"	116–25	124–32	131–42
5' 5"	119–28	127–35	133–45
5' 6"	123–32	130–40	138–50
5' 7"	126–36	134–44	142–54
5' 8"	129–39	137–47	145–58
5' 9"	133–43	141–51	149–62
5' 10"	136–47	145–55	152–66
5' 11"	139–50	148–58	155–69
6' 0"	141–53	151–63	160–74

Source: Metropolitan Life Insurance Company 1942.

became imperative to establish a new guideline to reflect weights that were the most favorable, according to mortality studies, and not necessarily the average.

Responding to complaints by physicians, this table for the first time incorporated body build by providing weight ranges for women with small, medium, and large frames. Previous tables had, with few exceptions, allowed for increasing weight with age; however, in light of actuarial data that showed that middle-aged and older underweights had the best longevity records, this new table of ideal weights deemed such an increase in weight undesirable as well as unhealthy. The benefit derived from a moderate degree of overweight in young adults had been surpassed by the threat of future obesity (Metropolitan Life Insurance Company 1942).

Due to public interest in the table of ideal weights for women, the Metropolitan Life Insurance Company responded with a table of ideal weights for men in 1943 (table 2). Similar to the table for women, the ideal table for men provided weight ranges with respect to body frame size.

The message of improving health and efficiency was repeated in the discussion of wartime rationing, which the company believed could "prove a blessing to overweights" (Metropolitan Life Insurance Company 1943c: 6).

Table 2 Ideal weights for men, ages 25 and over, Metropolitan Life Insurance Company

Height (with shoes)	Weight in pounds (as ordinarily dressed)		
	Small frame	Medium frame	Large frame
5' 2"	116–25	124–33	131–42
5' 3"	119–28	127–36	133–44
5' 4"	122–32	130–40	137–49
5' 5"	126–36	134–44	141–53
5' 6"	129–39	137–47	145–57
5' 7"	133–43	141–51	149–62
5' 8"	136–47	145–56	153–66
5' 9"	140–51	149–60	157–70
5' 10"	144–55	153–64	161–75
5' 11"	148–59	157–68	165–80
6' 0"	152–64	161–73	169–85
6' 1"	157–69	166–78	174–90
6' 2"	163–75	171–84	179–96
6' 3"	168–80	176–89	184–202

Source: Metropolitan Life Insurance Company 1943c.

Whether the population benefited from these health measures is up for debate, but unquestionably the Metropolitan Life Insurance Company improved its selection process by virtue of the continued revision of height and weight tables. From 1911 to 1945 industrial policyholders at Metropolitan Life, on average, increased their life expectancy by more than 17.0 years, compared to 11.5 years in the general population, and decreased overall death rates due to infectious diseases, appendicitis, and heart disease (James 1947: 394–98). These tables, as instruments of power, established a system of classification, differentiating those who fit the ideal from those deemed unfit, and became part of the medical literature for years to come.

Historically, life insurance companies viewed extremes in weight as unhealthy. Based on the clinical experiences of the company medical directors, young underweights were often denied policies due to the potential risk of tuberculosis, while overweight individuals were charged greater premiums because of their size. As sanitary conditions and personal hygiene practices improved, halting the spread of infectious diseases and increasing the average life span, new medical concerns emerged. The rise in incidence of cancer and heart disease prompted the medical community to focus on preventive

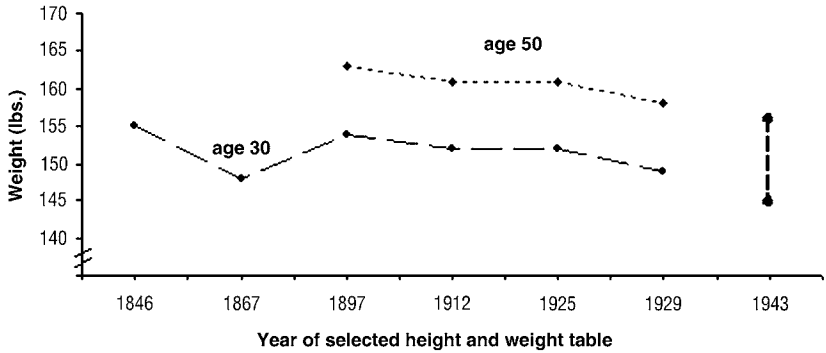

Figure 1 Average weights of men 5 feet 8 inches tall
Sources: The 1846 data are from Symonds 1908a: 389; the 1867 data, from Fish 1867: 136; the 1897 data, from Symonds 1908a: 389; the 1912 data, from Fisher and Fisk 1932: 240–41; the 1925 data, from McCollum and Simmonds 1925: 144; the 1929 data, from Maclean 1951: 239; and the 1943 data using the medium build weight range, from Metropolitan Life Insurance Company 1943c: 7.

measures through nutritional research, while insurance companies revised their weight standards to accommodate this shift in mortal afflictions.

Figure 1 shows that the average weight of men with a height of 5 feet 8 inches steadily decreased over time after Shepherd developed his table in 1897, as underweights were viewed as less of a mortality risk and as new mortality studies confirmed that being slightly underweight had its health advantages. With the introduction of the Metropolitan Life Insurance Company's table of ideal weights, a single average weight was no longer reported. Rather, as noted, there were three weight ranges with respect to small, medium, and large build sizes. In addition, weight differentials with respect to age, which first emerged with Shepherd's table in 1897, were abandoned in 1943. With regard to women's tables in figure 2, the average weights were relatively constant, and increasing weight with age was acceptable until 1943.

Conclusion

As nutritional science developed around the turn of the twentieth century, the insurance industry utilized this body of knowledge to further its objectives. With the aim of improving the health and efficiency of the social body, insurance companies initiated health promotion programs and supported the latest methods of disease prevention and treatment, capitalizing on the growing popular interest in personal hygiene and fitness. Welfare divisions

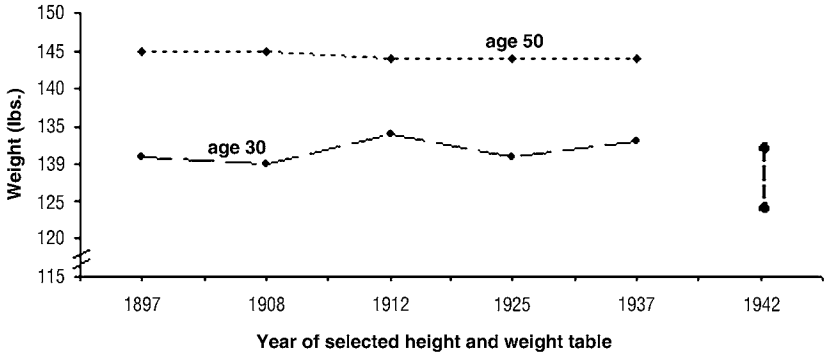

Figure 2 Average weights of women 5 feet 4 inches tall
Sources: The 1897 data are from Symonds 1908a: 389–90; the 1908 data, from Weigley 1984: 418; the 1912 data, from Fisher and Fisk 1932: 240–41; the 1925 data, from McCollum and Simmonds 1925: 145; the 1937 data, from Dublin and Marks 1938: 50; and the 1942 data using the medium build weight range, from Metropolitan Life Insurance Company 1942: 8.

operated under Foucault's view of knowledge as a source of power because their primary aims were to reduce the death rate among policyholders and in effect generate profit from the collection of premiums.

Plagued by a lack of consistency in the selection criteria among insurance companies' medical directors, medical departments petitioned the actuarial divisions for reliable statistics on mortality rates in terms of various classifications of risks. This collaboration stimulated the construction of height and weight tables. These tables in turn grew into a means for insurance companies to regulate and guide members of the social body to conform to the ideal (and presumed healthy in terms of longevity) weight.

The height and weight table, shaped by social power, became more than a neutral guide for weight and evolved into an instrument of power. The table established a system of classification based on body weight. Applicants for life insurance who fit within the ideal weight ranges established by the insurance company were accepted for standard policies, while those who exceeded industry standards were either offered substandard policies at higher premiums or denied coverage. With industry-sponsored campaigns promoting longevity and emphasizing the dangers of obesity, fitting into the insurance industry's weight standards became the ideal.

How does this element of power manifest itself today in the establishment of weight norms? Today national body weight recommendations are based on the body mass index (BMI), replacing traditional height and weight

tables that have been used by physicians and published in medical reference books for decades. As the current national standard of healthy weight, the BMI can be viewed as an instrument of control like the height and weight tables, classifying individuals in relation to an ideal. The ideal proposed by the BMI is presented as the normal weight. The clinical psychologist Margo Maine (2000: 35) gives an account of a change in BMI standards: "On June 17, 1998, the government declared the previous BMI standards too lenient and altered their recommendations. Without gaining a pound, millions of Americans, whose BMI's were considered normal on the 16th, woke up the next day to learn that they were in the danger zone." This lowering of the upper limit of the BMI range may be viewed as an attempt by the government to shed light on the dangers of obesity. By categorizing more Americans as unhealthy, public health officials directed attention toward our nation's growing waistband.

Over the decades, high levels of body weight have developed into a social problem, as the medical, pharmaceutical, fitness, dieting, and fashion industries reject fat in exchange for profit. With the development of appetite suppressants and surgical techniques, obesity has become a marketable condition. Over $40 billion is spent on dieting and diet-related products per year in the United States (National Eating Disorders Association 2002). With the surgeon general reporting that 61 percent of the American population is overweight, obesity, with a total cost of $117 billion in 2000, for example, is at the forefront of national health objectives (U.S. Department of Health and Human Services 2001).

In 2005, amid a barrage of reports on the health dangers of obesity, a team of federal researchers raised the collective eyebrow of the nation by publishing their findings on the effects of fat. This group of statisticians and epidemiologists from the National Cancer Institute and the Centers for Disease Control and Prevention reported that individuals who are overweight but not obese have a lower risk of death than those of normal weight, while the very thin have a slight increased risk of death (Kolata 2005). The debate over ideal weight continues.

Notes

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1 Blood pressure was also an important indicator for insurability. Originally introduced into the selection process in 1907, blood pressure readings by 1925 had become routine in examinations (Clough 1946: 288). Other possible sources for risk included build, physical condition, personal and familial medical histories, occupation, residence, and habits.

2 Three years later, in 1900, the medical section of the National Fraternal Congress compiled a height and weight table comparable to Shepherd's based on the information from a larger sample of 133,940 male policyholders in the United States and Canada (Symonds 1908a, 1908b; Weigley 1984).

3 Applicants with heart disease or high blood pressure were denied insurance of any kind.

4 The Mutual Benefit Life Insurance Company recorded chest measurements at inspiration and expiration beginning in 1865 and abdominal measurements beginning in 1882 (Clark 1930).

5 It should be noted that women generally wore several layers of clothing and were more self-conscious about medical examinations performed by male physicians (Schwartz 1986: 156). Measurements of both men and women were often taken while they were fully dressed.

6 See Paul Starr's (1982) account of the medical community's internal problems of consensus and external problems of legitimacy from the 1850s to the 1920s.

7 Dublin and Lotka (1937: 28) reported that tuberculosis, the leading cause of death for ages 1 to 74 in 1911, dropped to the fifth leading cause of death among industrial policyholders by 1935.

8 Industrial policyholders were those wage earners who were exposed to occupational risks, for instance, factory workers.

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