Methods and Issues / Problematiques et methodes

Historical Reflections on Diet, Exercise, and Obesity: The Recurring Need to "Put Words into Action"

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Abstract. According to a 2010 announcement by the Centers for Disease Control, more than one third of adults and nearly 20% of children in the United States are obese. Obesity and its attendant health issues are becoming a global problem. In spite of the fact that a monumental number of articles in important scientific and clinical journals now support what Plato and others have been setting forth for more than 2,000 years regarding proper diet and adequate exercise, far too little is being done to "put words into action." This article offers an overview of both lesser known and more familiar works that have addressed this issue.

Keywords. obesity, children, exercise, recreation

Résumé. Selon un avis émis en 2010 par les Centres de prévention et de contrôle des maladies, plus du tiers des adultes et près de vingt pour cent des enfants aux États-Unis sont obèses. L'obésité et les problématiques de santé lui étant associées sont devenues un problème mondial. « En dépit du fait qu'un impressionnant nombre d'articles parus dans d'importantes revues scientifiques et cliniques soutiennent ce que Platon et d'autres ont révélé il y a plus de deux mille ans sur les bienfaits d'une bonne alimentation et de l'activité physique, trop peu est fait pour traduire les paroles en actes. Cet article donne un aperçu des travaux traitant de cette problématique, méconnus tout aussi bien que réputés ».

Mots-clés. obésité, enfants, exercice, loisirs

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INTRODUCTION

"This was one of the few occasions when obesity was treated as worthy of an international meeting in its own right."[1] These words appeared in the preface to the *Proceedings of the First International Congress on Obesity*, which took place at London's Royal College of Physicians in October 1974. During the ensuing three and a half decades things have changed remarkably. Today the number of international conferences, forums, and other gatherings that focus upon obesity and the related need for populations to engage in more physical activity is extensive.[2] More astounding has been the number of articles regarding such matters that have appeared in the *International Journal of Epidemiology*, *European Journal of Clinical Nutrition, Journal of Pediatrics, Journal of the American Medical Association*, and scores of other scientific and clinical publications.[3]

The *International Journal of Obesity and Related Metabolic Disorders* began publication in 1977. *Obesity Reviews*, the official journal of the International Association for the Study of Obesity, was initiated in 2000. That same year Human Kinetics published *Physical Activity and Obesity,* a 400-page book in which 35 experts in fields ranging from medicine, biology, and nutrition to psychology, physical activity sciences, and more examined what often is now referred to as "The Obesity Epidemic."[4] In the opening chapter the book's editor, Claude Bouchard, observed that "obesity and a physically inactive lifestyle are two of the most prevalent risk factors for chronic diseases in the Western world."[5] Although it is known now that heredity, certain neurological disturbances (for example damage to the hypothalamus), and other disorders (for example Cushing's syndrome) may contribute to obesity, it is generally agreed that improper diet and lack of exercise are the major causes, factors that many physicians, philosophers, and others have acknowledged for well over 2000 years.

The next three sections provide brief glimpses into the writing on diet and exercise relating to obesity in: (a) the Classical World; (b) the 1700s and 1800; and (c) the 1900s. This discussion is followed by a brief account of medical and scientific studies on obesity that were reported in *Index Medicus* between 1879 (the date of its founding) and 1930, when the evolution of scientific knowledge on nutrition helped fuel an expanding number of publications dealing with health and hygiene and the organization of physical education as a specific field led to the growth of recreation and school-based physical education programs. The closing section reflects upon changes in physical education that began in the 1960s, and the decline of school-based and community recreation programs that began in the 1970s. It suggests that the latter has been a major, but not the only factor in the rapid increase of childhood obesity. It also com-

ments briefly upon possible relationships between this decline and growing concerns about juvenile violence.

THE CLASSICAL WORLD

As early as the 6th century BC, the Greek philosopher Alcmaeon of Croton had declared that "excess and deficiency of nourishment" were detrimental to health. Hippocrates (ca. 460–370 BC) believed that health consisted of balancing the body's four humours of blood, black bile, yellow bile, and phlegm and that obesity was caused by a surplus of these humours. Recommended treatment for obesity included bathing, sweating, proper diet, and appropriate exercise. Many physicians followed the Hippocratic tradition, as did philosophers Plato and Aristotle. In both *The Laws* and *The Republic*, Plato set forth his beliefs regarding diet and the proper use of exercise, which should be undertaken for health and development but not for athletic proficiency.[6] In Book Eight of *Politics,* written about 350 BC, Aristotle declared that "it is an admitted principle that gymnastic exercises should be employed in education, and for children they should be of a lighter kind…lest the body be impaired."[7]

A Greek by birth, Claudius Galen became the most famous physician of the Roman Empire. In his influential work *On the Power of Foods*, which was written around AD 180, he argued that digested food was converted into blood, and the more food one consumes, the "more blood is produced and the more obese the person becomes." In *De Victu Attenuante* (*On the Slimming Diet*) Galen advocated for obese people a diet of such foods as onions, garlic, leeks, celery, parsley, radishes, beet root, rock fish, and meats from wild animals who lived in mountains, not valleys. He also believed that exercises with "the small sphere," swimming, and such activities as rapid running were also needed to counter obesity. Although Galen had been appointed a physician to gladiators, he was a severe critic of their practices, stating that gladiators "[neglected] the old rule of health which prescribes moderation in all things [and] they spend their lives in over-exercising, in over-eating, and over-sleeping."[8] His writings would have an impact upon Western thought for nearly 15 centuries.

Because both Roman and Greek law prohibited dissecting human corpses, Galen had performed his experiments upon animals, which resulted in a number of incorrect assumptions about human anatomy and some misguided speculations about physiology. Better understandings of anatomy began when Flemish physician Andreas Vesalius undertook human dissections and published his findings in *De Humani Corporis Fabrica* in 1543. The "Scientific Revolution" of the 16th and 17th centuries (greatly influenced by individuals like Galileo, Descartes, Newton, and especially by William Harvey, who was the first to explain the

circulation of blood throughout the body) opened the way for major discoveries in physiology.

THE 1700S AND 1800S: FROM GEORGE CHEYNE TO FRIEDRICH FROEBEL

In 1702 Scottish-born physician George Cheyne (1671-1743) opened a medical practice at Bath where his clients included a number of the aristocracy who went there to enjoy the natural mineral springs and engage in a variety of therapeutic treatments. While still a young man, Cheyne had become extremely corpulent with some estimates of his weight at 448 pounds. With a diet of milk, vegetables, and water, as well as active exercise, he greatly reduced his weight and, it was asserted, his health was restored. Cheyne's most popular book, *An Essay on Health and Long Life* (1724), gave considerable attention to proper diet and exercise. His oft-repeated words: "Tis easier to preserve health than to recover it, and to prevent diseases than to cure them," opened the first chapter. He believed that "to preserve health, the quantity, the quality and nature of our food…must be proportioned to the strength of our digestion," and he set forth in his book what he perceived were the benefits of exercise.[9]

Individual books were important but others began to see the benefits of including information on diet and exercise in general education. In the mid-1600s, for example, Samuel Hartlib and others sought to improve the educational system in England and petitioned Parliament to bring in Polish-born Jan Amos Comenius in the hope of creating a universal system of education provided by the State. Comenius had set forth comprehensive views of childhood education that included considerable attention to play, games, and other forms of exercise in his book *School of Infancy*.[10] More influential, however, was English philosopher John Locke whose book, *Some Thoughts Concerning Education* (1693), opened with the now familiar "a Sound Mind in a Sound Body, is a short, but full description of a Happy State in this World." (The opening words were derived from the Roman poet Juvenal's oft-repeated statement *mens sana in corpore sano*). Locke gave considerable attention to diet (as it then was understood), exercise, play, games, and recreation as well as the many other parts of education that he deemed important.[11]

Jean Jacques Rousseau's *Emile or On Education* (1762) is often referred to as one of the most influential Enlightenment books regarding childhood and education. Although Rousseau did little to "put words into action," growing numbers of men and women in France, Germany, Switzerland, and elsewhere in Europe created opportunities for children to engage in play, games, and exercise. The contributions of the German educator Johann Christoph Friedrich Guts Muths and the Swiss educational theorist Johann Heinrich Pestalozzi are usually noted in

standard textbooks. French physician Jean Verdier included exercises and games for girls as well as for boys in the "maison d'éducation" that he created in the late 1700s. The Countess de Genlis ensured that the children of the Duc D'Orléans would have ample physical activity.[12] Pestalozzi's student Friederich Froebel would make especially important contributions that fostered the growth of kindergartens in many countries. His work was a significant contributing factor to the intense interest in the educational values of play, games, and recreation that emerged during the late 1800s and early 1900s.

NINETEENTH-CENTURY CONTRIBUTIONS

In 1829, English physician William Wadd published *Comments on Corpulence*, in which he laid out the "four ordinary secrets of health": early rising, exercise, personal cleanliness, and leaving the table before becoming full.[13] Invoking observations made by Hippocrates, Plato, and other authors of antiquity, as well as comments that King Edward IV presumably had made in 1475 about the problems of corpulent London aldermen, he set forth his views of cases that he had studied involving 10 men and one woman. For example, Case II involved what Wadd described as a "Fat Sportsman" who exercised extensively in the morning, then rewarded his labors by eating, drinking, and sleeping in the afternoon. The man's weight increased from 15 stone (210 lbs) to 19 stone (266 lbs), and the increased weight interfered with his ability to engage in sports or find a horse strong enough to carry him. Wadd, who noted that the majority of those who tried to lose weight "[inquired] for pills," was not sympathetic to the man's request for medications to counter the two gallons of strong ale that he drank every day.[14] The book's brief final section observed that "there are many who think, if they keep a doctor in pay, they may do as they please."[15]

Likewise, British physician Thomas Graham's *Sure Methods of Improving Health and Prolonging Life* (1828), cautioned readers about the dangers of overeating.[16] Within the "last few years," he was pleased to say, gymnastic exercises had received more attention; however, the public remained largely uninformed regarding their value. His case VI involved a rich young man of 25 who became very corpulent and suffered a severe case of gout. The man then began an exercise regimen of several hours a week of tennis, walking, hunting, and other activities. According to Graham, after 18 months of engaging in such activities, what had begun as a "misshapen mass" had become a "well-made and vigorous man" who enjoyed perfect health.[17]

Concerned that students at Amherst College (Massachusetts) ate and drank too much and neglected exercise, Edward Hitchcock, who would become the College's third president (1845-1854) and was the father of

the man who would become Director of its Department of Physical Culture in 1861, prepared for them a series of lectures on diet and regimen in the spring of 1830 published as *Dyspepsy Forstalled and Resisted* (1830), these lectures were praised by the *Journal of Health* and other contemporary publications. In Part I (which is concerned with "diet") Hitchcock repeatedly warned the reader about the problems of excess, citing problems incurred by Cheyne and others who overindulged. He pointed out that people were prone to find excuses for overeating and that few had any knowledge of the bad effects.[18] Part II was concerned with different aspects of exercise, which Hitchcock stated was "the most important branch of the regimen." He recommended for the students three to four hours of exercise spread throughout the day. The book also contains an observation that is as important today as it was more than 175 years ago: "[D]iet alone, however rigid, will not avail as a substitute for exercise."[19]

We do not know to what extent Hitchcock may have encouraged William Augustus Stearns, who followed him as Amherst's President, to establish in 1860 the first department of physical culture in the United States to be directed by a medical man—the few presumptive "departments" that already existed were headed by military men or athletes. In 1861 his son, Edward Hitchcock, Jr., who had graduated from Harvard Medical School in 1853, replaced John Worthington Hooker, MD when Hooker resigned for health reasons.[20] The younger Hitchcock, who became the first president of the Association for the Advancement of Physical Education upon its founding in 1885, was a significant force in the creation of the profession of physical education in the United States. The program of carefully designed exercises that he created (and administered) for students at Amherst College was very different from what had been offered previously at any institution.

Organizing and overseeing proper exercise programs was one of the major responsibilities of the many male and female medical doctors who served as directors of departments of physical training in the United States from the 1880s to World War I. By the 1920s, however, the number of physicians who headed physical education departments was declining, influenced by changes in medical education that emerged following the publication of the Flexner *Report* in 1910. The *Flexner Report* brought about higher admission standards at medical schools, more science in the curriculum, a longer period of preparation, and in some instances, better remuneration for the person who possessed a medical degree.[21] The void in physical education programs would be filled by men and women who had earned bachelor's, master's, and sometimes doctoral degrees in the field. Until the 1970s it was typical for colleges and universities to have separate physical education departments for men and for women, each headed by a member of the appropriate sex.

"HEALTH REFORM" MOVEMENTS AND THE "MODERN SCIENCES": UNCERTAIN ALLIANCES

When the senior Edward Hitchcock wrote *Dyspepsia Forstalled and Resisted*, little was known about the chemical processes of metabolism that occur within the body. The brilliant work on respiration by French chemist Antoine Lavoisier, who died on the guillotine in 1794, had helped to open the way for German chemist Justus von Liebig's (1803–1873) studies on protein, fat, and carbohydrate metabolism; for French physiologist Claude Bernard's (1813–1873) discovery of glycogen synthesis; and for other scientific studies. By the 1890s, English chemist Edward Frankland (1825–1899) had established accurate caloric values for a number of foods. American biochemist Edward McCollum (1879–1967) and others (working independently) had proven by 1913 that more than one vitamin existed.[22] These and the many other discoveries that ensued laid the foundations for the enormous growth in the biological sciences that continues to today. However, whereas the work of most scientists typically was concerned with a specific function or item, the modern concept of "health" necessitated a much broader perspective, as is reflected in the World Health Organization's definition that perceives health as "a state of complete physical, mental, and social-well-being, and not merely the absence of disease or infirmity."[23]

As is the case today, anyone could—and did—write about diet, weight gain and loss, and exercise. During the 19th century a variety of "health reform" movements gained prominence. In the United States Sylvester Graham, best remembered for creating the "Graham Cracker" in 1822, advocated a diet of fresh fruits, vegetables, milk, eggs, some cheese, and especially whole wheat bread—but no meat. Medical doctor John Harvey Kellogg, superintendent of what would become known as the Battle Creek Sanitarium, believed that most diseases were caused by bacteria in the intestines. As a remedy he advocated laxatives and ample water; in the 1890s he began the production of whole grain cereals, the best known of which was Kellogg's Corn Flakes. Music critic Henry Theophilius Finck dedicated his 1923 book, *Girth Control*, to Kellogg, whom he credited with having saved his life "and thousands of other lives by his hygienic precepts."[24] Health reformer Horace Fletcher, "The Great Masticator," advocated that people should "chew…food until liquid; never eat until hungry; do not eat when tired, worried, or angry." At age 40 Fletcher was 50 pounds overweight, but he claimed that by following these rules he lost over 60 pounds. His popular books included *The New Glutton* (1906).[25]

The best-known 19th-century English-language text was probably William Banting's short *Letter on Corpulence, Addressed to the Public*, first published in 1863. A fashionable London undertaker, Banting had

become obese in his thirties. He tried, without much success, to lose weight by rowing, swimming, and other methods. At age 64, with deafness becoming a problem, he sought the advice of Dr. William Harvey, a Fellow of the Royal College of Surgeons. Harvey had recently returned from a meeting in Paris where Claude Bernard had discussed a new theory about the role the liver might play in the disease of diabetes. This prompted Harvey to begin to question how sugars, starches, and fats could affect the body and led to his 1872 publication *On Corpulence in Relation to Disease: With Some Remarks on Diet*.[26]

Harvey urged Banting to give up bread, potatoes, butter, milk, sugar, and beer to follow a diet high in protein. A typical breakfast was described as four or five ounces of beef, mutton, kidneys, bacon, or broiled fish; a large cup of tea with no milk or sugar; a small biscuit or an ounce of dry toast. For dinner (at mid-day) he was to have five to six ounces of any meat (except pork) or of any fish (except salmon) or any kind of poultry or game; vegetables (except potatoes); an ounce of dry toast; fruit (in pudding); and two to three glasses of claret, sherry or Madeira.[27] It was claimed that by following this diet within a year Banting had lost nearly 50 pounds.

Nathaniel Davies, a member of the Royal College of Surgeons, was author of the 1889 book, *Foods for the Fat: A Treatise on Corpulency and a Dietary for its Cure*. The task of the dietician, Davis believed, had been made easier by the recent discovery of saccharin, which he called "a harmless product three hundred times sweeter than sugar." Breakfast should be tea or coffee with saccharin and cream, stale bread, fried kidneys, or broiled mackerel. The noonday dinner was to include the following: vegetable soup, broiled mullet, and stewed pigeons with mushrooms or roast rabbit, boiled asparagus, French beans, and claret jelly.[28]

Gustav Gaertner's *Reducing Weight Comfortably: The Dietetic Treatment of Obesity* was published in English in 1913, the same year that it had appeared in German as *Diätetische Entfettungskuren*. Gaertner rejected the Banting treatment because it relied upon too much meat and included almost no carbohydrates or fat. Using a method that he had begun in 1903, the Austrian pathologist claimed that sixteen or seventeen hundred of his patients had been satisfactorily treated. As did the German physician Carl von Noorden, Gaertner rejected withholding water and objected to treatments such as cathartic tea and purgatives. Conditions such as hyperthyroidism, high blood pressure, and rapid heart rate, he believed, could be caused by excessive weight gain.[29]

The tendency to overeat, Gaertner stated, often began at an early age. To better understand why three children (ages 8, 11, 16) who lived in southern Austria were "abnormally fat" in spite of engaging in sports like cycling, he joined the family for a day's meals and concluded that the large quantity of dry wheat bread that the children consumed daily

(4,800 calories in one case) was a major factor. Aware that food preparation varied among countries, he recommended for overweight patients in Austria boiled (not broiled) beef, boiled potatoes (a "good ballast" food), green salad, radishes, asparagus, artichokes, and especially fruit (except grapes, which contain too much sugar).[30] The best jockey in Vienna, Gaertner claimed, had improved when he abandoned the typical weight-loss methods used by athletes (a mostly meat diet with few liquids and sweating)[31] and adopted his recommended diet. "Efforts to secure a reduction in weight by increase of muscular work," he believed, were ineffectual unless the quantity of nutriment also was decreased.[32]

Although he repeatedly insisted that there could be no obesity cure without dieting, Gaertner did not discount the value of exercise. All his patients, unless some condition prohibited it, were expected to walk out of doors for at least an hour each day. Swimming was especially valuable because it exercised the whole muscular system. So was Das Ruderbad (the rowing bath). Young men with normal blood pressure were encouraged to row, cycle, fence, ride, play golf and tennis, do gymnastics, and exercise with the ergostat (which he had invented) but not play football or cycle up mountains during the period of their treatment.[33]

A decade after Gaetner's *Reducing Weight Comfortably* appeared, British physician Leonard Williams stated in the preface to his book, *Obesity*, that "no work in English dealing with the subject [had] appeared for a great many years." Advances in endocrinology and the discovery of vitamins had "so altered hitherto accepted views concerning metabolism and nutrition that it seemed [to Williams] desirable to present a study of the question of obesity which gave due prominence to the fresh light which these two factors reflect."[34] However, William's book contained few new citations except for Francis Heckel's *Ce qu'il faut faire et ce qu'il ne faut pas faire pour Maigrir* [*What One Should and Should Not Do to Lose Weight*] (1925) and Arthur Weil's *The Internal Secretions* (1924). In fact, Williams had drawn especially upon Heckel's *Les Grandes et Petites Obésités* (published in 1911) and Wadd's *Comments on Corpulency*, which had been published in 1822.[35] Other authors, however, began to base their writing on more up-to-date research.

CLINICAL AND RESEARCH STUDIES OF OBESITY BEGIN TO APPEAR IN THE SCIENTIFIC AND MEDICAL PRESS

As the physiological sciences became more specialized, to what extent did scientific and clinical investigations of obesity occur? Citations in *Index Medicus,* initiated in 1879 by Dr. John Shaw Billings (Head of the Library of the Office of the Surgeon General, United States Army), offer one perspective.[36] During the first three decades of its publication, citations under the heading "Obesity" ranged from 6 to 12 per year, with the

greatest number being published in German or French journals. Before the First World War the physiological sciences and science-based medical training had advanced first in France and then in Germany. One indication of the better quality of the work that was being performed in German-speaking parts of Europe was that between 1870 and 1914 American physicians who desired the best scientific and medical training typically sought it in Germany or Austria.[37]

By 1930, 58 "obesity" citations appeared in *Index Medicus.* Of these, over 40% had been published in German-language medical and scientific journals and reports, and a further 20% was made up of citations in French and other European publications. An additional 30 articles appeared under the heading "obesity treatment," 63% of which were in German, French, or Swedish. Over the next decade an increasing number of studies drew on new fields of research. In 1940, Hugo Rony, who had been Chief of the Endocrine Clinic at Northwestern University's School of Medicine and Attending Physician at Cook County Hospital, published *Obesity and Leanness*. Often referred to as the most comprehensive single treatment of the subject available, the book opened with the observation that "although the scientific literature of obesity and leanness is rich in papers dealing with various pathological and clinical aspects of the problem…no comprehensive presentation of the subject has appeared since [Carl von] Noorden's monograph on obesity in 1900."[38] Fortunately, fields like endocrinology, neurology, genetics, cell physiology, and intermediary metabolism, Rony observed, were now providing important new information.

Rony appeared to be ambivalent about the role of exercise in fighting obesity. He noted that many obese persons had a "decreased impulse to muscular activity" and that in childhood, they had often shown a tendency "to avoid all unnecessary activity, outdoor play, athletics, etc." However, some individuals, in spite of being obese, had a "strong impulse to exercise."[39] Although he feared that physical activity was likely to lead to increased appetite, he also observed that "the 'tendency to obesity'… [could] be lessened by restriction of food intake and increase of muscular activity."[40]

EDUCATION AND RECREATION EFFORTS DURING THE 1920S AND 1930S

During the 1920s and 1930s the number of health and hygiene textbooks and manuals grew appreciably, many of which incorporated new information from the emerging field of nutritional science. In *Hygiene the Optometrist Ought to Know* (1921), Frederick Woll declared that unless one was a blacksmith, labourer, or athlete (all of whom needed more food), breakfast should consist of ripe fruit, an omelet or boiled egg with a chop or small piece of fish, toast or a roll with butter, a cup of coffee or

cocoa, or a glass of milk. For dinner he recommended soup, fish, roast with two vegetables, salad, bread and butter, and a simple desert. Woll was averse to smoking during meals and maintained that "the kind of music one must so often listen to nowadays in a restaurant" could impair digestion.[41] Woll opens his chapter entitled "Exercise Right" with the following words: Recognizing the importance of exercise, he argued that "the Greeks even with their limited knowledge of physiology knew that in order to be strong and healthy, it was necessary to exercise regularly."[42]

In *The Commonsense of Health* (1924), physician Stanley Rinehart observed that inventions like the automobile and the telephone had reduced the need to expend muscular effort, hence, "the vast majority of people get too little exercise." Many men now obtained their exercise by "watching a wrestling match." Those women who cared for their children's many needs and did their own housework might have sufficient exercise; others avoided physical work as much as possible and, therefore, grew stouter. The typical response, he noted, was to "starve" the body not reduce the fat-forming elements of the diet. Unfortunately, according to Rinehart, people also neglected thinking "seriously of exercise as an antidote," and in a statement that resonates today, he remarked that while "everyone believes in exercise…it is difficult to put the belief into practice."[43]

Health manuals that were written for college students during the 1920s and 1930s often incorporated some of the most up-to-date information. Two examples were *The Foundation of Health: A Manual of Personal Hygiene for Students*, written by Dr. William Sharp (Professor of Bacteriology and Preventive Medicine, University of Texas Medical School) and *The Fundamentals of Personal Hygiene*, by Walter Krueger (Instructor at Grand Rapids College). Krueger gave considerable attention to exercise as well as proper diet, noting the importance of both for health and proper development.[44] *Streamline for Health* (1935), written by Philip B. Hawk, offered a readable and informative account of carbohydrates, vitamins, and other elements, explained ways to reduce weight, and warned of the dangers of dietary fads and quirks. Hawk declared that he had found that he did a better job of carrying out his own duties if he "played tennis moderately three or four times a week."[45]

As weight control became an increasingly evident public health concern, the American Medical Association, in cooperation with other groups, organized in 1928 the first American Adult Weight Conference. Participants included professors of medicine from Johns Hopkins University and other institutions of higher learning, the New York Academy of Medicine, the Mayo Clinic, and other agencies. Two papers were given by physician Thomas Denison Wood, Professor of Health Education at Columbia University and a significant contributor to emerging

school health programs. Wood would serve as chair of the Committee on the School and the Child for the 1930 White House Conference on Child Health and Protection, and was also a leading figure in the rapidly growing field of physical education.[46]

Morris Fishbein, editor of the *Journal of the American Medical Association*, and co-author, Wendell C. Phillips, warned in their address to the conference against advertisements of all kinds of potentially hazardous nostrums and inappropriate dietary recommendations that continued to be found in newspapers and magazines. They argued that increasing "knowledge of calories and vitamins, of exercise and massage, of electric apparatus and thyroid extracts" was making the control of body weight a highly technical matter.[47] Fishbein was also the editor of *Hygeia: The Health Magazine*, which the AMA had initiated in 1923. Along with occasional articles on nutrition and obesity, it gave extensive attention to exercise, physical education, play, games, and sports.[48] One author credited the positive role that properly supervised playgrounds now had in improving children's health and helping them to become better citizens. The number of cities that provided such opportunities had increased from 41 in 1906 to 6,601 by 1923, and in spite of the Depression, the number of playgrounds would grow to 8,062 in 1936.[49]

The 1920s and 1930s also witnessed a significant growth of school-based physical education programs. Concerned by the lack of fitness among men conscripted during World War I, United States Commissioner of Education P. P. Claxton had brought representatives from educational, social service, health, and physical education groups to Philadelphia in early 1918 to consider how "an adequate, successful system of physical education may become universal." The resulting National Physical Education Service, with the support of 35 national organizations (and financed by the Playground and Recreation Association of America) would have a major role in fostering the establishment of state laws requiring physical education and the employment of state directors of public school physical education. By 1938, 36 states had enacted laws making physical education a required part of the curriculum.[50] In an article published in the *Journal of the American Medical Association* that same year, physician Horace Gray stated that a 1929 study had found that 2.6% of high-school-aged boys were overweight; another study of young delinquents, conducted in 1931, had found the number to be 2.3%.[51] Since the founding of the Association for the Advancement of Physical Education (whose name would change several times)[52] in 1885, some of its members—women as well as men—had engaged in research related to health and to psycho-social and physical development. Their involvement in research would grow considerably following World War II. The founding of the *Research Quarterly* in 1930 provided a publication venue for this kind of research.[53]

The 1960s, however, would usher in the greatest changes. The Soviet Union's success in launching of Sputnik in 1957 had intensified anxieties that already were growing regarding the quality of American education. Government funding directed to certain lines of research rapidly increased as did specialization in research, issues that did not escape the notice of physical education, which quickly set about defining itself as an "academic discipline." The preface to the comprehensive 1960 book *Science and Medicine of Exercise and Sport*, to which many in the field of physical education contributed, was one indication of an increased attention to professionalization and to the making of research on nutrition and exercise into a science.[54] The publication in 1964 of Franklin Henry's landmark article "Physical Education: An Academic Discipline" was especially influential.[55]

By the 1980s the quantity and quality of research in exercise physiology, biomechanics, sport psychology, motor development, and other areas that are the foundations of physical education had become quite notable. However, certain dangers were becoming evident.[56] The most damaging was a growing rift between those individuals who thought that research was the only thing that was important and those who believed that quality research needed to be "put into intelligent practice." During the last three decades, within college and university departments of kinesiology and exercise science (the descriptors that now have largely replaced "physical education"), applied aspects of the curriculum, especially pedagogy, have received increasingly less attention. The lack of qualified teachers has been one of several factors that have contributed to the decline of school-based physical education and community recreation programs that began in the 1970s.[57] This decline occurred at the same time that statements regarding the need to "put words into action" were occurring with increasing frequency.[58] One of the more recent appeared in the September 2009 *Research Digest of the President's Council on Physical Fitness and Sports*, which stated that "promoting the many healthy aspects of youth development through physical activity requires putting knowledge into practice and assessing the outcomes."[59] An editorial in the *Journal of the American Medical Association* in 2003 reported that, whereas in 1960 fewer than one in four adults in the United States had been classified as overweight, the number had grown to two out of three.[60] According to the United States Department of Health and Human Services, by 2002 more than 10% of pre-school aged children were overweight.[61] In May 2008 the American Academy of Child and Adolescent Psychiatry stated that between 16 and 33% of American children and adolescents were obese.[62] The problem exists in many other countries as well. According to a study published in 2002 in *Obesity Research*, in the period 1970–72 and 1998, the number of adults in Canada who were considered to be overweight or obese had increased

from 40 to 50.7%. By 2004, approximately 6.8 million adults in Canada were overweight and another 4.5 million were obese.[53] A study of elementary school children in São Paulo, Brazil found that obesity rates had more than doubled between 1989 and 2002.[64] In the May 2004 issue of the *Journal of the Royal Society of Medicine*, author Tsung Cheng reported that China now was confronted with the same "obesity epidemic"—since 1982, obesity among children there had increased from 15 to 27%.[65]

Many things have happened since 1960 that are believed to have contributed to today's "Obesity Epidemic." These include, but are not limited to the following: spending too much time watching television and on the internet; the rapid expansion of the fast food industry; and the increased consumption of carbonated soft drinks. The question of possible links between obesity and ADHD (Attention Deficit Hyperactivity Disorder) is under investigation;[66] and far too little is known about the effects of medications now taken by children as well as adults.

In North America and in several other countries, the decline of quality programs of physical education certainly cannot be overlooked as a major contributing factor. According to the Centre for Disease Control's *Guidelines for School Health Programs to Promote Physical Activity,* the percentage of high school students who attended daily physical education classes dropped from 42% in 1991 to 33% in 2005. Only 27.8% of high school girls and 43.8% of high school boys now were engaging in 60 minutes of physical activity a day.[67] Such declines have become worldwide. The *International Journal of Sports Medicine* reported in 2000 that young people in Europe also rarely engaged in "the accepted minimal norm for physical activity in terms of duration, intensity, and frequency" in spite of extensive clinical evidence supporting the importance of pediatric exercise.[68]

The fact that large numbers of children and youth now fail to engage in anything approaching adequate amounts of physical activity is very troubling, for it is during childhood and adolescence that proper habits regarding exercise are most likely to be developed. It has been 15 years since the 1996 *Report of the Surgeon General of the United States* declared that "scientists and doctors have known for years that substantial benefits can be gained from regular physical activity."[69] Comments such as this notwithstanding, it has been stated several times that many physicians do not counsel their patients about an appropriate exercise regimen. Moreover, an article in the 2006 *Journal of Physical Activity and Health* pointed out that although 70 percent of all published "measurement or surveillance studies of PA [physical activity]" that had been done during the last four decades had occurred after 1996, "even in most areas with sound research, we lag behind in translating science into practice."[70]

As after-school and community sports and recreation programs declined, concerns about physical health were not the only ones that appeared. Reports about increasing juvenile violence have been appearing in several countries. The extensive book *Serious and Violent Juvenile Offenders*, published in 1998, cited "structured playground activities" and after-school sports activities as important deterrents.[71] Likewise, the World Health Organization's 2004 report *Preventing Violence*, listed "sports and recreation" as one of its eight significant positive social factors.[72] These observations are not unlike the beliefs of sociologist Charles Zueblin, who wrote in 1902 that "children's playgrounds are as necessary as schools to the welfare of the modern community."[73] Not content with words alone, beginning in the late 1800s to early 1900s, Jane Addams, Lilian Wald, and a growing number of men and women in Britain, North America, Europe and elsewhere created an array of community-based sports and recreation programs. Their goal was to better the lives of children, youths, and even adults.[74] The many programs that they organized and conducted provided extensive opportunities for activities that contributed to positive psycho-social as well as physical health. Sports medical personnel, including physical educators, should embrace lessons from these past successes in promoting exercise and sport among children and adolescents, and rekindle practices once popular and effective but now abandoned.

Concerned about escalating health issues, the American College of Sports Medicine established an "Exercise is Medicine" initiative and in March 2008 held a news conference in Washington, DC, jointly with the American Medical Association, to initiate a congressional bill aimed at establishing "The Physical Activity Guidelines for Americans" Act.[75] The reduction of obesity through a healthy diet and regular physical activity are a major focus of newly appointed United States Surgeon General Regina Benjamin's 2010 health initiatives.[76] It is time to rebuild, in 21st-century fashion, what once existed and to ensure that "words" really are "put into action." The adage often attributed to Benjamin Franklin should not be forgotten: "An Ounce of Prevention *is* Worth a Pound of Cure."

NOTES

1 Recent Advances in Obesity Research: Proceedings of the First International Congress on Obesity, 8-11 October 1974 (London: Newman Publishing, 1975).
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3 An aptly titled recent publication is Sue Y. S. Kimm and Eva Obarzanek, "Childhood Obesity: A New Pandemic of the New Millennium," *Pediatrics: Official Journal of the American Academy of Pediatrics*, 110: 5 (2002): 1003-7.
4 Claude Bouchard, ed. *Physical Activity and Obesity* (Champaign, Ill.: Human Kinetics, 2000), p. 1.
5 Bouchard, *Physical Activity and Obesity*, p. 3.

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7 http://classics.mit.edu/Aristotle/politics.8.eight.html. Accessed August 2007.
8 Robert Montraville Green, *A Translation of Galen's Hygiene—De Sanitate Tuenda* (Springfield, Ill.: Charles C. Thomas, 1951); Niki Papavramidou, Spiros T. Papavramidis, and Helen Christopoulou-Aletra, "Galen on Obesity: Etiology, Effects, and Treatment," *World Journal of Surgery*, 28 (2004): 631-35; Mark Grant, *Galen on Food and Diet* (London: Routledge, 2000); and Ellen W. Gerber, *Innovators and Institutions in Physical Education* (Lea and Febiger, 1971), p. 17-26. Galen's treatise *On Hygiene (De Sanitate Tuenda)* contains an extensive section on "Exercise and Massage."
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12 Roberta J. Park, "Education as a Concern of the State: Physical Education in National Plans for Education in France, 1763-1795," *Research Quarterly*, 44 (1973): 331-46; Park, "Stephanie-Felicite du Crest la comtesse de Genlis (1746-1831) Early Female Proponent of Physical Education," *Research Quarterly*, 44 (1973): 34-46.
13 William Wadd, *Comments on Corpulency, Lineaments of Leanness: Mems on Diet and Dietetics* (London: John Ebers & Co., 1829), p. 39-46.
14 Wadd, *Comments on Corpulency*, p. 79.
15 Wadd, *Comments on Corpulency*, p.162.
16 Thomas John Graham, *Sure Methods of Improving Health and Prolonging Life; or a Treatise on the Art of Living Long and Comfortably by Regulating the Diet and Regimen* (London: Simpkin and Marshall, 1828), chap. 1; p. 109-32.
17 Graham, *Sure Methods of Improving Health and Prolonging Life*, p. 174, 212-13.
18 Edward Hitchcock, *Dyspepsy Forstalled and Resisted: Or Lectures on Diet, Regimen, and Employment*, 2nd edition (Amherst: J. S. & C. Adams, 1831), p. 29-31, 39, 48-51.
19 Hitchcock, Dyspepsy Forstalled and Resisted, p. 203-4.
20 See Fred Eugene Leonard, *A Guide to the History of Physical Education* (Philadelphia: Lea & Febiger, 1923), p. 272-74.
21 See for example, Simon Flexner and James Thomas Flexner, *William Henry Welch and the Heroic Age of American Medicine* (Baltimore: The Johns Hopkins University Press, 1993); Kenneth M. Ludmerer, *Learning to Heal: The Development of American Medical Education* (New York: Basic Books, 1985); and Paul Starr, *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry* (New York: Basic Books, 1982).
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24 Henry T. Finck, *Girth Control: For Womanly Beauty, Manly Strength, Health and Long Life for Everybody* (New York: Harper and Brothers, 1923).
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and Harvey Green, *Fit for America: Health, Fitness, Sport, and American Society* (New York: Pantheon Books, 1986)..

26 William Harvey, *On Corpulence in Relation to Disease: With Some Remarks on Diet* (London: Renshaw, 1872).

27 Such matters are set forth in the first 12 pages of William Banting, *Letter on Corpulence, Addressed to the Public* (San Francisco: A. Roman and Co., 1865), which is a reprint of the third London edition. See also http://homodiet.netfirms.com/otherssay/letters/banting.htm. Accessed August 2007.

28 Nathaniel Davies, *Foods for the Fat: A Treatise on Corpulency and a Dietary for Its Cure* (Philadelphia: J. B. Lippincott, 1889), p. vi; 46.

29 Gustav Gaertner, *Reducing Weight Comfortably: The Dietetic Treatment of Obesity* (Philadelphia and London: J. B. Lippincott, 1914), especially chaps. 4, 8, and 11. Gaertner's words "Repeated mention has been made" aptly reflect the many times that certain topics are brought up throughout his more than 300-page book.

30 Gaertner, *Reducing Weight Comfortably*, especially chaps. 9, 12, and 14. Gaertner was not adverse to spinach, kale, endives, cabbage, cauliflower, celery, kohlrabi, green beans, peas, turnips, or carrots; but did not think they had much nutritional value.

31 Such practices can be traced back to the "Athletic Training" section of John Sinclair's book *The Code of Health and Longevity; or, a Concise View of the Principles Calculated for the Preservation of Health and the Attainment of Long Life* (Edinburgh: Arch. Constable and Co., 1807), which drew on a number of Classical sources.

32 Gaertner, *Reducing Weight Comfortably*, chap. 5; p. 252-57.

33 Gaertner, *Reducing Weight Comfortably*, especially chaps. 4 and 24.

34 Leonard Williams, *Obesity* (London: Oxford University Press, 1926), p. v.

35 Heckel also recognized the importance of active exercise, writing works such *La Culture Physique et Cures d'Exercise* (1913).

36 Now taken over by MEDLINE (which currently includes 5,246 journals).

37 Thomas N. Bonner, *American Doctors and German Universities: A Chapter in International Intellectual Relations, 1870-1914* (Lincoln: University of Nebraska Press, 1963) and Thomas N. Bonner, *Becoming a Physician in Britain, France, Germany, and the United States, 1750-1945* (New York: Oxford University Press, 1995).

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39 Rony, *Obesity and Leanness*, p. 80-81.

40 Rony, *Obesity and Leanness*, p. 265-26, 268.

41 Frederic A. Woll, *Hygiene the Optometrist Ought to Know* (New York: Frederic A. Woll, 1921), chap. 5.

42 Woll, *Hygiene the Optometrist Ought to Know*, chap. 7.

43 Stanley M. Rinehart, *The Commonsense of Health* (Garden City, N.Y.: Garden City Publishing Co., 1924), chap. 11.

44 William Sharp, *The Foundations of Health: A Manual of Personal Hygiene for Students* (Philadelphia: Lea and Febiger, 1924); Walter Krueger, *The Fundamentals of Personal Hygiene, Including Their Application to Healthful Living* (Philadelphia: W. B. Saunders, 1932).

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46 Thomas Denison Wood, "How One Woman Lost Forty Pounds" and "The Overweight Child." For a useful overview of Wood's contributions to health education see Richard K. Means, *A History of Health Education in the United States* (Philadelphia: Lea and Febiger, 1962).

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49 Mabel Wood, "Public Recreation–A Health Source," *Hygeia* (August 1924): 508-10; "Playgrounds and Indoor Centers," *Recreation* (April 1936): 102-3.

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51 Horace Gray, "Obesity in the Adolescent Cured Without Injections." *Journal of the American Medical Association*, 10, 18 (1938): 1430-33.

52 For example, American Physical Education Association (1903-37); American Association for Health, Physical Education and Recreation (1938-74). Today it is known as the American Alliance for Health, Physical Education, Recreation, and Dance. Some individuals have expressed concerns about changing from an Association to an Alliance. See Bruce L. Bennett, "This Is Our Heritage: 1960-1985," *Research Quarterly for Exercise and Sports*, Special Centennial Issue (1985): 102-20.

53 See Roberta J. Park, "'Of the Greatest Possible Worth': The *Research Quarterly* in Historical Contexts," *Research Quarterly for Exercise and Health*, 76, 2 (Supplement 2005): S5-S26.

54 Warren R. Johnson, ed., *Science and Medicine of Exercise and Sports* (New York: Harper and Brothers, 1960).

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58 For example, US Department of Health and Human Services, *Physical Activity and Health: A Report of the Surgeon General* (Atlanta, Ga.: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996); Harold W. Kohl III et al., "Physical Activity and Public Health: The Emergence of a Subdiscipline—Report from the International Congress on Physical Activity and Public Health, April 17-24, 2006, Atlanta, Georgia, USA," *Journal of Physical Activity and Health*, 3 (2006): 344-64.

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62 http://ww.aacap.org/cs/root/facts_for_families/obesity_in_children_and_teens. Accessed October 2008.

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