The "bikini mosaic," located in the ruins of a fourth-century villa in Sicily, provides one of the best clues to what kind of exercise women did in the ancient world. Note the *halteres* [dumbells] and the *paganica* or medicine ball.

"As Men Do Walk a Mile, Women Should Talk an Hour . . .Tis Their Exercise"

& Other Pre-Enlightenment Thought on Women and Purposive Training

Jan Todd

Open any modern women's magazine and you'll find at least one article on exercise. Visit your local video rental store and you'll find dozens of exercise tapes aimed specifically at women. Log on to the Internet and see what happens when you search for the phrase, "women's exercise;" you'll be bombarded with links to information ranging from aerobic dance to weight training to Pilates to walking to yoga. Advice on what women should do for exercise is *everywhere* these days. Standing in the grocery check-out line, watching television, even listening to the radio, one cannot escape the message that women need to move, to get strong, to build endurance, to become more flexible. Hundreds of modern experts preach that women need to exercise for the same reasons that men do — to enhance their health, increase their longevity, and improve their appearance. And, most significantly, women are increasingly told that they need to train like men — that there is no physiological reason why non-pregnant women shouldn't follow essentially the same kind of physical culture regimens as men do.

While the belief that women are capable of vigorous, and even strength-essential exercise, seems logical in this Post-Title IX — post-Women's Liberation era, this attitude has not historically dominated Western Civilization's ideas about appropriate exercise for women. Rather, for most of western history, women were either told they didn't need to train, or that they needed to do only light, gender-appropriate exercises. Perhaps because widespread women's exercise is such a new

phenomenon, we've paid little attention to its history — particularly its early history. The same is true of early women's sport, as historian Allen Guttmann observed when he wrote, "those who want to know more about women's sport in antiquity, in the Middle Ages, during the Renaissance, in early modern times, will be frustrated."[1] This essay aims to ease the similar frustration one feels when searching for information about women's exercise in earlier historical eras.

There are a number of reasons why sport historians have paid so little attention to the history of women's exercise. The most basic one is the problem of real evidence. Exercise doesn't require organizations and statisticians. It doesn't leave behind record books and box scores or records of winners carved on temple walls. Unlike sport, which is public, exercise is generally a private, personal act. And so unless someone has kept a diary that includes discussion of his or her exercise routine, it is difficult to really know what was done, by whom it may have been done, and what it meant to the man or woman performing the exercise. However, this does not mean that we have no idea what women did for exercise in earlier eras. Throughout western history, some hygienic authors have included advice for women on exercise. These suggestions, along with the archaeological remains of gymnasia, public baths, and statuary surviving from Ancient Greece and Rome reveal much about what happened before the eighteenth century's sudden flowering of interest in the body, hygiene, and exercise.

This essay, then, is an attempt to trace the history of what I call "purposive exercise" for women through the Age of the Enlightenment — the era of scientific discovery triggered by Isaac Newton and John Locke that blossomed in the late seventeenth and early eighteenth centuries. The essay relies heavily on the didactic literature about hygiene and physical culture published over a period of approximately two thousand years, with the acknowledgement that such sources can create an incomplete and even inaccurate history. However, these instructional books and treatises are the best, and in some cases the only sources we have on what women's exercise experiences may have been like before the eighteenth century. I define "purposive exercise" as movement undertaken for specific hygienic reasons; it is exercise meant to create specific changes in the body — to help the person become more healthy, to improve appearance, to gain in strength, or to create psychological self-confidence. Through this examination of the early literature I have two main aims. The first is simply to create a chronological history of the advice given to women concerning exercise in the pre-Enlightenment era. A secondary goal, however, is to explore the impact that pre-Enlightenment advice had on our modem notions of appropriate exercise for women. As for the history of women's exercise after the Enlightenment, a few modern scholars have begun to document this aspect of women's lives. For those interested in the topic, I would suggest as possible sources my own *Physical Culture and the Body Beautiful: Purposive Exercise in the Lives of American Women—1800-1875;* Patricia Vertinsky's *The Eternally Wounded Woman: Women, Exercise and Doctors in the Late Nineteenth Century;* Mary Lynn Stewart's *For Health and Beauty: Physical Culture for Frenchwomen: 1880s-1930s;* Susan Cahn's *Coming on Strong: Gender and Sexuality in Twentieth Century Women's Sport;* and Allen Guttmann's *Women's Sports: A History.*[2]

Purposive Exercise and the Philosophy of Hygiene

The history of purposive exercise is inevitably tied to the history of hygiene and that history is very old indeed. We know, for instance, that purposive exercises were used as part of hygienic prescriptions as early as the fifth century B.C., when Herodicus of Selymbria (480-?), a former boxing and wrestling instructor turned physician, recommended "gymnastic" exercise to his patients. Herodicus was one of the first to understand the importance of preventive medicine, and he claimed that it was "just as important to provide against diseases in the healthy man as to cure him who was already attacked."[3] Gymnastics for the Greeks consisted of a wide variety of activities including wrestling, running, leaping, boxing, mock combat, and resistance training or weightlifting.[4] Herodicus' most important contribution, however, was the introduction of "systematic" exercise as part of athletic preparation. In fact, sport scholar E. Norman Gardiner blamed Herodicus for the decline of the ancient Olympic Games, claiming that the introduction of purposive exercise "ruined athletics" by making training into a system. "After his time," wrote Gardiner, "victory at Olympia became a thing which had to be worked for by special methods." Gardiner's attitude toward training was very much a product of his time and upper-class heritage. Like Baron Pierre de Coubertain, who founded the modern Olympic Games, Gardiner was a staunch believer in amateurism and took the position — as did many men in the early twentieth century who were educated at elite universities like Harvard and Yale in the United States, and Oxford and Cambridge in England — that specific training to be better at a sport made one a "professional."[5]

Herodicus' contemporary, Hippocrates (460 B.C.-?), the so-called, "father of scientific medicine"

authored three major treatises on hygiene and exercise. His most complete discussion of the subject was *Corpus Hippocratium* but he gave more detailed advice on how to apply his ideas in his two other famous treatises: *Regimen in Health* and *Regimen.*[6] Hippocrates' great insight was that an equilibrium existed in the body between food and exercise. He took considerable pride in his grasp of this seemingly obvious concept, writing: "This discovery reflects glory on myself its discoverer, and is useful to those who have learnt it." As Hippocrates put it, "Whether food over-powers exercise, whether exercise over-powers food, or whether the two are duly proportioned . . . it is from the overpowering of one by the other that diseases arise, while from their being evenly balanced comes good health."[7] Hippocrates viewed exercise as part of a total, hygienic system and understood that the physical condition of the "patient" would determine which exercise modality was appropriate. Hippocrates differentiated between exercises appropriate to the training of athletes and exercises for general health and fitness, and he considered walking to be the most healthy exercise for persons of either sex.[8]

Hippocrates, considered the father of medicine, was the first to write about the connections between diet and exercise.

Courtesy National Library of Medicine

Over the next several centuries, following the lead of Hippocrates and Herodicus, numerous Greek authors preached that the road to health and longevity consisted of regular exercise, dietary restraint, and moderation in all aspects of life. Cicero (106-43 B.C.), for instance, maintained that, "Exercise and temperance can preserve something of our early strength even in old age."[9] Aristotle (384-322 B.C.) likewise sought the *media via* and argued that ". . . we must surrender our children in the first instance to gymnastics and the Art of the Trainer, as the latter imparts a certain character to their physical condition and the former to the feats they can perform."[10] Aristotle also favored moderate exercise for adults. "For a vigorous habit of body . . . for health and the procreation of healthy children, what is wanted is not the bodily condition of an athlete nor on the other hand a valetudinarian and invalid condition but one that lies between the two. The right condition then, although it is one of discipline, is disciplined not by violent exercises, nor for one purpose only like an athlete's, but for all the actions of a liberal life. Also this condition should be the same for women as for men."[11]

The hygienic ideas of the Ancient Greeks found new life in the work of Claudius Galenus or Galen, who lived from 129 to approximately 199 A.D.[12] According to medical historian Jack Berryman, it was Galen who structured the theory of the six "non-naturals," a physiological precept that dominated hygienic thought to the mid-nineteenth century. Galen argued that the body's equilibrium, or state of perfect health, resulted from a balance between the "naturals," or those things which were innate, and the "non-naturals," or outside influences. The six "non-naturals," the external elements that Galen believed could negatively influence health, were air; food and drink; motion or exercise; rest; sleep and wakefulness; excretions and retentions; and what he called the passions of the mind, meaning such emotions as anger, lust, and jealousy. Moderation and proper balance of these non-naturals was critical to the maintenance of health and longevity, according to Galen.[13]

As Berryman observed in his seminal article tracing the tradition of the six non-naturals through the medical history of the last two thousand years, it was Galen who first "regarded exercise as a branch of hygiene and hygiene as part of the science of medicine."[14] Galen further helped the growth of physical culture by differentiating between simple movement and purposive exercise. "To me," he wrote, "it does not seem that all movement is exercise but only when it is vigorous. But since vigor is relative, the same movement might be exercise for one and not for another."[15] More than anyone else up to that time, however, Galen approached the study of exercise from a scientific perspective.[16] He argued that physicians could help to determine proper exercise prescriptions by watching respiration. "The criterion of vigorousness is change of respiration; those movements which do not alter the respiration are not called exercise."[17] Galen believed that bodies at all stages of life needed motion and he recommended in *On Hygiene* that passive movements such as massage, rocking in a cradle, sailing, and swinging be

Many of our ideas about the effects of exercise on health and vigor were first described by the Roman-era physician Claudius Galenus (Galen), who lived from 129-199 A.D.

Courtesy National Library of Medicine

employed for those in poor condition, while vigorous exercises which increased the rate of breathing should be undertaken by those who were more fit.[18]

These early ideas of the centrality of exercise to the healthy life formed the framework for exercise in ancient Greece and Rome for men. However, unlike men whose exercise routines were supported by public gymnasiums, *paidotribes* (athletic trainers),[19] organized competitive sports, and the government's needs for strong soldiers, the evidence is less clear on what was considered appropriate exercise for women in ancient Greece and Rome.[20]

Ancient Trainers

When it came to women's exercise in ancient Greece, geography was very nearly destiny, as women in Greece's two main city-states had dramatically different exercise experiences. Upperclass Athenian women, for example, were expected to marry and then stay hidden away at home bearing and rearing their husband's children; they appeared in public only for religious festivals and funerals. Spartan women on the other hand were *required by law* to exercise and be fit.[21]

Before their marriage, Athenian girls played with balls and a few may have even participated in the Heraean Games held every four years at Mount Olympus in the month prior to the Olympics. The Heraean Games were a series of races held in honor of the goddess Hera that predated the more famous Olympic Games.[22] Although German historian M. Lammer claims that the contestants were all local girls and thus the Heraean Games were not nearly as important as the Olympic Games, other sport historians believe that the Heraean Games did matter and that they attracted competitors from throughout Greece.[23] The second century A.D. author Pausanias thought they were important enough to describe the competitors, writing: "They run in the following way: their hair hangs down, a tunic reaches to a little above the knee, and they bare the right shoulder as far as the breast. These too have the Olympic stadium reserved for their games, but the course of the stadium is shortened for them by about one sixth of its length. To the winning maidens they give crowns of olive and a portion of the cow sacrificed to Hera."[24] There are two surviving statues that show women runners dressed in exactly this way.[25] Historian Betty Spears points out that the statuette from 500 B.C., now in the Vatican collection, is "typical of the Archaic art style, her legs are hefty, thighs well developed, and calves bulging."[26]

Most scholars have argued that despite the importance of the gymnasium to the men of Athens, the city's women were not encouraged to participate in exercise or physical training.[27] However, in recent excavations at Brauron, just outside Athens, evidence has been found suggesting that races similar to those of the Heraean Games were held at that site in honor of the Goddess Artemis. From pottery shards and other evidence, archaeologists speculate that children and teenaged girls participated in races and dances to honor the goddess. It appears that some of them competed in the nude, just as the male athletes did in the Olympic Games. While little else is known about these races. the historian Allen Guttmann points out that "At least one of the nude Brauron runners has the muscular physique and long stride of a modern athlete," a fact which suggests, but does not prove, that these were indeed athletic events and not merely some form of fertility rite.[28] Pausanias, writing nine hundred years after the first Heraean Games, reported that similar races were also held at Argos, Delphi and near Kameios in Lakonia.[29]

Another interesting clue suggesting that ancient Greek women may have exercised systematically is a vase painting in which three muscular young women are shown in a gymnasium scene. The classicist Claude Bérard argues that the vase is significant as it clearly shows women (not young girls) "after their exercise. The one on the left, with a very athletic body is in the process of cleaning her back with a strigil [to

This bronze statuette of a Greek woman running is now housed at the British Museum in London.

Attic vase depicting three women cleansing themselves after exercise The woman on the left holds a strigil in her hand to scrape the dirt and sweat from her back.

remove oil, sweat and dust]; above her on the right, one sees the sponge and oil flacon."[30] Bérard contends that the vase proves that young women as well as young men frequented the gymnasia. The way the artist has depicted the athletes' bodies — with broad shoulders, muscular arms, and tightly muscled legs and hips — gives credence to Bérard's theory.

The record of women's involvement in exercise is much clearer in Sparta, a society that allowed its women far more freedom than did Athens. Founded by King Lacadaemon, the city was named in honor of his wife, Sparta, suggesting the importance of women to the society from the beginning.[31] Although not a true matriarchy, Sparta gave women far more rights and responsibilities than women had in other parts of ancient Greece. They could own property, for instance, and because their husbands were so frequently away at war, they took on many tasks not available to Athenian women.[32]

The pattern of life that historians now regard as distinctly "Spartan" evolved in the seventh century B.C. under the direction of King Lycurgus. Lycurgus organized Spartan society to enhance its military preparedness and set up a body of laws that proscribed behavior for both men and women. Lycurgus argued that women should not be cloistered but, rather, that they should become fit and strong so they could bear stronger children to fight in Sparta's armies and to defend her borders. The ancient historian Xenophon tells us, "But as far as free women were concerned, because [Lycurgus] thought childbearing was their most important function, he decreed that the female sex ought to take bodily exercise no less than the male. He established competitions of running and strength for women with one another, just as he did for men, because he thought that stronger offspring would be born if both parents were strong."[33] Xenophon further reports that Lycurgus' eugenic plan succeeded, arguing that the men of Sparta were superior in height and strength to men from other parts of Greece. In Plutarch's biography of the Spartan law-giver, written five centuries after the time of Lycurgus, he writes: "Lycurgus took particular care about the women as well as the men. He made the young women exercise their bodies by running and wrestling and throwing the discus and javelin . . . He freed them from softness and sitting in the shade and all female habits, and made it customary for girls no less than boys to go naked in processions and to dance naked at certain festivals and to sing naked while young men were present and looking on."[34] Perhaps the fear of nakedness was incentive enough to train. However, whether from their exercise, their "superior genetics" or both, Spartan women enjoyed a reputation throughout the ancient world for their great beauty. Helen of Troy herself, according to the third century B.C. poet Theocritus, took part in races along the Eurotas River with 240 other young girls.[35] Guttmann points out that other evidence of Spartan women training can be found in Aristophanes' play *Lysistrata* when one of the women characters takes time out from protesting the war to do her exercises.[36]

Although most Athenians and probably most Greeks living outside Sparta looked with disapproval on the Spartan's love of exercise, not everyone thought it was inappropriate. Plato, for instance, was also enamored of the idea of exercise for women. In *The Lows* he proposed that women should join their husbands in the gymnasium. "My law should apply to females as well as men; they shall both go through the same exercises. I assert without fear of contradiction that gymnastics and horsemanship are as suitable to women as to men."[37]

As Greek society evolved and entered what historians call the Hellenistic period (around 323 B.C.) we find even more evidence of women's participation in gymnasium training and sport. For instance, Claudia Metrodora is memorialized in a stone inscription on the island of Chios for being four times *"gymnasiarch"* and twice

benefactor of the games in honor of Heracles. A *gymnasiarch* was a gymnasium manager and the inscription describing Metrodora's involvement goes on to explain that she was even honored by being asked to distribute the oil used by the male athletes in the games. It is possible, of course, that her involvement with the gymnasium was strictly financial. However, at Dorylaeum in Phrygia it is recorded that Asclepiades was the *gymnasiarch* of free men and slaves, while his wife Antiochis was the *gymnasiarch* of the women. As Guttmann points out, that women had a *gymnasiarch* indicates that at least some women actually used the gymnasium.[38]

As for the Romans, near the village of Piazza Armerina in Sicily stands one of the most significant architectural treasures of the ancient world — and one of the most intriguing artifacts in the history of fitness — the Roman Villa of Casale. The villa, believed to have been built by the Emperor Maximian as a summer retreat in the late third and early fourth centuries A.D., is famous for its breathtaking mosaics depicting scenes from Roman life.[39] Included alongside the scenes of gladiators, farming, and other everyday Roman activities, however, are depictions of ten young women dressed in two-piece costumes resembling bikinis. One of the young women, whose shoulders appear larger than the others, is holding a pair of *halteres* or dumbells. Standing next to her is a figure holding either a large ball or a discus. If it is meant to be a ball, it was probably a *puganica* or medicine ball — commonly used by Roman men in their training. Other women in the fresco are shown running, playing a ball game, and holding palm leaves and other symbols of athletic victory. It is a beautiful mosaic, artistically conceived and painstakingly crafted. The women's bodies are in motion, their fitness and health readily apparent. What's more, the mosaic's presence in the home of a prosperous aristocrat at the height of the Roman empire provides compelling evidence that perhaps some ancient women found ways to participate in sport and exercise. As Guttmann puts it, "Quite probably, the girls represent a javelin thrower, a jumper, a discus-thrower, two runners. two ball players, and three girls with their prizes."[40]

Bronze statue of a woman athlete from the first century A.D. Note the strigil and the bandage around her knee. This statue is on display at the Hamburg Museum of Art in Germany.

Other evidence of involvement in exercise by women in the Roman era can be found in Athenaeus' dialogue *Concerning Women,* written in approximately 228 A.D. Athenaeus reported seeing girls wrestling in a gymnasium on the island of Chios and wrote, "it is very pleasant just to walk to the gymnasium and running-tracks and watch the young men wrestling with the girls."[41] Propertius, who died in about 15 B.C., also gives credence to the idea of women wrestling and engaging in vigorous activity in the early Roman era:

> I much admire the Spartan wrestling schools,
> but most of all I like the women's rules;
> for girls and men can wrestle in the nude
> (the Spartans think such exercise is good);
> naked they throw the ball too fast to catch,
> and steer the creaking hoop in the bowling match.
> stand waiting. grimed with dust, for the starting gun.
> and bear the brunt of the Pancration,
> put boxing gloves on hands so soft and fair,
> and whirl the heavy discus through the air
> If Roman girls would do as the Spartans do,
> Then, Rome, I'd have cause for loving you.[42]

Other evidence that Roman women trained in meaningful — and strikingly modern — ways can be found in Juvenal's description of a Roman matron: "It is at night that she goes to the baths, at night that she gives orders

for her oil-flasks and other impedimenta to be taken there; she loves to sweat among the noise and bustle. When her arms fall to her sides, worn out by the heavy weights, the skillful masseur presses his fingers in to her body."[43] Juvenal even disapprovingly suggests, in another part of the Satires, that some women trained to become gladiators and battled wild boar in the arena.[44] Another tantalizing bit of evidence is the first century A.D. bronze, now housed in Hamburg's Art Museum, that shows a young woman athlete, bare to the waist, with a strigil in one hand and a bandage wrapped around her knee.[45]

We'll never know how many ancient Greek and Roman women trained, or what kind of exercise routines they may have used. Nor will we know exactly how their cultures perceived their involvement with exercise. But at Delphi, where athletic games similar to those of the Olympics were held every four years, one proud father set up a monument to his three daughters — who won both foot races and chariot races while wearing armor at sporting games held in Delphi, Nemea, and Isthmus.[46] And if classicist H.A. Harris is correct. then similar women's athletic events were held at Corinth, Naples, and at the Capitoline Games during the Roman era.[47] It would be wrong, however, to infer from this evidence that there was a widespread women's fitness movement in either ancient Greece or Rome just as it would be wrong to assume that everyone approved of the idea of women's exercise. It would also be wrong to infer that there was *no* fitness exercise done by women. There is simply too much evidence that some women trained systematically. Whether the young women depicted in the Bikini Mosaic represented simply an erotic/aesthetic ideal or, as Guttmann suggests, they depicted living female athletes, the very fact that a wealthy, influential Roman wished to immortalize such women in his villa is indicative that the idea of exercise and training for women was accepted in some quarters of Roman society. How many American homes have chosen a similar decorative theme?[48]

Renaissance Writers Rediscover Hygiene and Exercise

Interest in the therapeutic value of exercise declined sharply following the fall of the Roman Empire around 500 A.D. The early Christians, attempting to divorce themselves from what they perceived as Roman dissipation and paganism, de-emphasized the body, largely abolished athletic competitions, and encouraged men and women to live pious, reflective lives instead.[49] Unlike most Romans and Greeks who had lived by Juvenal's philosophy of *Mens Sana in Corpore Sano,* (the sound mind in the sound body) early Christians preached the duality of man.[50] The body and soul were separate and the mortal body was far less important than the immortal soul.[51] Although historian William Baker tells us that a number of ball games and wrestling matches continued to occur during what historians characterize as the Dark or Middle Ages, purposive exercise does not make a significant reappearance until the feudal system and Great Crusades gave rise to knighthood and its new code of conduct — chivalry. Male knights throughout Europe commonly practiced wrestling, vaulting, boxing, leaping, archery, stone hurling, fencing, spear throwing and horsemanship; and an outgrowth of this training — the knightly tournament — evolved so that these aristocratic males could test the results of their training.[52] While knightly training might make one fit for battle, the resultant health and harmonious body development valued by the ancient Greeks was coincidental. However, in the early years of the Renaissance, the Humanist Movement spawned a widespread resurgence of interest in Greek and Roman culture, including ancient matters of health and hygiene. As the old Greek texts were rediscovered, the idea that purposive exercise could be beneficial on a number of levels began again to receive more critical consideration. One of the first to write on these matters in the early Renaissance was Petrarch (1304-1374) who suggested in *Against a Certain Physician* — a small pamphlet that espoused the pleasures of the simple life — that exercise could be substituted for the medicines of his day, which often poisoned the body rather than cured it.[53]

Medical historian L.H. Joseph argues that the revival of interest in Greek culture during the Renaissance particularly resulted in the popularization, through the mid-1700s of the hygienic theories of Hippocrates and Galen.[54] A large number of hygienic treatises — produced by enthusiasts of the Greek ideal — preached moderation, the value of exercise, and the idea that health should be a matter of societal concern.[55] Although Latin was the favored language of the educated classes of Europe during the Renaissance, many of these hygienic works were written in the vernacular and thus had a wider readership.[56] A classic example of this trend was the anonymously published *Regimen Sanitatis Salernitanum.* The *Regimen* was based almost entirely on Galen's writings, and it was largely responsible for reintroducing to western society Galen's thoughts on medicine and exercise when it appeared in the late thirteenth or early fourteenth century. Originally published in Latin, the *Regimen Sanitatis Salernitanum* contained

several brief mentions of therapeutic gymnastics, and remained an important source of hygienic doctrine for the next several hundred years. In 1607, John Harrington (1561-1612) translated the book into English verse and called it *The Englishman's Doctor. Or the Schoole of Salerne. Or Physicall Observations for the Perfect Preserving of the Body of Man in Continuall Health*. According to British historian H. E. Sigerist, Britons loved the verse format of *The Englishman's Doctor,* and it subsequently went through numerous English-language editions during the next several centuries.[57]

John Harrington (1561-1612) introduced Galen's ideas on health and medicine to a new class of citizens with publication of The Englishman's Doctor in vernacular English.

In these new vernacular texts, Galen's humoral theory and his doctrine of the six non-naturals became codified by Renaissance authors into what came to be viewed as the "laws of bodily health" — ideas increasingly expressed as value prescriptions.[58] Readers were encouraged to become both their own physicians and their own physical educators. The message was simple: health and fitness are attainable by anyone willing to make a personal commitment to moderation, exercise, and self-sacrifice.[59]

Among the most significant of these new vernacular texts was Thomas Elyot's (1490-1546) *Castel of Helthe.* Berryman believes that *Castel of Helthe,* which by 1610 had gone through fifteen editions, was the first Renaissance manual of popular or domestic medicine designed to provide working class men and women with simple instructions on how to keep well.[60] Elyot discussed a number of exercises in the text and differentiated between those that could be done indoors in one's home and those that needed space outdoors. Included in Elyot's list of useful exercises were "deambulations [walks], labouring with poises [weights] made of lead or other metal called in Latin *alteres,* lifting and throwing the heavy stone or bar, playing at tennis, and divers semblable exercises."[61]

Joachim Camerarius also discussed specific exercises in his 1544 *Dialogue de Gymnasius.* Historian Fred Eugene Leonard reports that Camerarius recommended that boys wrestle, run, jump, fence, play ball, and lift weights.[62] Camerarius also included a discussion about what sorts of exercise should occur in schools and recommended that the teacher provide for such activities as "hanging from a bar, climbing a rope, lifting weights, and matching strength with an opponent in various ways, and for a number of active games in the open air."[63]

One of the most important books philosophically was Luigi Cornaro's 1558 *Trattato della Vita Sobria* or *Treatise on a Sober Life.*[64] Cornaro (1467-1565) was a typical member of the Italian nobility — wealthy and interested in the arts, yet also given to bouts of gluttony and alcoholic excess. When his health deteriorated during his mid-thirties, Cornaro's physicians warned him that he would not live much longer unless he made serious lifestyle changes. Cornaro's conversion was total. "I immediately concluded, that the foregoing contrary effects could not be produced but by contrary modes of living: and therefore, full of hopes, resolved, in order to avoid at once both death and diseases to betake myself to a regular course of life."[65]

Cornaro saw in his new temperance a moral precept around which he could shape his life. He wrote, "But when I once resolved to live sparingly, and according to the dictates of reason, seeing that it was no difficult matter, nay that it was my duty as a man to do so, I entered with so much resolution upon this new course of life that nothing has been since able to divert me from it."[66]

Cornaro's concept of temperance as a moral imperative was to resonate down through the centuries that followed the publication of his original treatise.[67] Even Americans such as Benjamin Franklin and nineteenth-century health reformer Sylvester Graham were influenced by Cornaro's views, especially his notion that exercise and dietary restraint should be moral imperatives.[68]

Perhaps the most significant impact of Cornaro's book, however, was his message of the value of moderation. Cornaro's regimen was designed to lengthen life by "conserving the vital principle of the body."[69] Cornaro, who reportedly died at the age of ninety-eight, believed that limiting his food, guarding against excessive heat and cold, avoiding fatigue, and keeping a

happy frame of mind enabled him to hoard his life's vital energy and thereby extend his lifespan.[70] This idea, that the body's vital forces must be rationed, was to have an enormous impact on the lives of women for the next several centuries as hygienic authors and physicians urged women to avoid strenuous exercise so that they could conserve their life force for maternity. Both menstruation and pregnancy, the argument went, placed such demands on a woman's physiology that she must be extremely cautious about the amount of physical, and even intellectual, exercise she took lest she deplete herself and be unable to fulfill her true calling in life — motherhood.[71]

Hieronymus Mercurialis, author of *De Arte Gymnastica* lived from 1530-1606. His book on exercise reintroduced the ideas of Ancient Greece to the Renaissance and became the "Bible" for those interested in health and exercise for the next several centuries.

Courtesy National Library of Medicine

While many late-Renaissance hygienists followed Cornaro's lead and advocated only moderate exercise, there were authors who believed in the benefits of a more vigorous approach. The most famous of this group was Hieronymus Mercurialis (1530-1606), who included exercise advice for both men and women in his influential *De Arte Gymnastica Aput Ancientes* (Art of Gymnastics Among the Ancients).[72] Quoting from more than ninety-six earlier authors, Mercurialis' heavily illustrated work first appeared in 1569 in Venice, Italy with subsequent editions in 1573, 1587, 1600, 1614 and 1672.[73]

Mercurialis was one of the most famous Renaissance physicians. Educated in Padua, Italy, he later served as personal physician to Emperor Maximilian II, and was knighted by the Emperor in 1573 following a successful cure. In later years Mercurialis taught medicine at the university in Bologna and, later still, at Pisa. He was so highly regarded in his day that his hometown of Forli erected a monument to his memory.[74]

De Arte Gymnastica relied heavily on the Hippocratic definition of health as an equilibrium among the body's humours. Mercurialis classified gymnastics into two main types — preventive and therapeutic — and believed that the quantity and duration of each exercise should be individualized according to a person's constitution and level of fitness.[75] Mercurialis' distinction between preventive and therapeutic gymnastics was to be an important innovation. As medical historian Joseph notes, "In reality, all the books on gymnastics of the next centuries are based on this standard work of Mercurialis."[76]

Among the exercises Mercurialis advocated as most important to health preservation are walking, throwing the discus, rope climbing and ball playing. Mercurialis recommended "calcio," an early form of soccer, as well as exercises using light balls filled with feathers and heavy balls tilled with sand, forerunners of modern medicine balls.[77] He also included dumbell exercises and differentiated among three degrees of walking — walking slowly to stimulate intellectual activity, rapid walks to stimulate digestion and evacuation, and mountain climbing for those whose legs need specific strengthening.[78] Running was also recommended, especially at night when the body will not over-heat as quickly.[79]

Throughout the work, Mercurialis included references to women. Ball games, he argued, work all the muscles of the body and are good for "convalescents, weak persons and even for wet-nurses."[80] Long-jumping was fine for men and for non-pregnant women. In the section on therapeutic exercise, Mercurialis argued that passive movements such as swinging can strengthen a person's circulation and included an illustration of a young woman in a hammock or sling as an example of passive exercise.[81] Historian Ellen Gerber notes that Mercurialis' view of exercise was primarily a functional one: "To men like Mercurialis the concept of sport for the sake of pleasure, or athletic competition for the purpose of challenging men to fine, even heroic performance, was not an issue. The importance of gymnastics lay solely in its healthful, medicinal aspects. A man exercised, played ball, climbed ropes, even wres-

tled to strengthen his body, to prevent its degeneration, and to ward off disease."[82]

Christobal Mendez & The First Exercise Advice for American Women

Although Mercurialis and a few other Renaissance authors mention women's exercise in passing, the best source on what women might have done for exercise during the Renaissance is undoubtedly Christobal Mendez' *Libro del Exercicio Corporal* or *Book of Bodily Exercises.*[83] According to Frederick Kilgour, who edited the 1960 English translation of the *Libro,* Cristobal Mendez (1500?-1561) was born in Jaen, Spain, moved to Seville as a boy, and was a medical student at the university in Salamanca in 1524.[84] From the text of the *Libro,* it appears that Mendez made his way to New Spain (Mexico City) by 1530 and did not return from North America until 1545.[85] Little else, however, is known about his life except that he published two other medical books once he returned to Spain.[86]

Mendez's *Libro del Exercicio Corporal* is significant for several reasons. Published in Seville, in 1553, it was the first book written by a physician primarily devoted to exercise.[87] However, unlike earlier hygienic tracts which included only a smattering of exercise advice alongside lengthy discussions of diet, constipation, the need for fresh air, and so on, Mendez's entire book is devoted to the subject. Adopting as his motto "Leisure Hurts," Mendez says straightforwardly on his title page that this book is written so "everyone will understand what exercise will be necessary to preserve his health."[88] The book is also unusual because of the attention Mendez pays to women. The *Libro* contains an entire chapter on women's exercise, the first found by this author in any Renaissance text. And, because that chapter is based in part on Mendez's experiences at the court in New Spain, the book thus includes the first exercise prescription aimed at "American" women.

Unlike earlier authors, Mendez approached exercise in a unique and novel manner. Though he quotes occasionally from Aristotle, Galen, and other ancients, the bulk of the *Libra* is based on his own personal observations and adventures. "I was moved to search (in reference to medicine) the easiest thing that can be done to acquire health in the body whence the soul may sometimes follow . . . I found that with just doing exercise . . . we could try and obtain great good and utility . . . That is why . . . I was persuaded to write this book on exercise to show all its great benefits, and wherein I bring everything that can be said about it, as well as several other things not improper to this purpose that are worth knowing and helpful."[89]

The book is divided into four treatises, and Mendez first discusses the physiological relationship of exercise to health and differentiates between "movement," "work,'" and "exercise," the latter of which he defines as voluntary movement which increases breathing, raises the body's heat, and speeds up the heart. He concludes the first treatise with the admonition that exercise should provide "moderate pleasure" and:

> exercise must be continuous and not interrupted, because if you start to exercise and leave off in the middle, you move the humor that has to be consumed and dissipated, which if not consumed comes out through the pores of the body opened by the increasing heat produced by the movement. Without doubt this could bring harm and even produce greater inconveniences. This is why good exercise should be continuous, frequent and rapid until the end and until we feel a sort of relief in the body no matter how tired we may be. Even excessive exercise will be better than too little.[90]

Chapter Nine of the second treatise is entitled, "On Particular Exercises for Women and What the Ladies Can do to Benefit Their Health." In this chapter Mendez feels a distinction is necessary between ladies of leisure and rural women who "do the work of husbands and labor like them" and help with digging, plowing, sowing, and mowing. Mendez also suggested that working class women who fulfill traditional domestic roles — "housekeeping, preparing food, kneading dough, washing, and taking care of children" — do not need to be concerned with doing additional exercise. "This is why," he writes, ". . . to these we do not need to give any rules of exercise to keep their health because they work so much that they used to say that women's work never ends."[91]

But for the wealthy, leisured class of women, Mendez feels that regular exercise is essential to the maintenance of health. "There are ladies who have everything necessary at home and somebody to take care of it; exercise may bring great benefits to them."[92] He also introduces a refrain which will appear repeatedly in the exercise prescriptions for women of the next several centuries: "they never can produce any change in their bodies because they do not take any exercise, and this is why they never have so many children . . ."[93] As to the types of exercise he recommends for wealthy women, the suggestions are, not surprisingly, primarily domestic pursuits. Wealthy women should walk about their house

in the morning, checking on their servants and seeing to the accuracy of their servants' work. Reprimanding the maids when there are lapses or even pretending there are lapses, "will be very useful," he argues. If the noblewoman can appear irate and "raise one's voice . . . This will be their exercise and will bring good health."[94] After this morning walk, Mendez suggests that women exercise their upper bodies. be utilitarian, and "make a good appearance" by sitting so as to "comb and spin linen, to arrange it in skeins, to sew, to make ribbons, to braid their hair, to make hats of very rich things of gold and ruffled collars."[95] Later in the text, hunting, bowling, and dancing are also mentioned as acceptable forms of exercise for women.[96] His final hygienic recommendation for women is, not surprisingly, that they take regular walks. "I do not believe there is a lady who is not in a position to close the door of a room and to stroll for two hours before meals in one of those halls. I swear that although your ladyship pass your lives without doing this you could live longer and better without troubles by doing so." In walking, all the "animal faculties are exercised," Mendez wrote, explaining that a person can hear, and see, and use his/her imagination while walking.[97]

Illustration of "passive" exercise for women from Hieronymus Mercurialis' *De Arte Gymnastica Aput Ancienres.*

However silly the idea sounds to us, the idea that vocal exercise could be enough for women would linger for centuries. An English essay, entitled *Woman,* written by Francis Beaumont and John Fletcher in approximately 1600 argued, "As men do walk a mile, women should talk an hour after supper . . . tis their exercise."[98] And numerous authors, including Mendez, explained to readers that the reason nuns lived such long lives was because they spent so much time singing and praying. As Mendez put it, "Since the nuns have a choir and sing, they receive great benefit from this as exercise."[99] [I might have thought it had more to do with not having to bear so many children.] Even in the 1700s the physician Nicholas Andry argued that women needed less exercise than men because "they are more loquacious" and thus, he claimed, gained the positive benefits of physical exercise which shows the "surprising care and foresight of Nature."[100]

That Mendez's ideas about the suitability of exercises for wealthy women were consistent with his era is corroborated by a letter he reports was sent by the Empress Isabella to the court in New Spain in 1530. The edict, Mendez reports, requested that: "all ladies should busy themselves with some exercise because very extensive unfitness follows leisure, and if necessary she could provide enough linen to spin. Some of the ladies took this as an affront, but the bishop of Mexico pointed out to all of them that it was a great mercy because such a high lady was thinking of them, and indeed the great care of such a generous princess is worthy of mention."[101]

Solid evidence that health and exercise were concerns which reached all levels of Spanish Renaissance society can be found in the anecdotes which enliven the pages of Mendez's work. Besides the previously mentioned letter from Isabella, Mendez also describes the exercise of nuns, discusses how exercise could be incorporated into the lives of tradesmen, and tells of a group of shipbuilders he met in Havana who worked up a sweat by picking up the pace of their labor at the end of the workday because "in that way the body is cleansed and stays healthy."[102]

One reason Mendez and other Renaissance authors believed that women needed different kinds of exercise than men was because women were viewed not only as physiologically inferior but almost as a different species.[103] The processes of menstruation and pregnancy were viewed as illnesses rather than as natural functions and some physicians and hygienic authors used this view as a reason to limit women's exercise. However, a few authors did argue that exercise would improve a woman's chance of having a healthy child. Maffeus Vegius (1407-1458) in *The Education of Children,* for instance, gave advice for both parents about their physical condition prior to conception.[104] Likewise, Venetian nobleman Francesco Barbaro (1395-1440) penned *Prudent and Important Documents for the Choice of a Wife,* in which he argued that young women needed exercise

to make themselves more fit to be mothers.

During the sixteenth and seventeenth centuries, interest in the physical condition of women increased as it began to be understood that a woman's health and fitness could have a direct link to the vigor of the developing embryo. Johann Amos Comenius (1592-1670), for instance, advised pregnant women to maintain their normal work patterns and to not simply sit and rest while pregnant. "The mother should be careful not to indulge in excessive sleep, indolence or torpor," he wrote, "but should go on actively with her usual employments."[106] More significantly, Scevole de Sainte Marthe (1536-1623) argued in his long poem, *Paedrotrophia, or the Art of Nursing and Rearing Children* that:

> The body thus, from EXERCISE, *acquires*
> New health, new strength, and brisker vital fires.
> Motion and heat produced by motion, prove
> The cure of all obstructed paths, remove
> Whate'er of heavy or of useless, fills
> The sluggish veins, or stop the vital rills.
> And make the pains of child-birth glide away,
> When the young foetus pushes into day;
> Nor can o'erflowing humor then detain
> The ling'ring child, or render labor vain;
> But sleep and MOTION make the body pure.
> Clear ev'ry passage, bring him forth mature,
> Set open all his prison-doors with ease,
> And free the mother from her long disease.[107]

Finding the proper balance between too little exercise and too much exercise was important to the Renaissance hygienists. Claude Quillet (1602-1661) argued in *Callipaedia, or the Art of Getting Beautiful Children,* that women must search for an Aristotelian Golden Mean between too much motion and too much ease. His long moralistic poem gives a good overview of late Renaissance thought on exercise and pregnancy.

> How too much MOTION, and too violent Speed,
> Had killed the Product of th' enlivened Seed,
> When the formation was but just begun,
> And the thin thread of life but newly spun.
> So if a Matron, eight months gone with child,
> Dance like a Bachnalian, loose and wild,
> She surely brings the Birth before the Time.
> And dearly suffers for her foolish Crime.
> From these diversions which her Sex delight,
> She should not therefore to inaction lean,
> But follow Reason and her Golden Mean.
> For both Extremities alike displease.
> IMMOD'RATE MOTION, or immod'rate Ease.
> Sloth with gross Humours loads the racy-Blood,
> And choaks the Passage of the vital Flood;
> That sprightly Vertue and ingenit Heat.
> Which the Foetus in just form complete,
> Oppress'd by Inactivity. retire,
> Unable to exert their gen'rous Fire.
>
> But well us'd EXERCISE will clear the Mind,
> And free the Spirits, which have slept confin'd
> Beneath a sluggish Heap of misty Formes
> Til the Soul wakes, and all her native Warmth
> resumes:
> Hence the young Pris'ner in the Womb transpires
> With greater Freedom, and sound Health acquires,
> Well limb'd and hale, when Stranger to the Day.
> On the World's Stage he makes life's first Essay.[108]

The problem of didactic sources, of course, is that it is impossible to say if anyone really paid any attention to them. M. H. Green, a medical historian at Duke University, argues that women who lived in the Middle Ages would not have had access to such books and, secondly, that if they had had access they would not have been able to read the books.[109] Dr. Green's point is well-taken. There were few attempts made to educate women in these years and books were expensive to purchase, even after the invention of the printing press. Consequently, the number of women who were able to read for themselves Mendez's *Libro* or Claude Quillet's hygienic poem, for instance, was undoubtedly small. But whether women read such books themselves, had them read or paraphrased to them by by husbands or priests, or simply picked up on the philosophical approach suggested by such books through conversations with physicians and others interested in hygiene, the books are still our best, and probably only, source of what people believed at this time. And the widespread belief in women's difference and inferiority in the Middle Ages and Renaissance meant that women's exercise in this era no longer aimed to produce the kind of robust strength that allowed Spartan girls to fight wars and wrestle men but, rather, to create a constrained fitness that was closely tied to appropriate decorum and, most especially, to maternity.

Ultimately, the belief that greater health and vigor could enhance a woman's chances of giving birth to a healthy child would provide a powerful rationale for the incorporation of exercise into the lives of women. As women's academies began adding physical training to their curricula in the eighteenth and early nineteenth centuries, again and again the idea that fitness enhanced fertility and strength for child-bearing was used as a justification for the adoption of physical education in the curriculum. As the nineteenth century progressed and women themselves began to decide curriculum issues,

the ideological base of women's exercise shifted and the idea that exercise created health and strength for all aspects of a woman's life became more central to the philosophy of women's physical education.[110]

And so while feminists might decry the pre-Enlightenment philosophies that encouraged exercise for maternity enhancement rather than for its ability to physiologically and psychologically empower women for their own sake, at least the record indicates that some women in these earlier historical eras did some training, even if it was only strolling their estates and yelling at their servants. In all seriousness, however, it should be clear that even though most pre-twentieth century men who recommended exercise for women did so because they wanted women to make healthier and stronger children, it wound up making healthier and stronger women as well.

Notes:

[1] Allen Guttmann, *Women's Sport: A History* (New York: Columbia University Press, 1991), 317. Guttmann's book won the North American Society for Sport History's award for best book of the year in 1992.

[2] Jan Todd, *Physical Culture and the Body Beautiful: Proposive Exercise in the Lives of American Women,* 1800-1875 (Macon: Mercer University Press, 1998); Patricia Vertinsky, *The Eternally Wounded Woman: Women, Exercise and Doctors in the Late Nineteenth Century* (New York: Manchester University Press, 1990); Mary Lynn Stewart, *For Health and Beauty: Physical Culture for Frenchwomen, 1880s-1930s* (Baltimore: John Hopkins University Press, 2001); Susan Cahn, *Coming on Strong: Gender and Sexuality in Women's Sport* (New York, Free Press, 1994); and Guttmann, *Women's Sports.*

[3] J.W.F. Blundell, *The Muscles and Their Story from the Earliest Times; Including the Whole Text of Mercurialis and the Opinions of Other Writers. Ancient and Modern, on Mental and Bodily Development* (London, Chapman and Hall, 1864), 48.

[4] See, for instance, H.A. Harris, *Sport in Greece and Rome* (Ithaca: Cornell University Press, 1972).

[5] Norman A. Gardiner, *Athletics in the Ancient World* (Oxford: The Clarendon Press, 1930), 21. See also: David C. Young, "The Modern Origins of Amateurism," *The Olympic Myth of* Greek *Amateur Athletics* (Chicago: Ares Publishers, 1984), 15-44 and 55.

[6] Jack Berryman, "The Tradition of the Six Things Non-Natural: Exercise and Medicine from Hippocrates through Ante-Bellum America," *Exercise and Sport Sciences Reviews* 17(1989): 518-519. See also: L.H. Joseph, "Physical Education in the Early Middle Ages," *Ciba Tymposia* 10(March-April 1949): 1030.

[7] Hippocrates, *Regimen,* trans. W.H.S. Jones (Cambridge, MA: Harvard University Press, 1962), 383.

[8] Ibid., 229.

[9] Cicero, quoted in Gerald F. Fletcher, "The History of Exercise in the Practice of Medicine," *Journal of the Medical Association of Georgia* 72(January 1973): 35.

[10] Aristotle, *Politics,* 5:3. Quoted in Rachel Sargeant Robinson. *Sources for the History of Greek Athletics* (Cincinnati: by the author, 1955), 136.

[11] Aristotle, *Politics,* 4:16. Quoted in Robinson, *Sources,* 135-136.

[12] *Encarta Encylopedia* 1998, Galen, CD ROM. See also: Michel Foucault, *The Care of the Self: The History of Sexuality,* Vol. 3 (New York: Vintage Books, Random House, 1986), 105-l12.

[13] Berryman, "Six Non-Naturals," 517. An interesting discussion of Galen's hygienic thought also occurs in Fletcher, "History of Exercise in the Practice of Medicine," 35-38. For another view see, C. R. Bums, "The Nonnaturals: a Paradox in the Western Concept of Health," *Journal of Medical Philosophy* 1(1976): 202-211. See also: P. H. Nicbyl, "The Non-Naturals," *Bulletin of the History of Medicine* 45(1971): 486-492.

[14] Berryman, "Six Non-Naturals," 520.

[15] R. M. Green. *A Translation of Galen's Hygiene* (Springfield, IL: Charles C. Thomas, 1951), 53-54.

[16] Gardiner, Norman A., *Greek Athletic Sports and Festivals* (London: 1910), 509. Also: Robinson. *Sources,* 177.

[17] Ibid.

[18] Ibid.

[19] Robert A. Mechikoff and Steven G. Estes, *A History and Philosophy of Sport and Physical Education: From Ancient Civilizations to the Modern World,* 3rd ed. (New York: McGraw Hill. 2002), 53.

[20] For information on men's sport in ancient Greece see: Don Kyle, *Athletics in Ancient Athens* (Leiden: A.J. Brill, 1987); David C. Young: *The Olympic Myth of Greek Amateur Athletics* (Chicago: Ares Publishers. 1984) and Al N. Oikonomides and Ladislaus J. Bolchazy, eds. *The Ancient World: Athletics in Antiquity* (Chicago. Ares Publishers, 1983). For ancient Rome, see: Alison Futrell, *Blood in the Arena: The Spectacle of Roman Power.* (Austin: University of Texas Press, 1997); H.A. Harris. *Sport in Greece and Rome* (Ithaca: Cornell University Press 1972); and Eckart Kohne and Cornelia Ewigleben, eds. *Gladiators and Caesars: The Power of Spectacle in Ancient Rome* (Berkeley: University of California Press, 2000).

[21] For an overview of the exercise and sporting experiences of ancient Greek women see: Guttmann, *Women's Sports,* 15-32; M. Lammer, "Women and Sport in Ancient Greece: A Plea for a Critical and Objective Approach," *Medicine and Sport Science* (Basel: Karger, 1981): 16-23; Betty Spears, "A Perspective on the History of Women's Sport in Ancient Greece," *Journal of Sport History* 11 (Summer 1984): 32-47; and Reet A. Howell and Maxwell L. Howell, "Women in Leisure Activities in Ancient Greece and Rome," *Medicine and Sport Science 24(Basel: Karger, 1987): 83-100.*

[22] Historian Williiam J. Baker suggests that besides footraces. wrestling contests and chariot races were held as part of the Games. William J. Baker, *Sports in the Western World* (Totowa: NJ: Rowman and Littlefield, 1982), 22.

[23] Lammer, "Women and Sport in Ancient Greece," 19; Howell and Howell. "Women in Leisure Activities," 91; and Baker, *Sports in the Western World.* 22,

[24] Pausanias, *Description of Greece,* vol. 2., translated by W.H.S. Jones. (London: William Heinemann, 1918-1935), 473.

[25] One of the two statues of female runners is in the British Museum in London; the second is in the Vatican's collection. A third statue of a female athlete is in the Hamburg Art Museum.
[26] Spears. "Reflections," 36.
[27] Lammer, "Women and Sport in Ancient Greece," 18. Kyle similarly argues that the gymnasia of Athens had a military origin and that even when they became famous as learning centers women were not included. Kyle, *Athletics in Ancient Athens, 65-66.*
[28] Guttmann, *Women's Sports,* 22.
[29] *Pausanias,* 5.16, Peter Levi, trans. (New York: Penguin Books, 1971), 2-4.
[30] Claude Bérard, *A City of Images,* Deborah Lyons, trans. (Princeton: Princeton University Press, 1989), 92. Quoted in Guttmann, *Women's Sports,* 23.
[31] Howell and Howell, "Women in Leisure Activities," 84.
[32] Spears, "Perspective," 34; See also: Mary R. Lefkowitz and Maureen B. Fant, "Women's Life in Greece and Rome: Legal Status in the Greek World" website found at: *www.uky.edu/ArtsSciences/Classics/wigr/wigr-greeklegal97.html* on 20 November 2001; and Howell and Howell, "Women in Leisure Activities," 84.
[33] Xenophon, *Constitution of the Lacedaemonians,* 1.2-10. Viewed at: Lefkowitz and Fant, "Women's Life in Greece and Rome" at *www.uky.edu/ArtsSciences/Classics/wigr/wjgr-greeklegal97.html* on 20 November 2001.
[34] Plutarch, *Life of Lycurgus* 14-16. Viewed at: Lefkowitz and Fant, "Women's Life in Greece and Rome" at *www.uky.edu/ArtsSciences/Classics/wigr/wigr-greeklegal98.html* on 20 November 2001.
[35] Theocritus, *Idylls,* 18:22-24. A.S.F. Gow, trans. (Cambridge: Cambridge University Press, 1965).
[36] Guttmann, *Women's Sports,* 27.
[37] Plato, *Laws,* 7:560. R.G. Bury, trans. (Cambidge: Harvard University Press, 1952). See also: Spears. "Perspective," 38.
[38] Guttmann, *Women's Sports,* 29.
[39] Herbert W. Benario, "Sport at Rome," *The Ancient World: Athletics in Antiquity,* 7(March 1983): 43.
[40] Guttmann, *Women's Sports,* 38.
[41] Athanaeus, *Deipnosophists,* 13:566. C. B. Gulick, trans. (Cambridge: Harvard University Press. 1923).
[42] Quoted in Guttman's *Women's Sports,* 37. Guttmann points out that the reference to a "starting gun" is the translator's attempt at irony.
[43] Juvenal, 6: 419. Rolfe Humphries, trans. (Bloomington: Indiana University Press, 1958), 72-73.
See also: H.A. Harris, *Sport in Greece and Rome* (Ithaca: Cornell University Press, 1972), 150.
[44] Juvenal. *The Satires,* 6:268-82.
[45] Kohne and Ewigleben, *Gladiators and Caesars,* 136.
[46] Harris, *Sport in Greece and Rome,* 41 ; Guttmann, *Women's Sports,* 36.
[47] Harris, *Sport in Greece and Rome.* 41
[48] Guttmann, *Women's Sport,* 38.
[49] Edith L. Hildebrandt, "The Historical Aspect of Physical Education," *Mind and Body* 26(April 1919): 49-52.
[50] See Harris, *Sport in Greece and Rome,* 65, for a discussion of Juvenal's true attitudes toward Greek athletics.
[51] For information on attitudes toward health and hygiene prior to the Renaissance see Baker, *Sports in the Western World,* 42-27 and Guttmann, *Women's Sports,* 41-43.
[52] The best source on the exercises used as part of knightly training is Vera Olivova's "From the Arts of Chivalry to Gymnastics," *Canadian Journal of History of Sport* (Summer 1979): 29-55.
[53] L. H. Joseph, "Gymnastics During the Renaissance as Part of the Humanistic Educational Program." *Ciba Symposia* 10(March-April 1949): 1034.
[54] L. H. Joseph, "Physical Education in the Early Middle Ages;" "Gymnastics During the Renaissance as a Part of the Humanistic Educational Program;" "Medical Gymnastics in the Sixteenth and Seventeenth Centuries;" and "Gymnastics in the Pre-Revolutionary Eighteenth Century" all appear in *Ciba Symposia* 10(March-April 1949): 1030-1060. Joseph's four-article series remains the best overview of therapeutic exercise up to the Enlightenment. Joseph defines "medical gymnastics" as all healthful and health-furthering exercises (1030).
[55] Joseph, "Gymnastics During the Renaissance," 1034-1035. In 1807, Sir John Sinclair published a bibliography of more than 1400 texts dealing with hygiene and longevity in the second volume of his *Code of Health and Longevity, or a Concise View of the Principles Calculated for the Preservation of Health and Attainment of Long Life* (Edinburgh: Arch. Constable & Co, 1807).
[56] G. Smith, "Prescribing the Rules of Health: Self-Help and Advice in the Late Eighteenth Century," in R. Porter, ed. *Patients and Practitioners: Lay Prescriptions of Medicine in Pre-Industrial Society* (Cambridge: Cambridge University Press, 1985), 250-251.
[57] H. E. Sigerist, *Landmarks in the History of Hygiene* (London: Oxford University Press, 1956), 22.
[58] Bums, "Paradox," 208.
[59] Sigerist, *Landmarks,* 23.
[60] Berryman, "Six Non-Naturals," 523-525. See also: Eleanor B. English, "Girolamo Cardano and *De Sanitate Tuenda:* A Renaissance Physician's Perspective on Exercise." *Research Quarterly for Exercise and Sport* 53(1982): 287-288. This article compares Cardano's and Elyot's ideas on health and exercise.
[61] Sir Thomas Elyot, *The Boke Named the Governor,* S. E. Lehmberg. trans. (London: J.M. Dent & Sons, 1962), 59-60. Quoted in Terry Todd, "The History of Resistance Exercise and its Role in United States Education," (Ph.D. diss. University of Texas at Austin, 1966), 34-35.
[62] Fred Eugene Leonard. *A Guide to the History of Physical Education* (Philadelphia: Lea and Febiger, 1923), 53.
[63] Ibid.
[64] See "Louis Cornaro, The Glorified Hygienic Crank." *Mind and Body* 10(November 1903): 247-249, for an amusing analysis of Cornaro's longevity. This essay originally appeared in the *Boston Hera/d* upon the publication of a new edition of Cornaro's treatise.
[65] Louis Cornaro, *How To Live Long: The Discourses and Letters of*

Louis Cornaro (New York: The Health Culture Company, 1916). Originally published in 1556 as *Treatise on a Sober Life.*

[66] Ibid.. 15.

[67] See: "Old Age of a Temperate Man," *Journal of Health* 2(10 November 1830): 71-73 for an example of Cornaro's continued influence. Following the printing of the 1558 Italian vernacular edition, Cornaro's treatise was translated into Latin, English, French, German and Dutch. One English edition of Cornaro's treatise. originally published in 1704, went through more than fifty editions and was still in print in the mid-nineteenth century. Gerald J. Gruman, "The Rise and Fall of Prolongevity Hygiene: 1558-1873," *Bulletin of the History of Medicine* 35(1961): 224. See also: William B. Walker. "Luigi Cornaro, A Renaissance Writer on Personal Hygiene," *Bulletin of the History, of Medicine* 28(1954): 530-531.

[68] Franklin included a copy of Cornaro's work in: Benjamin Franklin. *Immortal Mentor, or Man's Unerring Guide to a Healthy Wealthy and Happy Life* (Philadelphia: 1796). For information on Graham, see: James C. Whorton, *Crusaders for Fitness* (Princeton: Princeton University Press 1982).

[69] Gruman, "Rise and Fall of Prolongevity Hygiene." 223.

[70] Cornaro, *How to Live Lang,* 53.

[71] Todd, *Physical Culture,* 177.

[72] Information on the life and legacy of Mercurialis is available in P.C. McIntosh, "Hieronymus Mercurialis, *De Arte Gymnastica:* Classification and Dogma in the Sixteenth Century." *British Journal of Sports History* 1(1, 1984): 73-84; Joseph, "Medical Gymnastics in the Sixteenth and Seventeenth Centuries," 1041-1045; Berryman, "The Six Non-Naturals," 526; Gerber. *Innovators.* 22-26; and Fred Eugene Leonard, *Guide to the History of Physical Education* (Philadelphia: Lea and Febiger, 1923) 52-53.

[73] The title page of the Springfield College Library edition of *De Arte Gymnastica* examined by this author reads: Hieronymi Mercurialis, Foroliviensis, *De Arte Gymnastica Libri Sex: In quibus exercitationum omnium vetustarun genera, locu, mosi, facultates, & quidquid denique ad corporis humani exercitationes pertinet diligenter explicatur. Editio novissimu, aucta, emendata, & figuris authenticis,* Chrisophori Coriolani exornata, Amstelodami, Sumptibus, ANDREÆ FRISII cl I LXXII (1672). Later editions, such as the 1672 version examined by the author in the preparation of this manuscript, were published in Amsterdam.

[74] Joseph, "Medical Gymnastics in the Sixteenth and Seventeenth Centuries," 104l-42.

[75] Ibid.

[76] Ibid., 1045. See also: Blundell, *The Muscles.* Blundell spent seven years translating Mercurialis' work into English only to decide that a simple translation rendered a product "too diffuse and verbose to suit the modern reader." So, he organized Mercurialis' ideas into subject chapters divested them "of obsolete argument without impairing their sense," and tried to "make them subservient to the knowledge of the present day." Blundell notes in his preface that "for two centuries at least," *De Arte Gymnastica* was the major source of information about exercise in the classical period and for the proper uses of exercise in therapy and prevention.

[77] Gerber, *Innovators,* 22-23.

[78] Dumbell training became quite popular as an indoor activity, especially in the eighteenth and nineteenth centuries. Addison trained with dumbells in his youth, for instance, and wrote in the *Spectator,* No. 115, that he learned of the exercises from "a Latin treatise written with great erudition." This was undoubtedly the Mercurialis text. Cited in: *Sure Methods of Improving Health and Prolonging Life or, a Treatise on the Art of Living Long and Comfortably* (London: by the author, 1827), 238-239.

[79] Joseph, "Medical Gymnastics in the Sixteenth and Seventeenth Centuries." 1043-1044. See also: Blundell, *Muscles,* 167.

[80] Blundell, Muscles, 26.

[81] Ibid., 23.

[82] Ibid., 26.

[83] Christobal, Mendez, *Book of Bodily Exercise,* trans. Francisco Guerra, ed. Frederick G. Kilgour (New Haven. CT: Elizabeth Licht, 1960).

[84] Ibid., x.

[85] Ibid., 43 and 69.

[86] Ibid, xi.

[87] Ibid.. ix.

[88] Ibid, i.

[89] Ibid., xxiii.

[90] Ibid., 26.

[91] Ibid., 42.

[92] Ibid.

[93] Ibid., 44.

[94] Ibid., 42-43.

[95] Ibid., 43.

[96] Ibid. 52-53.

[97] Ibid., 44.

[98] Francis Beaumont and John Fletcher, *Woman* (London: 1600), 18.

[99] Mendez, *Libro,* 44.

[100] Nicolas Andry, *Orthopædia: Or, The Art of Correcting and Preventing Deformities in Children . . . To which is added, A Defence of the Orthopœediia,* vol. I (London: A. Millar, 1743). 89.

[101] Ibid., 43. Spinning was regarded as an ideal exercise for women as late as the mid-nineteenth century because it required women to move their upper bodies and, at the same time, be employed in a domestic task.

[102] Ibid., 44-46.

[103] M.T. Walton, R.M. Fineman and P.J. Walton, "Why Can't a Woman Be More Like a Man? A Renaissance Perspective on the Biological Basis for Female Inferiority." *Women Health* 24(4): 87-95.

[104] Joseph, "Gymnastics During the Renaissance," 1036.

[105] Quoted in: Joseph, "Medical Gymnastics in the Sixteenth and Seventeenth Centuries," 1053.

[106] Ibid., 1052-1053.

[107] Ibid., 1051-1052.

[108] Ibid.

[109] M.H. Green, "Books as a Source of Medical Education for Women in the Middle Ages," *Dynamics* 20(2000): 331-69.

[110] See Todd, *Physical Culture,* for attitudes in the nineteenth century.