**Physical education, physical culture, physical activity**

*Physical education* is training in physical fitness and in skills requiring or promoting such fitness. Many traditional societies included training in hunting, ritual dance, and military skills, while others – especially those emphasizing literacy – often excluded physical skills.

The spread of literacy in the West between 1500 and 1800 coincided with a new awareness that fitness helps the mind. Gymnasiums opened across Europe, the first in Copenhagen in 1799. The German Turnverein movement grew, expanding to the United States with immigration. Per Ling developed a teaching system for physical education in Stockholm in 1814, and Otto Spiess (1810–1858) popularized another system in Germany. As public schools in Germany, Denmark, and the United States tried these systems, physical education joined baccalaureate curricula, becoming a major at Columbia University in 1901 and elsewhere later.

Japan’s schools have linked physical and mental training since the 17th century. Public schools with compulsory physical education were founded in 1872; the trend since 1945 has been toward individual physical and mental development. The Soviet Union, after 1917, placed great emphasis on physical education, both in schools and in special physical education institutes.

Today, physical education is a required course in many primary and secondary schools in countries with compulsory education. Most teaching takes place inside gymnasiums or other facilities built specifically for physical education activities, although outdoor sports are also emphasized.

*Physical culture* is philosophy, regimen, or lifestyle seeking maximum physical development through such means as weight (resistance) training, diet, aerobic activity, athletic competition, and mental discipline. Specific benefits include improvements in health, appearance, strength, endurance, flexibility, speed, and general fitness as well as greater proficiency in sport-related activities.

*Exercise* is the training of the body to improve its function and enhance its fitness.

The terms *exercise* and *physical activity* are often used interchangeably, but they shouldn’t be. Physical activity is an inclusive term that refers to any expenditure of energy brought about by bodily movement via the skeletal muscles; as such, it includes the complete spectrum of activity from very low resting levels to maximal exertion. Exercise is a component of physical activity.

**Physical fitness**

Physical fitness is a general concept and is defined in many ways by different scientists. Physical fitness is discussed here in two major categories: health-related physical fitness and motor-performance physical fitness. Despite some overlap between these classifications, there are major differences, as described below.

*Health-related physical fitness*

Health-related physical fitness is defined as fitness related to some aspect of health. This type of physical fitness is primarily influenced by an individual’s exercise habits; thus, it is a dynamic state and may change. Physical characteristics that constitute health-related physical fitness include strength and endurance of skeletal muscles, joint flexibility, body composition, and cardiorespiratory endurance. All these attributes change in response to appropriate physical conditioning programs, and all are related to health.

Strength and endurance of skeletal muscles of the trunk help maintain correct posture and prevent such problems as low back pain. Minimal levels of muscular strength and endurance are needed for routine tasks of living, such as carrying bags of groceries or picking up a young child. Individuals with very low levels of muscular strength and endurance are limited in the performance of routine tasks and have to lead a restricted life. Such limitations are perhaps only indirectly related to health, but individuals who cannot pick up and hug a grandchild or must struggle to get up from a soft chair surely have a lower quality of life than that enjoyed by their fitter peers.

Flexibility, or range of motion around the joints, also ranks as an important component of health-related fitness. Lack of flexibility in the lower back and posterior thigh is thought to contribute to low back pain. Extreme lack of flexibility also has a deleterious effect on the quality of life by limiting performance.

Body composition refers to the ratio between fat and lean tissue in the body. Excess body fat is clearly related to several health problems, including cardiovascular disease, type II (adult-onset) diabetes mellitus, and certain forms of cancer. Body composition is affected by diet, but exercise habits play a crucial role in preventing obesity and maintaining acceptable levels of body fat.

Cardiorespiratory endurance, or aerobic fitness, is probably what most people identify as physical fitness.

**Physiological Effects Of Exercise**

*Strength and endurance*

Appropriate exercise increases the strength and endurance of skeletal muscles. Increases in muscular strength are associated with increases in muscle mass; increases in muscular endurance are associated with improved blood flow to the working muscles. These results are achieved by resistance training. Any exercise that causes the muscle to increase its tension, whether or not the muscle actually shortens during contraction, provides an appropriate strength-training stimulus. Resistance can be applied to a muscle group by attempting to move an immovable object, by working one muscle group against another, by lifting heavy weights, or by using special strength-training machines and devices.

Strength and endurance training is done by performing several “reps” (repetitions) of a given exercise, then moving on to another exercise for a different muscle group. Experts generally recommend that exercisers select a resistance that is approximately 65 percent of the maximum they can lift for that particular exercise. This load should allow the completion of 12 reps of that exercise in 24 to 30 seconds. Each group of eight to 12 reps is called a set, and two or three sets of a given exercise are recommended for each training session. The average individual should perform strength and endurance training two to three days per week. Super circuit weight training refers to a program in which running or other aerobic exercises are performed between sets; this training produces aerobic as well as strength benefits.

*Flexibility*

Muscles and tendons can be stretched to improve flexibility (the range of motion at a joint). Flexibility training follows a few, simple principles. To improve range of motion, the muscles and other connective tissue around a joint must be stretched. The preferred stretching technique is a slow increase in the range of motion. The exerciser should feel the muscle stretch, but not to the point of pain. The stretch should be performed gradually, and the body should be held for 10 to 20 seconds in the stretched position and then gradually returned to a relaxed posture. By stretching each muscle group in this fashion as a part of the strengthening and conditioning program, the participant will maintain good flexibility. Bouncing or explosive stretching movements should be avoided, as they can result in muscle or tendon tears.

**How a Sport Becomes an Olympic Event**

The first step in the process of becoming an Olympic sport is recognition as a sport from the International Olympic Committee (IOC). The IOC requires that the activity have administration by an international non-governmental organization that oversees at least one sport. Once a sport is recognized, it then moves to International Sports Federation (IF) status. At that point, the international organization administering the sport must enforce the Olympic Movement Anti-Doping Code, including conducting effective out-of-competition tests on the sport’s competitors, while maintaining rules set forth by the Olympic Charter.

A sport may gain IOC recognition but not become a competing event at the Olympic Games. Bowling, rugby, and chess are recognized sports, but they do not compete at the Games. To become a part of the Games the sport’s IF must apply for admittance by filing a petition establishing its criteria of eligibility to the IOC. The IOC may then admit an activity into the Olympic program in one of three different ways: as a sport, a discipline, which is a branch of a sport, or an event, which is a competition within a discipline. For instance, triathlon was admitted as a sport, debuting at the 2000 Games in Sydney. Women’s wrestling was a new discipline in the sport of wrestling at the Athens Games, and women’s pole vaulting was the most recently added track and field event. Rules for admittance vary slightly between a new sport, a discipline, and an event, but the intent is the same.

Once an IF has presented its petition, many rules and regulations control whether the sport will become part of the Olympic Games. The Olympic Charter indicates that to be accepted, a sport must be widely practiced by men in at least 75 countries and on four continents, and by women in no fewer than 40 countries and on three continents. The sport must also increase the ‘‘value and appeal’’ of the Olympic Games and retain and reflect its modern traditions. There are numerous other rules, including bans on purely ‘‘mind sports’’ and sports dependent on mechanical propulsion. These rules have kept chess, automobile racing, and other recognized sports out of the Olympic Games.

While a number of events have been added to the Games since their resumption in 1896, a good number have been sidelined. Tug-of-war, for example, was once a respected Olympic sport.

**Sports**

Sports are physical contests pursued for the goals and challenges they entail. Sports are part of every culture past and present, but each culture has its own definition of sports. The most useful definitions are those that clarify the relationship of sports to play, games, and contests. “Play,” wrote the German theorist Carl Diem, “is purposeless activity, for its own sake, the opposite of work.” Humans work because they have to; they play because they want to. Play is autotelic – that is, it has its own goals. It is voluntary and uncoerced. Recalcitrant children compelled by their parents or teachers to compete in a game of football (soccer) are not really engaged in a sport. Neither are professional athletes if their only motivation is their paycheck. In the real world, as a practical matter, motives are frequently mixed and often quite impossible to determine. Unambiguous definition is nonetheless a prerequisite to practical determinations about what is and is not an example of play.

There are at least two types of play. The first is spontaneous and unconstrained. Examples abound. A child sees a flat stone, picks it up, and sends it skipping across the waters of a pond. An adult realizes with a laugh that he has uttered an unintended pun. Neither action is premeditated, and both are at least relatively free of constraint. The second type of play is regulated. There are rules to determine which actions are legitimate and which are not. These rules transform spontaneous play into games, which can thus be defined as rule-bound or regulated play. Leapfrog, chess, “playing house,” and basketball are all games, some with rather simple rules, others governed by a somewhat more complex set of regulations. In fact, the rule books for games such as basketball are hundreds of pages long.

As games, chess and basketball are obviously different from leapfrog and playing house. The first two games are competitive, the second two are not. One can win a game of basketball, but it makes no sense to ask who has won a game of leapfrog. In other words, chess and basketball are contests.

A final distinction separates contests into two types: those that require at least a minimum of physical skill and those that do not. Shuffleboard is a good example of the first; the board games Scrabble and Monopoly will do to exemplify the second.

**Olympic gymnastics**

Olympic gymnastics are grouped into different divisions – artistic, rhythmic, and trampoline. For men the artistic gymnastics events are: floor exercise, pommel horse, rings, vault, parallel bars, horizontal bar, and combined exercises (the all-around), which combines the scores of the other six events. The combined exercises for men are contested both on an individual and on a team basis. For women the artistic events are floor exercise, vault, uneven bars, balance beam, and combined exercises, both team and individual.

Rhythmic group gymnastics was originally required in the women’s artistic program but became a separate sport when it was introduced internationally at an invitational competition in Budapest, Hungary, in 1963. Thereafter the Fédération Internationale Gymnastique (FIG) scheduled a world competition in the even-numbered years beginning in 1964. First known as modern rhythmic gymnastics, and later as rhythmic sport gymnastics, the discipline now known as rhythmic gymnastics became an Olympic sport in 1984. This branch of gymnastics is practiced only by women. The events in rhythmic gymnastics are named for the hand apparatus employed by the gymnast: rope, hoop, ball, clubs, and ribbon. Medals are awarded at the Olympics and world championships for team, group, all-around, and individual event competition.

Trampoline and tumbling are also under the aegis of the FIG. Trampoline debuted as a men’s and women’s event at the 2000 Olympic Games; Olympic competition is individual only. World championship trampoline events also include double mini-trampoline and synchronized trampoline competition. In the latter, two gymnasts perform the same routine on two trampolines placed side by side.

Sports acrobatics has been contested internationally since 1973. In 1998 the International Federation of Sports Acrobatics voted to dissolve and the sport was subsumed by the FIG. The events in sports acrobatics are: women’s pairs, mixed pairs, men’s pairs, women’s trios, and men’s fours. Pairs and group exercises are performed to a musical accompaniment on a free-exercise-type platform.

The final discipline sanctioned by the FIG is sports aerobics. Aerobics exercise has been a popular form of physical training for the general public since the mid-1970s.

**Athletics**

Athletics, also called track-and-field sports or track and field is a variety of competitions in running, walking, jumping, and throwing events. Although these contests are called track and field (or simply track) in the United States, they are generally designated as athletics elsewhere. This article covers the history, the organization, and the administration of the sports, the conduct of competitions, the rules and techniques of the individual events, and some of the sports’ most prominent athletes.

Track-and-field athletics are the oldest forms of organized sport, having developed out of the most basic human activities—running, walking, jumping, and throwing. Athletics have become the most truly international of sports, with nearly every country in the world engaging in some form of competition. Most nations send teams of men and women to the quadrennial Olympic Games and to the official World Championships of track and field. There also are several continental and intercontinental championship meets held, including the European, Commonwealth, African, Pan-American, and Asian.

Within the broad title of athletics come as many as two dozen distinct events. These events, generally held outdoors, make up a meet. The outdoor running events are held on a 400-metre or 440-yard oval track, and field events (jumping and throwing) are held either inside the track’s perimeter or in adjacent areas.

In many parts of the world, notably the United States, Canada, and Europe, the sport moves indoors during the winter; because of limited space, some events are modified and several are eliminated altogether.

Also within the general scope of track-and-field athletics come separate but related competitions that are not contested on the track. Cross-country running competition is carried out on various types of countryside and parkland. Marathons and races of other long distances are run on roads, and the long-distance race walks are contested on measured road courses. The rules followed by all organized competitions are established and enforced by the International Association of Athletics Federations (IAAF) and its member body from each nation. The IAAF also ratifies all world records.

**Modern Stadiums**

The stadium for the first modern Olympiad in Athens was a reconstruction of the ancient marble stadium built by Herodes Atticus on the site of an even earlier stadium in Athens. The Olympics since that time have provided a major focal point for the development of the modern stadium concept. In each period since the first modern Olympiad, the host country has usually erected a permanent stadium to mark the event. The first stadium of the modern genre was constructed for the IV Olympiad in 1908 at Shepherd’s Bush in London. The stands were partly roofed, and the stadium seated more than 50,000 people. Other Olympic stadiums of architectural note that were built before World War II include those at Stockholm (1912), Colombes, outside Paris (1924), Amsterdam (1927), and Berlin (1936). The Helsinki stadium built for the XII Olympiad (1940), which was canceled by the outbreak of World War II, served as the site for the XV Olympiad in 1952.

Stadiums rivaling the size of those of ancient Rome were constructed in several cities in the first half of the 20th century, notably the vast Strahov Stadium, in Prague, which was completed in 1934 for the Sokol gymnastics exhibition and had a seating capacity of more than 240,000. Other stadiums built to accommodate in excess of 100,000 people include May Day Stadium, in P’yŏngyang, North Korea; Melbourne Cricket Ground, in Melbourne; Aztec Stadium, in Mexico City; Salt Lake Stadium, in Kolkata (Calcutta); and Michigan Stadium, in Ann Arbor, Michigan, U.S. These figures of course denote how many people can be “accommodated”; the official “seating” capacities may be considerably lower.

American football inspired a new type of stadium design, the elliptical bowl, first employed in the Yale Bowl at New Haven, Connecticut, in 1914, and repeated in several other stadiums, including the Rose Bowl and Michigan Stadium. Because the bowl is entirely unsuited to the other principal American sport, baseball, another type of American stadium has evolved for baseball, in which the aim is to supply maximum roofed-seating capacity to protect spectators from the sunlight. A notable pioneer in this trend was triple-tiered Yankee Stadium, New York, built in 1923 (demolished 2009–10).

**Mountaineering**

Mountaineering, also called mountain climbing, is the sport of attaining, or attempting to attain, high points in mountainous regions, mainly for the pleasure of the climb. Although the term is often loosely applied to walking up low mountains that offer only moderate difficulties, it is more properly restricted to climbing in localities where the terrain and weather conditions present such hazards that, for safety, a certain amount of previous experience will be found necessary. For the untrained, mountaineering is a dangerous pastime.

Mountaineering differs from other outdoor sports in that nature alone provides the field of action – and just about all of the challenges – for the participant. Climbing mountains embodies the thrills produced by testing one’s courage, resourcefulness, cunning, strength, ability, and stamina to the utmost in a situation of inherent risk. Mountaineering, to a greater degree than other sports, is a group activity, with each member both supporting and supported by the group’s achievement at every stage. For most climbers, the pleasures of mountaineering lie not only in the “conquest” of a peak but also in the physical and spiritual satisfactions brought about through intense personal effort, ever-increasing proficiency, and contact with natural grandeur.

Beginning in the 1960s, mountaineering underwent several transformations. Once peaks were climbed, the emphasis moved to a search for increasingly difficult routes up the mountain face to the summit, as in the golden age of the Alpine ascents. A notable example was the 1963 ascent of the West Face of Everest by two members of the first American team to climb the mountain. Moreover, vertical or other so-called impossible rock faces were being scaled through the use of newly developed artificial aids and advanced climbing techniques. Smooth vertical faces of granite were overcome in climbs lasting days or even weeks at a time – for example, the 27-day conquest by American climbers in 1970 of the sheer 3,600-foot (1,100-metre) southeast face of the granite monolith El Capitan in Yosemite National Park in the North American Sierra Nevada range. Other notable developments included an increase in the “Alpine” style of climbing the highest peaks, where mountaineers carried a minimal amount of equipment and supplies and did not rely on porters and other outside support, and a rise in the number of people climbing at high elevations without the use of supplemental oxygen.

**Revival of the Olympics**

The best-known architect of the modern Games was Pierre, baron de Coubertin, born in Paris on New Year’s Day, 1863. In 1890 he traveled to England to meet Dr. William Penny Brookes, who had written some articles on education that attracted the Frenchman’s attention. Brookes also had tried for decades to revive the ancient Olympic Games, getting the idea from a series of modern Greek Olympiads held in Athens starting in 1859. The Greek Olympics were founded by Evangelis Zappas, who, in turn, got the idea from Panagiotis Soutsos, a Greek poet who was the first to call for a modern revival and began to promote the idea in 1833. Brookes’s first British Olympiad, held in London in 1866, was successful, with many spectators and good athletes in attendance. But his subsequent attempts met with less success and were beset by public apathy and opposition from rival sporting groups. Rather than give up, in the 1880s Brookes began to argue for the founding of international Olympics in Athens.

When Coubertin sought to confer with Brookes about physical education, Brookes talked more about Olympic revivals and showed him documents relating to both the Greek and the British Olympiads. He also showed Coubertin newspaper articles reporting his own proposal for international Olympic Games. On November 25, 1892, at a meeting of the Union des Sports Athlétiques in Paris, with no mention of Brookes or these previous modern Olympiads, Coubertin himself advocated the idea of reviving the Olympic Games, and he propounded his desire for a new era in international sport when he said:

*Let us export our oarsmen, our runners, our fencers into other lands. That is the true Free Trade of the future; and the day it is introduced into Europe the cause of Peace will have received a new and strong ally.*

It was at first agreed that the Games should be held in Paris in 1900. Six years seemed a long time to wait, however, and it was decided (how and by whom remains obscure) to change the venue to Athens and the date to April 1896. A great deal of indifference, if not opposition, had to be overcome, including a refusal by the Greek prime minister to stage the Games at all. But when a new prime minister took office, Coubertin and Vikélas were able to carry their point, and the Games were opened by the king of Greece in the first week of April 1896, on Greek Independence Day (which was on March 25 according to the Julian calendar then in use in Greece).