

What Makes an Olympic Champion?

How does a person become an Olympic **champion**—someone capable of winning the gold? In reality, a combination of biological, environmental, and **psychological** factors, as well as training and practice, all go into making a super athlete.

Perhaps the most important factor involved in becoming an elite¹ athlete is genetics. Most Olympic competitors are equipped with certain physical characteristics that differentiate them from the average person. Take an elite athlete's muscles, for example. In most human skeletal muscles (the ones that make your body move), there are fast-twitch fibers² and slow-twitch fibers. Fast-twitch fibers help us move quickly. Olympic weightlifters, for example, have a large number of fast-twitch fibers in their muscles—many more than the average person. These allow them to lift hundreds of kilos from the ground and over their heads in seconds. Surprisingly, a large, muscular body is not the main requirement to do well in this sport. It is more important to have a large number of fast-twitch fibers in the muscles.

Some athletes' abilities are naturally **enhanced** by their environment. Those raised at high altitudes in countries such as Kenya, Ethiopia, and Morocco have blood that is rich in hemoglobin. Large amounts of hemoglobin carry oxygen⁴ around the body faster, enabling these athletes to run better. Cultural factors also help some athletes do well at certain sports. Tegla Loroupe, a young woman from northern Kenya, has won several marathons. She attributes some of her success to her country's altitude (she trains at about 2,400 meters, or 8,000 feet) and some to her cultural background. As a child, she had to run ten kilometers to school every day. "I'd be punished if I was late," she says.

Although genetics, environment, and even culture play a part in becoming an elite athlete, training and practice are needed to succeed. Marathon runners may be able to control fatigue and keep moving for long periods of time, but they must train to reach and maintain their goals. Weightlifters and gymnasts perfect their skills by repeating the same **motions** again and again until they are **automatic**. Greg Louganis, winner of four Olympic diving gold medals, says divers must train the same way to be successful: "You have less than three seconds from takeoff until you hit the water, so it has to be reflex. You have to repeat the dives hundreds, maybe thousands, of times."

Training this way requires an athlete to be not only physically fit but **psychologically** healthy as well. "They have to be," says Sean McCann, a sports psychologist at the Olympic Training Center in the U.S. "Otherwise, they couldn't handle the training loads we put on them. [Athletes] have to be good at setting goals, **generating** energy when they need it, and managing anxiety."