

CHAPTER 1

What Mental Training Can Do for You

One of the great moments in Olympic competition was during the final event at the 1992 Barcelona Games. Trent Dimas, a member of the US Men's Olympic Gymnastics Team, prepared to mount the horizontal bar for the last event before closing ceremonies. His bar routine was flawless, with stunning form and absolute body control on all his optional tricks. Even more spectacular were his release moves: letting go of the high bar in midair and cruising through space with grace and elegance. In anticipation of a perfect landing, he started smiling even before he dismounted from the apparatus, planting both feet firmly on the ground. The judges rewarded him with a perfect 10; to have done otherwise would have been a great injustice.

Watching him again on the television replay in the days following the Games was, to some degree, even more exciting. As the camera zoomed in on Dimas just seconds before he began his journey of swings, releases, and awesome catches on the bar, the slow-motion television replay captured a moment of quiet solitude, a moment of reflection, a moment of mental preparation. Dimas closed his eyes and just waited patiently for his routine to flash before his mental "imagery disk," replaying the visuals one more time so his actual event would be in sync with what his mind and body were feeling.

Trent Dimas, en route to winning his gold medal, was calling on his mental practice training to help ensure a flawless performance.

THE WINNING DIFFERENCE

Before the 1988 Olympic Games in Seoul, social psychologist Jacqueline Golding, PhD, and I surveyed 1,200 track and field athletes who qualified for the Olympic Trials. We specifically compared athletes who qualified for the Olympic Games with those who nearly qualified but missed. We found that these two groups of athletes had a lot in common. You could say they all had “the right stuff.” They were training hard, eating right, getting plenty of sleep, avoiding alcohol and other intoxicants, and using their brains as well as their brawn to compete. They were nearly identical in every respect except for one thing.

Those athletes who actually made the team and competed in the Olympics were doing more mental practice in the final stages of preparation than their less-successful colleagues. The athletes who actually qualified for the Olympics were doing final “mental tune-ups” and getting ready for the competitive challenge of their lives: the Olympic Games. We learned from our studies with Olympians that mental preparation and the timing of mental preparation are the keys to who succeeds.

This type of mental practice is exactly what gymnast Trent Dimas was doing just before his flawless gold-medal performance. I asked Dimas’s coach, Ed Burch of Gold Cup Gymnastics in Albuquerque, New Mexico, about this performance ritual. Burch explained that all his athletes, including two-time Olympian Lance Ringnald, practiced mental rehearsal, using the visualization strategies appropriate for their particular events.

“It is standard procedure for all my gymnasts, including Trent,” said Burch. “I told Trent that he had to spend the night before finals in his room in the Olympic Village mentally rehearsing his routine. I retired early that night as well, didn’t party like the rest of the gang, and spent a few hours mentally preparing for his event. So when you speak about mental practice or the magic of visualization, it goes both ways. Coaches who know their athletes work together in physical training and in mental preparation as well.”

NOW EVERYONE DOES IT

Mental training is now an accepted part of many training programs. I think that we have entered an era where athletes can honestly say, “I won because I trained hard both physically and psychologically.”

Mark Plaatjes, gold-medal winner in the Men’s Marathon at the 1993 Track and Field World Championship in Stuttgart, Germany, attributes much of his success to being ready. “I was so mentally prepared, it was scary,” he says. “I even started to worry that things were too perfect. I had received some information and pictures on the contours and flow of the marathon course prior to arriving in Germany. When I got to Stuttgart, I felt completely comfortable and absolutely familiar with the course. There’s no doubt that I was the most motivated runner in my marathon race, but I was also the most prepared.”

When I first got involved in sport psychology, I remember traveling to California State University, Hayward, to participate in a mental tune-up session with competitive ice skaters under the tutelage of Betty Wenz, PhD. I remember lying on the rather cold and uncomfortable locker room floor with 25 skaters as Dr. Wenz took us through a series of visual images to assist the skaters with their training techniques. I wonder how many of those gifted kids took those mental practice gems to the ice.

By the time Dr. Golding and I began our studies in the 1980s, mental practice was more common. Nearly all of the Olympians we surveyed going into the 1988 Seoul Games had heard of imagery, visualization, or mental practice, and most of them understood the concept. An amazing 83 percent—524 athletes of 633 who responded to our survey—practiced some form of it. These results told me that we were no longer living in the dark ages as far as imagery and visualization were concerned.

Margaret Groos, 1988 Olympic marathoner and winner of the US Trials, told me after her fabulous race: “I know that my mental preparation for the marathon helped me in my training. Usually, I imagined certain points in the race—catching someone, pulling away from another, or the finish of the race. If you haven’t done your mental homework in training, then you don’t have anything to fall back on when you race.”

Mental homework rings true for me in almost anything I do, including writing this book. If I’m not prepared with a set of images that lay out conceptual frameworks for my chapters, I can spend all day just staring at my

(continued on page 8)

WHY MENTAL PRACTICE WORKS

There are some 100 research studies documenting the effects of mental practice and imagery on athletic performance. Many sport scientists have spent most of their careers trying to understand this delicate relationship. Debra Feltz, PhD, and Dan Landers, PhD, well-known researchers in sport psychology, have studied how and when mental practice best improves performance.

When I first wrote this book, I highlighted two possible explanations behind why mental practice and, more specifically, imagery work: the symbolic learning theory and the psychoneuromuscular theory. Since then, experts have focused on an additional two reasons, known as the bio-informational theory and the dual coding theory.

Here is what we know about all four.

1. **Symbolic learning theory.** Imagery may be part of a coding system that actually helps athletes understand movement. The theory says that every move we make in life is first coded like a blueprint in our minds and in our nervous systems, so that if we mentally rehearse an athletic event, we are actually blueprinting each move, making the gestures symbolic and making them more familiar to our body chemistry. By doing lots of mental practice, we are setting the stage for movement to become quite automatic and easy to recall.

For example, if Andy Roddick and Jennifer Capriati want to improve their backhand crosscourt shots, they might break out each component of the task by mentally rehearsing each sequence of the tennis shot. In this way they would encode each movement of their hands, wrists, forearms, and elbows, creating a blueprint for the entire backhand tennis swing. This familiarity would enhance their shots and make them relaxed, strong, and incredibly accurate. Dramatic improvements in basketball free-throw shooting are credited to the symbolic learning theory.

2. **Psychoneuromuscular theory.** Mental practice works because even when we sit quietly in our armchairs, we are actually producing very small muscle contractions similar to those involved in our particular sport.

Let's examine this theory, using the mind of Olympic diving champion Greg Louganis as an example. Theoretically, when Louganis concentrates on his sport, his mind shoots mental "faxes" and other electronic impulses to his muscles and tendons, reminding them how to leap from the springboard, prepare to tuck, rotate for several spins, and then unravel the body for a perfect no-splash entry into the pool. These messages travel at lightning speed and cause the muscles to fire at appropriate sequences so they can perform the correct sporting movement. In essence, they allow Louganis's muscles to practice, even when his body is at rest.

This theory has been tested quite frequently by simply having athletes mentally rehearse images and then measuring the electrical activity (with an electromyograph, or EMG) in their arms and legs. In one experiment, a psychologist in Colorado measured the electrical activity of a downhill ski racer while the skier sat quietly imaging the race course. The printout of the racer's leg muscle contractions and firings corresponded exactly to the terrain of the hilly and challenging ski course. If we mentally rehearse our sports often and with great intensity, we strengthen and condition the muscle firings and neuromuscular "phone lines" so that the messages get there more efficiently and with greater clarity.

3. **Bio-informational theory.** This third theory, first brought to light by doctors trying to explain the connection between imagery and anxiety disorders, states that if we imagine how we might respond to a certain event, we can better prepare for it.

For instance, if Tiger Woods had a problem with anxiety and nerves while putting, it would be helpful for him to go home and imagine making putts while being anxious and nervous. That way, when he hit the links, he would already be used to the anxiety and actually begin to feel (almost paradoxically) comfortable when the anxiety hit. This would ultimately allow the anxiety to disappear and let him play better.

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WHY MENTAL PRACTICE WORKS (*cont.*)

4. **Dual coding theory.** This theory suggests that athletes receive information by two independent channels or encoding systems, the verbal channel and the motor channel. Simply stated, this means that new skills are better learned if they are both explained to an athlete and then actualized through physical practice. The link between the two channels is known as the action-language bridge.

The bridge is the key to athletic learning and success here: It makes it possible for athletes to describe an action, generate another action, and act on verbal cues. For example, if Woods were to go back to Stanford, his alma mater, to give a lecture on how he swings, he might first talk players through his mechanics (the verbal part) and then walk players through practicing his swing (the motor part) while describing it again. The players would thus be learning on two different levels and bridging between them through Woods's instruction.

word processor, accomplishing little. You'll find the same to be true for you in most of your activities, whether you're doing routine daily tasks or training to reach your athletic goals.

PRESSING YOUR SENSES INTO SERVICE

Mental practice and imagery are not exactly the same, but they are very similar. Mental practice simply means repeating a task in your mind, without any movement from your body. Imagery, however, is a very specific and very focused type of mental practice. Imagery can be described as an exercise that uses all of the senses to create an experience in the mind.

Visualization is just one part of this imagery experience. We can also feel, smell, taste, hear, and touch in our imagery experience. Watching a videotape of diver Julie Ogenhouse at the 1992 Barcelona Summer Olympics offers a wonderful example of the different senses that you might experience in imagery practice.

As Ogenhouse prepares to dive, she uses her eyes to note the distance of

the springboard from the water; she uses her sense of speed and motion to decide how best to rotate on the 3½ front somersault with a 1½ twist; she hears the sound of the board as it rebounds from her thrust; she feels the simple, yet perfect, splash of the water against her body on entry; she smells the chlorine from the pool water; then she receives the energy of the crowd when the dive is complete.

Utilizing all the senses, an athlete like Ogenhouse also focuses on the importance of emotions. Competitive athletes use imagery to help control anxiety, anger, or pain. Athletes who learn these skills recreate emotions in their minds to enhance the quality of their performances. When imagery is used effectively, the learning process becomes exciting and opens up a whole realm of human potential.

Laura Wilkinson is an extreme example of someone tapping into the power of imagery. Going into the 2000 Sydney Olympics, dive champion Wilkinson broke her leg and was in a cast for months. She could not dive—physically, that is. But by working with a supportive coach and using imagery practice, Wilkinson was able to stay focused. Several times each day, she'd climb the 10-meter platform and “walk” through the motions of her complex high dives, mentally taking snapshots of each element. When the cast came off just before the Sydney games, she got up on the 10-meter platform and did some very elegant dives. Wilkinson's practice was so good, she lost very little training time and went on to win the gold in Sydney.

We all know friends who go out and attempt to imitate the tennis serve of Pete Sampras or emulate the great reflexes of Andre Agassi—and they might do quite well. After watching the phenomenal skills of Steve Kerr in the NBA finals, you may be inspired to go out and shoot three-pointers, surprising yourself by sinking one after another. So is there a relationship between watching the very best and then imitating that outstanding athletic feat?

The answer is yes.

Imagery becomes a dynamic element in the learning process. Athletes imitate the actions of others, because their minds “take a picture” of the activity, and they use it as a model for their performances. Anyone can model his physical performance using this kind of mental “filming.” Imagery is based on memory, and we experience it internally by reconstructing external events in our minds. As the programmer of our own imagery tapes, we are able to build an image from whatever pieces of memory we choose.

Len Spencer, a tennis pro and my daughter's talented coach, explained to me many years ago that unpleasant events can directly affect performance. He noted that if our memories are laced with traumatic or frustrating moments on the court or off-court pressure from an overbearing parent, we tend to lock "trauma images" into our muscle memory and not perform well. He used to call to me from the sidelines, "Steven, get your computer and your office work out of the picture, relax your grip, get your feet in motion, and enjoy the game." I can still hear his voice barking those commands.

OUT OF THE DARK AGES

In the past several decades, dramatic changes have occurred in the way athletes prepare, train, and compete at all levels of sport. As coaches have turned to a more mind-body approach to training, athletes have responded with improved performances and greater longevity in their sports. It is no secret that great athletes such as tennis stars Pete Sampras, Andre Agassi, and Martina Navratilova; basketball legend Michael Jordan; and pitchers Randy Johnson and Roger Clemens have stayed fit longer, kept their bodies healthier, and remained competitive well beyond their supposed peak performance years. Martina Navratilova personified the trend when she competed in doubles at the US Open at age 48, making it to the semifinal round.

These athletes are going years beyond their performance window of opportunity by using alternative strategies that include mental practice and visualization. Their training programs address their complete needs, from nutrition to stress management to creative mental preparation and performance strategies. These mental training strategies enhance performance while discouraging physical overtraining—which may lead to injury and burnout.

According to some sports medicine specialists from the former Eastern bloc nations, mental practice strategies have been a regular part of training elite-level athletes since the 1960s. Several experts note that Romania and several other Eastern European countries initially train their coaches in mental preparation strategies, and in turn, the coaches train their athletes. This style of teaching and training differs dramatically from our Western model. In the United States, for example, sport psychologists work with

athletes first (and sometimes exclusively) and then hope that coaches will participate in mental preparation training as the athletes improve their performances.

While it may be preferable to have coaches help with the mental training process, it apparently isn't essential. In the survey that Dr. Golding and I conducted, we found that many athletes who trained without coaches had designed innovative mental practice strategies on their own and incorporated them into their daily training.

You don't have to have a coach to lead you to the well. The visualization spring is always full of water and is available to anyone who takes a drink. No doubt certain coaches, such as gymnastics coach Burch—who does visualization work with his athletes—inspire a certain synergistic relationship with athletes who are willing to work hard and prepare diligently for their sports.

Finally, athletes at any level—not just elite athletes—can benefit from mental training. Even after exhaustive research with hundreds of athletes, I do not need to go very far to see results. My daughters (who are now young women well into their academic and athletic careers) vouch for mental practice. My younger daughter, Ariel, a former gymnast and now a Division I collegiate cheerleader and stunter, told me, “Dad, I often see myself doing the perfect round-off, back handspring into a full; it's so clear, and I can feel the mat beneath my hands—and I'm just lying in my bed getting ready for sleep.”