I think of dance as the epitome of the arts because it’s visual, it’s physical, it’s elegant, it’s musical, it’s athletic. It’s just addicting. I think if you are born to dance, insurmountable odds just don’t matter and you’ll do just about anything to do it. — T. J. Maheras

In the ballet studio, 10 dancers cut through space at incredible speeds, all en pointe, all in sync. T. J. Maheras is their choreographer. The ASU instructor is unrelenting in his demand for perfection. These dancers must be musical, they must be fast, they must be strong, they must be technically proficient, and, they must be athletes. Maheras is a dancer and a choreographer. But he also is educated in nutrition, exercise science, physiology, and biochemistry. He is training dancers in a bold new way.

by Sheilah Britton
He went to college expecting to become a lawyer, as his father wished. But as a student at ASU, Maheras sought physical education classes to meet people and stay in top physical shape. He discovered dance at the studio housed in the Physical Education Building.

"I took dance because it was physical and it looked like fun—and because there were so many girls. There were so many women in every man in a class. I thought, 'This is great!'" he recalls.

Male dancers were in demand, and one of his teachers encouraged him to audition for a solo role in a performance. That experience hooked him, for life.

Maheras had been accepted to law school. But he called his parents and told them he was leaving school and going to Canada to dance. ASU’s dance department emphasized modern dance. Maheras realized that he connected more to the linear nature of ballet. So he headed for the Banff School of Fine Arts and danced with the Banff Festival Ballet for a season.

During his own training, Maheras discovered the cardiovascular fitness and endurance capacity of dancers demonstrated below average abilities when compared to other athletes. The solution to cross-train dancers like athletes seems obvious. But it is not that simple.

"Dance training continues to embody tradition, emphasizing neuromuscular control and lower trunk strength rather than current conditioning theories," Maheras says.

The ASU instructor has designed a regimen that involves participation in the "classical conditioning barre"—a technique classes that employs interval training methods and maintains the integrity of classical ballet. The main goal is to strengthen dancers' cardiorespiratory systems by using exercise science training principles in the context of the traditional barre routine.

"We combine classical ballet training and interval training, then monitor each dancer's endurance capacity. We put them on the treadmill and measure their oxygen consumption and then monitor how their heart rate changes over time. We also take measurements of body density to find out each dancer's percentage of body fat," he explains.

To date, the overall results of Maheras' training methods have demonstrated marked improvements in body densities, maximal oxygen consumption, as well as increased strength and stamina, technical improvement, and improved self-esteem among the dancers.

Maheras' natural athleticism did not translate well into dance. He remembers his dance instructors actually telling him not to take it too seriously. He admits that he was pretty dreadful.

"I was always quick to pick up a sport, but I couldn't for the life of me figure out how dancers turn around on one leg," he laughs. "I could jump and I could move. People were amazed at how high I could jump—but they were equally amazed at how loudly I landed. It was the most challenging thing I'd ever encountered.

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While in Canada, Maheras met Alan Hooper from the Royal Academy of Dance in London. Maheras knew that he was not yet a dancer. Hooper confirmed that. He told him, "You're too old, you're too stiff, you're too bulky, you're not very good—but if you don't try to do it now, you'll regret it for the rest of your life."

So Maheras went to London and trained at the Royal Academy and the Hammond School taking nine to 13 classes a day. He set a deadline of two years. He promised himself that if he did not have a contract by that deadline, he would quit dance and go back to law school. Northern Ballet Theatre handed him a contract a year and a half later.

Maheras danced throughout the United Kingdom for two years with Northern Ballet Theatre. He danced with the Irish Ballet for a year, and then spent four years with the Winnipeg Ballet. It was in Winnipeg that he suffered an injury that remains with him to this day.

"I was partnering a woman who, en pointe, was at least three inches taller than me. We were in an overhead lift in arabesque when she just went limp," he recalls. "You are trained not to drop a ballerina because they break. I leaned back to keep her from falling and my back went snap!"

Maheras left Winnipeg with a herniated disk that still goes into spasms. But he continued to dance.

Le Ballet Jazz in Montreal was his next stop. In addition to performing, Maheras began to teach. He discovered that he was, perhaps, a better teacher than performer.

"I teach because it keeps evolving. In every class I teach, I’m looking for a better, faster, simpler way to teach technique," Maheras says. "I cut out more and more of the garbage. Just because it’s been in the syllabus for two centuries doesn’t mean it’s still relevant. It doesn’t take so years to train a dancer," he insists.

Since the creation of ballets like Giselle and Swan Lake in the 19th century, dancers have taken their place at the traditional barre. They marked their time in pliés and relevés—creating muscle memory from repetition—and maintaining a static and anaerobic training regimen that has changed little, if any, in the 200 years.

But ballet, like other disciplines, has evolved. Choreographism like Maheras have a need for a different kind of dancer.

"I can’t use that sylph-like, ideal body type. It’s not strong enough—it would break in my ballets, as it would in most contemporary work. I need strong, muscular, athletic dancers," he explains.

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Making of a Dancer. Theodore Jude Maheras was raised in Pocatello, Idaho, where his life was defined by athletics. He excelled in tennis, baseball, and golf, even entertaining the idea of professional golf for a time.
T. J. Maheras expected that his research might yield significant results. But even he is astounded at the strength of the numbers.

After ASU dance students completed 12 weeks of training using his techniques, their mean peak heart rates increased more than 25 percent, going up from 135 beats per minute to 169 beats per minute. Each student’s total body fat decreased from 25 to 23 percent. Their lung capacity, or ability to consume oxygen, increased by more than 13 percent.

ASU exercise scientist Wayne Willis observed some of Maheras’ training techniques and confirmed the results. “After completing T. J.’s class, the dance students have lower heart rates at a given exercise intensity. They have an expanded aerobic scope and can operate at higher intensities which provides for much greater endurance,” Willis says. “They also have a corresponding shift in fuel utilization so they oxidize more fat and less carbohydrates.”

In essence, their bodies work more efficiently and consume stored fuel in the form of body fat at a much faster rate.

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Maheras’ research also applies biomechanical principles to classical dance posture. His redesigned positions reduce strain on joints and muscles, helping prevent injury to dancers.

Ethel Leslie demonstrates the classical attitude à la seconde, which forces the hips to an extreme angle. The new version appears the same to the audience viewing the dancer, but actually reduces joint strain.

Subtle adjustment of posture places a dancer’s weight in the best alignment to gain support from major muscles. Leilani Suse demonstrates fourth position (grande plié), and Matt White shows fifth position.

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SHEILAH BRITTON

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Physiology, was Maheras’ mentor in graduate school. Willis’ own research is usually based in the laboratory. But he felt that Maheras made a compelling case for studying dancers and supported his work. He also made his lab available to the dancers. “T. J. took training principles and applied them to his dancers. He developed a progressive type training where both intensity and duration were increased over time.” Willis says. “He found that dancers who at first fatigued within very short periods were able to adapt the same way we have seen athletes adapt for many years.”

Like any researcher, Maheras needed funding to continue his work. He took ideas to ASU’s innovative Institute for Studies in the Arts (ISA). “Why mess with classical training?” he says. “What I’m doing slaps classicism in the face. But there are a lot of visionary people at the Institute. They supported my research.”

The ISA documents Maheras’ training techniques and classes, and supports his research by funding lab supplies, pianists, and graduate assistants. His techniques address issues related to a dancer’s poor aerobic conditioning, and several physiological factors. “The classes at ISA are my own little laboratory. I’ve learned how long dancers can go in any given exercise before they are totally exhausted,” he says. “I’m training different muscles. The improvement in technique comes with strength in their deep rotators and abductors, abdominals, and upper back strength, even the muscles in their feet. They are stronger and able to stand better and rotate muscledly. They get better despite themselves,” he says.

Something also happened that Maheras did not expect. “The self-esteem of each and every student soared,” he says. “It’s really self-motivating when improvement happens so quickly and they know it and they see it and they feel it.”

Dancer Elizabeth Nichols believes that the technique, the stamina, and the strength she has gained from studying with Maheras has made her a better dancer. But she also carries a new not-so-visible grace and self-confidence. “In the end, you perform it and you get the results that he always knew you could,” she says. “There are things I’ve done in dance with T. J. that I never realized I could do. I know that I’ll carry that confidence with me from now on, whether it has to do with dance or not.”

For Maheras, the research results have only confirmed what he had suspected early on in his studies of exercise science and physiology. He is now attracting the attention of others in the field with the data he has collected. “Rather than yielding to new scientific knowledge about cardiac training, the art has tended to continue the way we have taught dance technique. In the case of ballet, the tradition reaches back more than 200 years,” says Murphy. “But I think that Maheras’ findings may help to change traditional thinking and implement change in the way we train dancers in the future.”

Research on aerobic training techniques for dancers is supported by ASU’s Institute for Studies in the Arts. For more information, contact T. J. Maheras, Department of Dance, College of Fine Arts, 480.965.7131. Or send e-mail to: Theodore.Maheras@asu.edu Visit the Institute for Studies in the Arts at: http://www.asu.edu/cfa/isa/