

The Science of Sport

By Bethany Bradsher Photography by Forrest Croce



He could have put the center bearing his name on any one of a number of major college campuses, but Dr. LeRoy T. Walker, past president of the U.S. Olympic Committee, chose East Carolina University.

Every coach knows the fundamental ingredients in the quest for excellence. Athletes must be driven, teachable and diligent, with natural talent on which to build. But if the ambassadors for the Walker Center have their way, another element will become essential to that formula: An understanding of the science of performance and improvement.

Since 1997, professors from East Carolina's College of Health and Human Performance and other specialists have been welcoming athletes from all over the globe to the L.T. Walker International Human Performance Center. Athletes come in, with their coaches, for an assessment period (ranging from four days to two weeks) that takes the intricacies of

biomechanics and breaks them down into benchmarks of progress.

"We're not trying to make scientists out of them, we're trying to let them know what it is from their body type and basic development that we can use to help them add a millimeter to their jump or save a second," said Dr. LeRoy Walker, the founder of the center and a patriarch of the international Olympic family. "At the international level, you can go from first place to sixth place in a hundredth of a second."

Seven years ago Walker, now 85, set out to find a site where athletes from under-funded nations could come and take advantage of the knowledge and testing that is usually unavail-

able to them. It was a vision that was born out of his years of coaching Olympians in track and field and charting their progress as a past president of the U.S. Olympic Committee.

Walker, a Durham resident and former chancellor and coach at North Carolina Central University, visited possible locations in the United States and overseas, including well-known campuses like Michigan, Penn State and Stanford. In the end, ECU got the nod because of its expert faculty, its facilities and its proximity to Walker's home. Since the first athletes arrived in June of 1997, 42 men and women from 13 different countries have come with their coaches to participate in the Walker Center regimen.

Chris Westerkamp, a doctoral candidate in bioenergetics and a runner, participates in a lactate threshold test in the Human Performance Lab. At 5-minute intervals, Westerkamp had his finger pricked and blood tested to determine his lactate threshold, or the point at which lactic acid begins to accumulate in the body and inhibit performance.



“Dr. Walker’s vision is to try to equalize the playing field a bit,” said Dr. Glen Gilbert, dean of the College of Health and Human Performance. “He adopted ECU back in ’97, and it’s been just wonderful for us.”

A menu of some 20 different tests is available for athletes who visit the center, and coaches can select the tests that best suit their charges. The assessments, which are supervised by ECU faculty members, fall under two major categories. The first, physiological testing, includes treadmill tests, body

composition analysis, muscle biopsy, blood testing and dietary recall. The second battery of tests, biomechanical testing, provides information about neuromuscular-skeletal function through tools like eletromyography, an instrument that can identify imbalances in leg muscle strength or profile an athlete’s rate of fatigue.

The world of high-caliber athletics has, in recent years, come to grasp what biologists and other scientists have known for years: By knowing the intricacies of your body, you have a better chance of making it do what you want it to do.

One example of a breakthrough that can come from physiological testing is the muscle biopsy, in which a slice of muscle tissue is taken from the athlete and analyzed. The results can tell a runner whether he is better suited to sprints or distance events.

“It’s just taking a little piece of it, and they can count fibers and see whether they’re what we call slow-twitch or fast-twitch,” said Julie Cox, who is the program coordinator in the Human Performance Lab where many of the Walker Center tests are performed.

As they delve into an aspect of training that may seem as foreign as eastern North Carolina, the visiting athletes receive guidance from ECU professors like Dr. Joseph Houmar, the director of the Human Performance Laboratory, Dr. Tibor Hortobagyi, the director of the Biomechanics Laboratory and a former Hungarian national high jump coach, and Dr. Paul DeVita, an assistant professor in the Exercise and Sports Science program.

“With all of us working together, we can give the athletes and coaches what they want,” Houmar said. “We’re not afraid to use our knowledge to help people.”

Coaches are required to make the trip to Greenville with their athletes, Walker said, because the application of the scientific findings is a process that only begins during the assessment period, which can last up to two weeks.

“We can’t solve all of their problems in two weeks,” Walker said. “But with their coach here, we can give them the fundamentals. We don’t want to do all these good things for an athlete and they go home and can’t explain it to their coach.”

Don’t go looking for a building on the ECU campus with a sign designating it as the Walker Center. In fact, the center utilizes labs and equipment that are already put through the paces daily by university students and faculty. Most of the testing for visiting athletes is done either in the Human Performance Lab, also known as the F.I.T.T. (Fitness Instruction Testing and Training) Center, or in one of two labs on the second floor of the Ward Sports Medicine Building.

This spring marks a crossroads for the Walker Center, which saw the majority of its international athlete traffic in the two years after its formation. Coaches from around the globe wanted their athletes to have access to the Walker tests in time to make improvements for the 2000 Olympics, Walker said, so the initiative started out with a bang.

But sufficient funding was hard to find, especially for athletes who couldn’t afford the trip to the United States. So in 2003, the center, which was founded as a non-profit organization that was affiliated with ECU, officially became a part of the university. To help chart the Walker Center’s future purpose and lay its financial foundation, Walker and Gilbert have formed a new advisory board, which met for the first time on April 30.

The 20-member board, which includes Jimmy Carnes, executive director of the U.S. Track Coaches Association, Jim Talton, ECU Board of Trustees chairman, George Koonce, ECU alumnus and former professional football player and John Hudson, a senior vice president for Wachovia Bank, will be integral to increasing the Walker Center’s visibility

and helping to broaden its mission, Gilbert said.

“We have a basic plan, but we have a lot of options and ways we can go depending on their suggestions,” Gilbert said.

The weekend before the initial board meeting, Walker was fulfilling his role as Walker Center emissary at the nation’s most prestigious track meet, the Penn Relays. While he worked as a referee for the meet, Walker planned to hand out Walker Center brochures and encourage top athletes to avail themselves of the treasure available in eastern North Carolina.

“I’m trying to get the word out, although we’ve had athletes here from three continents, and many have gone back to their countries and set records,” said Walker, who has coached renowned runners like Wilma Rudolph, Frank Shorter, Bruce Jenner and Edwin Moses. “Many have made the Olympic Games. It’s been a huge success, but we haven’t gotten the word out enough in the countries.”

Charlie “Choo” Justice, the former ECU head track coach and one of the developers of the Walker Center program, remembers a hurdler from Puerto Rico who came to the center in its early years and worked with Walker, who has a Ph.D. in exercise science. The athlete and the coach spoke different languages, Justice said, but they connected as Walker showed him the science of movement, speed and fluidity. The Puerto Rican athlete returned home and ran the fastest times of his life.

As Walker taps into his global network to create an athletic melting pot in Greenville, a movement is also afoot to make the Walker Center program available to future American Olympians. A representative from the U.S. Olympic Committee visited ECU in March after hearing about the benefits of the center. He learned about one of the center’s greatest assets: the quest for athletic excellence against a backdrop of rigorous academic achievement.

Sarah George gets an accurate measure of the

body fat of fellow graduate student Melanie

Sweazey, using the hydrostatic tank in the Human

Performance Lab.



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Participating countries to date:

JAMAICA

ANTIGUA

PUERTO RICO

MEXICO

ARGENTINA

CAMEROON

CONGO

GHANA

GUINEA

IVORY COAST

KENYA

UNITED STATES

VIRGIN ISLANDS

“Our philosophy is to try to maximize the use of our facilities, and that’s one of the things that is unique about our approach to the Walker Center,” Gilbert said. “The Walker Center is just part of ECU; it’s an extension of what we can do.”

Even though the International Olympic Committee has given the Walker Center its stamp of approval as an official assessment site, the U.S. Olympic Committee has not recognized the center as a destination for its athletes, primarily because of the two sanctioned U.S. Olympic training facilities that have been built with private money in Chula Vista, Calif., and Colorado Springs.

“The Walker Center can do the tests that those sites do, and actually then some, because the staff we have here is made up of truly exceptional exercise physiology folks,” Gilbert said.

But because of funding and political barriers, American athletes can’t make the Walker Center part of their training regimen. Ideally, the center’s supporters would like to see both the international and U.S. Olympic organizations recognize their program and help subsidize the athletes who want to visit.

It’s a lofty goal, not unlike the ideals that have long served as the foundation for the Olympic Games. Walker hopes that this summer the center that bears his name will even have the chance to optimize the performances of athletes who are bound for Athens in August.

“With the opening ceremonies being on Aug. 13, you can only help the athlete that is the elite athlete at this point,” Walker said.

“But you can save a second or gain a millimeter.” A huge difference in Olympic competition.

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Bethany Bradsher is a freelance writer living in Greenville.