

"The Clinical Advantage"™

Distinguish Yourself...

BIODEX NEWS

PUBLISHED BY BIODEX MEDICAL SYSTEMS, INC.

SUMMER 2011

■ INDUSTRIAL PHYSICAL CAPABILITY SERVICES (IPCS)

Biodex System 4 — "New Hire" Screening and Return-to-Work Programs Begin Here

The Biodex System 4 will help your clinic remain competitive in today's dynamic marketplace. The System 4 is a progressive and innovative tool providing rehabilitative testing and strengthening from the frailest patient to world class athletes. Understanding an individual's strengths and weakness for employment and return to work has been made more precise through objective data generated from the Biodex System 4.

Once again, Biodex has been selected by a highly respected leader in occupational and industrial medicine, Thomas B. Gilliam, Ph.D. of Industrial Physical Capability Services (IPCS), where utilization of the System 4 has increased profits and made a difference in rehabilitation. "The clinic owner likes the concept reimbursement point-of-view. Most clinics today contract out their functional capacity evaluation (FCE's) because of the time and cost, so the clinician sees the isokinetic PCE as an opportunity to make more money," explains Gilliam.

The System 4 is a complement to IPCS' new Physical Capability Evaluation (PCE) reports Gilliam developed for his company's network of over 500 providers in 47 states and Canada. "It takes the clinician approximately 30 minutes to administer the single joint bi-lateral test," states Gilliam, adding the reimbursement rates for the evaluation and interpretation are much greater as compared to other diagnostic systems. It takes less time to administer and the reimbursement on an hourly basis is greater—nearly, 3 to 4 times greater. Some clinics are receiving up to \$500 per PCE."

The Biodex System 4—25 years of Firsts!

Since Biodex introduced the world's first multi-mode computerized robotic dynamometer, with advances over the years, it is still the fastest way to identify, treat and document the physical impairments that cause functional limitations.

- Advanced dynamometer technology for greater performance
- Accommodates pediatric to athlete applications
- Touch-screen
- Reduced floor space
- Wider range of normative data
- Expanded after sale support, installation and continuing education programs

Biodex continues to combine the art and science of rehabilitation in easy-to-use systems delivering patient and clinical results to meet market demand.

In response to this and industry demand, the Biodex System 4 is a pioneering breakthrough in neuromuscular testing and rehabilitation technology. The System 4 is also part of a line of products developed to help a therapist capitalize on new methods of treatment. Success has been measured through the patient's ability to achieve a fast, effective, documented return to function as the System 4 is unusually sensitive to a patient's limits.

Clinics using the Biodex System 4 report not only patient success but an increase in revenue. Employing the IPCS PCE program is an exciting growth opportunity for clinicians looking to enter the RTW and pre-employment testing business. Physical therapists are able to quickly utilize all the diagnostic and exercise functions the System 4 provides. As a result, time is saved, productivity and revenues increase.

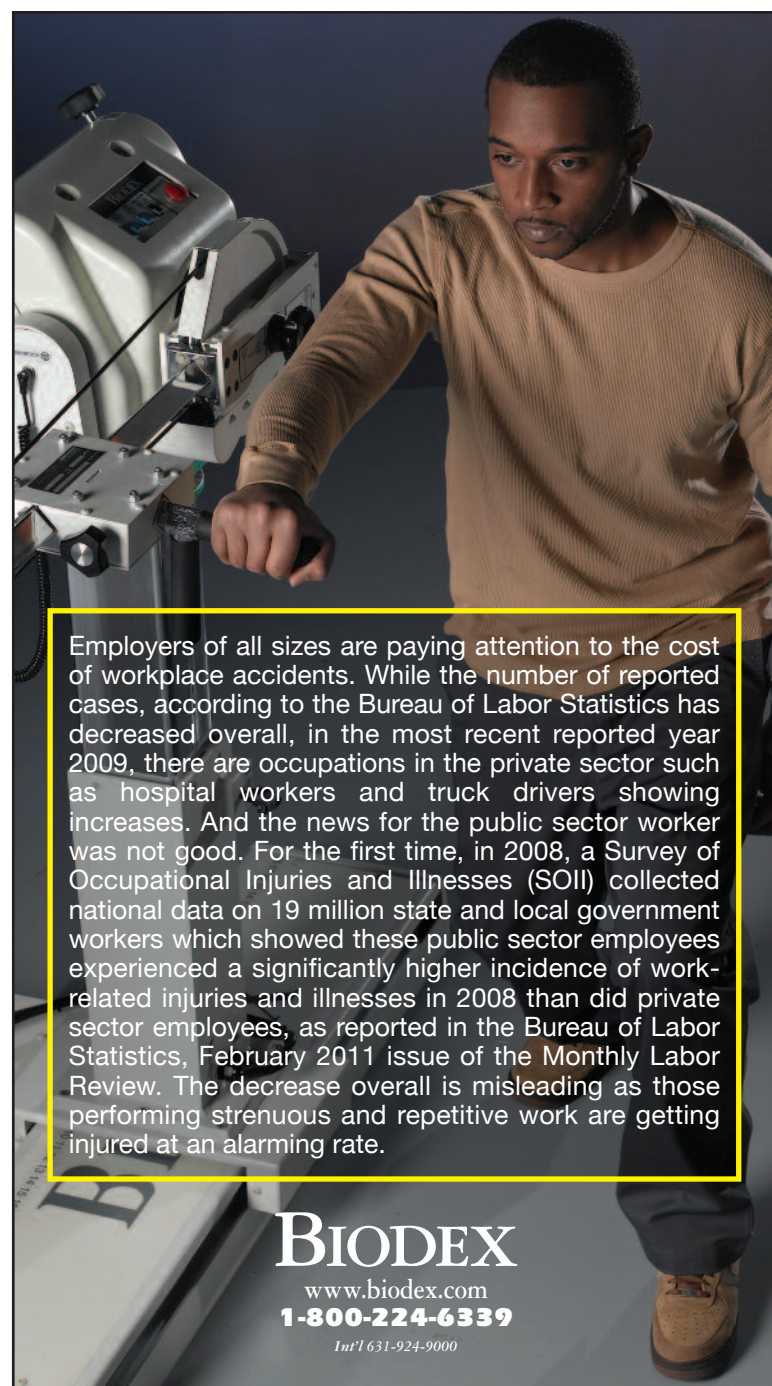
The New York State Worker's Compensation Board reports, "There is only a 50 percent chance that an injured employee will return to work after a six month absence," the probability of a worker returning continues to decline after a year, and more so after a two-year period of absence. The need is there, results need to happen. Getting patients back to work at a level which is safe, shows progress and increases confidence is one of the reasons the Biodex System 4 has been embraced.

Attention Multi-Joint System Owners

Contact IPCS to establish your practice as a PCE provider for New Hires and Return to Work: *IPCS isokinetic knee-shoulder new hire Physical Capability Evaluation (PCE) is significantly more effective in reducing work-related injuries than a traditional Functional Capacity Evaluation (FCE). For more information, or to view sample reports, contact:*

*Thomas B. Gilliam, Ph.D.- President
330-463-5757*

*TGilliam@ipcs-inc.com
www.ipcs-inc.com*



Employers of all sizes are paying attention to the cost of workplace accidents. While the number of reported cases, according to the Bureau of Labor Statistics has decreased overall, in the most recent reported year 2009, there are occupations in the private sector such as hospital workers and truck drivers showing increases. And the news for the public sector worker was not good. For the first time, in 2008, a Survey of Occupational Injuries and Illnesses (SOII) collected national data on 19 million state and local government workers which showed these public sector employees experienced a significantly higher incidence of work-related injuries and illnesses in 2008 than did private sector employees, as reported in the Bureau of Labor Statistics, February 2011 issue of the Monthly Labor Review. The decrease overall is misleading as those performing strenuous and repetitive work are getting injured at an alarming rate.

BIODEX

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■ BIODEX IN RESEARCH

Marquette University, Wisconsin

BIODEX LABORATORY DEPARTMENT OF BIOMEDICAL ENGINEERING

INTEGRATIVE NEURAL ENGINEERING AND REHABILITATION LABORATORY AT MARQUETTE UNIVERSITY

This laboratory is centered around our Biodex dynamometer that has been modified with multiple six-axis load cells, which allow for force and torque measurement at multiple joints simultaneously. Our Biodex machine is coupled with a 16-channel electromyography (EMG) machine (Bortec Biomedical Ltd). Data from both the load cells and EMG system are collected by LabVIEW and a National Instruments data acquisition system. This equipment allows for multiple digital and analog input/output ports, in addition to the force, torque, and EMG signals. Our system is also complemented with a dual screen computer that can be programmed to give real time feedback to our subjects. Please take some time to read below about some of the ongoing projects in our Biodex Laboratory.

Neural mechanisms of arm stabilization post-stroke using tendon vibration

A recent study from our laboratory, in collaboration with Dr. Robert Scheidt, has shown that the application of vibration allows people who had suffered a stroke to better stabilize their hand in space. Subjects were asked to make point to point movements in a 2D workspace with a destabilizing force field and also track a figure eight pattern. With vibration applied to the wrist, the end point stability of their hand was increased and EMG activity decreased, especially in shoulder muscles (Conrad 2009, Conrad 2011).

After observing these results, we decided to try and locate at which neurological level this vibration phenomenon was occurring. For her master's work, Bani Gadhoke has been working on a project that uses isometric contractions of the arm in the Biodex and tendon tapping to elicit and measure spinal reflexes. The goal of the project is to see if spinal reflexes are altered during volitional isometric contractions with vibration at the wrist. She has hypothesized that if there are changes to these reflexes then the vibratory effects are concentration at a spinal level. If not, however, it will be assumed that vibration is altering sensory signals at a higher level such as the brainstem or sensorimotor cortex.

Contributions of central neuromuscular fatigue post-stroke

A new project that is just getting underway is exploring the contribution of central mechanisms on muscular fatigue after someone has suffered a stroke. Henry Kuhnen has been working on his master's thesis, in collaboration with Dr. Allison Hyngstrom and Dr. Sandra Hunter, to examine this neural phenomenon. Henry will be utilizing the Biodex system to control a fatiguing task where the subjects will be asked to complete repetitive knee extension isometric contractions. Fatigue will be continually monitored after a specific number of contractions using a maximal voluntary contraction (MVC) measure and the task will end when the MVC goes below a certain threshold. Subjects will do this protocol before and after the administration of 5-HT/NE

reuptake inhibitor (SNRI). The administration of the SNRI should prolong a time to fatigue task in normal people. Henry hypothesizes that people who have suffered a stroke will not respond to the SNRI, which would indicate an inability of motoneuron pools to respond to neuromodulatory inputs from the brainstem.
Marquette University Milwaukee, WI

■ BIODEX IN RESEARCH

Charleston, SC

MEDICAL UNIVERSITY OF SOUTH CAROLINA College of Health Professions Neuromuscular Assessment Laboratory

About the Lab

The primary goal of the Neuromuscular Assessment Laboratory is to investigate the neural and muscular mechanisms underlying abnormal muscle function in children and adolescents with cerebral palsy and the development of effective interventions. Current projects are aimed at (1) understanding the muscle structure/function relationship, specifically the contribution of muscle architecture to abnormal force production using real-time ultrasound imaging and (2) how muscle architecture can be modified in response to intervention.



Laboratory Equipment:

Biodex System 4 Pro isokinetic dynamometer, 10 Channel EMG system Shared 3D Vicon/Peak Motion Analysis Laboratory Multi-gym and Total Gym, GE ultrasound machine

Project: In Vivo Assessment of Quadriceps Muscle Plasticity in Children with Cerebral Palsy

This is a randomized clinical trial investigating muscle architectural plasticity in response to two different targeted strengthening interventions for the quadriceps muscles (traditional resistance training vs. velocity training) in children and adolescents with cerebral palsy. The primary aim is to test the hypothesis that velocity training of the quadriceps for speed and power will result in increases in both muscle size and fiber length and will translate to functional gains that exceed those of the traditional resistance training group.

Project: Physical Activity and Muscle Plasticity in Cerebral Palsy Funding: Section on Pediatrics, American Physical Therapy Association.

The purpose of this project is to utilize ultrasound imaging to investigate in vivo muscle architecture of the rectus femoris and vastus lateralis in children with CP and to investigate the relationships between muscle structure and function with activity and participation levels in CP.

Neuromuscular Assessment Lab
Department of Health Professions, Division of Physical Therapy
Medical University of South Carolina

■ BIODEX IN GREECE

Orthopedic Sports Medicine Center of Ioannina

The Orthopaedic Sports Medicine Center of Ioannina (OSMCI) is a contemporary and completely equipped laboratory that belongs to the Orthopaedic Surgery Department of the University of Ioannina. Anastasios D. Georgoulis, Professor of Orthopaedic Surgery is the director of the OSMCI since its foundation. The OSMCI has essentially two responsibilities: the education of its fellows and medical students and the research on specific questions relating to the area of sports medicine and specifically to the sports injuries. In addition, the OSMCI supports the advance of championship level athletics in north west Greece.

The research focuses mainly on the outcome of the arthroscopic reconstruction of the anterior cruciate ligament, and subsequently on the improvement of the surgical technique. On this area several oral presentations and posters have been presented in numerous greek and international congresses worldwide. Also, a significant number of scientific papers have been published in peer-reviewed journals.

One of the sessions of the OSMCI that is constantly developed and presents a significant activity is the Exercise Physiology Session for the assessment of the aerobic endurance of the athletes, in terms of several parameters of cardiorespiratory fitness. Several athletes that participate in soccer, cycling, handball, rowing, track and field, weight lifting, etc. and most of them are occupied in a professional and a national team level have been evaluated at this session of OSMCI. This activity is going on and provides the athletes and their trainers with valuable information as to the improvement of their training program.

Facilities

OSMCI is a state-of-the-art laboratory. Also it is a modern and fully equipped facility which covers educational and research purposes as well as provides scientific support in sports medicine for the entire western Greece.

The facility of OSMCI includes a 3D Kinematic analysis system, an (Biodex) isokinetic dynamometer, two force platforms, foot switches, photocells, knee ligament arthrometer, a telemetric EMG recorder, a balance assessment system, a diagnostic ultrasound system, an electrocardiograph, an automatic external defibrillator, a Metabolic measurement system, a lactate analyzer, a stationary cycle and a treadmill.

**“This activity
(session) is going on
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O.S.M.C.I. Ioannina, Greece

Balance System SD



The Balance System SD has been designed to meet the needs of a wide range of patients. Those looking to improve balance, increase

agility, develop muscle tone and treat a wide variety of pathologies. It is also an excellent tool in the growing field of Fall Prevention. Many centers routinely balance-screen all older adults admitted for any rehabilitation because most older adults suffer degradation of balance just by lying in a hospital bed for a few days.

For more information visit www.biodex.com/balance

BioSway



The lightweight, portable instrumented platform and easy-to-use, easy-to-read, high resolution color touch-screen display, sets up in minutes to

provide patients with a choice of interactive training modes or standardized testing environments including the Clinical Test for Sensory Integration of Balance (CTSIB). Ideal for use with the Play It S.A.F.E.® Concussion Management Program.

For more information visit www.biodex.com/biosway

Upper Body Cycle



The Biodex Upper Body Cycle is an upper-body ergometer that will exercise individuals with limited lower-body function, help rehabilitate a wide variety of

shoulder, back, neck, wrist, and elbow patients, and give healthy athletes a grueling workout. The Biodex Cycle is a versatile ergometer that meets the demands of any orthopedic rehabilitation, cardiac, sports medicine, wellness, or general conditioning program.

For more information visit www.biodex.com/ubc

BIODEX SPORTS MEDICINE

California State - Fullerton, CA

A team that functions as a family

Continued from back cover

The wall directly across has dozens of articles taped to it, all of which are the works of students that have recently been published in prestigious journals.

Vanessa Cazas, a graduate student at CSUF with a bachelor's in kinesiology and sports management, is working at getting her master's in sport performance. Once graduated, she ideally hopes to work with athletes.

Cazas takes pride in her association with the strength and conditioning program. She said it is gratifying to see her classmates get their theses published.

“We challenge one another all the time. We are a big family. In sports terms, we are a team. We win together, and we lose together.”

She is even more proud of the recognition she and her colleagues receive off campus. “When we go to NSCA conferences, our program at Cal State Fullerton is highly recognized,” said Cazas.

The NSCA is an international non-profit educational association. It is comprised of a vast network of members who develop and present the most advanced information regarding strength training and conditioning practices, injury prevention and research findings.

It is through the NSCA that CSUF students in the strength and conditioning program gain recognition, grants, funding for research and education and scholarship money.



Brown's pride of his students' innovative research on sport performance is lavishly displayed, and his support toward his students, who are striving to be part of the best master's program in the United States, is abundant.

“Other Cal States and UCs send their students to us. I am proud of my students,” said Brown.

Jeremy Tan, a CSUF grad student with a bachelor's in fitness and health promotion, is working on his master's in sport performance. His ultimate goal is to work with middle-aged or the older adult population to rehabilitate their injuries and help the disabled.

“People don't understand why they workout. They take their body's movements for granted. This program has created a passion in me. It has inspired me to apply what I learned and help others,” said Tan.

Tan admits that he loves the interaction between the professor and students in the program. “I never had such a tight bond with my classmates and professor in any of my undergrad classes. I recommend people to get in while they can; they will definitely enjoy it.”

In his final words on the program, Brown said, “We challenge one another all the time. We are a big family. In sports terms, we are a team. We win together, and we lose together.”

After a pause he looked up and corrected himself. “But we don't lose. We come out on top every time.”

By Amy Leadbetter, Published: February 23, 2011

Unweighing System



The Unweighing System enables partial weight-bearing therapy to be conducted with the assurance of patient comfort and safety, and with

convenient access to the patient for manual assistance and observation. It is excellent for supporting those debilitated by stroke, Parkinson's disease, multiple sclerosis or prolonged bed rest. Unlike simple patient lift devices, the Biodex Unweighing System incorporates a single-point dynamic suspension system that accommodates pelvic rotation and vertical displacement, both critical to functional gait mechanics.

For more information visit www.biodex.com/unweighing

Gait Trainer 3



The only treadmill with an instrumented deck that monitors and records step length, step speed and

right-to-left time distribution, the Gait Trainer 3 provides a comparison of real-time footfall to target step length. Audio and visual biofeedback prompt patients into their proper gait pattern and helps them stay “on target” in each phase of rehabilitation; this helps them begin to acquire the proper gait to reduce the risk of fall. Performance is documented with a printed color report.

For more information visit www.biodex.com/gait

RTM600™ Treadmill



The RTM Rehabilitation Treadmill is the only treadmill to offer a true zero starting speed, 1/10 mph

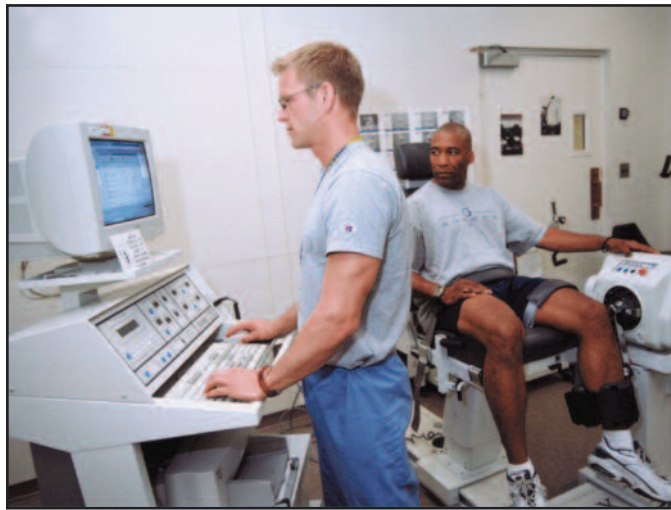
speed increments over a range of 0-10 mph, plus powered incline and decline in both forward and reverse directions. Extremely versatile, perfect for exercise with acute post-operative, neurologic, pediatric, cardiopulmonary, respiratory, orthopedic/sports medicine and older adult patients.

For more information visit www.biodex.com/rtm600

■ BIODEX SPORTS MEDICINE

Georgetown University Hospital - Washington, DC

Sports Medicine is Really a Team Effort



going to accept take two Advil, and take two months off." Dr. Klimkiewicz and the physical therapists see university athletes from the school's basketball, football, crew, lacrosse, track, field hockey and soccer teams. In addition, a number of amateur athletes seek them out. It's very seasonal. For instance, before and after the Marine Corp Marathon, many of the runners come in with

injuries, said Tracy Cartwright, outpatient clinical leader for Outpatient Physical Therapy.

Most of the surgery Dr. Klimkiewicz performs is done through "the scope," he said. "I am fairly aggressive as far as treatment. Arthroscopy is much less invasive surgery." Fifteen years ago, most of the same procedures were done using open surgery, he said, noting that today about 90% are done through the scope.

However, whenever possible, the sports medicine team tries to treat patients conservatively first. Much of the process is diagnosis and physical therapy, he said.

The Outpatient Physical Therapy Department recently purchased a **Biodex Isokinetic machine**, which is used for both testing and training patients, Cartwright

said, adding that the machine is able to determine a baseline of strength versus bodyweight as well as normal standards for comparing left and right appendages.

The state-of-the-art machine is very useful in helping the therapists determine when patients are ready to go back to their former activities, Cartwright said, noting that treating sports injuries "make up more than half of the patients we treat."

"We have a relationship with the athletic trainers at Georgetown University," she continued. "We've tried to develop that relationship to make sure the athletes are not going back too soon. We strive to provide the best continuum of care possible."

Athletes are a lot more motivated to return to their sport as soon as possible, Cartwright said. "Our goal is to develop a rehabilitation program that is injury and sport specific."

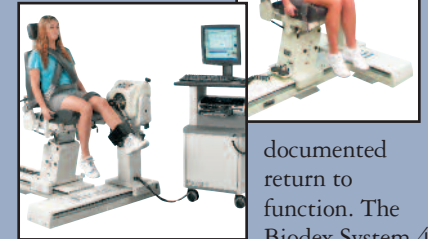
When surgery is required, Dr. Klimkiewicz said the majority of patients do very well because "we're dealing with relatively normal anatomy, and fairly elective procedures." The patients are well educated and eager to get better quickly, he added.

"This is different from a lot of the subspecialties of orthopaedics," Dr. Klimkiewicz said. "We're trying to defy what Mother Nature brings us. I am very willing to work with the patients and find ways to keep them going."

-D. Schwartz
Georgetown Physician Update Newsletter

System 4

The Biodex System 4 continues to offer pioneering breakthroughs in neuromuscular testing and rehabilitation technology. Biodex assessments of physical impairments provides patients with a fast, effective,



documented return to function. The Biodex System 4

is unusually sensitive to your patient's limits. Progressive and interactive features keep you in complete control. Dynamic and static muscle loading environments provide unlimited combinations of technique and application.

For more information visit
www.biodex.com/S4

BioStep Elliptical

BioStep is the equipment of choice for older adults with no history of exercise because it isn't intimidating and can be adjusted in a series of stages. The smooth, continuous "zero joint impact" motion reduces the jarring effect commonly associated with other recumbent steppers. By combining lower extremity motion with upper body exercise, the BioStep provides a total body workout. This combination helps strengthen the muscles specifically associated with mobility, walking and balance.



For more information visit
www.biodex.com/biostep

■ SPORTS MEDICINE AND REHABILITATION CENTRES

Barrie Ontario, Canada

Safe and effective strengthening

Biodex allows patients to isokinetically test and train with the isolated joints and surrounding musculature in biomechanically correct positions and at speeds that replicate function.

All the parameters (including acceleration and deceleration) that define muscle functional performance can be measured.

- Specialized strengthening for knees and shoulders
- Safe and effective strengthening after injury or surgery
- Determines readiness to return to sport or job
- Provides therapist with an objective report including comparison of the strength compared to the non-injured side
- Decrease joint effusion.
- Increase range of motion.
- Improve healing of the articular cartilage and soft tissues.



Sports Medicine and Rehabilitation, Barrie, ON

Want to learn more about how Biodex products can benefit your facility?

www.biodex.com

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■ IN THE NEWS

BIODEX MULTI-JOINT SYSTEM

Biodex Multi-Joint Systems are effectively used throughout the world. This newsletter feature just some of the clips we have gathered from various sources, on how your peers are using the technology. We hope you find this as interesting as we did.

Have an interesting story to share? Please contact our Director of Marketing Communications, Lila Corwin at ljcorwin@biodex.com

■ BIODEX - GREEK ELITE MARATHONER

Diaplasia S.A

The combination of scientific knowledge, state-of-the-art rehabilitation equipment, along with an athlete's will, can only have a positive result.

As in the case of the well known 77 year-old Greek elite marathon runner Mr. Dousis Panagiotis, who suffered a left knee injury at the medial meniscus level.

A few of the doctors he visited came to the conclusion that it was time for him to give up running in order to exclude worse injuries. He chose not to listen to them and went to

The versatility of the Dynamometer gave us a great advantage for accurate implementation of the rehabilitation protocol for Dousis' improvement.

the newly built rehabilitation center of Kalamata DIAPLISIS S.A. (www.Diaplasia.eu). The president of the Rehabilitation Center is Dr. Tzortzakis Vasileios (Orthopedic Surgeon).

After a well-designed and physician-guided rehabilitation program, within a month Mr. Panagiotis was able to start a conservative running program pain free, which prepared him to participate in the Classic Marathon of Athens where he took the first place for his age group.

The 77 year-old runner is now a very familiar person at the "Diaplasia S.A." rehabilitation center since he went back to the center's staff to thank all for the high quality service and support.

The general manager of the rehabilitation center, Mr. Virvilis Vasileios, spoke about the physical therapy team contribution to Mr. Panagiotis' improvement and achievement. "We were honored to have worked with such a great athlete who has been running ever since he was born and we wish him to continue his noteworthy achievements. We are very proud to have added a small brick to his great wall of fame, as we will always be by his side. In a sport such as the marathon, the winner is considered the participant, and in our case, since Mr. Dousis Panagiotis allowed us to

work with him, we will feel his wins are ours, too."

Next, concerning the rehabilitation protocol, spoke the Exercise Physiologist of the center, George Giannopoulos MSc. (Queens College, City University of New York). "We had great cooperation with Mr. Panagiotis, he followed our exercise prescription for his knee rehabilitation very closely. In accordance with the center's physician, Dr. Kartsonakis Vasileios and the Physiotherapist Vakka Kely, we tailored a rehabilitation protocol aimed at strengthening the left quadriceps muscle group."



"The exercise sessions took place at the ergometric room of the center, which houses the Biodex System4 PRO Dynamometer. The versatility of the Dynamometer gave us a great advantage for accurate implementation of the rehabilitation protocol for Dousis' improvement. A period of one month was the predetermined time frame that we had to work with the athlete."

The outcome was that Mr. Dousis Panagiotis did participate at the marathon races he had set his mind on with no problems. His latest achievement was the completion of the marathon in Paris, France in 2011.

■ BIODEX IN GREECE

ANIMUS

Supported Ambulation System



At Animus, physiotherapies aim to: a) improve the patient's movement condition by strengthening him, b) the maximum progress of the patient regarding his independency and his self-care, c) the maintenance of the joints, d) improve the patient's endurance and his overall physical condition. Physiotherapies are based on the evaluation of the patient; his disability, his overall health problems but also on his potentialities. Physiotherapies can be applied to patients with respiratory, cardiovascular, orthopaedics and neurological diseases and disorders.

BIODEX SYSTEM PRO 4

Biodex System Pro 4 is the most technologically advanced and reliable robot device using isokinetic dynamometry for evaluation and recovery of neuromuscular and musculoskeletal system of the patient.

It is mainly used with patients facing orthopaedics disorders, sports injuries, neuromuscular disorders, cardiovascular diseases, as well as in geriatrics and pediatrics.

It has the following advantages:

- Less time needed for trauma healing
- Passive joint mobilization in order to achieve a painless and controlled joint motion (ROM)
- Immediate, whole and general muscle-strengthening
- Lowers the probability of repeated injury (especially athletes)
- Progress evaluation during recovery
- Comparative evaluation
- Research

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■ BIODEX IN COLLABORATION

UNIVERSITY OF PITTSBURGH AND UNIVERSITY OF FLORENCE

Determine the effectiveness of a hip-centric training program

The University of Pittsburgh has established a partnership with the University of Florence in Florence, Italy for the Department of Sports Medicine and Nutrition's NMRL to collaborate on sports medicine research initiatives. The first study being conducted during this partnership is to determine the effectiveness of a hip-centric training program to improve the performance of elite rugby and soccer players with gluteal inhibition. The study participants include athletes from the Firenze Rugby 1931 rugby team, and the A.C. Siena soccer team.

This collaborated project is sponsored and hosted by Dr. Maurizio Bertoni and Prof. Giorgio Galanti, Director of Sports Medicine at the University of Florence. A research laboratory that replicates the NMRL has been established in Dr. Bertoni's sports and orthopaedic clinic, the Training Lab. Dr. Bertoni is a renown sports orthopaedic surgeon who is co-investigating with Peter Longo and Jon Akins. Peter Longo is a Physical Therapist that was trained in New York and has been with the Training Lab for two years. Jon Akins is a doctoral student of the NMRL who is participating in a six month research internship in Florence and serving as the coordinator of the research laboratory. Among other contemporary research laboratory instrumentation the new Biodex System 4 Isokinetic technology is contributing to the research objectives.



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SUMMER 2011

■ BIODEX SPORTS MEDICINE

California State - Fullerton, CA

A team that functions as a family

Nestled on the first floor of the Kinesiology Building is the human performance laboratory – home to elaborate machinery and a group of students who share a same passion and call themselves a family.

Their close bond isn't the only thing notable; Cal State Fullerton has the No. 1 strength program in California and one of the top programs in the country.

It is no secret that sports are a huge part of our society. But behind the sport, behind the team and behind the

athlete lies technique. That's where the research going on in the human performance lab comes into play – to help improve and enhance movement.

The strength and conditioning program is a two-year graduate program that focuses on a holistic view of sports and all things having to do with human movement. The program encompasses sports science and consists of innovative ways to explore sport performance and awareness. Their mission is to learn how to use one's body to the fullest extent.

They specialize in muscle power and hypertrophy, studying explosive, fast, powerful movements that almost all sports consist of – force, speed, running, kicking, jumping, cycling, swinging a baseball bat, etc.

A collage of pictures covers one of the walls in the lab. Professor Lee Brown, director of the Center for Sport Performance and former president of the National Strength and Conditioning Association, proudly displays pictures of all his current students; he calls it his wall of fame.



Above, two students conduct tests on a machine called the Biodex that tests strength toward resistance at a constant speed. It is used for strength training and rehabilitation purposes.

Photo by Amy Leadbetter/Daily Titan.

Continued on Page 5