IISHP **On The Move**

INTERNATIONAL INSTITUTE FOR SPORT AND HUMAN PERFORMANCE

A news brief **December 2005**

Institute cooperates with NIKE on Shoemaker Workshop

It was a dream-come-true for 24 Japanese students from Tokyo when their mini-busses turned into the Nike World Campus in Beaverton. They had hoped to learn from the best about athletic shoe making and design and their wish was about to be fulfilled. On request from the faculty of Hiko Mizuno, one of the world's finest jewelry schools, which had created a Shoemaker Department, the staffs of both the International Institute for Sport and Human Performance and Nike created a curriculum for a Shoemaker Workshop.

The first visit to Eugene and Beaverton was in 2004, which was quickly followed with a repeat this summer, when a second group of 25 students from Tokyo came to relive the same experience their peers had marveled over.

The intense nine-day workshop began on the campus of the University of Oregon where students reviewed the anatomy of the foot and spent time in the cadaver lab to sharpen their knowledge. Other sessions on the biomechanics of the foot and lower leg, the significance of orthotics, and the use of gait analysis to assess proper shoe fitting were part of the institute curriculum. Late afternoon and evening activities such as a McKenzie River raft trip, shopping sprees, soccer matches, and the golf driving range rounded out the Eugene experience.

John Hoke III, Vice President for Global Footwear Design, led the workshop on the NIKE campus

UO doctoral student David Mandeville explains the joint rotations of the foot when walking. In attendance are students from the Shoemaking Department of Hiko Mizuno Jewelry School in Tokyo.

Four days into the workshop, the entire crew made their way up I-5 to spend the rest of their stay on the Nike campus in Beaverton and Portland. Nike's Global Design Team had prepared an intense curriculum that would have its culmination in the preparing and presenting of shoe designs that would address specific end users. This was preceded by a campus tour that gave insight to

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Published by the International Institute for Sport and Human Performance at the University of Oregon. Photographs by Henriette Heiny except where stated otherwise .

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Upcoming Events

Fourteenth Annual H.E.A.L. Conference scheduled for April 2006

Move to the Beat of your Heart is the motto of the 2006 Health Through Exercise and an Active Lifestyle (H.E.A.L.) Conference and Fair, to be held Tuesday, April 25, at the Lane County Fairgrounds in Eugene, 1:30-4:00 p.m.

The focus of the event will be healthy heart behaviors, including good nutritional choices and exercise that promotes cardiovascular health. Information on preventing and treating metabolic diseases such as diabetes will also be provided.

As in past conferences, various exercise options will be introduced and individuals are welcome to participate in or view the activities. The 2006 H.E.A.L. conference will draw attention to the need for cardiovascular workout and feature such activities as step exercises for seniors, line dancing, moving with small weights, and working the heart while exercising in a chair.

Pfizer, one of the main sponsors of the event will offer free personal health screening and counseling, including glucose and cholesterol tests, to be held on a date to be announced. To be eligible for this screening an individual must attend the H.E.A.L. conference and their ticket will be entered into a drawing.

Anyone interested in attending the H.E.A.L. Conference, please call the Center for Senior Health at (541) 687-6234 and request a ticket to the event.

Upcoming Events

Workshop for physical therapists and athletic trainers offered in May

Proprioceptive Neuromuscular Facilitation (PNF)—Rehabilitation of the Shoulder & Upper Extremity is the title of a workshop given by Physical Therapist Michael Baum, Friday and Saturday, May 19-20, 2006.

PNF is based on observation of normal movement pattern and musculoskeletal anatomy, and employs the findings of researchers like Sir Charles Scott Sherrington who was noted for his work on the physiology of the nervous system. One can think of

it as an exercise system designed to reeducate the neuromuscular response, thereby creating a reduction in muscle spasm and an increase in range of motion and flexibility. PNF also helps develop strength, endurance, and coordination, which is why it is used on athletes, at all levels.

Most important is the PNF approach to patient care. It is known to be effective with a variety of dysfunctions, including neurological, orthopedic, pulmonary, and general medical conditions.

During an earlier workshop, Michael Baum, PT, CFMT, demonstrates that precise application of resistive force facilitates stability up the kinetic chain

In his workshop, Michael Baum will discuss PNF techniques that are designed to enhance the function of the shoulder girdle and upper extremity in both the neurological and orthopedic patient. Course objectives include utilizing PNF techniques to enhance mobility and stability, and to facilitate neuromuscular control. The course is appropriate for physical therapists, occupational therapist, athletic trainers, and massage therapists.

The workshop will be limited to 22 participants. The fee is $295; University of Oregon students pay $245. All participants will receive a certificate of attendance from the International Institute for Sport and Human Performance following completion of the course. The institute is recognized by NATABOC to offer continuing education for certified athletic trainers. Athletic trainers may apply for 11 credits at the time of on-site registration.

Interested individuals, please call (542) 346-4114 to receive a brochure with application form or apply on line at <www.uoregon.edu/~iishp> and click on *Institute Events*.

For details, application forms, or on-line registration regarding institute workshops, go to www.uoregon.edu/~iishp and click on "Institute Events."

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Nike's Innovation and Research and Design departments, the Material Sample Room and Model Shop, the Nike Sport Research Lab, and the Materials and Design Libraries. The following day was largely dedicated to Consumer issues and included presentations on Nike's historic insights of athletes, problem solving, the voice of the consumer, and product development.

The most exciting experience followed when students split into separate teams and were asked to create each a shoe giving special consideration for marketing, design, and merchandising regarding the end user they were assigned to. The five targets well matched the students' interests: the Kid/Grade School: Sporty kid, ages 6-11; the Competitor: Bukatsu Boy (Basketball); the Participant: Female Fitness Runner; the Indie: Tokyo Teen Girl; and the Tokyo Male Urbanite, ages 25-35. After the introduction of these assignments, given by Nike's Global Footwear Design Team, attitudes changed and a more pensive and introspective student group crowded into the vans that night.

Above
Intense discussions, drawing and redrawing preceded the final presentations.

Left:
As work progressed, various ideas were pinned to the board, checked for their contribution as a team element and value toward the final objective.

The entire next day was spent with sketching, discussing, and re-sketching, the working lunch and dinner barely interrupting the feverish search for the single best concept and design. The students were guided and encouraged by members of the Nike design team who, in addition to their experience, brought an investigative spirit and enthusiasm to the projects that was truly inspirational for all involved. The next day brought light to the results. In five presentations, the students explained the thought processes that lead to the amazing shoe solutions at hand.

The students' hard work was sweetened with other activities, such as a shopping spree in the Nike Employee Store, a sightseeing and shopping tour in Portland, and a celebratory dinner with awards. The intense creative effort combined with these relaxing activities rounded out a memorable adventure for students and faculty members from Tokyo.

Performance Series

In 2005, Richard L. (Dick) Brown, Ph.D., offered to the public a series of lectures through the institute. Its title was Sports and Performance Pioneers and Training Regimens Today. The series was meant for coaches, athletes and their parents, and active individuals in general. On request, Dr. Brown has put his words on paper, which allows us to offer his lectures in each of the next seven upcoming newsletters.

Hans Selye's General Adaptation Syndrome

By Richard L. Brown, Ph.D.

The single most important foundation upon which a training program should be built is Hans Selye's General Adaptation Syndrome Theory. If you know nothing more than "in order to improve, you must balance challenge with recovery," you are far ahead of many coaches, trainers, and physicians. Each time I give a presentation in this country and ask, "Who is Hans Selye?" very few hands are raised. Some people understand that balancing challenge with recovery is important, but they often fail to see why.

If they knew of Selye's work they would understand the "why" much better. At certain points in our training, and I use the word *training* specifically because we are all athletes at one level or another, we feel that if we increase the challenges we will improve faster. Working harder may not be the answer. If they knew of Selye's work they would know that in many cases the best thing to do is insure proper recovery. I have seen many more outstanding performances come after rest than I have observed after overtraining.

Selye was an endocrinologist at McGill University who began studying, in 1935, the results of challenges to the body. He has been given the title Father of Stress Research. Selye's observations are of special importance today when stressful situations are commonplace. Understanding his work is also essential in developing realistic programs for sports performance and physical activity.

Selye observed that the response to challenge is a sequence of adaptations made by the body as it resists the potential damage of the challenge while maintaining homeostasis. Homeostasis means keeping cell environment constant and is a requirement for life. If the challenge occurs once, an organism would either resist it or die. But if an organism is exposed repeatedly to a challenge, the response occurs in three distinct stages. The stages are the alarm stage, the adaptation stage, and the exhaustion stage. Selye called these stages the General Adaptation Syndrome. This work on alarm, adaptation, and exhaustion anchors the single most important concept for modern living and physical training. Challenge must be balanced with recovery.

Alarm

Physical activity above 60% VO_{2Max} triggers the "fight or flight" response, and that triggers the reactions that define the first part of the alarm stage. In the first part of the stage the nervous and endocrine systems release their messages, stimulating a prompt activation of resources to respond to the challenge. Responses include heart rate increase, blood pressure increase, temperature increase, and muscle contraction strength increase.

Even though physical activity may last only a small portion of a 24-hour day, the alarm stage in a well-planned program will last 24 to 48 hours. The reason it lasts longer than the activity is that, as Selye observed, based on the duration and intensity of the challenge, it takes that long to restore the resources of the body to pre-challenge levels. This also implies that if an organism is not given enough time to recover from a challenge, the next time the challenge occurs it will not have as many resources available to meet the challenge as it had the first time.

Even after one challenge, Selye observed damage to the adrenal gland and degeneration in the lymphatic system and gastrointestinal mucosa. None of these alarm stage reactions are dangerous unless they persist. They just indicate that the organism is challenged. What Selye observed next was that, when an organism is allowed to recover from the challenge, the organism adapts and develops more and better resources with which to meet future challenges.

Continued next page

Adaptation

If the alarm stage is evoked consistently and intelligently, allowing the organism to recover, the resource levels in the organism begin to rise. This results in stronger bones, more muscle protein, increased heart volume, increased muscle capillaries, and an increase in aerobic enzymes and mitochondrial protein. When this happens, the organism has entered the adaptation stage. In this stage, which can last up to 10 or 11 months, the energy and resources not only return to normal after a workout, but are also improved upon. During recovery is the only time your body actually makes the improvement. Challenge stimulates the need to improve and recovery makes it happen.

Adaptation is what occurs when people intelligently train themselves for athletic competition or use physical activity to improve their health and well-being.

Another observation Selye made is that the adaptation stage cannot last forever. The ability to adapt is limited. The closer an organism gets to its potential, the harder it is to adapt. At some point, challenges have to be removed so the organism can experience a period of pure recovery. If this period is not made available, Selye's third stage, exhaustion, appears.

Exhaustion

The exhaustion stage is characterized by loss of the ability to adapt after prolonged exposure to a challenge or the addition of new challenges. In this stage, Selye observed symptoms similar to those of the first part of the alarm stage, but now these symptoms persisted.

In the exhaustion stage, not only will the ability to adapt be lost, but also, unless the challenges are removed or reduced, the energy and resource levels will continue to drop until they are well below the original level. If relief is still not available, they will continue to drop through non-specific symptoms of illness, culminating in the appearance of specific illness, or injury.

Selye's theory, found in the *Stress of Life*, explains why athletes and beginner exercisers burn out. Uncertainty about what is the right amount of training or exercise, their enthusiasm and desire to "be brave" often prove to be a self-defeating combination that quickly leads to the exhaustion phase.

If you respect the alarm stage by balancing challenge with recovery, adapt by intelligently repeating the alarm stage, and listen to your body for clues to the exhaustion stage, such as increased morning heart rate, you can enjoy a pleasant and productive association with physical activity for the rest of your life.

Athletic Training Service Center (ATSC) takes care of your sport injuries

The institute's ATSC, located in the Bowerman Building training facility, provides sports injury care to casual exercisers and serious athletes. The graduate student staff members, overseen by Dr. Susan Verscheure, are certified by the National Athletic Trainers' Association.

Typically, a first visit includes a sports injury assessment, screening, client education about the injury and future preventive measures, and treatment. Additional visits may be advisable for individuals needing further treatment and reconditioning.

The first visit is $40, successive visits are $20. For clients preferring longer-range care a monthly membership may be purchased for $90, allowing for a maximum of 8 visits per month.

To make an appointment for ATSC service please call (541) 346-4114.

Susan Verscheure, Ph.D., here as a graduate students, conducting a knee joint evaluation. She is now the educational director of the ATSC.

Institute needs help from its friends

Institute needs help to make more of its collection available with a click of a button

Sports administration, coaching and training, sports pedagogy and curriculum, sports marketing, biomechanics, sports medicine, exercise physiology and psychology are a few of the categories the institute's Kinesiology Publications collection includes in its online search engine at http://kinpubs.uoregon.edu. The collection consists of master's theses and dissertations which were written at university departments specializing in any of those areas. But more than in the past, theses also come from areas of academia that typically have other foci. One such example is the recent submission from the Department of Communications, Culture and Technology of Georgetown University with the title: *Sports Diplomacy: Playing for a Win-Win*. This shows that researching the phenomenon of the triad of athletics, sports, and exercise is an enticing topic across the board.

The casual user of the search engine will find that there is a certain amount of electronic files that can be downloaded after purchase with a credit card, or, if on a subscriber-based campus, can be downloaded without delay or additional cost. This has been found to be an invaluable convenience for students and researchers who work under time pressure.

Kinesiology Publication has almost 10,000 files that cannot yet be distributed electronically because they only exist on microfiches. It is a daunting task to transfer those files into PDFs, but it is something we are committed to take on with a small army of work study students. Currently the institute does not have a microfiche scanner necessary to do the project, which is why finding funds for the scanner is a priority.

If you are in the position to make a gift, please consider helping us with this project. The impact will be felt by our client in all parts of the world.

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Please make your check out to UO Foundation/IISHP and mail to: IISHP, Bowerman Building, 1243 University of Oregon, Eugene, OR 97403-1243

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Institute cooperates with other departments and Sacred Heart Medical Center, giving middle school students insight into the medical professions

Career choices—how many of us started thinking seriously about our profession at the age of 13?

On October 14, eighty local middle school students had the opportunity to do just that. By participating in CareerMed, they explored the world of health care as a potential field for their careers.

Starting the day at Sacred Heart Medical Center, they learned from doctors, therapists, nurses and technicians what a typical day is like in a medical setting. Following these sessions, the students made their way through the UO campus to take part in a lab of their choice in the Department of Human Physiology.

The graduate students conducting the labs offered an interactive experience in areas such as anatomy, biomechanics, and athletic training. The future scholars encountered first-hand the depth of training required to further their study in the health arena.

Responses were enthusiastic. One student expressed, "The dead body was the coolest thing ever! Much better than looking at labeled paper" and another stated, "I liked learning how to set a splint on someone's leg."

The institute, in co-operation with the College of Education's Youth Enrichment and TAG programs, organizes CareerMed each year in an effort to share with the community and facilitate a partnership with Sacred Heart Medical Center.

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