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James A. Leahy, project administrator at the Center for Assistive Technology, demonstrates the latest generation of the Lids Off automatic jar opener, a collaboration between Black & Decker and UB.

photo: Nancy J. Parisi

# Going mainstream

The Rehabilitation Engineering Research Center on Technology Transfer (T2RERC) in the School of Public Health and Health Professions helps corporations develop and market user-friendly products that appeal to people of all abilities.

The center's mission is to commercialize assistive technology, which creates or re-engineers everyday products into innovative prototypes that help increase the capabilities of people with physical challenges due to disability and age. Through its efforts, UB is redefining assistive technology by creating a new generation of products that fit everyone, regardless of age or functional ability.

Housed in the Center for Assistive Technology (CAT) located in the school and funded by the National Institute on Disability and Rehabilitation Research (NIDRR) of the U.S. Department

of Education, T2RERC was established in 1993 as one of 23 RERCs nationwide and is one of three located at UB. It is the only RERC in the country mandated by the federal government to focus on technology transfer.

As the global population ages and technology advances, "transgenerational" is the new buzzword in assistive technology research: consumers of all ages demand high-tech tools that are easy to use. The benefits of assistive technology go both ways: retail manufacturers profit from a market for more products with universal design features.

"When companies are designing new mainstream consumer products, they can expand their markets by considering the needs of aging baby boomers and people with various levels of impairment," says James A. Leahy, a project administrator at CAT and co-principal investigator of the center's innovative Fortune 500 program.

The program has partnered with such major U.S. corporations as Whirlpool, Eastman Kodak, Michelin, and Black & Decker to improve the usability of everyday household items—from automa-

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# A healthy development

**H**ealth Behavior, our newest department, is starting to take its first steps. Lynn Kozlowski, department chair, who was introduced in the last issue of *Impact*, and Gary Giovino have been joined on the faculty by health psychologist Marc Kiviniemi from the University of Nebraska-Lincoln and Gregory Homish from the Research Institute on Addictions.

Health behavior is the very heart of public health; it is one of the core disciplines in public health education and it interacts meaningfully with all of the others. The choices we make as individuals can be critically important to the quantity and quality of our healthiest years. How we behave as communities—with respect to behaviors we promote and discourage—can affect individual lives.

As a society, we commit significant resources to the search for genetic factors in major diseases such as cardiovascular disease and diabetes, to name just two. But as public health professionals, we know that in addition to genetic contributions, those major diseases and many others are strongly linked to behavior—to our level of physical activity, our diet, whether we smoke, how much alcohol we drink.

People may discount the role of behavior in health because behavior is difficult to change and we like quick fixes. But we know we can make significant changes in health behavior on a large scale: not many years ago, physicians and actors advertised cigarettes, now smoking is banned almost everywhere and smoking rates have declined dramatically.

With the new department in place, we have added a health behavior concentration in our MPH program this fall. Our graduates will be the next generation of public health professionals working in public health departments and other settings around the country, designing programs to teach the behaviors that keep us well.



Sincerely,

Maurizio Trevisan, M.D., M.S.

## Center lands major women's health contract

Women in Western New York soon will participate in a national clinical trial called "The Effects of Aspirin in Gestation and Reproduction," or EAGeR. The trial center at UB is led by SPHHP researchers, who will attempt to determine the impact of low-dose aspirin on many pregnancy outcomes, including a woman's chances of becoming pregnant and of maintaining a pregnancy to term.

Aspirin is an affordable drug proven to have beneficial effects as an anti-coagulant and anti-inflammatory agent. It also may aid in implantation of the egg and in reducing the risk of preeclampsia, a potentially life-threatening pregnancy-related disorder.

UB's portion of the study is funded by a \$2.8 million contract with the National Institute of Child Health and Development and will enroll 535 women between the ages of 18 and 40 who have had one miscarriage in the year prior to entering

the study. Another 1,070 women will be recruited at the University of Utah, and the data-coordinating center will be at the University of Haifa in Israel.

The local women will visit a clinic at the Department of Social and Preventive Medicine twice a month for two months and will be followed for an additional four months in the clinic or by telephone. If pregnant, women will be followed throughout their pregnancy.

"We are thrilled to be able to offer women in our community the opportunity to take part in this important study," said Jean Wactawski-Wende, professor of social and preventive medicine and principal investigator of the UB portion of the study.

EAGeR involves several UB clinical consultants from the Department of Gynecology and Obstetrics in the School of Medicine and Biomedical Sciences.



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## SPHHP Celebrates Commencement 2007

Dean Trevisan (left) congratulates UB Chancellor's Award winner Rob Richards at SPHHP's 2007 commencement ceremonies held May 12 at UB's Center for the Arts. (See page 7 for more on Rob's award.) The school proudly graduated 120 graduate students and 80 undergraduates. Ann F. Monroe, president of the Community Health Foundation of Western and Central New York, was commencement speaker, and degrees were conferred by David L. Dunn, vice president for health sciences.



# Watch your step

As part of the long-term strategic planning initiative called **UB 2020**, UB faculty are looking at areas where disciplines can work together on research that has high social impact. The **School of Public Health and Health Professions** is leading the way.

How many researchers does it take to keep an elderly woman from falling down? According to Robert F. Burkard, professor and chair of the Department of Rehabilitation Science, at a minimum you need a gerontologist, a psychiatrist, a neurologist, an otolaryngologist, a rehabilitative medicine specialist, a nurse, an occupational therapist, a physical therapist, an audiologist, a health educator or two, an architect, a lawyer, an economist, an epidemiologist and a pharmacist.

Those are specialties Burkard would bring to a multidisciplinary center on the risk of falls—for research and state-of-the-art clinical services—that he and others have suggested as part of their UB 2020 planning work. Burkard is chair of the organizing committee for the UB strategic strength “Health and Wellness Across the Life Span.”

The magnitude of the problem of falls among the elderly justifies assembling any amount of expertise. In the United States, nearly one-third of older adults will experience a fall this year. Falls are the leading cause of injury deaths among people 65 years and older and the most common reason for hospital admission for trauma in that age group. The Centers for Disease Control and Prevention reports that in 2003, more than 13,700 people 65 years or older died of fall-related injuries and 1.8 million were treated in emergency departments for nonfatal injuries related to falls. The direct cost of falls among older adults is more than \$20 billion annually.

Burkard is a one-man example of multidisciplinary research. He is a specialist in auditory-evoked potential (the brain’s



Robert Burkard uses this posturography booth, with painted horizon and tiltable floor, to study the causes of falls and the body’s reactions to stumbling. Photo: Nancy J. Parisi

response to sound) with a Ph.D. in audiology, so he knows the inner ear, which is part of the human balance system. At UB he was a faculty member in the Department of Communicative Disorders and Sciences and a researcher in the Center for Hearing and Deafness when he took on his UB 2020 assignment. He was already pursuing an interest in falls research because his parents had started to have trouble with balance.

He made contact with Susan Bennett and, later, Diane Wrisley, both rehabilitation science faculty who study balance. Eventually, Burkard came to lead the department, where occupational therapy and physical therapy could play a central role in clinical services for falls prevention.

The School of Public Health and Health Professions, along with the Department of Communicative Disorders and Sciences, the College of Arts and Sciences and the

UB vice president for research have already invested funds for high-tech balance research and training equipment. If a center for falls prevention research is officially organized, it would be the target of additional university investment.

Burkard says that patient care would be the heart of the proposed falls prevention center: “Our research would spin out of the clinical services.”

According to Burkard, a concentrated effort to improve understanding of how to prevent falls—both the research and clinical services that would show individuals how to reduce their risks—would be a real benefit to the Buffalo Niagara community, where winters are treacherous and the elderly face multiple health challenges.

—Judson Mead



# Charting a course

A prestigious grant from the Josiah Macy, Jr. Foundation is now at work, helping SPHHP faculty develop one of the country's first core curriculums in public health.



The “core” is still in the early stages of development but will provide every student in the UB School of Public Health and Health Professions with a common set of learning objectives. Some of the objectives will be identical across the school's departments and required for every student; to avoid redundancy, others will be integrated into current coursework.

UB was the sole recipient of a Macy Foundation grant, a two-year, \$257,000 award, to support an innovative curriculum in professional health education. It will help UB create a model core curriculum that it plans to distribute to other public health institutions around the country.

The grant builds on curriculum funding initiated by former acting dean of the school, Albert C. Rekate, and his wife, Linda.

By taking this ambitious leadership role in light of the nation's pressing need for health care professionals, UB is an ideal fit for the Macy Foundation's selective funding mission.

“The grant is particularly gratifying,” says Maurizio Trevisan, dean of the school, “because it's confirmation that we are leading the way in our efforts to transform the education of health professionals.”

The curriculum is being developed around three focus areas:

professionalism and communication, evidence-based practice and population health, wellness and disability.

Faculty working groups have been formed within those areas to develop shared learning objectives across all of the school's departments. Their task is to prepare students for the workforce while providing them with a better awareness of their roles within a broader health care delivery system.

“To ensure a common understanding and focus among students in our undergraduate, graduate and professional programs, a core curriculum will provide opportunities for these students to train together and to be aware of the societal forces that shape the health and well-being of individuals and communities,” Trevisan says.

Many of those forces, like obesity, cardiovascular disease and other health-related issues, are national problems that are most keenly felt in the Western New York region.

The working groups are brainstorming, but not for long. Drafts of their learning objectives are due June 1. The core curriculum is scheduled to be in place by 2010, although some elements will roll out earlier as their learning objectives are shaped into policy.

“First, we have to decide what should be taught, and then the modalities—how they'll be taught, by whom and through what media—will come later,” says John H. Stone, a professor of rehabilitation science who leads the professionalism and communication group.

The “thorny” part of the process is deciding what, exactly, is core to a public health education, says Dale R. Fish, associate professor of rehabilitation science and associate dean for academic and student affairs.

According to Fish, of the three core focus areas, the population health, wellness and disability focus area is perhaps best suited to define the school's academic mission.

“This area will assure that students understand and value health and health care concepts as applied to the public, as well as to individuals,” Fish says. “Essential aspects of exercise, diet, health behaviors and health care delivery and policies will be considered for healthy persons as well as those with chronic disabilities or acute injuries.”

Elements of the three focus areas already are taught throughout the school, so the committees must look for efficiencies across the disciplines. Evidence-based practice, for

example, is an integral part of many clinical- and research-oriented classes. The new curriculum will assure that all students learn basic statistics, as well as how to access and appraise professional literature and apply that literature in making informed decisions.

The professionalism and communication focus area will integrate professional and interpersonal skills, values and ethics in health care, cultural competency, and multidisciplinary team building and group processes into class instruction and research. Opportunities exist to improve this area of learning, Stone says.

**“The question isn’t ‘How do we begin to engage these issues?’ In many cases, we already are engaged.”**

—Lynn T. Kozlowski

“For example, each profession has its own code of ethics, but there are common underlying elements that could become part of the core,” Stone says. So far, his committee has drafted several learning objectives with input from all faculty.

Lynn T. Kozlowski, professor and chair of the new health behavior department, is cautiously optimistic. One of his courses already focuses on ethics related to health communication, and throughout his career he has cultivated a particular interest in profes-

sional and research ethics. “The question isn’t ‘How do we begin to engage these issues?’” he says. “In many cases, we already are engaged.”

“It’s true we’re grappling with the tension that exists between general education and professional disciplinary preparation,” Fish says. Department and program directors, he stresses, will be given the opportunity to compare the core learning objectives against their own.

“Everybody realizes that a core curriculum is important, but we are seeing some initial resistance to some objectives being equally valid across all programs,” Stone adds.

Nearly everyone agrees on one thing, however: the Macy grant gives the school a rare opportunity to fully explore its options. Part of the funding is earmarked for hiring a senior faculty member with curriculum development experience and a media specialist to develop teaching resources.

“The exciting thing is that our early evaluation efforts are likely to reveal important threads that will show us more clearly how a core curriculum will make a difference in the careers and lives of our graduates,” Fish says.

The Macy Foundation’s selectivity also affirms what many already know: UB is on the right path.

—Lauren N. Maynard

## Diabetes threat to women

A new study conducted in the Department of Social and Preventive Medicine has found that newly identified risk factors for diabetes found in the blood, such as markers of endothelial dysfunction, chronic subacute inflammation and blood clotting factors, are present early in women who eventually progress from normal glucose status to the prediabetic condition.

Prediabetes is diagnosed when blood sugar levels are higher than normal, but not high enough to indicate full-blown diabetes. The markers weren’t associated with progression from normal to prediabetic status in men.

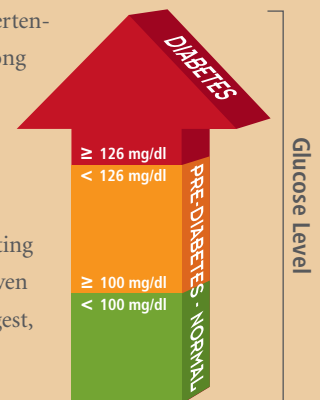
“This is one of the first reports to show that otherwise healthy women are more likely than men to show elevated levels of endothelial factors and other markers of progression to prediabetes,” according to the principal investigator in the study, Richard Donahue, professor of social and preventive medicine and associate dean for research in the School of Public Health and Health Professions. The study was published in the February 2007 issue of *Diabetes Care*.

Previous research had shown that hypertension and cholesterol were elevated among women who later developed diabetes. However, current findings that these novel risk factors—markers of endothelial dysfunction, chronic subacute inflammation and blood clotting factors—are elevated among women even earlier than previously recognized suggest, in Donahue’s words, “that the ‘diabetes clock’ starts ticking sooner for women than for men.”

The study involved 1,455 healthy participants all of whom were free of prediabetes, type 2 diabetes and known cardiovascular disease. They received a physical examination when they entered the study and again for a six-year follow-up.

Standard measures—height, weight, waist girth, blood pressure—were taken, plus blood samples to determine concentrations of fasting glucose and insulin, specific proinflammatory markers, C-reactive protein and markers of dysfunction in the endothelial tissue, the tissue lining blood vessels.

Donahue said the question of what explains the sex difference remains to be determined, and he plans to study this in the future. Meanwhile, he suggested that women whose blood glucose increases over time, even if it doesn’t reach diabetic levels, should be screened more intensively for cardiovascular disease.



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ic jar openers and large-button thermostats to remote-controlled washers and dryers.

Since the first of three five-year funding cycles began 14 years ago, T2RERC and its university, community and commercial partners have placed more than 40 new products into the hands of consumers. Thanks to UB's track record of success in rehabilitation science and assistive technology, funding to date totals more than \$16 million.

UB faculty from multiple disciplines use SPHHP's expertise in rehabilitation, social and preventive health, and physical and occupational therapies to solve assistive technology problems. CAT and T2RERC also partner with the Office of Science, Technology Transfer and Economic Outreach (STOR)

and the School of Management and School of Engineering and Applied Sciences.

UB's rehabilitation scientists, public health researchers, data specialists, engineers and designers create, test, license and market new product prototypes, many of which are built on campus in a state-of-the-art fabrication shop. To gauge consumer interest and industry viability for these products, T2RERC collaborates closely with the Western New York Independent Living Project and AZTech, a Buffalo-based marketing research firm.

Through the Western New York Independent Living Project, T2RERC taps local consumers for product feedback, coordinating data-intensive efficacy trials, focus groups and other marketing research in "living labs" with subjects recruited from the Buffalo Niagara region.

As part of their funded mission, the center's staff developed their own versions of com-

plex supply "push" and demand "pull" technology transfer models, and publish a steady stream of detailed profiles and reports serving the international assistive technology industry. They collaborate with the European and South American assistive technology communities and have received invention submissions from as far away as Israel, Russia and Singapore.

One of the most successful examples of T2RERC's work to date is the Black & Decker Lids Off automatic jar opener. Designed for people with poor grip strength, Lids Off is a kitchen tool for anyone who needs a hand. It was introduced in June 2003 as part of UB's innovative Fortune 500 program, in which MBA students from the School of Management work with T2RERC staff and Fortune 500

clients to develop trans-generational products that can easily be commercialized for mainstream consumers.

The latest generation of Lids Off, which was on the shelves this year in

time for Mother's Day, improves upon the older models in several ways. It is lighter, smaller and easier to use, requiring the user to merely press down on the entire top section, rather than locate a small button, to operate the device.

Additional products are in the pipeline at CAT, as are new applications of such advanced technologies as micro-electro-mechanical systems (MEMS), whose tiny yet powerful semiconductor chips combine computers with mechanical devices. MEMS are being used in the manufacture of "smart" products that one day may define the future of assistive technology.

—Lauren N. Maynard

## Reaching a wide audience

T2RERC, UB's tech transfer center for assistive technology, developed and helped market these award-winning products:

- The Surfboard Voice Activated Remote Control is a universal, hands-free remote that responds to voice and programmed commands to control TV's, cable boxes, DVD players and other devices.



- The Line Butler phone accessory, licensed to Madalex LLC, alerts a consumer that their telephone line is "off the hook" and then reconnects the line. Originally targeted for the elderly or individuals with disabilities living alone, it also can be useful for any busy business or family household where phone receivers can accidentally be knocked off the cradle.

- The Kelvin voice-controlled thermostat, developed for Independent Living Aids Inc. of Jericho, N.Y., can be operated by pushing its large buttons or simply by speaking to the device.



- Kodak's Easy Share Photo Printer 500 has new user-friendly features as the result of evaluations by T2RERC consumer focus groups. It won a "Best of Innovations 2006" award at the International Consumer Electronics Show, November 2005.





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### ENS student receives SUNY Chancellor's Award



Richards

Rob Richards, who graduated in June with degrees in exercise and nutrition sciences and psychology, received a prestigious SUNY Chancellor's Award for Academic Excellence for successfully integrating academic excellence with extra-curriculars. Richards carried a GPA of 3.9 and leadership roles in the Exercise Sciences Club, numerous community service events, and as a teaching assistant and an intern with the Buffalo Bills.

### In memory of Steven Horvath

We sadly report the passing of our good friend Steven Horvath, at the age of 96. Horvath was professor emeritus in the Department of Exercise and Nutrition Sciences

since 2001 and an internationally respected physiologist. During his distinguished career he authored more than 550 books, chapters and scholarly articles.

Among Horvath's professional affiliations were Harvard University, Woods Hole, Metropolitan State Hospital for the Insane in Boston, the Armored Medical Research Lab at Fort Knox, the University of Pennsylvania, the State University of Iowa, the University of Copenhagen, Lankenau Hospital in Philadelphia, Jefferson Medical College and the University of California-Santa Barbara.

Horvath's son, Peter T. Horvath, is associate professor at UB in the same department.

**For more SPHP news, visit [www.sphp.buffalo.edu](http://www.sphp.buffalo.edu).**



### Teaming up with the Special Olympics

Thirty physical and occupational therapy students from UB took part in the 2007 Special Olympics New York, held in Syracuse in February. Front row, L to R: Julie Hibner, Nidhi Sharma, Jason Hildreth. Back row: Christina Joyce, Katrina Kaufman, Matt Wylubski, Shawn Riester, Nick Hughes, Brad Andrews and Amanda Davies.

### A big thanks to scholars and donors

At the 2006 J. Warren Perry Lecture, Dean Maurizio Trevisan recognized the achievements of some of the school's outstanding students, faculty and alumni, and thanked all of the benefactors who make these awards and scholarships possible.

**J. Warren Perry Scholars:** Carol DeNysschen, Exercise and Nutrition Sciences (ENS); Sean Smith (ENS); Nicola Cavallo, Rehabilitation Science (RS)

**Alfred T. Caffiero Scholarship:** Courtney Schottmiller (RS), Melissa Phillips (RS), Melinda Brookman (RS)

**Carlton Meyers Award:** Chia-Ling Wu (ENS)

**Francis V. Hanavan Award:** Lana Burl (ENS)

**Denise Howland Memorial Scholarship:** Rachael Pohle (ENS)

**Richard N. Schmidt Outstanding Ph.D. Award:** Xueya Cai, Biostatistics (BIOSTAT)

**Sidney Addelman Master's Award:** Wei Deng (BIOSTAT)

**Academic Service Award:** Susan Barr Black (RS), M.S. '87, B.S. '71; Susan E. McCann, Social and Preventive Medicine (SPM), Ph.D. '98

#### Perry Poster winners:

**Basic Science:** Lana Burl (ENS)

**Clinical Science:** Jeff Green (ENS)

**Population-based Science:** Ted Brasky (SPM)

**Education and Demonstration:** John Stone (RS)

**Outstanding Researcher of the Year:** John Stone (RS)

**Outstanding Teacher of the Year:** Gregory Wilding (BIOSTAT)

**Dean's Award (est. by Dr. Albert ReKate):** Dr. Donald Rowe (public health liaison)

**Stonegraber Scholarship Recipients:** Kayla Fleet (RS), Shelley Jessup (RS), Kelly Kumpf (RS), John Schroeder (RS), Justin Spiegel (RS), Beverly Weyer (RS) and Angela Duell (RS)

### MAKE AN IMPACT Become Our Partner in Health

We invite you to become our partner for better health by using the enclosed envelope to make a donation to the School of Public Health and Health Professions. Your gift will help broaden the impact of our education, research and community service.

You can also visit our Web site at [www.sphp.buffalo.edu](http://www.sphp.buffalo.edu) or call us at (716) 829-3434.

Thank you for your support!

# Resisting the effects of disability and age

As we age, it is well known that physiological function and functional performance decline, even under normal conditions. For people living with a chronic disability, physical and physiological changes that occur as a result of the disability are exacerbated with age. Also, most people with chronic disabilities don't receive rehabilitation after their acute/subacute medical intervention, leaving many of them with little or no guidance about preventing further deconditioning, or maintaining or even improving their physiologic and functional capacities.

The Rehabilitation Physiology Laboratory (RPL) in the Department of Rehabilitation Science and investigators elsewhere have shown that to maintain functional capacity—the ability to perform activities as simple as rising up from a chair, walking, climbing stairs and crossing a street—a physiologic and functional “reserve” is needed. In the event of chronic disabilities such as osteoarthritis, multiple sclerosis, individuals' muscle function may decline more rapidly due to pain, neurological dysfunction, muscle atrophy and general deconditioning.



Nadine M. Fisher

Here's where the RPL studies are groundbreaking. Although muscle function has been thought of in terms of strength only, the RPL shows the importance of muscle contraction velocity, power and endurance, exemplified in intermittent high intensity exercise. Recent studies also suggest that *quantitative* assessment of physical limitations and *prescribed* exercise are especially critical for the disabled at any age.

The RPL has used this model successfully for several chronic disability groups, namely those with osteoarthritis, juvenile arthritis, post-polio syndrome, multiple sclerosis, hemophilia, and elderly persons from the very frail to the well elderly. A common feature that we developed was resistance training of the lower extremities, varying the training in its order, progression, intensity and frequency depending on the patients' primary symptoms and quantitative assessment.

Photo: Celine Tan

In our ongoing quest to develop better exercise rehabilitation testing and training methods for disabled and deconditioned people, we now are studying the effects of cooling on exercise performance in heat-sensitive multiple sclerosis patients; studying how the well elderly oxidize fat with reference to the potential effects of statin therapy and increased exercise levels; and testing a unique method of increasing cardiac output in the well elderly that improves their exercise capacity.

*Nadine M. Fisher, clinical associate professor of rehabilitation science, is director of UB's Rehabilitation Physiology Laboratory.*

## Improving health for populations and individuals impact

The University at Buffalo is a premier public research university, the largest and most comprehensive campus in the State University of New York system. The School of Public Health and Health Professions is one of 12 schools that make UB New York's leading public center for graduate and professional education and one of five schools that constitute UB's Academic Health Center.

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