

U N I V E R S I T Y O F P I T T S B U R G H

FACETS

SCHOOL OF HEALTH AND REHABILITATION SCIENCES

SPRING/SUMMER 2007



Food *for* Health

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SUMMER
2007



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FROM THE DEAN



Rehabilitation, which is derived from the Latin “rehabilitare” – to make fit again – is probably most widely understood as a process for restoration or improvement of impaired function. However, rehabilitation should also be viewed as an intervention to prevent or delay a decrease in function.

This issue of *FACETS* is devoted to the role of rehabilitation in prevention and restoration of health and function in chronic disease. It highlights the roles of diet and exercise as major factors in this process.

Despite the obvious importance of nutrition to health and wellness, and therefore its relevance to rehabilitation, attention to and consideration of nutrition in the practice

of rehabilitation is modest at best. The same is true in other health care professions. Which raises the question; if nutrition is such an important factor in the management of chronic disease, why is it not a more evident consideration in our clinical practices?

The answer appears to be that nutrition is not adequately incorporated in the curricula for most health care professions. And given the general ignorance of the population at large about the role of diet and exercise in preventing chronic disease, it is evident that there is a similar void across the entire continuum of education. I am pleased to inform you that, at least here at SHRS, this deficit will be short-lived. We are now engaged in planning to include enhanced instruction on nutrition for all of our programs.

In addition, SHRS faculty are now working with colleagues from other disciplines to utilize computational methods to develop improved models for therapy. By being able to integrate additional information and simulate more intricate processes, we will have a better understanding of these complex interactions and their role in regulating responses to the insults of trauma, disease, and therapeutic interventions. We believe this will result in the development of more comprehensive and individually focused therapies – particularly for chronic diseases and conditions. I shall look forward to sharing information with you on these efforts in future editions of *FACETS*.

As always, we welcome your questions and comments.

With kindest regards,

Cliff Brubaker
cliffb@pitt.edu

“Despite the obvious importance of nutrition to health and wellness, and therefore its relevance to rehabilitation, attention to and consideration of nutrition in the practice of rehabilitation is modest at best.”



giving

Current and future SHRS students are seeing the benefits of the generosity of others. Over the past few years, alumni, faculty, friends, and organizations have established scholarships and student funds that provide support for tuition, fees, books, and other expenses.

In fact, scholarship has been identified as the area of greatest need by the University in its extended \$2 billion capital campaign.

Through scholarship, SHRS can recognize students' exceptional performance and lighten some of the financial burden students carry. Additionally, scholarship enables the school to seek out and recruit the most promising students to our nationally-ranked and recognized programs. Being able to train and educate the most dedicated students helps us retain our national rankings and makes us an attractive choice for future students and employers alike. Funds for scholarship are a fine example of gifts that keep on giving!

Scholarship and student funds can be established by individuals, organizations, or by groups with a common cause or vision. A recent example of a successful group, or multi-donor, campaign is the Sports Medicine Student Resource Fund. Led by alumni Dr. David Perrin and Rick Burkholder, the campaign sought gifts from fellow alumni. In the course of 18 months, alumni joined the effort and donated or pledged a total exceeding \$25,000, the campaign goal. And the campaign continues with the hope of generating more student awards from an ever-growing endowment.

Establishing scholarships or other endowed funds provides the donor very special rewards as well. SHRS is hosting a Scholarship Lunch later this month with the express purpose of uniting donors and recipients. The students are always eager to meet and thank fund donors or trustees and the donors learn first-hand how their gift is benefiting others.

With endowed funds, the principal gift amount is invested by the University, ensuring the donor's perpetual legacy. Only interest from the fund is awarded. Endowed funds can carry the name of the donor or a name of the donor's choice. They're a great vehicle for recognizing or honoring someone special.

I encourage you to consider a gift or pledge to establish an endowed fund to assist our students. Presently, endowments can be established with a minimum of \$10,000 and can be paid over a five-year period. Endowments to SHRS can also be designated in a planned gift or as a bequest in a will. I, along with our planned giving staff if necessary, would be happy to discuss the many attractive options available. If you have such an interest, the time to act is now ... when you can experience the reward of your gift and make "college life" a little easier for others.

Sincerely,

Patty Kummick
Director of Development

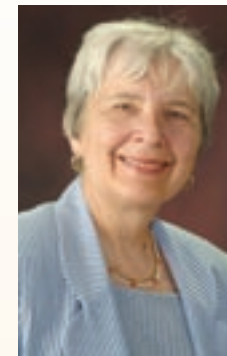
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UPMC Establishes SHRS Scholarship

In the fall of 2006, UPMC generously pledged to establish a \$500,000 school-wide scholarship fund to benefit students at SHRS. Once the pledge is satisfied in 2010, we will be able to support deserving students in all of our undergraduate and graduate academic programs.

Fortunately, students won't have to wait until 2010 to reap the rewards of this fund. Awards will be made from the fund as the dollars are invested with each annual payment. Typically, awards are not made available until the full pledge is satisfied. But, due to the size of the fund, and the wishes of UPMC and the School, students will be eligible for the UPMC Scholarship later this year.

We extend our heartfelt thanks and deepest appreciation to UPMC officials for their foresight and interest in supporting our students. This gift will go a long way in assisting students in need and recognizing top-performing scholars at SHRS.



ACCESS

DR. KATE SEELMAN

Rarely a day goes by without a news story on the global obesity epidemic. The World Health Organization estimates that more than one billion adults are overweight, and at least 300 million of them are clinically obese.

Driven by increased consumption of more energy-dense, nutrient-poor foods with high levels of sugar and saturated fats, and compounded by reduced physical activity, obesity rates have risen three-fold in some areas of North America, the United Kingdom, Eastern Europe, the Middle East, the Pacific Islands, Australasia, and China. The increase is even more pronounced in developing countries.

Obesity and overweight pose a major risk for chronic disease, including type 2 diabetes, cardiovascular disease, hypertension, and stroke. A raised Body Mass Index (BMI) – the most common assessment marker – increases the risk of cancer of the breast, colon, prostate, endometrium, kidney, and gallbladder. It also contributes significantly to osteoarthritis, a major cause of disability in adults.

The cost of treatment of these chronic conditions can be staggering. Some experts estimate that obesity already counts for up to seven percent of total health care expenditures, and that number is only expected to rise. The public health policy implications are profound.

But is obesity truly the global health care villain that it is portrayed in the media? Is the world's expanding waistline sending mankind to an early grave?

According to Dr. Ronald E. LaPorte, professor, Department of Epidemiology, the statistics say "no." And in fact, he contends that our collective weight gain may have extended global life expectancy rates. I've asked him to explain this unique perspective.

On an individual level, obesity – particularly morbid obesity – is bad. But collectively, there has been no reduction in life expectancy during this period of climbing obesity rates in the U.S. If obesity was a powerful determinant of death in the US, one should see a decline in life expectancy, not a rise. In fact, for every year in the past 50 years – years during which we've seen an increase in the weight of the average American – life expectancy has increased.

Worldwide, life expectancy in 1950 was age 45. Now it's age 70. To frame it another way, for every week since 1950, life expectancy has increased by three days. That's phenomenal.

Virtually no country on the planet has anything close to the life expectancy rates of the 1950s – even in Africa, where we've witnessed periodic instances of mass starvation. Fifty years ago, roughly half the deaths on that continent were the result of malnutrition. Today, other than in certain pockets, that's not the case. Vaccination, improvements in sanitation, and the availability of cheap calories have improved life expectancy.

Over all, our collective health is better now than it has ever been.

Life expectancy is driven primarily by disease prevention. For example, here in the U.S., roughly 27 of the 30-year increase in average life expectancy can be attributed to prevention.

But statistically, higher birth weights play a more significant role. Here's why.

Low birth weight babies are six to ten times more likely to die prematurely than their heavier peers. So if we reduce the number of low birth rate babies, we expand the pool of people who will live through adulthood. To put it another way, for every baby that lives because of a higher birth weight, we add 70 years to our life expectancy calculations.

Around the world, the frequency of low birth weights has been decreasing. This is due in large part to an increase in the weight of mothers. A mother's weight is the best predictor of a baby's birth weight; very thin mothers typically have children with low birth weight.

This is why it can be argued that across the population as a whole, weight gain may not necessarily be all bad. By having heavier mothers, we have fewer low birth weight babies that don't die prematurely, thus positively impacting life expectancy statistics.

Unfortunately, with the increase in life expectancy has come an increase in chronic disease, which is the major cause of death worldwide. No single disease, not AIDS in Africa nor the Avian Flu in Asia, causes more deaths than chronic disease. And age is the most important determinant of chronic disease.

In a classic paper, *Epidemiologic Transition: Changes of Fertility and Mortality with Population Growth*, Abdel Omran theorizes on the evolution of chronic disease.

According to Omran, during the epidemiologic transition, a long-term shift occurs in mortality and disease patterns. Pandemics of infection are replaced by degenerative and man-made diseases.

The first phase he calls the Age of Pestilence and Famine. Here, the major cause of death is infectious disease. If you think of a city like Pittsburgh in the 1700s, you'd see high fertility – plenty of babies being born – but equally high spikes in the death rate due to plagues, tuberculosis, malaria, measles, and the like. As a result, there is no significant increase in the total population or its longevity. The life expectancy at the time was about 35 years.

Next is the Age of Receding Epidemics. In this era, the epidemics of infectious diseases begin to subside. The death rate goes down, but fertility rates remain high. As a result, population growth occurs. During this time, we see the rise of non-communicable diseases.

Early in the 19th century, the changing mortality patterns were closely associated with improvements in socioeconomic status. However, in the 20th century, major advances have been made by countries with a low socioeconomic status, thanks to an effective public health system.

The final stage in his theory, the phase we're in today, is the Age of Degenerative Diseases. This is the age of the chronic disease. It's not marked by a single disease, but rather by an unfolding symphony of chronic diseases that parallel socioeconomic development.

In the earliest phase of socioeconomic success, the first chronic disease to occur is tooth decay. It's epidemic in a developing country like China.

Then, as wealth increases, you see a rise in motor vehicle crashes. More people can afford to buy automobiles.

Then slowly, the affluent population begins to get fatter and consequently, you see a rise in diabetes. Cardiovascular disease and cancer soon follow.

Using Omran's theory, you can look at any population, be it in Beijing, Zimbabwe, or Pittsburgh, and if you know average life expectancy, you can predict the leading cause of death. And the reason is that age – not obesity – is the most important determinant of chronic disease.

Obesity is an important issue. But it is too simplistic to simply say that the global weight gain is bad. Instead, we should look at both risks... and the potential benefits...to a society gaining weight.



Department News

SHRS welcomes three new faculty members: **John J. Coltellaro**, clinical instructor, Department of Rehabilitation Science and Technology; **Yih-Kuen Jan**, visiting assistant professor, Department of Rehabilitation Science and Technology, and **Paula Leslie**, CertMRCSLT, Specialist Advisor (Swallowing Disorders) RCSLT, associate professor, Department of Communication Science and Disorders. Leslie has special responsibilities for the new Clinical Doctorate in Speech Language Pathology (CScD) program. Prior to joining SHRS, Leslie was program director and co-founder of the research masters in speech and swallowing disorders at the University of New Castle, England, the first such program in the world. She also served as a research associate and practicing clinician.

The **Department of Communication Science and Disorders'** Clinical Education program partnered this past fall with the Pittsburgh Public Schools to conduct speech/language/hearing screenings on all three-to-five-year olds in the school district, including daycare and Headstart settings.

Donna Westbrook-Martin, (CSD '89, '92), director of SLP services for the school district, **Dr. Cheryl Messick**, director of clinical education, CSD, and **Elaine Mormer**, audiology clinical coordinator, CSD, developed and implemented a plan for first-year students to participate in screening over 2,000 preschool children. The screening was supervised by the SLPs in the school district.

Patricia Karg, Dr. Linda vanRoosmalen, and **Dr. Douglas Hobson**, **Department of Rehabilitation Science and Technology**, recently teamed up with three other university partners and were awarded a five-year \$4.5 million federal grant to continue research on transportation safety and usability for people who use wheelchairs. The U.S. Department of Education's National Institute on Disability and Rehabilitation Research (NIDRR) renewed funding of the Rehabilitation Engineering Research Center (RERC) on Wheelchair Transportation Safety to a partnership headed by the University of Michigan Transportation Research Institute and includes the Universities of Pittsburgh, Louisville, and Colorado. The RERC will conduct research to advance the safety, usability, and independence of the large proportion of 1.7 million individuals who remain in their wheelchairs when traveling in motor vehicles.



SHRS conducted a Retired Faculty Day on February 23, 2007. Faculty returning to the school were treated to lunch with the deans, a whirlwind tour of the school, and the State of the School Address presented by Dr. Arthur S. Levine, senior vice chancellor for the Schools of the Health Sciences, and dean, School of Medicine; and Dr. Cliff Brubaker (right), SHRS dean. Pictured with Brubaker are (from left) **Dr. George Shames** (CSD), **Dr. Caroline Brayley** (OT), **Dr. Mary Ann Scialabba** (CDN) and **Dr. Anne Pascasio**, founding dean.



The National Association of Future Doctors of Audiology (NAFDA) University of Pittsburgh chapter, held its Fourth Annual White Coat Ceremony last October for the four new members of the Doctor of Audiology program in the **Department of Communication Science and Disorders**. Inductees included (left to right) Greg Genna, Megan Hannon, Rebecca Weyman, and David Jedlicka.



Faculty News

Department of Communication Science and Disorders

Dr. Ellen Cohn, associate professor and SHRS assistant dean for Instruction, presented on the topics of telerehabilitation and cleft palate at the American Speech-Language-Hearing Association annual meeting, and the Southwestern Pennsylvania Speech and Hearing Association (SWPSHA). She also co-edited (with J. Branche and J. Mullennix) a book titled *"Diversity Across the Curriculum, A Guide for Faculty in Higher Education"* to be released late spring 2007. The book describes how faculty can create culturally inclusive courses and learning environments.

Dr. Geoffrey V. Fredericks, assistant professor, is the director of the Speech-Language Pathology Department at the UPMC Institute for Rehabilitation and Research, South Side Hospital. Fredericks' areas of interest include motor speech disorders, psychogenic speech disorders, and acquired disorders of language and cognition secondary to neurological impairment.

Dr. Katya Hill, associate professor, will present at the iCREATE Conference on Rehabilitation Engineering and Assistive Technology in Singapore in April. She was also invited to participate in the Global Initiative for Inclusive Information and Communication Technologies Global Forum in New York, NY. The forum was a flagship advocacy initiative of the United Nations Global Alliance for Technology and Development. It also served as an interactive venue for key stakeholders and leading experts from around the world to come together to create a consensus and set direction for the future of accessible and inclusive information and communication technologies for people with disabilities.

Elaine Mormer, clinical instructor, presented *"Assessing and Addressing Hearing Assistance Technology"* at the first annual Pennsylvania Speech-Language-Hearing Association Fall Workshop in Cranberry Twp, Pa., in October. In November, she presented *"Connecting Through Hearing Assistance Technology"* at the Pennsylvania Chapter of the Alexander Graham Bell Association for the Deaf and Hard of Hearing annual conference and dinner, Hershey, Pa.

Dr. Catherine Palmer, associate professor, chaired *"Hearing Care for Adults: An International Conference"* in Chicago last fall.

Dr. Kittie Verdolini-Marston, associate professor, was recently awarded a \$3 million, five-year research grant entitled *"Hybrid Model of Vocal Fold Inflammation and Wound Healing"* from the National Institute on Deafness and Other Communication Disorders (NIDCD).

Verdolini-Marston also presented *"Lessac-Madsen Resonant Voice Therapy"* at the Southwest Center for Communication Disorders, Prescott, Ariz., and at San Francisco State University, and presented *"Lessac-Madsen Resonant Voice Therapy and Lessac-Madsen Resonant Voice Therapy-KIDS"* at the University of Hong Kong. She also presented *"Teacher Voice Training"* to the ENT Department, Alexandra Hospital, Singapore, and *"Evidence Around Voice Therapy – Focus: Vocal Fold Injury"* at the ASHA Convention, Miami.

Dr. J. Scott Yaruss, associate professor, was named associate director of the Department of Audiology and Communication Disorders at Children's Hospital of Pittsburgh of UPMC. In his expanded role, Yaruss will work directly with clinicians and help expand the national prominence of a stellar department.

Yaruss also presented numerous posters and a seminar on *"A Family-Focused Treatment Approach for Preschool Children Who Stutter"* at the annual Convention of the American Speech-Language-Hearing Association, Miami, Fla., in November. He was also featured on public radio and on WQED-TV Pittsburgh's *On Q* in segments about stuttering.

Department of Health Information Management

Dr. Mervat Abdelhak, associate professor and chair, was awarded the designation Fellow of the American Health Information Management Association (AHIMA). This professional distinction recognizes significant and sustained contributions to the advancement of the Health Information Management (HIM) discipline through meritorious service, excellence in professional practice, excellence in HIM education, and advancement of the profession through innovation and knowledge sharing.

Abdelhak also served as managing editor of the 3rd Edition of *"Health Information: Management of a Strategic Resource,"* released March 2007. She was also selected by AHIMA to serve as chair of the Nominating Committee and a member of the Educational Strategy Committee.

Patti Anania Firouzan, assistant professor, presented on *"HIPAA"* at the First World Vista Education Conference and Seminar, hosted by Robert Morris University, Moon Twp., Pa.

Dr. Valerie Watzlaf, associate professor, has been selected by AHIMA to serve as a member of the FORE Board. Watzlaf also presented a paper along with colleague Jennifer Garvin entitled, *"The Effectiveness of ICD-10-CM in Capturing Public Health Diseases"* at the AHIMA national convention, Denver, Colo.. **Sohrab Moeini** (HIM '06) and **Patti Anania Firouzan** were researchers on this study, which was funded by AHIMA.

Continued on page 8



Faculty News (cont.)

Department of Occupational Therapy

Dr. Nancy A. Baker, assistant professor, presented a paper, *"The Effect of Gender on Finger Angles During Keyboarding"* at the 30th Annual Meeting of the American Society of Biomechanics in Blacksburg, Va; and a paper, *"Measuring Computer Style: The Frequency and Distribution of Computer Keyboard Behaviors,"* at the Human Factors and Ergonomics Society 50th Annual Meeting, San Francisco, Ca.

Dr. Denise Chisholm, assistant professor, received the 2006 Academic Educator Award from the Pennsylvania Occupational Therapy Association for excellence in socializing students to practitioner and contributor roles.

Dr. Margo B. Holm, professor, gave a Keynote Address titled *"Evidence Based Practice: The Good, the Bad and the Ugly"* at the Wisconsin Occupational Therapy Association Annual Conference, Madison, Wis. Holm was the commencement speaker for the Department of Occupational Therapy at the University of Wisconsin – LaCrosse. Her talk was titled *"Practitioner or Scholarly Practitioner?"*

Dr. Joan C. Rogers, professor and chair, **Dr. Margo Holm**, professor, and **Dr. Nancy A. Baker**, **Dr. Denise Chisholm**, **Dr. Ketki D. Raina**, **Dr. Elizabeth Skidmore**, and **Mary Lou Leibold**, assistant professors, presented peer-reviewed papers at the 29th Annual Pennsylvania Occupational Therapy Association Conference in Pittsburgh, Pa. Raina, Holm, Chisholm, and Rogers, presented *"Performance Assessment of Self-Care Skills (PASS)"* at the Pennsylvania Occupational Therapy Association, District II meeting in Pittsburgh, Pa.

Department of Physical Therapy

Debra L. Miller, assistant professor, advanced to the status of Fellow with the American College of Healthcare Executives (ACHE) in January.

Dr. G. Kelley Fitzgerald, associate professor, presented *"Exercising Arthritic Knees: Improving the Standard of Care"* at the University of Pittsburgh Winter Academy, Naples, Fla., in February.

Dr. Jay Irrgang, associate professor, was elected president of the Orthopedic Section of the American Physical Therapy Association (APTA) in February.

Rehabilitation Science and Technology

Don Angelone, senior lecturer, presented at an international conference on assistive technology and employment in Rome, Italy, this past December.

Dr. Michael L. Boninger, executive director of the Center for Assistive Technology (CAT) and medical director of the Human Engineering Research Laboratories (HERL), was named a Hall of Fame 2006 Nominee in Assistive Technology by the National Spinal Cord Injury Association.

Dr. Rory Cooper, distinguished professor and chair, **Dr. Douglas Hobson**, associate professor, and **Dr. Hisaichi Ohnabe** edited *"An Introduction to Rehabilitation Engineering."* The book introduces the fundamentals and applications of rehabilitation engineering and assistive technologies. Many members of the SHRS faculty, doctoral candidates, and alumni were involved in authoring the book's comprehensive contents.

Yih-Kuen Jan, visiting assistant professor, recently received the Mary E. Switzer Research Fellowship Award from the National Institute on Disability

and Rehabilitation Research (NIDRR). The fellowship program was established to support qualified individuals engaged in scientific research relating to problems encountered by individuals with disabilities, or studies to improve the delivery of rehab services to people with disabilities. In past years, the Fellowship Award was presented to other RST faculty members including **Dr. Katherine Seelman**, **Dr. Dave Brienza**, and **Dr. Dan Ding**.

Jan also received a grant from the Paralyzed Veterans of America (PVA) Research Foundation to fund his proposal entitled *"Remodeling ANS and Endothelium with Exercise for Preventing Pressure Ulcers."*

Dr. Katherine Seelman, associate dean, Disability Programs, and professor, received the 2007 Chancellor's Distinguished Public Service Award recognizing outstanding public service contributions by members of the University of Pittsburgh's faculty. The award consists of a cash prize to the faculty member and a grant to support the recipient's public service activities.

Seelman was also named to the American National Standards Institute (ANSI) Committee on Education. The committee supports a university outreach program that works to incorporate standards into a university curriculum. Its intent is to introduce students to the impact of standardization on the marketplace, thus giving them a competitive edge when entering the workforce. She was also named by the World Health Organization (WHO) to a nine-member international editorial board to develop the first *"World Report on Disability,"* due to be published in 2009. The editorial board conducted its first meeting in Geneva, Switzerland, in December.



Student News

Danielle Shuttleworth, masters in Occupational Therapy (MOT) student, received the 2007 Ruth Crawford Mitchell Memorial Award from the University of Pittsburgh. Shuttleworth was selected from a pool of candidates to receive support to travel to and volunteer with the Experiential Learning International's (ELI) Program in Guatemala. Danielle will observe health care professionals implementing treatment sessions with their clients, as well as work with the local population to learn how therapies are naturally applied without modern medical attention. She will also complete a qualitative research project that will examine activities of daily living, functioning, and disability among the indigenous people of Guatemala.

Shuttleworth was elected Secretary of the Assembly of Student Delegates Steering Committee of the American Occupational Therapy Association. She was elected from a national pool of candidates to this prestigious position.

MOT students **Amalie Andrew**, **Laura Barnes**, **Emily Barto**, **Maria Chemelli**, **Michelle DeFavero**, **Cynthia Gadway**, **Erin Green**, **Sarah Lambright**, **Krista McFadden**, **Lisa Pitre**, **Sarah Punshon**, **Danielle Shuttleworth**, and **Kathleen Ward**, were inducted into Pi Theta Epsilon, the national honor society for occupational therapy students.

Dr. Denise Chisholm, assistant professor, Department of Occupational Therapy, and MOT students **Laura Barnes**, **Shannon Goldstrohm**, **Sarah Punshon**, **Kathleen Ward**, and **Stacey Weinstein** represented the Department of Occupational Therapy in the *"Investing Now: Hands on Science"* program.

Chisholm and MOT students **Cherael Crenshaw**, **Suzanne Stratton**, and **Barbara Woolston** represented the Department of Occupational Therapy at the Rehabilitation Science Career Options Information Session.



Communication Science and Disorders students in the National Association of Future Doctors of Audiology (NAFDA) participated in a program aimed at educating the public about hearing loss. As shown above, students read a book about hearing loss and hearing aids to children and parents during Story Hour at an area library. They also developed a learning activity and provided a take-home packet for the parents.

Stephanie Hackett, MS, RHIA, doctoral candidate in the Department of Health Information Management, received the Healthcare Information and Management Systems Society (HIMSS) Foundation Ph.D. Scholarship. This is a national scholarship award based on scholastic achievement, a personal essay of accomplishments, and three letters of recommendation from HIS professionals. Hackett also received the Pennsylvania Health Information Management 2007 Scholarship in recognition of her academic achievement and commitment to the field of health information management.

Dr. Elizabeth R. Skidmore, assistant professor, Department of Occupational Therapy, and MOT students **Poorvi Ajmera**, **Janna Olszewski**, and **Katie Peck** presented an educational session on balancing life and rehabilitation to the UPMC Young Survivors Stroke Support Group.



The University of Pittsburgh Institute for Entrepreneurial Excellence at the Joseph M. Katz Graduate School of Business announced

that **Brad Chernock**, a senior in the Emergency Medicine program, was a winner in the BIG IDEA Competition, sponsored by the Entrepreneurs' Society. Chernock will receive expert business advice to support his company, Lifesaving Associates, LLC, which helps businesses manage Public Access Defibrillation programs by surveying locations, installing Automated External Defibrillators, and training and providing CPR certification for responders.



Alumni News



Alumni from the university and the health sciences schools gathered in Naples, Fla, this past February for the second annual Winter Academy. The Academy features faculty researchers who highlight some of the exciting research taking place at Pitt. SHRS hosted an alumni reception prior to the Academy at the Ritz-Carlton. Attending were (front row, left to right) **Nancy Sekowski** (PT '73); **Shirley Nasby** (PT '52); **Ellen Lesh** (PT '47); **Anne Pascasio** (PT '53), founding dean and professor emerita; **Herbert Rubin** (CSD), former chairman and professor emeritus. (Back row, left to right) **G. Kelley Fitzgerald**, (PT), associate professor and featured speaker; **Christine Chase** (PT '74, '80); **Bebe Henderson** (HIM '74); **Patty Kummick**, SHRS director of Development, and Dean **Cliff Brubaker**.

Department of Communication Science and Disorders



Dr. Jacqueline Liebergott (CSD '67, '73) was named a Distinguished Alumni Fellow by the University of Pittsburgh Alumni Association this past February. The honor was in recognition of her outstanding professional achievement and for her service to the community. Liebergott currently serves as the president of Emerson College, Boston.

Department of Health Information Management

Alaina Capanna (HIM '06) is a client implementation specialist with MISYS

Healthcare Systems. She was named Employee of the Month for November in recognition of her hard work and commitment to her clients.

Denise Dunyak (HIM '81) was appointed chair of AHIMA's 2007 Annual Program and Convention Committee for the event in Philadelphia.

Rebecca Harmon (HIM '98) accepted the newly created position of project director, PA National Guard Schoolhouse, UPMC.

Laurine Johnson (HIM '81, '88) was appointed chairman, PHIMA Coding Roundtable for 2006-2007. She is a senior HIM consultant for HSS/Ingenix.

Nathan McWilliams (HIM '98) was promoted to director of MIS/Trauma Registry for the Pennsylvania Trauma Foundation Systems, Mechanicsburg, Pa. He will complete a masters in Public Administration from Penn State Harrisburg this year.

Samantha Sedlak (HIM '06) received her RHIA and has a "great job" as sales engineer for Hyland Software, Inc., Westlake, Ohio.



HIM grads **Lynn Hecht** (HIM '76, '81) and **Salee Silverman** (HIM '74) join **Dr. Mervat Abdelhak** at an alumni reception hosted by the Department during the Ashima National Convention last October in Denver, COLO. Other alumni attending were **Denise Dunyak** (HIM '81), **John Eonta** (HIM '77), **Mark Hendricks** (HIM

'89), **Sharon Hendricks** (HIM '89), **Laurine Johnson** (HIM '81, '88), **Nathan McWilliams** (HIM '98), **Ophelia Munn-Goins** (HIM '93), **Samantha Sedlak** (HIM '06), **Jill Sell-Kruse** (HIM '81), **Gerri Walk** (HIM '79) and **Richard Wilson** (HIM '03). HIM students and faculty also attended as did Teresa Foley, health information administrator, US Army, Office of the Surgeon General.

Clinical Dietetics and Nutrition

Joyce Scott-Smith (CDN '85) will present at the Pennsylvania Dietetic Association Annual Meeting and Exhibition in Pittsburgh in April. Her topic is "The New Food Service: Trends and Challenges." She is the director, Food and Nutrition Services and Dietetic Internship, UPMC.

Department of Occupational Therapy



Stacy J. Winger (OT '96) and **Lori Knudsen** (OT '95) visited the SHRS alumni booth during Homecoming 2006.

Department of Physical Therapy

According to **S. Bernie Blystone** (PT '75), employment opportunities abound for physical therapists in the Carolinas. If you're considering a move to eastern North Carolina, find out more by calling Bernie in Elizabeth City at 252338-2114.

The inaugural **Richard W. Bowling—Richard E. Erhard** Orthopaedic Clinical Practice Award was presented at the American Physical Therapy Association Combined Sections Meeting in February. The award is given to acknowledge an individual who has made an outstanding and lasting contribution to the clinical practice or orthopaedic PT as exemplified by the professional careers of Bowling and Erhard. In recognition of the award being named in their honor, the first recipients were Bowling (PT '66, '81) and Erhard (PT '64).

Karl Gibson (PT '76, '83), **Cindy Potter** (PT '79), **Paul Rockar** (PT '81) and **Jeff Weiss** (PT '85, '92) advocated for increased funding for rehabilitation research in Washington, DC, last year. They met with elected officials as part of the APTA-sponsored Federal Government Affairs Forum.

Following graduation, **Renee Gaines Loftspring** (PT '86) returned to Cincinnati to develop her expertise in acute and chronic neurological diagnoses and assistive technology. Her earned a master of Education in Instructional Design and Technology and a doctor of Education in Curriculum and Instruction from the University of Cincinnati. She teaches for the College of Mount Saint Joseph's entry-level doctorate program in physical

therapy and her research interests include critical thinking and multiple sclerosis. Renee has been married for 18 years and has three children. Her family is passionate about promoting pet adoptions through animal rescues.



DT Watson alumnae **Gwen Wilkie** (PT '59) and **Dottie Shoop Ferrell** (PT '64)

held an impromptu reunion with **Dr. Rosemary Scully**, former chair in the Department of Physical Therapy, and **Patty Kummick**, director, SHRS Development, in Arizona.

Alumni: Stay connected to the Pitt Alumni Association. Register with Career Network to advance your career or provide guidance to others through alumni career services. Find them on-line at www.alumni.pitt.edu.

And be sure to find out what's new at SHRS by logging on to www.shrs.pitt.edu. Keep us posted on your comings and goings by clicking on the "Alumni" button.

CALENDAR of Events

April

April 29 – May 1, 2007
Pennsylvania Dietetic Association Annual Meeting, Pittsburgh, PA

The Clinical Dietetics & Nutrition program will host a welcome reception for CDN alumni, Monday, April 30, 6 – 7 p.m., Sheraton Station Square. (Sponsored in part by the SHRS Alumni Society)

May

Wednesday, May 2, 2007
Schools of the Health Sciences Alumni Reception, Ambassador Banquet and Conference Center, Courtyard by Marriott, Erie
Reception at 6 p.m., program at 7 p.m. (Sponsored by the Schools of the Health Sciences Alumni Relations)

June

June 15 – 19
Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference, Phoenix, AZ

The RST Department will host a welcome reception for RST alumni. Date, time and location TBA. (Sponsored in part by the SHRS Alumni Society)

June 26 – 30, 2007
NATA 2007 Annual Meeting, Anaheim, CA

The Athletic Training and Sports Medicine programs will host a welcome reception for AT/SM alumni, Thursday, June 28, 7 – 10 p.m., location TBA. (Sponsored in part by the SHRS Alumni Society)

October

October 6 – 11, 2007
American Health Information Management Association's 79th Convention & Exhibit, Philadelphia, PA

The Health Information Management Department will host a welcome reception for HIM alumni. Date, time and location TBA. (Sponsored in part by the SHRS Alumni Society)

Saturday, Oct. 20, 2007
University of Pittsburgh Homecoming, Pitt vs. University of Cincinnati

Tuesday, Oct. 23, 2007
Thirteenth Annual Endowed Scully Visiting Lecture Program

Featuring Larry Benz, Location TBA. Benz is President/CEO of Kentucky Orthopedic Rehab Team (KORT)

October 26 – 28, 2007
Pennsylvania Physical Therapy Association Annual Conference, Hilton, Pittsburgh, PA

The Physical Therapy Department will host an all-class reunion for PT alumni, Friday, Oct. 26. Time and location TBA. Contact Kathy Kelly at 412-383-6637 or kkelly21@pitt.edu with questions or to RSVP. (Sponsored in part by the SHRS Alumni Society)



Rehabilitation engineering services like those available at the Department of Rehabilitation Science and Technology (RST) Center for Assistive Technology (CAT) are far from mainstream. But as technology has advanced and reimbursement policies changed, so too has access, allowing more and more Americans with disabilities to take advantage of critical assistive technology clinical resources and services.

Dr. Carmen DiGiovine, a University of Pittsburgh Bioengineering alumnus, is one of a growing number of rehab engineers taking the innovative assistive technologies designed at SHRS and other top-tier research universities to people around the country. His company, 6 Degrees of Freedom, named after the six distinct motions of bio-mechanics and formed in partnership with Dr. Sean Shimada, an RST alumnus (see page 14), is a clinical rehabilitation engineering and assistive technology service and training provider serving school districts in the Chicago area.



While DiGiovine never envisioned himself as an entrepreneur while an engineering undergrad, his academic and post-collegiate work uniquely qualify him as a rehabilitation engineering expert. He earned an undergraduate degree in Engineering at the University of Illinois in Urbana-Champaign in 1995. Through an early mentor, DiGiovine was introduced to Dr. Rory Cooper, chair and distinguished professor, Department of Rehabilitation Science and Technology, and began working as a research assistant at the Human Engineering Research Laboratories (HERL) and the Center for Assistive Technology (CAT) under Cooper while earning a master's and doctoral degree in Bioengineering and a certificate in rehabilitation engineering at Pitt. Through their common research interests, DiGiovine began partnering with Shimada and developed a bond that continues to this day.

I was doing at the CAT," explains DiGiovine. "We were charged with going into people's homes and workplaces to help provide assistive technology. This really provided the groundwork for the steps I've taken with 6 Degrees of Freedom ever since."

After conferring with Shimada on the viability of a clinical rehab engineering enterprise, the two soon formed a partnership, with Shimada overseeing the business end of 6 Degrees of Freedom and DiGiovine building the business in Chicago and providing clinical outreach services.

STUDENT AID

While the clinical services available at 6 Degrees of Freedom are offered to anyone who can benefit from assistive technology, DiGiovine and Shimada have focused much of their attention on



"The more I worked at the CAT, the more I became fascinated with assistive technology and the possibilities it presented to improve the lives of people with disabilities. I was hooked," he remembers. After graduating, DiGiovine began working in the Assistive Technology Unit at the University of Illinois in Chicago, where he stayed for six years, honing his rehab engineering expertise.

"My work at the University of Illinois was in a community-based clinical setting, which is a bit different from the work

the education model of service delivery – reaching out to area school districts to educate administrators about the use and benefits of assistive technology.

"The reimbursement landscape has made it easier – and more practical from a business standpoint as well – to reach out to schools to provide assistive technology to young people. Rehab engineering is still such a new science and Medicare and Medicaid don't currently recognize our services the same way they recognize PT or

If we can help educate and provide much-needed services to individuals with disabilities when they're young, the impact we have on them will last a lifetime.

occupational therapy," he explains. "This is just as well, because from a benefit standpoint, it makes a world of difference to begin helping kids with disabilities while they're young. If we can help educate and provide much-needed services to individuals with disabilities when they're young, the impact we have on them will last a lifetime."

"However, providing assistive technology to students is only one part of the equation. We are also there to provide the quantitative information that is critical to defining outcome measures, whether we're examining the school setting and a student's individualized education plan or adjusting technology over time to best suit each individual."

The training component has become one of the primary points in DiGiovine's sales pitch to schools. "We believe that successful outcomes will only come through long-term relationships with rehab engineers, and we're very up-front about the need to train both students and educators about the technology we're using. The benefits of assistive technology will only be maximized if all parties in the classroom know how to best use it."

In the six months since the company's inception, DiGiovine is providing assistive technology training and service delivery to two Chicago-area school districts, and professional development courses and seminars for another three. Notes DiGiovine, "Education is the first step, both in helping individuals in need and in growing our practice. The more teachers and administrators know about disability and assistive technology service and support, the easier it is for rehab engineers to provide solutions."



When we last reported on Dr. Sean Shimada in the Spring 2001 issue of *FACETS*, the Rehabilitation Science and Technology doctoral alumnus was busy charting the growth of his thriving auto accident lawsuit consultancy, Biomechanical Consultants of California. The year-old start-up helped decipher and deliver expert crash scene reconstruction litigation support and testimony to more than 200 clients.

Six years later, Shimada's entrepreneurial fire is burning brighter than ever. His consultancy has expanded its operations to cover litigation support throughout California and parts of Nevada. In addition, he and his wife, Stephanie, are poised to open their second Peak Performance health and fitness club, and Shimada has recently partnered with Dr. Carmen DiGiovine, a fellow RST alumnus, in the formation of 6 Degrees of Freedom, a clinical rehabilitation engineering service provider based in Wheaton, Ill (see page 12).

Like many entrepreneurs, Shimada's success has come as a result of expertise, a keen eye for opportunity, and careful management. Through the early part of the decade, Biomechanical Consultants of California grew through a steady stream of law firm referrals won from the consultancy's litigation successes. As the

business expanded, Shimada soon began to respond to an increasing number of inquiries from both Reno and Las Vegas, Nev.

"While the gaming industry in cities like Reno has been in decline for decades, the hi-tech sector has fueled new growth in many western Nevada cities," he explains. "Small and mid-size firms that have been priced out of Silicon Valley and the Bay Area are moving east to Nevada. And with an influx in population comes an increase in traffic accidents."

To respond to the upswing in demand, in 2005 Shimada built a 9,000 square foot office and warehouse facility in Davis – a prudent move considering the increase in business that was to come. Several months later, in January 2006, a modification in California law relating to accident litigation increased the time allowed for accident victims to file grievances from one year to two. Almost overnight, the volume of medical records Shimada and his team of experts had to examine to formulate their opinion doubled. Shimada estimates that Biomechanical Consultants of California now has nearly 1,000 clients.

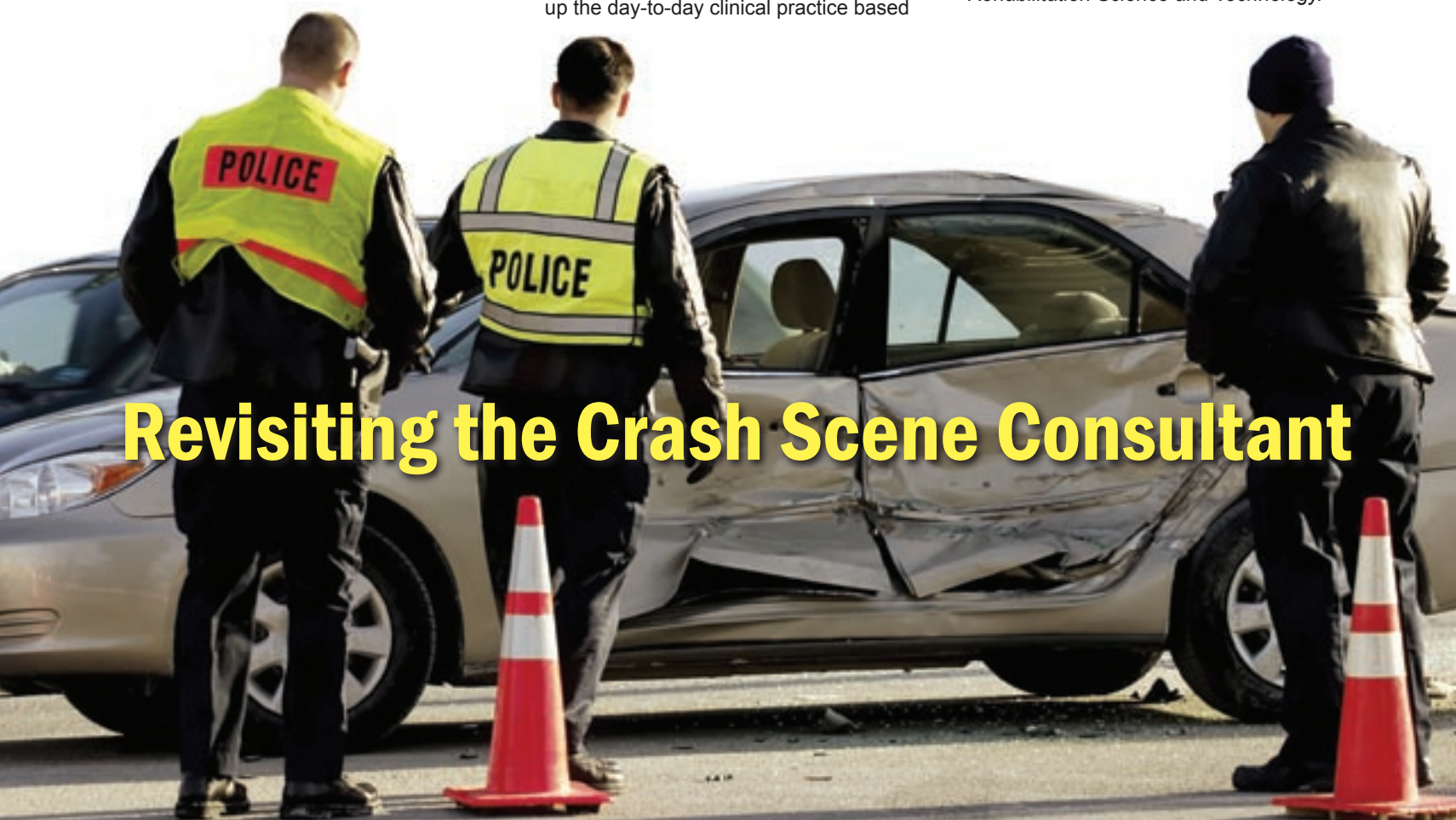
But the success of Biomechanical Consultants has hardly tempered his entrepreneurial ambition. In August of 2006, he and DiGiovine launched 6 Degrees of Freedom. DiGiovine heads up the day-to-day clinical practice based

in the greater Chicago area and Shimada manages the firm's business operations. "When Carmen came to me with the idea for 6 Degrees, I immediately saw the potential and we agreed almost immediately to move forward with the venture," says Shimada. "We saw a tremendous need for assistive technology services in the community, especially for kids in the school system. The company has been growing at an impressive rate over the past six months, and we fly back and forth to meet with each other every three months. Based on the successes we've had in the greater Chicago area, we've already begun talks with a handful of California school districts to expand the business out west."

Much has changed in six years and Shimada believes that in another five to 10 years, his role in the numerous enterprises he oversees will continue to evolve. "Eventually," he says, "I would like to have a directorship role over the businesses that I've helped start so that I can continue to help shape the vision and growth of all three companies. We've created a great foundation so far, and I can only hope the next six years will go half as well as the last."

The Shimadas have established the Shimada Endowed Student Resource Fund to benefit students in the Department of Rehabilitation Science and Technology.

Revisiting the Crash Scene Consultant



the Real World



Learning Proper Nutrition on the Front Lines

When Danielle Gross arrived at Pitt as an undergraduate, her plan was to major in communications. Talking with an advisor one day during her freshman year, she spotted a brochure from SHRS. She recalls, "I didn't know the School existed, and the clinical dietetics and nutrition program caught my eye. I read the brochure and instantly knew this is what I wanted to do."

Now she's close to completing her Coordinated Masters Program in Clinical Dietetics and Nutrition (CDN), one of just two students preparing to graduate from this new program launched just two years ago. There are eight students in their first year of graduate studies, with the eventual goal of enrolling 15-20 students in each class. Upon graduation, Gross will hold a master of science degree and the accredited supervised practice component for eligibility to take the National Registration Examination for Dietitians.



In addition to academic coursework, the students complete supervised practice experiences in the areas of clinical nutrition, community nutrition, and foodservice management.

According to Lori Cherok, CDN clinical coordinator and instructor, "This program replaced our Coordinated Undergraduate Program. We still have an undergraduate didactic Program in Clinical Dietetics and Nutrition, but the coordinated program is now at the masters level. In addition to academic coursework, the students complete supervised practice experiences in the areas of clinical nutrition, community nutrition, and foodservice management."

Since last fall, Gross has been assigned to UPMC Presbyterian. Wendy Kniese, registered dietitian (RD), at the hospital and one of Gross' supervisors, has seen a change in students matriculating through the new program. "They are more mature, like Danielle, and they are better able to step in and not just learn, but assist us on the floor."

Says Gross, "I've been in this area for four years – two undergraduate, two masters – it has really opened my eyes to see that people don't realize that something as seemingly insignificant as food can impact so many diseases."

It's not just what you eat; it's your attitude and knowledge of food. "You hear horror stories about people who have had gastric bypass surgery and their first meal is a fast food kids' meal," she laments. "They think that because they are satisfied with the smaller version rather than a super-sized meal, they're doing the right thing. But they clearly haven't changed their attitude toward food."

Gross' supervised practices keep her at Presby or Montefiore Tuesday through Friday each week for eight hours, taking classes on Mondays, and working part-time on weekends as a dietary technician.

Each day, she is assigned to an RD who, in turn, assigns her to two to three patients. She then pulls their charts and evaluates the patients' current conditions. Gross may then discuss their nutritional regimen – the art and science behind the recommendations – and help educate them as to why their chronic disease or condition requires a very specific nutritional program.

A different area is addressed each week during the clinical practice. "We've focused on nutritional support in diabetes, heart, kidney, and liver disease. I'm currently working on tube feeding and total parenteral nutrition (TPN), which are both very interesting to me," says Gross.

For many patients, this could be their first foray into the world of nutrition. Despite our seeming obsession with thin, attractive people who grace movie and television screens, obesity is reaching alarming proportions in the U.S. If people haven't yet grasped the notion that eating

too much can add pounds, Gross points out, their knowledge of how food impacts diseases is even more sorely lacking.



"I do enjoy educating patients about their nutritional and dietetic needs, particularly as it relates to a chronic illness or surgical procedure," she indicates.

IMPROVING PATIENT SATISFACTION

Along with their curricular requirements, students assist the hospital in other important ways. For example, last fall, Gross did a clinical practice in food service management, again working at Presby. The hospital's dietary department had recently completed a patient satisfaction survey about the food service for inpatients. In a clear demonstration that hospital food has come a long way in terms of taste and nutritional balance, the only complaint heard from many patients related to temperature– the hot food wasn't hot and the cold food wasn't cold.



The hospital had investigated various carts that are used to transport food trays to patient floors, since improving food temperature is more than just cosmetic. "Food-borne pathogens can multiply if the food is not maintained at an appropriate temperature, and if there are delays between food preparation and distribution," Gross notes.

The hospital purchased new carts that are divided internally between hot and cold, meaning a patient's entire meal could be put on one tray with the entrée remaining warm and the ice cream still frozen.

"The hostess loads the cart from the tray line, takes it to the floor, charges the cart for 15 minutes, and then distributes the trays," she explains.

Gross followed patient trays from the kitchen to delivery, then tested the temperature of the food to ensure that it was within the acceptable range – no patient actually ate the food on this tray. Her research demonstrated that the carts were effective, improving patient satisfaction and food safety.

Gross plans to continue work in the clinical arena after graduation, with particular attention to tube feeding and TPN. Of the entire experience, she notes, "I've seen a lot of different procedures, a lot of surgeries that I wouldn't have seen at a smaller community hospital because this is such a large teaching hospital. There is such a wealth of knowledge in this department, there are so many RDs, and they all contribute to different aspects of the program. I'm grateful to have been assigned to UPMC Presbyterian."



It appeared Lionel Collet was destined to be a hair stylist. That was his father's profession and in his native France, businesses are usually passed down through the generations. But early on, Collet determined that medicine would be his future. He would be charting a new course.

But that, too, took a curious twist. After receiving his medical degree and completing his residency in psychiatry, Collet developed a keen interest in audition and related areas. Ultimately, he joined the Department of Otorhinolaryngology at Edouard Herriot Hospital (the East Hospital and

Medical Faculty) in Lyon, France, advancing through the ranks as he developed a significant research program, initially in auditory evoked responses and, more recently, in central auditory plasticity.

These interests, both clinical and research, resulted in the establishment of the Laboratory of Neurosciences and Sensory Systems, one of the most prolific hearing research and doctoral mentoring facilities in France, a facility that Collet directed until last year, when he was elected President of Université Claude-Bernard (Lyon University 1).

It was his significant research efforts that brought him to SHRS to deliver the Jack

Matthews-Herbert Rubin Lecture, entitled *"In Search of the Effects of the Auditory Efferents in Humans."* Funded by the Matthews-Rubin Endowment, the lecture is designed to expose students, faculty, and alumni to the most cutting edge research in the areas of communication sciences and disorders. His presentation provided an overview of the myriad of studies that he and his colleagues have conducted over more than a decade.

According to Dr. John D. Durrant, professor, Communication Science and Disorders, Collet addressed a "rarified" area of the discipline. Up until about 15 years ago, the auditory efferent system had been researched, but "the easy

answers were not forthcoming," says Durrant, who has been a friend and collaborator of Collet's for over a decade and a half.

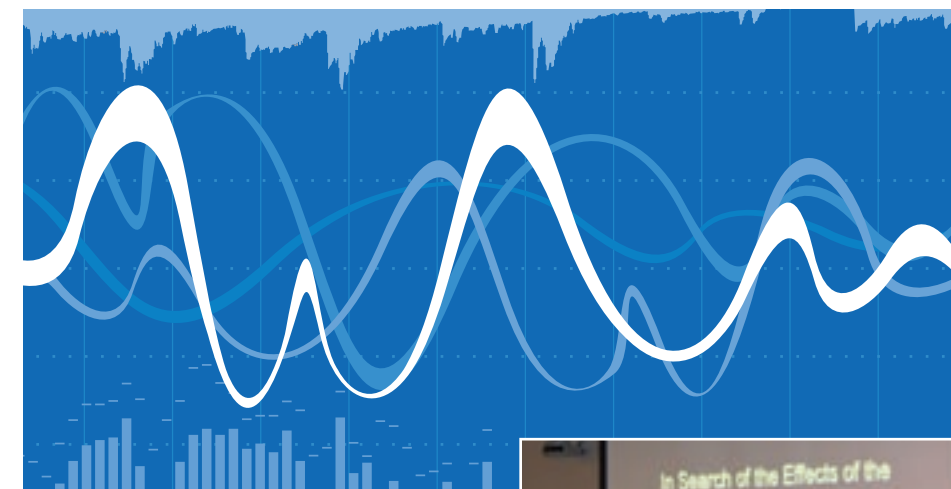
"We knew well that the system contained neurons that transported signals or messages to the cortex (afferent pathways), but we also saw neurons carrying messages from the cortex to the ear (efferent pathways)," says Durrant.

Just as with other parts of the human body, the auditory system still has its mysteries. Consider the difference between sight and hearing. When you move from a very bright location to a dark one, or vice versa, it takes time for the eye to react to the changing conditions. But, Durrant points out, "The auditory system is always open for business. You can go from a very noisy environment to a very quiet one and, barring any untoward circumstances, can, within a matter of seconds, be hearing the quietest of sounds. The question is why?"

Collet focused his students and a large part of his staff on researching the efferent system – recording what have been called cochlear echoes, but are more properly called otoacoustic emissions – sounds that come out of the inner ear. And Collet and his team were nothing short of prolific; scores of citations can be found on their published works.

Collet's significant body of research, including his pioneering work in the application of otoacoustic-emission measurement and other metrics to study the role of the auditory efferents in human auditory processing, has allowed other researchers to better direct their own efforts. "We can now faithfully see the action of the efferent system in humans," says Durrant. "It took a string of experiments to make the argument convincing, and Collet and his people were at the heart of that effort.

"We have finally come to the general conclusion that otoacoustical emissions may serve a couple of different functions. One, we live in a noisy world and not everything that we hear is of interest. How do we screen out what we don't



want to hear (think of the typical cocktail party din)? And two, it may help minimize our overexposure to sound," Durrant continues.

"Collet's work has helped us to understand the reality of the system. They are smaller effects than what we initially envisioned, but they are effects that we can now sample, measure, and study in order to gain a deeper understanding. We owe an enormous debt of gratitude to Collet's group for having devoted such a concerted effort to this research," states Durrant.

CONTINUING TO BUILD A LEGACY

"I can assure you that having worked side by side with Lionel Collet, and knowing him as well as I do on a personal level, there likely isn't an idea that comes out of his institution that he hasn't fathered, or at least expanded and then focused," says Durrant.

Collet has not only had great publishing success; he has had great funding success as well. He has received significant long-term support from the National Center of Scientific Research – comparable to the U.S. National Science Foundation.

His efforts have also resulted in producing numerous high-level researchers, several of whom have come to this country to conduct research and practice. "Much to his chagrin, some have chosen to remain here rather than returning to France," Durrant chuckles.



Dr. Lionel Collet

He also has collaborated with scientists and researchers around France. According to Durrant, Collet has a great appreciation for the openness of the American scientific community and has worked very hard to replicate that environment in France, which was traditionally more provincial and territorial. "Collaborative research around France is now commonplace," Durrant notes. "When I was there on sabbatical, we would work in cities around the country including Paris, Toulouse, and Marseilles."

Although carrying routine clinical responsibilities and ever-growing administrative duties, Collet has remained at the front line of research, as his official university *Curriculum Vitae* attests with the 2007 publication of a paper in *Hearing Research*, "The Effects Of Auditory Pathway Anatomy and Deafness Characteristics."

"Lionel Collet is a rare individual who can do an extraordinary amount of juggling and multi-tasking at a very high intellectual level. He truly offers an impressive leadership to a group of researchers who have enormous diversity," says Durrant.

The Mysterious Ear



Jane Wagner suffered her first stroke in 1991, and thankfully, recovered. But two years later, she had a brainstem stroke that left her unable to swallow. With therapy provided by a speech language pathologist, Wagner slowly regained some ability to swallow, though not before she lost 100 pounds.

However, by December 2005, her condition had worsened considerably. One morning she fell out of bed and she was completely disoriented. Her husband, George, called 911 and his wife was taken to the hospital, where doctors performed numerous tests. Their initial thinking was that she'd had another stroke. The actual diagnosis was that she was malnourished. A woman who once weighed over 200 pounds was now a skeletal 85 pounds. Her inability to swallow was complete.

Wagner was hospitalized and a feeding tube was inserted. Later, she was moved to a nursing home, where for three months she underwent daily speech therapy as well as physical and occupational therapy. Doctors cautioned her not to try to swallow. Her upper esophageal sphincter (UES) simply wouldn't open, and the danger of food entering her airway and choking her was very great. Consideration was given to again perform progressive dilation – slowly stretching the upper esophagus – but because it produces only temporary benefit, physicians advised against the procedure. Resigned to the fact that she would need a permanent feeding tube, Wagner returned home.

POSSIBLE SOLUTION

One final consultation with Dr. Howard M. Dubner, a gastroenterologist at UPMC Shadyside, led the Wagners to the Swallowing Disorders Center at UPMC. "My wife had difficulty swallowing for 12 years and no one had even mentioned that there was such a place," explains her husband.

They made an appointment to see Dr. Ricardo Carrau, medical director of the Center, professor of otolaryngology-head and neck surgery, and director of the Maxillofacial Trauma Service.

Swallowing

Success

Carrau and his team performed numerous tests on her, including a fiberoptic endoscopic evaluation of swallowing (FEES). His initial evaluation confirmed that she could swallow nothing without the risk of aspirating.

In July 2006, when her condition continued to deteriorate, Carrau recommended Wagner receive an injection of botulinum toxin – botox – in her UES. About six weeks later, she was seen by James L. Coyle, clinical instructor, Department of Communication Science and Disorders, who is a member of the Swallowing Disorders Center team and the go-to clinician for patients with intractable dysphagia, or inability to swallow. Coyle is one of just 100 or so speech language pathologists in the country to be a Board Recognized Specialist in swallowing disorders.

Swallowing is so 'under the radar of consciousness' that we don't think about it, and it's difficult to learn how to swallow differently."

"More and more, my profession is embracing evidence-based practice, which seeks to pick the treatment that best matches the disorder," Coyle points out. "This may seem common sense, but in the past, we may have tried a variety of conservative, traditional therapies on a patient hoping that something would work. However, in the end, if we don't know what caused the improvement, then we won't know what to do for the next patient. Evidence-based practice is not just about efficiency and cost-effectiveness for the current patient; it's for all the patients that follow."

RELEARNING TO SWALLOW

His approach was multi-faceted. "There were a number of treatments that I used with Jane," says Coyle. "They involved having her relearn how to swallow. Swallowing is so 'under the radar of consciousness' that we don't think about it, and it's difficult to learn how to swallow differently."

He points out that he also had to "un-teach" maladaptive behaviors. For example, she had her tongue in a peculiar position that didn't work when swallowing.

Another approach involved exercise. "Dr. Carrau injected Jane's UES with botox to weaken it so we could push the food through more completely. My approach was to strengthen the muscles that pull the sphincter open, and for Jane to push the food with effort through the loosened sphincter when swallowing. It was a combined approach."

Over the course of several weeks at the Center, Coyle gradually increased the number of water sips he gave the patient during treatment sessions to ensure that she was not developing any upper respiratory infections caused by aspiration of the water and her saliva into the airway. Once he was satisfied that it was safe, he had her begin to practice swallowing at home with a small amount of water each day, starting with an ounce. "That may not seem like much, but over the course of three weeks, that's almost a quart. A person with dysphagia who consumes a quart of water without developing pneumonia; that's a good piece of data.

"We systematically increased the volume until it was obvious that she was really drinking, and succeeding with a considerable volume over the course of each day, while continuing her exercises."

Following consultation with Carrau and the patient, a modified barium swallow test was conducted to determine the safety of advancing her to food and other liquids, which would improve her nutrition and let her experience eating food again. "The swallow study went very nicely," say Coyle. "It was by no means normal, but it demonstrated that Jane could move forward safely."

EATING AGAIN

Gradually, her ability to swallow improved beyond what anyone could have imagined. Her husband calls her a "medical miracle."

She now gets 50 percent of her 1,500-calorie-a-day diet from food. "We have reduced her protein drinks from four cans per day to two, which she still receives through the feeding tube," notes her husband.



George and Jane Wagner

And just what can she eat? Virtually anything, but currently her favorite meal is pizza. "Meat, like beef or pork, is difficult but Jane does eat chicken if it's cut up small enough. And she was able to enjoy Thanksgiving dinner for the first time in years," he says. She can also swallow most of her medications, which her husband used to pulverize and administer through her feeding tube.

And the woman who once weighed 85 pounds is now gaining weight. However, given that prior to the stroke she was overweight and diabetic, there is some cause for concern. "Initially, Jane's ability to swallow at all was the goal," Coyle states. "Now, I've recommended that she see a dietitian to ensure that she is getting the proper nutrition."

So to what does Coyle attribute the success?

"Like botox used in cosmetic applications, its effects eventually wear off. We believe that the combination of the botox and the aggressive exercise therapy allowed Jane to overcome obstacles, like the real fear of choking and the bad habits she had acquired, and gave us the opportunity to strengthen muscles. The effects of the exercise improved as the effects of the botox declined. The exercise overcame the inertia of her rigid upper esophageal sphincter, while she overcame her apprehensions.

"This is an excellent example of the collaboration between the physician specialist and the clinical swallowing disorders specialist," Coyle concludes.



A Critical Assist

It's a hot, muggy August evening. The smell of rain is in the air. Heat lightening arcs across the sky.

Suddenly, there's a flash as a transformer is struck by a bolt, then complete darkness as a power failure blacks out the neighborhood.

For most of us, the blackout is followed by silence. Televisions and radios go dead. Air conditioners switch off.

But for the families of patients living at home with an implanted ventricular assist device (VAD), the blackout is followed by the piercing wail of a siren; the indicator that this life-sustaining pump has stopped. The caregiver has minutes to switch to emergency battery power. Failure to do so could result in their loved one's death.



Heart failure is a major public health problem in the United States, with over 5 million people affected. For those with advanced heart failure, heart transplantation is the optimum treatment. However, there is an acute shortage of donor hearts and, as a result, VADs that sustain the heart have become standard therapy. For some, the VAD is a bridge to transplantation; for others, it's an interim device that lets the heart heal after a major attack.

Recently, the Food and Drug Administration (FDA) and the Centers for Medicare and Medicaid Services approved the implantation of a VAD as a destination therapy, meaning that the VAD is implanted permanently. Since their introduction in the late 1980s, roughly 5,000 VADS have been implanted. This regulatory change should exponentially increase their use.

Likewise, patients will continue to live longer with the device. Two decades ago, VAD patients were lucky to live two weeks. Today, almost half of VAD users live for one year; 25 percent live two years. As technology and treatment improve, that average will only increase.

With the advent of portable VADs, patients are now routinely discharged home after an average one-month hospital stay. The savings are significant. The average room and board cost to bridge a patient to transplantation as an inpatient is \$165,200, compared to an estimated \$13,200 as an outpatient. More important, discharge improves the patient's quality of life. Research has shown that discharged patients fare significantly better physically, emotionally, and psychologically than their hospital-bound peers. Today, with therapeutic outcomes being evaluated based on quality of life, expediting discharge of VAD patients is as clinically desirable as it is cost-effective.

However, discharge comes with its own set of problems, particularly for the family and friends who must assume responsibility for the patient's daily care. Literally, the patient's life is in their hands, and they must be prepared to cope with a variety of life-threatening situations. For example, in a two-year study conducted by the International Society for Heart and Lung Transplantation, the 305 patients involved suffered 1,081 cases of infection or bleeding. In addition, 54 major device-related malfunctions were recorded.

ROUND-THE-CLOCK RESPONSIBILITY

Family responsibilities extend beyond day-to-day management of the VAD. They must be able to recognize any medical problems that could arise, such as bleeding or infection, and in the event of a device malfunction, they must implement critical, sequential interim actions and guide emergency

Two decades ago,
VAD patients were lucky
to live two weeks.
Today, almost half
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one year; 25 percent
live two years.



personnel in caring for the patient until hospitalization. Failure to do so can have critical consequences.

It is little wonder that stress is a constant in the lives of the families charged with the care, says Dr. Margo Holm, professor, Department of Occupational Therapy. "Every emergency is critical. Their anxiety, already high because of their loved one's medical condition, is intensified by fear of the equipment, the complexity of the training required to manage the device, and the awareness that mismanagement of the VAD, even during routine procedures, can lead to the patient's death."

Often compounding the problem is the age of the caregivers, explains Dr. Ketki Raina, assistant professor, who, together with Holm, developed a video-based patient/caregiver training program and competency assessment tool. "Many VAD patients and their families are senior citizens. They have cognitive or physical limitations that make it difficult for them to learn and perform the tasks necessary to manage the VAD."

Training is key to the safe management of the VAD once the patient is discharged, but to date, there is no nationally standardized training program. Instead, each of the approximately 150 VAD centers across the country has created customized one-to-one training programs led by highly specialized nurse trainers. Such training is costly, cumbersome, and time-intensive.

"We've seen nurses spend 12-15 hours with a family and they still don't master the tasks required," says Holm. "Often, their anxiety interferes with their ability to comprehend and learn the information. And until they demonstrate competency, the patient cannot be discharged."

"The very nature of one-to-one training can also slow learning," Raina adds. "For instance, it becomes increasingly difficult for the nurses to monitor what has

been taught to whom, particularly when caregivers are trained at different times and training is staggered over multiple sessions. Repetition, which is critical for recall and learning, is often compromised as the trainer tries to accommodate varying schedules. Too often, the amount of supervised practice is inadequate."

REPLAY FOR RECALL

Holm and Raina theorized that video instruction had the potential to overcome some of these learning barriers. "Video has a number of advantages over the one-to-one training," says Raina. "It ensures that the content is delivered consistently and in a logical sequence, and it allows the caregivers to view the content repeatedly at a pace that is appropriate for them."

They also hypothesized that training time would be cut significantly. "Our best estimate was that the nurses were spending a minimum of 10 to 12 hours training each family unit," Holm notes. "We believe that the video could cut training time almost in half."

Financed by a Beckwith Grant from UPMC Health System, the duo began development of training videos for three of the most commonly implanted VAD devices. But before filming could begin, they needed to define the competencies that had to be mastered.

"We spent nearly a year observing nurses conducting the VAD training," explains Holm. "We needed to have a thorough

understanding of what the caregivers need to do, and in what order they need to do it.

"For instance, switching to a back up system controller requires 10 steps that must be performed in an exact order. Failure to follow the required sequence could lead to device malfunction and possibly death."

The two identified each competency that was required for successful VAD management, from switching to an emergency battery pack in the event of a power outage, to assisting patients when they take a shower. Typically, patients and caregivers are given three opportunities to demonstrate competency on each of the required tasks. If they fail the paper and pencil test that is administered prior to discharge, they must be retrained and retested.

EARLY INDICATORS

While the research is in its infancy – the first video has just been completed and randomized clinical trials won't begin until later this year – nurses are already beginning to use their competency protocol in their own training. Anecdotally, they already see advantages to this systematic approach.

"There's no question that one-on-one training has been successful," noted Holm. "When patients leave the hospital, they and their families are competent to manage the device. What we've added is efficiency to the process."

Ultimately, says Raina, there would be no need for the nurse to provide basic information about the VAD. The video would fulfill that function. "This would free the nurse to supervise individualized practice sessions, evaluate competency development, and target training toward those competencies that haven't been mastered."

The implications for video training extend far beyond VAD. "The health care landscape is changing," notes Holm. "As high technology life saving and sustaining medical devices become more available, and patient self-management programs move to the forefront of health care, what we learn in this study about the potential of video media for skill acquisition will have far-ranging implications."



Full Speed Ahead

It is estimated that between 200,000 and 400,000 Americans suffer from multiple sclerosis (MS), a degenerative, auto-immune disease affecting the central nervous system. Over time, MS causes ever-worsening sensory, motor, and cognitive difficulties, requiring as many as half of those living with the disease to need assistance walking or to use a wheelchair. And while wheelchair and other assistive technologies have progressed at extraordinary rates over the past two decades, many of these

advances have failed to address the one component of a power wheelchair most crucial to Americans with MS: the joystick.

However, in 2000, researchers at the Human Engineering Research Laboratories (HERL) became aware of this gap in wheelchair research when a national study of health care clinicians suggested that between 10 and 40 percent of people with physical impairments were unable to use standard electric-powered wheelchairs.

"That's an alarming number of people who aren't benefiting from the gains researchers at Pitt and across the country have been making in wheelchair functionality," says Karl Brown, a recent graduate of the Rehabilitation Science and Technology masters program and a lead investigator on the MS Wheelchair Project.

CUSTOMIZED TECHNOLOGY

Beginning in 2003, researchers at HERL started work on a specialized power wheelchair joystick that would overcome many of the challenges people with MS had with the conventional, moving sensor joystick. Basing his master's thesis on the studies, Brown and the team at HERL focused their developments on an isometric joystick design, which, he explains, offers next generation customization for people with disabilities like MS.

"Wheelchair users with MS have varying levels of sensory, motor, and cognitive impairments and isometric joysticks provide the level of customization and personalization to meet the unique needs of each individual," he says.

Two of the most common complaints of wheelchair users with MS are fatigue and tremors. According to studies, between 75 to 90 percent of people with MS report that fatigue is a problem during activities of daily living. Sixty percent of people with MS say it is the worst symptom. Similarly, 75 percent of people with MS have severe hand and arm tremors.

When using an electric powered wheelchair, users must hold the joystick in the forward position to move ahead. Over a prolonged period of time, this pressure can cause user fatigue and make it stressful for power wheelchair users with MS to use their chair. Of similar difficulty, wheelchair users with MS who suffer severe hand tremors can be at risk

should their tremors erupt while they are driving on a busy sidewalk or near a high-traffic city street.

PROGRAMMING ACCOMMODATION

Brown and other clinicians at HERL studied four power wheelchair users with MS as part of their isometric joystick program. Specifically, the team examined how new software can help influence and impact two new joystick custom features: automatic gain adjustment and an adaptive notch filter to offset the effects of fatigue and tremor.

Says Brown, "While the joystick is in use, the gain – or sensitivity – gradually rises, reducing the amount of force required to activate the joystick and continue driving. This will help combat the problem power

...while wheelchair and other assistive technologies have progressed at extraordinary rates over the past two decades, many of these advances have failed to address the one component of a power wheelchair most crucial to Americans with MS: the joystick.

Then, based on the tremor that a particular user regularly experiences, we can program the joystick to account for these sudden movements and ignore them."

After a battery of wheelchair driving tests and scores of different joystick programming changes, Brown found that the isometric joysticks are comparable to traditional joysticks, but more subjects and data are needed to determine how much benefit may be potentially available.

"While we researched only a small group, it's clear that isometric joysticks and custom programming can correct some of the problems many people with sensory, motor, and cognitive deficits have had with current joystick technology. Isometric controls aren't for everyone, though, because they lack movement feedback at the hand. We're finding that this sort of internal feedback is an important component of wheelchair driving with a joystick. If someone has decreased sensation, then isometric controls may be more difficult to use. Nonetheless, this work has the potential to improve the quality of life of many thousands of people," Brown says with pride.

"I moved into this field because I wanted to see the impact my work had on the lives of people. From the preliminary results of our research, I'm confident I made the right choice."



wheelchair users with MS have had with fatigue. We can program the joystick based on user specifications and account for user fatigue.

"The other new feature, the adaptive notch filter, is used in place of a standard low-pass filter to minimize the effects of tremor. Unlike low-pass filters, notch filters do not add a delay to the signal.



Food *for* Health

In April 2003, Maggie was diagnosed with multiple sclerosis (MS). The 40-year-old mother of three, once active in her church and community, was left weak and exhausted. Unfortunately, the prescribed treatment – weekly intramuscular injections of Avonex™ – left her feeling much the same way, with flu-like symptoms that lasted for several days immediately following each injection. Nonetheless, she continued the protocol for a year, enduring the weekly roller coaster of injection and exhaustion followed by renewed energy.

While attending a support group for MS sufferers, Maggie met Ruth, who had been diagnosed with the disease five years previous. Maggie was struck by Ruth's vibrancy. She didn't have the tired, worn look that plagued the other patients.

Ruth's secret, she revealed, was that she had abandoned her prescribed medication. For the past year, she relied on the Swank diet to mitigate her symptoms. Maggie was intrigued.

The eponymous diet was created in 1950 by Dr. Roy Swank, who began treating MS patients with a low-fat diet containing only 10-15 grams of saturated fat. Swank claimed that patients who rigidly adhered to the protocol as well as the recommended one hour of rest every afternoon, recovered from the disease, and that recovery continued through the balance of their life. In 2000, Swank reported that of the 14 patients from his original 1950 study with whom he had maintained contact, 12 remained ambulant. He pointed to one patient, a civil engineer, who worked to retirement and continued to walk 18 holes of golf.

Based on Swank's purported successes and Ruth's endorsement, Maggie adopted the diet, and six months later, abandoned the Avonex™ treatment. While pleased with her renewed energy on Swank, she continued her research on alternative low fat diets, and discovered the McDougal Diet.

A board certified internist, Dr. John McDougal espouses a pure-vegetarian diet centered around starchy grains coupled with fresh or frozen fruits and vegetables. Unlike the Swank diet, no animal protein or oils are permitted; between 7 and 12 grams of saturated fats are allowed.

McDougal believes that it is diet, not heredity, which determines health. He contends that chronic diseases, including heart disease, cancer, high blood pressure, diabetes,

On any given day, roughly 40 percent of women and 25 percent of men in the U.S. are on a diet. While most of these dieters have turned to meal management programs to lose weight, an increasing number of people are dieting to promote a healthy lifestyle and to manage chronic diseases.

Here is a review of some of the more popular – and in some cases, controversial – diets for conditions ranging from high blood pressure to heart disease.

Alzheimer's Diet

While there is no cure for Alzheimer's Disease, research suggests that a diet high in thiamine, magnesium, and vitamins, especially B1, B2, B6, B12, and C, can help combat the disease's degenerative symptoms. Foods with the highest concentrations of these vitamins and minerals are whole grains, brown rice, yogurt, nuts, and a wide variety of fruits and vegetables, especially green leafy vegetables, orange vegetables such as carrots, pumpkin and squash, grapes, and grapefruit.



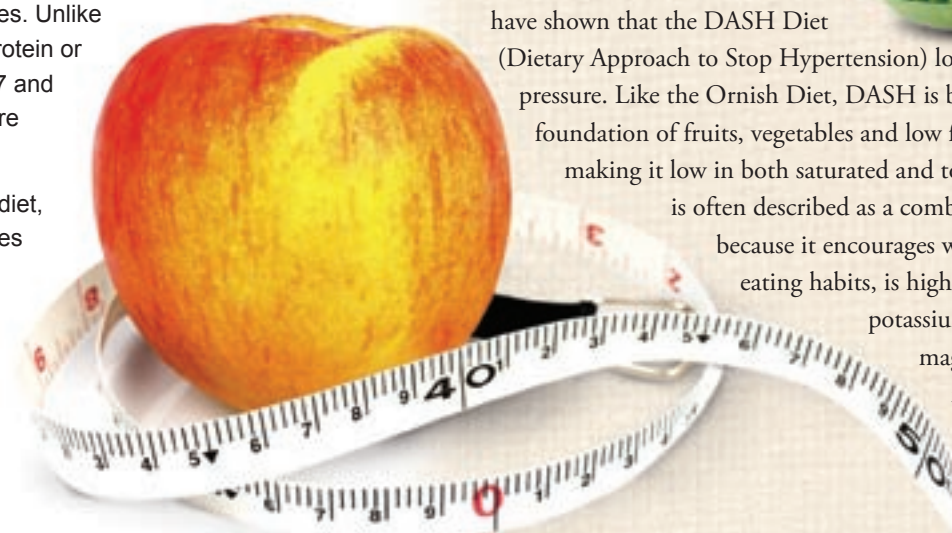
Crohn's Disease and Colitis Diet

While conditions that affect the intestines like Crohn's Disease, Colitis and Inflammatory Bowel Disease (IBD) can be extremely uncomfortable, a change in diet can often quickly alleviate the symptoms as well as prevent excessive weight loss and malnutrition. The most common Crohn's and Colitis Diet begins with forced fluids – on average as many as 10 servings per day. When intestinal flare-ups occur, dieticians recommend low-fiber, low-residue food, meals high in protein, and avoidance of all foods containing lactose. Also, limiting caffeine, alcohol, sorbitol, and gas-producing foods such as cabbages, dried peas, and lentils seems to help hasten recovery.



DASH Diet

National Institutes of Health studies have shown that the DASH Diet (Dietary Approach to Stop Hypertension) lowers blood pressure. Like the Ornish Diet, DASH is built on a foundation of fruits, vegetables and low fat dairy foods, making it low in both saturated and total fat. DASH is often described as a combination diet because it encourages well rounded eating habits, is high in dietary fiber, potassium, calcium, and magnesium, and low in cholesterol.





arthritis, osteoporosis, and obesity, are the result of a diet rich in meats, dairy products, and processed foods. By returning to what he calls the “traditional human diet,” one based primarily on low-fat, no-cholesterol, unprocessed plant foods, the body can recover its health, even after a serious illness.

“When we remove the poisons from our lives and eat an abundance of health-promoting foods, the body very often can heal itself, even from illnesses deemed ‘incurable’,” he writes on his Web site.

It’s been more than two years since Maggie adopted the McDougal diet, and in that time, she has lost close to 60 pounds. Now rail thin, she says that she has more energy and none of the debilitating side effects of her disease, and has not had a relapse since switching to the low fat regimen.

IS IT HEALTHY?

Like many who develop new approaches to eating, McDougal does have his detractors. However, Dr. Diane Helsel, assistant professor, Department of Sports Medicine and Nutrition, says that studies have shown that health isn’t compromised by adhering to a vegan diet. “In fact, some would argue that vegans are healthier than those who eat a traditional diet. There are concerns, such as whether you get adequate protein and calcium, but over all, the macro and micro nutrients are there. A diet like McDougal can be a healthy approach.”

She acknowledges, however, that McDougal is not for everyone. “It takes a certain level of commitment,” she explains. “The diet includes foods that most Americans are not accustomed to eating, such as wheat berries, quinoa, and millet. Add to that the challenge of not knowing how to cook them. It requires some real education and effort.”

Helsel has experienced first hand the difficulty of adhering to the rigid strictures of the diet. Late last year, she visited the McDougal Center in Southern California and is now trying to follow a vegan diet that is similar to McDougal. “I’m spending more time in the kitchen,

cooking everything from scratch,” she explains. “I feel better,” she acknowledges, but adds, “I’m not certain that I wouldn’t feel just as well if I had a little more fat in my diet.”

As to whether the McDougal diet is the reason for Maggie’s symptom remission, neither Helsel nor her colleague, Judy Dodd, adjunct assistant professor in the department, can say for sure. “Multiple sclerosis is such an arbitrary disease,” notes Helsel. “You can’t say for certain whether diet does or doesn’t play a role.”

“If the diet works for the individual, then I say ‘fine,’” adds Dodd. “As long as his/her nutritional status isn’t being compromised, I don’t see an immediate problem. However, you don’t know what will happen down the road. What controls symptoms today may not work five years from now, or there may be unexpected side effects, such as a Vitamin B12 deficiency.

“You also have to consider the placebo affect,” she continues. “We’d be 100 percent advocates for the diet if science supported that it put people into remission. However, you can’t extrapolate that what works for one individual, will work for everyone.”



A LONG HISTORY

The relationship between nutrition and chronic disease has been well-documented.

Scurvy, the scourge of sailors worldwide, was caused by a Vitamin C deficiency. The nickname, “limey” stuck to seamen who began eating limes and other citrus fruits as a source for the needed nutrient.

Beriberi, considered a plague by ancient Asian physicians, was actually a thiamin (Vitamin B1) deficiency brought on by a diet that consisted largely of polished, processed white rice.

The term “redneck” was first used to describe the bright red necks of 18th and 19th century field workers who were experiencing the first stage of pellagra, a classic niacin deficiency. The word, pellag ra, in Italian, means “skin that is rough.” In the first phase of the disease, the skin is highly sensitive to light and becomes rough, thick, and dry. Later, the pigmentation darkens, particularly in areas that are prone to being hot and sweaty or exposed to the sun.

A folic acid deficiency during pregnancy has been linked to conditions such as spina bifida, a serious spinal cord defect. Today, a folic acid supplement is routinely recommended for woman of child-bearing age.

The FDA mandated that salt be enriched with iodine when it was discovered that goiter, at one time a common disease in the United States, could be prevented if that essential nutrient was added to the diet.

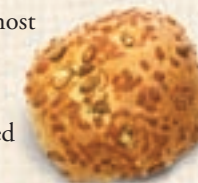
PREVENTABLE DEATHS

Poor diet and lack of exercise are the country’s number one killer, with between 400,000 and 500,000 deaths annually attributed to preventable chronic diseases. “The top 10 leading causes of death are diet and excise related,” Dodd points out. “And virtually everyone we see has some chronic disease.”

The irony, she continues, is that most of these people are considered healthy. “Someone can be considered ‘well’ even if they’re on medication for high blood pressure, high cholesterol, or diabetes. By this definition, someone who is obese can still be considered healthy. Almost everyone over age 35 is taking some medication to treat some chronic disease.”

Glucose Control – Diabetic Diet

Managing diabetes is often a two-step process for the newly diagnosed: first, develop healthy eating habits, second, monitor food intake and develop a balanced diet to prevent complications from the disease. The most successful diabetes maintenance diets recommend an increase in starch – often up to six servings a day – coupled with five daily servings of fruits and vegetables. Sugar-rich sweets and desserts should be avoided. In addition, because diabetes affects the way glucose is processed in the body, dieticians encourage diabetics to consume foods high in soluble fiber that slow the absorption of glucose in the intestines. Legumes are among the foods with the highest soluble fiber. Additionally, experts suggest that diabetics eat insoluble fibers, often found in whole grain, bran, and nuts, to clean out the lower gastrointestinal tract.



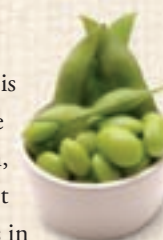
Inflammatory Arthritis Diet

Recent studies suggest that a diet high in fat and cholesterol may contribute to the affects of inflammatory arthritis. With this in mind, proponents of the Arthritis Diet suggest a diet heavy in fruits, vegetables, oily fish (i.e., those high in Omega 3 essential fatty acids and Vitamin E), grains, nuts and seeds, and foods known for their anti-inflammatory properties such as turmeric, ginger, garlic, and apples. The diet recommends avoiding red meat, dairy products, brown and white wheat, bran, dry roasted nuts, sugar, coffee, and other caffeinated products. Salt, pepper, and vinegar should also be avoided.



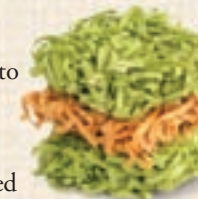
Kidney Disease Diet

Dietitians suggest that a low-protein diet is most effective in managing kidney disease or abnormal kidney function. In addition, sodium and potassium consumption must be severely restricted. Most of the calories in the Kidney Disease Diet come from complex carbohydrates such as whole grain breads and cereals, starchy vegetables, and legumes.



McDougal Diet

Championed by Dr. John McDougal to treat a host of diseases, this vegan diet consists of a core menu of unrefined starches such as whole grains, unrefined flours, and egg-free pastas, and supplements these foods with fruits and vegetables. Dairy products, meat and fish, eggs, white rice, cooking with vegetable oil, and chocolate are to be strictly avoided.





Dr. Kim Crawford, an assistant professor in the department who teaches a graduate-level class on diet and exercise in chronic disease management, points to Metabolic Syndrome, or Syndrome X, as a possible epidemic in the making. "It's truly a lifestyle disease, covering a constellation of conditions – abdominal adiposity, elevated fasting blood sugar, elevated triglycerides, and elevated blood pressure. You're considered a candidate for the syndrome if you have any three of these symptoms.

"When you think of the average American, quite a few of them fall into this category. There are probably millions who have it who haven't been diagnosed."

"All of these conditions can be manipulated by diet and exercise," notes Dodd. "A diet is more than weight control. It's about controlling blood sugar, blood cholesterol, blood triglycerides, and blood pressure.

"When you see diabetes at 15 rather than 65, you know that lifestyle is a major factor. But unfortunately, by then it's late."

"This is one reason why we're trying to start early, to teach children the importance of exercise and portion control," adds Crawford. "We need to let them know that it is better to go outside and play soccer than it is to sit in front of the television playing a video game. They need to understand that there needs to be a balance between physical activity and the number of calories consumed."

But the two recognize that they are fighting an uphill battle. "We live in a calorie-dense society," notes Crawford. "Our environment is flooded with calories. It takes an incredible amount of work to eat healthy in this country."

To illustrate the difficulty, she describes a typical chain restaurant Greek salad. "It sounds healthy, but the salad actually has 48 grams of fat. That's more fat than a Big Mac™. You add a drink and some bread, and you've consumed over 1,000 calories, which is roughly half the recommended caloric intake for the average woman. And that's only one meal."

Dodd sees a similar problem in most school cafeterias. "The school lunch is planned to provide a child with one-third of the calories they need in an average day. But that's based on an active child, not one who rides a bus to and from school, who watches four hours of television a day, and who doesn't take a Phys. Ed. class in school. Every study on childhood obesity reports that our kids aren't as active as we think. Nutritionally, they need calories for growth and repair, but based on their activity level, they may not need all of the calories that we're feeding them."

LIFESTYLE, NOT DIET

Despite what is widely reported as an obesity epidemic, an estimated 45 million Americans go on a diet every year. Crawford believes that the reason for this seeming paradox is the misperception about what constitutes a diet. "For many people, being 'on a diet' implies that there is a beginning and an end. Once they're finished with the diet, they can go back to eating whatever they want.

"What they don't understand is that diet is a jump start. It's an opportunity to make changes in how you eat. As every diet book tells you, to maintain weight loss, you have to stay on it for life. The problem isn't the diet. It's the mindset behind the diet."

"It comes down to personal responsibility," adds Dodd. "Everyone wants a quick fix. They're accustomed to getting immediate satisfaction. They don't understand that a lifestyle change means just that....changing a lifestyle forever. There are no quick fixes."

Nor is there a "one size, fits all" healthy lifestyle. "I can't envision any lifestyle changes that would fit all the needs and preferences of everyone," says Crawford. "As nutritionists, our mission is to look at the individual. We want to know what the person sees him/herself doing long-term that will make for a healthy individual."



"We're not going to dismiss any diet. On the other hand, we're also not going to tell you what you can and cannot eat, which is the case with most diets. I don't want to say that you can never have a particular food. What I want you to know is that you may not be able to eat as much of a particular item as you want."

"Food is an important part of our culture," reminds Dodd. "I'm not in favor of rigid diets. Everyone wants to eat something special occasionally.

"It's really about calories in, calories out."

BACK TO BASICS

Dodd believes that when it comes to diet, simpler is better. "Stay with the basics. The grilled chicken. The fish microwaved with orange juice. Shop the perimeter of your grocery store, where you'll typically find the fresh vegetables, the breads, the meat, and dairy. Follow the nutritional guidelines of the food pyramid."

She also advises avoiding highly processed foods. "We don't know if the chemicals used could be triggering chronic diseases. My philosophy is if you can't pronounce it, don't buy it."

Crawford agrees. "Many of the so-called 'diet' foods are ridden with chemicals and fillers. We don't know the impact of methylcellulose as it passes through the digestive tract or the long-term implications of high fructose corn syrup. It may be inducing some hormonal changes that affect brain chemistry."

"It's the same with supplements," says Dodd.

"We add things like fish oil to our diet to obtain Omega 3. But if you ate whole grains, you would be obtaining many of the nutrients that you need. It's what we've been advising for years. If you eat the foods you're supposed to eat, there should be no need to add supplements to your diet to stay healthy.

"People need to recognize that you can't eat high calorie, low nutrient-density foods every day," she continues. "No one should be sitting down every day and eating wings and French fries. Yet when you look around, it's the easiest food to find. It's everywhere.

"And it isn't any healthier if it's fried in trans fat-free oil," she emphasizes. "It's still unhealthy food. It still has the same fat and calories. You still can't eat it every day."

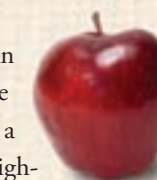
Mediterranean Diet

The Mediterranean Diet is less a diet than it is a lifestyle and is modeled on the core food elements of southern European eating: fruits, vegetables, bread and other cereals, potatoes, beans, nuts and seeds, and olive oil. The Mediterranean Diet encourages moderate consumption of dairy products, eggs, fish, and poultry as well as small, regular portions of wine. While almost 40 percent of its daily calories are from fat, studies consistently show that diets rich in Mediterranean-style foods lessen the risk of cardiovascular disease.



Ornish Diet

Designed by renowned physician Dr. Dean Ornish to prevent – and even reverse – the effects of heart disease, the Ornish Diet is a vegetarian weight loss program built on high-fiber, low fat foods. The diet is based on the premise that our body's metabolism has not changed since our early hunter-gatherer days. Therefore, a vegetable-based, high-fiber diet will increase metabolism, lessen appetite, and limit the desire for large food portions. Key foods in the diet are legumes, fruits, grains, and vegetables as well as non-fat dairy products. The diet prohibits the intake of meats, oils, nuts, all non-fat dairy products, sugars, alcohol, caffeine, and prepared foods.



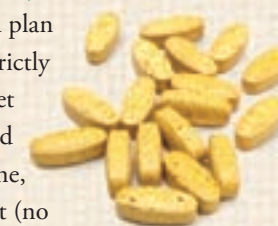
Raw Food Diet

Like its name suggests, the Raw Food Diet is based on unprocessed, uncooked fruits and vegetables. Followers of the diet use unique food preparation techniques that include sprouting seeds, grains and beans, soaking nuts and dried fruits, and juicing fruits and vegetables. The Raw Food Diet restricts cooking to the use of a dehydrator that blows hot air through food and never reaches a temperature above 116°F. Advocates of the Raw Food Diet contend that the natural enzymes in raw fruits and vegetables aid the digestive system in breaking down foods more efficiently than the body can do on its own, therefore maximizing nutrition.



Swank Multiple Sclerosis (MS) Diet

The Swank MS Diet is a complex food plan based on a low-fat diet that must be strictly followed for life to be effective. The diet allows no red meat for the first year and only three grams per week after year one, no more than 15 grams of saturated fat (no processed foods containing saturated fat) and 50 grams of unsaturated fat per day, no more than one percent buttermilk fat in all dairy products, and daily doses of cod liver oil and multi-vitamin and mineral supplements.





Singer Carnie Wilson had it. So did weatherman Al Roker. Talk show hostess Star Jones is rumored to have had it as well, though reports are unconfirmed.

These celebrities are just three of the tens of thousands of obese Americans who have turned to gastric bypass surgery to shed life-threatening pounds. Plagued by weight-related health conditions like hypertension, high cholesterol, and type 2 diabetes, and unable to lose the unwanted weight through years of conventional dieting and exercise, their last resort is a surgical solution.

To qualify for gastric bypass, patients must have a BMI (body mass index) of at least 40, or a BMI of at least 35 with co-morbidity, and have failed at non-surgical weight loss. While once considered a radical procedure reserved only for those for whom life expectancy was limited, the American Society for Bariatric Surgery estimates that last year, 177,600 obesity surgeries were performed, up from 20,500 a decade ago and 103,200 in 2003.

There are a number of reasons for the dramatic increase.

Certainly, there has been a steady increase in the number of individuals who are considered obese. The National Institutes of Health (NIH) estimate that 22 percent of U.S. adults, or roughly 39 million people, are 100 pounds or more over their ideal weight. With those increased numbers has come greater awareness of the surgery as an available option.

Likewise, the surgery itself has become safer and less invasive over the years. As a result, more and more insurance companies are now covering a least a portion of the procedure.

MORE THAN DIET

While the weight loss that results from the procedure decreases the risk of certain chronic conditions, a healthy lifestyle also



requires regular physical activity; something that was absent from the lives of most gastric bypass patients.

Introducing these patients to exercise and determining what regimen is right for them is the subject of a pilot study being conducted by Deborah Josbeno, instructor, Department of Physical Therapy.

"There is surprisingly little in the literature about exercise programs for people who have undergone bariatric surgery," Josbeno notes. "Our work is just the tip of the iceberg."

The pilot involves assessing the patient's physical activity level, physical ability, and perceived barriers to exercise prior to surgery, then again three months following the procedure.

"When they agree to participate and are cleared by the surgeon, patients complete questionnaires on self-efficacy, exercise beliefs and barriers, and health-related quality of life," she explains. "They are also assessed on a variety of physical performance measures and receive a pedometer to monitor their level of activity pre- and post-surgery."

"Once we can assess how physically active people are following surgery and their perceived barriers to exercise, we can tailor an exercise intervention."

Josbeno says there are a variety of barriers that prevent people from engaging in or maintaining an exercise program. "Some are too self-conscious and averse to going to a gym or any other public place to exercise. Others believe

they are too busy during the day. Once we've identified the obstacles, we can help minimize these issues to promote a healthy, active lifestyle," Josbeno explains.

TRAINED TO TRAIN

Andrea Hergenroeder, instructor, Department of Physical Therapy, believes that physical therapists are uniquely qualified to assist patients after gastric bypass surgery as well as those with functional limitations related to excess weight. "We're trained to help people of all ages overcome mobility challenges," she explains. "We understand multiple systems, including musculoskeletal, neuromuscular, and cardiopulmonary. When prescribing

an exercise program, we are able to customize the program to meet the specific needs of the individual.

"For example, an exercise program would be modified for a person with a flexibility problem that restricts range of motion, or a cardiovascular impairment that limits aerobic endurance. Individuals who are sedentary may experience musculoskeletal conditions with initiation of exercise. We're prepared to address these issues should they arise."

Hergenroeder says that health conditions such as hypertension and type 2 diabetes must be considered when designing an exercise program for an obese patient. "For example, for a person with diabetes, it is important to monitor skin integrity and ensure that they are wearing the correct footwear," she notes. "Attention must also be given to modifying the exercise program based on fluctuations in blood glucose levels."

Like Josbeno, Hergenroeder also is involved in a pilot study. Under the direction of Dr. John Jakicic of Pitt's Physical Activity and Weight Management Research Center, the research project will examine alternative physical activity approaches to weight loss.

"In accordance with guidelines from the American College of Sports Medicine, exercise recommendations generally include participation in 30 to 60 minutes of moderate intensity exercise most days of the week, in addition to strengthening exercises. The idea is that it will improve function and ability to perform activities of daily living," says Hergenroeder. "The current research will examine different exercise approaches and help determine which type of exercise program is best for improving function."

ANYONE CAN EXERCISE

Josbeno says that a common misperception – even among those who are not obese – is that exercise

The National Institutes of Health (NIH) estimate that 22 percent of U.S. adults, or roughly 39 million people, are 100 pounds or more over their ideal weight.

programs have to be elaborate or require a gym membership. "Walking is one of the easiest ways to be physically active. It's not high tech, doesn't require much equipment, and is functional," she explains. "You can incorporate more activity in your daily life by making a few simple modifications; for example, taking the stairs instead of the elevator, parking further away from entrances, and taking a walk after dinner instead of watching TV."

She says that regardless of whether an individual has had weight reduction surgery or is merely overweight, "We need to recognize that there is no 'one-size-fits-all' exercise program. How you exercise and

where you exercise are individual choices that need to work for you. The key is to become active. We all have the same goal – to be healthy and fit – but there are different ways to do that."

She says that the initial reactions of the gastric bypass patients who have opted into the study are positive. "They are excited about this. I think they are looking forward to having some guidance for adopting a more active, healthy lifestyle," says Josbeno.

"Let's face it, though. If I could offer the same benefits as exercise in a pill form, people would take two!"





EMERGENCY MEDICINE MAKES A HOUSE CALL

When the EMed Health program was initiated eight years ago through the Center for Emergency Medicine of Western Pennsylvania, Prehospital Care at UPMC, and the Pennsylvania Emergency Medicine Foundation, its charge was to retrain underutilized EMTs so they could begin to conduct home visits as part of widespread injury prevention and disease management programs for those in need.

To say the program's aim was grand in scope is an understatement. In short, EMed Health's founders were rethinking the way a large percentage of health care services could be provided to consumers. The program was profiled in the Summer 2004 *FACETS* article, "Redefining Emergency Response," and, by all accounts, was well on its way to securing the funding needed to become a permanent, viable health care service.

Since then, the EMed Health program has remained committed to its mission of providing high quality, in-home medical services to people in southwestern Pennsylvania. However, the program has undergone some modifications.

Explains Dr. Kelly Close, executive director, EMed Health, "The program currently has primary and secondary prevention programs that address influenza vaccinations, childhood lead screening, elderly fall prevention, and biometric health screenings. But we envision the greatest impact of EMed Health to be in helping empower patients with serious diseases like diabetes, asthma, or congestive heart failure to take control of their conditions. A significant focus of the program is offering the support, education, and self-management tools patients need to live active, healthy, and high-functioning lives."

"Our vision for training EMS providers to conduct in-home visits as part of a continuing health management plan remains the same as at the inception of EMed Health," adds Deb Lejeune, instructor, Emergency Medicine program. "But as it has developed, we've made adjustments in our outreach efforts to maximize the benefits to those in need of service. Insurance companies – and grant-giving organizations – provide less support for preventive treatments, so we've also chosen to put an emphasis

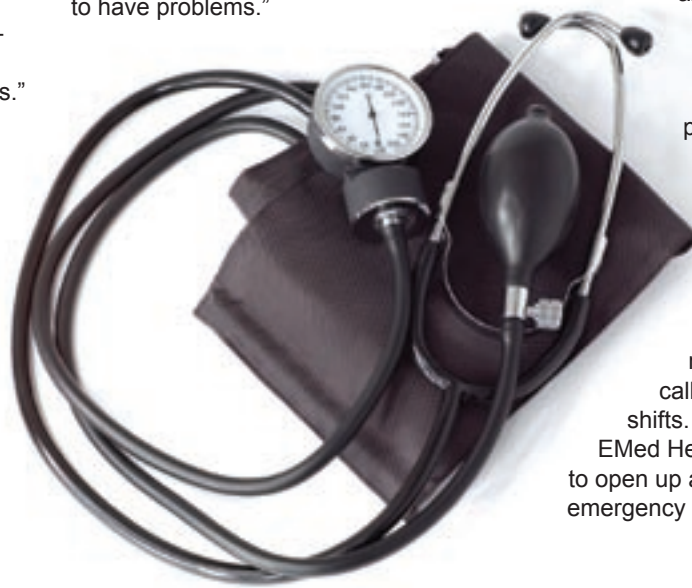
on chronic disease management, an area that accounts for roughly 80 percent of U.S. health care costs."

OUTREACH FOR THE EVERYMAN

One example of the disease management work being championed by EMed Health involves asthma sufferers. Beginning in 2005, EMed Health clinicians – all trained EMS providers – began working with a group of 44 patients who had visited the emergency department on more than one occasion because of asthma-related conditions.

"The goal of an asthma disease management program is for the patients to have the medications and knowledge necessary to treat their conditions at home and to visit their primary care physicians (PCPs) if problems persist," notes Lejeune. "The fact that some patients with asthma routinely go to the emergency department with asthma complaints indicates they're not receiving the education and treatment necessary to adequately deal with their disease. It's a breakdown that leads to increased health care costs and less than adequate health care management for people in need in our communities."

EMed Health EMS advocates are working with the patients in this program to identify reasons why they do not have control of their asthma. "We have conducted detailed reviews and assessments of triggers and the medications that the patients use," Lejeune explains. "We've also educated them on the importance of routinely monitoring their asthma so that they know when they are beginning to have problems."



In addition, clinicians administered surveys to participants before and after the program to determine their level of competence based on the information and training they received. The surveys are also intended to help assess the impact the program has had on patients' overall health.

EMed Health is now working to develop similar programs for other chronic disease conditions, including congestive heart failure, diabetes in children and adults, coronary artery disease, chronic obstructive pulmonary disease, and secondary fall prevention.

AS THE PROGRAM EVOLVES, SO DOES THE PROFESSION

While the results of the program have yet to be analyzed, Lejeune and others believe the project has the potential to make a tremendous impact. "Large health care issues can often be affected by taking small steps. Anecdotal evidence and preliminary findings suggest EMT in-home outreach can have a marked impact on community health."

Most of the outreach efforts for the EMed Health program have been provided by contracted EMS providers, says Lejeune, but SHRS students are also becoming increasingly involved. "We've opened the program to students who want to use it to complete an independent study. One of our students is interested in studying congestive heart failure, and she has used the experience to gain knowledge about the management of this condition in the field."

Lejeune also envisions the program as having implications on the future careers of present and aspiring EMS providers.

"As our program expands and takes root on a national level over the next decade, EMS providers – those right out of school and those with 20 years on the job – will have an alternative path. Providing chronic disease management services for people in their homes presents EMS workers with a different career route than responding to 9-1-1 calls and working around-the-clock shifts. The work we're doing with the EMed Health program has the potential to open up a whole new category in the emergency medicine field."



Dialogue

A Conversation with
Dr. Madelyn Fernstrom

Dr. Madelyn Fernstrom Director, UPMC Weight Management Center

Dr. Madelyn Fernstrom is the founder and director of the University of Pittsburgh Medical Center Weight Management Center and associate director of the UPMC Center for Nutrition in Pittsburgh. For more than 25 years, she has devoted herself to clinic and laboratory work, studying and treating obesity and eating disorders. A recognized expert in the field of appetite and weight control, Dr. Fernstrom is sought after by the media, most notably as The NBC Today Show's diet and nutrition editor with highly popular weekly segments on nutrition, weight loss, diet trends, and healthful eating. She communicates with thousands more through her blog on iVillage.com.

Q What is your assessment of the link between chronic disease and nutrition?

A The issue of chronic disease and nutrition is complicated. There are two schools of thought: those who believe that nutrition is nothing – it doesn't matter what you eat – and those who believe that nutrition is medicine. I believe they're both wrong and the truth is somewhere in between.

Food is not medicine. It can enhance your well-being and offset some diseases, but it can't replace medications and it can't replace good medical care. One thing that food can do is help to keep your weight stable.

Some of the illnesses related to overweight and obesity like diabetes, high blood pressure, and high cholesterol can be modified by cutting back on total caloric intake and by changing specific components of the diet like carbohydrates, fats, and proteins. But the first thing has to be cutting calories altogether. It's going to matter less whether it's carbohydrates, fat, or protein as long as the calories are lower, because weight loss can improve co-morbidities of diabetes, hypertension, and high cholesterol.

Many fruits and vegetables contain nutrients that, at least on the cellular level, contribute to disease prevention. For example, the cruciferous vegetables – broccoli, cauliflower, brussel sprouts, and cabbage – contain anti-cancer components. It doesn't mean that if you eat these vegetables, you won't get cancer, or if you have it, it can be cured, but as part of a healthful diet, these are good foods to focus on, with many health-promoting features.

Q What motivates people to visit the UPMC Weight Management Center?

A If people have gained a few pounds, they may notice their clothes getting a little tighter. They may have had to buy a few new things. It's one thing to wear looser fitting clothes, but when they visit the doctor,

and learn their blood pressure is high or their cholesterol is high, it can be a dramatic turning point that scares virtually everyone.

I wish the point of intervention would be sooner; that people would proactively work to just not gain weight in the first place in order to avoid diabetes or high blood pressure. Unfortunately, weight creep is hard to fight for most people, and many do not seek treatment until a physical problem manifests itself. Along with the diseases already mentioned, the overweight or obese can suffer from sleep apnea, arthritis, low back pain, or illnesses you might not expect, such as mood disorders. It's a chicken and egg question. Evidence demonstrates that a large part of the obese population is depressed compared to the non-obese group. Are they depressed because they are heavy, or are they heavy because they are depressed? There is no clear answer to that. Treating the mood disorder may be equally as important as treating the physical illnesses.

You're not going to cure depression by eating potatoes rather than Prozac.

Q How do you evaluate and treat patients?

A We see approximately 3,000 people per year through all of our programs throughout the UPMC Weight Management Center.

As part of our initial screening, we ask patients what they believe contributes to their excess weight – portion control, emotional eating, medications, lack of knowledge about healthful eating and exercise – and virtually no one indicates lack of knowledge. People really know what the problem is, and knowing is the first step to getting some help.

We offer a complete continuity of care, looking at obesity as a chronic illness

that can be managed but not cured. Our programs are distributed among surgical and non-surgical weight loss. They range from support groups and activities to one-on-one counseling; from weight loss medications and lifestyle modification to surgical interventions. We also offer a Life After Weight Loss Program, which may even involve body contouring that allows the patient to look good inside and out.

Q Are you seeing more patients who are obese with non-weight related chronic diseases?

A No. Two-thirds of the adult population is either overweight or obese and it's a huge problem. Here's a very sad fact: we now refer to what used to be called adult-onset diabetes as type 2 diabetes, because the incidence of the disease being presented in children and adolescents is skyrocketing. This is also true with sleep apnea, a condition you'd expect to see in a middle-aged person.

Kids are playing video baseball instead of being outside playing baseball. But it's also the result of a changing society. Security issues, for example. Kids don't go outside to play or ride a bike because of fear of being hit by a car, or a toxic environment, or concerns about a divorced parent stealing a child.

We need to find a way to intervene with children who are going to grow up with health problems that will manifest themselves much sooner than it did with their parents or grandparents.

The bottom line is that a diet rich in lean protein, fruits and vegetables, and fiber-rich starches is going to be heart-healthy and brain-healthy. When you add physical activity and stress management, you have a healthy lifestyle. But, unfortunately, that may be the hardest pill to swallow.

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For more information, contact Patty Kummick, director of development, at 412-383-6548 or pkummick@shrs.pitt.edu.

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