



ABOVE • What is making NIDA director Dr. Nora Volkow so happy? See p. 12.

nih record

‘Sugar & Strife’

During Diabetes Month, NIH'er Shares Personal Journey

By Anita Greene

Ivori Lipscomb-Warren, an NIA management analyst, was 35 years old when she experienced a range of symptoms that landed her in the local ER. Diagnosis? Type 2 diabetes.

Two days before, Lipscomb-Warren had felt unusually tired, lacking her normal energy. She'd stayed in bed that weekend to rest. Being bedridden was not the norm for this woman of many roles—wife, employee, doctoral student, events planner and active member of Alpha Kappa Alpha sorority.

Arming herself with information, she began a battle to free herself of both diabetes symptoms and medication. Lipscomb-Warren lost weight, exercised more, regularly checked her glucose levels and educated herself and her family about the disorder.

SEE DIABETES MONTH, PAGE 6



Diabetes struck the Warren household twice in less than 5 months; first Ivori (r) was diagnosed, then her husband Kevin.

PHOTO: MICHAEL CLARK

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Authority on Running Explains Science Behind Technique

By Rich McManus

There is a basic science to running that has been ignored and unappreciated, except for a growing cadre of runners who, largely educated by a glowing article by Christopher McDougall in the *New York Times Magazine* and by his book *Born To Run*, have become mentees of Dr. Mark Cucuzzella.

A former Air Force flight surgeon (and current reservist) who does his clinical work and research in the field of childhood obesity, Cucuzzella, 46, a professor at West Virginia University's department of family medicine, has devoted his midlife to "teaching running as a skill." He visited NIH on Oct. 17



Dr. Mark Cucuzzella

SEE RUNNING, PAGE 4

Physical Therapists, Take Note

Langevin Explains Emerging Science of Connective Tissue

By Belle Waring

Yoga practitioners know the classic posture called The Cat.

It feels good to stretch.

"Bad things happen when we don't stretch enough," said Dr. Hélène Langevin of the University of Vermont College of Medicine in a



Dr. Hélène M. Langevin

recent lecture here. "Or when we can't stretch some part of our body for some reason."

Principal investigator of 3 NIH-funded studies, Langevin presented "The Effect of Stretching on Connective Tissue: From Yoga to Acupuncture." Part of NCCAM's

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Management Seminar Series Announces New Season of Insightful Presentations

The Deputy Director for Management Seminar Series is set to offer another round of presentations delivering insights into workplace concepts, challenges and solutions. The seventh annual DDM seminar series begins Thursday, Dec. 13 with David Rock, who will talk about the "Neuroscience of Leadership" from 11 a.m. to 12:30 p.m. in Masur Auditorium, Bldg. 10.

The series continues into the new year with three more seminars, featuring Daniel Goleman, "Emotional Intelligence" on Thursday, Feb. 14; Stephen Shapiro, "Accelerate the Way You Innovate" on Thursday, Apr. 18; and Carol Kinsey Goman, "Collaborative Leadership" on Thursday, June 20. These presentations will focus on emotional and social intelligence, leadership development, leveraging motivation and innovation and effective communication.

Lectures will be available at <http://videocast.nih.gov/> for those who cannot attend or when Masur Auditorium reaches capacity. Sign language interpreters will be provided. Individuals with disabilities who need reasonable accommodation to attend should call (301) 496-6211 or the Federal Relay Service at 1-800-877-8339.

For more information about the series and to view previous videocasts, visit www.ddmseries.od.nih.gov/.

NIH Supply Center Offers Showcase, Dec. 13

The NIH Supply Center will sponsor its third Product Showcase on Thursday, Dec. 13 in the South Lobby of Bldg. 10 from 9:30 a.m. to 2 p.m. Vendors will offer specials and promotions on products carried in the Self Service Stores as well as with the NIH Supply Center that will be available for same-day or next-day delivery. Bring your CAN cards so your order can be processed that day. Refreshments will be served. For more information, email Gwendolyn.carr@nih.gov or Alicia.boglin@nih.gov.

The Supply Center is working to improve its online catalog; there is a PDF version of the catalog, updated weekly, at <http://nihsc.od.nih.gov/>. Prices in the catalog are updated daily. The site's search engine is also being improved. For more information, email William.byrd@nih.gov.

Visit the NIH Self Service Stores: Bldg. 10 (B2B41) and Bldg. 31 (B1A47), open Monday through Friday from 8 a.m. until 4:15 p.m. For special assistance, email nihsupplycenter@od.nih.gov or call (301) 496-3517.



Volunteers from SAIC (above and below) spent Nov. 5 helping create the inn's new play area.

SAIC Volunteers Improve Inn Play Area

About 35 volunteers from Science Applications International Corp. volunteered Nov. 5 at the Children's Inn at NIH, painting, planting and sprucing up the inn's new playground and park. In addition to the service day, SAIC donated \$200,000 to the inn's playground campaign.

NIH researcher Dr. Lori Wiener, longtime inn board member and chair of the playground fundraising committee, thanked the volunteers, who included SAIC executive leaders Steve Comber and Mike Eddings, for their support.

"We are so grateful to SAIC for all you have done to make the new playground and park possible for our kids and their families," said Wiener. "I can't tell you how much it's going to mean to these children, who have been hooked up to IVs all day in the Clinical Center, to be able to come back to the inn and simply play outside, breathe some fresh air, have a little fun and forget about being sick for awhile."

"The inn is extremely grateful for SAIC's very generous donation to our playground and outdoor play area," said Kathy Russell, chief executive officer at the inn. "We are not only honored by their financial support, but also by the generosity of SAIC employees who donate their time to help make the inn a better place. The inn's mission is to provide a safe, comforting environment for children and their families. The support of SAIC helps us fulfill that mission."

The inn's relationship with SAIC is a natural and successful fit, said SAIC's Comber. "SAIC scientists and technical personnel work side-by-side with NIH researchers and program staff every day to help discover the causes of and treatments for diseases such as cancer and AIDS," he said. "We wanted to do something to show our appreciation for the amazing work that the NIH does every single day."

More than 1,700 children stay at the inn each year while participating in medical research at NIH.



'Game Changers, Noteworthy or Just Plain Cool' NIH Director Launches Blog, Expands Social Media Reach

To blog or not to blog? That was the question. On Nov. 1, NIH director Dr. Francis Collins decided it was "nobler in the mind" to launch the NIH Director's Blog.

"I'm starting this blog to highlight new discoveries in biology and medicine that I think are game changers, noteworthy or just plain cool," he wrote in a welcome message. "Depending on what's going on in the world of biomedical research, I may tell you about an interesting study in a journal or share my thoughts about a news item or public health issue."

Slated to blog about three times a week, Collins in his first few postings talked about the recent Celebration of Science event held at NIH and "the symphony inside your brain," a glance at the Connectome Project. The project is a massive NIH-led effort to map the neural pathways of the brain. It's a fitting early topic, as one of the director's major goals for the blog is to connect more people with the science and research that NIH supports and funds.

"This is another example of the importance Dr. Collins places on communicating the value of biomedical research and telling the NIH story," said John Burklow, NIH associate director for communications and public liaison. "He knows that social media is an important tool and he intends to take full advantage of it to extend our reach."

Other blog ideas being considered are "Wordless Wednesdays," which would feature scientific images or videos, and "Fascinating Fridays," which would focus on interesting science facts. Collins's blogs will be aimed at a lay audience, particularly folks with an avid interest in science such as those who read magazines like *Discover*, *Scientific American* and *National Geographic*.

Good blogs get feedback. Blog readers often want to leave their own 2 cents. Comments will be accepted and moderated on the NIH Director's Blog. Collins won't respond to every post, but, in time, may address some issues that emerge from the feedback.

You can find the new blog at <http://directors-blog.nih.gov/>, or click on the link next to Collins's photo on the home page, www.nih.gov/.

Katz, Ozato Honored by Japanese Government

Two NIH scientists were recognized recently for their work fostering scientific collaboration and information exchange between the United States and Japan. The ceremony took place in Washington, D.C., at the residence of the Japanese ambassador to the U.S., Ichiro Fujisaki.

NIAMS director Dr. Stephen Katz was honored with the Order of the Rising Sun, Gold Rays with Neck Ribbon, for his contributions to "the education of Japanese dermatologists and to the development and internationalization of dermatological research in Japan."

Also honored was Dr. Keiko Ozato, chief of NICHD's section on molecular genetics of immunity. She received the Japanese government's Order of the Sacred Treasure, Gold Rays with Neck Ribbon.

Over his long career, Katz has hosted many Japanese scientists in his laboratory in the NCI Dermatology Branch and has trained some 32 Japanese investigators, many of whom now play leading roles in the field of dermatology. As a member of the board of directors and president of the Society for Investigative Dermatology, he urged cooperation between the society and the Japanese Society for Investigative Dermatology (JSID), chairing a joint U.S.-Japan academic research meeting between the two in 1986. Katz has also served on the editorial boards of numerous Japanese dermatology journals and given many lectures at Japanese universities. In addition, he is an honorary member of JSID, a designation rarely given to foreign scientists.

The Order of the Rising Sun, established in 1875, is Japan's second-most prestigious award after the Order of the Chrysanthemum. Its design, featuring rays of sunshine, symbolizes both the powerful energy of the sun and the concept of Japan as the "Land of the Rising Sun." The award has multiple classes and has been bestowed over the years to such figures as Gen. Douglas MacArthur, Sen. Daniel Inouye and actor/director Clint Eastwood.

NIH deputy director for intramural research Dr. Michael Gottesman, who attended the award ceremony, said, "I'm told that Dr. Katz's award was great news among the Japanese dermatology community and was printed in their newsletters. We at the NIH are equally proud to have Dr. Katz in our ranks as an administrator, a remarkable scientist and a mentor to scientists around the world."

The Order of the Sacred Treasure recognizes Ozato's contributions to science and scientific interactions between Japan and the U.S., particularly at NIH. She has chaired the fellowship committee of the NIH-Japan Society for the Promotion of Science since the committee's beginning in 1996. As a mentor, Ozato helped train 27 Japanese researchers, many of whom have become leaders in their fields after returning to Japan. After the 2011 earthquake in Japan, Ozato and several other NIH scientists organized a relief effort for biomedical researchers in the earthquake-stricken area.

Said Gottesman, "Dr. Ozato represents all that we admire about NIH scientists. Aside from her illustrious research career, she is a mentor, role model and true global citizen." The Order of the Sacred Treasure is awarded to those who have made distinguished achievements in research, business industries, health care, social work and other fields.



Drs. Stephen Katz and Keiko Ozato



RUNNING

CONTINUED FROM PAGE 1

Above: Cucuzzella conducts a workshop as part of the *Fitness for You* series of free fitness classes offered by ORS and the R&W Association. According to the *New York Times*, his *Two Rivers Treads* shoe store in Shepherdstown, W.Va., “has turned into possibly the country’s top learning center for the reinvention of running.”

PHOTOS: BILL BRANSON

to give a 2-hour outdoor seminar condensing decades of physiological, anatomical and practical knowledge.

The verbal footnotes stretched from New Zealand, to Kenya, to Oregon and Cambridge, Mass., as Cucuzzella, himself unassuming and given to exercise as a natural form of play, cited dozens of authorities who have contributed to a philosophy he dispenses from the unlikely new Mecca of running—Shepherdstown, W.Va.—where he runs a shoe store/web site/running-education center.

“It’s important to understand the whole machine, the whole engine—this is really basic science,” he told several dozen NIH’ers who gathered on a soccer field behind Bldg. 41. Guests were invited to try on sample pairs of running shoes that deliver one of Cucuzzella’s core themes: whether you run, walk or stand around an office or lab all day, it’s important for your foot to be flat to the ground. The raised and cushy heels so common to most running shoes today are taboo; they work counter to the foundation of running, which is basically “a series of one-legged balances.”

Cucuzzella had been a runner in college and, up until 2000, was running marathons for the Air Force. That year, due to arthritic changes in his big toe joints, he was advised to quit running and underwent surgery. Stationed at the Air Force Academy in Colorado, he couldn’t bear to forego the beautiful routes and trails on which he had trained. Yet studies showed that up to 80 percent of runners suffered injuries every year.

He had heard of a tribe of indigenous “canyon runners” (the Tarahumara Indians) out west and wondered, “Why are they so good, so efficient and they never get hurt?” He decided to adopt their “springy, bouncy kind of running” and started wearing racing flats that approximated the flimsy sandals worn by the canyon runners.

“I haven’t missed a day of running since 2000 due to injury,” said Cucuzzella, who often speaks in support of a shoe company—Newton Running—that he said started out as an educational company then became a manufacturer.

“A shoe is a tool for whatever it is that you’re doing,” he said, and he has found that Newton shoes allow a safe transition to “minimalist” running. He allied with the company 4 years ago after a series of consultancies with other athletic shoe manufacturers on developing flat footwear.

“[Newton] is the first company to embrace running form and technique,” he said. “Their goal is to make things as simple as possible.”

Cucuzzella makes running simple through analogy. “The body is like an airplane. You gotta have a good engine and a strong chassis.” He insists there is a proper way to run and that getting out there and doing it “is non-negotiable.” But if you treat it as a pain, he warned, it’s going to be a strain.

“You’ve got to give yourself permission to make running fun—then it becomes sustainable,” he said, noting that the Swedish concept of *fartlek*, or “speed play,” has been especially useful to his philosophy. “Since 2000, I have approached every run as play,” said Cucuzzella, who in mid-October was training for his 20th Marine Corps Marathon [he finished 47th overall in 2:48]. “You’ve got to be a kid and just put yourself in the moment.”

Since he was addressing an audience of scientists, Cucuzzella delved into the chemistry of how the body burns sugars and fats, mentioning the Krebs cycle, but the take-home message was clear: over time, typically between 3 and 6 months, a person can, by slow, sure running,



NCI’s Sara Davidson demonstrates a resistance exercise designed to improve running technique.



Cucuzzella is a physician, a professor at West Virginia University's department of family medicine and an Air Force Reserve flight surgeon.

build more energy “factories” (mitochondria) and “roads” (capillaries). The gradual, playful approach enabled Cucuzzella not only to finish 3rd in the 2000 Marine Corps Marathon, but also to feel at the end as if he could have gone out and done it again.

“We probably have a limitless ability to build mitochondria and capillaries,” he said, but it takes years to develop one’s full aerobic capacity.

A person’s “chassis,” especially the hips and core, need to be stable and strong enough to absorb 2.5 to 3 times the body’s weight with each stride, and 1,200 of such poundings per mile. He offered “exercise snacks” a person could do all day: improve posture and breathing by standing tall (you can become “unconsciously competent,” he said, if you do it enough); work standing up if possible; and practice balancing on one foot.

He also suggested three steps for improved running: stand tall and solid; don’t overstride—you should land on your mid- or forefoot, with your foot directly below your knee; and make use of the biggest, most tireless and important muscle in your body when you run—your butt.

“The gluteus maximus—that’s right, the booty—applies the most force to the ground when you run,” Cucuzzella said. “It’s made up of red meat and it’s born to run. If you learn how to run with your booty, you’ll never tire out...Your efficiency goes way up when you use your tush.” He says he’s never seen anyone injure that particular muscle.

“We’re all damaged goods, just trying to keep Humpty Dumpty together...so you can eventually run to the nursing home,” he quipped.

To learn more of what Cucuzzella has to teach, including videos of proper running technique, visit www.naturalrunningcenter.com or www.tworiverstreads.com. 📍

Survey Shows Value of Personal Praise

This past summer, as part of an effort to promote innovative recruitment and retention strategies at NIH, a workforce retention strategies work group launched an NIH Employee Recognition Survey focusing on the types of non-monetary recognition employees find most meaningful. More than 3,000 employees participated in the survey.

The results reveal that employees value acknowledgement and leadership support, as well as projects of interest, additional training and time-off awards. Of those responding, 92 percent indicated they are interested in receiving personal praise/accolades from their supervisor and 89 percent of employees are interested in time-off awards and projects or assignments of interest. In addition, 87 percent of employees are interested in receiving additional training/conferences.

Further analysis demonstrated how strongly employees felt about each method of recognition. When taking the average rating for each method of recognition, time-off awards were rated highest, projects or assignments of interest were second and personal praise/accolades from their supervisor came in third.

For IC and NIH leadership, employees stated a desire for more visibility and contact through: more personal visits (e.g. in labs, units, town-hall meetings); open communication and transparency; and collaboration, soliciting and listening to employee ideas.

A 2012 study by the Partnership for Public Service stated that, in their government-wide job satisfaction analysis, satisfaction with leadership was about five times more important than pay. The report said: “Federal employees weigh the totality of their job experience, and if they admire the agency leaders, get along well with their supervisor and feel their talents are being used well toward a compelling mission, they may remain engaged and motivated even if they are dissatisfied with pay.”

The NIH Employee Recognition Survey results are important for supervisors to note, given limits on cash awards and tight budgets. Often, verbal or written personal accolades and additional workplace flexibility are just as, if not more, meaningful to employees.

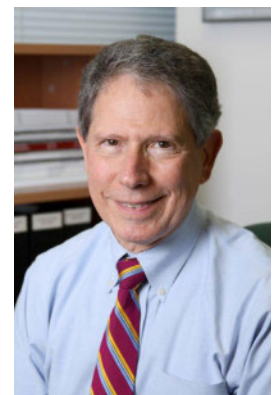
Buckholtz Named Head of NIA Division of Neuroscience

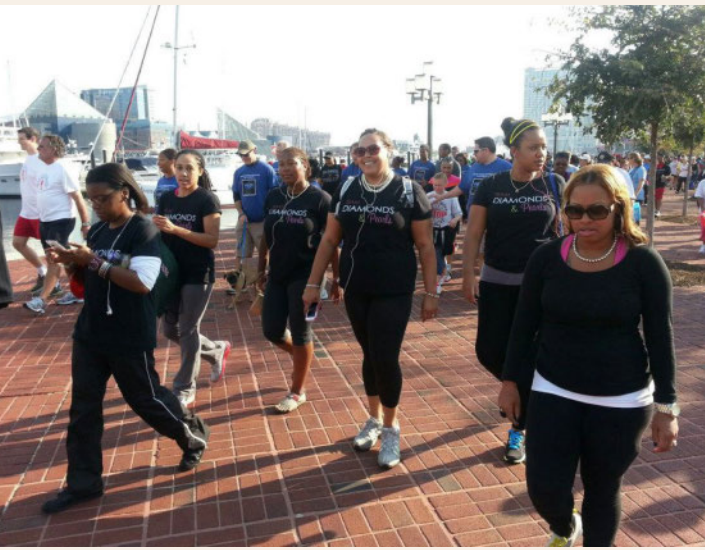
Dr. Neil Buckholtz has been appointed director of NIA’s Division of Neuroscience. He comes to this position after 19 years as chief of the Dementias of Aging Branch in the division.

“Dr. Buckholtz’s experience in the development, coordination and implementation of basic and clinical Alzheimer’s research will be a tremendous asset at this critical juncture in research on cognition, Alzheimer’s and aging,” said NIA director Dr. Richard Hodes.

Buckholtz and colleagues led the successful NIH/HHS Alzheimer’s Disease Research Summit held in May. At the summit, HHS Secretary Kathleen Sebelius introduced the nation’s first National Plan to Address Alzheimer’s Disease, which placed NIA at the forefront of that research effort.

Buckholtz holds a doctorate in physiological psychology from the University of Wisconsin. He was a faculty member in the Medical University of South Carolina department of psychiatry from 1970 to 1983, before coming to NIH.





DIABETES MONTH

CONTINUED FROM PAGE 1

Above, l:

Shown striding from the Baltimore Inner Harbor, the 5K team consisted of 29 participants who walked 3 miles alongside Ivori and Kevin in support of diabetes education, research and a cure.

PHOTO: ANITA GREENE

Above, r:

The Warrens had T-shirts designed for Team Diamonds & Pearls, which raised \$2,062 for diabetes research, awareness and education.

PHOTO: SCOTT CRAWFORD

Fast forward 4 months after diagnosis. Just when things were improving, her husband Kevin began experiencing symptoms Lipscomb-Warren knew all too well. Recognizing the signs, she made an appointment for him to see her endocrinologist. As she suspected, it was diagnosis diabetes, take two. The disease had hit the Warren household twice in less than 5 months.

Although both husband and wife are well under the target diabetes age of 45 (Kevin is 38), both experienced almost all the other common symptoms, which include frequent urination, excessive thirst, fatigue, blurred vision and increased hunger.

Nearly 26 million Americans have some form of diabetes. In type 2 diabetes—the most common form, which has risen concurrently with the obesity epidemic—the body does not make or use insulin well. An estimated 79 million adults have prediabetes, which places them at increased risk for developing type 2 diabetes and heart disease.

Left untreated, diabetes can lead to such serious complications as heart disease, stroke, kidney disease, blindness and amputation.

Like the Warrens, many people do not know they have diabetes until they experience an overload of symptoms. They can have different warning signs, but sometimes there may be no obvious signals.

To tackle the disorder head on, Ivori and Kevin organized a team of family and friends—including several sorority sisters and frat brothers—to participate in “Step Out: Walk to Stop Diabetes,” the American Diabetes Association’s 5K walk at Baltimore’s Inner Harbor. The event drew 1,478 participants and raised nearly \$300,000 for the cause.

“Team Diamonds & Pearls” was born of the couple’s dedication to their Greek letter organizations. Consisting of 29 walkers, the team raised more than \$2,000.

“[The walk] is so much more than a fundraising event to us,” Ivori said. “[On] February 28 my world changed when I was diagnosed with type 2 diabetes and in June...my best friend—my husband of 11 years—was diagnosed as well. This walk is our opportunity to empower and make a positive impact in the lives of those who have—or have family members or friends who have—diabetes.”

The walk is over, but their efforts to increase diabetes awareness have not ended. They intend to make the ADA walk an annual event and have a larger team next year with the goal to raise more money for diabetes research and education. They also have created a Facebook page, “Sugar + Strife,” where they provide educational messages on diabetes and give viewers a personal look at their daily journey to overcome the disease. Find the page at www.facebook.com/sugar.strife.

“A diagnosis of diabetes for me and my husband does *not* mean that we are throwing in the towel and allowing this disease to defeat us,” Lipscomb-Warren emphasized. “This health hurdle simply intensifies our priorities and strong desire to fight harder to overcome it and educate others. Our mission...has messages of strength, encouragement and hope. We tell everybody we meet now not to ever take their health for granted, to seek medical attention when needed and not to ignore symptoms like I did for months on end. Americans should place their health as their foremost priority.”

feedback

Have a question about some aspect of working at NIH? You can post anonymous queries at www.nih.gov/nihrecord/index.htm (click on the Feedback icon) and we'll try to provide answers.

Feedback: Does anyone know why there are NIH buses parked in lot 41? They have been parked at the end of 3 different, adjacent rows for many months now. The problem is that they are longer than the length of 2 cars, so although they are parked in the equivalent of 2 parking spaces, they hang out into the aisle causing a dangerous congestion point. The NIH shuttle cannot fit down that aisle anymore so they have to take a more circuitous route through the parking lot, going down a narrower aisle with tighter turns and clearances around parked cars. Also those who reach the end of the aisle and want to turn cannot see around the buses to see if there is cross traffic. I'm surprised there hasn't been a nasty accident because of the impaired sight line. These buses should be parked in a location where they do not interfere with driving through lot 41, especially considering how often they are used (they haven't moved in months). And also, when did lot 41 become a dumping ground for unused vehicles and equipment?

Response from the Office of Research

Services: The three NIH buses in question are government vehicles that need to be on campus for situations where the need arises, such as taking children from the Children's Inn to camp, for special events and for emergency situations that necessitate a mass evacuation.

The buses were originally parked at the far end of lot 41, but were moved to the location in question because they were impeding the ability for shuttle buses to make turns within the lot. ORS looked at the situation further and moved the buses again. Now, the buses are parallel parked along the fence line in designated "NIH Government Bus" spaces in the upper right corner of the lot. This location should no longer impede any traffic.

As to the issue of lot 41 being a "dumping ground," although it may be unsightly at times, this lot is NIH property and is a necessary location to store NIH equipment temporarily until it is surplus. NIH continues to monitor the area and will work diligently to advance this equipment through the disposal process.

Feedback: Your response about "red permit preferential parking" in the Feb. 3, 2012 *NIH Record* did not answer the question regarding cars with preferential (red) permits parking in general parking spaces.

You referenced the NIH Policy Manual 1410, Parking Policy (Release date 6/2/09); <http://oma.od.nih.gov/manualchapters/management/1410/>. Section F (Procedures), no. 4

(Types of NIH Parking Permits), f. Preferential (Red) states: Preferential (red) parking permits are valid in parking areas posted "NIH Red Parking Permit Holders Only." In the event these areas are filled, the preferential (red) parking permits are also valid in the areas posted "NIH Parking Permit Holders Only" and after 9:30 a.m. in parking areas posted "CP Spaces Reserved Until 9:30 a.m."

My point was that some individuals with red permits are disregarding the rule and parking wherever they please. Again, this results in less general parking being available while unnumbered red parking spaces remain vacant.

I strongly suggest someone from the Division of Amenities and Transportation Services walk through the various parking lots and garages two times a week—particularly the multi-level garage behind Bldgs. 31 and 33—preferably no later than 10 a.m., to count the number of cars with red parking permits parked in general spots. Also count the number of vacant unnumbered red spaces at that time. It will become instantly obvious that the current policy isn't working.

Your response also stated, "The preferred parking spaces have not increased and have remained the same for over 20 years." While that may be true, anecdotal evidence suggests that the number of general parking spaces (not reserved for red permits, handicapped spaces or other reserved parking) has been reduced in that time period. Can you please comment?

Response from ORS: Although an exception, the Manual Chapter 1410 – "Parking," does allow for vehicles with red permits to park in general parking spaces, even when space may be available in red permit holder areas. However, we do strongly encourage red permit holders to park in red spaces first and park only in other areas if the red locations are full. The NIH Parking Policy is reviewed periodically and the Division of Amenities and Transportation Services will definitely consider these questions and concerns.

Feedback: What is NIH's policy about riding bicycles on the sidewalk? I have seen cyclists traveling at high speed forcing pedestrians off the sidewalk so they can pass.

Response from ORS: There is no regulation against bicycles using sidewalks on the Bethesda campus. However, cyclists must always obey the rules of the road whether using roadways or sidewalks. 🚲





LANGEVIN

CONTINUED FROM PAGE 1

NCCAM director Dr. Josephine Briggs (r) observed that Langevin's studies showed "an interesting use of ultrasound as an objective measure. And it's cheap, portable and noninvasive."

PHOTOS: MICHAEL SPENCER

Integrative Medicine Research Lecture series, the talk was held in Lipsett Amphitheater.

Professional sports teams have long been interested in whether stretching can improve performance and reduce injuries.

Langevin discussed findings based largely on animal models; before these can be translated into therapies for humans, further studies are needed. Yet this crucial stage in her own research has already yielded a new concept in how connective tissue regulates its own tension level.

Athletes, physical therapists and the millions of folks with low back pain will want to stay tuned.

So do we know if stretching is good for you?

Langevin, who is professor of neurology, orthopedics and rehabilitation and director of UVM's Program in Integrative Health, began with an overview: How scientists first focused on static stretching, which pulls and holds the tissue beyond the range of motion (ROM is the full movement potential of a joint, usually its range of flexion and extension).

Studies in athletes over the last 10 to 20 years have shown that static stretching before competitive sports, in fact, does not help. In fact, it increases the number of injuries.

Researchers then turned to dynamic stretching (for example, t'ai chi). This ancient practice could be a better way to warm up and increase ROM without injury.

As for yoga, which Langevin called "stretching while paying attention to your body and your breathing," she reported a study that found it effective, when compared to controls, in reducing back pain.

What's going on in there?

When we stretch, we're stretching not only muscle, but also our connective tissue, which forms a dynamic, body-wide, mechanically responsive network. Connective tissue acts like cellular glue. It includes specialized forms (such as tendons, ligaments and joint capsules) and non-specialized forms (both "dense" and "loose," which go around and through everything else). Visualize it as a tissue matrix that supports, ensheathes and binds together other tissues.

Interestingly, Langevin described how loose connective tissue layers allow the dense connective tissue planes to glide past one another. In cross section, these look like miniature geologic strata, or complicated cake layers with colored frostings.

The looser layers allow range of motion, while the denser stuff keeps us glued together inside. The different layers correspond to muscles with different directions of pull.

How does the sustained stretching of loose connective tissue work on a cellular level? Using *in vivo* experiments, Langevin and her team stretched a mouse at a 20 percent strain—a modest stretch typical in daily activities.

"You're all sitting down," she said, "so the tissues of the back are all stretched relative to the tissues of the front...at the end of the hour you're going to get up, and the relationship between the front of your body and the back of your body will change."

In the fibroblast cells within connective tissue, she and her team found changes that influenced the tension within the tissue itself.

"This is a new concept," Langevin said, "because connective tissue is not supposed to regulate its own level of tension."

The rotation of acupuncture needles also produced these dynamic fibroblast responses as collagen fibers wrapped around the needle "like winding spaghetti around a fork." (Collagen is the main component of connective tissue.) "This suggests that acupuncture can have the function of producing some static stretching of connective tissue."

Langevin hypothesizes that such changes at the cellular level of loose connective tissue may not only help the tissue to relax, but also create the pleasant sensations we feel when we stretch.

On the other hand, what happens in dense connective tissue cells is different.

Injury increases the thickness of the dense connective tissue, causes adhesions and scarring



Langevin, of the University of Vermont College of Medicine, discussed the effect of stretching on connective tissue.

and decreases the mobility of those layers.

Folks with low back pain tend to have these anatomical changes, but it's still unclear whether this is a cause or an effect.

What's known is that connective tissue can become abnormal both in the presence of movement restriction in pig and rat models and in the presence of chronic pain in humans.

And in the rat model, active stretching can improve gait, pain sensitivity and connective tissue inflammation.

In the Q&A, Langevin noted: "The physical therapy (PT) world has really woken up to connective tissue in concert with muscles. There's some creative research with direct clinical applications in terms of the different amounts of stretching. PT already has a whole vocabulary and method."

NCCAM director Dr. Josephine Briggs observed that Langevin's studies showed "an interesting use of ultrasound as an objective measure. And it's cheap, portable and noninvasive."

Promising news for folks with tender backs. 📌

Protocol Navigation Lecture Set, Dec. 3

The seventh lecture in the IRP Protocol Navigation Training Program Seminar Series will be held Monday, Dec. 3 from 1 to 2 p.m. in Bldg. 50, Conf. Rm. 1227/1328. The program is a trans-NIH effort to develop resources and tools and to provide training for intramural staff involved in protocol development, writing, coordination and management. Dr. Colin O. Wu of NHLBI's Office of Biostatistics Research will discuss the importance of data analysis planning in clinical trial design. For more information, contact Beverly Barham, (301) 594-2494, bbarham@mail.nih.gov or Marcia Vital, (301) 451-9437, vitalm@mail.nih.gov.



NINR director Dr. Patricia Grady speaks to the audience at the 2012 CANS State of the Science Congress on Nursing Research.

Grady Speaks at Recent Nursing Science Events

Two recent nursing science events featured NINR director Dr. Patricia Grady as a speaker. The events, the annual NightinGala hosted by the Friends of the National Institute of Nursing Research, and the Council for the Advancement of Nursing Science (CANS) 2012 State of the Science Congress on Nursing Research, were both held in Washington, D.C. During the events, Grady focused on several common themes—the importance of innovation, personalized medicine and interdisciplinary teams for improving health and fostering best practices in clinical care.

The NightinGala brought together more than 1,000 leaders from science policy, research, clinical practice, academia and the community, as well as members of Congress and their health care and legislative staffs, to commemorate nursing science and NINR. This year's event, titled "Nursing Research: Navigating the Streams in an Inter-Professional World," emphasized the value of interdisciplinary work. Grady stated, "The emphasis of nursing science on proactive, self-managed, personalized strategies to improve health and health care is critical for the transformation of national health care. The approach of health promotion and disease prevention signals a fundamental realignment that may be the single most important transforming force in our health and health care system in the years to come."

The following day, Grady presented at the CANS State of the Science Congress on Nursing Research. The congress, which provides a forum for sharing advances in nursing science, is a biennial event that was focused this year on "Discovery through Innovation." Grady provided insights on effectiveness research, informatics research and the connections between the two areas. She gave examples of cutting-edge research that NINR and NIH are funding to ultimately improve health and enhance clinical practice.



Leisure-time physical activity is associated with longer life expectancy, even at relatively low levels of activity and regardless of body weight, according to a study by a team of researchers led by NCI.

Study Finds Leisure-Time Physical Activity Extends Life Expectancy

Leisure-time physical activity is associated with longer life expectancy, even at relatively low levels of activity and regardless of body weight, according to a study by a team of researchers led by NCI. The study, which found that people who engaged in leisure-time physical activity had life expectancy gains of as much as 4.5 years, appeared Nov. 6 in *PLoS Medicine*.

In order to determine the number of years of life gained from leisure-time physical activity in adulthood, which translates directly to an increase in life expectancy, researchers examined data on more than 650,000 adults. These people, mostly age 40 and older, took part in one of six population-based studies that were designed to evaluate various aspects of cancer risk.

First Gene Therapy Study in Human Salivary Gland Shows Promise

Gene therapy can be performed safely in the human salivary gland, according to scientists at NIDCR.

This finding comes from the first-ever safety, or phase I, clinical study of gene therapy in a human salivary gland. Its results, published in the *Proceedings of the National Academy of Sciences*, also show that the transferred gene, Aquaporin-1, has great potential to help head and neck cancer survivors who battle with chronic dry mouth. Aquaporin-1 encodes a protein that naturally forms pore-like water channels in the membranes of cells to help move fluid, such as occurs when salivary gland cells secrete saliva into the mouth.

These initial results clear the way for additional gene therapy studies in the salivary glands. Although sometimes overlooked, salivary glands present an ideal target for gene therapy. They are easily accessible and, once a gene is introduced, it has no obvious escape route into the bloodstream, where it can have unintended consequences.

MRI, EEG Could Identify Children at Risk for Epilepsy After Febrile Seizures

Seizures during childhood fever are usually benign, but when prolonged, they can foreshadow an increased risk of epilepsy later in

life. Now a study funded by NINDS suggests that brain imaging and recordings of brain activity could help identify the children at highest risk. The study reveals that within days of a prolonged fever-related seizure, some children have signs of acute brain injury, abnormal brain anatomy, altered brain activity or a combination.

Seizures that occur during the course of a high fever, known as febrile seizures, affect 3 to 4 percent of all children. Most such children recover rapidly and do not suffer long-term health consequences. However, having one or more prolonged febrile seizure in childhood is known to increase the risk of subsequent epilepsy. Some experts estimate that the risk of later epilepsy is 30 to 40 percent following febrile status epilepticus (FSE), a seizure or series of seizures that can last from 30 minutes to several hours.

The Consequences of Prolonged Febrile Seizures in Childhood study is focused specifically on FSE and the risk of temporal lobe epilepsy. This is one of the most common forms of epilepsy and is characterized by seizures in the brain region important for memory.

Within days of FSE, the children in the study underwent magnetic resonance imaging (MRI) and electroencephalography (EEG). The latter technique uses sensors on the scalp to record brain activity and is often used to diagnose and monitor epilepsy. The MRI findings were reported in July 2012, and the EEG findings were reported Nov. 7. Both papers were published in *Neurology*.

Cardiac Bypass Surgery Superior for Adults with Diabetes and Heart Disease

Adults with diabetes and multi-vessel coronary heart disease who underwent cardiac bypass surgery had better overall heart-related outcomes than those who underwent an artery-opening procedure to improve blood flow to the heart muscle, according to results from an international study. The research was supported by NHLBI.

The study compared the effectiveness of coronary artery bypass graft (CABG) surgery with a non-surgical procedure known as percutaneous coronary intervention (PCI) that included insertion of drug-eluting stents. After 5 years, the CABG group had fewer adverse events and better survival rates than the PCI group.

The findings will appear concurrently online in the *New England Journal of Medicine*. A companion paper on cost effectiveness will appear online in *Circulation*.—compiled by Carla Garnett



Dr. Shiva P. Singh (l) and Dr. Michael Sesma are new NIGMS branch chiefs.

Singh, Sesma Named NIGMS Branch Chiefs

NIGMS recently appointed two branch chiefs in the Division of Training, Workforce Development and Diversity that it created early this year.

Dr. Shiva P. Singh is chief of the Undergraduate and Predoctoral Training Branch, which supports a range of predoctoral research training programs as well as special programs to increase the number of scientists from underrepresented groups. He also continues to manage a portfolio of grants in the institute's Division of Genetics and Developmental Biology focused on host-microbe symbiotic relationships and microbial community ecology.

Singh has been at NIGMS since 2001, serving most recently as chief of the Special Initiatives Branch in the former Division of Minority Opportunities in Research. Earlier, he was a scientific review administrator in the institute's Office of Scientific Review. Singh came to NIGMS from Alabama State University in Montgomery, where he was chair of the department of biological sciences and director of the university's biomedical research and training programs, including the NIGMS-sponsored Minority Biomedical Research Support and Minority Access to Research Careers programs. He earned a B.Sc. and M.Sc. in plant sciences from India's Pant University of Agriculture and Technology and a Ph.D. in microbiology from Auburn University. He conducted postdoctoral research at Auburn and at Argonne National Laboratory.

Dr. Michael Sesma heads the Postdoctoral Training Branch, which administers research training, fellowship and career development programs.

Sesma returns to NIGMS after 10 years at NIMH, where he was chief of the Research Scientist Development Program in the Office for Special Populations. Before joining NIMH, he was a scientific review administrator in the NIGMS Office of Scientific Review and a program director in the institute's Division of Genetics and Developmental Biology. Sesma came to NIH from Washington University School of Medicine in St. Louis, where he was a visiting assistant professor and research instructor in the department of psychiatry. He also previously held a position as an assistant professor of optometry at the University of Missouri-St. Louis. Sesma earned a B.A. in biology and psychology from the University of California, San Diego, and a Ph.D. in psychology from the University of California, Riverside. He conducted postdoctoral research at Vanderbilt University.



Overweight Volunteers Needed

NICHD is looking for men and women ages 35-70 who are overweight and have abnormal glucose levels. After an initial screening visit for general health assessment, participants will undergo treatment with a cortisol-blocking medication (mifepristone) or a non-active pill (placebo) for 7 days. Each participant will take both study agents with a gap of 6 to 8 weeks between the two. Testing before and after treatment with the study medications will include blood drawing over 24 hours, urine collection, an oral and an intravenous glucose tolerance test and 1- to 2-day overnight inpatient stay. Compensation will be provided. For more information, call 1-800-411-1222 (TTY 1-866-411-1010) and refer to study 11-CH-0208.

Midlife & Menopause Research Studies Seek Healthy Volunteers

Healthy women ages 40-60 are invited to participate in outpatient research studies. Compensation is provided. Call (301) 496-9576 and refer to study 88-M-0131.

Postpartum Depression Research Studies

Women ages 18-50 who had PPD in the past are invited to participate in outpatient research studies. There is no cost for participation. Compensation is provided. Call (301) 496-9576 (TTY 1-866-411-1010) and refer to study 95-M-0097.

NICHD 50th Anniversary Colloquium, Dec. 5 in Masur Auditorium

On Wednesday, Dec. 5, NICHD will hold its 50th anniversary scientific colloquium to spotlight its past, present and future research. Topics will span NICHD's broad mission, including developmental biology, reproductive health, human growth, behavior and learning. All staff are welcome to attend. Information on the colloquium, which will be held in Masur Auditorium, Bldg. 10, is available at www.nichd.nih.gov/about/meetings/2012/120512-50th.cfm.



To Tout CFC

Institutes Compete in Spirited Jeopardy!

PHOTOS: ERNIE BRANSON

A challenging game of *Jeopardy!* took place Oct. 25 under a big tent on Paul Rogers Plaza in front of Bldg. 1, as groups of institute directors (or their representatives) competed against each other, striving to be the first to press the buzzer with the right answer, er question.

In the end, while the Blue team came in first, the ultimate winner was the Combined Federal Campaign, which sponsored the event to remind the NIH community about the campaign and the more than 4,500 charities it supports.

Donating to the NIH CFC is easy, at <http://cfc.nih.gov/>.



Dr. Derrick Tabor of NIMHD (with microphone) gamely offers responses for team Red at a spirited Jeopardy! event highlighting the Combined Federal Campaign. Competition among the four teams was fierce.



Above, NIMH's Jim McElroy (l), who served as master of ceremonies (the Alex Trebek role), directs a question to Dr. Francis Collins (r), NIH director.



At left, members of the winning Blue team, with a score of 530 points, include (from l) Stephen Hazen, executive officer, CIT; Keith Lamirande, executive officer, NIAAAA; Dr. Nora Volkow, director, NIDA; Dr. Richard Hodes, director, NIA; Dr. Hugh Auchincloss, principal deputy director, NIAID; Tim Wheelles, executive officer, NIDCD. At right, NINDS director Dr. Story Landis takes a turn answering Jeopardy! questions—or rather, posing questions as answers.



Below, supporters of team Yellow show their enthusiasm.

