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UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

CUMEDICINE

Today



Going Global

*CU Doctors Providing
Care Around the World*

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Daredevil Doctor 9

Enhancing Exercise 12

VOLUME 27 | ISSUE 1

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GOING GLOBAL

CU doctors and medical students are providing care around the world. On pages 14-18, CU Medicine Today features programs in Guatemala and China.

Cover photo and left by Dan Weaver.

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Planning for the future in uncertain times

As we prepare for the future of the School of Medicine, we are confronted with several dilemmas: federal officials who cannot work together to write a sensible budget, state laws that create competing and inflexible budget priorities, and impending changes to the payment structure for Medicare. All of these matters affect us directly. We control none of them.

The federal budget cuts, known as the “sequester,” will have a profound impact on research at the medical school. Our support from state government has been limited by economic turmoil for the past decade. Medicare is experimenting with bundled payment structures that are sure to change revenues to the providers who are also our educators.

We can spend our time lamenting these matters, or we can look ahead to ensure the wellbeing of the School and the people we care for. We choose the latter.

For the past year, the School of Medicine has been engaged in a strategic-planning process that reviews our structure. We’ve been asking whether we are organized in the best way to continue to get research grants and clinical trials. Nothing about the strategic-planning process is easy. All of it is critical. Our faculty and staff have stepped up to the challenge with hours of meetings, study and conversation about how we should achieve our goals. We hope to have some conclusions this summer, and then the work really begins.

The leadership at University of Colorado Hospital has been pursuing growth opportunities that ensure continued strength in a competitive health care market. Last year’s merger with Poudre Valley Health System brings a strong presence in northern Colorado and created University of Colorado Health. The addition of Memorial Hospital in Colorado Springs boosts our presence in that vital community. With long-term support from University of Colorado Health, the School of Medicine plans to expand its class size by 24 students who will complete their third- and fourth-year training in Colorado Springs.

My colleagues at the medical school are thinking ahead, too. Last year, after my State of the School address, they ambushed me at the podium. They announced that they had established an endowment in my name for the Dean’s Chair and that they were already 75 percent of the way to the goal. I had no idea. As you know, I’m rarely at a loss for words. Well, I was speechless, dumbstruck—gobsmacked!

That endowment will serve as an essential tool for future leadership of the school; I will not use any of the funds it generates. I want them reserved for the next dean of this School so that he or she can pursue the vital missions of teaching future physicians, advancing care through research breakthroughs and caring for our patients and communities.

Respecting our past and looking ahead is a proud tradition of the CU School of Medicine and its leadership. Vincent Fulginiti, who passed away in March, served as the chancellor of the University of Colorado Health Sciences Center from 1993 to 1998. He understood that tradition when he initiated the development of our move from our urban site to the Anschutz Medical Campus in Aurora. His memory lives on here.

It continues to be a profound honor to lead this medical school as I have for the past two decades. I am proud of our accomplishments and expect to keep moving ahead. We continue to strive for excellence and to prepare our School of Medicine for the future. We can do nothing less. Our legacy—a strong School able to adapt in changing times—serves as a tribute to those who came before us and as a promise to generations to come.

With warm regards,

A handwritten signature in black ink that reads "Richard D. Krugman". The signature is fluid and cursive, with a large, sweeping "R" and "K".

Richard D. Krugman, MD
Dean, School of Medicine
Vice Chancellor for Health Affairs
University of Colorado

IN THE NEWS

Reporters locally and nationally turn to the School of Medicine for expertise and research news. Here are examples from near and far.



James Hill, PhD, executive director of the Anschutz Health and Wellness Center, offered analysis in *Newsweek* of a scientific finding that mice dosed with Viagra avoided weight gain while on a high-fat diet. "This is good science and very interesting," says Hill, who also is director of the Colorado Nutrition Obesity Research Center at the University of Colorado, "but it is a long way from being at the point of human relevance. We know 'brown fat' can play a role in protecting against obesity in rodents, but it is not clear this mechanism has any role in man."

Eric Zacharias, MD, assistant clinical professor, opined on the Mediterranean Diet study for ABC News Radio. "The study really is a potential game changer because it's the first large dietary study in many years which has looked at disease event outcomes ... such as heart attacks or strokes, as opposed to intermediate markers, such as effects on cholesterol or inflammatory markers in the blood," he says. Zacharias is author of "The Mediterranean Diet: A Clinician's Guide for Patient Care."



Allison Kempe, MD, professor of pediatrics and director of the Children's Outcomes Research Program at Children's Hospital Colorado, was featured on National Public Radio's "All Things Considered" report about electronic medical records. The report noted that a central database registry operated by the state of Colorado is incompatible with most of the systems doctors use, so they don't update the database because it's too much extra work. "A very small minority of practices can actually automatically upload their records," she says. "Most practices are having to do double data entry, where they enter information manually into the registry."

Kerry Hildreth, MD, geriatric research instructor, explained to Reuters Health that older men who use testosterone gel may see small improvements in their muscle-to-fat ratio but are unlikely to reap other benefits in flexibility, endurance and general ability to get around. She said her research found that testosterone "is widely used in people where it really may not be appropriate or may not provide the benefits that people think it's going to."

Paula Riggs, MD, professor of psychiatry and director of the Division of Substance Abuse, commented in a Thomson Reuters article on marijuana legalization efforts and concerns about the substance's impact on teenagers. She expresses concern that it will "affect their development for a very long time, if not forever." Riggs is a board member of a group called Project SAM, which stands for Smart Approaches to Marijuana, formed after the passage of measures in Colorado and Washington states to legalize marijuana under state law.

Randy Ross, MD, professor of psychiatry, appeared on Colorado Public Radio to discuss the findings of a University of Colorado study of choline supplements during pregnancy. The research found that choline—an essential nutrient found in foods such as liver, fish, nuts and eggs—reduces the rate of physiological schizophrenic risk factors in infants 33 days old. Researchers tested the infants to see if they screened out a repetitive clicking sound. "The babies who have had choline, the majority of them even by a month of age were not responding to the second sound, whereas for the babies who hadn't had choline, about 60 percent of them were still responding to both sounds," Ross explains.

Eric Coleman, MD, MPH, professor of medicine, discussed hospital readmissions in an Associated Press report. "There couldn't be a worse time, a less receptive time, to offer people information than the 11 minutes before they leave the building," he said. Coleman offered techniques—such as having patients role-play how they'll handle potential problems—to help prevent readmissions and ensure patients understand what they need to do when they go home.



Richard Zane, MD, chairman of the Department of Emergency Medicine, discussed drug overdose deaths in an Associated Press article that ran in news reports nationally. According to a report from the U.S. Centers for Disease Control and Prevention, there were 38,329 drug overdose deaths nationwide in 2010, with 60 percent involving prescription drugs. Zane says it appears that most serious painkiller overdoses were accidental. He adds that the University of Colorado Hospital is considering a rule that would prohibit emergency doctors from prescribing more medicine for patients who say they lost their pain pills.

Richard Krugman, MD, dean of the School of Medicine, described his service on the National Health Care Workforce Commission in a February article in *The New York Times*. "It's like 'Waiting for Godot,'" he says. "We are sitting on a park bench, waiting for Godot. We'll see if he shows up." The commission was created by the 2010 Affordable Care Act, but Congress has not funded it, so it cannot meet.



Marian "Emmy" Betz, MD, MPH, assistant professor of emergency medicine, commented to the *Denver Post* on her research finding that emergency room doctors and nurses could prevent firearm suicides by asking whether patients in distress have access to guns. "It's a very touchy subject now because of the gun control debate, and that can make it harder for people to talk about it," she said. "That's frustrating. This is not a gun control issue; it's a safety issue for people in crisis."

Robert Eckel, MD, the Charles A. Boettcher Endowed Chair in Atherosclerosis and professor of medicine, offered comments on the findings of a new study of the Mediterranean Diet, which consists of a lot of fruit, fish, chicken, beans, tomato sauce, salads and wine. The study found that those eating the diet have a reduced risk of suffering heart-related problems. "This group is to be congratulated for carrying out a study that is nearly impossible to do well," he tells *The New York Times*. Eckel also discussed the study in the *Washington Post*.



Sarah Allexan, a first-year medical student, garnered national attention for an article she co-wrote for the journal *Pediatrics* about the cause of blindness to Mary Ingalls, sister of "Little House on the Prairie" series author Laura Ingalls Wilder. Allexan and senior author Beth Tarini, MD, an assistant professor of pediatrics at the University of Michigan, concluded that scarlet fever was not likely to be the cause of Mary's vision loss. "Scarlet fever is unlikely because there isn't eye involvement with that disease," Allexan tells *U.S. News and World Report*. The findings were also featured in *USA Today* and *The New York Times*.

Kim Heidenrich, PhD, professor of pharmacology, discussed a \$60 million brain-injury research initiative launched in March by the National Football League. The four-year Head Health Initiative aims to improve diagnostic accuracy with better imagery tools. "I have concerns that the majority of the money is going toward diagnosis and not enough toward treatment," Heidenrich said in *Science* magazine.

Q & A



Q&A with Dr. Christian Thurstone

By Mark Couch

Christian Thurstone, MD, was named an Advocate for Action by the White House Office of National Drug Control Policy in October 2012 for his “outstanding leadership in promoting an evidence-based approach to youth substance use and addiction.”

Thurstone, an associate professor of psychiatry at the University of Colorado School of Medicine, is the director of one of Colorado’s largest youth substance-abuse treatment clinics. He is board certified in general, child, adolescent and addictions psychiatry and serves as the president of the Colorado Child and Adolescent Psychiatric Society. He also is a board member of Smart Approaches to Marijuana, a group led by former Congressman Patrick Kennedy.

In December, Colorado Gov. John Hickenlooper named Thurstone to a state task force convened to make recommendations about how to implement Amendment 64, a constitutional amendment approved by Colorado voters in November 2012 to legalize the personal use and regulation of marijuana for adults 21 and older.

Q: How do you think Colorado changed when voters approved medical marijuana in 2000?

A: I wasn’t around when that amendment passed. I moved to Colorado from Chicago in 2003. Not a whole lot changed in 2000, when people voted for it. In 2001, the medical marijuana registry started and there were only 3,000 to 5,000 on it at any one time. It was a pure caregiver model, where people had to grow it themselves or have someone grow it for them. It was kind of a sleepy program at that time.

It wasn’t until 2009—when a whole confluence of events occurred that led to the commercialization of marijuana—that things changed. What matters is not so much the decriminalization; it’s the commercialization that affects people, especially kids. That’s how I got involved in this whole issue.

Ninety-five percent of the treatment referrals to Denver Health are for marijuana. Nationwide, it’s two-thirds of the treatment referrals according to the Substance Abuse and Mental Health Services Administration (SAMHSA).

Q: What have been the health consequences of the expanded availability of marijuana in Colorado?

A: I can tell you what I’ve seen. We started having these young patients referred to us who were saying, “Why would I want to stop this? It’s my medicine. I’m getting it from my brother or my friend. I’m using it for my anger, anxiety, ADHD.”

There have been two studies that found up to 74 percent of teens in substance-abuse treatment are using somebody else’s medical marijuana. About 20 percent of teens in primary care are accessing diverted medical marijuana. It’s all diverted through somebody who is 18 or older.

Clinically, it is harder to treat these kids. They come in with a more fa-



Photos by Helen Macfarlane

avorable attitude about marijuana. When they get clean, it's hard to keep them clean when it's so easily available and when you can walk down the street and see so many places where you can get it. Think about what that does to somebody who is addicted. It's much easier for them to relapse. It does present a lot of treatment issues.

Q: What kinds of issues do you see in the patients who come to see you?

A: Right off the bat I can tell you that the average age is 16, and 80 percent have co-occurring mental health problems. Thirty percent have a major depressive disorder, 20 percent have diagnosed anxiety disorders, 40 percent have attention deficit hyperactivity disorder. That's the norm. They have substance abuse and dependence and serious life issues.

I should stress we see very diverse patients: urban, rural, all ethnic backgrounds. We see families that have done everything right and still end up with a child who has a significant substance-abuse problem.

With about 40 kids in treatment at any one time and treatment lasting 15 to 20 weeks, we see about 100 kids a year. We struggle to see everybody, to be honest. Also, we know from SAMHSA data that only one in 10 kids who have substance abuse disorders actually seek treatment.

It's hard to access treatment. I don't think the resources are there for people to get the treatment they need. The need far outweighs the supply.

Q: Backers of the amendment say occasional, recreational use of marijuana is not harmful. How do you reply?

A: For teens, any marijuana use is harmful. The data show that at least one exposure to marijuana during adolescence confers a doubling in risk

of psychosis as young adults. That risk is dose dependent. The more they use, the more they risk developing psychosis as a young adult.

We know that one in six teens who are exposed to marijuana become addicted to it. That compares to one in nine overall. The earlier you start, the more likely you are to get addicted.

We know that adolescent exposure can confer decreased IQ. There was a study that came out in 2012 in the Proceedings of the National Academy of Sciences, which is a very prestigious journal; a group of researchers

from Duke University studied 1,000 people from birth to age 38 and found that those who started marijuana as adolescents and had heavy use in young adulthood had a decrease in cognitive function.

They ruled out other possible causes, such as other substance use, educational achievement, socio-economic status and more.

So no marijuana use by teens is acceptable.

Why that is a big deal, too, is that 58 percent of new users of marijuana are under the age of 18. There are 2.4 million new users in the U.S. every year. It is adolescents who disproportionately use marijuana and it is adolescents who disproportionately suffer the effects.

Q: Describe your experience serving on Gov. Hickenlooper's task force considering the implementation of Amendment 64.

A: It's a great experience to see the democratic process in action. I'm a physician, not a politician, so it's interesting to hear all sides coming together and trying to solve a problem. I'm proud of the way people with very different views come together to have that conversation.

“For teens, any marijuana use is harmful.”

A passionate advocate for universal health care

Sen. Irene Aguilar speaks out for those in need

By Jenny Deam



Sen. Irene Aguilar, MD, is the only practicing physician in the Colorado Senate. Photos by Casey Cass.

On the morning of June 28, 2012, Irene Aguilar, MD, sat at home in her pajamas, surrounded by as much technology as she could muster.

Her cell phone was at the ready. There was a laptop streaming one TV news channel; a desktop computer was tuned to another. A second desktop had a U.S. Supreme Court blog site up. The stakes felt so high that day. Any minute the high court would decide if the Affordable Care Act would stand.

And then, in a 5-4 decision, it did.

"I was just so happy," she says, remembering feeling a sense of relief wash over her.

But there was not time to celebrate or exhale. Aguilar began tweeting, posting on Facebook and sending dozens of emails to her fellow lawmakers in the Colorado General Assembly. She told them she wanted to help lead efforts to expand Medicaid in Colorado. At last there could be universal health care in the state, she says, and Colorado could be an example for the rest of the nation.

"The stars aligned for me to be here at this time," says Aguilar, a 52-year-old Denver Democrat, who is currently assistant majority leader in the Colorado Senate and the only practicing physician in the state legislature.

Within hours of the Court's decision, Aguilar continued a personal and family journey that has been nothing short of remarkable.

Both sets of her grandparents came to America from Mexico in the early 1900s to pick cotton in Texas, working as sharecroppers on separate farms. Aguilar's mother finished only fifth grade, her father third.

Aguilar is the youngest of four daughters, raised in inner-city Chicago where her father worked in a factory. After her two oldest sisters

became pregnant by age 18, her parents moved to a new city neighborhood where Aguilar was one of the only Latino children in her grade school.

She looks back at that time as pivotal. "Sometimes if you feel isolated you either become disruptive or you excel," she says. She picked the latter. She would take the bus to spend time with a suburban church youth group. Being with kids for whom college was the expectation helped nurture her own ambitions.

She remembers the day the teacher of her high school advanced-placement biology class asked about her goals. Aguilar said her boyfriend wanted to be a doctor, while she planned to become a teacher. The teacher was aghast. "Why does he get to be the doctor? You're so much smarter than he is."

"Really?" she remembers thinking. But that was all it took. Her career path swerved. She won a free-ride scholarship to Washington University in St. Louis, where she majored in biology and set her sights on medicine. She spent a year abroad studying in England and then attended the University of Chicago Pritzker School of Medicine.

She met her husband of 25 years, Thomas Bost, MD, in 1988 during her residency at the University of Colorado School of Medicine.

While she could have had her pick of practices, she chose to take a position in 1989 at the Westside Family Health Clinic helping the poor and underserved, dispensing health care, advice and dignity. She has stayed for two decades.

The position further cemented a sensibility and recognition of how the decks are too often stacked against minorities and the poor in health care, she says. Aguilar remembers sensing this bias in medical school. "There was just this cultural bias against people in poverty. There are assumptions being made all the time," she says.

Even today she sees it. Whenever she speaks to groups of doctors, including at last fall's Colorado Medical Society convention in Vail, there is always at least one who makes a comment about getting Medicaid patients to take personal responsibility.

"You have no idea about people's lives," she reminds those whom she thinks are too quick to dismiss entire populations, particularly the elderly and disabled.

She reminds critics that setting aside an hour to exercise is a luxury. So is buying fresh fruits and vegetables.

"I always say something," Aguilar says.

Aguilar speaks out because she understands better than most.

"Medicaid is sacred," she says. It is passion that comes from being a parent who worries about a child who will need lifelong care.

In addition to a son, she has twin daughters, Amy and Meg, born eight weeks early in 1994. The umbilical cord had been wrapped around each. Amy had been deprived of oxygen throughout the pregnancy. It was doubtful she would survive, yet she confounded the experts. Today, Meg is an 18-year-old high school senior with dreams of medical school. Amy has made incredible strides, but she is severely delayed and will always need intensive support.

The waste, inefficiencies, politics and, most of all, the inequities ingrained in the nation's health care system have frustrated and infuriated Aguilar: "We are not the kind of society, Lord help us, that would let someone die on a curb because they can't pay for [health care]."

In 2010, Aguilar entered politics for the first time, an underdog who won victory among six candidates vying for appointment to a vacant

seat in the state senate. Last fall, she won reelection by an overwhelming majority.

Since becoming a state lawmaker, Aguilar has been a passionate advocate for universal health care, but she says that should not be confused with a belief that government should run it. As a doctor she sees how politics can hamstring

"THE STARS ALIGNED FOR ME TO BE HERE...."

medical care. "Decisions are not based on research and evidence but with the strongest constituent voice and most powerful lobby."

Aguilar prides herself with being able to reach across the aisle and work with Republicans to find common ground. She thinks she has their ear and respect because she has proven herself to be fiscally conservative. "I'm trying to capture the money we waste and use it to cover everyone," she says, adding that opponents to universal health care have "created a system where we will spend \$1.50 so we don't have to spend \$1 on health care."

Sen. Ellen Roberts, a Republican from Durango, says Aguilar is willing to listen to all sides when it comes to health care. "She and I

have worked together on Health and Human Services committees for the last couple years and I do think she likes to have those conversations, including with those who aren't necessarily headed for the same goal as she is, and that includes those of us on the Republican side of the aisle." Roberts also was pleased that Aguilar took the time to travel to Durango to gain

perspective on what is needed in rural areas.

"I appreciated the extra effort."

Aguilar is not all work and no play. Her daughter, Meg, reveals her mom's guilty pleasure of "chick flicks," her favorite being "13 Going on 30," a comedy about an adolescent who fast-forwards to adulthood. In the movie, there's a scene where the character does Michael Jackson's "Thriller" dance. In a nod to the movie, Aguilar took a dance class with Meg so they could do the same dance in a flash mob on the 16th Street Mall in downtown Denver.

Meg says her mother has instilled in her a strong sense of right and wrong and to stand up for what she thinks is right.

"I will take 'no' for an answer if you can tell me why. You have to convince me," Aguilar explains. "I may not win but I can sleep at night."



Sen. Irene Aguilar has focused on legislation that expands health care coverage.

Learning and practicing global health at home

CU students to train at new refugee center in Aurora

By Dan Meyers

When medical students Lauren Wempe and Chelsea Wong wanted to learn about global health, they connected with a University of Colorado School of Medicine doctor who was leading an effort to treat refugees arriving in Colorado.

"We thought, 'Why not stay here and do global health?'" Wong says.

So instead of going out to the world, the world came to them thanks to the Colorado Refugee Wellness Center, which opened last fall under the direction of Jamaluddin Moloo, MD, MPH, an associate professor in the Departments of Medicine and Radiology.

The center is also bringing CU students another way to learn. The medical school and other health care schools on the Anschutz Medical Campus will offer a new elective at the center; now fourth-year medical students will have the option of doing a clinical rotation in global health there—just two miles from campus.

Wong and Wempe, in their second year of medical school, will have to wait to take the course they helped create.

"It focuses on who refugees are, where they come from, the medical conditions that they face and the social determinants that impact their health and health care," says Eva Aagaard, MD, assistant dean for Life Long Learning and former vice chair of education for the Department of Medicine.

To get the clinic rolling, Moloo cobbled together support from several sources, starting with his own Department of Medicine head, David Schwartz, MD. The clinic also relies on the Colorado Department of Public Health and Environment, the Metro Community Provider Network, the Colorado Refugee Support Program, Aurora Mental Health and more.

"The need is there," Moloo says. "It's a gratifying population to work with. The easy part is treating, say, diabetes. The challenge is doing that in the context of social issues that the refugees deal with: housing, employment, financial issues—all the challenges of being in a new country."

There are more than 10 million refugees worldwide, according to the United Nations. Each year, the U.S. government decides how many and which nationalities to admit into the U.S. Colorado has taken in 39,000 refugees since 1980 and now admits about 2,500 a year, pri-

marily from Bhutan, Burma, Burundi, Congo, Eritrea, Ethiopia, Iraq and Somalia.

Refugees receive a medical evaluation before they can come to this country. Some issues, such as poorly controlled insulin dependent diabetes, must be dealt with as soon as they arrive. All refugees must then get a medical screening within 90 days of arrival in the U.S. for tuberculosis, HIV, intestinal parasites, hepatitis B and C, and, for children, lead. The most common medical issues include parasitic infections and musculoskeletal conditions. More than half the refugees have dental problems.

Moloo says the center, located at 1666 Elmira St. in Aurora, soon will offer primary care and become a hub for other services that help refugees in their new landscape.

Ganga Koirala, 31, a native of Bhutan and a translator at the center, knows the refugees' stories. He grew up in refugee camps in Nepal before his family joined other relatives in Colorado. But the land of opportunity was sometimes baffling, such as when an official asked his pregnant wife whether they had a car seat.

"Why would we need a car seat?" he recalls. "We don't have a car."

CU medical students long have sought out this type of service. Several years ago, they launched the Student Health Refugee Elective Collaborative. They've developed and implemented a needs assessment of the Colorado refugee community. The medical school already offers a lecture course on refugees, also developed by students and now supported by Paritosh Kaul, MD.

"This is a truly student-led initiative that has resulted in a wonderful collaboration across professional schools and with the community," Aagaard says. "It's a beautiful example of what can be done with teamwork among students and across programs."

Jamaluddin Moloo, MD, MPH, examines a patient at the Colorado Refugee Wellness Center. Photo by Glenn Asakawa.



Daredevil doctor dives into Denver

Omer Mei-Dan applies surgeon's precision to stunts

By Mark Couch

Omer Mei-Dan orders an espresso in a blur of words.

"Was that two shots or one?" asks the barista at the coffee kiosk in the Anschutz Outpatient Pavilion.

Mei-Dan, buzzing at 1 o'clock in the afternoon, is taking a quick break from seeing patients. He's fiddling with emails on his smartphone. He paces in the lobby. He returns a call. He talks so fast that he has to repeat his name three times to the person on the phone.

He'll have one shot, thanks. He only needs one shot.

Mei-Dan, MD, a 40-year-old globetrotting, adventure-seeking stuntman-turned-surgeon, operates in two modes: "alive" and "more alive."

When he bounded into Colorado a year ago as an assistant professor of orthopaedics at the School of Medicine, he found a home for his passion for extreme sports as well as his professional expertise in hip preservation and in treating extreme-sports injuries.

"I wanted high-level research with residents, students, fellows," Mei-Dan says. "And I need to have mountains. If I have an hour and a half, I can go for a run in the mountains. I want to have mountains in my backyard."

For 20 years, Mei-Dan was a freelance stuntman, appearing in commercials for the likes of Coca-Cola and McDonald's. He also did the occasional movie. He once had a Red Bull sponsorship, as part of its Global BASE jumping team. Yes, he repped for the energy drink that advertised it "gives you wings."

That's right. This guy can fly. He once jumped off the top of the Eiffel Tower.

Mei-Dan has tested himself in many outdoor adventures.

Ice climbing. *Check.*

Whitewater kayaking. *Yep.*

Skiing and snowboarding. *Of course.*

He also has logged extreme endeavors that don't even have a name: bungee jumping with a kayak, skydiving with a bike, parachuting into the back of a moving pickup truck.

Being a daredevil doctor does not make him a danger junkie, Mei-Dan says. Rather, the feats are so precise, they're akin to his work as a physician: painstaking attention to every minute detail, a mountain of preparation before any procedure and a willingness to recognize the limitations imposed by the conditions he's facing. It's a full awareness of being, where he is, whatever he is doing.

"It's like surgery," he says. "Once you have the tools, you can fix almost every pathology."

While most people might say jumping off a tall building in a wingsuit is a pathology, Mei-Dan says it's a calculated risk that he only takes when he feels he's in control.

"At the end of the day, it's a game of numbers," he says. "Can I live with a 90-10 or an 80-20 chance? I want to feel that I control almost everything that I can control."

Even those odds aren't good enough anymore, now that he's the father of three children: 8, 6 and a little one just 3 months old. He would say his chances of success in any extreme sport these days are more like 99-1.

"I would say that in the past two decades performing these stunts I've turned around and not jumped more often than I have jumped," Mei-Dan says. "If pieces didn't all fall into place as planned, I just would not do it and I'd go back some other time."

These experiences give Mei-Dan an unusual insight into certain kinds of injuries. He recently served as co-editor of *Adventure and Extreme Sports and Injuries: Epidemiology, Treatment, Rehabilitation and Prevention*.

"Dr. Mei-Dan brings to the Department of Orthopaedics a unique skill set pertaining to hip



Omer Mei-Dan, MD, hangs from a powered parachute in Israel, preparing to test a parachute from an altitude of 500 feet. Photo courtesy of Omer Mei-Dan.

preservation that is done in only a few centers around the world," said Robert D'Ambrosia, MD, chairman of the department.

Mei-Dan says he grew up in a kibbutz in northern Israel. His father is a pediatrician and his mother a psychologist. He earned his MD at Ben-Gurion University of the Negev in 2002. He traipsed around the world—Europe, Australia—to learn his craft.

One key experience was with the world-renowned FC Barcelona, one of the most successful soccer teams in the world. In that hypercompetitive world, working on top-dollar talent can have multimillion-dollar repercussions for the whole organization.

"You know that there are major consequences that all come down to the surgeon's hand," says Mei-Dan. "When you operate on a \$15 million knee, you know a lot depends on you."

The player, the team, the potential for a league championship, the business arrangements, the marketing deals all ride on the surgeon making careful decisions and using skillful technique, not unlike taking that leap off a tall building.

"It was a lot of pressure," Mei-Dan says, "and I love pressure."

RESEARCH

Can exercise change the brain?

Research in motion: Treating Parkinson's disease with physical activity

By Lisa Marshall



Mary Riffle starts each day with a series of deep stretches, spends afternoons in front of heart-pumping exercise videos in her living room, attends a strength and balance class twice a week, and ballroom dances regularly. At age 72, the north Denver resident is hardly letting Parkinson's disease slow her down. In fact, she says, it's a big incentive for her to keep moving.

"There is no question in my mind that I have slowed the progression of my disease through exercise," says Riffle, who was diagnosed in 2006, promptly enrolled in a Parkinson's-specific exercise trial at University of Colorado School of Medicine and has been active ever since.

In fact, according to a growing body of research by CU Professor Margaret Schenkman, PhD, PT, exercise may combat Parkinson's disease in more ways than once realized.

During the past 25 years, Schenkman has published dozens of articles related to exercise and Parkinson's disease. Her studies, and those of colleagues, have demonstrated that specific exercises can significantly slow and even reverse the hallmarks of the disease, including declines in spine mobility, lower extremity strength, flexibility, balance and cardiovascu-

lar fitness. Now, she and colleagues around the country are exploring another compelling question: Could it also slow the neuron death that leads to such symptoms in the first place?

"We know we can improve physical function with exercise," says Schenkman, associate dean of Physical Therapy Education and director of the Physical Therapy Program for the School of Medicine. "What we are asking now is: Can exercise also change the brain?"

Parkinson's affects roughly 1 percent of people older than 60, and is believed to be caused by a deterioration of a region of the brain called the substantia nigra. Cells responsible for producing movement-controlling neurotransmitters like dopamine die off, resulting in slowed movement, rigidity, tremors and instability.

As recently as 30 years ago, neurologists believed that exercise could worsen symptoms. Schenkman was among the first to document that it helped rather than harmed and has since been instrumental in developing Parkinson's disease-specific exercise protocols and conducting research to determine which kinds of exercise—aerobic, strength, balance, flexibility—are best for which individuals. But the idea of exercise as treatment has been slow to catch on universally. Today, some neurologists recommend it routinely to Parkinson's patients; others don't.

"For a long time it was considered a soft and fuzzy approach, not a real treatment. Doctors would say, 'Here is your prescription and oh, by the

way, you should exercise,” says Cynthia Comella, MD, a professor of neurological sciences at Rush University Medical Center in Chicago, who has been studying exercise and Parkinson’s disease for 30 years. “In the past five years people have really begun to take a more serious interest.”

Comella points to rodent studies showing that exercise boosts expression of proteins called neurotrophic factors, which are believed to protect dopamine-producing cells in the substantia nigra. Other animal studies suggest that exercise prompts proliferation of neurotransmitter receptors. Research in healthy humans shows exercise can increase blood flow and promote structural brain changes.

But does exercise slow brain degeneration in people with Parkinson’s disease? To find out, Schenkman would like to use neuro-imaging approaches to see whether the brains of people who exercise differ from those who don’t. Before embarking on such an expensive trial, she must first determine what “dose” of exercise is appropriate.

This winter, Schenkman and colleagues set out to do just that, launching a National Institutes of Health-funded, three-year, multi-site trial.

Investigators will recruit 126 people recently diagnosed with Parkin-

son’s disease who are not yet taking medication and divide them into three groups: one that exercises moderately, one that exercises vigorously and a control group that does not exercise for the first six months, followed by aerobic exercise for six months. The researchers hope to learn several things: Can people with Parkinson’s exercise that hard? Which intensity and frequency works best? Does exercise delay the time it takes before medication is required? Are the impacts significant enough to warrant a subsequent clinical trial utilizing brain scans?

“It is cutting-edge research that could lead to changes in how we practice,” says Schenkman, the study’s principal investigator.

The research team includes Wendy Kohrt, PhD; Benzi Kluger, MD; and Brian Berman, MD, all from the School of Medicine; as well as Comella from Rush; Anthony Delitto, PhD, PT, from the Univer-

sity of Pittsburgh; and Daniel Corcos, PhD, from the University of Illinois at Chicago, who is co-leader of the project.

Schenkman notes that while medication can alleviate Parkinson’s symptoms for the first five years, “they become a mixed blessing” as patients begin to develop side effects, such as repetitive and involuntary movements, and hallucinations.

“The best thing is to not start medication before one needs to,” she says. “If exercise can delay the need to start drugs, or reduce the dose needed, that would be tremendous.”

“THERE IS NO QUESTION IN MY MIND THAT I HAVE SLOWED THE PROGRESSION OF MY DISEASE THROUGH EXERCISE.”

Mary Riffle’s ballroom dancing is part of an exercise program to treat Parkinson’s disease. Photos by Patrick Campbell.



Better training through science

Wellness Center brings elite tests to the masses

By Lisa Marshall

Inside a windowless second-floor laboratory at the Anschutz Health and Wellness Center, professional cyclist Tom Zirbel has begun to break a sweat.

Over his mouth he wears a rigid blue plastic mask, which carries his exhaled breath through a long clear tube to a machine that analyzes it. Across his bare chest is a heart monitor. And by his side is Iñigo San Millán, PhD, who every four minutes cranks up the resistance on Zirbel's stationary bike and pricks him in the left ear, drawing a tiny sample of blood.

"It is definitely not fun," Zirbel declares, stating the obvious as his face reddens. But once his hour of suffering is over, he'll know precisely what kind of shape he is in and have a detailed plan on what he has to do to get stronger. "It's worth it."

Zirbel, 34, is among an increasing number of athletes—from professionals to weekend warriors to out-of-shape first timers—turning to San Millán and the University of Colorado

School of Medicine's new Exercise Physiology & Human Performance Laboratory for advice on how to get fit. While cyber coaches charge hundreds of dollars to offer boilerplate plans to runners and cyclists they will never meet, San Millán contends that the key to a successful training program is based on science and catered to the individual, all the way down to his or her mitochondria.

Since taking his post as director of the lab in 2011, San Millán has made it his mission to bring physiological tests once reserved for elite athletes to mere mortals striving for a faster time on the course or a lower number on the scale. He also believes the tests can play a pivotal role in unraveling the origins of metabolic diseases like diabetes and developing prescriptive exercise programs to treat them.

"There are many different kinds of nutritional approaches out there, but when it comes to exercise, people always go for the same high-intensity, 'Biggest Loser' approach," says San Millán, a professor in CU's Department of Family Medicine. "They assume everyone has the same engine, but everyone is different."

One-size-fits-one training plans

As a competitive cyclist growing up in the Basque Country of Spain, San Millán learned his way around a sports medicine lab at an early age. With a population of only 3 million, he says coaches there must get the most out of the few athletes they have to compete on the world stage. To do that, they use science.

"You see kids there having physiological tests at 15 in order to figure out their weak and strong points and how they can prevent injuries and improve performance," says San Millán, who took his first battery of tests at 16. In his country alone, there were 13 public sports medicine clinics. In ultra-fit Colorado, there are two.

San Millán came to Colorado State University in 1992 to study exercise physiology, rode competitively for a few years, returned home to get a PhD and spent a decade coaching pro-tour cycling teams and Tour de France cyclists from around the globe. When he returned to Colorado in 2008 to take a faculty job at the School of Medicine, he was struck by the lack of science-based coaching among U.S. athletes.

"It is impossible to offer an individualized training plan based on your physiology if you do not do testing," he says. "I wanted to bring a more scientific approach."

To do so, he subjects patients to a 30- to 60-minute session on the bike or treadmill, increasing the intensity every five minutes until they reach exhaustion while tracking how their body responds. Like many exercise physiologists, he looks at how efficiently athletes deliver oxygen to their muscles.

But far more important, he says, is what happens inside those muscles. How quickly can the body clear the lactate that binds up muscles and slows the athlete down? How fast do

Iñigo San Millán, PhD, brings a scientific approach to physical training. Photo by Glenn Asakawa.



the mitochondria inside those muscles burn through fat and carbohydrates? How does the body react to short, strong bursts of energy like riding up a hill compared to longer, less-intense activities like running a 10k?

With such data, San Millán recommends reasonable goals given effective training. Then he lays out a plan that includes dietary recommendations and target heart-rate zones designed to strengthen specific energy systems.

For Julie Manthey, a 43-year-old Denver mom who wanted to qualify for the Boston Marathon after taking time off from serious running to have a child, San Millán's lab was one of the first stops before starting a training program.

"You cannot see inside your body so you are basically guessing," Manthey says. "This gave me a great education about where I was and what level I should be training at."

She first saw San Millán in January 2009, six years after running her last marathon in 4:14. With his help, and periodic tests to gauge her progress, she ran a 3:47 in 2010, clinching a spot at the Boston Marathon in April 2012. Now she's working to break 3:30 and continues to work with San Millán.

"These tests offer fantastic information. I encourage anyone who has the means to do them to do them."

For Zirbel, his first test revealed that his aerobic capacity was not where it should be. He was burning through glucose faster than he was replenishing it and he was taking too long to clear lactate from his muscles.

Among his suggestions, San Millán recommended Zirbel eat more while on the bike and lower his training volume while boosting its intensity. During a follow-up test, Zirbel's numbers were off the charts.

"A lot of coaches just read books and rely on what they have done in the past," Zirbel says.



Professional cyclist Tom Zirbel said the tests helped improve his training regimen. Photo by Iñigo San Millán.

"It's really reassuring to have data behind the advice."

More mitochondria = less diabetes?

San Millán explains that elite athletes can load up on carbohydrates, yet stay lean, strong and free of disease because their mitochondria, the powerhouses inside cells, turn fuel into energy and help flush out metabolic byproducts like lactate.

Research shows trained athletes have more and much larger mitochondria compared to people who don't exercise. Also, studies using muscle biopsies show that people with diabetes tend to have much smaller-than-average mitochondria, and far fewer of them.

"We know very well that people with Type 2 diabetes and people who are obese have a mitochondrial dysfunction," he says.

They burn less fat, making it hard to lose weight. Their bodies have difficulty metaboliz-

ing sugars, leaving them insulin resistant. And they tend to have more lactate buildup, making it hard to get moving.

The good news: Research on trained athletes shows that endurance exercise can boost mitochondria within months.

While much attention has been given to putting diabetics on low-carbohydrate diets, San Millán believes that approach may be missing the mark.

"Elite athletes are the only group of people in the world who are 100 percent free of any metabolic diseases, like Type 2 diabetes, yet they are the people with the highest carbohydrate diets," he says. "Nutritional changes are important, but in my opinion, the root of the problem is sedentarism. I believe Type 2 diabetes should be 100 percent reversible with proper exercise."

Physiologic tests in San Millán's lab at the Anschutz Health and Wellness Center range from \$100 to \$450.

CU School of Medicine and Zhejiang University: Partners in care

New exchange program sends Colorado doctors to China

By David Kelly

As Chinese string music wafts through the operating theater, Barish Edil, MD, swiftly searches the open abdomen for the patient's diseased pancreas.

The University of Colorado School of Medicine surgeon works in tandem with Yulian Wu, MD, his Chinese counterpart, both silently anticipating the other's move.

"If you were at my hospital, you'd have more experience in this kind of surgery than any of my colleagues," he tells her.

Wu demurs.

"We have a lot of experience with this operation," she says, "but we would like to learn some of your new techniques."

Dozens of physicians watch on a monitor from a nearby auditorium.

Edil and Wu are doing a Whipple procedure, a complex surgery usually

reserved for pancreatic cancer patients whose prognosis without it is poor.

They painstakingly remove the duodenum, gallbladder and part of the stomach. Then reconnect what is left to form a working digestive system.

"I love this stuff," a buoyant Edil declares, as he snips and sutures. "This is what I live for."

It is November and Edil is in Hangzhou, China—a fabled city of tea fields, mountains and pagodas located 100 miles southwest of Shanghai—to sign a memorandum of understanding between the CU School of Medicine and the Zhejiang University College of Medicine, one of China's premier medical institutions.

Barish Edil, MD, a surgeon at University of Colorado School of Medicine, enjoys a light moment while leading a team of Chinese doctors in Hangzhou, China, last November.

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Getting the lay of the land in Guatemala

CU's first permanent medical presence in developing country begins construction

By David Kelly

A line of children snake around the concrete school-house in the Guatemalan village of El Pomal, slowly baking beneath a tropical sun. Inside, a CU School of Medicine team sweats through their pale blue scrubs.

"We have seen 12 children so far and nine had diarrhea for more than two weeks and about two-thirds have parasites," says Edwin Asturias, MD, assistant professor of pediatrics. "What we are seeing is a chronic cycle of poverty."

Asturias and the CU medical team visited Guatemala last July to lay the groundwork for a partnership representing the university's first permanent medical presence in a developing country.

The project, funded by a \$1 million donation from the Jose Fernando Bolaños Foundation, will build a clinic, research lab, housing complex and conference center on 10 acres near a banana plantation owned by the Bolaños family. CU medical teams will treat the plantation's 3,000 workers and 24,000 residents in surrounding villages.

The gift is a unique public-private partnership between a Guatemalan company and a public university in the U.S.

"As businessmen, we wanted a world-class organization with world-class resources to help us," says Fernando Bolaños, CEO of AgroAmérica, which owns the plantation. "We are making a huge, formal commitment. I have known Edwin Asturias for years and I consider him one of the top public health doctors in the world. We are proud that he is Guatemalan and has such an incredible social conscience."

Southwest Guatemala is among the poorest parts of the nation. It looks like a tropical paradise, but basic hygiene is lacking. Residents often share dirt-floor homes with livestock. Regular flooding causes toilets to overflow, contaminating drinking water. Doctors are few, hospitals even fewer.

For Asturias, the project is about coming home and giving back. Asturias graduated as a medical doctor from the San Carlos University in Guatemala in 1989 and was board certified in pediatrics at the University of Colorado Anschutz Medical Campus in 1995.

"We do a lot of international research but this is our first permanent presence in a developing country," he says. "Our people are some of the best in the United States and now we can offer them this kind of regular experience outside of the country."

Asturias is joined by medical students Lauren Mehner and Darren Eblovi, and by pediatrician James Gaensbauer, an infectious disease fellow at Children's Hospital Colorado.

They collect blood and stool samples to better understand the local parasite and anemia problem.



James Gaensbauer, MD, (far right) along with Edwin Asturias, MD, (center) examine a boy in the village of El Pomal, Guatemala. Photos by David Kelly and Dan Weaver.

"We have found that between the ages of 3 and 7, 60 percent of children here have anemia," says Eblovi, a Boulder native. "If you have anemia very young, your IQ and development are much lower."

Every night the specimens are taken to Asturias' family home for testing. The house sits on a coffee plantation in the cool highlands, an hour from the sultry villages below.

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CU OVERSEAS

Providing care in Guatemala continued from page 15

One slide reveals four kinds of parasites. About two-thirds of all children tested have parasites, the result of poor hygiene, inadequate sanitation and contaminated water.

"Parasites are something we don't see a lot of in the U.S. They are a manifestation of poverty. And that's why I'm here, to do a reconnaissance mission so to speak, to get the lay of the land and level of need in Guatemala," says Gaensbauer. "Having a permanent base will be great for the community and for us. A lot of people come and go, but that is just a Band-Aid."

The work is exhausting yet intensely rewarding.

Mehner, from Cape Girardeau, Mo., says she hopes to eventually design aid programs around the world.

"I'd love to cure cancer but I'd also like to eradicate the things we can cure now like diarrhea," she says. "This has made my passion stronger. Being out there every day in the heat and meeting these families helps you connect with them on a deeper level. You feel like you are part of something big, important and permanent."

Gaensbauer agrees.

"Most people go to medical school because they want to help people, but that can get lost along the way," he says. "This kind of experience can reinvigorate you as doctor."

The next morning while doing physicals at a school, a child with a bleeding head wound is hustled toward the team.

Asturias lays him on a table. Children watch as he sews up the gash, nimbly assisted by Mehner, who soothes the sobbing 8-year-old.

Twelve stitches later, it's over.

The boy's mother, a weary-looking woman with deep lines on her face, cautiously approaches.

"How much do I owe you?" she asks quietly.

Asturias wipes the sweat from his face and smiles.

"Absolutely nothing," he says.



Last July, a team of CU doctors and medical students went to southwest Guatemala to assess the health needs of children living near a sprawling banana plantation. The medical team, led by Edwin Asturias, MD, did physical examinations and tested blood and stool samples for anemia and parasites. Photos by Dan Weaver.

Colorado doctors in China continued from page 14

The agreement calls for physician exchanges and shared research opportunities. CU faculty can work in Hangzhou where the patient volume is much higher. They can treat conditions that are more prevalent in China than the U.S., like stomach cancer and liver tumors.

"They will gain a lot of experience quickly with those diseases," says Ting-Bo Liang, MD, vice president of the Second Affiliated Hospital of Zhejiang University College of Medicine, where Edil did the surgery. "Researchers at CU will have many more patients to draw from for their studies."

At the same time, one of Zhejiang's doctors, Jiantao Li, is expected at the CU School of Medicine this year where he will be the first physician in China to learn the laparoscopic Whipple.

The revolutionary technique, which Edil helped pioneer, doesn't require major surgery as does the standard Whipple. It also has lower infection, mortality and internal bleeding rates.

"I hope to learn Dr. Edil's laparoscopic expertise," Li says. "His technique is micro-invasive and the patient can recover very quickly."

On his first day at the Hangzhou hospital, Edil sits in a crowded room listening to pancreatic cancer cases.

In one instance, while examining a scan, he spots a malignant tumor in an awkward spot.

"That would be a challenging operation," he tells the group, "the kind of operation that keeps me up at night."

After an hour, he and his Chinese colleagues make rounds on the ward. There are eight patients to a room. Nurses wear crisp uniforms and the sort of stiff white hats long discarded in the U.S. Curious pedestrians walking through a busy alley occasionally poke their heads through open windows for a look.

One patient asks if Edil will 'be my operator' for her surgery.

Edil notes how thin the Chinese are compared to Americans, making operations easier and less traumatic.

"The difference is remarkable," he says.

Later, while dining on braised duck tongues, stewed jellyfish and sea

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Trekking the world on the global track

The School of Medicine has established several global health track programs to let students learn beyond the borders of the Anschutz Medical Campus. The programs span the world—from the mountains of Nepal to villages in the Amazon—and offer boundless opportunities for members of the campus community to teach, learn and heal.

"Working in global health requires respect for culture and humility," says Jennifer Whitfield Bellows, MD, MPH, assistant professor of emergency medicine and director of the Global Health Track.

"Students need to be thoughtful and sensitive," says Bellows. "They need the ability to develop analytical processes for creating projects that are beneficial for the patient and community. The driving goal of the Global Health Track is to provide students with the intellectual tools they need to do exactly that."

Following is a summary of a few current programs:

Nepal. Each year, three to five students travel to Nepal. Most recently, the students worked on developing a consistent teaching process

for a new medical school there. Future projects include working on medical waste recycling programs and pathology projects with telemedicine.

Peru. Three to four students per year travel to the rural Peruvian Amazon where they live in rural villages, work one-on-one with health care providers and conduct research on the efficacy of intervention on a community level. The School of Medicine students are joined by three to five students from other schools on the Anschutz Medical Campus.

Rwanda. Two to four students travel each year to this African nation to work on community health projects. Recently students studied the prevalence of non-communicable diseases—such as hypertension and diabetes mellitus—near the Knigi health center.

South Africa. Four to six students annually go to Cape Town where they assist staff in an emergency department in one of the poorer parts of the country. Students learn about trauma and infectious diseases.

Uganda. Two to three students each year work in the Kisiizi hospital in southwestern Uganda where they spend about seven weeks working on clinical projects ranging from patient satisfaction surveys to malarial surveillance.

Colorado doctors in China continued from page 17

cucumber with his Chinese colleagues, Edil describes the new collaboration as “the purest form of exchange.”

“There are no strings attached—only that we both learn from each other,” he says.

Edil specializes in pancreatic cancer, one of the deadliest forms of the disease that rarely shows symptoms until it’s already spread.

“I think everyone working in cancer medicine does so for different reasons,” he says. “Some do it for a family reason—perhaps a relative had cancer. Some do it for the challenge. I just like the patients. When I see them they are at their lowest point and view me as the person who will see them through this darkness. I take that responsibility seriously.”

Edil has started a new program at the University of Colorado Hospital for pancreatic cancer patients that he calls a “paradigm shift” in treating the disease. Rather than making patients wait weeks or months between diagnosis and treatment, they can complete their tests in a single day. Then a team of 20 doctors and health care professionals decide the best treatment plan.

“We are the only institution in the nation where every pancreatic cancer patient gets this level of attention,” he says. “We think this is the start of a new kind of cancer care.”

The next morning in Hangzhou, dignitaries from the hospital, university and the community assemble to witness the MOU signing ceremony. Local media jostle for prime camera spots.

“We are pleased to collaborate with a world-class hospital like the University of Colorado, which has a high reputation in the U.S.,” Ting-Bo Liang tells the audience. “This is a great moment and from here we will go on to a brighter future.”

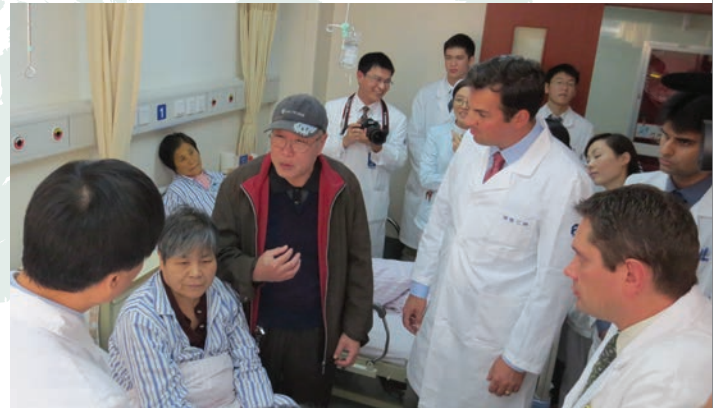
Edil steps to the microphone saying that the “future is bright and I believe we will remain friends for years to come.”

Second Affiliated Hospital president Jian An Wang, MD, says international agreements “boost our academic standards.”

“We hope to set up joint training programs,” he says. “We can start with pancreatic disease and branch out from there. Our doctors can learn new skills at CU and your doctors can come here to give lectures, presentations and see a higher volume of patients than they can in the U.S.”

After a week in Hangzhou, Edil describes his visit as both “eye opening” and “mind blowing.”

“I came away extremely impressed,” he says. “This world is getting smaller every day, and in order to flourish we need to reach out to others to take the best advantage of it.”



Barish Edil, MD, who specializes in pancreatic cancer surgery, spent a week at the Second Affiliated Hospital of Zhejiang University College of Medicine teaching his Chinese counterparts new surgical techniques.



Creating a stepping stone for new students

“When people graduate, part of the history gets lost”

By Mark Couch

Shauna Seaman knew from a young age that she wanted to be a doctor, but she didn't have many role models who could show her the path to medical school.

Neither of her parents went to college and her extended family members were far from her Aurora home; her mom's family is in Vietnam, her dad's is in Indiana.

“I always had an interest in science and was good at it,” Seaman says. “So I thought about what I could do. Teaching was an option, but being a physician was right for me.”

As Seaman, 27, wraps up her final year at the University of Colorado School of Medicine, she is compiling a history of the mentoring program that helped guide her steps through medical school.

“I always felt that the Office of Diversity provided me with so much as far as experience, encouragement, role models, resources, that it was the thing that opened the doors for me to pursue medical school,” Seaman says. “And now that I am in medical school, I feel the importance and the need to give back to them.”

As a mentored scholarly activity, Seaman is assembling a poster presentation on the Student National Medical Association (SNMA), which has existed as a national group since 1964, although the Colorado chapter wasn't established until 2001.

“I found that people who were not involved don't have any idea what SNMA is,” Seaman says.

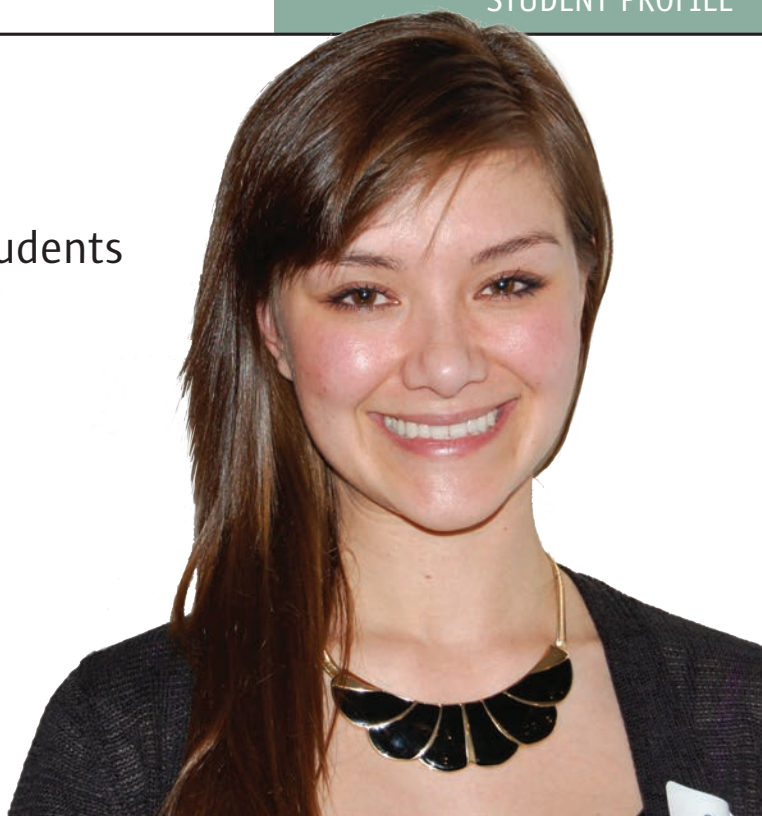
And those who were involved ultimately leave campus, taking with them the knowledge and experience that future leaders of the organization could use.

“When people graduate, part of the history gets lost,” she says.

Preserving the SNMA chapter's history is important because it has been instrumental in updating the face of medicine nationally, and it has been a contributing force at the School of Medicine; SNMA works to increase minority enrollment in medical schools via mentoring programs for students from elementary school through college.

In 2004, the Sullivan Commission on Diversity in the Healthcare Workforce found a nationwide shortage of professionals from diverse backgrounds. The commission reported that the nation's medical school graduating classes for 2007 included only 2,197 black, Hispanic and Native Americans out of a total of more than 16,000 students.

Just 8 percent of the students in Seaman's class of 2013 are from back-



Shauna Seaman, who graduates from CU School of Medicine this year, is preserving history for future students.

grounds underrepresented in medicine, compared with 39 percent in the School of Medicine's class of 2016.

As a biology major at CU Denver, Seaman found role models and received practical experience when she was part of the School of Medicine's Undergraduate Pre-Health Program, which began in 2006. She smiles describing it: “We shadowed physicians and had discussions about minorities in medicine. We performed cow eyeball dissections and we learned how to suture up pigs' feet.”

Dominic Martinez, senior director of the Office of Diversity at the Anschutz Medical Campus, says Seaman has become a role model herself.

“She's a natural-born leader and a great resource for the Colorado community,” Martinez says.

While in school Seaman served as her class' diversity representative all four years and served a term as the SNMA chapter's co-president.

In 2010, Seaman helped organize a regional conference that brought approximately 200 college students to the Anschutz Medical Campus for an intensive medical school prep program. That conference was part of an SNMA program called Minority Association for Pre-medical Students.

Seaman says attendees could take practice tests, participate in mock interviews, network with fellow students and even get “dress-for-success” wardrobe advice at a runway show.

Seeing prospective students on campus reminded Seaman how fleeting her time on campus has been and how important to her it is to preserve the SNMA history.

“I was thinking about how fast it went by. I can still remember what I wore, what I said, where I was. I can't believe four years went by so fast.”

STUDENT VOICE

Sruthi knows best

Scholar makes sense of unexpected finding

By Sruthi Pandipati Thomas, PhD



I was officially suffering from a mid-PhD crisis.

After years of working on my thesis, “norepinephrine-induced long-term modifications of rat olfactory bulb circuit dynamics,” I discovered my findings likely would never change the course of a disease.

I had chosen a great mentor and exciting scientific techniques. I spent hours in the lab. But I had apparently asked a clinically *irrelevant* question.

All this effort for what? Was all my hard work simply adding to the Encyclopedia Galactica?

So I launched a quest: What was the value of what I was learning? How could I explain the meaning of my work to the average taxpayer who, after all, was helping make my research possible?

Neuroscientists could understand that I was studying how the neuro-modulator norepinephrine affects receptors in the olfactory circuit. That was great when I talked to my neuroscientist friends.

But what about everybody else? I could say I was trying to explain how the emotional circuits of the brain affect our perception of smell.

That understanding appealed to me as a budding foodie and wine enthusiast. Such information could be highly relevant to the food and beverage industry, too.

My thesis work found that a possible critical period in linking a smell with a memory or emotion occurred in the first two weeks of a rat's life,

which translates roughly to the first year of a human's life.

There is also scientific evidence that breast-fed infants develop preferences for their mother's diet and that newborns prefer smells from their mother's diet during pregnancy.

For example, babies of mothers who consumed anise during pregnancy were found to have a positive response to the odor of anise. Those not exposed to anise in the womb ignored the anise odor or reacted negatively to it. Mothers actively sculpt their future children's odor discrimination abilities and their palates as a consequence.

While many forms of olfactory learning that are prominent in infancy wane with age, does that mean as we get older we cannot improve olfactory acumen to the level of a master sommelier?

Fear not.

The olfactory system is one of the few regions of the brain that produces new neurons, granule cells, in adulthood. Granule cells fine-tune odor messages from the nose before they are sent to higher processing centers of the brain.

A study out of a prominent Parisian lab showed that enriching your odor environment might increase the lifespan of these new neurons and improve a person's odor memory. To my delight, such findings could justify tasting fine wines, dining on adventurous cuisine, even taking a trip to the Yankee Candle Company.

Sharpening odor perception may not be as powerful a finding as pairing a smell with an emotion, but it can, for example, improve your ability to describe the bouquet of a glass of wine.

The next time your wine snob friend asks how an oaked chardonnay smells, with your trained nose, you can respond it has the aroma of “a lush, moist northwestern Ewok forest covered in moss” as opposed to a less refined answer, “woody.”

My quest to find broader meaning for my thesis work succeeded. I had been searching for connections between smells and emotions and memory, but found something else that still can improve our quality of life. And who knows what else I may find.

I returned to my bench with greater enthusiasm and an understanding that sometimes you need to step back to see the forest, especially when you don't find the tree you were searching for.

About the author:

Sruthi Pandipati Thomas is an MD/PhD candidate in her last year of training who holds a PhD in Neuroscience focused on olfaction. While she is training to become a pediatric rehabilitation physician, she is also on the quest to become an amateur sommelier.

From cancer survivor to inspiring caregiver

Physician assistant pays forward the care that saved him

By Tonia Twichell

Brandon Nuechterlein's relationship with Children's Hospital Colorado started in dramatic fashion 15 years ago when he arrived emaciated and nearly dead after a 26-hour flight from Asia.

A few weeks earlier, Nuechterlein's mother had called Children's from Phuket, Thailand, where doctors had ruled out the normal diagnoses of dengue fever and malaria.

"Leukemia," the hematology-oncology fellow at Children's had said, recommending a biopsy to confirm the diagnosis.

Thus the journey began to Denver, the family's home before moving to Thailand to be near his grandmother when Nuechterlein was 6 years old. He went through two years of chemotherapy, infections and a bone marrow transplant (BMT) before coming to Children's three years ago as a physician assistant to work with kids who often remind him of his younger self.

There was nothing in his young life to prepare him for such an extreme illness. Being raised in a then-remote area of Asia, he says his childhood was "like Robinson Crusoe."

When he was 15, he began having back pain and fevers, but dismissed it as a rugby injury until the symptoms worsened.

"I went from being a triathlete to not being able to take a flight of stairs," he says.

Armed with Tylenol codeine, weighing 100 pounds at 5-foot-11, Nuechterlein became so ill on the flight to Denver that the crew threatened to land in Las Vegas. "They didn't want me dying on the plane," he remembers.

Fire trucks and an ambulance met him on the tarmac, and he doesn't remember much until he woke up with five central lines in his body.

Complications followed. There was some confusion as to what type of leukemia he had because early treatments in Thailand skewed the results. The verdict: bilineage leukemia—very rare and extremely aggressive.

Cord blood in Italy was a match, but because he was adult-sized, there weren't enough stem cells to cure him. He was fortunate to be one of the first to take part in a clinical trial in which doctors grew more cells to transplant.

"I did well," he says, despite developing graft-versus-host disease, a condition where your new immune system recognizes your body as foreign and attacks it. "And because you get the person's immune system, you



Brandon Nuechterlein, PA, suits up to go into Jagger Kiersch's room at Children's Hospital Colorado. Jagger had been in isolation since shortly after his birth awaiting a successful transplant. Photo by Glenn Asakawa.

also get their allergies. I made three trips to the ICU before I realized I had a peanut allergy."

As traumatic as the hospitalization was, Nuechterlein, now 30 years old, became intrigued and decided he wanted a career in BMT.

"It's awful being sick, but it isn't awful being here," he says. "After seeing what the doctors did, their dedication, I knew I wanted to be involved."

Enduring a near-death experience during treatment in Thailand eliminated his fear of dying and helped him warm to his caretakers in Denver.

"I was floating above everyone, and they were all running around like crazy. It's just like you hear about; there were lights in the corner. I remember deciding this is really going to be terrible, but I'm going back. I was slammed into instantaneous pain so bad that you cannot imagine. After that, I knew I would live."

The lack of fear continued into recovery, to his doctors' consternation.

"The doctors teased me that they would take away my graft because I was jumping out of airplanes, (skiing) down mountains at 50 mph," he says.

As soon as he was well enough to get his GED, he started classes at CU Denver, then, two weeks after graduating with a degree in psychology, he started on his physician assistant degree at Anschutz Medical Campus. He chose the PA route over an MD because he knew it would mean more time with patients.

Doing his rotations at Children's was like coming home. "All the doctors here have treated me at one time or another."

Now he runs the long-term survival clinic at the Center for Cancer and Blood Disorders. He tells every patient about his own disease and recovery.

"It gives them hope. It's one thing to hear doctors talk about the numbers and survival rates, and it's another thing to meet me. I had a very poor chance of survival. I was way sicker than most of them are. And it all turned out great in the end."

The golden age of treating multiple sclerosis

Rocky Mountain MS Center raises quality of life for MS patients

By Tonia Twichell



Wendy King first found out about multiple sclerosis while in grade school when her older sister was diagnosed.

"I went to the school nurse and asked her what multiple sclerosis was," King recalls, "and she said, 'Oh honey, I'm afraid your sister is going to be in a wheelchair and won't live a full life.'"

Those words haunted King, who began noticing symptoms like leg numbness and headaches in her 20s. Her doctors told her not to worry; they believed (incorrectly) that it was unlikely that two people in the same family would have MS. Her healthy lifestyle, plus a lack of reliable diagnostic tools, meant she went about 10 years without an accurate diagnosis.

When she finally learned she had MS, a major transformation in MS treatment was sweeping the field. CU's Timothy Vollmer, MD, describes a shift from a "diagnose-and-adios" culture to the "golden age of MS treatment."

"From 1860, when it was first diagnosed, to 1993, we had no therapies that were helping MS patients," says Vollmer, professor and director of clinical research in the Department of Neurology and co-director of the Rocky Mountain MS Center at the Anschutz Medical Campus.

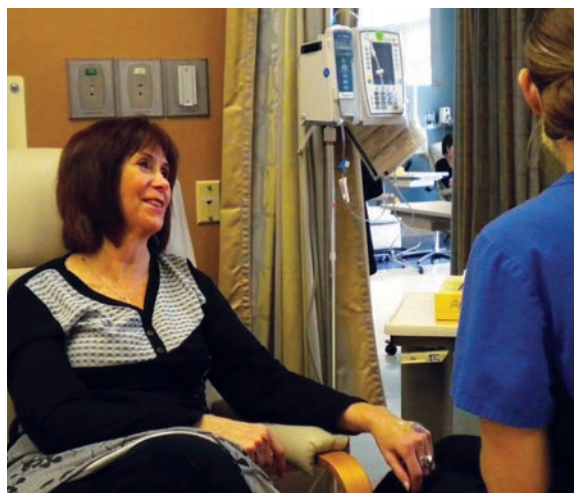
Today there are nine drug labels available. The first was an interferon-based medicine that worked well for many people with relapsing-remitting MS, the most common form of the disease.

The breakthrough dramatically changed Vollmer's practice; he'd expected to spend his career in research labs. "I really thought I'd do animal studies."

The most effective drugs can have fewer side effects and attack the disease on the molecular level; some even reverse nerve damage. All of those drugs—and two new drugs in the pipeline to FDA approval—were developed with help from CU researchers, who typically oversee 25–30 ongoing clinical trials.

"I tell patients when they are diagnosed that it is one of the most treatable diseases in neurology," Vollmer says. "Being in clinic is a lot of fun

Left, Anne Marie Pewterbaugh was diagnosed with MS just as her daughter, Tabitha, was about to turn 2. The fact that MS can run in families is something that "is always in the back of my mind." She makes sure Tabitha gets plenty of Vitamin D year around, but says that if someone is destined to get MS "this is the best place and time to get it" because of rapidly developing treatment therapies at University of Colorado Hospital. Photo by Glenn Asakawa.



Wendy King prepares for her monthly infusion therapy at University of Colorado Hospital. Photo by Tonia Twichell.

now. It's not as emotionally tolling as before."

It's not just the drugs that are making the difference, Vollmer says. Scientists have learned a great deal about the disease, which affects the central nervous system, has no known cause and attacks an estimated one in 550 people in Colorado.

Patients are told to watch their weight, to avoid smoking, to exercise and to take vitamin D. "The patient has to be a partner in treatment," he says.

"Without treatment, 50 percent will be in a wheelchair or will be using a cane within 15 years of diagnosis," Vollmer says. "But now, we have a good chance of preventing major disability in most of the newly diagnosed and some patients can be put in full disease remission."

However, John R. Corboy, MD, professor and director of faculty affairs at the Department of Neurology, and co-director of the Rocky Mountain MS Center, cautions that not all treatments work for all people, and some drugs have debilitating side effects.

For example, the first drug King was prescribed was Betaseron, which for her "was like having the flu 24/7."

Her neurologist told her she could take a break from it, and she did—for nine years. "That wasn't what he intended," she says. She began seeing another neurologist, who put her on Copaxone. But, worried that her symptoms were worsening, she found Vollmer because "I wanted the most aggressive treatment possible." Vollmer came through. He started her on Natalizumab (Tysabri), a new drug that prevents relapses 70 percent of the time.

She says it works well for her, but she learned that her years in denial could come at great cost. The drugs are most effective if taken early in the disease process.

"He told me that had I waited a little longer, I was not heading in a good direction and some of the options might not have been available. That scared the hell out of me, I can tell you."

Anne Marie Pewterbaugh, who was diagnosed in 2009, started out on Tysabri but learned she has a common virus that can cause serious side effects when mixed with Tysabri. She is now taking Rituximab (Rituxan) a drug that's been approved for lupus and non-Hodgkins lymphoma but also works very well for MS patients.

Pewterbaugh, 47, also believes she had symptoms nearly two decades ago, but was initially misdiagnosed.

"I didn't get help as soon as I could have," Pewterbaugh says. "When the doctor finally told me I have MS, I said, 'I know I have MS.' Of the 10 MS symptoms you can have, I had six to eight of them."

King and Pewterbaugh say their symptoms are now manageable—a giant leap especially for Pewterbaugh, who suffered

crushing fatigue and migraines initially. Despite the long wait to a diagnosis, most people don't know they have MS.

"It's not pertinent to my ability," says King. "It doesn't define me, which is what I was afraid of for a very long time. I won't let it, and I don't have to."

That's exactly what Corboy wants to hear. "We want to know how they are feeling, are they employed, are they married, do they have children—things that are important to them," he says.

Quality of life is one of the goals of the Rocky Mountain MS Center, which is one of the most comprehensive MS centers in the world and treats most MS patients in Colorado and Wyoming.

"We have our fingers in everything," Corboy says. "We run clinical trials, do basic research and patient visits. We have adult day-enrichment programs, psycho-social and occupational therapy, educational seminars and other support. We have a trained hospitalist, so when patients go to the hospital, they're taken care of by one of us. We have a pediatric neurologist program. The combination of research, patient care, education and supportive services is virtually unique in the U.S."

"We even helped write the legislation that requires insurance companies to pay for standard-of-care health care of people in Colorado going through clinical trials."

The steady progress in treatment is especially remarkable considering that for the first 150 years "every therapy failed," Vollmer says. "Now we're working on a vaccine."

That's good news for Pewterbaugh and King, both of whom have children. MS tends to run in families.

With or without a vaccine, Corboy compares the progress in MS research to that of HIV/AIDS.

"When HIV was discovered, it was fatal," says Corboy. "Their goal was to turn HIV into a chronic disease. Our goal is to turn MS from a chronic disease to an afterthought."

ALUMNI REUNION SCHEDULE 2013

May 23–25, 2013

Celebrate the milestone anniversary of your graduation from medical school. Reunite, rediscover, and reconnect with your classmates and the CU School of Medicine. For more information and registration, visit: www.ucdenver.edu/somreunion or call us at (303) 724-2518.



reunite rediscover reunion 2013

THURSDAY, MAY 23

9:00 am

All-Class Welcome Breakfast
Anschutz Medical Campus, Fulginiti Pavilion for
Bioethics and Humanities

10:00 am

Wet Lab Student Session: Pathology of chronic
renal failure and other kidney diseases
Anschutz Medical Campus, Fulginiti Pavilion for
Bioethics and Humanities

Noon

1883 Society Luncheon
Anschutz Medical Campus, Research Complex 2,
Room 2100

6:00 pm

Silver & Gold Banquet
History Colorado Center
Denver, Colorado

FRIDAY, MAY 24

8:45–Noon

Class of 1963 Continental Breakfast and School
of Medicine Convocation and Hooding and Oath
Ceremony
Anschutz Medical Campus, Education 1 North,
Room 3500

SATURDAY, MAY 24

9:00 am

Dean's Breakfast and State of the School Address
Anschutz Medical Campus, Fulginiti Pavilion for
Bioethics and Humanities

11:00 am

Tour of the Anschutz Medical Campus
Fulginiti Pavilion for Bioethics and Humanities

FRIDAY, MAY 24 CLASS ACTIVITIES

Class of 1953—5:30 pm
Dinner at University Club

Class of 1958—5:30 pm
Dinner at University Club

Class of 1963—6:00 pm
Dinner at Denver Country Club

Class of 1973—5:30 pm
Dinner at University Club

Class of 1978—5:30 pm
Dinner at University Club

SATURDAY, MAY 25 CLASS ACTIVITIES

Class of 1968—6:30 pm
Cocktail reception hosted by Saralee McGroarty

Class of 1983—5:00 pm
Dinner at Fogo de Chao

Class of 1988—5:00 pm
Dinner at Fogo de Chao

Class of 1993—12:30 pm
Picnic at the Education Quad

Class of 1993—5:00 pm
Dinner at Fogo De Chao

Class of 1998—5:00 pm
Dinner at Fogo De Chao

Class of 2003—5:00 pm
Dinner at Fogo De Chao

Class of 2008—5:00 pm
Dinner at Fogo De Chao

2013 Medical Alumni Association Awards

Silver and Gold Award – Carol Rumak, MD, '74

Distinguished Service Award – Gerald Hickman, MD, '65

Distinguished Achievement Award – Jeremy Lazarus, MD, MS, '72

Supporting our medical students

Dear Alumni,

Spring is always a new and exciting time of year, especially for the Medical Alumni Association. We have been working on making connections with medical students and alumni and are proud of the work we're doing. Our student programs are a great way to support the next generation of CU physicians.

Our work starts when we welcome medical students to CU with a complimentary eight-year membership in the Medical Alumni Association. A few days later at the Matriculation Ceremony, we donate the first stethoscope to these budding young doctors. The stethoscope program connects donors with students directly and gives us a tangible way to pass the torch. Throughout the students' first and second year, we support them with breakfasts before class and study-break snacks.

In the fourth year of medical school we offer the HOST (Help Our Students Travel) program, where we connect students traveling for residency interviews with alumni around the country. It's a great opportunity for students to get a sense of place and to connect with potential CU Alumni physician mentors.

In March, we sponsor the Match Day champagne toast to wish students well in their residency match. It is always a wonderful day, filled with energy and emotion, as we watch students open the envelopes to discover where their next phase of life will take place.

In May, we celebrate with alumni reunion attendees, students, and their families at the Silver & Gold Banquet the night before graduation. The next morning, the 50-year reunion class processes with the Class of 2013 at convocation, marching in this new cohort of CU doctors.

Support of medical students is paramount in our work to promote the CU School of Medicine and our profession. The Medical Alumni Association's goal is to create a robust community of CU physicians and support the School of Medicine in educating the next generation of physicians. We are looking for alumni leaders to help serve in an advisory capacity on our Medical Alumni Association Board of Directors and also in a mentor and resource capacity for students. If you are interested, please contact us at healthalumni@ucdenver.edu.

Best regards,



William Maniatis, MD '65

MEDICAL ALUMNI ASSOCIATION

Thank you to our 2012–2013 donors!

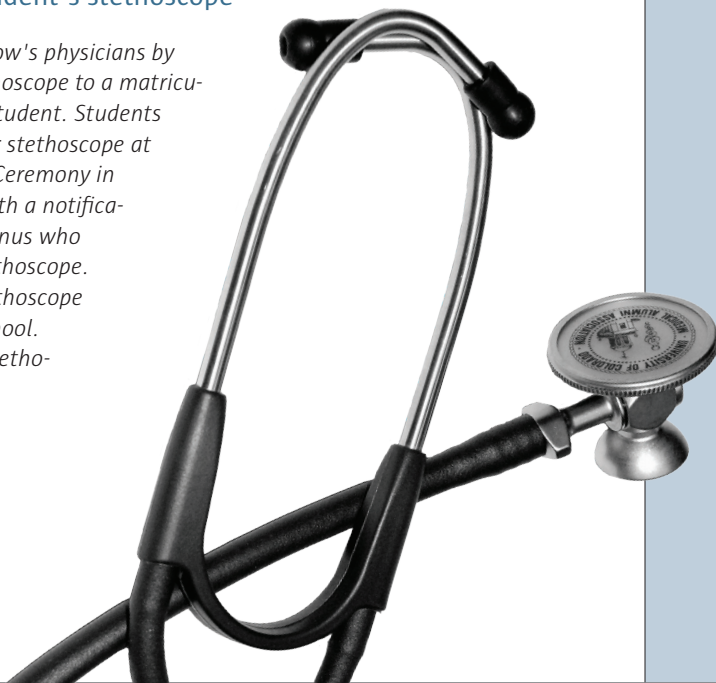
Your contribution helps us accomplish our mission of preparing physicians who will serve the public by aspiring to excellence in patient care, research, education and community service. Find a list of our partners at <http://med-school.ucdenver.edu/donors>.

Membership in the Medical Alumni Association is based on fiscal-year giving to any School of Medicine fund. To find giving opportunities, visit <http://med-school.ucdenver.edu/giving>.

Membership Type	Donation Level	Membership Benefit
Medical Student	\$0 (students only)	Membership benefits packet distributed at orientation and invitations to participate in alumni-sponsored student events and programs
White Coat Member	\$0–\$99	CU Medicine Today
Stethoscope Society	\$100–\$249	Above, plus Membership benefits card and letter; CU football game discount
Century Club	\$250–\$499	Above, plus 2 tickets to the Century Club cocktail reception
Faculty Circle	\$500–\$999	Above, plus Anschutz Medical Campus tour
Dean's Circle	\$1000+	Above, plus 2 tickets to the Silver & Gold Banquet

Sponsor a student's stethoscope

Sponsor tomorrow's physicians by donating a stethoscope to a matriculating medical student. Students will receive their stethoscope at the White Coat Ceremony in August along with a notification of the alumnus who donated the stethoscope. Donate your stethoscope today at medschool.ucdenver.edu/stethoscope.



Sloan Research Fellowship

Abigail Person, PhD, received a Sloan Research Fellowship to support her efforts to understand how the brain generates precise body movements.

Person, an assistant professor in the CU School of Medicine's Department of Physiology and Biophysics, was one of 126 scientists recognized by the Alfred P. Sloan Foundation in February. Fellows receive \$50,000 each to support their research.

Person's focus is mapping the organization of specialized neural circuits into the cerebellum and determining its role in sensory processing. The internal monitoring of action by this part of the brain is considered important in generating precise movements.

Paul L. Joskow, president of the Alfred P. Sloan Foundation, writes: "The Sloan Research Fellows are the best of the best among young scientists. If you want to know where the next big scientific breakthrough will come from, look to these extraordinary men and women. The Foundation is proud to support them during this pivotal stage of their careers."

FINDING THE FAT MOUSE GENE

During a two-year study funded by the National Institutes of Health and the U.S. Department of Agriculture, School of Medicine researchers led by James McManaman, PhD, discovered that deleting a specific gene in mice prevents them from becoming obese even on a high-fat diet.

"When fed a diet that induces obesity, these mice don't get fat," says McManaman, vice chairman of research for Obstetrics and Gynecology at the School of Medicine. "It may be possible to duplicate this in humans using existing technology that targets this specific gene."

The researchers created a strain of mice without a gene that produces a protein that regulates fat storage and metabolism. They found that the mice were resistant to obesity.

"It could mean that we have finally discovered a way to disrupt obesity in humans," McManaman says. "That would be a major breakthrough."

McManaman was the lead author of the study's findings, which were published in February in *The Journal of Lipid Research*. Co-authors include David Orlicky, PhD; Paul MacLean, PhD, associate professors at the School of Medicine; and Andrew Greenberg, MD, senior scientist and director of The Obesity and Metabolism Laboratory at Tufts University.

MISSION STATEMENT

CU Medicine Today will keep alumni and others knowledgeable about and connected with the School of Medicine and the University of Colorado by writing truthful and relevant articles and providing a forum for news and comments from alumni.

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Gates Foundation Grant

The Bill & Melinda Gates Foundation awarded an \$11 million grant to Michael Hambidge, MD, and Nancy Krebs, MD, to research the impact of maternal nutrition before and during the early stages of pregnancy.

The grant allows the researchers to study the impact of starting women on a daily nutrition supplement at least three weeks before conception rather than 12 weeks after gestation. Babies born to each group will be compared to those born to women in a control group who receive the same home visits, education and support for hygiene and nutrition but do not receive the supplement.

The grant, which runs five years, was announced in December 2012 and supports research in Guatemala, India, Pakistan and Zambia.

"The challenge to improve the nutritional health of women before they become pregnant is very daunting, but the beneficial payoff is potentially profound," says Krebs.

Losing sleep and gaining weight

Healthy adults gain almost two pounds of weight when they get just five hours of sleep per night during a work week and have unlimited access to food, according to a study by researchers at the University of Colorado Boulder and the CU Anschutz Medical Campus.

For the study, researchers monitored 16 young, lean, healthy adults who lived for about two weeks in a “sleep suite” at the University of Colorado Hospital in Aurora.

During the first week, half the people were allowed to sleep nine hours a night while the other half could sleep up to five hours. Everyone was given unlimited access to food. In the second week, the nine-hour sleepers were restricted to five hours of sleep, while the previously sleep-deprived were allowed the extra sleep time.

“When people are sleep-restricted, our findings show they eat during their biological nighttime when internal physiology is not designed to be taking in food,” says Kenneth Wright, PhD, director of CU-Boulder’s Sleep and Chronobiology Laboratory.

The study results were published in March in the Proceedings of the National Academy of Sciences.

Co-authors of the study are Rachel Markward and Mark Smith, both postdoctoral researchers in the lab, and the following School of Medicine faculty members: Edward Melanson, PhD; Leigh Perreault, MD; Robert Eckel, MD; and Janine Higgins, PhD, from the Anschutz Medical Campus.

MEDICARE BUNDLED PAYMENT PILOT

The Centers for Medicare and Medicaid Services announced in January that University of Colorado Hospital (UCH) and University Physicians Inc. (UPI) were selected to participate in its bundled payment pilot program.

The Bundled Payments for Care Improvement Initiative is designed to improve patient care by aligning incentives for providers. Under the pilot program, Medicare will make a single, predetermined payment to the hospital to cover all services furnished by the hospital, physicians and other practitioners during an inpatient stay.

Traditionally, Medicare makes separate payments to providers for each of the individual services they furnish, potentially resulting in fragmented care and rewarding quantity of services rather than quality.

The team from UCH and UPI worked for more than a year to develop, analyze and subsequently submit a pilot proposal for a bundled payment for congestive heart failure patients.

The pilot, led by Larry Allen, MD, and Christina Finlayson, MD, will be small, covering about 100 Medicare patients, but the planning team expects to transfer the learning to other reform initiatives as well as to all congestive heart failure patients at UCH.

Endowed Chair in Women’s Health Research

Judith Regensteiner, PhD, has been named the inaugural Judith and Joseph Wagner Endowed Chair in Women’s Health Research at the School of Medicine.

The University of Colorado Foundation announced in January that it had received more than \$2 million in private support for the endowed chair from more than 30 contributors, including a \$1 million lead gift from Judith and Joseph Wagner.

The Center for Women’s Health Research provides small seed grants to support researchers’ work, formalizes research mentorship to develop emerging scientists and shares women’s health news through community outreach—all with the goal of finding answers with the potential to treat or prevent heart disease, diabetes and other factors that threaten women’s health.

Currently, 24 junior faculty researchers affiliated with the center are mentored by senior faculty. As an interdisciplinary group, these junior members specialize in endocrinology, cardiology, pediatrics or gerontology, and women’s health and/or sex difference research. Each area of study is integral to the center’s various projects.

“It is an extraordinary honor to hold this chair, and it has been inspiring to see the community show such partnership and support for our mission,” says Regensteiner.

Final Thoughts

Propping up each other

By Nichole Zehnder, MD



Nichole Zehnder, MD, is an assistant professor of medicine.

Before I started teaching medical students, I was a hooker.

Let me explain: A hooker is a rugby player at the center of the action. For those unfamiliar with a rugby scrum, think of it as a set of human bowling pins lined up in reverse. The front row has three players, and the hooker hangs in the middle between two players called “props.”

When the ball enters play, the opposing scrums crouch and, as a carefully orchestrated mass of force, use their shoulders to drive the opposing team away from the ball. Arms clinging to the bookend props, the hooker’s entire job is to “hook” the ball with her foot, kicking it back to teammates whose job is to run up the field and score.

Rugby is an amazing sport that requires practice, rewards teamwork and encourages camaraderie. Medical education is similar.

This year, our inpatient internal medicine clerkship replaced our traditional lecture series with a team-based learning (TBL) curriculum. Groups of five or six students work together with the guidance of a facilitator, who acts as a coach, to solve real-world clinical cases.

Not much in our world can get done without teams. This is as true in medicine as it is on the rugby pitch. After a few years as a hooker smack dab in the middle of the scrum, I am absolutely certain that rugby and team-based learning operate in a parallel universe.

First there is the pre-game preparation.

As a rugby player, this meant countless hours of tackling drills. It meant running sprints in the freezing rain, in the mud and in the dark. As a relatively small rugger and someone who at the time had a love-hate relationship with running, this was not my favorite way to spend time. In fact, it was downright painful.

In the same way, in TBL, we expect our learners to come prepared. Each week they are required to read pre-specified chapters of text, preparing them for an in-class experience. Students sometimes think this is painful. But just like on

the field, we all need to practice before coming to play.

Game day comes next.

Imagine a 100-seat classroom, but in TBL, teams gather facing each other instead of the facilitator. Each session starts with teams taking a brief readiness assessment test, working together to achieve the best score possible.

After each team has taken their test, scores are posted at the front of the room for others to see. Just like players on the pitch, students want the best score. They want to win.

The subsequent part—after the warm-up test—makes TBL really fun. Teams work through clinical cases in parts, with disclosure of more clinical information as they go along. Between each part, learners answer higher-level clinical questions by working as a team. For teams to succeed, each student must contribute for the greater good. Just like props holding up their hooker, everyone plays a key role in moving the ball down the field.

Finally, what makes both rugby and TBL incredible is genuine camaraderie.

After games, ruggers head to a nearby pub to celebrate and perhaps watch a less fortunate teammate “shoot the boot” (drink beer from a cleat). No one takes attendance, but everyone always is there. Teams stick together.

Now if you are wondering how this fits into TBL, let me end with a little story.

During each course block, the team of learners spends the second half of their clinical rotation at remote clinical sites, separated from one another. They disperse, isolated from their team by hundreds of miles.

Less than a week after one team went out on their own, I got an email from their “team captain” that said: “Dear Dr. Zehnder, our team met on Google Hangout to go over these cases together. We had a couple of questions we hoped you could answer.”

Despite being miles apart, the team continued to work together to solve clinical conundrums. Still they are helping one another move the ball down the pitch.

Donor Memorial Garden

Plans for a Donor Memorial Garden began in 2002 when Stephen Sherick was in his first year of medical school.

Deeply appreciative of those who donated their bodies to science, Sherick and several classmates thought a permanent memorial would underscore their gratitude.

Many design iterations followed – from a large amphitheater where the annual Body Donor Ceremony could be held each spring to smaller options like a bench or tree.

More than a decade later, the final plan has become reality and Sherick, who conceived some of the more grandiose proposals, is satisfied.

“It’s right down the middle – not as ambitious as I hoped, but not as small as I thought it would end up either,” says Sherick, a graduate of the class of 2006. “It’s a nice foundation, and if we get more money over time we can add to it.”

The gratitude students feel toward body donors speaks to the 11-year effort by Sherick and several others students as well as faculty and Dean Richard Krugman, MD, who used funds from the sale of the Given Institute in Aspen to help pay for the garden’s \$250,000 cost.

“For more than 80 years the state of Colorado has entrusted the School of Medicine with overseeing the State Anatomical Board,” Krugman says. “During that time, thousands of Coloradans have

donated their bodies so our students could learn basic anatomy firsthand and become better health care professionals. The students and faculty believe that a permanent garden memorializing these gifts is an important way in which we can show our gratitude.”

Students work on cadavers in their first year of medical school to learn basic anatomy.

“It’s a real mix of emotions initially,” says Spencer Tomberg, a fourth-year medical student, who is one of the garden’s current promoters. “They hide the hands and the face and feet at first because those parts of the body are really personal. Once you start exposing them, which you do in time, your connection really starts to grow. You have to try to balance respect for the person with your inquisitive nature.”

Because the donors’ names are not provided, many students give the body a name, and bring flowers or other tokens when the 12-week class is finished.

“In our case, we guessed the age of the donor, and then looked up the most popular names from that time period and gave her a name. During the (donor memorial) ceremony, someone stood up and told a story about a lady in that same age range with that same name. Some of us looked at each other and wondered if we really had guessed her name right.”

Most students attend the annual body donor ceremony each spring and are joined by family and friends of donors.

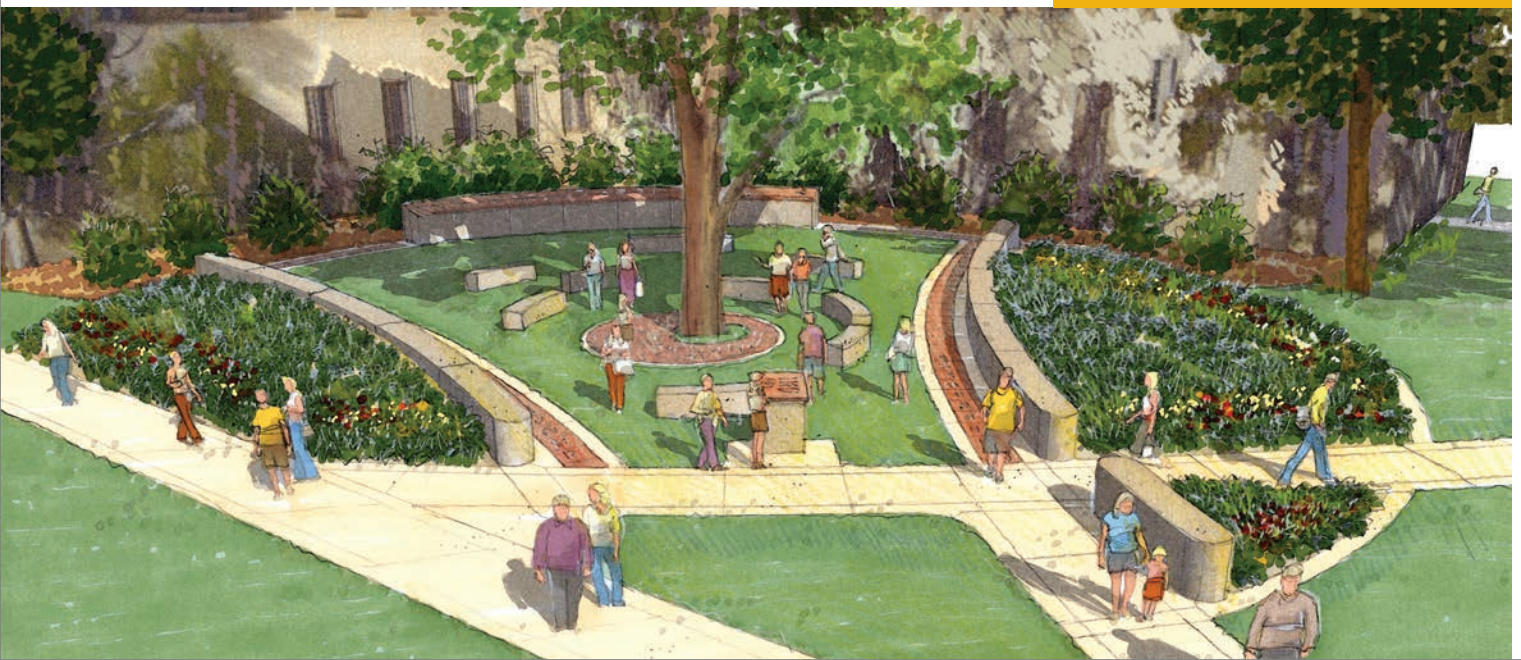
“I don’t know if you’ve ever been to the ceremony, but for me personally, I think it was the very best moment of my four years of school,” says Sherick. “You get to hear from the families of the people who you’ve learned so much from. There is not a dry eye in the house.”

The Donor Memorial Garden will open this spring on the southeast lawn in front of Building 500. Each class that has been involved in the fundraising and design will be represented with a paver engraved with a quote voted on by class members.

The State Anatomical Board, established in 1927, is headquartered at the School of Medicine and supervises body donations for educational purposes throughout Colorado and Wyoming.

Some facts on body donation between 2008-12:

- Total donors – 646
- Females – 339
- Males – 307
- Average age – 79.06 years
- 87 percent request remains to be returned to family




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"Connecting alumni with each other and the university."

Advancing Science and Improving Care UNIVERSITY OF COLORADO SCHOOL OF MEDICINE



Alumni donors provide important support for students at the CU School of Medicine. Since 2006, the Medical Alumni Association and alumni donors have provided stethoscopes for every entering medical student at the annual White Coat Ceremony.

This year, the Medical Alumni Association will add to its support by offering a scholarship through an endowment established by generous gifts from more than 60 medical school alumni donors. The Medical Alumni Association asks for your help in our effort to provide meaningful scholarships to defray the cost of medical school for the next generation of physicians.

This scholarship will be awarded based on merit and financial need. For more information, go to www.cufund.org.