THE POST

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UF Health Science CENTER

DENTISTRY • MEDICINE • NURSING • PHARMACY • PUBLIC HEALTH & HEALTH PROFESSIONS • VETERINARY MEDICINE

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ON THE COVER: Technology transfer is all the rage at the University of Florida, and the Health Science Center is a major player in that effort. The ins and outs, ups and downs of the process of commercializing technology put us in mind of a well-known board game that you may recognize from our fanciful cover. Story starts on page 10.

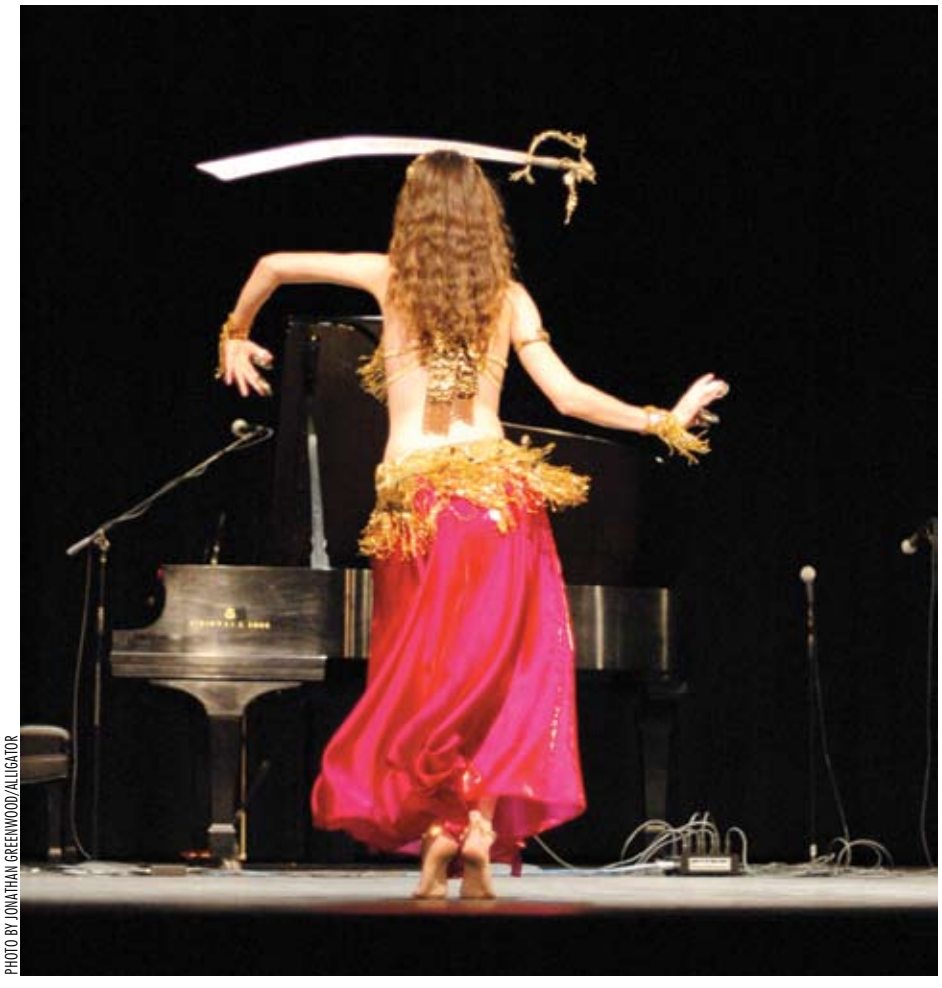


PHOTO BY JONATHAN GREENWOOD/ALLIGATOR

Don't try this at home

Nina Mayer, a first-year medical student, balances a blade as she performs a belly dance during the College of Medicine's talent show May 14 at P.K. Yonge's Performing Arts Center. Mayer began dancing when she was 6 years old. Twenty-one medical students, three faculty members and two staff members performed at the show, which was held in remembrance of Caroline Cody, a medical student who died in May 2000. Proceeds from this event will go toward funding students' spring break mission trips.

Pharmacy research facilities completed at Health Science Center

The College of Pharmacy held a ribbon-cutting ceremony in May to celebrate the completion of a five-year project that remodeled and improved 45,500 square feet of research space at the UF Health Science Center. This is the first remodeling effort of the pharmacy wing since the building's completion in 1962. The renovated seven-story wing yields an increase of more than 37 percent in total usable space for college researchers. The ground floor facility includes improved laboratory research space for the department of pharmacy practice and clinical facilities for asthma studies.

"This renovation provides a dramatic improvement in the quality of the research space for pharmacy practice, including dedicated space for conducting clinical research studies, as well as laboratory space specifically designed to meet the needs of the Center for Pharmacogenomics," said Julie Johnson, Pharm.D., chair of the department of pharmacy practice.

Funding for the $14.4 million project included $8 million in privately raised funds, $5.5 million in state funds and a $900,000 construction grant from the National Institutes of Health.

— Linda Homewood

PHOTO BY LINDA HOMEWOOD

Representing each department in the College of Pharmacy, ribbon cutters are: (from left) Reginald Frye, Ph.D., Dean William Riffee, Ph.D., Maureen Keller-Wood, Ph.D., Margaret James, Ph.D., and Guenther Hochhaus, Ph.D.

mypyramid.gov

The federal government issued updated dietary guidelines in February and now a new MyPyramid.gov Web site lets users download tailored dietary recommendations. Individuals key in their age, gender and physical activity level so they can get a personalized recommendation on their daily calorie level, based on the 2005 Dietary Guidelines for Americans.

Curious About Your Vital Signs? One Day Soon, Check Your Laptop

The cameras and MP3 players are fun, but the next wave of add-ons for cell phones and laptops may help users keep track of their health.

A UF engineer has built a working prototype for a small, portable system that can monitor a person's breathing and heart rate automatically via wireless signal, with no need for cords or plugs. The goal is to make it easy for people to check their own vital signs, and then transmit them in real time to medical personnel through a cell phone or Internet connection, all with little more than a press of a button.

"The initial idea is that elderly people who may have difficulty getting around — they won't need to go to the hospital or the doctor's office every time they need a checkup, they can just send in their data and talk to the doctor," said Jenshan Lin, a UF electrical and computer engineering associate professor who pioneered the technology with colleagues at Stanford University and the University of Hawaii.

The system is a fresh development in a growing trend aimed at tapping the latest technology to improve home health care, widely acknowledged as an important solution to rising health care costs.

Drivers of the trend include increased research funding from the National Institutes of Health as well as the emergence of private companies seeking to capitalize early on a new market for the nation's growing elderly population, experts say.

— Aaron Hoover
UF News & Public Affairs

Delaying dental visits can be a pain

By Lindy McCollum-Brounley

Rural residents are nearly twice as likely as their urban counterparts to postpone timely trips to the dentist, seeking help only after they develop a problem and oral pain is severe, UF researchers report.

The delay results in widespread dissatisfaction with treatment and less than optimal outcomes.

"What we found is there is a group of people who wait until their condition is of sufficient painful intensity and duration before deciding that it's bad enough to pick up the phone and call the dentist," said study investigator Joseph Riley, Ph.D., an assistant professor of public health services and research at the College of Dentistry. "There is evidence that these people assume this problem-oriented approach to oral health because of low access to care, whether that be due to an inability to pay or the lack of dentists practicing in rural areas."

UF researchers, writing in the April issue of *Public Health Reports*, noted similar trends among blacks and women, though men with painful symptoms were the group most likely to entirely avoid dental visits, possibly attempting to self-medicate their pain at home to avoid going to the dentist.

Over a four-year period, the researchers studied patterns in access to dental care among 703 randomly selected people aged 45 years and older living in rural or urban counties in North Florida.

Researchers interviewed each participant and conducted an oral examination at the beginning of the study. They then conducted follow-up telephone interviews at six-month intervals to track financial status, symptoms of oral pain and usage of dental services and treatment. Study participants were also interviewed in person and underwent additional oral examinations two and four years into the study.

Study investigators found rural residents and people who take a problem-oriented rather than preventive approach to oral health care were more likely to need emergency dental care for oral pain. People who live in rural areas and opt to wait until oral discomfort worsened were at the highest risk of anyone for needing pain-related emergency treatment.

Overall, men were 20 percent less likely to seek and receive dental care at all, even when suffering from severe oral pain.

"What we found is that patients who had urgent dental visits because of pain were less likely to be satisfied by the time it took to be seen, the dental treatment they received and by the actual outcome of the visit," said Riley.

Riley said there is nothing unique about the dental choices people in rural North Florida make compared with residents living elsewhere. The UF study findings are consistent with data gathered by the National Center for Health Statistics, wherein minority and poor populations carry the burden of oral health problems, he said.

The U.S. Surgeon General's landmark 2000 report on the country's oral health outlines substantial access to care barriers, such as ability to pay and a shortage of dentists in certain areas, and notes 11 percent of the nation's rural population has never visited a dentist. The report also calls the oral cavity the "mirror of health and disease." More than 90 percent of systemic diseases — such as diabetes, leukemia, cardiovascular disease and anemia — have oral manifestations, and people who have neglected their oral health are more likely to also have other medical problems.

PHOTO BY LISA BALTOZER

Dr. Joseph Riley found patients who postponed seeking treatment until their dental problem was too painful to be ignored were significantly less satisfied with their dental visit experience.

Riley said he believes that access to care is not the only factor at play in determining why people with oral pain delay seeking dental treatment.

"Dentistry is really about social and psychological factors; it's perspective, and the preventive versus problem-oriented approach to dental care is an attitudinal belief," he said. "Therefore, it's something that can be changed."

Physician who puts the & in UF&Shands retires

By Denise Trunk

Some patients are anchored in Dr. Nicholas Cassisi's mind.

Fixed in his memory is a girl from the Dominican Republic with a huge tumor in her jawbone.

He'll never forget a teenager from Georgia who lost part of his face in a firearms accident, and a young boy who was hit by a car while riding his bike in Jacksonville and was presumed dead.

Each of them needed the help of a specialist in head and neck surgery. Each found it in Dr. Cassisi's care.

"Throughout your career you remember many patients, and then there are the standouts," Cassisi says, reflecting on 30 years as a physician, administrator and researcher at UF. "They are not always the ones that turn out the best, but they are the ones that have made the biggest impact on my life."

The little girl came with her parents to UF&Shands from a village where her neighbors thought she was a witch. She found treatment from a man considered by his peers to be an innovator in the fight against cancer.

Cassisi and his team treated the girl by removing her jawbone and replacing it. The surgery was complicated, but what Cassisi remembers is the girl's strength, simplicity and sweetness.

"We took her to an ice cream shop," he says. "With 40 odd flavors to choose from, she picked vanilla."

A medical doctor who began his career as a dentist, Cassisi became department chair of otolaryngology, senior associate dean of clinical affairs for the College of Medicine, Shands' chief of staff and UF faculty representative to the National Collegiate Athletic Association and to the Southeastern Conference over the course of his career. In addition, Cassisi created with Rodney R. Million, M.A., a new interdisciplinary standard of treating patients with radiation prior to surgery for head and neck cancer. He has been repeatedly named in national lists as one of the nation's best doctors. Cassisi will retire on June 30, after 32 years at UF.

Before he came to UF, Cassisi earned his bachelor's degree and his D.D.S. from Western Reserve University in Cleveland. After finishing his dental degree, he and his wife, Elayne, moved to Miami to jointly attended medical school at the University of Miami School of Medicine. He earned his M.D. in 1965.

In 1973, Cassisi joined the UF College of Medicine surgery faculty. Since then he has followed his philosophy throughout his career to make an impression on patients, clinicians and the Health Science Center itself with his personal, friendly, caring approach to his profession.

"My wife and I went to medical school together," he says. "I was the youngest of five, and from parents who came from Sicily and couldn't even read and write. To go to medical school was beyond my wildest dreams. But once I became a physician, the one thing I tried to remember, if I were sitting where the patient were sitting, what would I want? How would I feel? What would be my thoughts? Fears? Concerns? Questions? And I have always tried to keep that in mind when treating patients."

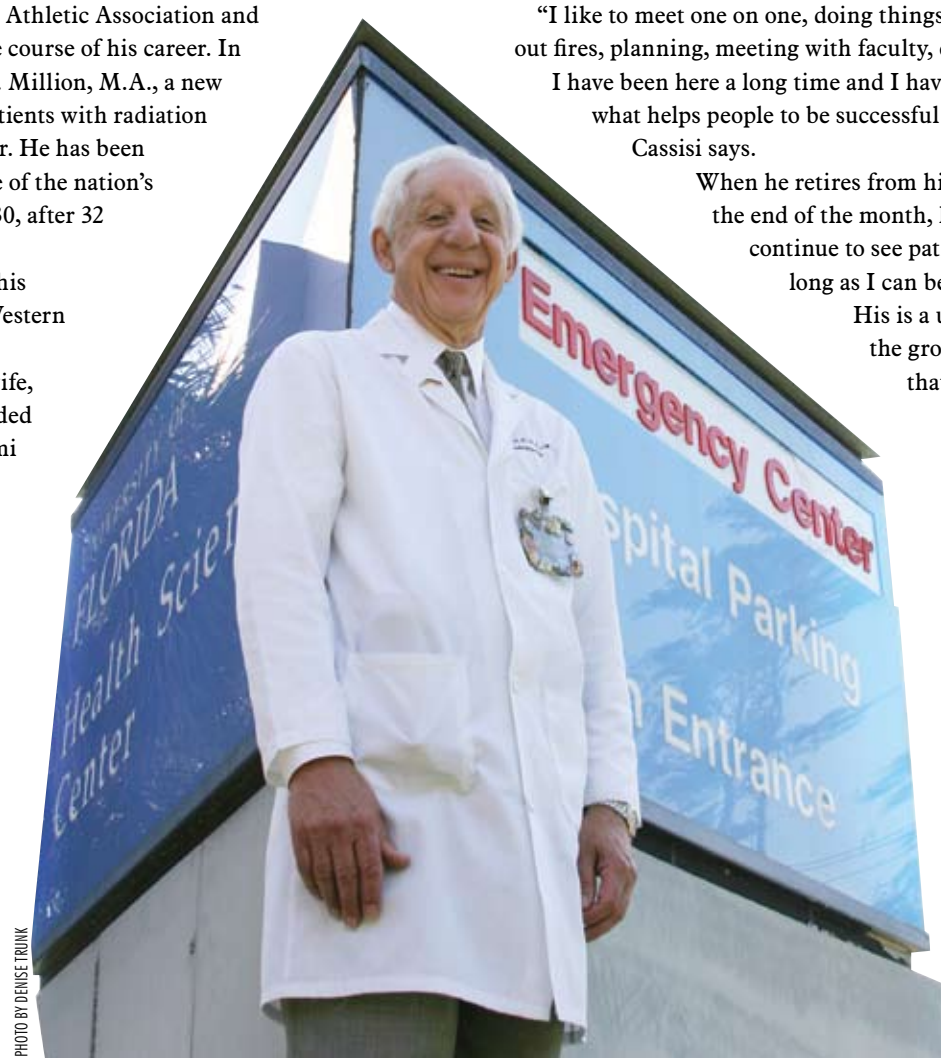


PHOTO BY DENISE TRUNK

While his passion for helping people fueled his growth as a physician, a love of sports and the persistence of William Elmore, then UF's vice president for administrative affairs, eventually drew him into an administrative role on the University Athletic Association board.

"I was trying to further my career as a surgeon and academician and I had no interest in being an administrator, but I picked it up when I was asked to be on the athletic board," Cassisi said. "It was there that I began to learn about budgets and how to deal with the administration and things of that sort. I guess I developed a knack for it."

In 1975 he took the reins of what was then the College of Medicine's division of otolaryngology, which received departmental status in 1991. In 1994 he was awarded the Kenneth W. Grader professor of otolaryngology/head and neck surgery endowed chair. He then was appointed senior associate dean for clinical affairs in 1997.

When he became chief of staff at Shands in 1999-2000 and served a second term in 2003–04, he united both academic and clinical aspects of his field. Because he was surgeon and seeing patients himself, he had a real understanding of the wrok environment for Shands physicians, and in his clinical affairs position worked with doctors in the College of Medicine's various clinics to make their jobs easier.

"I like to meet one on one, doing things that are hopefully beneficial, putting out fires, planning, meeting with faculty, chairs and try and mentor them. Because I have been here a long time and I have seen them come and go and I've seen what helps people to be successful and I have seen what pitfalls there are," Cassisi says.

When he retires from his full-time position and appointments at the end of the month, he will no longer do surgery, but he will continue to see patients on two half-days a week "for as long as I can be of service helping with patients."

His is a unique perspective from which to view the growth of the HSC over the past 35 years — that of a participant-observer to its expansion.

"The biggest satisfaction to me is to see how many talented people are here, and they are here because they love Gainesville, they love the University of Florida," he says. "They could be anywhere, but they choose to stay here. And I think that to me is a huge change from the way it was, to where we are now. And I think we have come a long way."

In his free time, he plans to travel more with his wife of 47 years, visit his out-of-town children and four grandchildren and pick up a hobby he put down in dental school.

"I want to make jewelry again," he says, "I like to work with my hands and I want to continue to do that."

Fibromyalgia patients may benefit from cough remedy, UF study finds

By Tom Nordlie

An over-the-counter medication that silences coughs may help fibromyalgia patients quiet over-reacting nerves that can amplify ordinary touches into agony.

A UF study documents, for the first time, that dextromethorphan temporarily reduces the intensity of fibromyalgia "wind-up," a snowballing pain response to minor, repetitive physical contact. The discovery, described in the May issue of *The Journal of Pain*, also enables researchers to rule out one suspected cause of the phenomenon.

Fibromyalgia is an incurable illness that causes widespread muscle aches, stiffness, fatigue and sleep disturbances, according to the National Fibromyalgia Association. An estimated 10 million Americans suffer from the condition, most of them women. Current treatment strategies include pain medication, exercise, stretching, sleep management and psychological support.

Though the UF study did not establish guidelines for using dextromethorphan clinically, it suggests the drug may eventually be an option for treating fibromyalgia and other conditions involving heightened pain sensitivity, said rheumatology expert Roland Staud, M.D., a UF associate professor of medicine and the study's principal author.

"I think it's one piece of the mosaic," Staud said. "We currently have no single therapy in chronic pain that has a big effect. So what this really means for chronic pain patients is that they need to use a whole host of different interventions to decrease the pain they have. And in this, dextromethorphan may have a role in the future."

Dextromethorphan is popular in cold remedies because it elevates the threshold for the coughing reflex but does not cause physical addiction, according to the U.S. Drug Enforcement Administration.

But fibromyalgia patients should not resort to self-medicating by taking cough syrups for pain, Staud cautioned.

"Like every medication, dextromethorphan has side effects," he said. "At high doses, patients can have problems related to memory and confusion."

The underlying cause of fibromyalgia remains unknown, but in the past 25 years substantial progress has been made toward understanding the mechanisms behind specific features of fibromyalgia, Staud said. One is central sensitization, a feature of many chronic pain conditions in which the central nervous system — the brain and spinal cord — somehow magnifies pain signals to abnormally high levels, said Staud, who is affiliated with UF's McKnight Brain Institute.

Central sensitization is associated with wind-up, a phenomenon in which repeated touches — even handshakes or pats on the back — generate lingering pain that increases with each new contact, he said. A normal form of achy, lingering pain known as secondary pain affects anyone who suffers an injury.

The UF researchers — Staud, neuroscientist Charles Vierck, Ph.D.; psychologist Michael Robinson, Ph.D.; and Donald Price, Ph.D. — were surprised to learn that dextromethorphan eased fibromyalgia patients' wind-up pain to the same degree it soothed secondary pain induced in healthy volunteers, Staud said. The results indicate a long-suspected cause of wind-up may not exist.

Previous studies at other institutions had shown that dextromethorphan blocks the action of a chemical messenger called N-methyl-D-aspartate, or NMDA, which relays pain impulses in the spinal cord. Many fibromyalgia researchers have theorized that wind-up is caused by abnormalities in the spinal-cord structures that process NMDA.

The UF results suggest those structures function normally but that pain impulses are more amplified in fibromyalgia than in healthy participants, Staud said.

"This has refocused much of our research now," he said. Future UF studies will attempt to pinpoint where the pain impulses are originating.

In the current study, researchers worked with 14 women with fibromyalgia and 10 women who did not have the disease, using mechanical devices that tapped the participants' hands repeatedly. One part of the study involved contact with a heated probe, the other used a small rubber-tipped peg. The intensity of the heat or pressure of the stimulation was individually adjusted so that all participants reported feeling the same degree of pain.

PHOTO BY LISA BALTOZER

Clinical research coordinator Myriam Lopez (left) perfoms sensory testing using heat on fibromyalgia patient Pamela Kennedy.

Researchers then gave each participant a capsule containing 60 milligrams of dextromethorphan, 90 milligrams of dextromethorphan or a placebo containing none of the drug, and asked them to rate the amount of pain they experienced when the stimulation was repeated.

With the heat stimulus, 90 milligrams of dextromethorphan reduced wind-up pain, but 60 milligrams was no more effective than the placebo. With the pressure stimulus, 90 milligram and 60 milligram doses were equally effective, reducing wind-up pain.

Doctors miss depression diagnosis in many heart patients

By Melanie Fridl Ross

When it comes to heart disease, many patients are singing the blues — yet too few doctors recognize it, UF researchers warn.

A growing number of studies link heart disease and depression, a powerful risk factor equivalent to smoking or high blood pressure that hikes the risk of heart attack or death two to three times above normal. Conversely, those who are depressed are more likely than their cheerful counterparts to develop heart disease.

"It's very common, and physicians — both primary care physicians and cardiologists — should be proactively screening patients in their office for depression to at least attempt to identify it," cautions UF cardiologist David S. Sheps, M.D., writing in a depression-themed supplement of *Psychosomatic Medicine*. "Many patients are coming to see their primary care doctor or cardiologist for other reasons. Most of them are not aware they are depressed, and these physicians are not trained to detect depression or to screen for it. Most often the diagnosis is missed."

As many as a third of heart disease patients are depressed, Sheps said. And doctors now also suspect the drugs used to treat high blood pressure may intensify feelings of depression as much as other risk factors, such as stroke or prior history of depression, according to findings from a large international study published in the main issue of *Psychosomatic Medicine*.

"If a person is already depressed, a physician might want to consider a choice of one drug or the other for that patient if they are clinically equivalent — if the cardiovascular results and the blood pressure effects are the same," said L. Douglas Ried, Ph.D., a professor of pharmacy health care administration at the College of Pharmacy and a research health scientist in the Rehabilitation Outcomes Research Center at the Malcom Randall Veterans Affairs Medical Center.

The new findings stem from a substudy of a UF-led trial that tracked 2,317 of more than 22,500 patients randomly assigned to one of two blood pressure-lowering treatment strategies: a sustained-release form of the calcium antagonist verapamil or the beta-blocker atenolol and diuretics. Both groups also could receive an angiotensin-converting enzyme, or ACE, inhibitor.

Researchers compared self-reported symptoms of depression after one year of treatment. On average, after one year of treatment the mood of patients on verapamil SR improved. Overall mood did not improve among patients whose treatment included atenolol. Seventeen percent of patients taking verapamil SR reported being highly depressed, compared with 22 percent of those taking atenolol.

Future research should involve a more rigorous measure of depression, Ried said.

Practitioners could easily check for depression using standardized questionnaires. Screening for depression is worthwhile, Sheps said, even if it turns out that treatment of depression doesn't reverse the adverse prognosis for heart disease.

PHOTO BY EVA EGENSTEINER

A woman undergoes an imaging exam designed to evaluate heart function at the Malcom Randall Veterans Affairs Medical Center.

Rat studies show what mom eats may predispose offspring to diabetes, obesity

You are what your mom ate.

That could someday prove to be the latest twist on a well-worn adage, say UF researchers. As alarm rises over soaring rates of obesity, diabetes and high blood pressure, scientists are eager to determine whether nature or nurture — or some combination — spurs development of these conditions.

One possible answer: What mothers eat when they are pregnant could alter the function of key genes in their offspring, even without changing the genes' fundamental DNA sequence. The notion is part of a new field known as epigenetics.

"There are many people around the world who don't have enough protein in their diets, and malnutrition is a major cause of babies being born small around the world," said Donald Novak, M.D., a professor with the division of pediatric gastroenterology at the College of Medicine. "There is a lot of evidence that when infants are born small, compared to their counterparts, they have a higher risk of these specific disorders. We are trying to sort out why that might be."

At the recent annual meeting of the Pediatric Academic Societies, UF researchers released preliminary findings from ongoing animal studies that reveal a high-protein maternal diet predisposes offspring to health problems such as insulin resistance in adulthood, a precursor to diabetes. Other early findings, published in the conference proceedings, show that protein deprivation during pregnancy also is linked to the development of larger body type in rats — a tendency that persisted for two generations.

Babies who are fed formula tend to take in higher protein levels than those who are fed breast milk. But researchers don't yet know what the long-term consequences of this increased protein intake might be, said Josef Neu, M.D., a professor of pediatrics in the division of neonatology at the College of Medicine.

"Human babies who are fed their mother's milk tend to get a lower protein intake than babies who are fed formula," Neu said. "There is a higher incidence of obesity when the kids get older in the formula-fed babies. So it's possible that there's something about the composition of the formulas, like the protein composition, that causes obesity later on in life. Some of it might have something to do with the increase in type 2 diabetes that we're seeing."

— *Melanie Fridl Ross*

Prenatal cocaine exposure exerts subtle effects on schoolchildren

By Melanie Fridl Ross

Children exposed to cocaine before birth show subtle but discernible differences in their ability to plan and problem-solve once they reach school age, UF researchers report.

Still, most fare far better in the first few years after birth than many experts once predicted, contradicting the notion that as a rule, cocaine-exposed infants would be born with devastating birth defects or miss major developmental milestones.

"I think the early information we had was that these children might be irreversibly damaged—that they would potentially have lots of problems in school, that they might have lots of behavior problems, that they might have problems thinking and learning," said Dr. Marylou Behnke, a UF neonatologist.

Instead, UF researchers wrote in the April online issue of the *Journal of Pediatric Psychology*, prenatal cocaine exposure is linked to smaller head circumference at birth and to less optimal home environments, which in turn have direct yet mild effects on developmental outcome at 3 years of age. Those effects persist at ages 5 and 7, once more demands are placed on the children during the formal school years, according to related findings the researchers presented at the recent annual meeting of the Society for Research in Child Development.

"We have found that at age 3, the more cocaine the child was exposed to, the smaller the head circumference at birth, and the smaller the head circumference at birth, the worse the developmental or cognitive outcomes," said Behnke, adding that head circumference at birth is an important measure because generally the head grows as brain size increases. "We think that head circumference may be some sort of a marker for what is going on in the prenatal environment."

Each year, about 45,000 infants who were exposed to cocaine in the womb are born, according to the National Institute on Drug Abuse. UF researchers began studying crack and cocaine users and their offspring about 13 years ago, launching a study funded by NIDA that assesses physical and developmental outcomes among 300 children from birth on. Half the study participants were exposed to cocaine in utero, half were not.

Average daily cocaine use among the 154 mothers who used drugs throughout pregnancy was $32.70, the cost equivalent of approximately three rocks of crack cocaine. Of that group, one quarter were considered "heavy users."

"We have found in our developmental studies of our newborns that there were some subtle differences between the groups, not the kind of things that moms and dads would notice particularly, not the kinds of things that family members might suspect if they saw the baby," said Behnke, a professor of pediatrics at UF's College of Medicine. "As the children have started to get older, we have begun to see a few more subtle effects."

Cocaine-exposed children were assessed at age 3 in part by using the Bayley Scales of Infant Development, which assesses a child's ability to perform age-appropriate functions such as following simple directions and completing puzzles and other problem-solving tasks. At 5 and 7, more extensive neuropsychological and intelligence testing was done.

"Some kids just have trouble getting going, getting started, and once they get going they do a little better," said co-researcher Fonda Davis Eyler, a UF professor of pediatrics. "Others have trouble maintaining their attention and they respond to other cues and not what they're supposed to be targeting on and doing, or they only have simple strategies, not more complex ones."

The quality of the home environment was even more likely than smaller head size to influence outcome, Eyler said. UF researchers analyzed measures of depression and self-esteem among caregivers and studied their views on parenting and child development. Children living in nurturing environments with supportive, competent caregivers scored higher on developmental measures, even when they had been exposed to cocaine before birth.

PHOTO FOR ILLUSTRATIVE PURPOSES/WWW.MORGUEFILE.COM

UF research is helping to dispel inaccurate predictions that stigmatized children exposed to cocaine before birth. The importance of positive environmental influences in promoting toddler development, regardless of prenatal cocaine exposure, is among the key findings of a recent study.

Study participants are now entering the pre-teen years. As their academic responsibilities and social pressures increase, other, more serious effects may surface, Eyler said.

In the next arm of the study, all will undergo intelligence and achievement tests, including assessments of language ability, attention, problem-solving and abstract thinking, Eyler said. Researchers also will ask the youngsters about their attitudes, behavior, family relationships and friendships. In addition, they will assess the children's home environment and interview their caregivers and schoolteachers.

Inner Space

NASA software goes intra-oral to analyze durability of dental ceramics

By Lindy McCollum-Brounley

Here's a trick question: "What do dental crowns and bridges have in common with the Space Shuttle?"

Answer: "Ceramics, expense and software."

It seems dentistry is a lot like rocket science in that the ceramic materials used to construct dental prostheses such as crowns and bridges are very similar to that of the more than 20,000 ceramic thermal tiles installed on the Space Shuttle. Just as with shuttle tiles, ceramic crowns and bridges are exposed to drastic changes in temperatures (depending on how hot you like your coffee or cold your tea) and must routinely withstand extreme shearing, crushing and grinding forces.

When they fail, dental prostheses are also pricey to replace, sometimes nearly as expensive as the roughly $10,000 per shuttle tile price tag.

Fortunately, research at the College of Dentistry is taking a Space Age approach to analyzing survivability of ceramic crown and bridge materials to determine which ceramics work best, for how long and under which conditions. Kenneth Anusavice, D. M.D., Ph.D., a professor and chair of dental biomaterials and associate dean for research with a joint appointment in the College of Engineering's department of materials science and engineering, has just received the latest installment of $350,000 for one of the Health Science Center's longest-running National Institutes of Health grant awards, a project totaling about $4.6 million over the past 23 years.

In its last phase of study, Anusavice's NIH-funded research to predict survivability of ceramic dental bridge and crown prostheses spans a total of 25 years and now uses NASA software developed to analyze durability of shuttle tiles under extreme conditions. The software, Ceramic Analysis and Reliability Evaluation of Structures/Life, analyzes ceramic dental materials to predict length of service (how long you can expect to keep your crown before it wears out) and fatigue data (why it fractured). The ultimate goal of the study is to identify ceramic materials and processing methods that will provide longer-lasting service lives for dental prostheses, leading to lower failure rates and reduced expense for the wearer.

Not surprisingly, this achievement will represent one small step for dentistry and one giant leap for mankind.

New online journal explores molecular pain on a global scale

By Lindy McCollum Brounley

Molecular Pain is an open access, peer-reviewed journal that hit the online community this January. The journal, located at www.molecularpain.com, publishes research that explores pain at the cellular, subcellular and molecular levels.

Sponsored by the UF College of Dentistry, *Molecular Pain* is the brainchild of Jianguo Gu, a pain neuroscientist in the college with ties to the McKnight Brain Institute. Gu views molecular pain research as a rapidly growing area of study bringing clinicians and patients into a new era of pain research and medicine, but he was frustrated by the dearth of molecular pain research printed in traditional pain journals.

He decided to launch a journal specifically dedicated to molecular pain research to provide a valuable forum for molecular pain scientists to communicate their research findings to others with pain research interests that integrate molecular biology, genomics, proteomics, modern electrophysiology and neurobiology.

Gu and colleague Min Zhuo, a professor of physiology at the University of Toronto, Canada, are co-editors-in-chief of the journal, which boasts an editorial board of respected neuroscientists from across the globe, including UF Center for Comprehensive Pain Research Director Robert Yezierski. The editorial board members work together to peer review report submissions for the e-journal, assuring high-quality research reports are published. Reports published in *Molecular Pain* are listed in *PubMed* for citation by the molecular pain research community.

"Thousands of researchers and clinicians have become readers of *Molecular Pain* since its launch at the beginning of 2005," Gu said. "*Molecular Pain* has already demonstrated itself as an impact journal in the pain research society, and its influence will continue to grow through the support of the best pain researchers around the world as they continue to submit and publish top research papers in Molecular Pain," said Gu.

Epilepsy by the numbers

New brain monitoring method would pinpoint babies at risk for seizures

By John Pastor

Confusion and speech problems are frequent signs of seizures, but babies offer few such clues as to what ails them.

Now scientists at the Evelyn F. and William L. McKnight Brain Institute of UF report they have found a mathematical way to translate complicated brain wave readings into simple terms to help doctors and nurses more easily identify babies at risk for epilepsy.

Epilepsy describes a group of disorders that occur when bursts of electrical activity in the brain cause seizures. It strikes more than 2 million people in the United States, according to the National Institute of Neurological Diseases and Stroke. Newborn children have the highest risk.

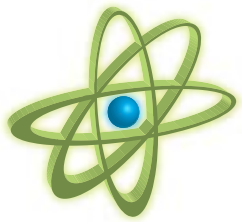
But it is difficult to tell whether babies are epileptic because they are often asleep. Nor can their movements or speech provide clues.

An electroencephalogram, or EEG, which monitors electrical activity through electrodes placed on a patient's scalp, can detect a seizure in an infant. But the test is expensive, requires a high level of training to interpret and often isn't readily available in hospitals.

"An EEG provides a squiggly line readout of brain activity," said Paul Carney, M.D., chief of pediatric neurology at the College of Medicine and a professor at the B.J. and Eve Wilder Center for Excellence in Epilepsy Research. "Our goal is to take our findings and develop a tool that can run in real time right next to the blood pressure and other monitoring devices in a hospital. If successful, it would be one of the first brain function monitors for clinical use in the neonatal intensive care unit."

UF researchers reviewed the EEGs of 35 babies up to a month old, 23 of whom had normal brain function. They were able to pinpoint the newborns at risk for seizures through differences in key statistical values of brain activity.

"An experienced pediatric neurologist and electroencephalographer could certainly distinguish abnormal from normal newborns by reviewing their EEGs," said Deng-Shan Shiau, an assistant research neuroscientist at UF's Brain Dynamics Laboratory. "However, from my understanding, for abnormal neonates with lower degrees of severity, abnormal EEG patterns may only be obvious in a few segments in the entire recording. Quantitative EEG analysis may help doctors quickly identify these segments and determine if a neonate is normal."



Biotechnopoly

A crazy, glorious game at which the Health Science Center excels

By Tom Fortner

On a recent Wednesday in May, a classroom in the McKnight Brain Institute filled to capacity with 60 or so attentive listeners. These weren't fresh-faced students. Instead picture a diverse collection of students, staff and faculty — all would-be inventors — eager to learn what it takes to start their own companies.

It was a display of entrepreneurial spirit that might have made Thomas Edison proud.

The interest in technology transfer — converting a novel idea into a useful product available to the masses — is almost as ubiquitous on the University of Florida campus as reddish-orange bricks. From seminars like the ones at the Brain Institute, to the recent Corporate Leaders Summit that showcased UF medical technology, to hard investments such as the Sid Martin biotechnology incubator, some facet of the university tech transfer effort is never far from view.

By just about any measure, the Health Science Center is a major player in that effort. Many HSC faculty have licensed their discoveries to the private sector. A few have started successful companies. Their achievements are all the more striking because despite the many resources available to support tech transfer, it is by nature a long and often frustrating process, filled with ups and downs and no guarantees of success. Fortunately, HSC inventors have a powerful incentive working in their favor — the prospect their discoveries will help patients.

"I like to think of technology transfer as a kind of virtuous circle — a process that creates many winners," said Douglas Barrett, M.D., senior vice president for health affairs. "Obviously, our faculty, our university and our state benefit from the financial returns that flow from licensing technology, and that's a good thing. But the process begins and ends at the same place: a patient with a problem. To be able to help solve that problem is ultimately what it's all about."

HSC LOOMS LARGE

Beyond patient care, the benefits of university tech transfer to society are substantial. UF's Economic Development Administration University Center recently commissioned a study that showed companies with UF roots contribute nearly half a billion dollars annually to the state's economy and account for 2,000 new jobs. It's estimated as many as three-quarters of these companies are built in part on technology created at the HSC.

In terms of revenues from UF-licensed technologies, the "gator's share" also has an HSC flavor to it.

Gator as in Gatorade, that is.

In its long, storied history, the sports beverage invented by Robert Cade, M.D., has produced millions in licensing income for UF and is still going strong. Less visible but even more profitable has been Trusopt, the anti-glaucoma drug developed by the late College of Medicine ophthalmologist Thomas Maren, M.D., and marketed by Merck.

Those two products, combined with income from other HSC-licensed technologies, accounted for two-thirds of UF's $36.6 million in licensing revenue in 2003-04 alone.

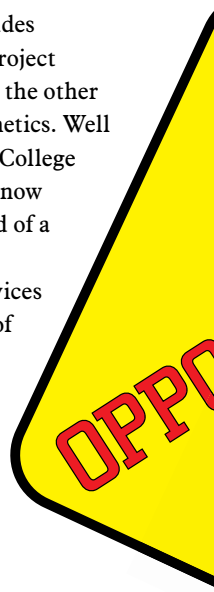
As those two giants of tech transfer mature, there is a natural interest in cultivating their successors. Fortunately, the pipeline is full, even crowded.

"We're going gangbusters," said Jane Muir, associate director of UF's Office of Technology Licensing. "Six years ago, we issued eight licenses. We went from eight to 25 to 37 to 59 to 64 licenses and options, and we're on track to do that or better again this year. The majority are coming from the life sciences."

As busy as it has been, the competition for technology transfer success is intense. For example, after breaking into the ranking of top 10 universities receiving U.S. patents in 2003 with 59 (up from 42 in '02), UF slipped out of that elite group by tallying 41 patents in calendar '04, good for a tie for No. 13. Still, the university produced a record 278 invention disclosures in fiscal year '03, with the HSC accounting for 127.

The HSC tech transfer portfolio is as diverse as you would expect from six distinct colleges representing hundreds of disciplines. The technology includes assistive devices like those associated with the Gator-Tech Smart House, a project involving faculty of the College of Public Health and Health Professions. At the other end of the spectrum are technologies spawned in the burgeoning field of genetics. Well down the road to market are Applied Genetic Technologies Corp. out of the College of Medicine, with gene therapies for inherited diseases, and Oragenics Inc., now testing a treatment for lifelong protection against tooth decay, the brainchild of a College of Dentistry faculty member.

In between are a bevy of pharmaceuticals, techniques, procedures and devices promoting human and animal health. The technologies represent a variety of business approaches, from licensing of technology to existing firms, to new company startups with faculty or staff playing key roles, to some blend of these two.



It was only 25 years ago that federal law essentially created the technology transfer movement by giving universities and their employees rights to the intellectual property they create. Indeed, the law obligates schools that receive federal grants to proactively protect and market inventions generated by that money or else forfeit them to funding agencies.

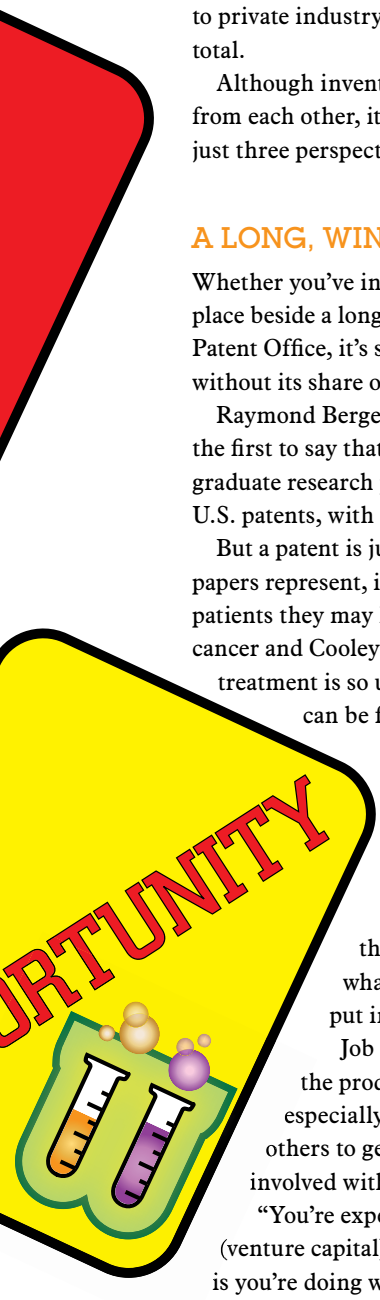
The HSC has taken that message to heart, with the help of an OTL operation that has grown dramatically in the past five years. Overall, UF has licensed 568 HSC technologies

PHOTO BY LISA BALTOZER

Proceeds from Ray Bergeron's inventions paid for this nuclear magnetic resonance spectrometer for the College of Pharmacy. The equipment, which aids the process of drug discovery for COP faculty members, cost about $400,000.

to private industry, and HSC faculty hold 356 U.S. patents, about half of the UF total.

Although inventors who have experienced tech transfer have much to learn from each other, it's fair to say that everyone's "game" unfolds uniquely. Here are just three perspectives.



A LONG, WINDING ROAD

Whether you've invented the next Trusopt or a technology destined to take its place beside a long line of forgettable thingamabobs in the annals of the U.S. Patent Office, it's safe to say that the road to commercial success will not be without its share of potholes.

Raymond Bergeron, Ph.D., has been getting it right for a long time, and yet he's the first to say that the experience has been like "laughing through tears." The graduate research professor in the College of Pharmacy holds an astounding 91 U.S. patents, with another 104 patents pending.

But a patent is just a piece of paper. Far more important, he says, are what those papers represent, including the two drugs that he now has in clinical trials and the patients they may help. The new compounds, licensed to Genzyme, target liver cancer and Cooley's anemia, a genetic blood disorder for which the current treatment is so unpalatable that some patients forego it even though the disease can be fatal.

Bergeron is typical of most UF faculty with intellectual property, in that he has chosen to license his inventions rather than be directly involved in a company. But that doesn't mean he's been able to sit back in his lab and wait for the royalty checks to come rolling in.

"Filing a patent," he said, "it doesn't stop there. That's when the game is just beginning. You have to make up your mind that what you just patented is important enough that you're willing to put in the extra time to bring it forward to society."

Job 1? To find a partner with the know-how and the money to get the product to market. There are many resources out there to help, especially from OTL, but as the inventor it will be up to you to persuade others to get behind your idea, Bergeron said, particularly when you're involved with a startup company that lacks a track record.

"You're expected to give, it seems at least, endless presentations to the VC (venture capital) group and to their stockholders, explaining continually why it is you're doing what you're doing," he said.

Once a solid partner is on board, he sees three major hurdles that have to be negotiated. The first is scientific and involves refining the technology to make it work properly. The second involves helping the company avoid mistakes in the development process. The third involves "board room decisions" that can sometimes seem irrational when viewed through the eyes of a scientist.

"They say, 'You know, I just don't think we want to be in this area,'" Bergeron said. "'We'd like to be in plastics.'"

Asked what the secret of his enormous inventive output is, Bergeron, a chemist by training, didn't hesitate.

"My secret is being in this health center," he said, rapping his knuckle on his desk for emphasis. "Having an opportunity to interact with the docs, that's my secret. It's the Holy Grail. Because you listen to what they have to say, and you say, 'Geez, I know how to solve that problem.'"

SOMETIMES, A DETOUR

Meredeth Rowe, Ph.D., an associate professor in the College of Nursing, has had a different experience. Her good idea went without a corporate sponsor for seven years. Then, "just by serendipity," she said, it found a home and will soon be helping families who provide care to a member with a major cognitive impairment such as Alzheimer's disease.

About half these individuals are prone to sleep disturbances that cause them to get out of bed at night. Awake but disoriented, they may turn on the stove, flood the bathroom or leave the house and wander off, possibly to die from exposure.

"Caregivers' strategy to deal with this is they sleep with an open ear," said Rowe. "This is very taxing on their sleep quality."

Ultimately, the family member caring for the patient can become physically and emotionally exhausted, with no choice but to place the patient in an institution.

Rowe's idea was to develop a monitoring system to alert the caregiver when the patient gets out of bed. The development of the system, which she dubbed CareWatch, was initially funded with a small business tech transfer grant from the National Institute of Nursing Research.

But contacts with approximately 200 businesses produced no takers.

"I had gone down so many avenues but they were all dead ends," said Rowe.

Finally, through a chance acquaintance with a home security specialist, she got her idea in front of the home security division of corporate giant Honeywell. They agreed to develop the device and take it through clinical trials, where it's now in phase II development.

As the incidence of Alzheimer's increases, the system promises to help tens of thousands of patients and their families. But Rowe likely won't realize any financial benefit. Her good idea, conceived when she was a faculty member elsewhere, was not considered novel enough to be patentable. Still, the project has provided her with a rich source of research, and she's learned a lot about topics far removed from her expertise, such as business plans and electronics.

But overall, she said, "It's been very difficult."

THE PATH LEAST TRAVELED

Feeling adventurous? You could always start your own company. The timing is good, according to industry experts, with capital "coming off the sidelines" following the dot-com debacle.

But tread carefully. Only those few who are risk-tolerant, oozing with self-confidence, and willing to do whatever it takes to be successful — including getting out of the way — need apply.

Dan Rua, who heads an investment fund and was the featured speaker for OTL's kickoff seminar,

biotechnopoly continued on 19

PHOTO BY LISA BALTOZER

Meredeth Rowe's CareWatch system, based on home security technology, will soon be helping families keep track of their loved ones who have Alzheimer's disease. Rowe is a faculty member in the College of Nursing.

General dentistry residents have high implant success rate

By Lindy McCollum Brounley

When it comes to successfully placing tooth implants, they have the right stuff.

In fact, first-year general dentistry residents at the UF College of Dentistry Jacksonville Clinic have a success rate of 98 percent — exceeding the 90 to 95 percent average survival rate of implants placed by experienced clinicians, according to the American Dental Association.

A UF study reported the findings regarding the ability of general dentistry residents to learn complex implant procedures and successfully place implants in a mixed patient population in the *Journal of Oral Implantology*.

"Really, the success rate of the residents, although much higher than expected, was not the emphasis of the report," said Clifford Starr, D.M.D., clinical associate professor of community based programs at UF College of Dentistry and director of the college's Jacksonville dental clinic. "What we wanted to show is that dental residents can place dental implants with success — it's something that residents can be taught, it's not too difficult to do and general dentists can learn to place implants and succeed with it."

PHOTO COURTESY OF UF JACKSONVILLE DENTAL CLINIC

Jacksonville clinic advanced education in general dentistry resident, Dr. Bill Stephenson (left), who graduated last year, and dental assistant Theresa Buford (right), prepare to examine the implant Stephenson placed in patient Bonita Ross' mouth. Coincidentally, Ross is also a dental assistant at the Jacksonville Clinic.

Dental implants, which look and feel like natural teeth, are the latest hi-tech alternative to dentures and fixed prosthetics like bridges and crowns. Patients are fitted with a metal post implanted directly in the bone to which a prosthetic tooth is affixed. The implant tooth provides its own support and does not rely on adjacent teeth for support or anchorage. Implants are also used to anchor denture plates, giving the patient a better fit and helping to preserve the patient's supporting bone.

These advantages have fueled increased patient demand for implants and the placement of dental implants by dentists has tripled since 1986. Although some sources state 65 percent of general dentists offer implant restorations as a routine service of their practices, the ADA reports only 8 percent of general dentists are doing the actual surgical placement of the implants. The majority of surgical implants are placed by specialists in oral surgery and periodontology working in conjunction with general dentists.

Cases of 108 UF patients who received 279 dental implants by residents under the supervision of the Jacksonville clinic faculty between the years 1998 to 2002 were reviewed for the study. Patient gender was roughly 60 percent female and 40 percent male, and the majority of patients fell within the ages of 50 to 59 years. One implant system, SteriOss, was used in 94 percent of the cases, and about 30 percent of the patients required bone grafts to augment the bony ridges of the jaw or to fill-in the space between the implants and the sockets of extracted teeth.

> "What we wanted to show is that dental residents can place dental implants with success — it's something that residents can be taught, it's not too difficult to do and general dentists can learn to place implants and succeed with it."
>
> — Clifford Starr, D.M.D.

Of the 279 implants placed, only five failed, resulting in an implant success rate of 98 percent over the course of four years.

"Five years would be the gold standard for reporting implant success rates," said Starr. "That's not what we reported — our cases ranged from six months to four years because we haven't done implants for five years. However, I think the overall summary of our report is that we have quality faculty and residents using good implant systems to complete complex cases with great success.

"It would be very valuable to the literature if other residency programs doing implant dentistry would publish their results so we can learn from each other's experiences," said Starr. "This would be of great benefit for undergraduate and graduate programs in the process of introducing implant dentistry into their curriculum."

What would you put in a time capsule?

By Nina Stoyen-Rozenzweig

When the founders of the Health Science Center put together their historic capsule, they tried to think of materials that represented the most important and influential materials documenting the planning process for the center, and materials that would, at some point in the future, allow for dating of the materials and the building. They lived in a time — 1955—when radioactivity seemed the wave of the future, when it offered unlimited promise for medical research and healing, so they included facilities for radioactive research in their plans and a radioactive vial in their time capsule. They knew, perhaps, that their efforts were indeed unprecedented and visionary, and they took seriously the job of passing on to a distant posterity the scope of their efforts.

HEALTH SCIENCE CENTER
50 YEARS 1956 2006
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vision ■ innovation ■ continuity

Today, with the Health Center firmly — indeed monumentally — established, we may approach the generation of a time capsule a little differently. Now we want to document for future generations the ebb and flow of everyday life. What is it like to come to work every day? What do we need to make the journey through the hallways, to communicate with co-workers, keep track of time? What events preoccupy us? What pieces of information are unique to our time — and likely to have changed dramatically in 50 years? What do we — or our children — collect in our off-hours? How do we fund our projects, conduct research, treat our patients? What treatment is most likely to have changed radically by 2056?

Now, our ideas about what should go into the time capsule not only provide a picture of our lives today but also represent our predictions as to how life will change and what will be most dramatically different.

To capture the moment amid the upcoming 50th anniversary celebrations, officials with the College of Nursing, College of Medicine, Health Center Library and Health Science Center are planning to create time capsules. They are actively seeking suggestions for objects to go into the capsule and committees will weigh suggestions and select a range of materials for preservation. Please send in suggestions and include the reason why you think your suggestion captures an important and perhaps unique part of everyday life!

Stoyen-Rozenzweig is the archivist for the College of Medicine.
Send your suggestions to her at Nstoyan@vpha.health.ufl.edu

UF department of physical therapy to offer clinical doctoral degree


Day

The UF department of physical therapy has received approval from the Florida Board of Governors to offer the entry-level clinical doctoral degree, the Doctor of Physical Therapy, or D.P.T., beginning in fall 2005.

The UF physical therapy department at the College of Public Health and Health Professions is one of only two Florida public universities to offer the D.P.T. degree. The department will admit 50 students to the inaugural class.

The D.P.T. degree will eventually replace the master's degree as the entry-level degree for clinical practice in physical therapy, said Jane Day, Ph.D., P.T., a clinical associate professor and assistant chair of the physical therapy department. The American Physical Therapy Association recommends that the D.P.T. be the standard physical therapy degree granted by educational programs by 2020.

"The goal of the D.P.T. program is to prepare graduates to be autonomous practitioners and the authoritative practitioner in the diagnosis and treatment of movement disorders," Day said. "These are graduates capable of evaluation and patient treatment ideally prepared to work in collaboration with other health professionals."

As with the master's degree, a baccalaureate degree is the prerequisite for admission into the three-year D.P.T. program. The D.P.T. curriculum augments the content of the current master's program by including additional coursework in areas such as diagnosis, pharmacology, radiology and imaging, health-care management, and prevention and wellness, as well as additional clinical internship time. The UF department's future plans call for the development of a transitional D.P.T. program for practicing physical therapists who would like to earn this doctoral degree.

— Jill Pease

University of Florida students build smaller, smarter heart pump

A miniaturized heart pump designed by a team of University of Florida engineering students could become a life-saving alternative for patients waiting in long lines for scarce donor hearts.

The UF team, advised by College of Medicine faculty, is creating a device with a novel pumping technology that makes it smaller and smarter than currently available ventricular assist devices, which are too large to be implanted in many patients. The pump's small size means also it would be the first such device in the United States that could be used in children.

"Current (heart pumps) are really large and complicated, so we're aiming to build one that's smaller and allows more types of applications," said mechanical and aerospace engineering student Ella Kinberg, the project's team leader.

Ventricular assist devices, or VADs, are connected to a patient's diseased heart, internally or externally, and help it to pump blood. Although most VADs are used to sustain a patient's life until a donor heart becomes available, they also can help patients recover from trauma such as open heart surgery, eliminating the need for a transplant. VADs also are being developed to act as long-term replacement hearts, a process known as destination therapy.

The UF student team designed the device as part of the College of Engineering's yearlong Integrated Process and Product Design, or IPPD, program, a government- and corporate-sponsored research and education program. The team's goal was to design a smaller, more efficient version of an innovative prototype pump originally conceived by UF biomedical engineering doctoral student Mattias Stenberg, who acted as a project adviser.

Stenberg designed the original device in 1999 while working with UF mechanical and engineering professor Roger Tran-Son-Tay. Stenberg returned to UF in 2004 to develop and test the prototype with Tran-Son-Tay and UF College of Medicine assistant professor Charles Klodell. Both Tran-Son-Tay and Klodell were faculty advisers on the IPPD project.

"The one thing that (this pump) has that no other pump has is continuous inflow with pulsating outflow," Klodell said. "It has a continuous pre-filling chamber, something that nobody else has come up with."

"Currently we do about 2,200 heart transplants per year, but we have about 5,000 people on the donor waiting list," Stenberg said. "If you take a look at how many patients have end-stage heart failure, that figure goes up to 50,000 in the United States alone."

"This device could save their lives," Kinberg agreed.

—Carolyn Gramling
UF News & Public Affairs

DISTINCTIONS

DENTISTRY

ABIMBOLA O. ADEWUMI, B.D.S., has been appointed an assistant professor of pediatric dentistry. Adewumi earned her dental degree from the University of Ibadan, Nigeria. Prior to coming to UF, Adewumi served as a specialist registrar in pediatric dentistry at St. George's Hospital, King's Dental Institute, Chelsea and Westminster Hospital, London. She also earned her master's degree in pediatric dentistry from the University of London. She is a fellow of the Royal College of Surgeons of England and the Royal College of Physicians of Glasgow, Scotland. Adewumi's research interests include dental traumatology, aesthetic dentistry for children, and law and ethics in dentistry.

MADHU K. NAIR, B.D.S., D.M.D., Ph.D., has been appointed associate professor of oral and maxillofacial surgery and diagnostic sciences. Nair comes to UF from the University of Pittsburgh School of Dental Medicine, where he served as director and tenured associate professor of oral and maxillofacial radiology. His research interests include tuned aperture computed tomography, radiology informatics, computer-aided diagnostic techniques, digital imaging/image processing and advanced imaging including cone beam computed tomography.

MEDICINE

MICHAEL L. GOOD, M.D., has been appointed senior associate dean for clinical affairs in the College of Medicine. He will succeed Dr. Nicholas Cassisi, who is retiring, effective July 1.

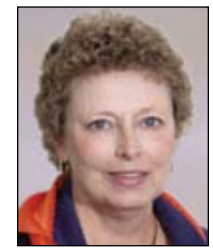
A professor of anesthesiology, Good joined the faculty of the college in 1988. A graduate of the University of Michigan and its medical school, he completed his residency in anesthesiology at UF. During his residency and later as a faculty member, he was instrumental in developing the Human Patient Simulator that is now widely used in medical education.

In 1994 Good became chief of anesthesiology at the Veterans Affairs Medical Center and later served as chief of staff of the VA, returning to the UF anesthesiology faculty in 2003. Last year he was appointed senior associate dean for VA affiliations.

Good, who said his new job is to "assure the success of the clinical enterprise," was appointed following an internal search.

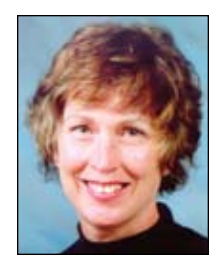
C. PARKER GIBBS, M.D., an associate professor in the department of orthopaedics and rehabilitation, was awarded a Pfizer Inc. inSCOPE (Innovative Scientific Centers of Orthopedic and Pain Excellence) award. Gibbs will use the award to provide **SEAN MCGARRY**, M.D., an orthopedic research fellowship to join his efforts to identify tumor stem cells in human and dog bone cancer.

NURSING



ROSE NEALIS, Ph.D., A.R.N.P., a clinical associate professor at the College of Nursing, was invited to participate in the 2005 National Institutes of Health/National Institute of Nursing Research Summer Genetics Institute, designed to provide advanced nurses with a foundation in molecular genetics for clinical practice and the research laboratory.

Nealis will participate in the two-month summer research training program held on the NIH campus in Bethesda, Md. More than 35 genetics experts from the NIH and universities in the Washington, D.C. area serve as course faculty for the institute, which includes a select group of nursing students and faculty, most of them either doctorally prepared faculty or Ph.D. students. Graduates will receive 12 hours of doctoral level graduate credit from the Georgetown University School of Nursing and Health Studies.



ROSALYN REISCHMAN, D.S.N., A.R.N.P., a clinical assistant professor on the UF Health Science Center's Jacksonville campus, was recognized as one of the 2005 Great 100 Nurses of Northeast Florida.

The Great 100 Nurses of Northeast Florida Inc. is a volunteer group of professional nurses that provides funding for nursing scholarships, supports research studies to improve patient care and recognizes outstanding nurses and their successes. Honorees are selected based on their professional contributions and how well these contributions are known and recognized in the community.

Reischman has been a UF nursing faculty member since 1999 and is a certified adult nurse practitioner and critical care nurse. She has authored various publications and given national and local presentations on critical care topics, especially related to cardiovascular and respiratory conditions. She is the Jacksonville clinical coordinator of the college's acute care nurse practitioner master's degree track.

JOANNE RICHARD, Ph.D., A.R.N.P., an associate professor and interim department chair of women's, children's and family nursing, has been named associate dean for academic and student affairs. Richard, who is also president of the faculty organization, has had a distinguished career in nursing education and practice, including service as dean of the College of Liberal Arts and Sciences and director of the division of nursing at the University of Tampa.

PUBLIC HEALTH & HEALTH PROFESSIONS

A research poster by **LINDSEY KIRSCH**, a graduate student in the department of clinical and health psychology, was selected as one of the top posters at the annual meeting of the American Academy of Neurology, held in April in Miami. Her research focused on the dissociation between apathy and depression in Parkinson's disease.

WILLIAM MKANTA, a doctoral student in the department of health services research, management and policy, received the 2005 dissertation completion grant from the Sherri Aversa Memorial Foundation. His dissertation research addresses health services use among HIV-infected patients with prolonged survival.

Know someone who has earned a distinction? Please let us know. E-mail dtrunk@ufl.edu

Neubert awarded Pfizer grant

John Neubert, D.D.S., Ph.D., an assistant professor of orthodontics in the College of Dentistry with a joint appointment in the department of neuroscience, has been awarded the $130,000 Pfizer's Scholars Grant in Pain Medicine. Neubert was one of two awardees of Pfizer's nationally competitive pain medicine grant program, which aims to support the career development and research activities of junior faculty exploring pain medicine.

The grant will fund Neubert's research of orofacial pain as outlined in his winning proposal, "Mechanisms of orofacial neuropathic pain." The goal of his research is to explore pain of the face, head and neck caused by trauma to one of the head's largest nerves, the trigeminal nerve, which enters the brainstem at the base of the cranium.

Some patients who have experienced trigeminal nerve trauma, such as that caused by an injury or disease, will become hyper-sensitive to temperatures or touch. The slightest cool breeze against the skin of the cheek may cause extreme spasms of pain, as could the soft touch of cloth or brush of fingertips.

The reasons for these painful responses to normal sensory stimuli are not well-understood, but Neubert's research goal is to develop behavioral animal models that could help physicians assess abnormal facial pain in people.

Neubert's grant application was selected by Pfizer's independent academic advisory board based on his professional achievement and potential, the innovation and feasibility of his research proposal, and the credibility and commitment of UF as his mentoring institution.

— Lindy McCollum-Brounley

PHOTO BY LISA BALTOZER

Steindler to collaborate with California stem cell project

An internationally regarded authority on adult stem cells at UF will help oversee research spending at the newly established California Institute of Regenerative Medicine, a landmark initiative to supply $3 billion for stem cell research at California universities and research institutions.

Steindler

Dennis Steindler, executive director of UF's Evelyn F. and William L. McKnight Brain Institute, was named to the institute's Scientific and Medical Research Funding Working Group. He will serve for six years in an unpaid advisory capacity with 14 of the world's top stem cell scientists, seven patient advocates and Robert Klein, chairman of the institute's Independent Citizens Oversight Committee. His duties at UF will not change.

"This company of scientists is quite humbling to me," said Steindler, a professor of neuroscience and neurosurgery and a member of the Program in Stem Cell Biology and Regenerative Medicine at the College of Medicine. "All of the other scientists are truly fantastic investigators."

The group, chaired by blood-disease expert Stuart Orkin of Harvard University, will help provide oversight as the institute disburses $3 billion for stem cell research over the next 10 years. Broadly defined, regenerative medicine seeks to help natural healing processes work better and faster. Stem cell research looks at ways to make use of undifferentiated cells that have the potential to produce any kind of cell in the body.

"This may be one of the more important service activities that any of our folks could do," said Douglas Barrett, M.D., senior vice president for health affairs at the UF Health Science Center. "In addition, Dr. Steindler will have a unique view of the California initiative."

— John Pastor

HSC faculty named UF Research Foundation Professors for 2005

Seven HSC faculty were chosen as the University of Florida Research Foundation Professors for 2005–08. In total, 33 UF faculty members who have a distinguished current record of research and a strong research agenda that is likely to lead to continuing distinction in their fields were given the award.

The UFRF professors — Mark Atkinson, Ph.D.; A. Daniel Martin, Ph.D.; Terence Flotte, M.D.; Carrie Haskell-Luevano, Ph.D.; Kenneth Heilman, M.D.; Ann Progulske-Fox, Ph.D., and John Wingard, M.D. — were recommended by their college deans on the basics of nominations from their department chairs, a personal statement and an evaluation of their recent research accomplishments.

The three-year award provides a $5,000 annual salary supplement and a $3,000 grant. The professorships are funded from the university's share of royalty and licensing income on UF-generated products.

A philosophy of involvement wins Dr. Benrubi a humanitarian award

By Patricia Bates McGhee

Just reading about a typical workday in the life of Guy Benrubi, M.D., clinician, professor and researcher, is exhausting for most of us.

He leaves home by 6:15 a.m., scrubs for surgery by 7:15, then checks in to his departmental office to review e-mail and address administrative problems and before seeing private patients from 10 a.m. to noon. Lunch, usually over conferences or meetings, ends by 1:30 p.m., when he returns to surgery or attends budget or administrative meetings. At 4:30 p.m., he conducts lectures for medical students and at 5:30 returns to his office in the dean's suite, where he discusses the day's events with Jacksonville's head administrator. Benrubi finally leaves campus around 6:30 p.m. Whew, you say! Wait, there's a catch. When he leaves campus he returns directly home only about 50 percent of the time — the other 50 percent he attends professional and philanthropic meetings in Jacksonville.

"I do this for self-preservation," Benrubi says with a smile. "There's some excellent research out there that shows that the more involved we are, the fewer illnesses and colds we suffer, and in the last 10 years I've probably had only two sick days."

PHOTO BY PATRICIA BATES MCGHEE

Dr. Benrubi is a gynecological oncologist at UF&Shands Jacksonville.

This incredible, nonstop involvement in career and community earned Benrubi the prestigious Silver Medallion at the 35th Humanitarian Awards dinner of the National Conference for Community and Justice, held May 26 in Jacksonville. Also honored were the late Tillie Fowler, Toni Crawford and Ronnie Ferguson.

Founded in 1927 as the National Conference of Christians and Jews, NCCJ is a human relations organization dedicated to promoting understanding and respect and fighting bias, bigotry and racism. The Jacksonville group has been honoring local humanitarians since 1970.

During his 23 years in Jacksonville, Benrubi has served his family, his faith, UF, the Jacksonville community and his profession. Community involvement, leadership and service are part of him, his family and his beliefs.

"My parents taught me that you feel better when you feel that you're accomplishing something," he explains. "I strongly believe that the more involved all of us are in our communities, the more freedom we have in our society."

Benrubi earned his bachelor's and master's degrees from New York University and his medical degree from the State University of New York/Downstate Medical Center. He and his wife, Patti, have one son, Daniel. He started his medical and UF career in 1975 as an intern reporting to Robert Nuss, M.D., now College of Medicine senior associate dean and associate vice president for health affairs, Jacksonville.

"Dr. Benrubi is a physician, educator and community leader of multiple talents with a cosmopolitan view and humanitarian goals," Nuss said. "He's been a credit to our profession from the time I first met him in 1975, when he was one of my interns, until now, as my associate. He is most deserving of the NCCJ Humanitarian Award."

A gynecologic oncologist, Benrubi has trained more than 150 physicians in the specialty of obstetrics and gynecology while operating his own practice with UF at Shands Jacksonville. He was named OB/GYN chair in 1996 and became associate dean for clinical affairs of the Jacksonville campus in 2002.

In fact, Benrubi has trained the majority of all OB/GYN doctors practicing in the Jacksonville area. Former residents and other physicians frequently contact him regarding his expertise in the care of OB/GYN patients with complex clinical problems and for his insights in the area of medical ethics, a field in which he formally trained and has achieved a reputation as an authority. The North Florida Ethics Council also seeks his advice.

His commitment to education has earned him numerous awards, including the Robert J. Thompson Award for Excellence in Teaching (1984 and 2000) and the UF College of Medicine Outstanding Student Teaching in OB/GYN Award for the consecutive years spanning from 1992 (when the award was created) to the present. In 2003, the UF College of Medicine Jacksonville awarded him the Louis S. Russo Award for Outstanding Professionalism in Medicine.

He also serves as president of both the Academy of Medicine of Duval County and the Florida Obstetrical & Gynecological Society and is a past president of the Duval County Medical Society. A member of Leadership Jacksonville Class of 1993, he served on Leadership Jacksonville's board of directors from 2000-03 as well as president of Jewish Family and Community Services from 1994 to 1996. He was responsible for JFCS becoming the region's lead adoption agency and the lead agency for Ryan White funds. He's also serving his second year as president of the Jacksonville Jewish Federation. He also served as board member of the Jacksonville Jewish Center from 1999 to 2002.

For his many accomplishments and his tireless devotion to bettering himself, his profession, his community and his world, Guy Benrubi takes home this year's NCCJ Humanitarian Award — and a sense of personal satisfaction.

"I'm humbled and proud to accept this award," Benrubi says, "especially from the NCCJ, an organization that strives to keep this country committed to its ideals."

Dentistry's Dynamic Duo

By Lindy McCollum-Brounley

Walk into the College of Dentistry's Office of Research, and you may feel as if you've entered the eye of the storm. Volumes of research proposals, contracts and letters of correspondence are organized for filing, phones ring off the hook, and fingers click a staccato on computer keyboards. Yet despite this busy energy, the two women who staff the office exude a sense of calm and friendly efficiency.

Jane Moore and Kathy Galloway may be two of the hardest-working women in dentistry, teaming up to manage the growing tide of grants and awards funneled through the college's Office of Research. That's no easy task, considering federal funding has increased nearly 150 percent since 1997, elevating the college to No. 4 among the nation's 56 dental schools in terms of federally funded research in 2004.

Moore and Galloway divide and conquer to keep the grant machinery running smoothly. As office manager, Moore provides support for the pre-award processing of grant applications, and Galloway, the college's assistant director of research, manages post-award implementation and monitoring. With $14 million in sponsored research flowing through the office, things can get a little crazy, but Moore and Galloway take pleasure in maintaining the office's productivity with a smile.

"Grant application processing is actually a small part of what I do," said Moore. She juggles grant processing with special projects such as the college's Summer Research Program, UFCD Research Day and scheduling the speakers for the dean's Seminar Series. "I love my job, and part of the reason I love it is because it is so varied and it's never boring."

Galloway takes the lead in monitoring awards after they've been made, making sure the college stays in compliance with the stipulations of the award contract, the sponsoring agency and the university. A big part of her job is training and assisting departmental staff in setting up and monitoring the fiscal accounting for the award.

Both women feel serving others is a critical component of their jobs, and they take a proactive, teaching approach to helping students, faculty and staff navigate the complex and confusing landscape of award regulations and requirements.

"I think anytime we can help people, we should be willing to do that with a good spirit," said Moore. "It makes you grow and makes you a better employee."

Maintaining this service excellence in a demanding office is a tall ticket for a staff of two, especially when one considers the college's goal is to expand the already burgeoning program of sponsored research by another 50 percent over the next five years. But Moore and Galloway are committed to the ethic.

"I'd like to see our office expand, hire more personnel so that we can give better service to our faculty and staff. But I have to give credit to the departmental staff I work with, because they're on the front line and have to do the work every day," said Galloway. "If it wasn't for their hard work, we wouldn't be as good as we are."

PHOTO BY LISA BALTOZER

Jane Moore (seated) and Kathy Galloway staff the College of Dentistry's Office of Research, keep the college's $14 million sponsored research enterprise moving forward efficiently. Each demonstrate outstanding and uncomplaining service ethics in the fulfillment of their job responsibilities.

Planning health care in advance

As the media covered the case of Terri Schiavo, who died March 31 in a hospice in Florida after a court ordered the removal of her feeding tube, almost everyone agreed on one aspect of the situation — it would have been better if she had written her wishes regarding end-of-life care in a living will. Bill Allen, J.D., director of the program in bioethics, law and medical professionalism at the College of Medicine, discusses the importance of living wills and advance directives.

PHOTO BY LISA BALTOZER

Q What is an advance directive?

A An advance directive is a witnessed written document or oral statement by which a person expresses her choices on any aspect of her health care, including designation of a health-care surrogate, a living will, pre-hospital do-not-resuscitate order, or anatomical gift. The purpose of an advance directive is to enable a person to direct her medical decision-making during a time when the person has lost the ability to make decisions directly, whether temporarily or permanently. Any of these types may be used alone or combined into a single, comprehensive advance directive.

Q What are the advantages and limitations of a living will?

A A living will allows you to express in your own words such choices as whether you want to die in a hospital, at home or in hospice care, under what circumstances you want to be sustained on life support or have life support withheld or withdrawn, and what you consider to be the minimally acceptable quality of life for which you are willing to accept aggressive therapy or life support.

Although a living will provides important direction about your end-of-life choices, most people cannot specifically anticipate all of the medical situations and choices that may need to be made toward the end of life. That is why the designation of a health-care surrogate is needed to supplement your living will.

Q What are the advantages of designating a health-care surrogate?

A You can give authority for health-care decisions to someone who is in the best position to say what you would choose when you are incapacitated. The language of living wills usually refers only to end-of-life decision-making, but health-care surrogates can make medical decisions for you at any time, even when you are only temporarily incapacitated, such as during periods of illness or surgery.

Q How can one obtain an advance directive?

A Hospitals, nursing homes and hospices all have ready-made forms that you can complete, as well as many Web sites that can be found by a Google search. An even better approach is to use these forms to select the features and language you like best to construct your own advance directive, uniquely expressing your values. There is no magic legal language that is required, so you do not need a lawyer. It is perfectly valid to write your own directive or to orally express it to your physician and have her record it in your medical chart.

Q What if you change your mind?

A You may change what is in your advance directive at any time simply by modifying it at will. Be sure to give the updated version to your surrogate and your physician, so that they can replace the old one. In fact, as your life changes by divorce or death of your surrogate or changes in your medical conditions, you should make appropriate changes in your advance directive. P

Annual Multidisciplinary Symposium on Breast Disease

Since 1995, the Annual Multidisciplinary Symposium on Breast Disease, a program of UF's Health Science Center in Jacksonville founded by Shahla Masood, M.D., has promoted breast cancer education and pioneered a multidisciplinary approach to breast cancer research, diagnosis and treatment. To celebrate the event's 10th anniversary, this year's symposium — set for June 30 through July 3 — will be held in Paris.

"Our symposium was one of the first in the world to bring together all the specialties involved in the study and treatment of breast disease and allow them to share their experience," says Masood, meeting founder and director. "Our event has become a national and international model for institutions that value the significance of a multidisciplinary and integrated approach to breast health care to better serve our patients."

This year's meeting — in association with the Institut Curie, Institut Gustave Roussy and Centre René Huguenine and with funding from the Susan G. Komen Breast Cancer Foundation — will feature a public forum in French, designed to further extend the event's outreach goals by providing scientific knowledge to the general public.

This is the second time the symposium has been held outside the United States, with the first being in Rome in 2000. The event has grown from 129 participants in 1995 to more than 500 in recent years, with as many as 123 international speakers.

biotechnopoly continued from 11

"So You Want to Start a Business," said the entrepreneurial approach is less about science and more about business.

"It's not all about the whiz-bang mousetrap that you created," said Rua, who holds degrees in law and business from the University of North Carolina. "There are a lot of talented people in this room, but it's probably on the science side."

Reasons for starting companies include the desire to be involved in all aspects of the business and making more money than might be possible through licensing to others. But Rua said the prospect of personal financial gain shouldn't be the primary motivator.

"There are so many ups and downs in this business," he said. If you are in it mainly for the money, "you're not going to stick to it, which is really what makes the winners."

In fact, investors will expect a business founder to tap into his own cash, as well as that of "family, friends and fools," before they chip in additional funds.

Jeffrey Leismer thinks he has what it takes to start his own business. A doctoral student in mechanical and aerospace engineering, Leismer attended the seminar on entrepreneurship and has an air of quiet confidence as he discusses his plans.

PHOTO BY LISA BALTOZER

Jeff Leismer, a UF doctoral candidate in mechanical and aerospace engineering, hopes to patent biomedical technology he developed and start his own company.

When he was a master's degree student in Michigan, Leismer came up with the notion of strengthening muscle and bone with a non-invasive vibrational stimulus. The handheld device could be used by astronauts and others whose muscle and bone atrophy from lack of use or are damaged by disease.

When he arrived at UF to pursue his Ph.D., the Office of Technology Licensing thought enough of his idea to absorb the cost of filing a patent application on his behalf. His utility patent application is due to be reviewed in October.

In the meantime, he's writing an NIH small business technology transfer grant to finance development of his product, and he's talking to venture capitalists, attending seminars and connecting with faculty from other disciplines to improve his idea. He says he's "bootstrapping."

"I'm learning a lot of things out of necessity," said Leismer. "That's the way the business world works."

His early contact with venture capitalists, he said, "may have been a little premature, but it was great to let them hear about my plan and what they thought of it. It provided me with some of the critical information that I needed to proceed, to make my business sound like something they'd want to invest in."

For Leismer, starting his own company puts him in the driver's seat, better able to determine his destiny.

"I have my own ideas," he said. "If I am in charge of what I'm doing it will be easier to bring those ideas to life." P

Want to play Biotechnopoly? Call OTL

Got a killer idea for an invention? Make a beeline to UF's Office of Technology Licensing. The expert staff can help an inventor take the first critical steps in protecting intellectual property, evaluating its marketability and identifying the best way to get an invention to market.

In addition to helping inventors stay in step with various legal requirements, OTL provides a host of educational programs that can acquaint them with what it takes to license technology or start a business. The office also sponsors events that showcase university-developed technologies to investors, and regularly connects inventors with its network of entrepreneurs, venture capitalists, and corporate research and development contacts.

Want to learn more? A good place to start is the OTL Web site at www.otl.ufl.edu. Or call the staff at 392-8929. It's the smart play.

LOOKIN' AT YOU

PHOTOS BY DENISE TRUNK

Susan Gardner, a program assistant for the office of graduate education, takes a break from her work in the office of the dean of the College of Medicine.

Chuck Robertson, a library technical assistant, and Gloria London, a senior clerk, take their shift handling the returns and checkouts at the HSC Libraries main desk.

Sidney Gorden keeps the HSC looking sharp as a custodial worker. He has worked for UF for 20 years.

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