Liang-aided research shows

Astronauts should take nutrition with a grain (and more) of salt

Note: This is the second of a two-part series on faculty who have contributed to the space program through research conducted with NASA.

After completing two Stanford Summer Faculty Fellowships at the Ames NASA Research Center near San Francisco, the best advice that Michael Liang, human movement, sport and leisure studies, can give astronauts is, "eat more salt. While they're in space, that is."

"We found there is a definite correlation between bone strength and salt intake," Liang explained. "High salt will prevent bone loss.

NASA scientists are studying the effects on the body when people travel over a long period of time and how to prevent or at least ameliorate the loss of bone strength that will occur, especially with the months-long Mars flight and landing looming on the horizon."

"We already knew that the cosmonauts preferred salty food when they were in space," Liang said. "People's taste buds change when they are in space. They crave different things than when they are on earth. In the research we have done with rats, it has been the same thing. Animals are smart - they crave what they need and when they are in space, their hormones tell them to eat salty food. But why? We had to figure that out."

"We suspended rats in space for the experiment," he said. "Their bones were supposed to lose minerals and get weaker when they were in space, but instead the rats with a high-salt diet experienced the reverse."

"Now, this does not mean that everyone should go out and eat salty food. What your doctors tell you about high-salt diets is still correct," Liang said. "But what this does mean is for someone with a broken bone and who is confined to bed for 14 days, high-salt diets will help prevent losing bone strength. And for someone who has had kidney dialysis surgery, they should be able to increase their salt intake to decrease the bone loss."

"The implications of this are more important than just figuring out the astronauts' diet. Our contributions on this can help people on earth, too," said Liang, whose professional interest is "to help the geriatric population to prevent osteoporosis and strengthen their muscles."

The second part of Liang's research has involved designing exercise programs for the astronauts to maintain their bone strength during their months in space.

"They always used to say that jogging and walking would increase bone strength, and swimming is OK, too. That equally benefits the strength of the bone and muscles," Liang said.

Michael Liang was part of NASA research which indicated that a high-salt diet prevents bone loss in space

"But we needed something that was non-impact without heavy weightlifting, to build their muscles while they are in space. In space with zero gravity, lifting weights is pointless since the weights have no weight." Researchers also have been working on what type of pre-flight exercise would be best for the astronauts, he said. "Before, they've always done the usual weightlifting, jogging. But everyone saw how wobbly John Glenn was when he came off the shuttle. They have to have something to maintain their strength so that the astronauts don't have trouble adjusting when they come back to earth after the long flights coming up." For in-flight exercise, Liang said, "this research is important because we have to invent an exercise that will maintain bone and muscle strength with no impact on the body. What we are looking into is muscle-strengthening exercises with rubberized cords."

As for pre-flight exercise, Liang has submitted another proposal for further NASA study on the effects of buoyancy and swimming adaptation in preventing and minimizing osteoporosis during space flight.

The proposal was submitted Oct. 1, and Liang is waiting to hear whether or not it was accepted.

"It's good knowing that this research is helping the astronauts and also people on earth; it's very important research," he said. "And its opened doors to us at BG that we've never experienced before."
BGSU students

(Continued from page 1)

she said.

Ultimately, McKee said, participation in the TPS project will build Bowling Green's capacity to be a part of Ohio Campus Compact, which, under the direction of BGSU alumna Dick Insty, is part of a national organization devoted to the promotion of service learning.

Among the advantages of membership are guidance in service learning, eligibility for grants and opportunities to send students and faculty to conferences for further study.

McKee's leadership was critical to the TPS partnership. "Sally is just amazing in being a big idea person and understanding how to make it happen," said Les Sternberg, dean of the College of Education and Human Development. Sternberg has also been heavily involved in getting the program off the ground and oversees one of the Tuesday afternoon tutoring groups.

She got much of the program organized, spreading the word around campus, calling for volunteers, recruiting faculty mentors and working out the credit students would receive for participating.

Jean Sternberg came on board midway through the seven-week session as part-time interim project coordinator. She works out of the provost's office handling paperwork and other details.

"The response has been overwhelming," she said. "Students are still calling and emailing to inquire how they can get involved. It's very exciting because there are a lot of possibilities."

The other crucial part of the equation was transportation. TPS supplies the buses that ferry the students back and forth, a large financial obligation on its part.

"This shows the commitment of Toledo Public Schools to doing the right thing in educating its students," Les Sternberg said. "The benefits and the rewards of doing this are huge. All the evidence shows that."

Sternberg said he is reluctant to even refer to what the college students do as tutoring. "We're learning as much from them as we are teaching them. We're really more partners learning from each other," he said.

Student volunteers come from all over campus. Though many are education majors, there are also students from other disciplines, the honors program, Chapman Learning Community and graduate students.

Tia Thomas, a freshman majoring in elementary education, said she is teaching three groups in the schools and wanted to parallel the two groups.

"I want them to do the best they can," she said. "For me, it's a learning experience. Every kid is different, so I want to learn to teach them as individuals."

Tiffany Hesson, a senior in elementary education, said her goal is to foster an "independent, natural desire to learn what's going to work for them even when I'm not there. For myself, I learn about children in different cultures to help me be a more effective teacher."

The program is in progress, Les Sternberg said. "This semester is an ongoing testing procedure as we learn where we are and where we aren't. We still have more work to do with the teachers to help them determine how they are going to use the college students, and making sure we're all on the same page. Now that we've made the commitment, the relationship and the understanding is something that has to be built over time," he said.

An important precept of service learning is that we learn better when we reflect on what we do, McKee noted. Students keep in regular contact with their mentors, as well as meet periodically as a group to share the things they feel are going well and those they feel are a struggle, which will also help in refining the program for next year.

They keep a journal of their experiences, and each week they have assigned topics to discuss en route to their schools. They also have a reading and movie list.

"We make sure they spend 45 hours doing different things to earn that credit hour for their participation. And all these activities help the students to see the larger societal issues involved," McKee said.

An orientation session, led by Donald Scherer, philosophy, and two visits to community centers and churches were held to prepare students for their forays into the inner-city schools—an environment largely unfamiliar to many of them.

The faculty involved are dedicated to the ideal of service learning, McKee added. About 25 of them met with her for a soup supper at her residence and also visited the faculty, staff and students of the Toledo schools.

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Card sale to aid assault victims
A Wednesday (Dec. 9) brown bag luncheon at the Women's Center will be devoted to a discussion of ways to honor the spirit of generosity and gratitude during the holiday season. Available for purchase at the luncheon will be holiday cards benefiting domestic violence and sexual assault victims served by Behavioral Connections of Wood County. Two Behavioral Connections programs provide crisis intervention, ongoing support, court advocacy and counseling to victims of domestic violence and sexual assault in Wood County. All profits from sale of the cards will be used to provide emergency supplies to battered women and rape survivors. Cards may be purchased all month at the Women's Center, 107 Hanna Hall. For more information, call 2-7227.

Kwanzaa celebration Friday
The Center for Multicultural and Academic Initiatives will host the second annual Kwanzaa celebration at 5:30 p.m. Friday (Dec. 11) in 101-B O'Scannell Hall. University students, faculty and staff will present traditional African dances, dramatic interpretation, short skits, poetry and song. The free program will conclude with the Karamu (feast), featuring soul food complete with collard greens, cornbread and sweet potato pie. Kwanzaa, which means “first fruits of the harvest” in Swahili, is the only nationally celebrated African-American holiday in the U.S. It's not a religious holiday, but a time for families to come together to give thanks, enjoy life's blessings and celebrate the history and customs of African-Americans. For more information, call Sheila Brown, 2-2642.

New Year's Eve party for kids
What's happened to the kids on New Year's Eve? Take them to the New Year's Eve Bash sponsored by the women's basketball program. The event will be held from 8 p.m.-1 a.m. in Anderson Arena. There will be games, prizes, movies and food for the kids. Cost is $25 per child and $15 for each additional child in the same family. Security measures will be taken to ensure the children's safety. All children must be picked up by 1 a.m. Reservations should be made now because space is limited. Reservation deadline is Dec. 18. For more information and/or registration flier, call Suzy Venet, 2-2043.

Alumni Association offers gifts
Affordable gifts for office exchanges, graduating seniors and soon-to-be-retirees can all be found at the Alumni Association Gift Shop. Available BGSU items include a holiday ornament ($6), a watercolor print of campus ($33), a glass paperweight ($25), a certificate/diploma frame ($29.95) and two ties.

Copy center hours extended
Printing services is extending the hours in its Student Union copy center this week (Dec. 7-11). Hours will be 9 a.m.-10 p.m. today-Thursday and 9 a.m.-7 p.m. Friday.

Box office closing through Jan. 10
The Moore Musical Arts Center box office will be closed today (Dec. 7) through Jan. 10. Regular hours (12:30 p.m. weekdays) will resume Jan. 11, when tickets will be on sale for visiting Nokuthula Ngwenyana in the Louise F Rees Memorial Concert on the 1998-99 Festival Series.

in brief
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 administrators at the University for more than 27 years before her retirement in 1990.
Fink, who became the 17th recipient of the Master Teacher Award this fall, earned both her bachelor's and master's degrees from Bowling Green. She joined the faculty as a part-time instructor in 1987 and became full time in 1989.
Fink was named to "Who's Who of American Women" in 1997 and Adviser of the Year by the University's Student Organizations Leadership Development Program in 1993. In 1985, she was named Teacher of the Year in the Otsego School District.

C.J. Cranny

Charles Middleton

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To reserve tickets, call 2-8171. Tickets may be reserved using VISA, MasterCard or Discover.
**Philosophy graduate program ranked first in national report**

The Department of Philosophy's graduate program in applied moral, political and social philosophy has been given a number one ranking by the Leiter Report, considered by most philosophy students as the primary guide to rating college and university graduate studies.

Bowling Green was also ranked highly in the specialties areas of metaphysics (6th), decision and rational choice theory (6th) and political philosophy (9th).

Overall, the report ranked Bowling Green 2nd in the country, tied with Duke University, Rice University and Washington University in St. Louis. New York and Princeton universities were ranked the nation's top overall philosophy programs.

"We are very pleased with the ranking," said Marvin Belzer, philosophy department chair. "This will assist us in continuing to attract to Bowling Green some of the finest philosophy graduate students and faculty in the world."

The Leiter Report is used extensively by students planning to apply to graduate school and is regarded as the standard source of information on graduate study in philosophy in the U.S.

**Tuesday, Dec. 8**

The Network, 8:30 a.m., Women’s Center, 107 Hanna Hall. This is a group designed to create a space for women faculty, administrators and staff to discuss ideas, concerns, personal and professional issues.

Retired Faculty/Staff Holiday Tea, 3:30-5 p.m., Ice Arena Lounge. All retirees and their guests are invited, and those retiring since May 1997 will be individually recognized. RSVP to Carol Lucas, 3-7600.

Men’s Basketball hosts Oakland, 8 p.m., Anderson Arena.

**Wednesday, Dec. 9**

International Travel Grant Workshop, 10-11 a.m., 1103 Offenhauer West. For more information, call 2-0309 or email sally@eht.psu.edu.

Sexual Harassment Workshop, 10:30 a.m.-noon, 1 College Park Office Building. For more information, call affirmative action, 2-8472.

Holiday Open House, 3-5 p.m., McFall Center Gallery. President Sidney Sibeaux invites the campus community to the annual open house.

Women’s Basketball hosts Michigan, 7 p.m., Anderson Arena.

UO Films, Student Films, 8 p.m., Gub Film Theater. Submissions for UAO student films may be made to the films committee. For more information, call Clayton Tinney at the UAO office, 2-2343.

Public Skating, 8-10 p.m., Ice Arena.

**Thursday, Dec. 10**

Celebration of the 50th anniversary of the Declaration of Human Rights, 9 a.m.-4 p.m., Student Union Foyer. Sponsored by Amnesty International.

Public Skating, 8-10 p.m., Ice Arena.

**Friday, Dec. 11**

Last day of classes for fall semester.

**Weekend, Dec. 11-13**

Stress Reduction Through Humor, 3 p.m., Women’s Center, 107 Hanna Hall. Bring Your Own Funny (BYOF) in the form of jokes, cartoons, video clips and stories.

Public Skating, 8-10 p.m., Ice Arena.

Board of Trustees meeting, 3 p.m., Assembly Room, McFall Center.

**Saturday, Dec. 12**

Hockey hosts Western Michigan, 7 p.m., Ice Arena.

**Sunday, Dec. 13**

Women’s Basketball hosts Western Michigan, 2 p.m., Anderson Arena.