Estrogen may dictate what problem-solving strategy brain uses

By Jim Barlow
News Bureau Staff Writer

Deciding on hormone-replacement therapy — weighing the far-reaching benefits and risks — can give a woman a headache. Now researchers say estrogen may dictate what problem-solving strategies the brain uses to solve problems.

According to a study of rats published in the June issue of Behavioral Neuroscience, activation of different parts of the brain may depend on the presence or absence of estrogen. Rats treated with the hormone learned a place-oriented task faster than rats not getting it, but those not on estrogen were faster completing a response-driven task. These tasks are believed to be controlled by different neural or memory systems.

“One of the ways we have identified these analogous tasks is that estrogen biased rats to use a place, or spatial, strategy,” said Donna L. Korol, an Illinois psychology professor. “Those not given estrogen are better using a response, or non-spatial, strategy. This suggests that estrogen isn’t just good for all kinds of memory. Rather, it is very specific in dictating what strategy one takes. Estrogen may enhance some and impair other forms of learning.”

In the National Science Foundation-funded study, Korol and Lacy L. Kolo (St. Louis University School of Medicine) used young rats whose ovaries had been removed to decrease circulating estrogen levels. Three weeks later, some of them received injections of estrogen, while others got a placebo, before learning to find food in two similar four-arm mazes.

In the place-training test, food always was at the same starting point. Rats on estrogen learned the task faster than the untreated group. For the response-training test, the rats always found food by turning right (or left) at the first opportunity regardless of where they had started. Rats without estrogen learned this task quicker than the estrogen-treated ones.

“If estrogen was simply enhancing learning, the results should have been the same for each task, but that was not the case,” Korol said. “It appears that estrogen is enhancing place learning at the expense of response learning. Both these task scenarios are important, because they reveal that estrogen isn’t just up-or-down regulating something. It is shifting what individuals are good at solving — without estrogen, they still are good at something.”

A postmenopausal woman not on HRT may believe that her ability to solve a problem as she always had is slipping. In reality, the brain may be shifting gears into a different strategy that the woman is not used to harnessing, Korol said.

In a chapter for a book published last year, “Animal Research and Human Health,” Korol and Carol A. Manning of the University of Virginia noted that when an aging woman’s hormone level declines, her brain might not shift into a problem-solving mode more common to men. “Women may actually get better at performing a task from a different approach, but they are not using to doing it that way, so they view the change as an impairment,” Korol said. “Theoretically, this may be true, but we don’t know this for sure yet. The question is, Can you tap into the other strength?”

Korol is among a growing body of researchers studying the cognitive impacts of estrogen. Researchers so far have found that estrogen increases nerve-cell communications and brain excitability, in general, but findings related to memory and learning have often conflicted as to whether cognition was impaired or enhanced.

Many previous studies involved water-escape tests, in which rats are stressed as they begin to learn new tasks. The stress, Korol said, “seems to impair cognition in the presence of estrogen, but when there is no stress estrogen helps the capacity to learn.”

The positive-reward, food-based tests used in Korol’s lab remove stress from the equation. “Now we are going in and looking at the specific brain structures,” she said. “Having estrogen at high physiological levels will shift the strategy that you use to solve a task. It might be doing so by changing the functioning or activity of certain brain areas.”

Estrogen and the brain [Our research with rats shows] that estrogen isn’t just good for all kinds of memory,” said Donna L. Korol, an Illinois psychology professor. “Rather, it is very specific in dictating what strategy one takes. Estrogen may enhance some and impair other forms of learning.”

— Bill Wiegand, photo
The Center for Children’s Books celebrates the summer solstice with “Eros & Psyche: A Storytelling Concert for Adults” at 8 p.m. June 21 at the Graduate School of Library and Information Science (enter through east wing entrance). This benefit for the center’s endowment fund features award-winning director, actress, author and storyteller Megan Wells in a one-woman show. It is a re-imagining of the ancient tale that evokes “the deep journey of the soul on the path of love.” Benefit tickets are being sold for donations of $5 or more. Call 244-9331 or e-mail ccb@alexia.lis.uiuc.edu for more information.

construction continues

Campus traffic changes announced

Several significant traffic changes have occurred on the UI campus to accommodate utility and road-work projects.

Goodwin Avenue between Gregory Drive and Nebraska Street in Urbana is closed to traffic until Aug. 20 for the installation of underground utilities. The circle-drive entrance for Freer Hall will be inaccessible during the closure.

Dorner Drive in Urbana will be reduced to one lane, southbound, through July 1 for road-surface restoration. Access to the F-29 parking garage at the corner of Dorner and Gregory drives will be from Gregory eastbound until July 1.

Gregory Drive, normally restricted to bus and service-vehicle traffic, will be the detour route for public traffic while Dorner Drive is being worked on.

On July 1, Dorner Drive will re-open to two-way traffic, and access to the F-29 parking garage and the myths and Dorner Drive at the same time. Gregory Drive again will be restricted to bus and service vehicles.

As the work progresses north on Goodwin Avenue, access to the Freer Hall circle drive and related streets will be opened as soon as possible. However, no access to Freer Hall from the north will occur until after Aug. 20.

Drawings and descriptions of traffic routes associated with this and other projects on campus are on the Web at www.pdc.uiuc.edu/Street_Closures/index.html.

Office of Publications and Marketing

F/S Directory updates wanted

In preparing for the new Student/Staff Directory to be distributed in the fall, the Office of Publications and Marketing offers the following suggestions to ensure that information is correct.

- Campus units will receive a request for updates to the units section of the directory by e-mail in July. Updated entries will be due about four weeks later.
- Faculty and staff members should check their listings in the faculty/staff section (pages 363-616) of the current directory to ensure it is correct. Listings are based on payroll records; therefore, any faculty/staff member who wants to change a listing must update his/her payroll file before Sept. 21. See page 3 of the current directory for instructions. E-mail address listings may be changed on the Web at www.s.vuiuc.edu/de or by going to Campus Information Technologies and Educational Services (CITES—formerly CCSO) at 1420 Digital Computer Laboratory. (See page 10 of the current directory.)
- Do not contact the Office of Publications and Marketing to change an individual listing.

For all of the following, new entries are available for review.

Completed forms must be received by Publications and Marketing by Sept. 3 and all changes to payroll records must be made well before Sept. 21 in order to appear in the printed directory.

Listings for nonsalaried employees and for personnel at affiliated agencies are derived from forms available from your departmental business office and the Office of Publications and Marketing (333-9200). A new form must be submitted each year.

If you receive a payroll record that does not contain all of your titles or if you filled out a joint appointment form last year and your appointment has changed, contact your departmental business office or call 333-9200 to request a form.

University employees who are retiring or going on permanent disability between June 1 and Sept. 30, 2002, should request a Retired/Disability form from the Office of Publications and Marketing (333-9200) to include their listing in the next directory. Those who retired or were on permanent disability prior to June 1 will automatically receive a form in the mail after June 1; the form will be sent to the address on file with the Annuitants Association. Call 333-9200 if you have not received a form by June 30. Participation is voluntary and you must file a new form every year to be listed in the directory.

WILL-TV/Project CHOICES

Autism discussion, film preview

WILL-TV and the Illinois State Board of Education’s Project CHOICES will sponsor a two-part program on autism from 6:30-9:30 p.m. June 25, including a screening of the public television documentary “Refrigerator Mothers” and a panel discussion with audience participation.

The program is open to the public. Call 244-5074 to register for the event, which will take place in the WILL-TV studio in Urbana. WILL-AM 580 will air the discussion portion of the program live at 8 p.m. June 25, and the audio also will be available online at will uiuc.edu. Listeners will be invited to call in with questions or comments.

The documentary “Refrigerator Mothers” will air on WILL-TV at 9 p.m. July 16, as part of “P.O.V.,” the acclaimed non-fiction film series on PBS. It looks at the period from the 1950s through the ’70s when the medical establishment thought it had found the root cause of autism: poor mothering. Doctors now know that autism is a brain disorder. But for a generation of women, branded as cold “refrigerator mothers,” the damage had been done.

School of Art and Design

Ceramics class announced for fall

The School of Art and Design will offer a ceramics class this fall for people who have experience working with clay and know hand-building techniques such as coil, slab and modeling. The program will not offer training for wheel throwing.

Participants will complete four to five projects during the class that will be finished by electric low fire and raku-fire.

The class, limited to 10 people, will meet from 7 to 10 p.m. Tuesdays from Sept. 3 through Nov. 12. Cost for the course is $135. For more information, contact Carol Smith at 333-1652 or csmith2@uiuc.edu.

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Inside Illinois

Tell me about your job.

I worked for the CERL (PLATO) for about 15 years both as a student and then full time until they closed it. Then I came over here to CCSO, which is now called CITES. The kind of work that I do seems to change every two or three years. I see myself as kind of a generalist. I work in a lot of different areas. For the past several years I’ve been developing Web applications and other tools to support our operations group and the managers of our systems, services and networks. My primary focus is our ticketing system, ARS, which tracks problems, projects and change requests. I also wrote some more widely used applications such as CSG Status and Contact Manager.

What kinds of projects are you working on now?

I’m putting in a feature in ARS so we can have multiple dispatching groups and can process the e-mail delivered to our numerous campus-level e-mail addresses such as net-trouble, consult and security.

We’re also integrating our ticketing system with the university’s new system, Clarify, which is being used in a number of units around campus and the university for problem management. We want our ticket system and Clarify to be compatible.

What is your favorite part of what you do?

The challenge. A large part of the development work that I’m doing is deciding how a product is going to work or proposing, a possible solution to a problem then showing it to people and getting them excited about it. Then I have to turn the idea into a real service or product. I enjoy that very much. It makes for some sleepless nights. When I start to feel that I’m sleeping really well again, it’s a sign that things are slowing down, and I need to find a new project to work on.

Do you have any particular projects that you have felt especially proud of or felt were particularly challenging?

Status turns out to be one that I am very proud of because it was an obvious need at the time. I had the idea for it and pushed it through. I’m also really proud of my contributions to the old PLATO system. We broke a lot of new ground in the area of timesharing operating systems and making limited resources work for hundreds, and later thousands, of concurrent users.

What’s the most challenging part of what you do?

Building interest and support for new ideas, getting agreement to do the work sometimes and getting the resources. You have to be something of an evangelist and promote your ideas. CITES is organizing away from this kind of individual contribution, but our history, our expertise and our greatest successes are very much the result of talented individuals with great ideas.

I’m learning that Web applications need frequent attention. Lately, it seems we’re redesigning our Web site every few months, so I have to go back to my publicly visible applications and try to make them match the look and feel of the new Web site. They are database-driven CGI scripts, not static pages, so I can’t just run them through some kind of Dreamweaver wash-and-rinse cycle.

Tell me about your leisure interests.

I’m Cubmaster for Cub Scouts Pack 11, it’s one way to spend some quality time with my three boys, who are ages 4 to 9. I enjoy the aspect of scouting that’s about raising kids to do the right things. With Cub Scouts, it’s very much parents and children engaging in activities one-on-one.

I also have a commercial pilot’s license and an instructor’s certificate, so I’m also a flight instructor. Our family flies places occasionally but our boys are getting big, and they don’t fit in the back seat of an airplane anymore. I’m in a couple of flying clubs. One is called the Stable Flying Club and there are quite a few people with engineering backgrounds in the club. I’m also in the Flying Illini.

And you are a Red Cross volunteer too?

I spent many years as the Disaster Chair for the Red Cross, but I’m just a worker bee now in the disaster operations unit. The Red Cross called me recently to do damage assessment for the flooding in Sidney.

I think that many people don’t realize that the Red Cross is not only working on highly publicized, large-scale disasters but also is working year-round on disasters that only affect a few people or a single family — such as family house fires. We were called out recently to open a shelter when they evaporated an apartment complex on the north side of Champaign-Urbana because of a gas leak.

–Interview by Sharita Forrest, assistant editor

Illinois should enact short-term tax hike to address budget deficit

By Mark Reutter
News Bureau Staff Writer

With the state facing a serious budget crunch, the governor and Legislature should have taken the high road and passed a temporary income-tax hike until the crisis have taken the high road and passed a temporary income-tax hike until the crisis.

Gov. George Ryan and the legislature to take the high road and passed a temporary income-tax hike until the crisis.

The state tax cutters and exact sharp reductions in
fiscal 2003 outlays, including a $89 million cut for the University of Illinois system.

Revenues for the current year ending June 30 are likely to fall $1.4 billion short of the $26 billion that was expected at the beginning of the year. Mid-year expenditure cuts made in response to revenue shortfall have fallen far short of addressing the problem,” Giertz wrote in a paper published last month by the Institute of Government and Public Affairs.

Giertz advocated a temporary two-year increase in the state income tax from 3 percent to 3.25 percent, with a comparable increase in state corporate taxes. For a family of four, this would amount to about $100 in higher taxes per year.

“Such an increase would generate approximately $800 million per year for two years,” he estimated.

Together with spending cuts, the budget deficit could be closed without causing undue hardships for poorer families, raising the state’s “rainy day fund” or delaying the payment of state bills, including year 2001 tax refunds to state residents.

Giertz expressed worry about permanently increasing “vice” taxes, such as raising the tax on each pack of cigarettes by about 40 cents. “These and other changes may or may not be desirable, but they should be considered on their own merits, not as stopgap measures to respond to the state’s temporary budget problems.”

And that is the silver lining, according to Giertz – the current budget crisis is not expected to last long as the economy shows signs of renewed activity.

Giertz pointed to the stock market “dot-com bubble” as an important contributing factor to the budget woes. Much of revenue added to state coffers in recent years did not come from permanent gains in general household income, but from windfall capital gains taxes of top earners. When these stocks imploded, the revenue that state forecasters had anticipated from wealthier households was also wiped away.

But the Illinois scholar also faulted Springfield for not renouncing in government spending during the flush years.

“Spending growth continued apace in fiscal 2001 and 2002 even as revenue growth slowed,” he said in an interview. “The governor and General Assembly can rightly order for approving an overly optimistic budget for fiscal 2002, though, in their defense, the magnitude of the revenue shortfall in recent months has been far greater than experts ever inside or outside government foresaw.”

GEO, FROM PAGE 1

2002-2003 academic year.

In the June 6 statement, the university and the GEO made clear that the composition of the bargaining unit was not intended to be construed as volunteer recognition of the GEO as the bargaining representative of assistants. While the GEO will become the bargaining representative will depend on the outcome of the election among those assistants in the potential bargaining unit.

The university and the GEO are working with the Illinois Educational Labor Relations Board on the details for the election.

PAGE 3

June 20, 2002
## Calendar of Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 20</td>
<td><strong>Winning look</strong> A University of Illinois squad car leaving the Department of Public Safety Building</td>
<td>Springfield Ave, Urbana</td>
<td>Sports the department's new graphic design, which depicts the department's badge, the university's &quot;T&quot; logo and orange and blue stripes.</td>
</tr>
<tr>
<td>July 7</td>
<td><strong>Ira “Bill” Cole</strong>, 78, died June 7 at Waveny Care Center in New Canaan, Conn. Cole was assistant dean of journalism from 1948 until 1956.</td>
<td>Waveny Care Center</td>
<td>Died at the age of 78.</td>
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<td>June 20</td>
<td><strong>Charles Robert Hutchcraft</strong>, 78, died June 5 at Carle Foundation Hospital, Urbana. Hutchcraft was a pipe fitter at the UI for 27 years. Memorials: American Lung Association or Carle Hospice.</td>
<td>Carle Foundation Hospital</td>
<td>Died at the age of 78.</td>
</tr>
<tr>
<td>June 21</td>
<td><strong>Albert E. Marien</strong>, 90, died June 3 at Boca Raton, Fla. Marien was a UI instructor of marketing and advertising before becoming an internal auditor with the UI. For 37 years he was the chimes master, playing concerts on the bells at Alford Hall. Memorials: Alzheimer Project, Office of Development, Swanlund Administration Building, MC: 304.</td>
<td>Boca Raton</td>
<td>Died at the age of 90.</td>
</tr>
<tr>
<td>June 28</td>
<td><strong>Rebecca Ann Reynolds</strong>, 50, died June 12 at Provena Covenant Medical Center, Urbana. Reynolds worked in the Housing Division as a kitchen helper from 1989 to 1993 and then as a building service worker for Housing from 1999 to 2001. Memorials: Provena Covenant Hospice, Urbana.</td>
<td>Provena Covenant Medical Center</td>
<td>Died at the age of 50.</td>
</tr>
<tr>
<td>June 29</td>
<td><strong>Christina K. Schmohe</strong>, 69, died June 15 at University YMCA, Urbana. Schmohe was an office auditor with the UI for 21 years as a maid in the Housing Division, retiring in 1993 and then as a building service worker for Housing. Memorials: American Lung Association or Carle Hospice.</td>
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## Academic Resources

- Suite 420, 807 S. Wright St., MC-310 • 333-6747
  Academic Human Resources maintains listings of academic and professional faculty positions that can be recruited during open business hours or online at [webster.uiuc.edu/ahr/jobs](http://webster.uiuc.edu/ahr/jobs).
  Faculty members: [webster.uiuc.edu/ahr/jobs](http://webster.uiuc.edu/ahr/jobs)
  Academic professionals: [hmtl.uiui.edu/cp/g/panda/SearchForm2.pl](http://hmtl.uiui.edu/cp/g/panda/SearchForm2.pl)

## Personnel Services Office

- 52 Gregory Drive, MC 242 • 333-3101
  The Personnel Services Office provides information about staff employment opportunities at [www.pso.uiuc.edu](http://www.pso.uiuc.edu).
  Application and interview requests are no longer accepted by fax. By completing an online employment application and submitting it, you may request the visit the Employment Center at [www.ahr.uiuc.edu/jobs](http://www.ahr.uiuc.edu/jobs).