Welcome To Your Brain
Why You Lose Your Car Keys but Never Forget How to Drive
and Other Puzzles of Everyday Life

Professor Sam Wang
Princeton University
Neural diseases are widespread and very important.
Brain science?

KA-BOOM!

Chess player’s head explodes during championship match!

By ELLIS RUTH (Correspondent)

MOSCOW — Doctors are blaming a rare electrical imbalance in the brain for the bizarre death of a chess player whose head literally exploded in the middle of a championship game.

No one was hurt in the fatal explosion but four players and officials at the Moscow Candidate Master’s Chess Championships were played with blood and brains.

Experts believe an imbalance of the brain’s electrical circuits caused the explosion.

“Dr. Martinenko says knowing you have the condition can greatly improve your odds of surviving it,” said a top chess expert. “A ‘yes’ answer to any of the following seven questions could mean that you have HCE.

1. Does your head sometimes ache when you think too hard? (Head pain can indicate overloaded brain circuits.)

2. Do you ever hear a faint ringing or buzzing sound in your ears? (Dr. Martinenko says there are probably troubleshooting devices you can’t hear.)

3. Do you sometimes feel yourself unable to get a good sleep? (This is a possible sign of increased electrical activity in the brain.)

4. Do you spend more than five hours a day reading, but then you can’t sleep? (Brain circuits can be overwhelmed by reading.)

5. Do you use any of the following medications or supplements? (Dr. Martinenko says some can aggravate the condition.)

6. Do you need to analyze things in minute detail? (Although normal, it can stress the brain.)

7. Do you sometimes feel as though you are not in control of your thoughts? (Dr. Martinenko says there are other possible explanations.)

Metal eyeball found at UFO landing site!

ATHENS, Greece — The discovery of a scrap metal eyeball at a UFO landing site has alarmed scientists who say the object is likely a remnant of a crashed spacecraft.
The human brain

- Size: 1.2 kg (total body weight 70 kg)
- Processing units: $10^{11}$ neurons, $10^{15}$ synapses
- Power usage: 12 watts (body total 70 watts)
Exercise on the Brain

By Sandra Aamodt and Sam Wang

FEELING a little less mentally quick than you did a few years ago? Maybe you are among the many people who do “brain exercises” like sudoku to slow the cognitive decline associated with aging. We’ve got a better suggestion.

Computer programs to improve brain performance are a booming business. In the United States, consumers are expected to spend $80 million this year on

Another line of evidence cited by marketers comes from studies of elderly people who improve certain skills by practicing a challenging computer-based task. Although most programs work to some extent, the gains tend to be specific to the trained task.

That is, practice can certainly make

Sweat, not sudoku, will keep your mind alive.
Tighten Your Belt, Strengthen Your Mind

By Sandra Aamodt and Sam Wang

Declining house prices, rising job layoffs, skyrocketing oil costs and a major credit crunch have brought consumer confidence to its lowest point in five years. With a relatively long recession looking increasingly likely, many American families may be planning to tighten their belts.

Interestingly, restrainng our consumer spending, in the short term, may cause us to actually loosen the belts around our waists. What's the connection? The brain has a limited capacity for self-regulation, so exerting willpower in one area often leads to backsliding in others. The good news, however, is that practice increases willpower capacity, so that in the long run, buying less now may improve our ability to achieve future goals — like losing those 10 pounds we gained when we weren't out shopping.

The brain's store of willpower is depleted when people control their thoughts, feelings or impulses, or when they modify their behavior in pursuit of goals. Psychologist Roy Baumeister and others have found that people who successfully accomplish one task requiring self-control are less persistent on a second, seemingly unrelated task.

In one pioneering study, some people were asked to eat radishes while others received freshly baked chocolate chip cookies before trying to solve an impossible puzzle. The radish-eaters abandoned the puzzle in eight minutes on average, working less than half as long as people who got cookies or those who were excused from eating radishes. Similarly, people who were asked to circle every "e" on a page of text then brain cells use as their main energy source and cannot do without for even a few minutes. Most cognitive functions are unaffected by minor blood sugar fluctuations over the course of a day, but planning and self-control are sensitive to such small changes. Exerting self-control lowers blood sugar, which reduces the capacity for further self-

One way the economic downturn just might be good for us.

weeks can increase willpower capacity. People who stick to an exercise program for two months report reducing their impulsive spending, junk food intake, alcohol use and smoking. They also study more, watch less television and do more housework. Other forms of willpower training, like money-management classes, work as well.
Structural plasticity in the adult brain

Prof. Elizabeth Gould
You only use ten percent of your brain mental and physical resources. William James,
How To Spy On Brain Activity

Functional MRI and PET

Two-photon optical microscopy

BOLD
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18 translations worldwide
http://welcometoyourbrain.com
Illustrations by Lisa Haney
Movie by Dan Dombeck and David Tank