

Our Evolving Brains

Adapted from *Evolutionize Your Health™*
by Daniel G. Koster, MD

Despite conflicting evidence, science has proven that we humans have brains. Most of us agree on that, but do we agree on what our brains actually do?

We all know our hearts pump blood and our bones provide support for movement, but what is the main function of our brain? Hmm, it makes you think.

And that's what brains do, right? They make us think. But why? From a functional viewpoint, why is thinking so important for survival?

You may have a better answer, but the one I like is that our brains predict. First they perceive and remember vast data about our experiences and our universe. Then they analyze that data and extract general patterns. From those patterns, our brains make predictions from the past that improve our future. Viewing sunsets, listening to Beethoven and stopping to smell the roses are great, but Nature has a higher priority for our brain: Predicting helps us survive.

“Our brains make predictions from the past to improve our future.”

Neanderthal Neurons

It's fifty thousand years ago. Fred, Frank and Fritz are chatting on the savanna when a leopard strolls out of the bushes. They'd never seen a leopard before, but Fred and Frank back cautiously away. Always curious, Fritz takes a long look and becomes lunch. A week later, Fred and Frank are hanging out when a lion approaches. They'd never seen a lion either. Fred says, “Hey, that looks a lot like what ate Fritz,” and backs away. But Frank, the intellectual, says “Somewhat, yes, but note the mane and total lack of

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spots—” Frank becomes lunch.

Fred's brain had millions of neurons vividly recording the leopard and noting similarities with the lion. With no previous lion experience, Fred's brain predicted a threat. This was completely prejudicial and unfair to the lion, by the way, who had never done anything to offend him. Nevertheless, Fred's brain abstracted from available data a likely outcome—making a prediction—that saved Fred's genes for future generations.

Fred's genes live on in us, which means that Fred's brain is our brain. Our brains continue what they did

millennia ago, connecting the dots of data into patterns of prediction. When I diagnose, I collect data from the patient and try to abstract the cause, which helps predict the best treatment. It can be difficult, but if the patient and I gather enough reliable information, we stand a better chance.

You do the same whenever you buy a car, order an entrée, vote for a candidate, flee from a predator or make any big decision. You exclude irrelevant and unreliable data, gather solid evidence, and analyze to make your best prediction. Of all the miraculous things a brain does, I think that's the most important. So thanks, Fred



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Pre-Op Preparations

What you should know before you go!

If you know you're being admitted to the hospital, taking some time to prepare can not only make your stay more comfortable, but lower stress which may lead to a quicker, more successful recovery. Each surgical department will have their own pre-op guidelines, but here is a list of general suggestions that may be helpful.

Documents and paperwork - Bring all necessary paperwork in one folder, preferably with a tie or snap closure to keep important documents secure. Include insurance cards, a list of all medications, phone numbers of family and friends, and a power of attorney or living will if you have it.



Writing paper and pen - Important for making notes or recording questions for your doctor.

Eyeglasses – Bring them. If you wear contact lenses, leave them at home.

Toiletries – Hospitals provide toothbrush, toothpaste, soap, shampoo and other toiletries, but you may prefer to bring your own lotion, conditioner, comb or hair brush, etc. Avoid highly scented products.

Comfortable pajamas or lounging clothes - Nightgowns or nightshirts are better for women than pajamas with pants; short-sleeved shirts are best to accommodate intravenous (IV) lines. A cardigan-style sweater or bed jacket can ward off the chills, and bring slippers for cozy strolling.

Nail polish & acrylic nails – Do not color or cover your nails because it can affect the pulse oximeter, the machine that slips onto your finger to monitor your breathing.

Something to occupy your time - Bring books, magazines or a newspaper. If you enjoy a portable craft - like knitting or crochet - bring that along.

A small amount of money - Handy to buy newspapers or use vending machines and such. Credit cards or large amounts of cash are discouraged.

Electronics - Check the hospital policy about items like laptops, iPads or cell phones. Cell phones are forbidden in many hospital areas since they may interfere with monitoring equipment. Plus, high-end electronics are targets for theft - if you choose to bring them, have a relative or friend take them home or store them safely when you're sleeping or out of your room.

Makeup, jewelry and hair products - Don't wear any makeup to the hospital. Makeup (especially mascara) during anesthesia can cause injury. If you have longer hair, bring an elastic band to tie it back. All jewelry should be removed and left at home.



Food, drink & meds - A general rule is nothing after midnight before your operation. This includes food and liquids. You should check with

your surgeon on whether or not to take your usual medications. Brush your teeth, but don't drink the water.

Tobacco use - If you use tobacco, don't smoke for 24 hours prior to surgery and absolutely do not use chewing tobacco after midnight.

Dentures or prosthesis - If you wear dentures or a prosthesis, tell the anesthesia and surgical teams so they can remove them prior to surgery.

Wednesday, October 9
Backstage at the Meyer
6:30pm

The crisis continues in American health care and puts every one of us at risk. Join Dr. Dan for a behind-the-scenes look at our medical system at this complementary - and public - presentation. Spread the word!



Our Evolving Brains

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and all our brainy ancestors, for doing your part in producing our marvelous brains. While we're at it, maybe we should thank the big cats for preventing Fritz and Frank from polluting our gene pool.

Two Brains Are Better Than One

We benefit from countless generations of evolving brains, but today we have another advantage our ancestors could scarcely have imagined. We have a second brain.

Modern communication technology has changed just about everything humans do. It has profoundly changed interpersonal relations, education, politics and business. As you'd expect, its transformation of medicine makes the most striking impression on me. Global instant communication has created a paradigm shift in medicine that affects you.

Medicine no longer happens only in the brains of individual doctors occasionally reading a journal or talking to a colleague. Today, millions of scientists and

doctors remain digitally connected around the globe. Each human with a computer forms a unit, like a neuron, that synapses with its counterparts across the hemispheres. Just like

“With human brains inter-wired around the globe, medicine now happens at light speed...”

nerve signals in a brain, the bristling electronic activity between thousands of scientists never stops firing data, forming new connections, and learning. With human brains inter-wired around the globe, medicine now happens at light speed in the constantly connected, collective brain of planet Earth.

Of course, the global brain does not confine itself just to medicine. Like my brain and yours, our global brain connects and processes data from every aspect of our experiences. It abstracts patterns and trends. It

summarizes (Wikipedia), teaches (Kahn Academy), entertains (YouTube), sells (Amazon.com) and socializes (Facebook).



Over eons we evolved our individual brain, and much more recently and rapidly we evolved our collective global brain.

So we humans have evolved two brains. Over eons we evolved our individual brain, and much more recently and rapidly we evolved our global brain. They function much the same way and for the same primary purpose: gather data, analyze, predict. I use both brains practicing medicine. You use both choosing which car to buy, what movie to order, or where to go for vacation.

Mark Twain said a lie can travel halfway around the world before the truth gets its boots on. Today a new medical discovery can flash around the world faster than the juiciest lie of Twain's time. But so can lies of today. How do we tell what's true?

The surest way to tell what's true is to discuss and compare with others. Truth is validated—confirmed true—by agreement. We don't have to delve into philosophy to make this point. If you doubt that truth requires agreement with another perspective, consider my patient in a county psychiatric unit in 1986 who believed himself Jesus Christ. I disagreed, but because (in my opinion) he was close-minded on the subject, we could not properly argue his claim. So in a sense we will never truly know.

The point is, whichever brains we use, we must validate our data and our predictions or risk costly errors. We do this by discussing with each other,

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Our Evolving Brains *(concluded)*

comparing our views, arguing all sides. That's an important part of my job with patients. And with more medical complexity and choices before you, it's important for you, too, in order to get the best health for you and your loved ones. Fortunately, I enjoy that part of my job.

Using our global brain is just another way to evolutionize your health. So whenever you have a medical question or concern, please call on me, and we'll use all of our brains to get you the health you want.

*Do you have a suggestion
for the next newsletter?
Send it to: Chris@EoMedLLC.com*

Take Note!

**** Flu shots are available!** No need for an appointment, just call before you come in.

**** Join us at *Backstage at the Meyer* on **October 19 at 6:30pm** for Dr. Dan's behind-the-scenes look at our healthcare system. This presentation has limited seating; reservations are required. Details to come via email.**

**** Our fall *Dine and Discuss* will be on **11/16/16!** Call or email Chris to RSVP. Have a topic suggestion? Let us know—this is for you!**

**** The office will be closed Thursday and Friday, **November 24 & 25** for Thanksgiving. Dr. Dan can be reached for emergencies via cell phone: 920.366.9150.**

Contact Us

Contact us anytime for more information about our services.

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