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CONVERSATIONS | LJ CLASSIC

Faith and the Brain

An interview with Dr. Andrew Newberg.

Robert Crosby | posted July 1, 2014



One of the foremost researchers in the field of neurology and spirituality is Andrew Newberg, director of research at the Jefferson Myrna Brind Center of Integrative Medicine at Thomas Jefferson University and Hospital, in Philadelphia. He has done empirical studies on brain functioning among a variety of spiritual practitioners ranging from Catholic nuns engaging in "centering prayer" to Pentecostals

praying in tongues.

The results of his work and others have confirmed that the human brain is "hard-wired for faith." Repeatedly, for instance, neuroscience shows that prayer makes a noticeable difference in the physiological functioning of the brain.

Newberg is known for his research in the field of nuclear medical brain imaging. In particular, he has focused on the development of neurotransmitter tracers for the evaluation of religiosity as well as neurological and psychiatric disorders, including clinical depression, head injury, Alzheimer's disease, and Parkinson's disease.

During [prayer in tongues] we saw a drop of activity in their frontal lobes, which is normally active when the brain is focused on doing something, like speaking.

He has appeared on numerous television news programs, been featured in *Newsweek* and *The Los Angeles Times*, and is author of six books. He has invested much in a field he refers to as neurotheology or "the study of the relationship between the brain and faith." Robert Crosby interviewed him on the connection of

"life in the Spirit" and the brain.

How do spiritual practices or disciplines affect the brain?

As you grow spiritually, as you change your beliefs, as you enhance your sense of compassion, for instance, this

affects the brain. If you practice prayer a lot, for example, the data show that these practices actually change your brain over time.

We did a study on meditation practice and found several things among people who had never meditated before. When they added meditation to their practices, such as focusing on a passage of Scripture, we saw significant changes in brain functioning. Specifically, we saw increased activity in the frontal lobes (one of the areas in the brain involved with compassion and positive emotions) and there were changes in the thalamus, the part of our brain that helps us interconnect.

Christians often speak of the "fruit of the spirit" delineated by Paul in Galatians—"love, joy, peace, patience, gentleness, goodness, meekness, and self-control." Do you see these as functions of the brain?

Put simplistically, there is a balance to be determined between your frontal lobe and the limbic system. The amygdala is the part of your brain that reacts with fear, hatred, anger, and other alarming emotions, but this also participates in the positives. The frontal lobe balances it all out. For instance, when someone cuts you off in traffic, your amygdala reacts with, "Hurt them now," but your frontal lobe says, "Wait just a minute!" This is a neurological view of patience.

Whether you call it "life in the Spirit" or becoming more compassionate, less reactionary, you are talking about trying to suppress the amygdala and trying to enhance your frontal lobe and the activity in the social areas of the brain.

Pastors are concerned about helping people get closer to God and cultivate their spiritual life. What have you learned about "life in the Spirit" by studying the brain?

With spiritual practices, the more you do it, the more you do it. That is, the more people can be encouraged to prayer, to engage their church and the people in it, to do charitable work, the more these concepts become a part of how your brain functions. With ongoing practice, you can do these things more easily and you want to do them more. You become "wired" for it. Whether meditation, prayer, reading the Bible, discussing the Bible, or Bible studies, they change your brain, making you more receptive.

Does our view or perception of God affect brain function? How so?

Positive perspectives about God are good for the brain. However, negative perspectives about God can be detrimental, causing stress, anxiety, and can cause depression and negative emotions.

This actually activates the amygdala and causes our stress hormones (cortisol) to be released into the bloodstream. Studies show that cortisol actually damages the brain. It blocks or breaks down the neural connections in the brain and makes it work in a poorer way.

You have run brain tests of Pentecostals while they were speaking in tongues. That story ran on ABC News and drew a lot of interest. What was the experience like for you? Had you ever been

exposed to that before?

It was fascinating. Honestly, I had never known anyone who spoke in tongues. I was excited because I had never seen it before. I had heard of it, but didn't know what it was like. Also, most of our research on meditation before that was boring because it was all internal. Speaking in tongues was different. This was an external practice, so we could witness what the individuals were doing.

I was very taken by the power of this experience for the individuals. To watch a person I had just conversed with suddenly engage in speaking in tongues and become completely overwhelmed by it was fascinating. It brought tears. The neurological findings were interesting too.

To see the changes in the brain as people spoke, or prayed, in tongues, was fascinating. The person lets go and surrenders to this spiritual experience. During this practice, we saw a drop of activity in their frontal lobes (the part of the brain that typically has increased activity during speech of any kind), which is normally active when we focus on doing something.

The fact that this shut down or quieted during tongues revealed that their will was released and the experience sort of happens for itself.

As pastors teach, preach, and train their congregants, how does their work affect the brains of the people they seek to lead or influence?

Very likely there is a profound effect. This occurs in several ways and on multiple levels. One of the first things about how the brain works is that within our brains we have what's referred to as "mirror neurons."

These mirror neurons reflect whatever we see in our environment. Put differently, if someone smiles at us, there is a part of our brain that smiles as well; that smile is reflected in our brains physiologically. If you are in the audience listening and the pastor sounds loving and confident, then those traits are similarly now reflected in the brains of all that are listening.

How have your studies and findings affected your own experience of faith and belief? What is your faith background?

I was raised in a Reformed Jewish community. I got bar mitzvah-ed. My parents were very open about faith and belief. My dad had an interesting take on it. He always encouraged a belief in God, because he felt it was easier to start with faith than to have none at all and try to find it. He felt that one should start with a belief in God, but then ask questions which may not have one definitive answer. He encouraged me to go forth and take my faith background and learn about others—about Christians, Hindus, Muslims.

Of course, the question comes about different faiths: Are we right, and are they wrong? In my own life, I look at it this way: Our brain, as wonderful as it is, is very finite, and we are trying to understand an infinite universe and an infinite God. We only perceive a small amount of that. I feel that we get such a small snippet of

God and reality in our lives. There is no way for any of us to understand that fully. Our brains couldn't handle it. So we do the best we can with what we have.

There is a scene in the Jodi Foster film, *Contact*, that sizes up how I feel. In the movie, her boyfriend, a person of faith, says this: "She's a scientist, and I'm a religious person, but ultimately our goals are the same. We are searching for the truth."

Christians believe that the body is the "temple of the Holy Spirit" and that we are to take care of it. What are some of the things you do to keep your brain healthy, strong, and sharp?

Regular exercise. There is no question this affects brain health. So I play a lot of hockey, tennis, and basketball. I eat well. I try to minimize my consumption of highly processed foods. I eat more of a plant-based diet. If you keep your body healthy, that should improve your spiritual life, as well.

The brain also benefits from your being optimistic and having faith. Enthusiasm is important, as well. I'm always excited about the next thing that is coming down the road.

The last thing is to keep your brain engaged. This is very important. Challenge your own ideas and keep learning, no matter what your age is. Go back and get that degree. Watch a documentary on television. Read that book. Go to a play. Practice your faith and spiritual disciplines. Mix it up.

So faith is "good for the brain"?

Absolutely. We found that faith in its broadest sense is the best thing you can have for the brain. Not only is religious faith good for the brain, but also the optimism and looking at the world in a positive way that people often associate with faith. Having "faith" that your life is going to be good, that you are going to be able to help other people—this is also good for you.

In fact, optimism—hope—is a prominent predictor of your health and life. If that optimism is wrapped up in a religious context, evidence shows that people who are religious have lower levels of depression and anxiety.

Also, when you have faith, it provides a framework for living and for understanding the world and it alleviates a lot of the ontological anxiety many suffer with, and it provides answers and a context for living. It is an interconnected meshwork for life. If you get social support from your church, that is also incredibly helpful for the brain.

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