

## Finding God in the Brain

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Michael Egnor:

Welcome back. This is Dr. Michael Egnor. I am interviewing Dr. Andrew Newberg for Mind Matters News. Dr. Newberg is a pioneer and authority in the field of neurotheology. He studies the correspondence between brain activity and religious and spiritual experience.

Michael Egnor:

Welcome again, Andy. Just wanted to ask, do you see differences in the brains of people who are meditating in a theistic and a non-theistic way? Is there something different about belief in God that you can see in the brain?

Andrew Newberg:

Well, that's a great question. We haven't specifically been able to make that kind of a differentiation in the sense of someone who believes in God and praying to God, versus just praying or just thinking about or just meditating. But part of the problem, I think ... one of the things I get very excited about as a researcher are some of the methodological challenges of doing this kind of research. And so part of the problem is, is that if you are meditating on God, or praying to God, there's something that you're doing. You're praying, you're directing your mind towards something. Which may be very different from somebody who is directing their mind towards nothing. So one of the questions would be, well, what would be the right comparison, and how would we look at that?

Andrew Newberg:

There was one very interesting study that looked for example ... and this may be a partial way of answering your question. They looked at people doing conversational prayer. And they found that when people were engaged in conversational prayer, talking to God, basically, that they activated a lot of the same language areas as they did having just a normal conversation with another person. And I think that there is an important point there, which is that ... each of us has one brain. So as far as we know in the moment, it's not that we have a different part of our brain that turns on or becomes active when we engage our religious and spiritual selves.

Andrew Newberg:

But if we pray to God, if we use our language, then our language centers of the brain will turn on. If we feel the love of God, well, our amygdala or our limbic structures will turn on. If we feel connected to God, then the areas that help us with our spatial representation of ourself help us to feel connect ... that's part of how that process goes. So in some sense, I always like to say that there isn't one part of the brain that is your religious and spiritual part, it's really your entire brain, because there are so many rich and complex ways in which we engage religious beliefs. And it can be cognitive, emotional, experiential, behavioral, and so forth.

Andrew Newberg:

So in many ways, to me it makes sense that we were given a brain that allows us to be able to have all of these different kinds of experiences, and that there isn't just this extra part of ourselves that turns on when we walk into a church, for example, and begin to pray. But that being said, it will be interesting to see future studies, to see how much we can really differentiate different kinds of practices and those that are more theistic.

Andrew Newberg:

And of course, it'd be really interesting also to see, is there a difference between a Muslim, a Jew, and a Christian all praying to God. Are they all doing it in a similar kind of context? How much do the beliefs that go along with their tradition affect the way they think about their relationship with God? If a Muslim has the concept of surrendering to God, and a Christian may have a sense of connecting with God or being forgiven by God, then in and of itself, those could be differences. But not necessarily because of the actual perception of God, it's just how they, themselves ... the actual being of God, of course. But it's how they're perceiving that relationship.

Andrew Newberg:

So it's a great question because it's a very complex ... we have to go through a very complex set of ways of thinking about that question and how we might best answer it. And then keep pushing our ability to keep thinking about those questions.

Michael Egnor:

There's a philosophical perspective on the mind/brain relationship that goes back into the 19th century, it was William James commented on it quite a bit. And that is the notion that it's not the case that the brain generates the mind, but rather that the brain focuses the mind. That is that the mind, as part of the soul, is a much larger thing than we ordinarily experience, and the brain is a biological organ that puts the mind to work in the natural world. But that the mind is something fundamentally different from the brain.

Michael Egnor:

And I've always been impressed that great mystics ... most of my acquaintances with the Christian tradition speak of a dark night of the soul. And the necessity to, in some sense, suppress your brain activity or suppress your ordinary mental activities to allow oneself to connect to God and to connect to transcendent things. Do you see any evidence for that in the brain imaging?

Andrew Newberg:

Well, in some senses, yes. Again, we have to be careful about what we might conclude. But what has been fascinating to me is that in a number of the practices that we have studied, where people do feel as if they have released themselves or let go or surrendered to God in some way ... there have been a number of our brain scan studies that have looked at this. One of the areas in our brain that actually particularly shuts down is the frontal lobe. And our frontal lobes are typically involved in helping us to do purposeful things and to ... think about what we're doing and do purposeful behaviors.

Andrew Newberg:

So it's intriguing to me that this area of the brain starts to shut down when people have those very intense kinds of mystical experiences. These intense spiritual experiences where they do feel like they're not in charge anymore. They are allowing it to happen and going along for the ride, if you will.

Michael Egnor:

That's absolutely fascinating. Because that's exactly what the practical, everyday experience of people who do contemplation or various mystical prayer try to achieve. Is to basically shut down their own mind to connect more readily to God's.

Andrew Newberg:

Yeah, exactly. And so, yeah. I mean, there is some evidence for that. And of course, the other area of our brain which we have observed quieting down is the parietal lobe, which normally helps us to generate ... take sensory information and generate our sense of self. Our spatial representation of ourself. And during these practices, that parietal lobe starts to quiet down, we think also in a similar kind of context, to blur that boundary between self and other. To kind of quiet down the ego self, if you will, in conjunction with the frontal lobe. And thereby helping to facilitate that kind of experience.

Andrew Newberg:

But I also want to come back to your first point, which I think is also extremely important. We talk about this ... I've talked about this a lot in my work. What is the direction of causality? And again, to me, this is a really fascinating neurotheological question, philosophical question, and biological question. Which is, what's generating what? And I think it is so fascinating to watch these individuals who have these intense experiences. It's fascinating to see what goes on in their brain. But again, it doesn't prove that the brain is generating the experience.

Andrew Newberg:

The brain itself, as you were saying, could be ... I mean, just to be really simplistic. If I see a car outside, well, my brain didn't generate the car. The sensory experience that I have of the car is generated in my brain, but that doesn't mean that's what's going on outside. And so if people are connecting to God, if people are connecting to some ultimate consciousness or something like that, who's to say whether or not this is just our brain receiving that experience, as you mentioned, or is generating it.

Andrew Newberg:

And I think, this is where, again, I think there's wonderful theological questions, philosophical questions. And now we can bring in a little bit of the science and say, oh, well, isn't this interesting, that the frontal lobe quiets down. Does that tell us a little bit more about what's really going on? If somebody is generating language and their language areas have shut down, how is that happening, exactly? And does that push us a little bit further down the path towards investigating these kinds of questions.

Andrew Newberg:

But I think, still, ultimately the experiences are what's fundamental for us to understand. And that's why, even in my own examination of this whole topic, to me, my own contemplative processes are very important because I think that helps me to continue to engage those questions.

Michael Egnor:

Do you see any differences between the brain activity, again, in people who are contemplating in a way that is theistic and people who are contemplating in non-theistic ways?

Andrew Newberg:

Well, the one interesting little N-of-1 study that we did, which somewhat answers your question is I had a colleague of mine who was a fairly deep meditator. Had meditated pretty much on a daily basis throughout most of his life. Did not consider himself to be theistic, in terms of his own religious beliefs. And we said, well, why don't we do this? Why don't you meditate once while you're thinking about God ... meditating on God. What does God mean to you? How do you think about the concept? And then doing that comparison to just your other meditation. And what was interesting was ... and this has to be taken with the big grain of salt. Is that when he was thinking about God, his brain didn't do very much.

Andrew Newberg:

And I think that what's important is, is that when you are engaged with something that you profoundly believe in, then that is more likely to cause profound effects in the brain. And when you are meditating on something that you do not believe in, then it's just not going to give you that kind of an impact. Or if you don't believe in God, even though you're thinking about God, that isn't going to have nearly the kind of effect it will as someone who really truly has a belief. And so I think that in general, what we have found is that people who do have a more theistic faith, certainly activate their brain in very substantial ways, very much in terms of how they interact with something. As opposed to those individuals who have more of a practice where they are not focusing on a particular thing, but just emptying the mind, so to speak. And there are differences there.

Andrew Newberg:

But again, part of the issue I think comes into play ... and this is challenging to us. Is that anytime that we look at someone who has a profound belief, a belief in God, for example, then how does that just change their brain at all? And how does that affect the way in which they think about the world, look at the world? How does it prime them, so to speak, to look at the world in certain ways. In fact, I'm reminded of one of our prior studies that I found very interesting, where we were showing people different symbols that were either religious or non-religious. And the religious symbols activated the brain in a much different kind of way than the non-religious symbols were. And then when people had a belief in them, it affected them even more.

Andrew Newberg:

But what was interesting was that it affected it in particular, in the occipital lobe, in the primary visual cortex, really before, so to speak, the symbol got up into their brain. So it was really affecting ... their beliefs actually affected the way their brain perceived reality from the get go. And I think that has some ... talking about the interesting theological implications of that. The idea of, if you pray, if you are a religious person, that you actually change the fundamental nature of who you are, that's what this information talked about. So it is possible to do that and to be able to change you.

Andrew Newberg:

So again, fascinating issues and questions that ... we certainly have a long, long way to go before we can answer all those questions.

Michael Egnor:

Getting back to Roger Scruton's quip about the vast body of knowledge ... or a vast body of answers, with such difficulties with the questions. The questions are so fiendishly tricky. In the Thomistic understanding of the soul, the connection one would have with God would be an immaterial connection. It wouldn't be a material act of the brain.

Michael Egnor:

So one might even imagine that the connection with God would not be something that would show up on any kind of brain imaging. But then again, cause and effect is difficult. So what shows up on brain imaging may be the material response to the immaterial connection. Or it could even be the suppression of, for example, activity in the occipital lobes. Perhaps that's suppression of visual perception to allow an openness to immaterial ways of understanding. It's so difficult to interpret, so difficult to know.

Andrew Newberg:

Oh, absolutely. But it's a really interesting issue too, and I completely agree. When you talk about how ... whatever may be immaterial about our being. Well, one of the statements that I've always made is that in some sense, one of the most fascinating findings I might have is that somebody says, I had the most incredible mystical experience while I was in the scanner, and the scanner shows nothing. [crosstalk 00:14:36] Then maybe by default, you actually find the spiritual, so to speak, the immaterial. But-

Michael Egnor:

Right. At least the Thomistic tradition, just sort of roughly considered ... obviously St. Thomas didn't think a lot about MRI scanners.

Andrew Newberg:

Right. Right.

Michael Egnor:

From the Thomistic tradition, one would expect there to be no correlate.

Andrew Newberg:

Exactly. Exactly.

Michael Egnor:

And so, it's very interesting.

Andrew Newberg:

Yeah. But also ... let me say this also. Which is another little interesting aside too. Which is that, part of what I think is an interesting ability to do is to think about how we think about these things. So when somebody conceives of a soul as immaterial, what does that mean? How does a brain understand that? And how do we engage that in an idea? Part of it is, is how does the brain actually ... what is the brain doing when it's thinking about an immaterial soul?

Andrew Newberg:

On the other hand, again, part of what I think is also so important because it just has this ... it gives it a little bit of this scientific point. Could we go to a church, for example, and ask 100 people, what do they think about the soul? And how would they describe it or define it or what terms would they use. And see, does everybody say it's immaterial? Does everybody say it doesn't interact with the brain? Do people say it does ... how do people actually start to think about these kinds of questions? And that in and of itself provides some fascinating viewpoints in terms how our brains think about these questions.

Andrew Newberg:

We did a study for one of our books called, *How God Changes Your Brain*, where we asked people to draw a picture of God. And we said, what just pops into your mind when I say, what does God look like? What pops into your mind? And it was fascinating to see what people would draw. And sometimes people draw a very anthropomorphized ... the Sistine Chapel concept of God. As a, sort of, old man with a beard and flowing hair. Other people drew very abstract ideas, nature. And fascinatingly, some people left it blank, because they said God is undrawable. And there's no way for me to actually draw God.

Andrew Newberg:

But each one of those answers is fascinating in terms of, well, how does the person actually engage in what they're believing in, and how do they think about that? And so there's some really, to me, really interesting things that can continue to be explored as we look at these questions.

Michael Egnor:

What's rather fascinating is that there's a fantastic book called *Otherworld Journeys*. And honestly, I'm blocking on the author's name. She's a-

Andrew Newberg:

I think it's Zaleski.

Michael Egnor:

Yes, yes.

Andrew Newberg:

Yes. I'm familiar with that book. Yeah.

Michael Egnor:

Carol Zaleski. I couldn't put it down. It absolutely fascinated me. And what she points out that I think is so intriguing, is that throughout human history, there have been these spiritual experiences, in all cultures, in all eras, and they seem to have significant commonalities. But the actual content of the experience seems to be determined significantly by your culture, by the world that you're living in. That a person living in our culture would have a different experience of God than a person living in the Middle Ages or a person living in Ancient Egypt or a person living in the Far East.

Michael Egnor:

And so that we ... in some sense, I think what she conveys is that the experiences that people are having are transcendent and they can't be expressed in their actual form. We can only express them through things that we know in our daily lives. And that fascinates me.

Andrew Newberg:

Yeah. Well, absolutely. I mean, that raises a whole other area which is, to me, very important in the field of neurotheology, which is these experiences. She was focusing a lot, as you mentioned, actually on near death experiences. And, right. I mean, if somebody has a near death experience and they see a being, somebody might ... a Christian may call it Jesus. And a Muslim may call it Allah. And a Hindu may call it Vishnu or something like that. But so then the question becomes is, did they all see the same thing that

they are, as you said, they're describing it the best they can based on their prevailing belief system. Or did they actually fundamentally see something different?

Andrew Newberg:

And in a similar context, we did this whole online survey of people's most intense spiritual experiences. And some people would say, I felt God. Some people said, I felt a force. Some people felt love. Some people felt awe. Again, are they the same experience interpreted differently, or are they actually different experiences? And I think that by exploring the descriptions of these experiences, and maybe if we can somehow get to something that's going on in the brain and trying to understand that, we can see where similarities are and the differences. Maybe everyone perceives a being, but they just call it different things. But the being is the universal trait.

Andrew Newberg:

Or maybe they ... one of the common experiences in these mystical experiences is the feeling of oneness and connectedness with God, with the universe. So does everybody already have that experience? And if so, what do they feel connected to? And which are the more perennialist, universal characteristics of these experiences, and what are the ones which are unique? And how do we understand those unique characteristics? So, yeah. Really, really fascinating. And thinking about, again, what's really happening in the experience? What is happening in the person's consciousness and mind? What's happening in their brain? And see what we can do about trying to understand the nature of those experiences as best as possible.

Andrew Newberg:

And of course, again, to me, one of the most fascinating things about all of these experiences is that ... and we wrote an article on this. That people describe them as being more fundamentally real than our everyday reality experience. And of course, for the other listeners, we all have that. Because no matter how real a dream feels when we're asleep, when we wake up, we say, oh, that was just a dream. We immediately relegate it to an inferior perspective of reality. But that's exactly what happens in the context of people having these mystical experiences, which is that the everyday reality then becomes inferior. And I don't mean that quite so hierarchically, but that it's not as real as these profound experiences.

Andrew Newberg:

And of course, again, what does that mean? Does that mean that they really have achieved a connection? That their brain has connected to a different plane, a different way of looking at the world that it hasn't been able to do before? Or is it just a manifestation of the brain? I mean, it's really quite fascinating.

Michael Egnor:

Absolutely fascinating. Well, we will wrap up this segment, but we will return. And so I wanted to thank Dr. Andrew Newberg, who is a pioneer in neurotheology. And we will be back with more discussion. This is Dr. Michael Egnor for Mind Matters News. Thank you.

Announcer:

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