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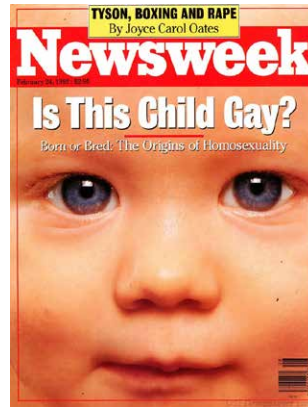
ARE PEOPLE BORN GAY?

A look at what the research shows
and what it means for you

JEFF JOHNSTON

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Source: BackIssues.com

In 1992, *Newsweek* magazine’s cover pictured a baby’s face with a question superimposed on top: “Is This Child Gay?” The article inside was titled, “Born or Bred: The Origins of Homosexuality.”¹ *Newsweek* highlighted the

work of researcher Simon LeVay, whose research showed a tiny part of the hypothalamus was different in homosexual-identified males than in heterosexual males.² The story also reported on the work of Michael Bailey and Richard Pillard, who studied the shared incidence of male homosexuality in identical twins versus the shared incidence in fraternal twins or in brothers.³

The next year, *Time* magazine featured a cover story, “Born Gay: Science Finds a Genetic Link.”⁴ Researcher Dean Hamer had published an article demonstrating there might be “...linkage between DNA markers on the X chromosome and male sexual orientation.”⁵ *Time* also spotlighted the work of LeVay, Bailey and Pillard. Major news outlets in the early 90’s, such as *National Public Radio*,

The Wall Street Journal, and *The New York Times* trumpeted the possibility that people were “born gay” because of a “gay gene.”

More than 20 years later, a great deal of research has been done, and despite the hype from different news outlets:

- there is *no* “gay gene”;
- twin studies show homosexuality is *primarily* environmental; and,
- homosexuality is *not* caused by a “gay brain.”

So, we can say with a great deal of confidence: People are not “born gay.”

Let’s look at each of these areas of research in turn, and also answer a few more questions about homosexuality.

“Complex social activities, such as sexual behavior, cannot be directly traced to the activity of a single gene.”

—DR. DOUGLAS ABBOTT,
“MYTHS AND MISCONCEPTIONS ABOUT
BEHAVIORAL GENETICS AND HOMOSEXUALITY”⁶

IS THERE A "GAY GENE"?

Maybe you've read about Gregor Mendel, the Moravian monk and scientist who studied peas by breeding them for a certain trait and then cross-



Source: Time.com, Cover Credit: STEVE LISS

While Mendelian ideas work well on some traits in plants and on some physical traits in humans, such as eye or hair color, human genetics is much more complex. ***It's inaccurate to say that a single gene causes a certain behavior.***

pollinating them with other peas with a different trait. Mendel conceived and developed the ideas of recessive and dominant traits and worked to decipher how traits are passed from parent plants to offspring.

Each human has 46 chromosomes, 23 pairs, with one of each pair inherited from mom and the other from dad. In their book (with the tongue-in-cheek title) *My Genes Made Me Do It! A Scientific Look at Sexual Orientation*, Dr. Neil and Briar Whitehead write:

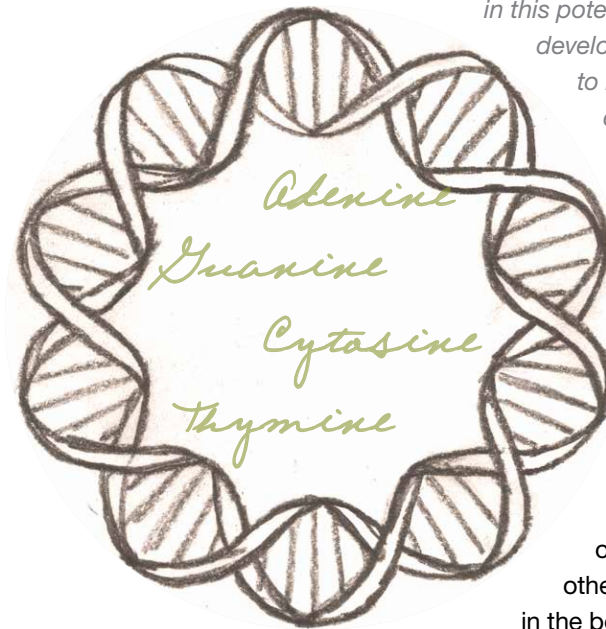
*"Each chromosome is made up of one highly folded strand of deoxyribonucleic acid (DNA) made up of an extraordinary twisted ladder of 60 to 185 million rungs depending on the chromosome. If you joined, end to end, each unfolded, untwisted chromosome in a single cell, you'd have about three billion rungs."*⁷

Each chromosome is made up of genes, which are shorter sections of DNA "in a particular location on a specific chromosome," carrying instructions about making different proteins or about activating or deactivating other genes. Each of us has somewhere between 20,000 and 25,000 genes, and each gene has anywhere from 1,400 to 4,000 rungs.⁸

The Whiteheads paint a picture of the incredible God-designed complexity of genes at the beginning of a human life, as they describe the activity in a single-cell human embryo:

"Biochemists themselves rarely appreciate how complex a single cell is. To use a metaphor: one single fertilized ovum, for example, resembles a vast plain crammed with about a billion dancing

figures on a complex grid, either spinning alone or briefly forming long chains or small groups or circles, only to break away and form thousands of others. There are about one billion biochemical reactions each second (plus or minus a factor of ten) within this single cell—a dazzlingly complex mesh of actions, interactions, reactions, feedback and control paths, and co-operation and interference, causing thousands of genes, and all the gene products within the cell, to interact. More than 100 trillion other cells in this potential human body have yet to develop in the same way and begin to interact with each other in this extraordinary dance of life.”⁹



As the Psalmist says, God’s works are wonderful, and we are fearfully and wonderfully made (Psalm 139:4, ESV).

Most genes don’t act independently: They are activated and affected by other genes, as well as by other factors and chemicals in the body. Our genes are what make us human—they cause our bodies to form and grow in certain ways. So all human behavior, to some degree, is affected by genes.

“The simple world of monk Gregor Mendel and his peas—in which single traits like tallness, colour and seed shape are each determined by a single gene—is almost never seen in human genetics.”

—DR. NEIL WHITEHEAD AND BRIAR WHITEHEAD, “MY GENES MADE ME DO IT!”¹⁰

Most scientists who study genetics know that only a portion of how we behave is affected by genes. Other determining factors include our environment—the family and culture we are born into—and our decisions, the choices we make with our will. We’ll talk more about that later in this resource.

DIDN'T RESEARCHER DEAN HAMER DISCOVER A "GAY GENE"?

In 1993, researcher Dean Hamer performed what is called a “linkage study” for behavior:

“In linkage studies for behavior, researchers look for an extended family with an unusually high

incidence of some behavior, such as bipolar disorder, and then take samples of tissue from all available members and analyze the DNA, looking for segments in common using sets of tiny, synthesized DNA segments, called 'markers'—an identical set for each person.”¹²

“Any dispassionate but critical review of the research leads to the clear conclusion that there are substantial genetic and environmental effects on almost all types of behaviour and all forms of psychopathology or mental disorder.... None of the findings are in the least bit compatible with a genetically deterministic view.”

**—SIR MICHAEL RUTTER,
“GENES AND BEHAVIOR”¹¹**

Hamer and his team looked at 40 families with two gay-identified brothers in each family. He also studied their extended families and found more homosexual-identified relatives on the mother’s side of the family, leading him to suspect a genetic link on the X chromosome. The X chromosome comes from the mother; the Y chromosome

comes from the father. Hamer found that 33 of the pairs of brothers shared five markers on their X chromosome at a position on the chromosome known as “Xq28.”

Although scientists have found genes for numerous physical conditions, they have not had the same success in finding genetic markers for behaviors. In many cases, researchers or the press have announced a possible genetic cause for a behavior;

however, when researchers tried to replicate the initial findings, they were unable to do so. Sometimes researchers reanalyzed the results and came to a different conclusion. Other times they found the link was not as strong as first reported. Here’s what Robert Pool wrote in *Science*, in the same issue that published Hamer’s study, signaling that the results should be received with caution:

“The field of behavioral genetics is littered with apparent discoveries that were later called into question or retracted. Over the past few years, several groups of researchers have reported locating genes for various mental illnesses—manic depression, schizophrenia, alcoholism—only to see their evidence evaporate after they assembled more evidence or reanalyzed the original data. ‘There’s almost no finding that would be convincing by itself in this field,’ notes Elliot Gershon, chief of the clinical neurogenetics branch of the National Institute of Mental Health. ‘We really have to see an independent replication.’”¹³

These problems were true of Hamer’s work. One Canadian research team tried to replicate Hamer’s findings using a larger sample of 52 gay-identified sibling pairs from 48 families. The team looked for markers at the same site, Xq28, and said, “Allele and haplotype sharing for these markers was not increased over expectation. These results do not support an X-linked gene underlying male homosexuality.”¹⁴

Not only was Hamer's work not replicated in other studies, it was critiqued because there was no control group. Perhaps other men who didn't identify as gay had the same genetic markers on their X chromosome. The study was also criticized because of lack of statistical significance in the findings.

Here is what Hamer himself, along with a few other scientists and researchers, had to say about genes and behavior, including the "gay gene" theory:

From *Time* magazine's original story about Hamer's study:

*"Homosexuality is not simply programmed but is a complex expression of values and personality. As researcher Hamer says, 'Genes are part of the story, and this gene region is a part of the genetic story, but it's not all of the story.'"*¹⁵

Commenting on his own research in a book published a year after the study, Hamer noted:

"We knew genes were only part of the answer. We assumed the environment also played a role in

"There is a clear consensus among scientists that a gay gene does not exist. Complex psychosocial behaviors, such as sexual orientation, cannot be directly traced to the activity of a single gene or even a group of genes."

**—DOUGLAS A. ABBOTT AND
A. DEAN BYRD, "ENCOURAGING
HETEROSEXUALITY"**¹⁶

*sexual orientation, as it does in most, if not all behaviors..."*¹⁷

Later in the book, he writes:

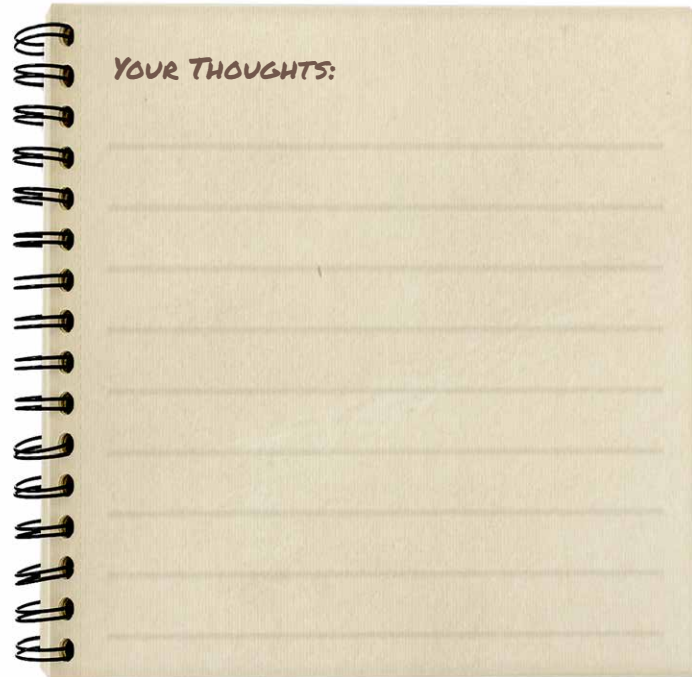
"The pedigree study failed to produce what we originally hoped to find: simple Mendelian inheritance. In fact, we never found a single

*family in which homosexuality was distributed in the obvious pattern that Mendel observed in his pea plants."*¹⁸ (emphasis added)

Here's what *The Boston Globe* wrote about this in 1999—six years after the initial Hamer research:

*"The research project in 1993 that indicated many gay men shared a common genetic marker in the X chromosome was hailed as a momentous scientific discovery—one that would help society to transcend bigotry, heal family wounds, and lay to rest the nagging question: Is sexual orientation genetic? Six years later, however, the gene still has not been found, and interest in—and enthusiasm for—the "gay gene" research has waned among activists and scientists alike. And there is a growing consensus that sexual orientation is much more complicated than a matter of genes."*¹⁹

More recently, Dr. Francis Collins, who directed the Human Genome Project, summed up the research on homosexuality by saying:



“...sexual orientation is genetically influenced but not hardwired by DNA, and that whatever genes are involved represent predispositions, not pre-determinations.”²⁰

As a comparison, Collins indicates the potential genetic component for homosexuality is much less than the genetic contribution that has been found for common personality traits, such as general cognitive ability, extroversion, agreeableness, conscientiousness, neuroticism, openness, aggression and traditionalism.²¹

WHAT DO TWIN STUDIES SHOW?

Identical twins come from a single fertilized ovum (they are “monozygotic” [MZ], meaning they come from one ovum or one fertilized egg cell) and

have the same (or almost identical) chromosomes. They are genetically the same. Because of this, populations of identical twins are often studied and compared to fraternal twins (“dizygotic” [DZ] twins, meaning they come from two separate fertilized ova). Optimally, twin studies would compare identical twins raised separately, but because this is a very small population, and because the percentage of homosexual-identified individuals is also small, this is nearly impossible to do.

If twins share the same trait, this is known as “pairwise concordance.” And if they share the same trait while their siblings or fraternal twins don’t, that may mean that the trait is genetically produced. Michael Bailey and Richard Pillard’s first study examined 56 pairs of identical twins, 54 pairs of fraternal twins, 57 adoptive brothers of twins and 142 biological siblings of twins. They found the following results:

- **52%** of the time, both identical (MZ) twins were gay-identified;
- **22%** of the time, both fraternal (DZ) twins were homosexual-identified;
- **9.2%** of the time, both non-twin brothers were gay-identified; and
- **11%** of the time, both adoptive brothers identified as homosexual.²²

As author Joe Dallas writes, this does not demonstrate that homosexuality is genetic:

*“Pillard and Bailey’s findings actually indicate that something besides genes must account for homosexuality. If 48 percent of identical twins, who are closely linked genetically, do **not** share the same sexual orientation, then genetics alone **cannot** account for homosexuality. Bailey admitted as much by stating, ‘There must be something in the environment to yield the discordant twins’ (author’s emphasis).”²³*

Within a year, the percentages were challenged by a British study that found only 20 percent of the homosexual twins in their research had a gay co-twin, leading the researchers to conclude that “genetic factors are an insufficient explanation of the development of sexual orientation.”²⁴

A more recent study by Bailey and others in 2000 used the Australian Twin Registry, which gave them a much larger sample.²⁶ When Drs. Stanton Jones and Mark Yarhouse analyzed the data from this study, they found that for self-declared lesbians and gays, the pairwise concordance is 14 percent and 11 percent, respectively.²⁷

Dr. Neil Whitehead has reviewed more than 10,000 studies on homosexuality. Working with his wife, author and journalist Briar Whitehead, they explained:

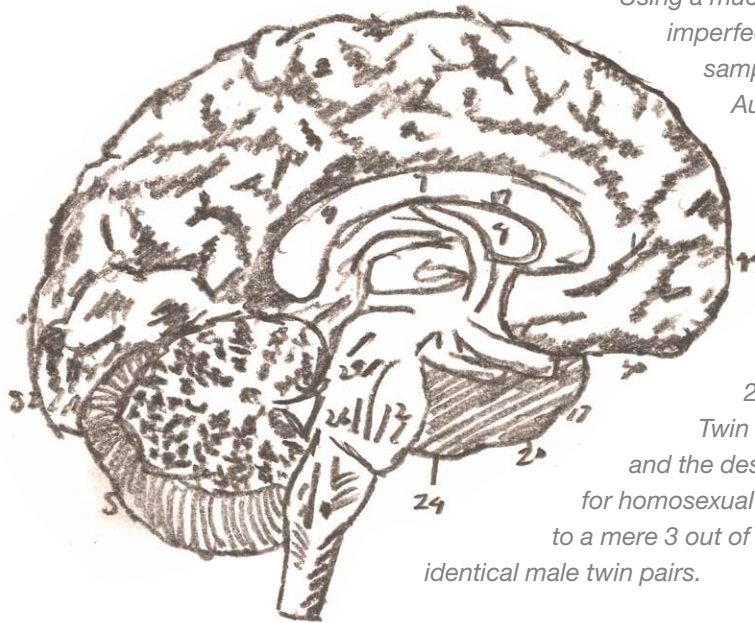
“This means that for every nine sets of male identical (MZ) twins, one of whom is homosexual, the other is homosexual only one time in nine, or 11% of the time, which is not very much. That is, identical twins usually differ.”²⁸

“Over the last decade, studies of twins have provided some of the strongest numerical evidence that ‘our genes do not make us do it.’ ... In a nutshell, if you take pairs of identical twins in which one twin is homosexual, the identical co-twin (a monozygotic [MZ] twin) is usually not homosexual.

“That means, given that identical twins are always genetically identical, homosexuality cannot be genetically dictated. No one is born gay. The predominant things that create homosexuality in one identical twin and not in the other have to be post-birth factors.”

—DR. NEIL AND BRIAR WHITEHEAD, “MY GENES MADE ME DO IT!”²⁵

Dr. Stanton Jones writes about Bailey's later use of the Australian study, which showed a much lower concordance rate for male homosexuality in identical twins. He notes the lack of media coverage for this research:



"Using a much more (if still imperfectly) representative sample from the Australian Twin Registry, Bailey saw the concordance for identical male twins fall from 52% in 1991 to a mere 20% in his Australian Twin Registry sample, and the descriptive matching for homosexual orientation fall to a mere 3 out of 27 (11.1%) identical male twin pairs.

*"Bailey reported truthfully that the genetic contribution to homosexual orientation failed to reach statistical significance in this new study. **The refutation, of course, failed to capture any attention in the popular media, and similarly is often left out of the textbook treatments of the subject.** In 2010, an impressive and much larger study utilizing the Swedish Twin Registry*

"Many early attempts (in the nineties) to find male/female, heterosexual/homosexual differences in adult brains gave contradictory results. Where differences appeared to exist, further studies failed to reproduce them."

**—DR. NEIL AND BRIAR WHITEHEAD,
"MY GENES MADE ME DO IT!"²⁹**

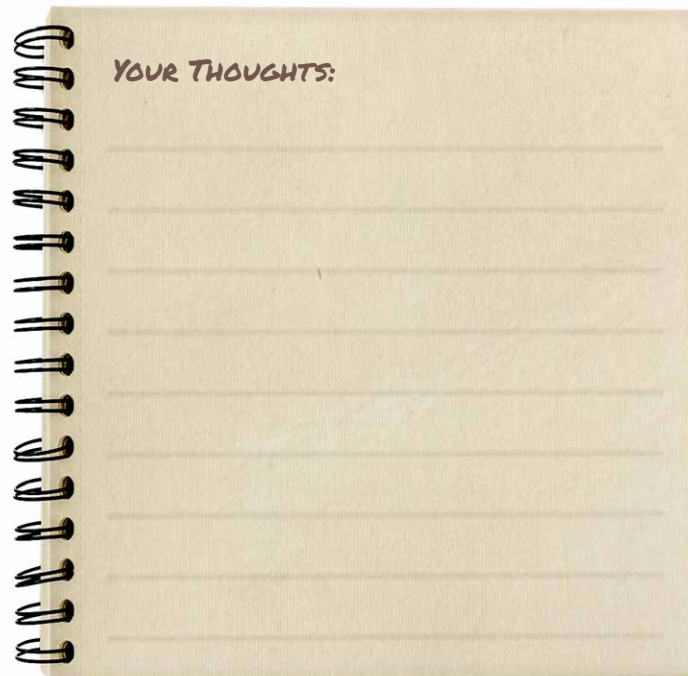
produced almost identical results to Bailey's more recent findings: 7 out of 71 (9.8%) identical male twin pairs in which one twin is gay matched such that the second co-twin was also gay, a stunningly low finding also ignored by the media.³⁰

Twin studies have not shown that homosexuality is primarily genetic. In fact, they demonstrate the opposite: **Environment and an individual's responses to that environment are much more important.**

DO SOME PEOPLE HAVE "GAY BRAINS"?

Simon LeVay is a neuroscientist who studied the brains of 41 cadavers, a very small sample size. Nineteen of the men were reportedly homosexual, sixteen other men were reported to be heterosexual, and six women were reportedly

heterosexual. He focused on measuring a region of the brain in the hypothalamus, known as the “interstitial nuclei of the anterior hypothalamus” or INAH3, and found that the area was smaller in the homosexual men than the heterosexual men, closer to the size of that in the women.³¹



A number of issues marred LeVay's study, including the fact that he did not have full sexual histories of all the men and women. Jones and Yarhouse explain why this is problematic:

“Questions have been raised about the fashion in which LeVay determined the orientation of the person whose

brains he was dissecting after death. Nineteen of the men were assigned the designation homosexual based on it being noted in their medical charts by their doctors; the remaining 16 men were presumed to be heterosexual

on the basis that their sexual orientation was not mentioned in their charts. This leads us to suspect that LeVay did not know for sure whether the brains of nearly half the [men] he was studying were from homosexual or heterosexual persons (emphasis theirs).”³²

Also, his results were inconsistent. Three of the reportedly heterosexual men did not fit his conclusion, because their INAH3 region was smaller than the average of the allegedly homosexual men, and three of the reportedly homosexual men did not fit his conclusion, as the INAH3 region in their brains was larger than the heterosexuals.³³

Joe Dallas comments on another possible problem with the study:

“...LeVay did not necessarily measure the INAH3 properly. The area LeVay measured was quite small—smaller than snowflakes, according to scientists interviewed when his study was released. His peers in the neuroscientific community cannot agree on whether the INAH3 should be measured by its size and volume or by its number of neurons.”³⁴

In 2000, a group tried to replicate the study, conducting it “blind”—they did not tell the researchers looking at the cells whether the subject was male or female, gay- or straight-identified. While researchers found male-female differences,

they did not find any differences between homosexual- or heterosexual-identified men.³⁵

LeVay's study also fails to take into account what we know about the brain, which is that the brain is "plastic," or changeable. The brain changes

greatly based on human behavior and thinking. For example, London taxi drivers have an enlarged area of the brain dealing with navigation.³⁶ This is not inborn, but is created over time, by behaviors. The same is probably also true for sexual thoughts and behaviors, which change parts of the brain over time. So we don't know if any differences between lesbian-identified and straight-identified women's brains are inborn or caused by thoughts and actions.

When looking at these supposed differences reported by LeVay, we should keep in mind what he said about his own study:

"It's important to stress what I didn't find. ...I did not prove that homosexuality is genetic,

nor find a genetic cause for being gay. I didn't show that gay men are 'born that way,' the most common mistake people make in interpreting my work. Nor did I locate a gay center in the brain..."³⁷

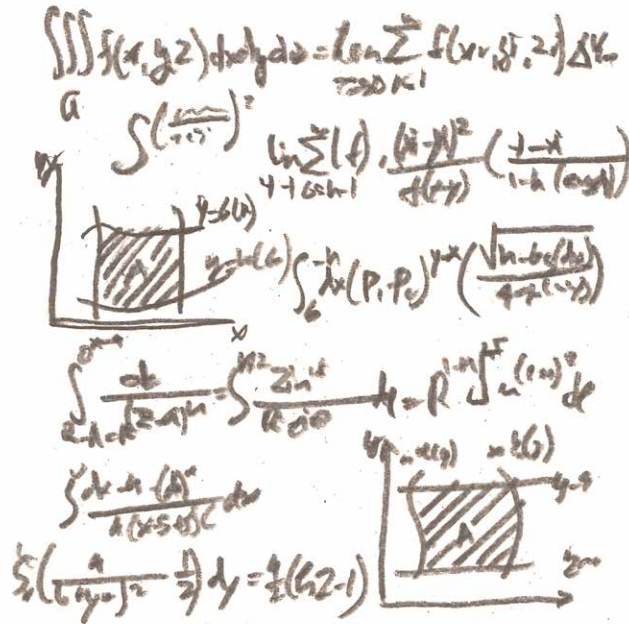
Dr. Neil and Briar Whitehead give hope to those with unwanted homosexual thoughts and feelings as they write about this issue and explain how changeable our brain actually is:

"The brain can change a huge amount—very encouraging news to anyone who is stuck in a habit or pattern of behaviour."³⁸

WHAT CONCLUSIONS CAN WE DRAW FROM THE RESEARCH?

Research has **not** demonstrated that homosexuality is inborn or genetic. Scientists have not found a gene or brain wiring that leads, in some pre-determined way, to homosexuality.

Twin studies, which once were thought to point toward this genetic determinism, actually point to the opposite—the environment and an individual's responses and choices are actually much more important. **People are not "born gay."**



WHAT DOES THIS MEAN TO YOU?

Let me step away from all the research for a moment and talk to you from my own experience.

I know what it's like to be a Christian living with unwanted same-sex attractions. I was in my twenties when a youth pastor invited me to a conference called "Hope and Healing for the Homosexual." I'd struggled with same-sex desires for years, but I'd only—with great fear

and trembling—spoken with a few people about it. For me, attending that conference was the beginning of a long, difficult journey out of homosexuality.

I remember when the *Newsweek* and *Time* articles came out—the ones described in the first part of this resource—trumpeting with great fanfare about "gay genes" and "gay brains." At the time, I thought to myself: "What does

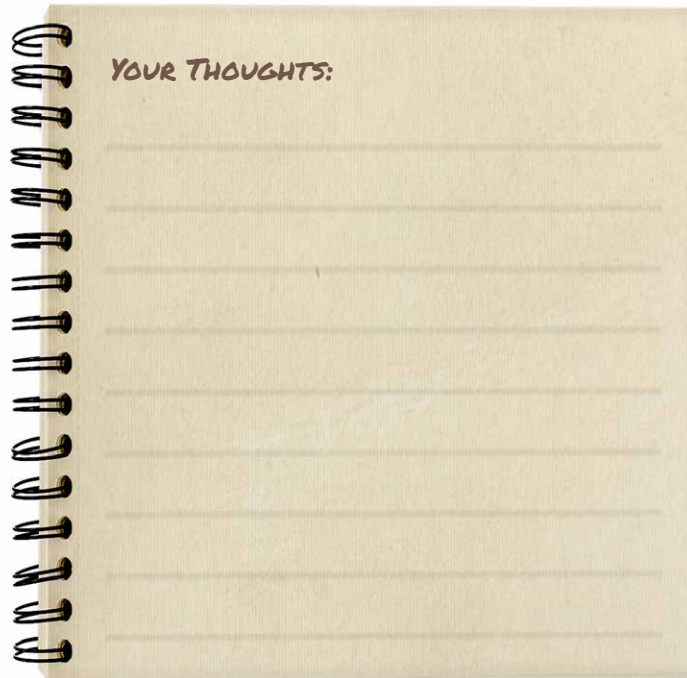
this mean for me? Am I just fooling myself about change? Does this mean I'm really gay?" It took some time to work through thoughts and feelings about those articles, but this is what it finally boiled down to for me:

I knew what the Bible said about God's design for marriage and about mankind being made in His image, male and female.

So I had a decision to make: "Am I going to follow Him and His Word, even if I never changed? Even if someday science discovered a genetic or biological component to homosexuality, how would I reconcile that with God's truth about sexuality?"

I decided to pursue Christ, to pursue relationship with Him and healthy relationships with others in the church. Each year, ***I am more and more grateful that I've made that choice.***

Now, several decades later, there still is no gay gene and no one has demonstrated that those with same-sex attractions are somehow built differently from other men and women. In addition, twin studies—and other sociology studies not referenced in this short resource—demonstrate that homosexuality is mostly driven by unique responses in an individual to environmental circumstances. Sin is a reality in this fallen world, and the result of sin is that some of us will struggle with homosexual temptations, lust and behavior.



We'll struggle with who we're attracted to and how we identify—just like the rest of fallen humanity.

I'm not saying I've arrived or that I'm totally healed, but God has worked tremendous transformation and healing in my life. Through a multitude of people and ways, God has brought—and continues to bring—freedom and change to me. If you struggle with unwanted homosexuality, I urge you to pursue the life and renovation of the heart that the Father offers us through Christ and through the power of the Holy Spirit. I invite you to pursue Christ—whether or not those same-sex desires ever completely leave you.

And if you have a loved one with same-sex attractions, I plead with you to continue praying for them, even as you pursue a closer relationship with God. In prayer there is great power, and we believe that God is drawing homosexual-identified men and women to Himself, just as He has for thousands of years:

*“Or do you not know that the unrighteous will not inherit the kingdom of God? Do not be deceived: neither the sexually immoral, nor idolaters, nor adulterers, nor men who practice homosexuality, nor thieves, nor the greedy, nor drunkards, nor revilers, nor swindlers will inherit the kingdom of God. And such were some of you. **But you were washed, you were sanctified, you were justified in the name of the Lord Jesus Christ and by the Spirit of our God.**” –1 Corinthians 6:9-11, ESV*

From the Author:

“I’m not saying I’ve arrived or that I’m totally healed, but God has worked tremendous transformation and healing in my life.

“Through a multitude of people and ways, God has brought—and continues to bring—freedom and change to me.”

—Jeff Johnston

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