

THE BIOLOGY of SEXUAL ORIENTATION: Homosexuality from a Biological Perspective

II. Homosexuality

While sexual and social monogamy is rare among mammals, homosexual behavior is fairly commonplace. Approximately 500 animal species engage in some form of homosexual behavior. Nearly every species of primates engage in homosexual behavior, most notably female bonobos. Homosexual behavior is also observed in rodents, dolphins, and dogs. These observations suggest that sexual orientation, as a sexual behavior not necessarily as a sexual identity, is biologically *influenced*. Very few scientists maintain that sexual orientation is biologically *determined* in the strong sense—biologically immutable. The Kinsey reports and others since then suggest that sexual orientation, as a sexual behavior, is not immutable. Sexual identity is a separate issue from sexual behavior. Sexual identity includes gender identity as well as sexual attraction and sexual expression. Sexual attraction is not always a reliable indicator of sexual behavior (for example, Ted Haggert).

For males, genetic, hormonal, and neurological underliers seem to play a stronger causal role in sexual *attraction* than for females with the exception of self-identifying “butch” lesbians. For females, noting the exception, social, historical, and cultural factors seem to influence sexual orientation. The degree of conscious influence is less understood. Furthermore, for women (again with the one exception) changes in sexual orientation throughout life are commonplace whereas sexual orientation in males remains more fixed.¹

Sexual behavior and attraction is complex. I do not have the time here to address all of the potential biological influences for sexual orientation for males and females. So I will only very, very, very briefly outline some of the biological factors involved. For a comprehensive survey refer to “[Born Gay?](#)”

¹ Hammack, P. L. 2005. “The Life Course Development of Human Sexual Orientation: An Integrative Paradigm.” *Human Development* (48); 267 – 290.

[The Psychobiology of Human Sexual Orientation](#)” by Rahman and Wilson from which the following is primarily derived.

Research involving monozygotic and dizygotic twins suggests a genetic predisposition for homosexuality. For males, roughly 64% of homosexual brothers (non-twins) share alleles on region Xq28. A specific genetic predisposition for females is harder to establish; however, females have a concordance rate of roughly 48% for monozygotic females and 16% for dizygotic females. In all, 50-60% of all homosexual orientation seems to have a genetic component.

Given strong evidence for a genetic component, an evolutionary explanation is in order. Genetic predispositions, of any kind, gain phenotypic expression through environmental factors. Homosexuality aggregates in families just as other known genetically based phenotypes—hair color, nasal structure, certain addictions. Homosexual men, for example, have more homosexual female siblings than heterosexual men further suggesting a genetic component. Furthermore, gay males have greater numbers of older brothers such that the greater the number of older male siblings the more likely a male is to be homosexual. The immune system is *hypothesized* to play the causal role. The maternal fetal immune system response strengthens with each successive male child. Homosexuality or at minimum the henceforth discussed feminine qualities are selected for in older siblings because they reduce intra-sibling conflict.

One proposed evolutionary explanation is that homosexuality is a response to overpopulation such that offspring is produced that can aid in rearing siblings and other relatives (nephews/nieces, brothers/sisters) without competing for resources. They can aide in the rearing process of their genetic kin without producing genetic kin of their own that would then compete for limited resources. This explanation is consistent with the genetic data. As females tend to be more diverse in their sexual attractions and behaviors than males they can thereby regulate offspring production without sacrificing sexual behavior. After all, it is the female that stands the most to lose in child bearing—her life, an egg that may not gestate, offspring that may not survive, and more. (Keep in mind homosexuality is more pervasive

than monogamy in mammals including humans.) Homosexual females still reproduce although at a significantly reduced frequency than heterosexual females but greater than homosexual males. These reproduction rates further suggest the drive for reproduction, in females at least, is independent of sexual attraction and behavior.

Another evolutionary explanation in the form of natural selection has also been proposed. Women are attracted to feminine qualities such as empathy, considerateness, expressiveness, and reduced aggression; these traits are genetically predisposed and influenced by in-utero conditions. Homosexual males tend to be more empathetic and non-aggressive than their heterosexual counterparts. Women's selecting for these phenotypic qualities in males pushes the genetic underliers in the direction of homosexuality. This view is supported by the previously noted sibling data.² The potential for reproduction, then, is traded for certain behavioral features. A genetic predisposition that gains phenotypic expression for feminine traits is the result of selecting for traits that reduced intra-sexual competition which in turn promotes reproductive success (see bonobos) thus ultimately resulting in homosexuality.

There is some evidence of a "grand unifying theory" of sexual orientation, gender, gender identity, and "sex roles". There are potentially three hormone baths, one each trimester, during pregnancy. Each bath is independent of one another. A developing fetus may receive anywhere from none to three baths. The chemical composition of the baths is partially dependent upon the mother's diet, genetics, hormones, prenatal care, and many other environmental factors (drugs, smoking, etc.). These baths are known to play a role in gender formation (as is evidenced by hermaphrodites), sexual orientation, "sex roles" (that is, "femininity" and "masculinity"), gender identity (that is what gender one conceives of oneself—"a female being trapped in a male body"). The power of this hypothesis is

² This view is also capable of explaining masculine homosexual females ("dikes") and feminine heterosexual females ("lipstick lesbians") but does not explain masculine homosexual men ("bears")—see section "4.1 An integrated scenario" in [Born Gay? The Psychobiology of Human Sexual Orientation](#). This view may also explain why some heterosexual women predominately associate with homosexual men. However, demanding a singular biological factor to explain all varieties of sexuality may be asking too much although one such proposal will be offered.

that it can explain all of human sexual variation. It can explain “dikes”, “lipstick lesbians”, “nellites”, “bears”, “metrosexuals”, the psychology of transgender persons, “momma’s boys”, “daddy’s girls”. The data for this “grand unifying theory” is derived from the indirect piecing together from multiple specifically targeted studies in related areas and then extrapolated to these issues.

Just as with sexual and social monogamy, the biological facts alone do not entail any normative claims. To say one ought to be heterosexual implies one can be heterosexual just as one ought to be abstinent implies one can be abstinent. Our prefrontal cortex allows us to cheat or in limited ways override other brain functions. We do this when we hold our breath to swim (limited overriding) or wear a condom (cheating). What *normative* reasons can one provide for why a person ought to be sexually monogamous or heterosexual?