Paisley Currah, Richard M. Juang, and Shannon Price Minter

EDITORS

TRANSGENDER

RIGHTS

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—PATRICK CALIFIA

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3. The Roads Less Traveled: The Problem with Binary Sex Categories

Julie A. Greenberg

For decades, the medical and psychological communities have attempted to resolve the issue of how a person's sex should be determined for medical purposes. Until the last decade, however, many legal institutions have been blind to the need to define these terms for legal purposes. Often, the law has operated under the assumption that the terms *male* and *female* are fixed and unambiguous, despite medical literature to the contrary.

Recent studies indicate that approximately 2 percent of the world's population may be intersex and have either ambiguous or noncongruent sex features.[1] Thus, the manner in which the law defines the terms *male* and *female* will have a profound effect on millions of people.

Whether an individual is classified as a male or a female has increased significance now that Congress has passed the Defense of Marriage Act (DOMA) and the majority of states have adopted equivalent state legislation. Defining these terms will become even more critical if the United States adopts a constitutional amendment limiting marriage to one man and one woman. DOMA, its state equivalents, and the proposed constitutional amendment are intended to prohibit marriages between individuals of the "same sex." These legislative enactments, however, fail to define the terms *male* and *female,* so that determining who is now legally permitted to marry is unclear.

A variety of factors could contribute to determining whether an individual should be considered male or female for legal purposes. These factors include chromosomal sex, gonadal sex, external morphologic sex, internal morphologic sex, hormonal patterns, phenotype, assigned sex, and self-identified

sex.[2] For most individuals, these factors are all congruent. For the millions of individuals with incongruent or ambiguous sex features, however, legal institutions must establish which factor(s) will determine a person's legal sex.

This chapter explores how the law has defined and should define the terms *male* and *female* in the context of marriage.[3] It starts with a comparative analysis of how these terms have been used in varying disciplines and by Western society and other cultures and provides insight into the various legal approaches that could be adopted. It continues with a detailed description of the medical conditions involving ambiguous sexual features that affect millions of people and demonstrates why these terms must be defined carefully. It then provides a summary of the marriage cases in which the courts have grappled with how to define these terms. It concludes with a proposal that legal sex reflect scientific developments that emphasize the importance of self-identification. Such an approach will benefit the people most affected by these laws and is consistent with principles of justice and other legal values.

Sex across Cultures

"Sex" is commonly used to refer to a person's status as a man or woman based on biological factors. Although sex reflects a person's biology, as opposed to gender, which is generally considered to be socially constructed, the biological aspect of the body that determines a person's sex has not been legally or medically resolved.

Traditionally, a person's legal sex is established by the sex that the birth attendant places on the birth certificate. Thus, for infants born with unambiguous external genitalia, the external genitalia typically control the sex determination. If the genitalia appear ambiguous, sex is assigned, in part, based on sex-role stereotypes. The presence of an "adequate" penis in an XY infant leads to the label *male,* while the absence of an "adequate" penis leads to the label *female.*[4] A genetic (XY) male with an "inadequate" penis (one that physicians believe will be incapable of penetrating a female's vagina when the child reaches adulthood) is "turned into" a female even if it means destroying his reproductive capacity. A genetic (XX) female who may be capable of reproducing, however, is generally assigned the female sex to preserve her reproductive capability, regardless of the appearance of her external genitalia. If her phallus is considered to be too large to meet the guidelines for a typical clitoris, it is surgically reduced, even if it means that her capacity for satisfactory sex may be reduced or destroyed.[5] In other words, men are defined based on their ability to penetrate females, and females are defined based on their ability to procreate. Sex, therefore, can be viewed as a social construct rather than a biological fact.

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In the presence of ambiguous genitalia, medical professionals generally suggest that surgery be performed to "fix" the genitalia so that they conform to the medically established norm. The sex that matches the surgically created genitalia is then assigned on the birth record.[6] Because a person's birth certificate will often be used to obtain other legal documents, an individual's legal sex is generally established based on the appearance of the person's external genitalia.

Implicit in legislation using the term *sex* is the assumption that only two biological sexes exist and that all people fit neatly into one of these two categories. In other words, despite medical and anthropological studies to the contrary, the law presumes a binary sex model. For the most part, the law ignores the millions of people who are intersex. Although the American legal system clings to a binary sex and gender paradigm, anthropologists who have studied other societies have found cultures that reject binary sex and gender systems. These societies formally recognize that more than two sexes exist.[7]

For instance, in several villages in the Dominican Republic, a significant number of children who are chromosomally XY and who develop embryonic testes have external female genitalia at birth and therefore are raised as girls.[8] At puberty, their testes descend, their voices deepen, and their clitorises transform into penises.[9] Anthropologists have reported that the villagers have special terms for these individuals. They are called *guevodoche* (balls at twelve) or *machihembra* (male female).[10] An intersex condition of the same biological origin exists among several people in Papua, New Guinea. The term used to describe these children is *kwolu-aatmwol* (hermaphrodite), which signifies that at puberty the children will turn more into men than women. These children are treated as a third sex.[11]

Many Native American cultures recognize a third gender. These individuals are called two-spirit (formerly known as berdache) and enjoy a special status in their societies. They function as neither male nor female.[12] This third sex/gender status is also recognized in India, where intersex or transgender people are called *hijras. Hijras* are considered neither male nor female, but contain elements of both.[13] A third sex was also recognized in some ancient cultures. The Greek myths tell the story of Hermaphroditus, who became half-male and half-female when his body fused with the body of a nymph who fell in love with him.

Some religious texts also recognize the existence of intersex persons. For instance, the Talmud and the Tosefta, the Jewish texts that set forth rules governing relationships and behavior among Jews, contain detailed rules relating to the legal rights and responsibilities of intersex persons. These texts use the terms *androgynos* and *hermaphrodite* and define them both as "an animal

or individual having both male and female characteristics and organs." Various views exist in the Jewish texts as to whether a hermaphrodite is of uncertain sex (either male or female), is of mixed sex (part male and part female), or is sui generis (neither male nor female). These texts regulate hermaphrodites' behavior in a variety of areas; depending on the circumstances, hermaphrodites may be treated as male, female, both, or neither.[14]

Other religious texts have also recognized the existence of intersex persons and have established marital rules applying to them. According to one religious tract, a hermaphrodite can contract marriage with a man or a woman depending on which sexual characteristics dominate. Hermaphrodites coming "closer to the male sex than the female that have the signs of virility, a beard and so forth, should be understood to be able to contract marriage with a woman."[15]

It also appears that early English law recognized three classifications of humans. According to Henry de Bracton's *On the Laws and Customs of England,* "Mankind may also be classified in another way: male, female, or hermaphrodite." Although the law recognized three classifications of humans, it did not recognize three classifications of laws governing human behavior. For legal purposes, "[a] hermaphrodite [wa]s classed with male or female according to the predominance of the sexual organs."[16] In the sixteenth century, Lord Coke, the renowned jurist, writing about the laws of succession in England, declared, "Every heire is either a male, or female, or an hermaphrodite, that is both male and female. And an hermaphrodite (which is also called Androgynus) shall be heire, either as male or female, according to that kind of the sexe which doth prevaile."[17]

These historical, religious, and cross-cultural examples illustrate that rules governing intersex persons have existed throughout history in various cultures and religions. Although the United States and other modern societies utilize a binary sex paradigm in which intersex persons are classified as either male or female for legal purposes, other societies have recognized a multisex or multigender model.

Understanding the Biological Determinants of Sex

The current legal approach to sex determination does not reflect the modern scientific understanding of sexual development. Medical experts recognize that many factors contribute to the determination of an individual's sex. According to medical professionals, the typical criteria of sex include genetic or chromosomal sex, gonadal sex, internal morphologic sex, genitalia, hormonal sex, phenotypic sex, assigned sex/gender of rearing, and self-identified sex.[18]

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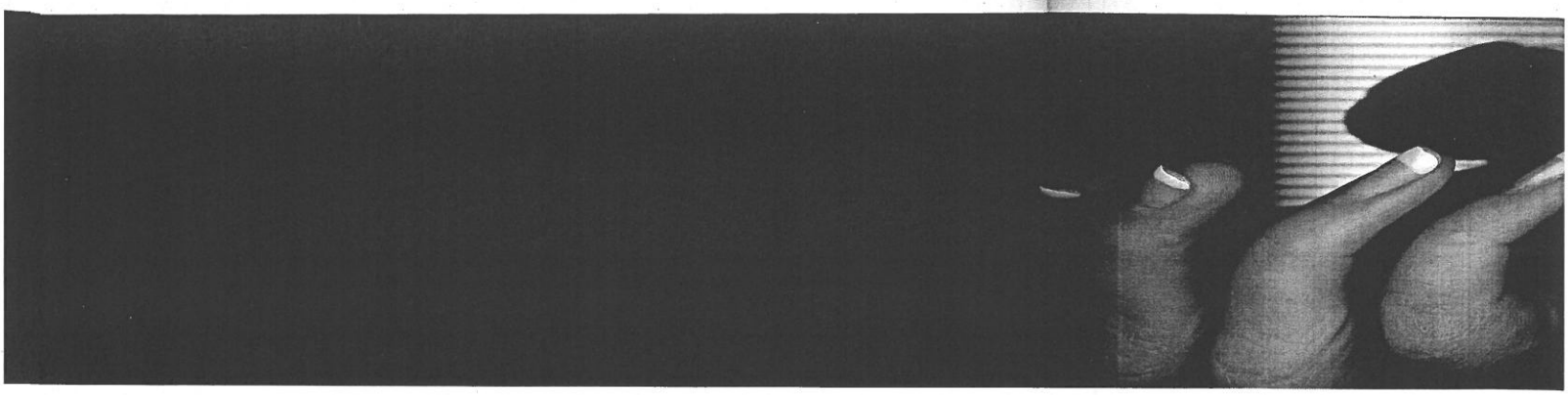

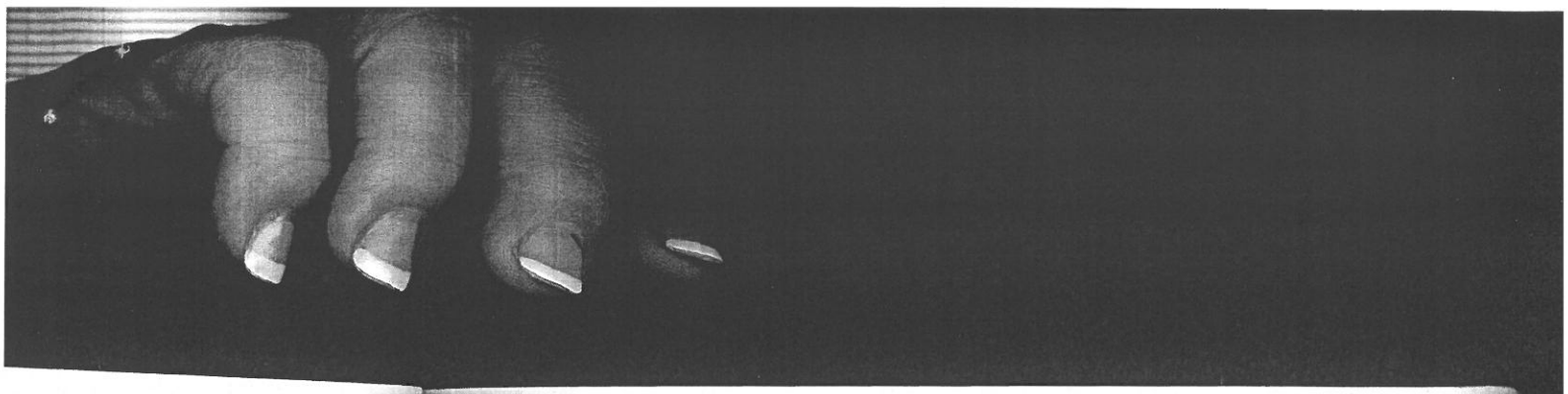

For most people, these factors are all congruent, and a person's status as a male or female is uncontroversial. For intersex persons, some of these factors may be incongruent, or an ambiguity within a factor may exist.

> The assumption is that there are two separate roads, one leading from XY chromosomes at conception to manhood, the other from XX chromosomes at conception to womanhood. The fact is that there are not two roads, but one road with a number of forks that turn in the male or female direction. Most of us turn in the same direction at each fork.[19]

The bodies of the millions of intersex people have taken a combination of male and female forks and have followed the road less traveled. These individuals have noncongruent sexual attributes. For these individuals, the law must determine which of the sexual factors will determine their sex and whether any one factor should be dispositive for all legal purposes.

Because the law often looks to the scientific community for guidance in determining how an individual's sex should be legally established, the complex nature of sexual differentiation must be understood. All human embryos are sexually undifferentiated during the first seven weeks after conception. At seven weeks, the embryonic reproductive system consists of a pair of gonads that can grow into either ovaries (female) or testes (male). The genital ridge that exists at this point can develop either into a clitoris and labia (female) or a penis and a scrotum (male). Two primordial duct systems also exist at this stage. The female ducts are called Mullerian ducts and develop into the uterus, fallopian tubes, and the upper part of the vagina if the fetus follows a female path. The male ducts are called Wolffian ducts and are the precursors of the seminal vesicles, vas deferens, and epididymis.[20]

At eight weeks, the fetus typically begins to follow one sex path. If the fetus has one X and one Y chromosome (46XY), it will start down the male path. At eight weeks, a "master switch" on the Y chromosome, called the testis-determining factor, signals the embryonic gonads to form into testes. The testes begin to produce male hormones. These male hormones prompt the gonads and genitalia to develop male features. Additionally, the testes produce a substance called Mullerian inhibiting factor, which causes the female Mullerian ducts to atrophy and be absorbed by the body, so that a female reproductive system is not created.[21]

Because the typical female fetus is 46XX and does not have a Y chromosome, the master switch that leads to the development of male organs is not turned on. The fetus continues on what is considered the default path, and in the thirteenth week the gonads start to transform into ovaries. Because no

testes exist to produce male hormones, the remainder of the sex system develops along a female path. During this time, the Wolffian (male) ducts shrivel up. In other words, unless the body is triggered by hormonal production to follow the male path, the fetus will normally develop as a female. Therefore, although chromosomes generally control the hormones that are produced, it is actually the hormones that directly affect sexual development.[22]

To summarize, if the typical path is followed, males and females will have the following sexual features:

	Males	*Females*
Genetic/chromosomal sex	XY	XX
Gonadal sex (reproductive sex glands)	testes	ovaries
External morphologic sex	penis and scrotum	clitoris and labia
Internal morphologic sex	seminal vesicles, prostate	vagina, uterus, and fallopian tubes
Hormonal sex	primarily androgens	primarily estrogens
Phenotypic sex (secondary sex characteristics)	facial and chest hair	breasts
Assigned sex/gender of rearing	male	female
Self-identified sex	male	female

Two circumstances may lead to an intersex condition: (1) one or more features may differ from the typical criteria for that factor; or (2) one or more factors may be incongruent with the other factors.

Ambiguity within a Factor

Chromosomal ambiguity. Certain individuals have chromosomes that differ from the typical pattern of either XY or XX. Doctors have discovered people with a variety of combinations, including XXX, XXY, XXXY, XYY, XYYY, XYYYY, and XO.[23]

Gonadal ambiguity. Some intersex persons do not have typical ovaries or testes. Instead, they have "streak" gonads that do not appear to function as either ovaries or testes. Others have ovotestes, a combination of both male and female gonads. Still others have one ovary and one testis.[24]

External morphologic sex. Some individuals' external genitalia are neither clearly male nor clearly female. In addition, some women have clitoral hyper-

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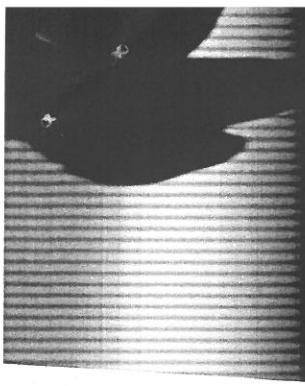

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trophy, a clitoris larger than the typical clitoris, that may more closely resemble a penis, and is sometimes accompanied by an internal vagina.[25]

Internal morphologic sex. Some individuals have incomplete internal sex organs or a complete absence of an internal sex organ. In addition, some individuals are born with a combination of male and female internal organs.[26]

Hormonal sex. The male hormones are referred to as androgens. The female hormones are estrogen and progesterone. Although they are referred to as male and female hormones, all human sex hormones are shared by men and women. Typically, men and women have hormones of each type, but the levels of production and reception of each hormone are highly variable among all individuals. Different medical disorders further influence levels of hormone production and reception.[27]

Phenotypic sex. Individuals may have various combinations of incongruent phenotypic characteristics. In other words, an individual may have characteristics typically associated with a male (heavy facial hair) and characteristics typically associated with a female (developed breasts).[28]

Assigned sex/gender of rearing. Although it occurs rarely, some parents have raised their child as a gender other than the sex assigned by the medical attendant at birth. In addition, in some circumstances, doctors have recommended that a child be raised as the sex different from the one assigned at birth.[29]

Self-identified sex. Self-identified sex refers to how individuals would identify themselves. Some individuals do not consider themselves to be either male or female; they identify themselves as a third sex.

Ambiguity among Factors

Some individuals have an incongruence among the factors because of a sexual differentiation disorder. In other words, some factors may be clearly male, some may be clearly female, and others may be a mixture of the two. Incongruity among factors can result from a number of disorders and circumstances, including chromosomal sex disorders, gonadal sex disorders, internal organ anomalies, external organ anomalies, hormonal disorders, gender identity disorders, and surgical creation of an intersex condition.

Chromosomal sex disorders: Klinefelter syndrome and Turner syndrome. Klinefelter syndrome, which affects approximately one in five hundred to one thousand "males," is a condition in which a mostly phenotypic male does not fall neatly into the XY chromosome complement. Such individuals will typically have two or more X chromosomes. The testes, and often the penis, are smaller than in unaffected XY males.[30]

Typically, a diagnosis is not made before puberty, because no easily identifiable sign exists prior to the onset of puberty. The swelling of the breasts (gynecomastia) that occurs in adolescence is typically the first sign of the existence of this intersex condition. Most individuals report a male psychosexual orientation. Many take supplemental testosterone, which further results in a male phenotype (e.g., facial hair).[31]

Disorders of chromosomal sex also appear in phenotypic females. Turner syndrome affects approximately one in five thousand newborn females. Individuals typically will have an XO chromosomal pattern, not falling neatly into the XX, XY binary system, and bilateral "streak" gonads (unformed and nonfunctioning gonads), instead of clearly defined ovaries or testes. The absence of complete ovaries or testes in utero means that the fetus has little exposure to either female or male hormones. In the absence of male hormones, the fetus will follow the female path.[32]

Individuals with Turner syndrome are typically shorter than XX females. They have female-appearing genitalia, but little breast development in the absence of exogenous estrogen administration. Because women with Turner syndrome have a uterus, with proper hormonal treatment they are able to menstruate and carry a child to term. The egg must be donated by another woman because women with Turner syndrome lack ovaries and eggs.[33]

Gonadal sex disorders: Swyer syndrome. Pure gonadal dysgenesis is a condition sometimes referred to as Swyer syndrome. This syndrome is similar to Turner syndrome in that individuals with this syndrome will have only streak gonads. In contrast to Turner syndrome, in which a chromosome is missing (XO), individuals with Swyer syndrome have XY (male) chromosomes. Although Swyer syndrome individuals have a Y chromosome, the chromosome may be missing the sex-determining segment. Without this segment, the embryo cannot develop testes, and, as a result, the masculinizing hormones are also missing. In the absence of the masculinizing hormones, the fetus will take the "default" female path and will develop a uterus, but will not have any ovaries.[34]

Typically, this condition is not apparent at birth, and the child will be raised as a girl. The syndrome is generally diagnosed at puberty when the absence of menstruation and breast enlargement causes suspicion. Individuals with Swyer syndrome are able to carry a child to term in the same way that individuals with Turner syndrome can carry a child to term.[35]

Internal organ anomalies—persistent Mullerian duct syndrome. Individuals with this syndrome have internal organs that are typical of males as well as females. These individuals have a male chromosomal pattern and therefore develop testes that secrete androgen, but for some reason fail to secrete anti-

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Mullerian hormones. The androgens cause the fetus to follow the male path and develop the external appearance and internal organs of a male. Fallopian tubes and a uterus are also formed, however, because the anti-Mullerian hormones are not acting to inhibit this development. This condition is generally not diagnosed at birth. Individuals with this syndrome are reared as males and typically self-identify as males.[36]

External organ anomalies: Hermaphroditism. Individuals who have ambiguous external genitalia (neither clearly male nor female) are commonly referred to as hermaphrodites. Hermaphrodites are often classified into three categories: true hermaphrodites, male pseudohermaphrodites, and female pseudohermaphrodites. A "true hermaphrodite" has some ovarian and some testicular tissue. So-called true hermaphrodites have either one ovary and one testis, two ovotestes (a combination of an ovary and testis in a single gonad), or some combination thereof (e.g., one ovotestes and one ovary). The exact incidence of true hermaphroditic conditions is unknown, but is rarer than many of the other intersex conditions. A male pseudohermaphrodite has testes and no ovaries and some aspect of female genitalia. A female pseudohermaphrodite has ovaries and no testes and some aspect of male genitalia.[37]

A variety of disorders can lead to hermaphroditic conditions, which are named according to their etiologies (e.g., partial androgen insensitivity syndrome [PAIS] or congenital adrenal hyperplasia [CAH]) unless the etiology of the condition remains unknown.

Hormonal disorders: Androgen insensitivity syndrome, 5-alpha-reductase deficiency, congenital adrenal hyperplasia, progestin-induced virilization. Androgen insensitivity syndrome (AIS) affects approximately one out of every twenty thousand genetic males. AIS can be either complete (CAIS) or partial (PAIS). Individuals with AIS are born with XY chromosomes and normally functioning testes, which would otherwise suggest a normal male fetus. Individuals with CAIS, however, have a receptor defect and are unable to process the androgens produced by the testes.[38]

Because the body cannot process the androgens, the fetus will follow the default path of female development. External female genitalia will form. No internal reproductive organs will form because the Mullerian inhibiting factor produced by the testes will inhibit the growth of the uterus and fallopian tubes. The vagina will be shorter than in the typical woman (or may only be a dimple) and will end blindly because there are no female internal reproductive organs with which to connect.[39]

Unlike people with several other intersex conditions, individuals with CAIS typically are identified as "normal" females at birth, because externally they are indistinguishable from XX females. The disorder is sometimes

diagnosed in infancy because of inguinal hernias that contain the testes. Often, however, CAIS is not diagnosed until after the onset of puberty as a result of a failure to menstruate. At puberty, breasts will form because of the estrogen produced by the testes. Until puberty, many CAIS women have no reason to suspect that they are not XX females.[40]

In PAIS, an XY individual with testes will be partially receptive to androgens. Unlike individuals with CAIS, individuals with PAIS may fall anywhere along a spectrum from an almost completely male external appearance and male self-identity to a completely female external appearance and female identity. The degree to which the individual has male features depends on the degree to which the receptors can process the male hormones the testes produce.[41]

The external phenotype of PAIS individuals will initially be determined by the degree of androgen reception in the body. Thus, a PAIS individual may have a phallus resembling either a clitoris or a penis, the labia may be fused, and during adolescence breast development may occur because of the conversion of testosterone produced by the gonads to estradiol, an estrogen compound.[42]

5-alpha-reductase deficiency is similar to the androgen resistance syndromes. Individuals have XY chromosomes and testes, but appear phenotypically female at birth. This condition results from the body's failure to convert testosterone to dihydrotestosterone, the more powerful form of androgen responsible for the development of male external genitalia. Despite a female appearance during childhood, by the onset of puberty, the body will masculinize. The testes descend, the voice deepens, muscle mass substantially increases, and a "functional" penis capable of ejaculating develops from what was thought to be the clitoris. The prostate, however, remains small, and beard growth is scanty. Although the individual is often raised as a girl, at puberty psychosexual orientation typically becomes male. In other words, virilization will occur at puberty in the absence of medical intervention.[43]

Individuals with CAH have XX chromosomes, ovaries, and other female internal structures, but they have a more masculinized external appearance or demeanor because of an abundance of androgen production in utero. CAH occurs in approximately one out of five to fifteen thousand births. Both the chromosomes and gonads of CAH individuals are indistinguishable from unaffected females. The genitals, however, may be ambiguous and may more closely resemble male genitalia.[44]

Some CAH individuals have been identified as males at birth and are reared as boys, despite the presence of XX chromosomes and ovaries. In other cases, the masculinization that occurred during prenatal life is interrupted

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at birth, and the child is surgically and hormonally treated and reared as a girl. These girls often have characteristics that are popularly stereotyped as masculine.[45]

Progestin-induced virilization (PIV) is similar to CAH. PIV is caused by exposure of an XX infant in utero to progestin that has been taken by the mother during pregnancy. Like individuals with CAH, PIV women will frequently have clitoral hypertrophy.[46]

Gender identity disorder. Some individuals may be seemingly harmonious in all of the first six factors (chromosomes, gonads, external and internal morphology, hormones, and phenotype), but do not identify themselves with the sex associated with these factors. These individuals are often labeled *transsexuals* or persons with gender dysphoria or gender identity disorder (GID). Science has yet to definitely isolate a biological common denominator that causes these individuals to feel transgendered. A recent study, however, has determined that a section of the brain area essential for sexual behavior is larger in men than in women and that the brain structures of genetic males who self-identify as transsexuals are more similar to female than male brain structures.[47] Some transsex individuals choose to undergo hormonal treatment and/or surgery, so that their bodies comport with their sexual identity, while other transsex persons do not choose to undergo such treatment.

Transsexualism is not necessarily related to sexual orientation. Some transsex persons identify themselves as gays or lesbians while others identify themselves as heterosexuals. In other words, a male-to-female transsex person who has undergone surgery to acquire female genitalia may still prefer to have sex with another female, and a female-to-male transsex person may still prefer to have sex with another male.

Surgical creation of an intersex condition. In addition to cases in which intersex individuals may be assigned a sex that does not comport with their own sexual identity, some persons have had their sexual features altered either purposefully or accidentally. For example, some individuals have had their penises removed or reduced at a young age because they were mistakenly identified as females, and the penis was considered an oversized clitoris that required reduction. In addition, some cases of an accident that destroyed a boy's penis have been reported. Although these cases are rare, they illustrate the complex nature of sexual identity formation.[48]

The most famous surgical alteration case involves a male whose penis was accidentally destroyed when he was eight months old and undergoing a circumcision. The doctors recommended that his genitals be reconstructed to appear female and that he be raised as a girl even though all other sexual