

# THE MAKING OF HUMAN HERMAPHRODITES

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becomes a genetic female. However, if some cells contain active SRY genes and some don't, the embryo can form a mixture of testicular and ovarian tissues, thus forming a 46XX hermaphrodite.

(8) In many cases, hermaphrodites live healthy and normal lives and many may never know they are hermaphrodites, though some may have fertility issues. Some researchers are beginning to support the idea that humans should be regarded as having more than just two sexes, and that intersex people are more common than we think.

(9) If you think hermaphroditism is strange, then

you might be in for a surprise. Though the majority of humans are not hermaphroditic, there are many organisms that typically are. Most plants are hermaphrodites. Flowers are the reproductive organs of plants. Some plants can produce flowers that contains both male and female reproductive organs, and others can cause half of their flowers to form female structures and half to form male structures. As well, most invertebrates (organisms without spines) like worms, slugs and snails are also hermaphrodites. Several species of fish are also hermaphroditic. Hermaphroditism in nature is common and has its advantages. Hermaphrodites do not need to find mates of the opposite sex as every member of the species is a potential mating partner.

## Article Questions

- 1) In humans, genetic females have XX (1) sex chromosomes and genetic males have XY (1) sex chromosomes. In humans, the sperm (3) cells determine the sex of the offspring.
- 2) What is a hermaphrodite?  
An organism that has both male and female reproductive tissues or structures. (1)
- 3) What is a chimera?  
An organism that contains a mixture of cells from two different genetic sources. (2)
- 4) Why is a 46XX,46XY hermaphrodite considered a chimera?  
A 46XX,46XY hermaphrodite forms through the combination of male and female embryonic cells causing it to have two different genetic sources. This makes the person a chimera. (4)
- 5) Where is the SRY gene normally located and what is it usually responsible for?  
The SRY gene is normally located on the Y chromosome. It is responsible for initiating male sexual differentiation in XY male fetuses between the 6<sup>th</sup> and 8<sup>th</sup> stages of fetal development. (5)
- 6) How can the SRY gene cause a genetic female to produce a mixture of ovarian and testicular tissues?  
If a 46XX female has an X chromosome that has the SRY gene and this gene is active in some of her cells but not in others, then the active genes can cause the formation of testicular tissue and the inactive genes will allow the formation of ovarian tissue. (7)
- 7) Give examples of organisms that are mostly hermaphroditic.  
Flowering plants, slugs, worms, snails and some fish. (9)