

Name _____

Date _____

Sex-Linked Traits Practice Problems - Hemophilia

In sex-linked inheritance the genes are carried on the X chromosome as a rule and are usually recessive. Hemophilia is inherited exactly like colorblindness. The dominant gene codes for normal clotting time of the blood while the recessive allele codes for hemophilia.

I. A normal woman marries a normal man. They have one daughter and 14 sons, all normal. In view of this, what gene combination would this woman most likely have? Why do you say this? What is the probable genotype of the daughter?

Female genotype: _____ Male genotype: _____

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| Genotypes | Phenotypes |
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HEMOPHILIA
AWARENESS

Daughter's genotype: _____

Answer:

II. A man whose father was hemophiliac, but whose blood clotting time is normal, marries a normal woman with no record of hemophilia in her ancestry. What is the chance of hemophilia in their children?

Male genotype: _____ Female genotype: _____

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| Genotypes | Phenotypes |
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III. Suppose a young lady comes to you for advice in your capacity as a marriage counselor. She tells you that her brother has hemophilia but both her parents are normal. She wishes to marry a man who has no history of hemophilia in his family, and wants you to tell her the probability of her children having the disorder. What will you tell her, and how will you explain your answer?

The lady's genotype: _____ Her husband's genotype: _____

Genotypes of her family:

Her brother's : _____ Her mom's: _____ Her dad's: _____

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| Genotypes | Phenotypes |
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Answer:

IV. A man sues his wife on the grounds of infidelity. Both man and wife have normal vision, but their daughter has **coloboma iris, a fissure in the iris of the eye. This is known to be sex-linked recessive. If you were the man's lawyer, could you use this fact as evidence? Use the Punnett square to support your answer.**

Answer:

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