Blue People of Troublesome Creek



The Fugates Family



Martin Fugate

- French orphan who came to America in 1820 and settled in an area known has Troublesome Creek, Kentucky
- According to family written records he had blue tinted skin
- For over the next 100 years Martin's skin disorder was passed on through his descendants.
- One of Martin's sons married his maternal aunt and 100 years later Benjy Stacey was born (1975).

Methemoglobinemia

- AUTOSOMAL RECESSIVE genetic disorder resulting in an abnormal amount of methemoglobin in the blood
- Methemoglobin is a form of hemoglobin that can't carry oxygen and effects normal hemoglobin from release it's oxygen to the parts of the body

Methemoglobin Concentration	% Total Hemoglobin	Symptoms
<1.5 g/dl	10%	None
1.5-3.0 g/dl	10-20%	Cyanotic Skin Discoloration
3.0-4.5 g/dl	20-30%	Anxiety, lightheadedness, headache
4.5-7.5 g/dl	30-50%	Fatigue, confusion, dizziness
7.5-10.5 g/dl	50-70%	Coma, seizures, arrhythmias, acidosis
> 10.5 g/dl	>70%	Death

How does the recessive trait continually get passed on?

GEOGRAPHIC ISOLATION

The Fugates along with a couple other families were isolated in Troublesome Creek, Kentucky. When the town was settled there were no roads, making it hard to get out.

Result of this was that people tended to intermarry.

By "LUCK" one of the other 2 families in the isolated town carried an allele for methemoglobinemia

Pedigree of Hereditary Methemoglobinemia



Punnett Squares

VS.

Pedigrees



Shows the probability of potential offspring between parents

Widow's peak

No widow's peak

Representation of a family tree that shows the inheritance of a genetic trait through generations

How to Read a Pedigree

Key	
	Homozygous Dominant Male
	Homozygous Recessive Male
	Heterozygous Male (Carrier)
\bigcirc	Homozygous Dominant Female
	Homozygous Recessive Female
	Heterozygous Female (Carrier)
	Parents
	Parents are related to each other
	Offspring

A person that is HETEROZYGOUS for a trait is known as a CARRIER

A CARRIER

 A person that receives a recessive allele for a genetic trait or disorder, but doesn't display or show the trait themselves.



