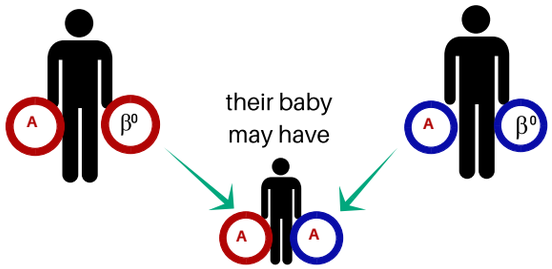
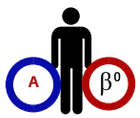
Inheritance Pattern for Beta Thalassemia

When each parent has beta thalassemia trait *



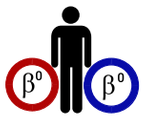
AA (normal hemoglobin) or

A β(beta-zero thalassemia trait) or



also, Aβ⁰ (beta-zero thalassemia trait)

or



β⁰ / β⁰ (thalassemia major, a severe blood disease)

It does not matter what their babies have, their next one has the same three possibilities: AA, A β⁰ or β⁰/ β⁰.

There are two types of beta thalassemia, beta-plus (β⁺) and beta-zero (β⁰). In β⁰, the beta gene makes **no globin**. In β⁺, the beta gene makes **low levels of globin**. In this example, we have used β⁰ to show how beta thalassemias are inherited.

IS THERE ANYTHING A PERSON WITH BETA THAL TRAIT SHOULD DO?

In planning a family, it is wise for you to ask your partner to be tested. Everyone has two sets of genes for hemoglobin. One set is passed on to the baby from each parent.

Only if **both partners** are tested can they know exactly what kind of hemoglobin conditions their children could have. They should look carefully at the inheritance pattern for the possibilities of having a child with severe beta thalassemia.

A counselor can tell them if any of their future children could have severe beta thalassemia.

For more information

Contact your local SCDAA organization or other health agency at:

Or contact the SCDAA National Office at the address and telephone number below.

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Beta Thalassemia Trait

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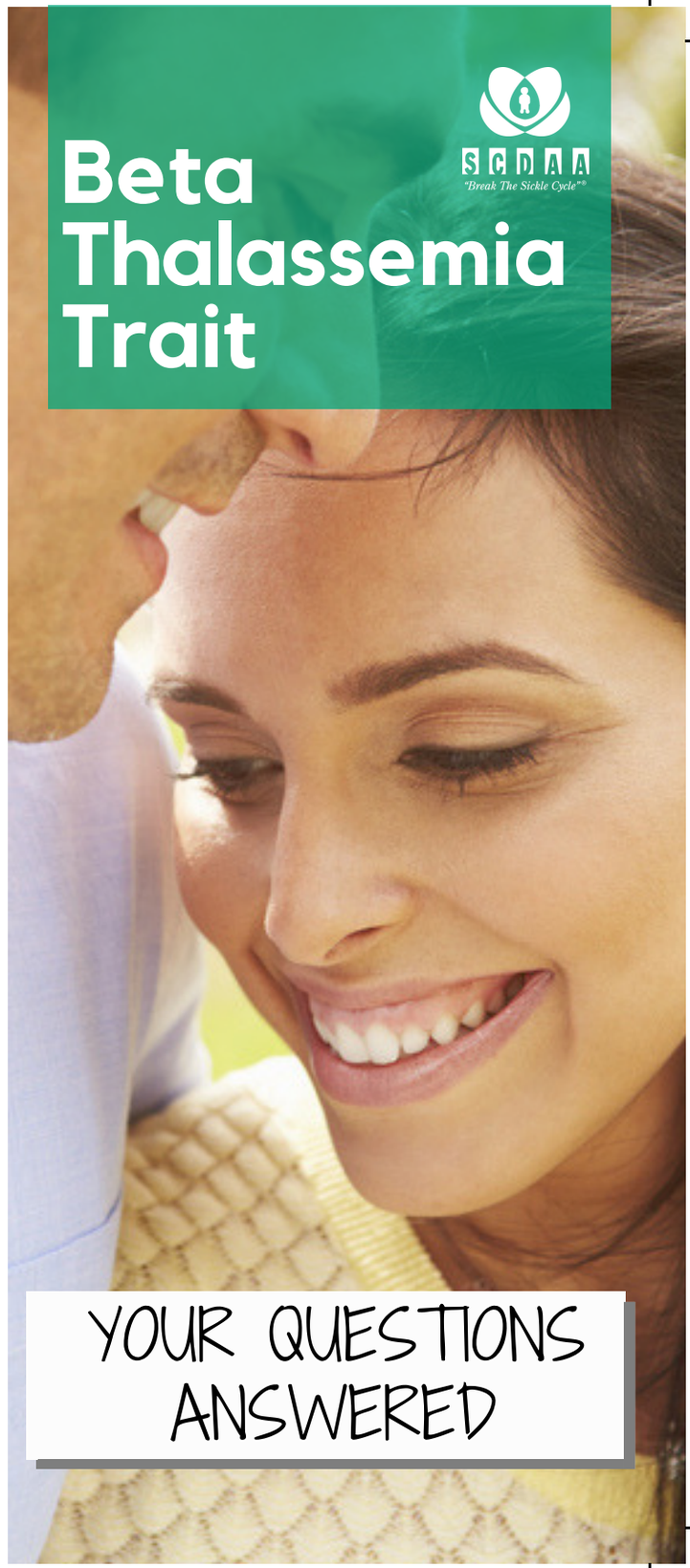
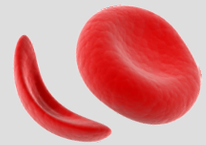


YOUR QUESTIONS ANSWERED

I want to learn more...



DOES BETA THALASSEMIA TRAIT EVER MAKE A PERSON SICK?

No. Beta thalassemia trait, **"beta thal trait"** for short, **is not an illness**. A person with beta thal trait is healthy.

*His doctor may notice that his blood count is a little low and think that he needs iron to bring his blood count up. The iron treatment will not help - and could hurt.

Before he takes iron, he should have his blood iron level checked. If his iron level is low, it will be all right to take iron.

YOU SAY BETA THAL TRAIT IS NOT A PROBLEM. THEN WHY ARE PEOPLE TESTED?

Teens and adults are tested mainly to see if they can have a baby with a serious hemoglobin disease.

WHAT IS THALASSEMIA?

Thalassemia is a disease of red blood cells. People with thalassemia do not make enough hemoglobin. This results in red blood cells that are smaller in size, paler than normal and **anemia**, or **low blood count**.

There are mild, moderate and severe forms of thalassemia. Beta thal trait is a **mild** form of thalassemia.

CAN BETA THAL TRAIT EVER TURN INTO COOLEY'S ANEMIA?

Never. A person's hemoglobin types are his for life. They do not change.

IF A PERSON HAS BETA THAL TRAIT, CAN HE HAVE A CHILD WITH SEVERE THALASSEMIA?

Yes, He can, but only if his partner also has beta thal trait or another form of beta thalassemia.

HOW DOES A PERSON GET BETA THAL TRAIT?

A person gets or **inherits** beta thal trait the same way he got the color of his eyes, the shape of his nose and the texture of his hair. He got it through the **genes** that his mother and father passed on to him. Genes also tell the body what kind of blood to make.

If a person got one **abnormal beta thalassemia gene** from one parent and another **abnormal beta thalassemia gene** from the other parent, he would have severe beta thalassemia, a condition called **Cooley's anemia**. This is a very serious condition. People who have severe beta thalassemia need special medical care.

Sometimes a person will get an abnormal beta thalassemia gene from one parent and a gene for another hemoglobin disorder from the other parent.

For example, if a baby gets an abnormal beta thalassemia gene from one parent and the sickle cell gene from the other, the baby will have a form of sickle cell disease called, **S-beta thalassemia**. That baby will need special medical attention.

*Beta thal trait is found equally in both males and frmales. To make this easy to read, we have used **he**, **his** and **him** in this pamphlet. In other pamphlets we have used **she** and **her**.

WHAT EXACTLY IS HEMOGLOBIN?

Hemoglobin is inside the red blood cells. It helps them carry oxygen from the air in our lungs to all parts of the body. Hemoglobin also gives blood its deep red color.

Hemoglobin is made up of two parts:

Proteins called globin, and iron chemicals called heme

Heme + Globin = Hemoglobin

NOW, WHAT IS BETA THALASSEMIA?

The usual hemoglobin in our red blood cells is hemoglobin A. Hemoglobin A is made of two types of globin: **alpha and beta.**

In beta thalassemia, not enough beta globin is made in the red blood cells.

BETA THAL TRAIT- WHAT DOES THAT REALLY MEAN?

Beta thal trait, sometimes called **beta thalassemia minor**, is a mild form of beta thalassemia. In beta thalassemia trait, there is enough beta globin for normal health.

A person with beta thal trait may have a **little anemia**. His red blood cells might be a little small in size and look pale. None of these things will make him sick at all.

Beta thalassemia trait is common in people of Mediterranean, Asian, Middle Eastern, or African origins.