

Vitamin K Information Sheet

Why is vitamin K needed by humans?

Vitamin K is needed by humans for blood clotting. It is a vitamin that is produced as a byproduct of bacteria in the intestinal tract. Without enough vitamin K, small cuts can go on bleeding for a very long time and big bruises can happen from small injuries.

Why is vitamin K given to newborns?

Unlike adults and children, newborns have very little vitamin K in their bodies. Vitamin K does not cross the placenta to the developing baby, and the gut does not have any bacteria to make vitamin K prior to birth. Vitamin K remains low for several weeks until the normal intestinal bacteria starts to produce it. Newborns who are feed infant formula may produce vitamin K sooner because formula is fortified with the vitamin. There is very little vitamin K in breast milk.

If a newborn experiences a type of trauma that cause bleeding either internal or external, and without vitamin K, there is the possibility that the baby's blood will not clot and the baby will continue to bleed. Some babies can have very severe bleeding. This bleeding is called Vitamin K Deficiency Bleeding (VKDB). The previous name for this condition is Hemorrhagic Disease of the Newborn.

Vitamin K deficiency bleeding is a rare disease that occurs in approximately 1 in 10,000 babies. There are two types of VKDB, early and late onset. Early onset VKDB occurs in infants having problems with clotting factors. Late onset consists of the infant lacking the elements that supports production of clotting factors. It is impossible to tell by physical exam alone that your baby has this disease. If a baby suffers VKDB, there is a risk bleeding into the brain. Bleeding into the brain can cause significant brain-damage or death. VKDB is almost 100% preventable by vitamin K treatment. It has become routine to administer vitamin K to newborns soon after birth. The State of Oregon mandates vitamin K be administered to all newborns unless the parents decline.

Are all babies at risk for VKDB?

Some babies are at higher risk for VKDB. Risk factors include:

- Babies whose mothers were on certain drugs during pregnancy, such as anticonvulsants, anticoagulants, antibiotics, and TB medications are at a particular risk.
- Prematurity
- Babies needing surgery (including circumcision)
- Babies experiencing traumatic delivery (such as a breech delivery, forceps, vacuum extractor, or shoulder dystocia)
- Babies with liver disease
- Babies with difficulty absorbing feeds

Many babies who have VKDB, first suffer from a smaller bleed in the skin, nose, or mouth prior to more severe bleeding.

Why not just give vitamin K to those at high risk of bleeding?

Unfortunately, we are unable to detect VKDB by physical exam alone. About 1/3 of all cases of VKDB occurs without prior warning or risk factor.

What are the risks of vitamin K?

Many believe for newborns are a biologic advantage to not having vitamin K at birth. Some believe that the low levels of vitamin K during the first week of life may protect vulnerable tissues from mutagenesis.

How is vitamin K administered?

The only approved method to administer Vitamin K is by intramuscular injection or orally in a pill form. The injection is a one-time dose given at birth and is effective within 30 minutes. The injection is the preferred route of administration by the Center of Disease Control and the American Academy of Pediatrics. The oral treatment requires three doses in order to achieve the same protection as the injection. If vitamin K is given orally, one dose administered at birth, one at 7-14 days of age, and the last does given between 14-28 days of age. Also available is a botanical suspension of vitamin K. Botanical vitamin K is given orally. There is much debate over the effectiveness and dosage of this form. There are pros and cons to each method.

	<u>Pros</u>	<u>Cons</u>
IM Injection	• One dose • Effective within 30 min. • More effective with early onset VKDB	• Painful • Rash • Reaction at injection site • Hemolytic anemia
Oral	• No pain • No rash • No risk of infection at injection site	• Repeat dosage • Less effective unless all doses are given • Slow acting • Need bile salt to assimilate • Bitter tasting
Botanical	• No pain • No rash • No risk of infection at injection site • Made from a natural source	• Not well studied • Not recommended by CDC and AAP.