



Informed Choice: Use of Vitamin K to Prevent Vitamin K Deficiency Bleeding

What is Vitamin K?

Vitamin K is needed to make clotting factors in the blood. All newborn babies have very low stores of vitamin K – this is the natural state of the newborn. Levels begin to rise around one week of life, when vitamin K starts to be made in the baby's gut.

Why is Vitamin K routinely given to newborns?

In 1939, it was discovered that giving Vitamin K to newborns reduced the rate of babies who developed Vitamin K Deficiency Bleeding (VKDB), in which young babies experience abnormal internal bleeding, possibly to the point of death. At the time when vitamin K administration became routine in the U.S., in the 1950's, most women gave birth while being drugged and strapped down, and many babies were born with the aid of forceps and the complications and birth trauma associated with an instrumental delivery. In addition, due to low rates of breastfeeding at that time, babies did not receive early colostrum, which is high in vitamin K.

What is Vitamin K Deficiency Bleeding (VKDB)?

Bleeding can occur shortly after birth or up to 6 months after birth. There are three forms of VKDB:

- Early form – Generally occurs within the first 2 days of birth and is primarily seen in babies born to women on certain medications (antiepileptics, warfarin, or chronic antibiotics).
- Classic form – Typically seen at 2-6 days after birth and is milder than the other forms. Risk factors include: low birth weight, prematurity, birth trauma, birth asphyxia, forceps, vacuum or cesarean delivery, and delayed or inadequate feeding.
- Late form – Typically seen at 2-12 weeks after birth. The late form is often severe, possibly leading to permanent brain damage or death. This form is more common in babies with liver or gastrointestinal disease, or babies who are taking long-term antibiotics.

The classic and late forms of VKDB are most commonly seen in breastfed babies, since fortified formula contains higher levels of vitamin K than breastmilk and vitamin K can prevent VKDB. All types of VKDB are uncommon – without any form of Vitamin K, 3 to 17 in 1,000 infants will develop the classic form and only 4 to 7 in 100,000 infants will develop the late form of VKDB. Keep in mind these rates were determined based on hospital births, where early cord cutting was common and where the

rate of interventions was higher than at home births today. Early cord cutting limits the blood supply (and therefore, the amount of clotting factors) the newborn receives from the placenta at birth.

How is Vitamin K given?

Vitamin K can be given as an injection (a shot) or orally (as several drops of tasteless liquid). There are two forms of vitamin K that are used to prevent or treat VKDB: K1 and K2. Injectable forms of vitamin K are derived from synthetic sources. Oral forms of Vitamin K can either be derived from synthetic sources or plant sources.

The American Academy of Pediatrics recommends that all newborns receive a single vitamin K injection. The injection method has proven more reliable at preventing the late form of VKDB.

Motherland Midwifery can provide either injectable vitamin K or oral K2. The form of oral K2 we carry is made by the bacteria that line the large intestine and is the most fat-soluble form of vitamin K. It is non-animal sourced.

What are the benefits of giving my baby Vitamin K?

According to available research, a vitamin K injection shortly after birth has been proven to prevent all forms of VKDB. Oral vitamin K can prevent the early and classic forms of VKDB. It is not as successful as injectable vitamin K at preventing late form VKDB.

What are the risks of Vitamin K?

- It is not known what risk, if any, Vitamin K poses to newborns. **All babies have naturally low levels of vitamin K at birth and then begin to produce vitamin K on their own around one week of age. This is the natural physiologic state of the newborn, and may have some protective function that we are not yet aware of.** Vitamin K increases clotting, and decreases tissue oxygenation. Some researchers have questioned whether this increases the baby's risk for bacterial infection or other disorders. Also consider that the late form of VKDB is associated with gastrointestinal and liver disease, which raises the question of whether vitamin K administration could mask an underlying disorder.
- Your baby may not need it. The vast majority of babies – both breastfed and formula-fed – do not develop VKDB.

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- A vitamin K injection is a shot and can be painful for the baby. If you choose to give your baby a vitamin K injection, comfort your baby during and after the injection.
- While recent studies have not shown a link between vitamin K injections and childhood leukemia, studies have not ruled out the possibility that they are associated. If there is a risk, it is likely to be low. There is no known association between oral vitamin K and childhood leukemia.

No Prophylactic Treatment

- Babies who do not receive vitamin K are more likely to develop VKDB, which can lead to death or permanent brain damage. The symptoms can be easy to miss (see below for signs and symptoms of VKDB).
- While not all newborns need vitamin K at birth, it is difficult to know which ones do. The classic form of VKDB usually occurs in newborns without known risk factors. This is why, the American Academy of Pediatrics recommends all babies receive vitamin K.
- Babies at highest risk are those who are born prematurely, those who experience trauma or oxygen deprivation during birth or shortly after birth (such as circumcision), and those babies whose mothers needed certain medications during pregnancy.

Alternatives

Alternatives to the Vitamin K injection (which is the standard of care in the U.S. medical system) include:

- **Oral Vitamin K** – A single oral dose of vitamin K is as effective as an injection at preventing the classic form of VKDB. Oral vitamin K does not last as long in the body as injected vitamin K, so it does not work as well as an injection at preventing late form VKDB (it reduces the rate of late form to 1-6 in 100,000 births). A series of 3 doses of oral Vitamin K is more effective at preventing the late form than a single oral dose, although not as effective as a single Vitamin K injection. This is the standard of care in some European countries. Some recent studies indicate that more frequent doses of oral Vitamin K may be more effective at preventing late form VKDB. In one recent study in Denmark, of 396,000 infants who received oral Vitamin K weekly for at least nine weeks, none developed VKDB. Another drawback of oral Vitamin K – as with an injection, your baby may not need it. Only synthetic forms of oral Vitamin K have been studied; no research has been conducted using natural sources of Vitamin K.

- **Vitamin K supplementation by the nursing mother** – Only very high doses of vitamin K (5000 mcg daily) will raise the nursing baby's vitamin K levels sufficiently to prevent VKDB and it is unknown whether or not this is safe for the mother. However, some mothers choose to take alfalfa tablets, which are high in vitamin K, at the end of pregnancy to build up their vitamin K stores and daily levels. Mothers choosing to give oral vitamin K2 to their babies can take it themselves beginning at 36 weeks of pregnancy (1 mg daily). While the evidence on this passing through to the newborn is inconclusive, there do not appear to be any risks to mother or baby in doing so, and the supplementation can help reduce any risk of postpartum hemorrhage.
- **Formula** – While fortified formula has significantly higher levels of vitamin K for the baby than does breastmilk, the tremendous benefits of breastmilk outweigh any protection afforded by formula against VKDB. Also, the main research on levels of vitamin K in breastfed babies was done at a time when breastfeeding patterns were more regimented. Research has not been done more recently on babies who are breastfed on demand. Furthermore, it is possible (but unknown) that the vitamin K found in breastmilk is more readily available than the vitamin K added to formula.
- **Do nothing and observe for signs of bleeding** – Many babies who develop VKDB will show “warning bleeds” hours to days before severe illness. However, symptoms can be easily missed and some babies who develop VKDB will have no symptoms until irreversible brain damage has occurred. Symptoms of VKDB include: bruises, blood in the urine, blood in the stool, bleeding from the umbilicus, other visible bleeding, difficulty breathing, poor feeding, pallor, easily bruised skin, pinpoint bruises called petechiae, vomiting, black vomit, irritability or high-pitched crying.

Resources

- American Academy of Pediatrics. Policy Statement: Controversies Concerning Vitamin K and the Newborn. *Pediatrics*. 2003 July;112(1):191-192.
- Hansen KN, Minousis M, Ebbesen F. Weekly Oral Vitamin K Prophylaxis in Denmark. *Acta Paediatr*. 2003;92:802-5.
- <http://health.consumercide.com/vitK-rothwell.html>
- <http://www.gentlebirth.org>
- <http://www.birthwithlove.com>
- Wickham, Sara. Vitamin K and the Newborn. *AIMS*, 2003.



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Informed Choice

I have been provided with written information on vitamin K administration and have had the chance to ask questions. I understand the benefits and risks of vitamin K administration as well as the benefits and risks of not giving vitamin K to prevent Vitamin K Deficiency Bleeding. I believe that my midwife has honored my right to make my own informed health care decision about my baby's care. I understand that vitamin K administration is not mandatory and I believe in my right to accept or decline any test or treatment for my child. I also understand that I can change my mind at any time.

My choice for prophylactic treatment is indicated below:

I choose to have a vitamin K injection given to my baby shortly after birth.

I choose to have oral vitamin K given to my baby:

a single dose shortly after birth

a series of 4 doses, including one shortly after birth, then again at 1 week, 2 weeks, and 3 weeks

a series of doses given as follows: _____

I choose *not* to have vitamin K given to my baby. I understand that my midwives may recommend vitamin K if the circumstances of birth increase the risk of VKDB, and I may be asked to reconsider my decision.

Signed:

Client: _____

Date: _____

Partner: _____

Date: _____