



MotherToBaby

Medications & More During Pregnancy & Breastfeeding
Ask The Experts

Fact Sheet

by the **Organization of Teratology Information Specialists (OTIS)**

For more information about us or to find a service in your area,
call **(866) 626-6847**. Visit us online at **www.MotherToBaby.org**.

Find us! Facebook.com/MotherToBaby or @MotherToBaby on Twitter

Bisphosphonate treatment

In every pregnancy, a woman starts out with a 3-5% chance of having a baby with a birth defect. This is called her background risk. This sheet talks about whether exposure to bisphosphonates may increase the risk for birth defects over that background risk. This information should not take the place of medical care and advice from your health care provider.

What are bisphosphonates?

Bisphosphonates are a class of drugs that prevent the loss of bone mass. Risedronate (Actonel®), ibandronate (Boniva®), Alendronate (Fosamax®), pamidronate (Aredia®), and etidronate (Didronel®) are examples of bisphosphonates, but there are others. They are commonly used for the treatment of osteoporosis (higher fracture risks due to loss of bone density). They are also used in the treatment of Gaucher disease. For more information on Gaucher disease, see the MotherToBaby fact sheet at <https://mothertobaby.org/fact-sheets/gaucher-disease-pregnancy/pdf/>. Bisphosphonates work to decrease the rate of bone remodeling (a normal process that replaces old bone with new bone deposits).

How long do bisphosphonates stay in the body? Should I stop taking them before I try to become pregnant?

Bisphosphonates leave a woman's blood very quickly. However, 20-80% of the amount of the drug that enters the blood is then stored in bone tissue. Bisphosphonates can stay inactive in the bone tissue for years. They can also be released into the blood as the bone is remodeled. Stored bisphosphonates might be released from bones during pregnancy.

Based on theoretical concerns about the effects on fetal bones, treatment with bisphosphonates is usually stopped before conception. However, in three women with severe bone disease, bisphosphonates were used prior to and in early pregnancy, with some evidence that normal pregnancy bone loss was lessened.

I have been taking bisphosphonates and just found out I am pregnant. Should I stop?

No. You should not stop taking this medication without first talking to your health care provider. The benefits of treatment need to be evaluated against any possible risk to a pregnancy.

Can taking bisphosphonates during pregnancy cause a birth defect?

More studies are needed to better answer this question. Concern has been raised about the use of bisphosphonates in animal pregnancies. Studies found that rats given bisphosphonates during pregnancy developed calcium deficiency (hypocalcemia), which led to abnormal bone development, and also slow, difficult labor and delivery. Effects related to low calcium are not expected in women on bisphosphonates, as they typically do not cause low calcium levels in people.

Small studies and case reports that include around 78 women using bisphosphonates prior to or during pregnancy have not shown an increase in the rate of birth defects. However, there were cases of early deliveries, lower birth weight and low levels of calcium in the newborns. Several small studies of the use of bisphosphonates in infants and young children have shown normal bone development.

Can taking bisphosphonates during pregnancy cause other pregnancy complications?

Miscarriage and low birth weight have been reported in women with Gaucher disease treated with bisphosphonates in pregnancy. However, it is not known whether these complications were due to the bisphosphonate treatment, other medication(s)/treatment(s) for Gaucher disease, or the disease itself.

Is it safe for me to take bisphosphonates while I am breastfeeding?

There are no studies looking at bisphosphonates and breastfeeding. They are expected to pass into breast milk. Bisphosphonates are very poorly absorbed when taken by mother, and the amount a nursing infant might absorb is likely very small. There is a single case report of a nursing mother treated with bisphosphonates. Small amounts of bisphosphonate were found in her milk, but no harmful effects were seen in the baby. Be sure to talk to your health care provider about all your choices for breastfeeding.

Is there a concern if my partner was taking bisphosphonates when I got pregnant?

There are no studies looking at paternal use of bisphosphonates prior to or at the time of conception. In general, exposures that fathers have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures and Pregnancy at <https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/pdf/>.

Selected References:

- Cox TM et al. 2008. Management of non-neuronopathic Gaucher disease with special reference to pregnancy, splenectomy, bisphosphonate therapy, use of biomarkers and bone disease monitoring. *J Inher Metab Dis.* 31: 319-336.
- Djokanovic N et al. 2008. Does treatment with Bisphosphonates endanger the human pregnancy? *J Obstet Gynaecol Can.* 30(12):1146-1148
- Granovsky-Grisaru, S et al. 2011. The management of pregnancy in Gaucher disease. *Thromb Haemost,* 156:3-8.
- Graepel P, et al. 1992. Reproduction toxicity studies with pamidronate. *Arzneimittelforschung* 42:654-67.
- Green SB, Pappas AL. 2014. Effects of maternal bisphosphonate use on fetal and neonatal outcomes. *Am J Health Syst Pharm.* 71(23):2029-36.
- Hassen-Zrou S et al. 2010. Maternal and fetal outcome after long-term bisphosphonate exposure before conception. *Osteoporos Int* 21:709-710.
- Levy S et al. 2009. Pregnancy outcome following in utero exposure to bisphosphonates. *Bone* 44(3): 428-430.
- Losada I et al. 2010. Bisphosphonates in patients with autoimmune rheumatic disease: Can they be used in women of childbearing age? *Autoimmunity Reviews* 9(8):547-552.
- Minsker DH, et al. 1993. Effects of the bisphosphonate, alendronate, on parturition in the rat. *Toxicol Appl Pharmacol* 121:217-23.
- Ornoy A, et al. 2006. The outcome of pregnancy following pre-pregnancy or early pregnancy alendronate treatment. *Reproductive Toxicology* 22:578-579.
- Patlas N, et al. 1999. Transplacental effects of bisphosphonates on fetal skeletal ossification and mineralization in rats. *Teratology* 60:68-73.
- Rutgers-Verhange AR et al. 2003. No effects of bisphosphonates on the human fetus. *Birth Defects Res(Part A);*7:203-4.
- Siminoski K et al. 2000. Intravenous pamidronate for treatment of reflex sympathetic dystrophy during breast feeding. *J Bone Miner Res* 15(10):2052-2054.
- Ioannis SP, et al. 2011. *Hormones* 10(4):280-291.
- Vujasinovic-Stupar N, et al. 2012. Pregnancy-associated osteoporosis treated with bisphosphonates: long-term follow-up of maternal and infants outcome. *Rheumatol Int;*32(3):819-23.

December, 2017