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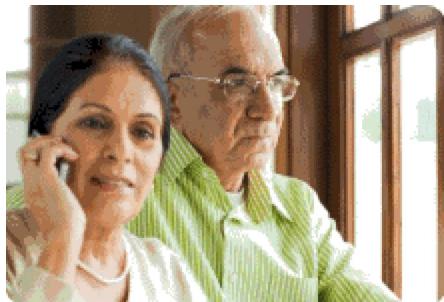
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Warfarin

Many people take the prescription drug warfarin as a blood thinner. If you take warfarin, you should be aware that certain drugs, natural health products and foods can alter the levels of warfarin in your system, and this may cause serious health effects.

Warfarin is used primarily as a blood thinner to prevent the formation of blood clots. It has a "narrow therapeutic margin." This means that any change in the amount of warfarin in your bloodstream may change the way warfarin affects you. For example, too much warfarin may cause excessive bleeding, while too little could affect the drug's ability to prevent clots, and this could lead to serious health effects, such as a heart attack or stroke.

Certain drugs (prescription and over-the-counter), natural health products (such as herbal remedies, vitamins and supplements) and even some foods are known or suspected to interact with warfarin in a way that changes the level of the drug in your bloodstream. For this reason, people who take warfarin must be cautious when considering taking these other products.



Drug products that interact with warfarin

Many prescription and over-the-counter drug products are known to interact with warfarin. Examples of such drugs from various classes include, but are not limited to:

- antibiotics (azithromycin, erythromycin, tetracycline);
- non-steroidal anti-inflammatory agents (Acetylsalicylic acid [ASA], celecoxib);
- acetaminophen;
- antidepressants (fluoxetine, paroxetine, sertraline);
- stomach ulcer / acid reducing agents (cimetidine, omeprazole, ranitidine);
- lipid lowering agents (fibrates, statins such as lovastatin and simvastatin); and
- antifungal agents (itraconazole).

Warnings about interactions between these drugs and warfarin are listed in warfarin's Product Monograph. The doctors and pharmacists who prescribe and/or dispense warfarin and other drugs have access to this information and can advise patients who take warfarin about the risk of interactions with other drug products.

Natural health products, foods and warfarin

There are a number of natural health and food products that may affect warfarin levels in different ways. For example, research has shown that the popular herbal product ginseng can reduce the effects of warfarin, while taking ginkgo biloba may increase its effects. Both of these changes pose health risks, because the effect of warfarin on blood clotting must remain stable in your system to be safe and effective.

Vitamin K is known to decrease the effects of warfarin, and there are large amounts of vitamin K in such foods as liver, broccoli, brussels sprouts, and green leafy vegetables (e.g., spinach, Swiss chard, coriander, collards and cabbage). If you take warfarin, you should avoid sudden changes in your daily intake of these foods.

There have also been reports from the UK about a possible interaction between warfarin and cranberry, so patients taking warfarin were advised to limit or avoid drinking cranberry juice.

Over time, researchers will no doubt discover new information about products that can alter the effects of warfarin. To date, there is evidence that the following herbal, vitamin and mineral products may change levels of warfarin in the bloodstream or may directly affect blood clotting on their own:

- chondroitin plus glucosamine;
- coenzyme Q10 - also known as ubiquinone, ubidecarenone;
- danshen (*Salvia miltiorrhiza*);
- devil's claw (*Harpagophytum procumbens*);
- dong quai - also known as Danggui, Chinese Angelica (*Angelica sinensis*);
- feverfew (*Tanacetum parthenium*);
- fenugreek together with boldo (*Peumus boldus*);
- fish oil supplements that contain eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA);
- *Ginkgo biloba*
- ginseng (*Panax ginseng*) - also known as Asian ginseng, Chinese ginseng, Japanese ginseng, Korean ginseng;
- American ginseng (*Panax quinquefolius*);
- green tea (*Camellia sinensis*);

- horse chestnut (*Aesculus hippocastanum*);
- *Lycium barbarum* - also known as Chinese Wolfberry, Di Gu Pi, Goji Berry, Gou Qi Zi;
- papaya extract (containing papain);
- certain brands of *quilinggao* - also known as "essence of tortoise shell";
- ~~St.~~ (Saint) John's Wort (*Hypericum perforatum*);
- vitamin A;
- vitamin K; and
- wintergreen (used on the skin) - also known as methyl salicylate.

There is also evidence that the following food products may affect warfarin levels:

- avocado;
- cranberry juice;
- flax (flaxseed);
- garlic;
- ginger;
- mango;
- onions;
- papaya;
- seaweed (sushi wrap); and
- soy protein products (including soymilk and tofu).

Minimizing your risk

Keep your health professional up to date about the medications and natural health products you use, including vitamins, minerals and herbal products. This is especially important if warfarin is prescribed for you.

If you take warfarin, Health Canada also recommends the following:

- take the prescribed dose of warfarin at the same time each day;
- have your blood tested regularly for its clotting time;
- talk to your health professional **before** you start taking any new drug and/or natural health products, because your dose of warfarin may have to be adjusted;
- if you are already taking drug and/or natural health products and warfarin, **do not change your routine** unless you have discussed it with your health professional;
- ask your health professional about foods that may change the effects of warfarin or have a direct effect on blood clotting;
- if you eat or drink food products that can change the effects of warfarin, be sure to keep your intake levels consistent from day to day; or
- if you have any unusual bruising or bleeding, contact your health care professional for advice right away.

Health Canada's role

Health Canada takes an integrated approach to the management of the risks and benefits related to health products and food by:

- Minimizing health risk factors to Canadians while maximizing the safety provided by the regulatory system for health products and food; and
- Promoting conditions that enable Canadians to make healthy choices and providing information so that they can make informed decisions about their health.

As part of this work, Health Canada conducts safety surveillance on all marketed health products. Health Canada also monitors research about interactions between drugs, natural health and food products, and

communicates information to health professionals and consumers about the risk of potential interactions.

For more information

- To report any adverse reaction or interaction involving any health product, contact Health Canada at (866) 234-2345 or by fax at (866) 678-6789. Both numbers are toll-free.
- See the following Web sites for more information about interactions between warfarin and other drugs, natural health products and/or food products:
 - Memorial Sloan-Kettering Cancer Center [Herbs, Botanicals & Other Products: FAQs](#)
 - National Institutes of Health - [Important Drug and Food Information](#)
- For general safety information, see the following Health Canada articles:
 - [Safe Use of Natural Health Products](#)
 - [Safe Use of Medicines](#)
- Or, [Contact Your Canada Vigilance Regional Office](#), or write to:

Canadian Adverse Drug Reaction Monitoring Program
Marketed Health Products Directorate
Health Canada
Ottawa, ON (Ontario) K1A 0L2
Telephone: (613) 957-0337
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Date modified:

2012-10-11

