

## REVIEW OF POTENTIAL CITRUS INTERACTIONS WITH CARDIOVASCULAR MEDICATIONS Grapefruit, Seville and Pomelo Oranges, Tangelos, and Limes

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**Why are there warnings to avoid grapefruit on some of my medication bottles?** Grapefruit and other citruses can interact with your medications. This interaction is only present in medications taken orally (by mouth). These citruses can affect the way some medications are processed (e.g., metabolized, transported) in your body by influencing how much medication is absorbed through your gastrointestinal system into your blood supply. Depending on the specific drug, this can lead to either more or less drug being available to do its work in the body. This interaction may lead to more side effects or reduce how well your medication works.

**What citrus fruits can potentially interact with medications?** Grapefruit, Seville and Pomelo oranges, tangelos (cross between tangerines and grapefruit) and limes can interact with many different types of medications that are used to treat *heart, cholesterol, blood clotting, mental health, infections*, and the *immune system*. This handout is focused on cardiovascular medications specifically.

**Is the interaction the same for eating fruit and drinking juice?** The interaction between medications and citrus fruits includes consumption of the whole fruit, fruit juices, and products made from fruit/juice (e.g., marmalade made with Seville oranges).

**Does quantity matter?** The significance of the interaction depends on the specific medication, the person, the type of citrus fruit, and the amount of fruit or juice being consumed. For example, as little as 200 mL (7 oz) of grapefruit juice and 60 mL (2 oz) of lime juice has been shown to interact with some medications.

**Can I separate the citrus from my medications to avoid this interaction?** No. The effects of the interaction can last several days. For grapefruit specifically, the effect after eating/drinking the fruit can last up to 3 days. Therefore, separating your medication from grapefruit will NOT avoid this interaction.

**Talk to your healthcare provider or pharmacist** if you have questions about which medications are safe to take with grapefruit and other citrus.

Examples of Cardiovascular Medications Affected by Citrus:

Medications used to lower cholesterol and prevent heart attack and stroke

Medication Class	Medication	Potential Citrus Interaction	Should I avoid citrus fruit/juices while taking these medications?
Statins	Atorvastatin (Lipitor®) Lovastatin (Mevacor®) Simvastatin (Zocor®)	Yes <b>Very high risk of interaction with Lovastatin &amp; Simvastatin</b>	Regular citrus use may ↑ risk of side effects including nausea and muscle soreness, weakness, or cramping.  Recommend limiting citrus intake. Stop citrus if side effects occur and are troubling.
	Fluvastatin (Lescol®) Pravastatin (Pravachol®) Rosuvastatin (Crestor®)	No	No need to avoid citrus.  If you routinely enjoy citrus, these statins may be preferable for you.
Other oral cholesterol medications	Ezetimibe (Zetia®) Fenofibrate (Tricor®) Gemfibrozil (Lopid®) OTC fish oil Omega-3 Ethyl Esters (Lovaza®) Icosapent ethyl (Vascepa®)	No	No need to avoid citrus.

Medications used to prevent or treat blood clots in heart, brain, lungs, legs leading to stroke, DVT, PE

Medication Class	Medication	Potential Citrus Interaction	Should I avoid citrus fruit/juices while taking these medications?
Direct-Acting Anticoagulants	Apixaban (Eliquis®) Rivaroxaban (Xarelto®)	Yes	Regular citrus use can ↑ risk of bleeding.  Recommend limiting citrus intake, especially in adults > 65 years or if history of bleeding.
	Dabigatran (Pradaxa®) Edoxaban (Savaysa®)	No	No need to avoid citrus.
Vitamin-K antagonist	Warfarin (Coumadin®, Jantoven®)	Yes	Regular citrus use can ↑ INR and risk of bleeding. Can be managed by maintaining excellent INR control.  Similar to the advice with green leafy vegetables while taking warfarin, recommend consistent intake of citrus as the interaction will impact INR.

## Medications used to prevent blood clots in blood vessels leading to heart attack, stroke, or claudication

Medication Class	Medication	Potential Citrus Interaction	Should I avoid citrus fruit/juices while taking these medications?
Antiplatelet	Aspirin Prasugrel (Effient®)	No	No need to avoid citrus.
	Clopidogrel (Plavix®)	Yes	Regular citrus use may ↓ effectiveness of this medication leading to ↑ risk of blood clots forming. Recommend limiting citrus intake, especially if heart attack/stent/stroke in past 90 days, if age > 65 years, or if history of bleeding.
	Ticagrelor (Brilinta®)	Yes	Regular citrus use can ↑ risk of bleeding. Recommend avoiding citrus, especially grapefruit, while taking.

## Medications used to manage high blood pressure, heart failure, palpitations, and/or arrhythmias

Medication Class	Medication	Potential Citrus Interaction	Should I avoid citrus fruit/juices while taking these medications?
Calcium Channel Blockers	Felodipine (Plendil®) Nifedipine ER (Adalat CC®, Procardia XL®)	Yes	Regular citrus use may ↓ blood pressure and ↑ risk of side effects (e.g., flushing, headache). Recommend limiting citrus intake, especially in adults > 65 years.
	Amlodipine (Norvasc®) Diltiazem (Cardizem®) Verapamil (Calan®)	Maybe	This combination is likely ok. Watch for flushing, headache, low blood pressure, and reduced heart rate (diltiazem/verapamil only).
Beta-Blockers	Carvedilol (Coreg®)	Maybe	This combination is likely ok. Watch for low blood pressure, reduced heart rate, or lightheadedness when standing. Stop citrus if side effects occur and are troubling.
	Atenolol (Tenormin®) Metoprolol Succinate (Toprol XL®) Metoprolol Tartrate (Lopressor®) Nebivolol (Bystolic®) Propranolol (Inderal®)	No	No need to avoid citrus.

## Medications used to treat heart arrhythmias

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Medication Class	Medication	Potential Citrus Interaction	Should I avoid citrus fruit/juices while taking these medications?
Antiarrhythmic	Amiodarone (Pacerone®) Dronedarone (Multaq®)	Yes <b>Very high risk of interaction with Dronedarone</b>	Regular citrus use may ↑ risk of developing a dangerous heart arrhythmia ( <i>Torsade de pointes</i> ) <u>Strongly recommend</u> avoiding citrus, especially grapefruit, with these medications.
	Other antiarrhythmic medications	--	Ask prescriber / pharmacist

**Resources:**

U.S. Food & Drug Administration: Grapefruit Juice and Some Drugs Don't Mix

<https://www.fda.gov/consumers/consumer-updates/grapefruit-juice-and-some-drugs-dont-mix>