

How are blood pressure drugs used in women with PAD?

Controlling [high blood pressure](#) is important for all women with PAD to reduce the risk of [heart attack](#)

and [stroke](#)

. Many different medications are available to treat high blood pressure, and studies have shown that the choice of drug is less important than getting your blood pressure to healthy levels. To learn more about the risks of high blood pressure and how it is treated, see

[High Blood Pressure & PAD Risk](#)

and

[High Blood Pressure Medications](#)

Some blood pressure medications have additional benefits beyond their ability to lower blood pressure. In particular, a type of drug called an ACE inhibitor is often used to reduce the risk of heart attack and stroke in women with PAD, even if they do not have high blood pressure.

ACE Inhibitors	
Generic Names:	Benazepril / Captopril / Lisinopril / Fosinopril / Ramipril / Quinapril
Brand Names:	Lotensin / Capoten / Prinivil, Zestril / Monopril / Altace / Accupril
How it is given:	Oral (tablet or capsule)
What it is used for:	<ul style="list-style-type: none">- To treat high blood pressure- To reduce the risk of heart attack and stroke in women with PAD- To improve survival after heart attack- To treat heart failure- To treat and prevent kidney disease caused by diabetes (nephropathy)

You should not be treated with it if:

- You have previously developed swelling in the deep layers of the skin and/or the linings of some organs
- You have kidney failure (without renal failure)

Pregnancy / nursing: ACE inhibitors should not be used during pregnancy because they can be harmful to the fetus.

Who should take drugs to treat high blood pressure?

All women with artery disease (including [PAD](#) , [carotid artery disease](#) , and [aortic disease](#)) who have high blood pressure should be treated with high blood pressure medications to achieve a goal blood pressure of less than 140/90 mm Hg. If you also have [diabetes](#) or kidney disease, your blood pressure goal should be lower, less than 130/80 mm Hg.

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High blood pressure is treated in the same way regardless of the type of artery disease you have. Any type of blood pressure drug can be used to lower blood pressure in women with PAD, and most women will require more than one type of drug to get their blood pressure under control.² See [High Blood Pressure Medications](#) to learn about the different types of blood pressure drugs and how they are used.

Because ACE inhibitors can reduce the risk of heart attack and stroke beyond their effects on blood pressure, they are often the first choice treatment for women with PAD.¹ Women with PAD taking an ACE inhibitor may also need additional drugs (such as a diuretic) to get their blood pressure to healthy levels. See [Are ACE Inhibitors as effective in African Americans](#) for more on this topic.

If you have [kidney artery disease](#) that is causing high blood pressure, you will be treated with [ACE inhibitors](#)

,

[Angiotensin Receptor Blockers \(ARBs\)](#)

,

[calcium channel blockers](#)

, or

[beta-blockers](#)

, or diuretics to lower blood pressure and prevent your kidney artery disease from getting worse.

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Should I take an ACE Inhibitor even if I do not have high blood pressure?

If you have PAD that is causing symptoms, you may benefit from ACE inhibitors to reduce your risk of heart attack and stroke, even if you do not have high blood pressure.¹

There have been no studies of the benefits of ACE inhibitors in women with normal blood pressure who do not have symptoms of PAD. However, it is possible that these women could also benefit from ACE inhibitors to prevent heart attack and stroke. If you have been diagnosed with PAD, even if you don't yet have any symptoms, you may want to consider asking your doctor about the risks and benefits of ACE inhibitors.¹

Who should not receive ACE inhibitors to treat PAD?

ACE inhibitors should not be used in women who are pregnant or who may become pregnant because of the potential for birth defects.² Some ACE inhibitors may be harmful to the baby if taken by breastfeeding women, while others are generally considered safe.

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Talk to your doctor about the risks and benefits of different ACE inhibitors if you are considering breastfeeding.

You should not take ACE inhibitors if you have ever experienced *angioedema*, swelling in the deep layers of the skin that can be a side effect of these drugs (see Potential Side Effects below). Women with severe kidney disease who cannot produce urine should not take ACE inhibitors.

What are the benefits of ACE inhibitors in women with PAD?

ACE inhibitors reduce the risk of heart attack, stroke, and dying of heart and blood vessel disease by 20% or more in women with PAD.⁴ These benefits are beyond those gained from lowering blood pressure, and are related to other protective actions of the drug.

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In one study of 9,297 high-risk patients (27% were women, 44% had PAD), the ACE inhibitor *ramipril* reduced the risk of heart attack, stroke, or dying of heart and blood vessel disease by 23% over 5 years.

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This included a 36% lower risk of stroke and a 38% lower risk of dying of heart disease in women taking the drug compared to placebo (sugar pills). Women and men benefit equally from ACE inhibitor treatment.

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What are the potential side effects of ACE inhibitors?

The most common side effect of ACE inhibitors is a dry cough. This occurs in 5% to 20% of patients, and is more common in women than in men.⁷ About 11% of women (and 6% of men) eventually stop taking the drug because they cannot tolerate this side effect.

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The cough disappears when you stop taking the drug, but for most women an adjustment in dose will allow you to continue taking the medication. The ACE inhibitor cough is similar to the effects of asthma on your breathing passages, and women with asthma may experience more serious problems while taking the drug. If you have asthma you may still be able to take ACE inhibitors, but you will need to be closely monitored.

Other side effects can include decreased kidney function and increased potassium levels, which may require switching to a different type of medication.

One rare but potentially dangerous side effect is swelling of the lips and throat caused by fluid buildup underneath the deep layers of skin (*angioedema*). This occurs in only about 2 of every 1000 people treated with ACE inhibitors, but is more common in African Americans and women.

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Seek medical attention immediately if you have swelling of the lips, tongue, or throat, sometimes accompanied by nausea, vomiting, or diarrhea.

Other side effects that may occur while taking ACE inhibitors include:

- Headache

- Tiredness
- Upset stomach, diarrhea, or loss of appetite
- Numbness
- Fever
- Skin rash or blisters
- Joint pain

These side effects are not usually serious, but talk to your doctor if they are bothersome or suddenly become worse. Lowering your dose or switching to a different ACE inhibitor may be able to minimize your side effects while retaining the benefits of the medication.

My doctor has prescribed ACE inhibitors. What special precautions should I take?

Always make sure to tell your doctor about all medications you are taking, including prescription drugs, over-the-counter medications, and any dietary supplements including vitamins, minerals, or herbal supplements. Common medications that may interact with ACE inhibitors include:

- Aspirin, ibuprofen (Advil, Motrin), naproxen (Aleve), and other NSAIDs (non-steroidal anti-inflammatory drugs). If your doctor has prescribed daily aspirin to lower your risk of heart disease and stroke, you should keep taking it.
- Other blood pressure drugs, especially [diuretics](#) (water pills)
- Certain muscle relaxants
- Drugs used to treat gout (red, tender, swollen joints, usually at the base of the big toe)

It is very important to take your medication exactly as prescribed so that your blood pressure never becomes too high or too low. Try to take your medication at the same time (or times) every day.

When first starting ACE inhibitors, you may experience a drop in blood pressure that can cause dizziness, especially just after standing up. This is more common in women who are also taking diuretics, and can usually be controlled by adjusting the types or doses of your medications. You may be instructed to take your first dose just before going to sleep so you do not feel its effects. Your doctor may also start you on a lower dose of the medication to minimize the low blood pressure side effects. The dose will gradually be increased or adjusted to manage your blood pressure and symptoms.

Because being dehydrated can make you more likely to have side effects from ACE inhibitors, be sure to drink plenty of fluids when outside in hot weather or while exercising.

References

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