

**Presentation Blood Pressure part 2 for the
Pattaya Expats Club on
Tuesday 11th of November 2025
Donaat Vernieuwe**

Table of contents

1. My blood pressure readings
2. Pulse Pressure
3. Blood Pressure too low!
4. The ankle-brachial index (how to find plaque by yourself)
5. How to lower BP
 - With special diet
 - With herbs and supplements
 - The most efficient exercises
 - Breathing techniques

1. Follow up part 1: My blood pressure readings

For now I take 5mg Amlopine or Amlodipine together with 2 tablets of Mukta Vati, an Ayurvedic supplement.

I take the Mukta Vati in the morning, the Amlopine in the evening because it seems to be more efficient to control high blood pressure in the morning (and mine is high in the morning).

“Unfortunately, for some people, their blood pressure may be too high in the morning.

*This is called morning high blood pressure or **morning hypertension**.*

Researchers have found that morning hypertension increases the risk of heart and blood vessel problems such as stroke. Even in patients with well-controlled blood pressure, 50% still have high morning blood pressure.”

<https://www.pharmacytimes.com/view/2007-04-6392>

Before I gave my first presentation about blood pressure, I had written down my blood pressure readings, without any structure. You can find an example on the next page:

28/9 (18/9)

150/71
 158/71
 145/70
 147/73
 141/69
 149/69
 144/72
 139/69
 134/73
 131/68
 142/77
 138/67
 105/67
 135/77
 120/63
 133/71
 140/70
 138/72
 134/69
 146/76
 146/72
 122/81

TSS 18/9 & 20/9

116/72
 129/75
 138/64
 152/72
 135/74
 139/73
 124/87
 122/66
 133/70
 136/75
 140/73
 132/66
 127/67
 141/67
 133/76
 126/70
 133/68
 145/70
 143/78
 142/72
 138/69
 140/71
 136/66
 131/67
 136/72
 130/65
 133/67
 139/65
 125/63
 138/71
 134/70
 140/65
 112/73
 124/71
 134/72
 147/69
 127/63
 128/65
 131/68
 142/75
 135/70
 158/71
 145/70
 147/72

You can see how confusing this approach is. I got frustrated and couldn't determine my actual blood pressure. This also meant I didn't know if I needed a procedure and which one.

Eventually I took my blood pressure as we've learnt in the first presentation:

first in my left arm, then the right one, then left again. I've deleted the highest number of the three and took the average of the other two. I did the same after a break of 5 minutes. These are the results over two days:

Monday 3/11/2025 - 07.00

L 148/75 ~~R 151/76~~ L 143/73 The average of the valid results: 145,5/74 PP= 71,5

After a break of 5 minutes:

L 140/78 ~~R 144/71~~ L 140/66 Average 140/72 PP= 68 (PP= SBP-DBP, see later)

Monday 3/11/2025 – after breakfast, 10.00

~~L 141/65~~ R 137/75 L 134/73 Average 135,5/74 PP=60

After a break of 5 minutes:

L 132/66 ~~R 145/71~~ L 134/69 Average 133/67,5 PP= 66

Monday 3/11/2025 – afternoon 15.00

~~L 154/70~~ R 150/76 L 139/79 Average 144,5/77,5 PP=67 *Drank coffee...?

After a break of 5 minutes:

L ~~138/77~~ R 135/79 L 130/68 Average 132,5/73,5 PP= 59

Monday 3/11/2025 Evening 20.30

L 130/69 ~~R 142/76~~ L 131/65 Average 130,5/67 PP= 63,5

After a break of 5 minutes:

L 127/70 R 130/69 ~~L 132/73~~ Average 128,5/69,5 PP= 59

Tuesday 4/11 Before breakfast, bad night sleep and drank 2 glasses of water

L 161/70 R ~~165/86~~ L 149/72 Average 155/71 PP= 84!

After a break of 5 minutes:

L 147/77 R ~~149/78~~ L 143/72 Average 145/74,5 PP= 70,5

Tuesday 11.00

L 139/72 R ~~148/80~~ L 132/74 Average 135,5/73 PP= 62,5

After a break of 5 minutes:

L 135/74 R ~~142/80~~ L 127/65 Average 131/69,5 PP= 60,5

Tuesday 15.00

L 137/71 R ~~146/75~~ L 126/71 Average 130,5/71 PP= 60

After a break:

L 130/64 R ~~135/74~~ L 134/72 Average 132/76 PP= 56

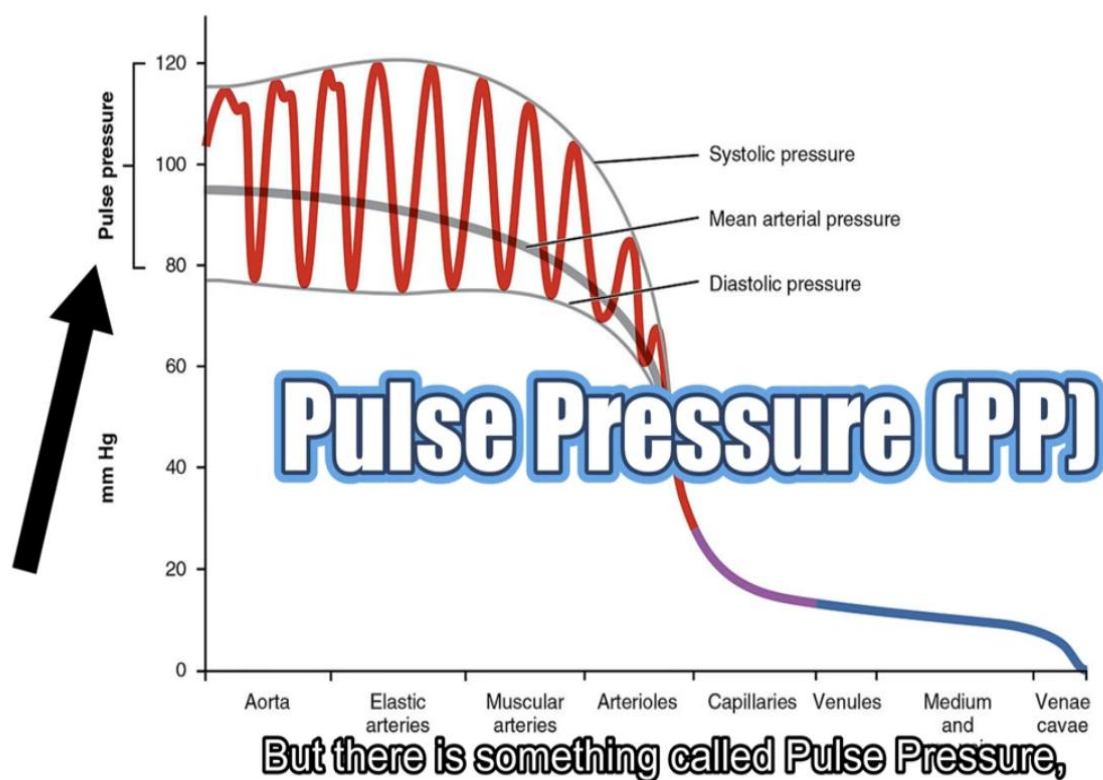
Conclusions:

- Before I was frustrated about my blood pressure values that they fluctuated so much. Now I am reassured knowing that my average BP is about 130-132, which isn't bad for my age.
- As we saw before: the morning readings are higher than the later ones.
- Waiting 5 minutes to start taking BP is recommended (see values above).

2. Pulse Pressure

Pulse pressure is an indication for the elasticity of the arteries and for the pump function of the heart.

PP= SBP-DBP e.g. BP of 120/80: PP is 120-80 = 40



Normal range PP: between 40 and 60.

Pulse Pressure Unveiled: How to Check, Causes, and Solutions

<https://youtube.com/watch?v=8fPvzaKXWb4&si=HE6ZNBggn8mrSCeT>

From a **PP of 80mm** there is a increased **risk** of heart problems, strokes and all cause mortality.

For each 10mm increase of PP there's an increase risk of 23% of developing coronary artery disease (disease of arteries that wrap around your heart).

A 16mm increase of PP of 16mm gives a 55% increase in heart failure.

Wide PP also hastens the decline of kidney function for patients with CKD.

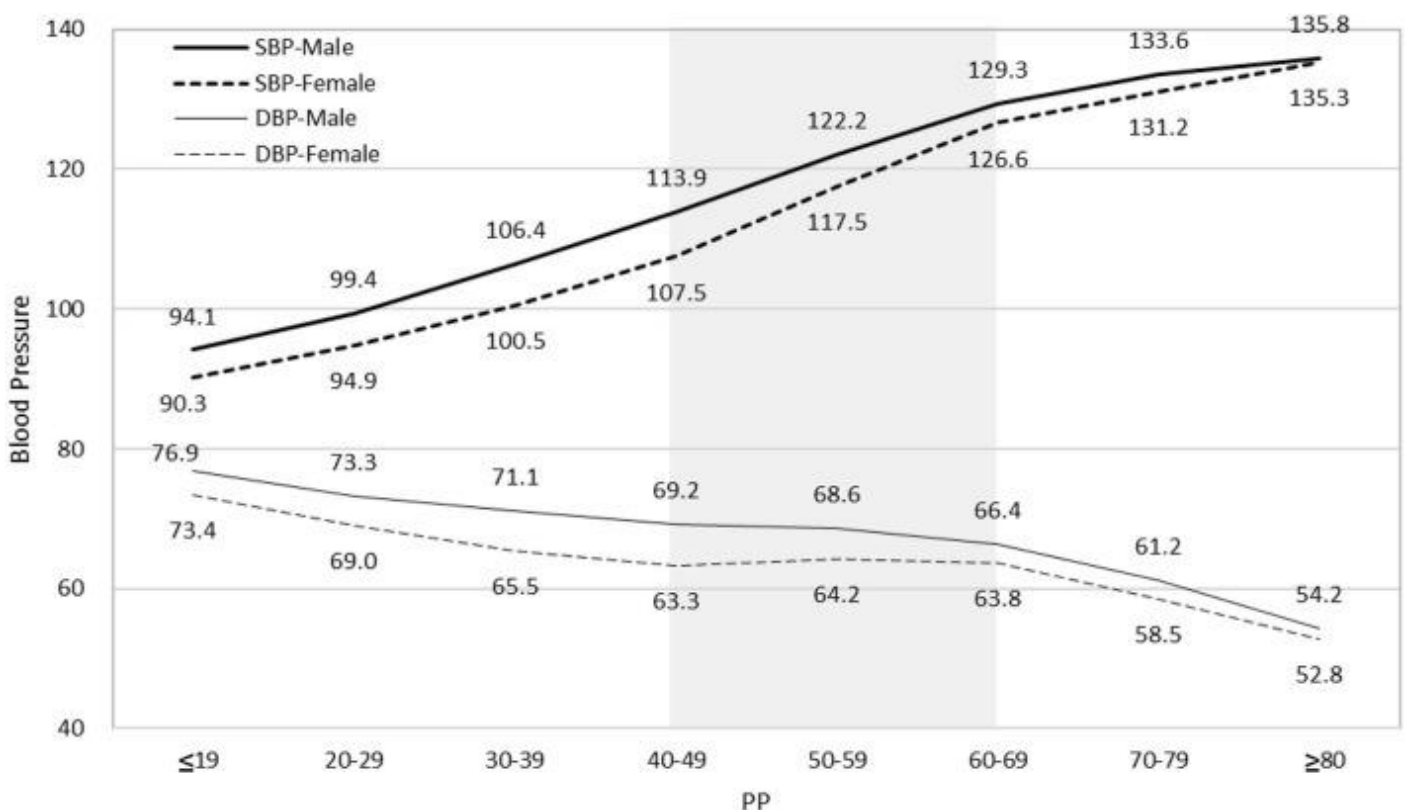
How to lower PP? Medication to lower PP?

The most effective way of improving the health of our blood vessels is through lifestyle: diet, avoiding sugar, processed foods and smoking. Regular exercise, improving sleep and stress management.

What is Pulse Pressure? York Cardiology

<https://www.youtube.com/watch?v=SM7MGNmPfCk>

This graph shows how the DBP (diastolic BP) decreases with higher SBP (systolic BP) and the Pulse Pressure increases:



The optimal pulse pressures for healthy adults with different ages and sexes correlate with cardiovascular health metrics <https://pmc.ncbi.nlm.nih.gov/articles/PMC9760735/>

Tests shows that patients with RA (Rheumatoid arthritis) have a greater PP than patients without RA.

Pulse Pressure as a Predictor of Carotid Plaque in RA: Dr. Meral El Ramahi

https://youtube.com/watch?v=TEFVJHa0nxA&si=2x9JQNDrZd4te_0t

3. Low blood pressure and low diastolic blood pressure

- **Low blood pressure is blood pressure that is lower than 90/60 mm Hg.**

Is not an emergency unless you have symptoms of fainting, dizziness, nausea (urge to vomit)... A low blood pressure with symptoms is called **hypotension**.

When Low Blood Pressure Is An Emergency

<https://youtube.com/watch?v=FX07qc2wRxM&si=fwJgE1yAqqouC4YF>

Some people have low blood pressure all the time, and it is normal for them.

Other people experience a sudden drop in blood pressure or have low blood pressure that may be linked to a health problem. This can be dangerous, as it could mean your heart, brain, or other vital organs are not getting enough blood flow and you are at risk for a [heart attack](#) or [stroke](#).

There are a lot of causes of low blood pressure, but older adults also have a higher risk for symptoms of low blood pressure, such as falling, fainting, or dizziness upon standing up or after a meal. Older adults are more likely to develop low blood pressure as a side effect of medicines taken to control high blood pressure.

Low blood pressure

<https://www.nhlbi.nih.gov/health/low-blood-pressure>

....people with 70/40 can be perfectly ok...

This is when low blood pressure is cause for concern

<https://www.youtube.com/watch?v=n6w8BtwuX-c>

- **What is a dangerously low diastolic blood pressure?**

A blood pressure lower than 60 is dangerous. Can restrict oxygenated blood flow to the heart during relaxation.

What Is A Dangerously Low Diastolic Blood Pressure? - Cardiology Community

<https://youtube.com/watch?v=SRt-1b4CKog&si=DryM3y9hFAnKio-p>

- **What are the causes of a low diastolic blood pressure?**

E.g. a blood pressure of 89/56, with a diastolic BP of 56.

Causes: old age, medication such as pain killers, anti depressants, diuretics, alpha blockers, Viagra, medication for Parkinson disease...

Lack of B12 (folate), dehydration, trauma, internal bleeding. Pregnancy in the beginning stage.

Heart problems, stiff arteries raise your SBP and lowers the DBP. Medication for BP lowers your SBP but also your DBP.

Quick change in body position (e.g. from lying down to standing up) etc.

Low **Diastolic** Blood Pressure Causes | Find Out What Causes Low

Diastolic...<https://youtube.com/watch?v=gcyOnuAub3Y&si=0uFF3MNP51TI3gKd>

- **Symptoms of a low diastolic blood pressure**

Dizziness, blurred vision, falling down, fainting, rapid breathing, lack of concentration, fatigue, nausea (upset stomach), dehydration....

Low **Diastolic** Blood Pressure Symptoms

<https://youtube.com/watch?v=OyloGXBtgRs&si=p0ZpkrKAR2VOIEz2>

4. ABI Ankle Brachial Index – How to find plaque by yourself

$ABI = SBP \text{ ankle} / SBP \text{ arm}$

This value gives us a picture of the blood flow to the lower extremities. It's the main tool for diagnosing peripheral artery disease PAD, narrowed arteries that reduce blood flow to the limbs.

The P in PAD stands for Peripheral and means outside of the heart.

Plaque is not a local disease, it doesn't happen in a local artery, it happens throughout the body.

So the ABI gives also an idea about the plaque built up in your whole body.

Symptoms from PAD: leg pain while walking. It increases the risk of a heart attack or stroke.

Who are recommended for screening with the ABI test:

- Smokers and diabetics over 50
- **Patients over 70**

Before you do the test: rest for at least 5 minutes. Do the test for your left side and for the right side of your body.

A score from ABI from 1 to 1.4 means no blockage.

Ankle-Brachial Index

ABI Value	Interpretation	Clinical Recommendation
>1.4	Noncompressible vessels	Refer to vascular specialist
1.0–1.4	Normal	No intervention needed
0.9–1.0	Borderline	Monitor or treat risk factors
0.8–0.9	Mild arterial disease	Initiate management
0.5–0.8	Moderate arterial disease	Refer to vascular specialist
<0.5	Severe arterial disease	Urgent vascular referral



Personal results from 4/11/2025

- $Lf = 181/73$ $La = 149/72$ $ABI = Lf/La = 181/149 = 1.21$
 $Rf = 192/80$ $Ra = 160/82$ $ABI = 192/160 = 1.2$

Now with cuff on foot: tube points tot the toa:

- $Lf = 197/60$ $La = 151/76$ $ABI = 197/151 = 1.30$
 $Rf = 196/81$ $Ra = 161/76$ $ABI = 196/161 = 1.27$

Good results. A relief: my dad had 5 heart bypasses at 80+ !

Ankle-brachial index

<https://www.youtube.com/watch?v=xKBblqzi6ws>

Ankle–Brachial Index: Everything You Need to Know

<https://www.youtube.com/watch?v=dRsIU-pb6-U>

ABI (Ankle Brachial Index): How to Detect Plaque By Yourself

https://www.youtube.com/watch?v=QcK_rtu9Ww

Ankle Brachial Index (ABI) Test: How to Perform

<https://www.youtube.com/watch?v=KnJDrmfIXGw&t=420s>

Tube from cuff points to toe.

Other interesting links:

Does Your Blood Pressure Change When You Lie Down?

<https://www.healthline.com/health/blood-pressure-lying-down>

Measurement of blood pressure in the leg—a statement on behalf of the British and Irish Hypertension Society

<https://www.nature.com/articles/s41371-020-0325-5>

Valuation of Normal Range of Ankle Systolic Blood Pressure in Subjects with Normal Arm Systolic Blood Pressure

<https://pmc.ncbi.nlm.nih.gov/articles/PMC4459970/>

How to treat and manage PAD-Heart health: That leg pain when you walk isn't always old age; it might be peripheral artery disease (PAD)

<https://share.google/QOkDTNIEp15MPDLN8>

5. How to lower blood pressure

1. Through diet: the DASH diet: Dietary Approaches to Stop Hypertension

DASH might be the most effective intervention in lowering BP for adults with hypertension without using medication:

Vegetables, fruits, low-fat dairy, whole grains, chicken, fish and nuts.

Minimizing the consumption of sweets, sugary drinks and red meat.

Potassium rich foods help to lower blood pressure: spinach, bananas, peas and beans.

Do This Now to Lower Your Heart Disease Risk by 21%

<https://www.youtube.com/watch?v=MmKVtX98zIM>

DASH diet: Healthy eating to control blood pressure

<https://www.bangkokhospital.com/en/bangkok-heart/content/dash-diet-healthy-eating-to-control-blood-pressure>

DASH Eating Plan

<https://www.nhlbi.nih.gov/education/dash-eating-plan>

What I personally changed about my diet, what is feasible for me:

Strong limitation of alcohol, of processed foods: charcuterie (sliced cold meat of meat products) like salami and cooked ham for breakfast, fried food like KFC products, sweet deserts.

Every other morning I drink kefir milk. In the daytime I drink more water than before.

I bake my own whole wheat bread mixed with pumpkin seeds, flax seeds and jack fruit to limit blood sugar spikes. I make my own walnut butter.

As breakfast I eat eggs, smoked salmon, I like the round salad snacks with tuna from 7/11, many times fruit (from frozen products) like strawberries and other berries (without sugar), papaya. I eat honey instead of sweet jam.

When I eat chocolate: only dark one from Belgium.

Most of the time I take my lunch without potatoes (or sometimes with red sweet potatoes) and French fries, only vegetables and meat or fish. Broccoli with mushrooms.

I try not to forget to eat beans.

As refreshment sometimes I drink Heineken 0 but seldom coke or other sugary drinks.

I've learned that every meal you should not eat until full, better is 80 or 90% full. That's why sometimes I cut my last slice of bread in two and I ask my partner to reduce the portion size of food.

I've learnt that we should limit our waist circumference to 1 meter and our BMI to 25 (I'm on the limit for both).

2. With herbs and supplements

a. Potassium

We performed a randomized crossover trial comparing **potassium chloride** with **potassium citrate** (96 mmol/d, each for 1 week) in 14 hypertensive individuals.

At baseline, blood pressure was **151±16/93±7** mm Hg with a 24-hour urinary potassium of 81±24 mmol. During the randomized crossover part of the study, blood pressure was **140±12/88±7** mm Hg with potassium chloride (24-hour urinary potassium: 164±36 mmol) and **138±12/88±6** mm Hg with potassium citrate (24-hour urinary potassium: 160±33 mmol).

Effect of Short-Term Supplementation of Potassium Chloride and Potassium Citrate on Blood Pressure in Hypertensives | Hypertension

<https://www.ahajournals.org/doi/10.1161/01.hyp.0000158264.36590.19>

To prevent high blood pressure and increased risk for stroke, replace some ordinary table salt with a potassium-sodium mix:

In a 2021 randomized trial, researchers studied 21,000 people in China over age 60 with high blood pressure and a history of stroke.

After almost five years, those who were randomly assigned to use a **75 percent sodium chloride** (table salt) and **25 percent potassium chloride** salt substitute had a **14 percent lower risk of stroke and 22 percent lower risk of death** than those who used only ordinary salt.

That said, certain people should avoid potassium chloride because it poses an increased risk to a small portion of the population who have difficulty excreting potassium.

<https://www.verywellhealth.com/salt-substitutes-11803386>

A blend of **75% sodium chloride and 25% potassium citrate** may help lower blood pressure, but you must consult a healthcare professional before using it, especially if you have pre-existing health conditions or take medication.

THIS simple trick can REVERSE High Blood Pressure:

<https://www.youtube.com/watch?v=3krDDECUjCA>

5': The average American gets only about 2.3 g potassium a day, experts recommend 4.7 g a day.

7': Comparison between Potassium and the classic blood pressure medication

Drug	Class	Reduction in SBP
Potassium	Nutritional Supplement	9
Metoprolol	Beta Blocker	6
Aliskiren	Renin Inhibitor	8
Lisinopril	ACE Inhibitor	8
Losartan	ARB	7
Spirolactone	Aldosterone Blocker	6
HCTZ	Thiazide Diuretic	8
Lasix	Loop Diuretic	6



Remarks:

- don't take potassium when you have CKD, Chronic Kidney disease.
- Potassium is not the same as vitamin K; potassium is a mineral (symbol: K), and vitamin K is a fat-soluble vitamin.
- Potassium-rich foods include vegetables like spinach, potatoes (with skin), and sweet potatoes; fruits such as bananas, oranges, and dried apricots; legumes like beans and lentils; and dairy products like milk and yogurt. Other sources include fish, nuts, and seeds.

b. Magnesium

Consumption of 500 mg to 1000mg of magnesium may lower BP as much as **2.7mm Hg to 5.6mm Hg** systolic and 1.7mm Hg to 3.4mm Hg diastolic.

Americans consume 3 to 4 times the sodium and about one third the magnesium and potassium that is recommended by current guidelines.

A high intake of potassium, magnesium, and possibly calcium through increased consumption of fruits and vegetables, the DASH diet and supplements, and reduced intake of sodium are important for the prevention of hypertension and major public health problems such as CVD, CHD, and stroke.

The Role of Magnesium in Hypertension and Cardiovascular Disease

<https://pmc.ncbi.nlm.nih.gov/articles/PMC8108907/#:~:text=Magnesium%20intake%20of%20500%20mg, and%20possibly%20with%20cardiovascular%20disease.>

c. Taurine

Taurine is a amino acid found naturally in the body. Many energy drinks contain added taurine, sometimes in amounts of 1–3 grams per serving.

Taurine Supplementation

We randomly assigned 120 eligible prehypertensive individuals to receive either taurine supplementation (1.6 g per day) or a placebo for 12 weeks.

Administration of taurine for 12 weeks significantly reduced BP. The clinic SBP and DBP decreased in the taurine group by **7.2 mm Hg** (95% confidence interval [CI], 3.75–10.55; $P < 0.001$) and **4.7 mm Hg** (95% CI, 2.16–7.14; $P < 0.001$), respectively, compared with the baseline values.

Taurine Supplementation Lowers Blood Pressure and Improves Vascular Function in Prehypertension | Hypertension

<https://share.google/ExbyAvetyfHTdwBLO>

d. Flax seeds

You have to grind the seeds for better results.

Published in EXPLORE: Double blind trial with placebo:

Over 12 weeks of 50g flax seeds with patients with HBP. Results:

SBP lowers from 148 to 135: **-13 mm!**

DBP lowers from 86 to 80: **-6 points.**

NATURAL MEDICINE: Flaxseed for Blood Pressure

<https://youtube.com/watch?v=fNjvtoYBQxM&si=fuNpFcO8A5utxitV>

e. Garlic

Garlic lowers blood pressure in hypertensive subjects, improves arterial stiffness and gut microbiota: A review and meta-analysis

Our meta-analyses on the effects of garlic on hypertension, including 12 trials and 553 adults with high blood pressure, suggested that garlic supplements significantly lower **SBP** by an average of 8.3 ± 1.9 mmHg and **DBP** (n=374) by 5.5 ± 1.9 mmHg.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6966103/>

One review of randomized controlled trials (RCT) — the gold standard in research — reported that garlic supplements may reduce systolic and diastolic blood pressure.

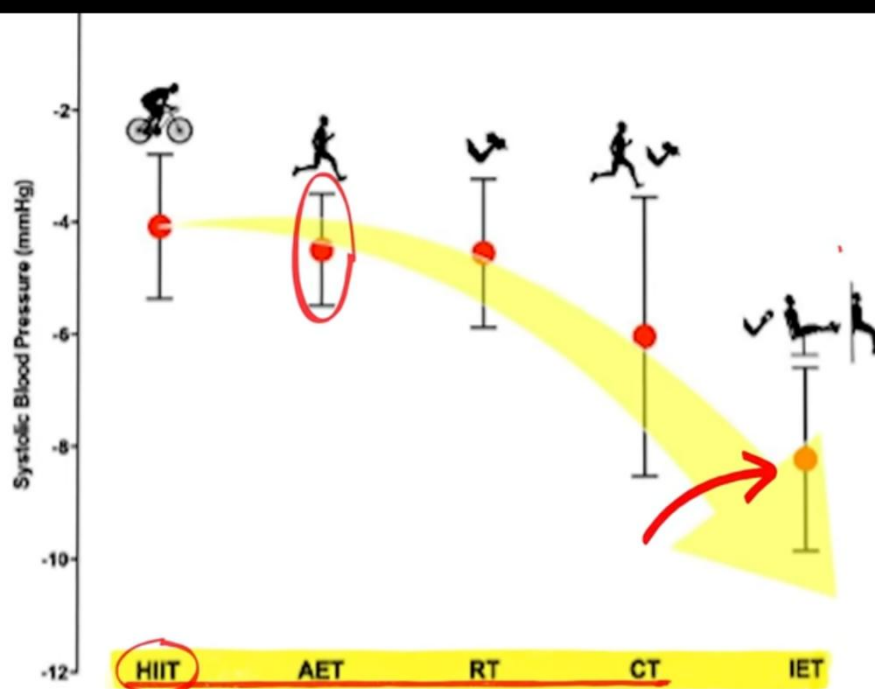
Several recent reviews reporting blood pressure **reductions ranging from 2.5–11.2 mm Hg following taking 600–2,400 mg of garlic powder per day for 8–24 weeks.**

Does Garlic Cause or Treat High Blood Pressure?

<https://www.healthline.com/nutrition/garlic-for-blood-pressure>

3. The most efficient exercises

Isometric exercises are very powerful compared to other type of exercises:



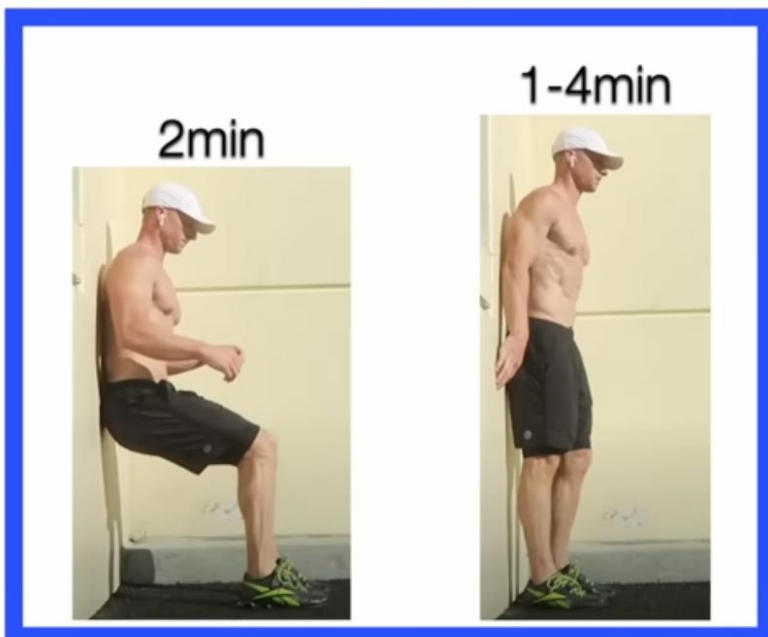
New Study Reveals the BEST Exercise to Lower Blood Pressure

https://www.youtube.com/watch?v=FayRla5_BrQ

The most efficient isometric exercise: the wall squat:



x4



x3/week



THE Best Exercise for Lowering Blood Pressure

<https://youtube.com/watch?v=sQCzXdckXP&si=Si0KIPKWJGn0dk32>

Keep breathing during the exercises !

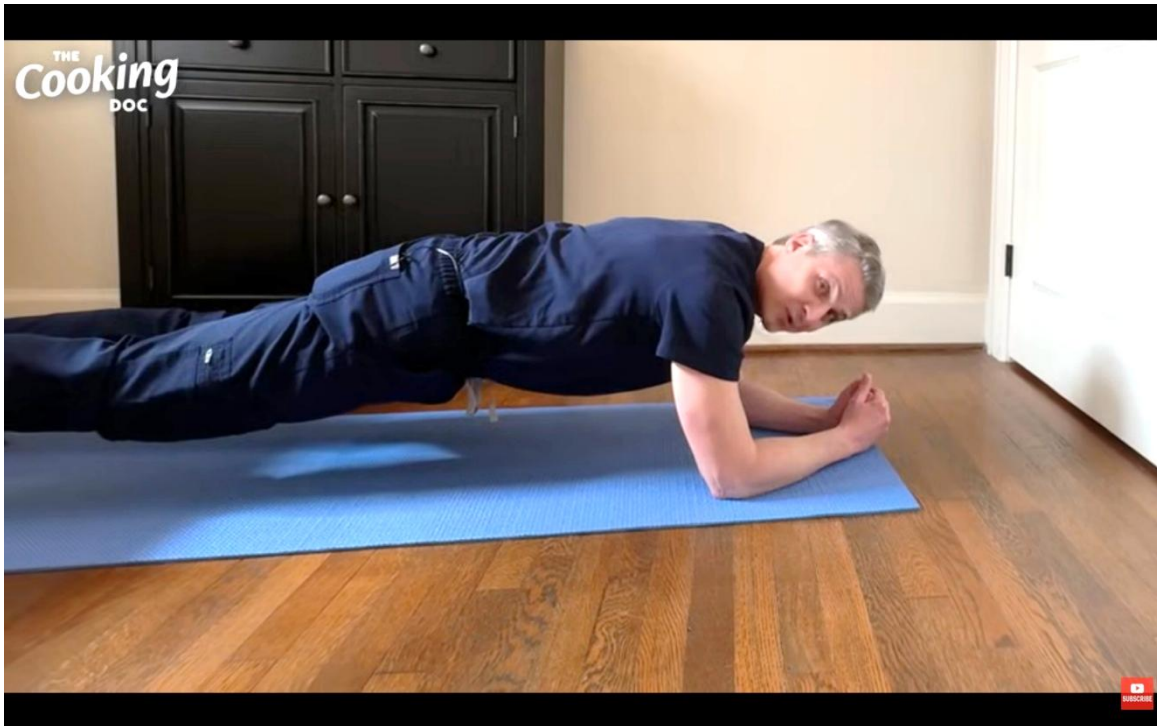
If you have heart problems or your blood pressure is above 160/100, consult your doctor first. **New evidence for isometric exercise to reduce blood pressure**

<https://youtube.com/watch?v=0ds1ipA2Vlc&si=mByXEyZTfq645tE1>

Another powerful isometric exercise is the plank:



A bit more difficult:



Or:



You can do one of these positions during 1 or two minutes.

3 Simple Exercises to Help Lower Blood Pressure!

<https://www.youtube.com/watch?v=dbu2bGNZRI4>

4. Breathing techniques

a. Paced breathing

For adults the normal beathing pace is 12 to 20 breaths per minute.

With paced beathing you lower your pace to **6 breathings per minute**.

You breath through the nose, with the chest, without effort.

You breath slowly 5 seconds in, then 5 seconds out.

Instantly Lower Blood Pressure within 60 Seconds Dr. Eric Berg 6'20"

<https://youtube.com/watch?v=UNqDVQDZRgA&si=A0k3jdZrl-ehs67d>

b. Cyclic breathing

Normal inhale through the nose for 1 or 2 seconds,

“sniff in” a little extra air 1 second,

exhale through the mouth for 10 seconds.

2 breathing techniques that reduce anxiety in real time (doctor demo) 2'12"

<https://youtube.com/watch?v=g-nZBmxLBOo&si=kc7sY15JaTTI8b7e>

c. 4-7-8 breathing

Inhale 4 seconds through the nose

Hold for 7 seconds

Exhale for 8 seconds through the mouth

2 breathing techniques that reduce anxiety in real time (doctor demo) 3'57"

<https://youtube.com/watch?v=g-nZBmxLBOo&si=kc7sY15JaTTI8b7e>

You should repeat these kinds of breathings during the day and you can integrate it with mindful based activities (guided imagery...).



Mark Hyman, M.D. ✓

@drmarkhyman

One of the most healing things you can do for your nervous system costs nothing: slow, deep breathing.

Just 4 deep breaths can shift you from stress mode to rest mode, lowering your heart rate and calming your mind. Your breath is always available when you need peace.

Finally: what am I doing to lower blood pressure and improve my lifestyle, besides my medication and my changes to my diet?

- I walk (bisk walk) at least three times a half hour in the forest near my house. Anyhow every day I walk at least 5000 steps, working outside: maintenance of the house etc.
- We have a swimming pool. Swimming is not my favorite sport but I swim when the water is not to cold...
- Some weight lifting every day
-
- Every week I take an oil massage at the beach. Very beneficial for my arthritis and very relaxing
- Every evening I go to sleep with an own recording of autogenic training, an example:
 - My arms and legs are getting weak and heavy
Repeat by yourself 10x (with bell)
 - My arms and legs are getting weaker and heavier more and more
Repeat by yourself 10x (with bell)
 - My arms and legs are weak and heavy now
Repeat by yourself 10x (with bell)
 - I have completely calmed down
- Every day, the whole day I listen to music in the background
- I should practice more yoga...

Now I know how to monitor my blood pressure in a right way, I'll will try out all the techniques we have seen in this presentation, in the hope to lower my blood pressure and to decrease my medication in the long term. I hope you all do the same !!!!!!