

Getting to know your high blood pressure
Beth Taber-Hight, DO

This webinar will start shortly

Become a member of DPC at <https://www.dialysispatients.org/get-involved/join-dpc/>

Follow us on social media:

Facebook: www.facebook.com/dpcedcenter

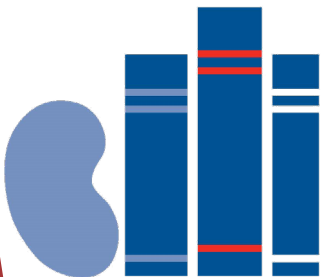
Twitter: @DPCEdCenter

LinkedIn: www.linkedin.com/company/dpcedcenter

Instagram: @dpceduccenter

Today's Presenter

- ▶ Elizabeth Taber-Hight, DO
- ▶ Faculty at Indiana University
- ▶ Dual board certified in Internal medicine and Nephrology
- ▶ Born and raised in IN
- ▶ Things I enjoy: trying new cuisines, traveling, riding new rollercoasters, coaching my two boys in sports



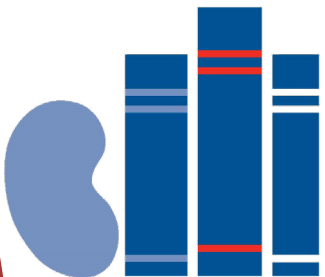
Things we'll cover today

What defines high blood pressure? What do the numbers mean?

Getting to know your medications

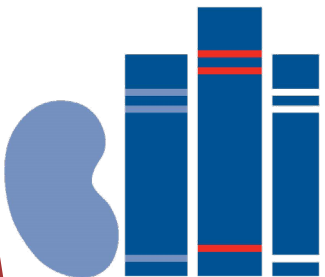
Lifestyle and non pharmacologic methods of lowering your blood pressure

What to ask your doctor

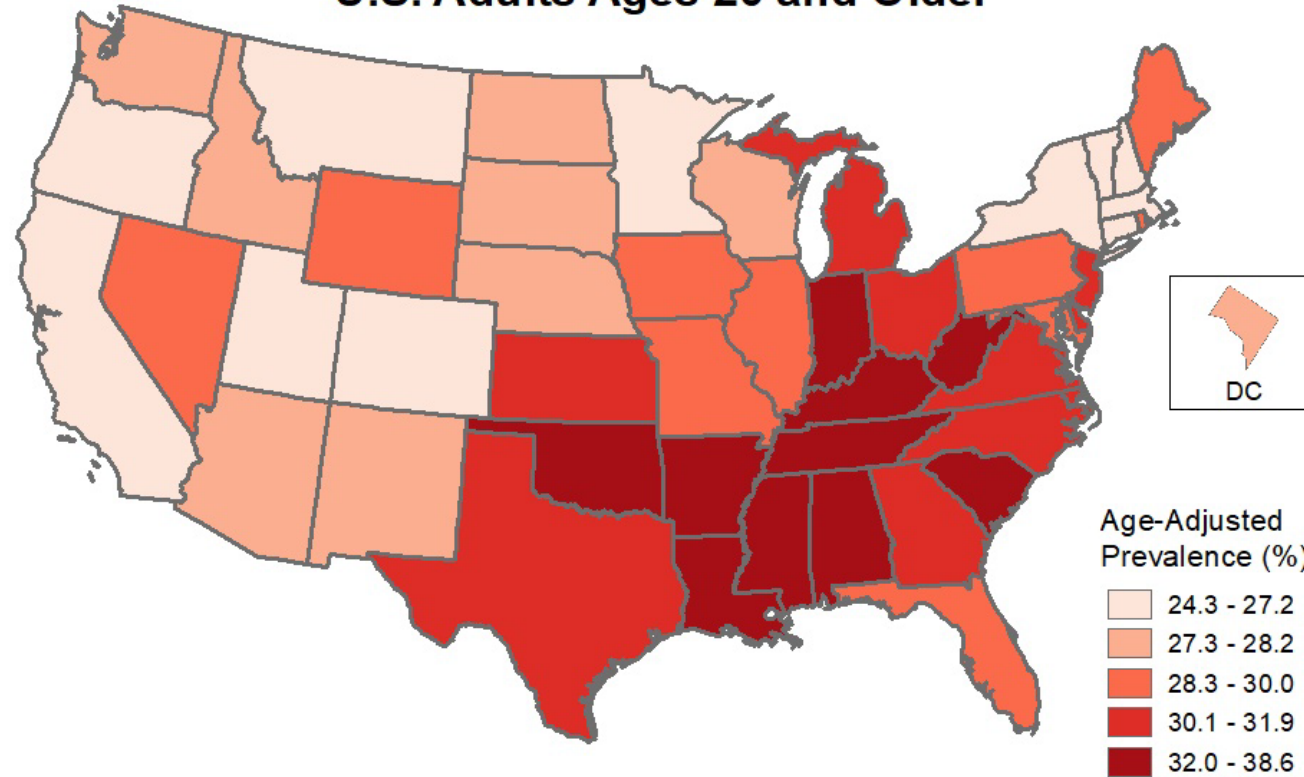


What is the definition of "high blood pressure"?

- ▶ According to the American Heart Association, high blood pressure (or hypertension) is defined as at or above 130/80
- ▶ The top number is the systolic blood pressure
 - ▶ This is the pressure when the heart is pushing blood forward
- ▶ The bottom number is the diastolic blood pressure
 - ▶ This is the pressure when the heart is relaxing
- ▶ About 47% of adults in the US have high blood pressure
 - ▶ 1 in 4 have it under control
- ▶ High blood pressure is more common in men than women

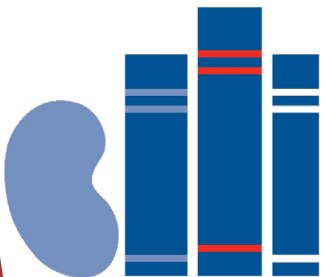
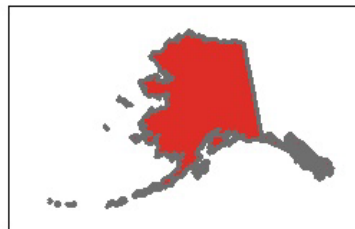


Prevalence of Hypertension, 2017 U.S. Adults Ages 20 and Older



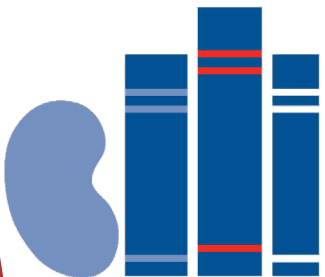
Data Source:
BRFSS - Behavioral Risk Factor Surveillance System, CDC.

Self-report: "Have you ever been told by a doctor, nurse, or other health care professional that you have high blood pressure?"
Excludes women who reported being told only during pregnancy and respondents who reported they had been told that their blood pressure was borderline high or pre-hypertensive.



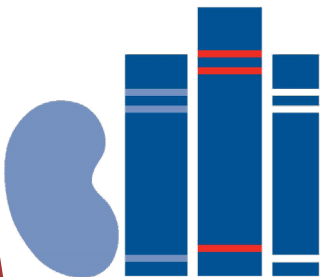
What are the symptoms of high blood pressure?

- ▶ There usually aren't any!
 - ▶ It's consider a “silent” disease
 - ▶ It is also a reason to monitor it closely at home
- ▶ Some symptoms that can occur when blood pressure is uncontrolled:
 - ▶ Headaches (can occur exclusively in the morning)
 - ▶ Visions changes
 - ▶ Heart arrhythmias
 - ▶ Fatigue
 - ▶ Nausea/vomiting
 - ▶ Confusion
 - ▶ Chest pain



How should I measure my blood pressure?

- ▶ Sit quietly for 5-10 minutes prior to checking BP
 - ▶ Try to calm your mind, so best not to be doing anything on your phone during this time
- ▶ Cuff should be chest height, so put it on the table
- ▶ Use the cuff that works for you
 - ▶ Wrist cuffs are usually fairly unreliable, so we recommend an upper arm cuff
 - ▶ Cuffs do eventually wear out, so if your readings are off, bring it to clinic to have it compared to the clinic cuff
- ▶ Feet flat on the floor, sit in a chair with a back
- ▶ Keep your BP log
 - ▶ Most machines have an automated log, so bring your machine with you to the doctor's office



The Correct Way to **Measure Blood Pressure**

Before your reading

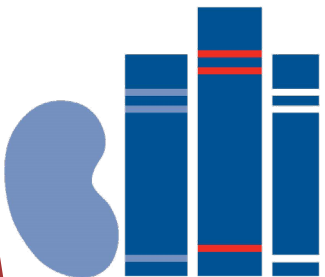
- No food or drink for 30 minutes
- Empty your bladder

During the reading

- No talking
- Arm resting at chest height
- Cuff against bare skin
- Back is supported
- Sit with feet flat on floor



Visit [cdc.gov/bloodpressure](https://www.cdc.gov/bloodpressure)
for tips and resources.



What disease are associated with high blood pressure?

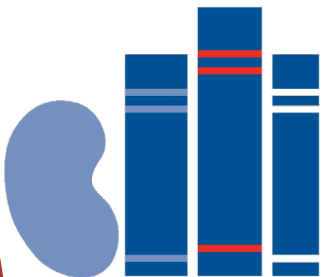
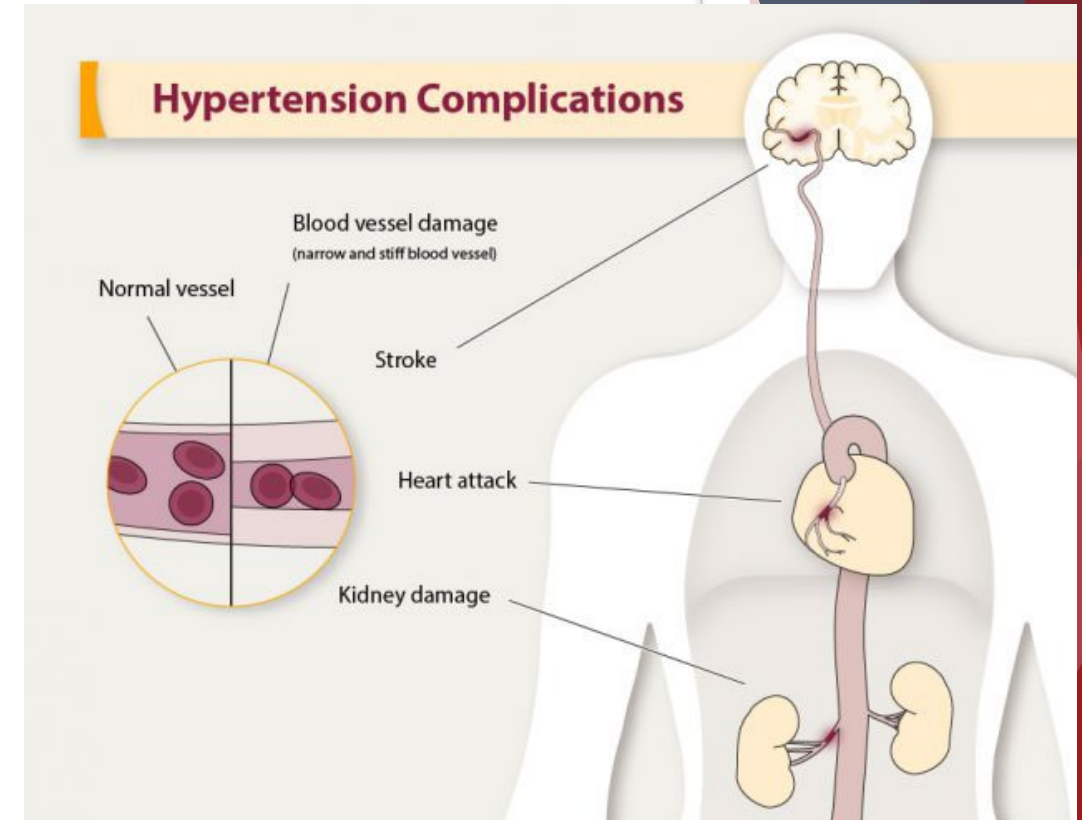
Heart disease

- Including heart failure and heart attacks

Chronic kidney disease

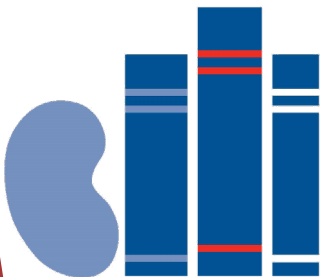
Stroke

Irregular heart beat (ie afib)



Understanding your medications

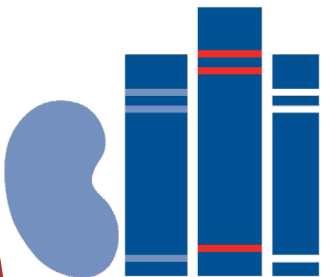
- ▶ There are many different classes of medications used to control blood pressure
- ▶ Different patients will respond to medications in different ways
 - ▶ Drug selection may be based on genetic factors, age, underlying medical conditions, etc.
- ▶ Classes include:
 - ▶ Diuretics
 - ▶ RAAS blockade (ACEi or ARB)
 - ▶ Calcium channel blockers
 - ▶ Beta blockers
 - ▶ Alpha blockers



Diuretics aka “water pills”

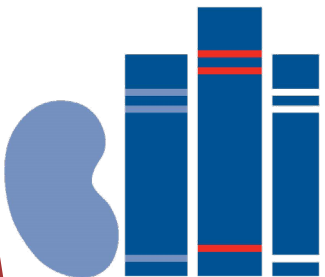
Type of diuretics	Name of Drugs	Benefits	Risks
Loop diuretics	Furosemide (Lasix), torsemide	<ul style="list-style-type: none">- Good for diuresis- Useful in heart failure	<ul style="list-style-type: none">- Low potassium- Can “overdue” it
Thiazide diuretics	Chlorthalidone, Hydrochlorothiazide , metolazone	<ul style="list-style-type: none">- First line for blood pressure management- Fairly well tolerated	<ul style="list-style-type: none">- Low sodium
Potassium sparing diuretics	Spironolactone, eplerenone	<ul style="list-style-type: none">- Works well for blood pressure control	<ul style="list-style-type: none">- High potassium

- All diuretics “dry you out” to some extent, so be careful with taking diuretics if you’re in a hot weather climate or have an ongoing gastrointestinal illness (diarrhea, vomiting, etc)



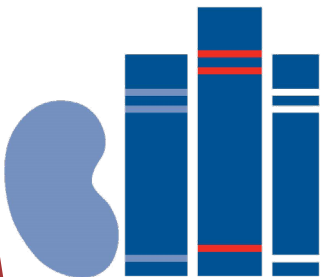
RAAS blockade

Type of RAAS blockade	Drug name	Common name	Benefits	Risks
ACEI (angiotensin converting enzyme inhibitor)	Lisinopril, ramipril, enalapril, benzapril	All end in -pril	<ul style="list-style-type: none">- Good for BP control- Beneficial in diabetics- Can be beneficial in heart failure	<ul style="list-style-type: none">- Cannot be taken by pregnant women (risks to baby)- Can raise your potassium- Will falsely raise creatinine- Can cause chronic dry cough- Needs lab monitoring- Very rarely causes swelling of throat (if this happens, immediately stop drug and go to ER)
ARB (angiotensin receptor blocker)	Losartan, valsartan, Olmesartan, irbesartan	All end in -sartan	<ul style="list-style-type: none">- Same as ACEi	<ul style="list-style-type: none">- Same as ACEI- Has less risk of chronic cough



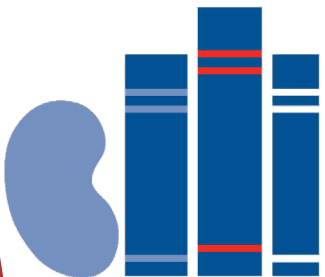
Calcium channel blockers

Type of medication	Drug name	Benefits	Risks
Nondihydropyridine calcium channel blocker	Diltiazem, verapamil	<ul style="list-style-type: none">- Mostly used for heart rate control- Can help with chest pain (angina)	<ul style="list-style-type: none">- Can cause low heart rate- Can cause constipation
Dihydropyridine calcium channel blocker	Amlodipine, felodipine, nifedipine	<ul style="list-style-type: none">- Better for BP control- Nifedipine can be used in pregnancy	<ul style="list-style-type: none">- May cause lower extremity edema



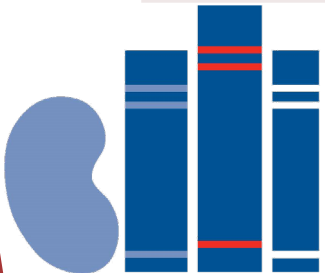
Beta blockers

Type of beta blocker	Drug name	Common name	Benefits	Risks
Cardio selective beta blockers	Atenolol, metoprolol, bisoprolol	Ends in -lol	<ul style="list-style-type: none">- Good for heart rate control- Good data in heart failure	<ul style="list-style-type: none">- Low heart rate- Fatigue- Constipation
Alpha and beta blockers	Carvedilol, labetalol	Ends in -lol	<ul style="list-style-type: none">- Better for BP control	<ul style="list-style-type: none">- Same as above

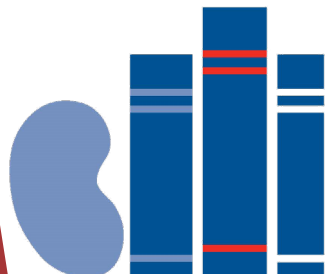


Alpha blockers/vasodilators

Type of medication	Drug name	Common name	Benefits	Risks
Alpha blockers	Doxazosin, terazosin, prazosin	Ends with - zosin	<ul style="list-style-type: none">- Good BP control- Usually once a day	<ul style="list-style-type: none">- Can cause dizziness with standing
Vasodilators	Hydralazine, minoxidil		<ul style="list-style-type: none">- Usually 3rd or 4th line medication for BP control- Minoxidil is the active ingredient in rogaïne!	<ul style="list-style-type: none">- Fairly well tolerated but can need multiple times a day dosing



Choice of medications



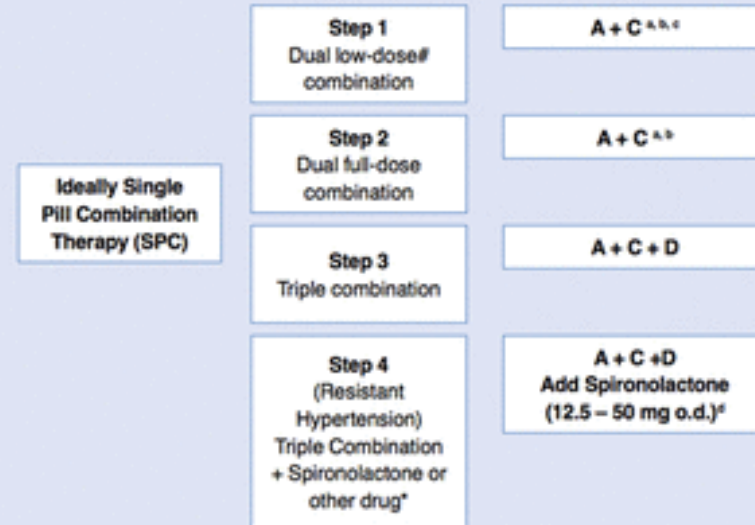
ESSENTIAL

- Use whatever drugs are available with as many of the ideal characteristics (see **Table 9**) as possible.
- Use free combinations if SPCs are not available or unaffordable
- Use thiazide diuretics if thiazide-like diuretics are not available
- Use alternative to DHP-CCBs if these are not available or not tolerated (i.e. Non-DHP-CCBs: diltiazem or verapamil).

ESSENTIAL OPTIMAL

Consider beta-blockers at any treatment step when there is a specific indication for their use, e.g. heart failure, angina, post-MI, atrial fibrillation, or younger women with, or planning pregnancy.

OPTIMAL



- a) Consider monotherapy in low risk grade 1 hypertension or in very old (≥ 80 yrs) or frailer patients.
 b) Consider A + D in post-stroke, very elderly, incipient HF or CCB intolerance.
 c) Consider A + C or C + D in black patients.
 d) Caution with spironolactone or other potassium sparing diuretics when estimated GFR < 45 ml/min/1.73m² or K⁺ > 4.5 mmol/L.

A = ACE-Inhibitor or ARB (Angiotensin Receptor Blocker)
 C = DHP-CCB (Dihydropyridine -Calcium Channel Blocker)
 D = Thiazide-like diuretic

Supportive references: A + C,^{68,70} Spironolactone,⁷¹ Alpha-blocker,⁷² C + D⁷³.

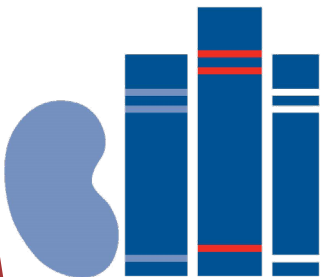
* Alternatives include: Amiloride, doxazosin, eplerenone, clonidine or beta-blocker.

low-dose generally refers to half of the maximum recommended dose

RCT-based benefits between ACE-I's and ARB's were not always identical in different patient populations. Choice between the two classes of RAS-Blockers will depend on patient characteristics, availability, costs and tolerability.

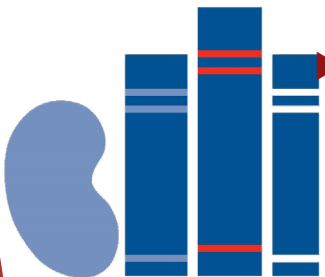
Lifestyle modification

- ▶ Some things we cannot change
 - ▶ Like your genetics
- ▶ But there are things you can do to lower your blood pressure and subsequently reduce risk of cardiovascular disease
 - ▶ Stop smoking
 - ▶ This includes second hand smoke!
 - ▶ Lose weight
 - ▶ Increase physical activity
 - ▶ Lower salt intake
 - ▶ Decrease alcohol consumption
 - ▶ Getting adequate sleep



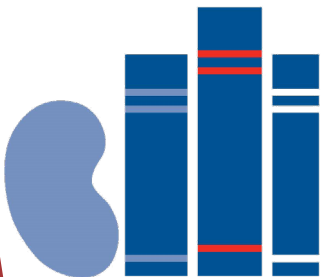
What factors put me at risk for high blood pressure?

- ▶ Family history
 - ▶ Genetic links are common. So if lots of people in your family have high blood pressure, you should look out of it too!
- ▶ Age
 - ▶ Our blood pressure increases as we age
 - ▶ 9 out of 10 American will develop high blood pressure in their lifetime
- ▶ Gender
 - ▶ Women are almost as likely to develop high blood pressure as men
- ▶ Ethnicity
 - ▶ Black people tend to develop high blood pressure more often than any other group of individuals
 - ▶ They also develop it at a younger age



Lifestyle modification

















- ▶ How much physical activity?
 - ▶ Potential to lower BP anywhere from 2-8 points
 - ▶ American College of Sports Medicine recommends 5-7 days per week of aerobic exercise at least 30 min a day, 2-3 days of resistance training, and 2-3 days of flexibility training
 - ▶ Always consult with your doctor prior to starting a new workout, especially if its rigorous!
- ▶ How much alcohol can I drink?
 - ▶ Alcohol consumption should be in moderation
 - ▶ 1 drink daily for women and up to 2 drinks daily for men
- ▶ How much weight do I need to lose?
 - ▶ 1 points of BP equates to 1kg of weight loss



What about my diet?

DASH Eating Plan

The Benefits: Lowers blood pressure & LDL "bad" cholesterol.

 Eat This	 Limit This
 Vegetables	 Fatty meats
 Fruits	
 Whole grains	 Full-fat dairy
 Fat-free or low-fat dairy	
 Fish	 Sugar sweetened beverages
 Poultry	
 Beans	 Sweets
 Nuts & seeds	
 Vegetable oils	 Sodium intake

www.nhlbi.nih.gov/DASH

Mediterranean Diet Pyramid

In Moderation
Wine

Every Day
Water

Less Often
Meats and Sweets

Weekly: Moderate Portions
Poultry, Eggs, Cheese and Yogurt

Often: at least Twice
each Week
Fish and Seafood

Every Day: Base Each Meal
Around these Foods
Vegetables, Fruits, Whole
Wheat Grains, Olive Oil,
Beans, Nuts, Legumes
and Seeds, Herbs
and Spices

Every Day
Be Physically Active,
Enjoy Meals with
Others

© 2008 Oldways Preservation and Exchange Trust - www.oldways.org

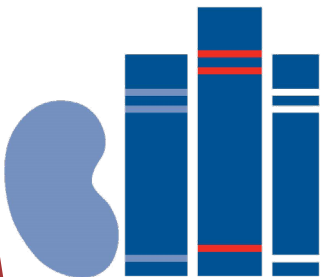


National Heart, Lung,
and Blood Institute



What about salt intake?

- ▶ Reduction of salt consumption by 25% will decrease BP by at least 2-3 points
- ▶ The average American eats between 3000 to 4000mg of sodium a day
- ▶ For those with high blood pressure, the goal is between 2000 and 3000mg of sodium a day
 - ▶ Dietary Guidelines for Americans recommend 2300mg daily for those without HTN and 1500mg for those with HTN
- ▶ But I never salt my food....
 - ▶ 75% of your salt consumption comes from packaged or restaurant food
 - ▶ The rest is what you add to the food yourself



What strategies will help me lower my salt consumption?

01

Buy fresh or frozen vegetables/fruits

- If you buy canned veggies, choose the no salt added can

02

Choose “low salt” or “low sodium” options

- This is especially useful for salty snack foods like chips and pretzels

03

Look for prepared meals with 600mg of less of sodium per meal

- Meat substitutes/plant based (impossible burger, etc) are usually high in sodium! Check before you buy!

04

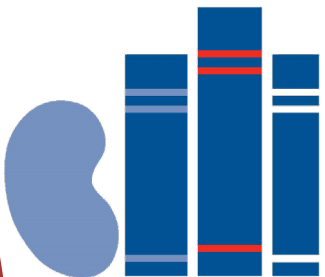
Try to buy fresh meats and avoid anything that is pre-seasoned

- Avoid “smoked”, “cured”, or anything processed like sausages

05

Try Mrs Dash or other spice mixes

- Salt substitutes (in the spice aisle) are usually potassium based and are not good if you have a history of kidney disease



So what do I discuss with my doctor?

What is my blood pressure currently?

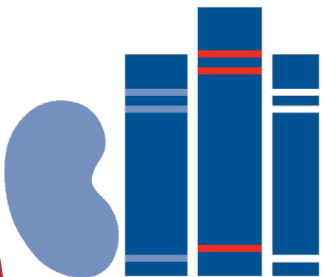
- Keep a log of your blood pressure and weights
- Make sure you take it several times a week, at different times during the day
- Example: Monday AM, Wednesday afternoon, Friday before bed
- Bring your blood pressure/weight log to every visit

What are medications am I taking for my blood pressure?

- Some medications have dual purposes
- Example: ACEi are good for BP control but also have a role in diabetes, kidney disease, and heart disease
- Bring your medication list with current doses to every visit

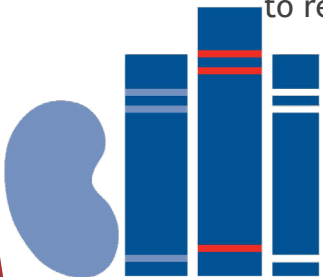
What do my numbers mean?

- ▶ So my doctor wants to do labs....
 - ▶ Some common labs that are checked for patients with high blood pressure including a metabolic panel, lipid panel, CBC, and A1c
- ▶ Metabolic panel
 - ▶ This comes in many different flavors: BMP, CMP, RFP, etc
 - ▶ This checks your kidney levels, electrolytes, and current blood sugar
- ▶ Lipid panel
 - ▶ Checks cholesterol levels (good and bad) as well as triglycerides
- ▶ CBC
 - ▶ Checks if you're anemic as well as the other cell lines (white blood cells and platelets)
- ▶ A1c
 - ▶ Checks to see if you're a diabetic
 - ▶ A level higher than 6.5% indicates prediabetic range



What do my kidney numbers mean?

- ▶ The kidney tests are done on all types of metabolic panels
- ▶ A few numbers are important:
 - ▶ Creatinine
 - ▶ A muscle protein that is broken down and filtered out exclusively by the kidneys
 - ▶ If you're kidneys work well, the number is low (around 1). If they don't work well, creatinine builds up in your system
 - ▶ So high is bad, low is good
 - ▶ BUN
 - ▶ A measurement of toxins that the kidney usually filters out. While this may be high if you have chronic kidney disease, it does not necessarily indicate kidney failure. If you have questions, ask your doctor.
 - ▶ eGFR
 - ▶ A measure of the function of your kidneys
 - ▶ Total is out of 120, but most labs report normal as >90 or >60
 - ▶ An eGFR <60 equates to stage III CKD, <30 is stage IV
- ▶ These numbers will vary day to day and minute to minute. If you have concerns about your labs, always feel free to reach out to your doctor.



Questions?

Please use the Chat Box

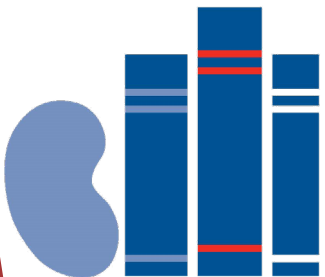


Thank You for Attending Today!

Please complete
the Feedback Form

Become a Member of DPC
and enjoy its benefits at

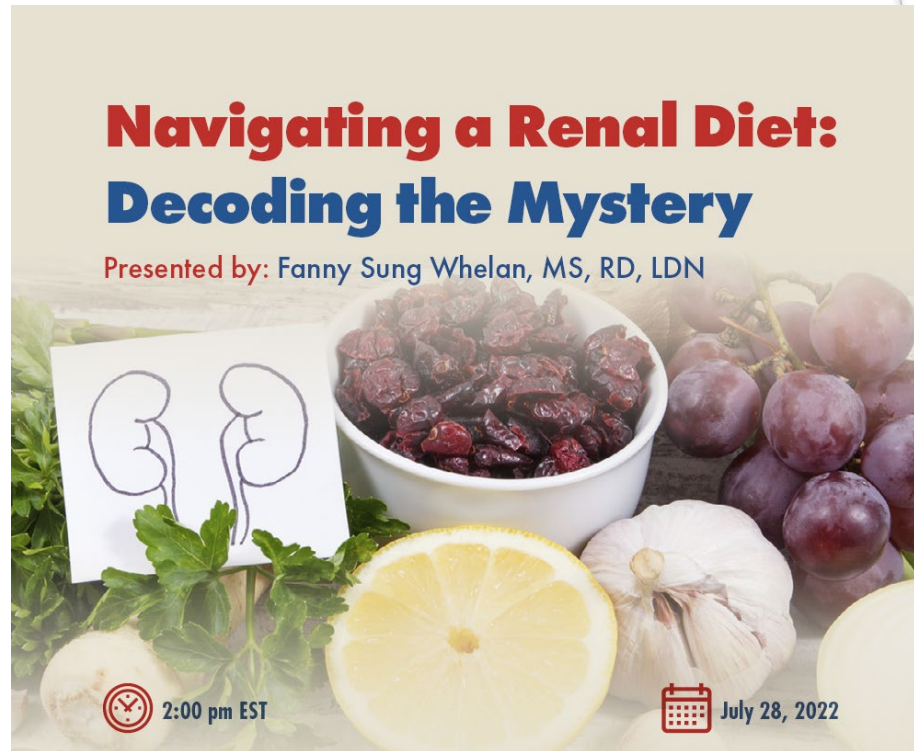
<https://www.dialysispatients.org/get-involved/join-dpc/>



Join us July 28th for our next
webinar:


**Navigating a Renal Diet:
Decoding the Mystery**

Presented by: Fanny Sung Whelan, MS, RD, LDN



2:00 pm EST

July 28, 2022

 DPC
EDUCATION
CENTER

Register now
bit.ly/dpcwebinar