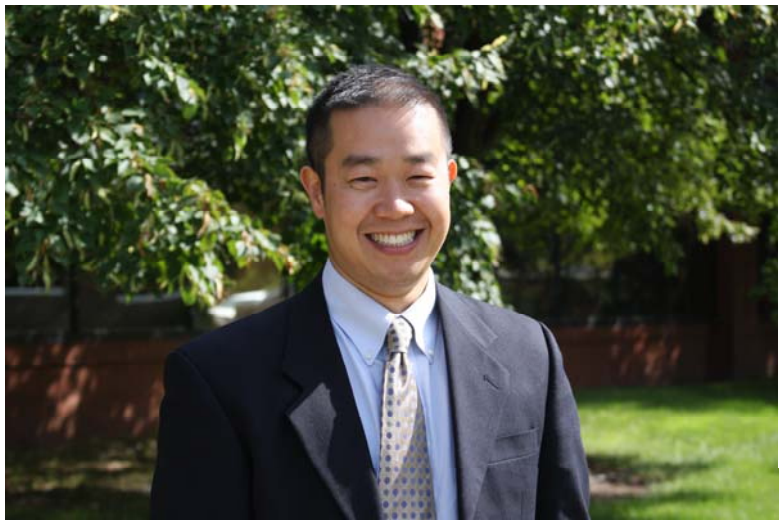
Thanks to our speaker!



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- Interests include improving care of kidney disease patients
- Conducted clinical trials on impact of sodium restriction

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Being a Heart Healthy Kidney Patient: The Key Role of Sodium and Fluid

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Disclosures

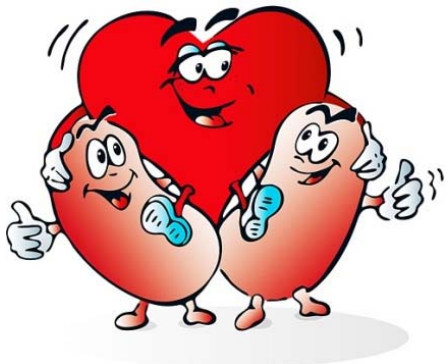
- I have no relevant conflicts of interest to disclose.

Objectives

1. Describe the clinical importance of heart disease in patients with kidney disease
2. Recognize the key role of sodium and fluid in contributing to heart disease, and the rationale for sodium restriction
3. Describe effective approaches to improving fluid management for patients with kidney disease

Kidney and Heart Disease: Intertwined

- About 70% of patients with chronic kidney disease have some form of heart disease
- The risk of having a cardiac event (e.g. heart attack) increases as kidney function declines
- Heart disease is the leading cause of death among patients with chronic kidney disease



What's the Connection?

- Common risk factors
  - Diabetes
  - High blood pressure
- Heart disease can lead to kidney disease
- Kidney disease can place significant stress on the heart

Why Sodium and Fluid Matter

- Healthy kidneys keep the balance of fluid in the body
  - When kidneys are damaged, they cannot do this as well
- Too much sodium and fluid in the body contributes to high blood pressure and strain on the heart
  - Can lead to swelling and fluid build-up around the heart and lungs
- Sodium (salt) intake is the key contributor to fluid retention and volume overload!

Fluid Restriction Tips

- Know your limit.
- Typical rule of thumb for a dialysis patient is 4 cups (32 ounces, or ~1 liter) plus amount of urine still produced per day.
- Track your intake and don't drink out of habit
- Pre-measure your daily allowance
- Remember that fluid is more than just water

Ways to Control Thirst

- Take sips as opposed to gulps
- Ice chips, candy or mints
- For patients with diabetes, getting good control of sugar is important
- Sodium, sodium, sodium!

"Sodium" versus "Salt"

- Sodium is a natural and essential mineral found throughout the body.
- Salt contains both sodium (40%) and chloride (60%).

Nutrition Facts

8 servings per container
Serving size **2/3 cup (55g)**

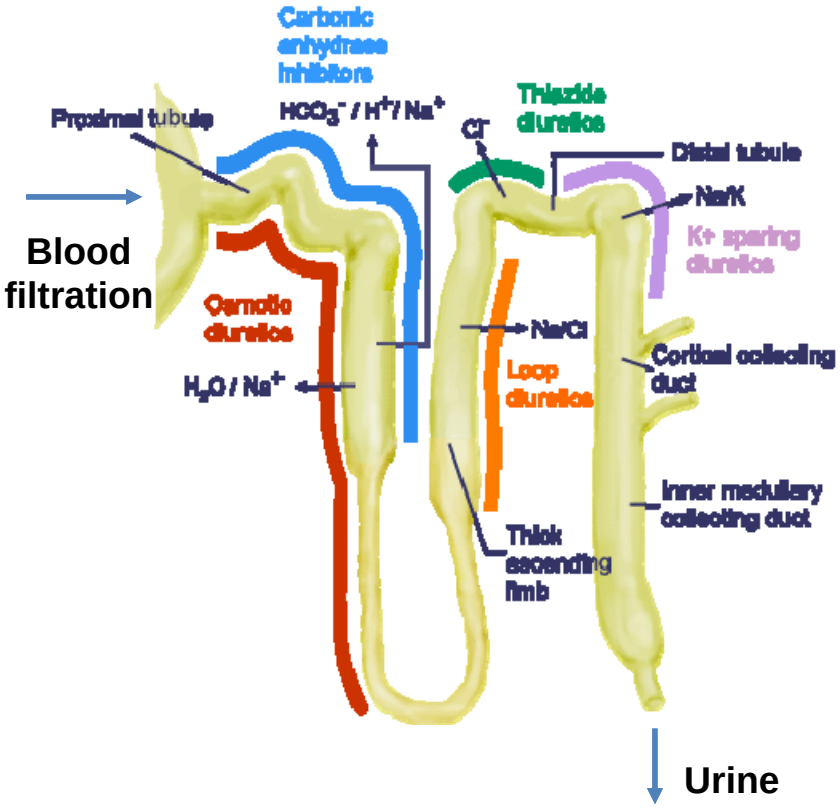
Amount per serving
Calories **230**

	% Daily Value*
Total Fat 8g	**10%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**13%**
Dietary Fiber 4g	**14%**
Total Sugars 12g	
Includes 10g Added Sugars	**20%**
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

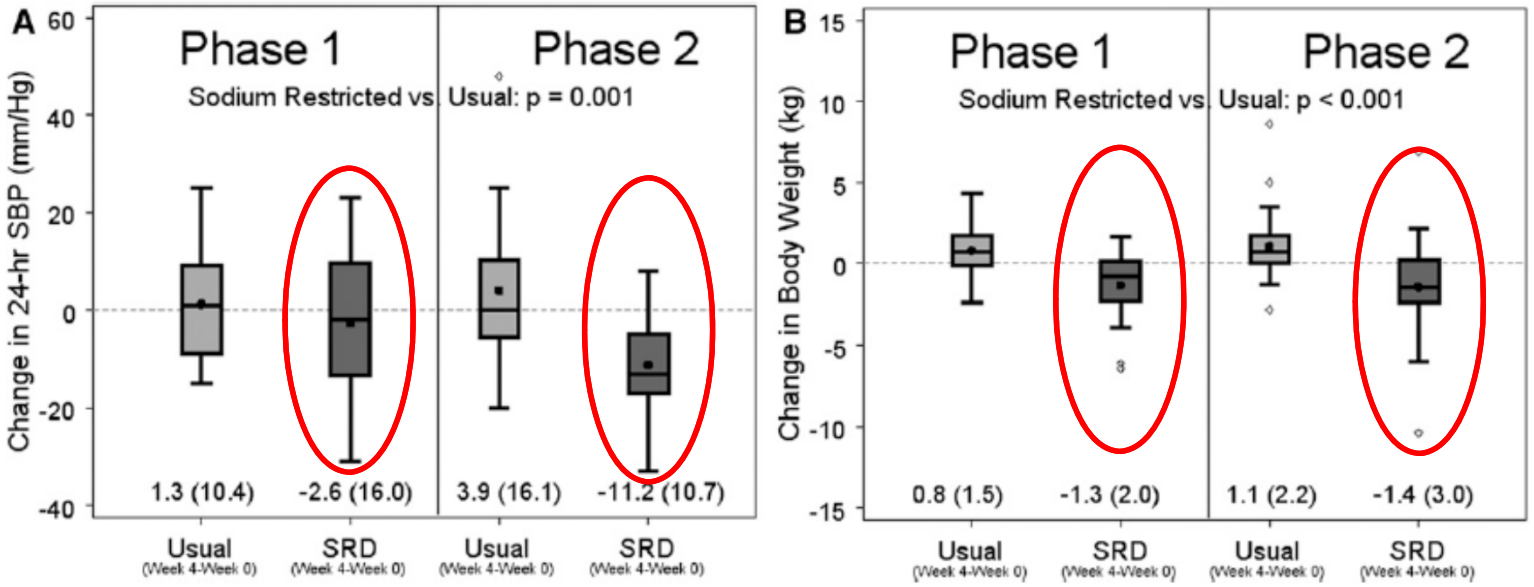
Approaches to Sodium Balance

- Remove more
  - Diuretics (“water pills”)
  - Dialysis fluid removal (ultrafiltration)
- Take less in!
  - Easier said than done…



In Chronic Kidney Disease

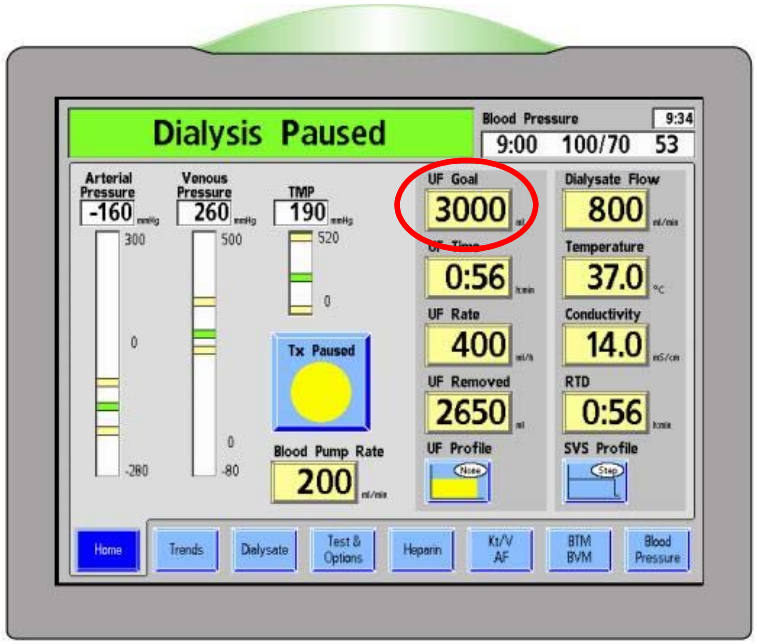
- Randomized trial of dietary sodium restriction (less than 2g per day) thru dietary counseling
  - Resulted in decreased fluid, weight loss, improved BP



Saran et al, *Clin J Am Soc Nephrol* 2017;12:399-407

In End-Stage Renal Disease

- Diuretics may still be helpful if kidneys are still working a little bit
- Focus is fluid removal (ultrafiltration) with dialysis
  - After a target (“dry”) weight is established, the goal at each session is to remove the amount of fluid built up since the last session (1 kg = 1L)



Can't Dialysis Take Care Of It?

- Higher ultrafiltration rates (UFR) are associated with *increased risk of death and complications*
  - >13 ml/kg/hr threshold being evaluated as a quality measure for dialysis

UFR = Fluid removed (ml) / Weight (kg) / Time (h)

- Example: 3L removal in 70kg patient with 3hr treatment = UFR 14.3 ml/kg/hr
  - Extending treatment time to 4h, UFR = 10.7 ml/kg/hr
  - Decreasing fluid removal to 2L, UFR = 9.5 ml/kg/hr

So…

- Extra fluid is hard on the heart, but so is having to remove a lot of fluid with dialysis
- Therefore, keeping extra fluid off is a critical part of staying heart healthy for patients with kidney disease
- The best way to do this is to limit sodium and fluid intake

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Sodium Restriction: The Basics

- General recommendation: less than 2g (2000mg) per day
  - Individual targets may vary
  - Average U.S. daily sodium intake is 3400mg!
- Know how much sodium you are taking in
  - Favor fresh (*fridge*) over processed (*pantry*)
- Don't add salt to your food
  - BUT: Only 25% of sodium intake is from salt shaker!
- Try to limit eating out, especially fast food

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Tracking Sodium Intake

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* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Remember that amounts are for each serving, and not for each unit purchased

Label's recommended daily sodium intake is 2300mg, so just looking at % is misleading

<u>Additional Tips:</u>

- Compare different brands
- "Low sodium" may be *lower* sodium but not low sodium
- Fat free ≠ low sodium

Hidden Sources of Sodium

- Turkey Sandwich

Hidden Sources of Sodium

- Cottage cheese: 1 cup = 819mg
- American cheese: 1 oz = 417mg
- Fat free ranch dressing: 4 tbsp = 580mg
- Bread: 1 slice = 120-140mg
- “Everything” bagel: 1 = 370mg
- Ramen noodles: ½ block (seasoned) = 830mg
- Campbell’s Healthy Request chicken noodle soup: 1 cup = 410mg

Consider Alternatives

260mg per ½ cup
(910mg per can)

125mg per ½ cup
(440mg per can)

0mg!

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Dried Is Better Than Canned

All zero sodium!

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Consider Alternatives

380mg per ½ cup **undrained**
(1330mg per can)
200mg per ½ cup **drained**
(700mg per can)

190mg per ½ cup **undrained**
(665mg per can)
100mg per ½ cup **drained**
(350mg per can)

10mg per ½ cup
undrained
0mg per ½ cup
drained

Flavoring Without Salt

- Spices: basil, cilantro, lemon, garlic, ginger, parsley, etc.
- Salt substitutes
  - Onion powder (not onion salt)
  - Dried seaweed flakes
  - Kelp granules
  - Caveat: avoid potassium-based (potassium chloride) and ask your doctor or dietitian if unsure

Tracking Tips

- Break down your target/intake by meals
  - Can "budget" your sodium intake
- Keep a food diary and share with your dietitian
  - Free apps: MyFitnessPal (myfitnesspal.com), Mango, Davita Diet Helper (https://www.davita.com/diet-helper/)

Shopping Tips

- Plan ahead
- "Stick to the periphery and avoid the middle aisles"
- Avoid seasoning packets
- Beware potentially misleading terms:

Labeling	Sodium content
Sodium Free	<5mg in 1 serving
Low Sodium	<140mg in 1 serving
Light (or Lite) Sodium	Reduced 50% compared to regular version
Reduced or Less Sodium	Reduced 25% compared to regular

Eating Out

- Ask for no added salt or low-sodium options
- Do online research ahead of time
- Compensate by cutting back in other meals

Key Challenges

1. Bland tasting food. We can re-train our taste buds, but it can take 2-3 months.
2. Having to cook. Plan meals and use a shopping list (then recycle). Make it a team (family) effort!
3. Expense. Use farmer's markets and shop seasonally. Also, this is a value choice.
4. Sustainability. Favor moderation over completely cutting things out.

Focus Back on the "Why?"

- What improvements can you expect to see with a reduction in dietary sodium and fluid intake?
  - Lower BP → fewer meds!
  - Less swelling
  - Less shortness of breath
  - More ability to exercise and increase activity
  - Less fluid build up between dialysis treatments
  - Lower fluid removal rates → less cramping, less after-dialysis fatigue
  - Lower overall risk for heart disease complications

Summary

- Patients with kidney disease are at high risk for heart disease
- A key aspect to keeping the heart healthy is maintaining proper fluid balance, and dietary sodium intake plays a key role
- Restricting sodium intake can be challenging, but has the potential to significantly improve outcomes in both CKD and ESRD patients

Resources

- American Kidney Fund (http://www.kidneyfund.org/kidney-disease/chronic-kidney-disease-ckd/kidney-friendly-diet-for-ckd.html)
- National Kidney Foundation (https://www.kidney.org/nutrition)
  - Information about DASH diet
  - Sample recipes
- Renal Support Network (http://www.rsnhope.org/renal-recipes-kidney-friendly/)
  - Sample recipes
- American Heart Association (https://recipes.heart.org/)
  - Sample recipes

Acknowledgments

- American Kidney Fund
  - Ashley Ring
- Terrie Holewinski, RD

Questions?

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Next Month's Webinar

Dr. Jessica Tangren

Nephrologist, Massachusetts General Hospital

Pregnancy and Kidney Disease

Wednesday, March 7, 2018 | 2-3 p.m. (EST)

- How the chances of getting pregnant can change in women with kidney disease
- The steps women can take before pregnancy to minimize the associated risks
- How pregnancy can affect the trajectory of kidney disease in women

Visit KidneyFund.org/webinars to register