

Nutrition as a Main Intervention to Delay Dialysis

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Financial Relationships

- Consultant, Otsuka Pharmaceuticals
- Consultant, Livongo/Teladoc
- Owner, The Kidney Dietitian Blog



Objectives

- Discuss how to use nutrition as a treatment for delaying dialysis.
- Discuss research and that have shown how MNT can delay dialysis and improve patient outcomes.
- Discuss obstacles and scenarios both dietitians and patients face with not receiving this valuable service.
- Develop a plan of action to make this service more readily available and utilized.



Outline

- Where are we now?
- Value of Medical Nutrition Therapy for Chronic Kidney Disease
 - Outcomes research
 - Mechanism of improved outcomes
- Recommendations & Solutions



WHAT ARE PATIENTS EATING?



Too Much Protein

1.2g/kg compared to recommended 0.4-0.9g/kg



Too Much Sodium

3117mg compared to recommended 1500-2300mg



Not Enough Fruits & Vegetables

1.4 vegetable & 0.6 fruit servings
17 grams fiber per day (~60% of the recommended amount)



Type of Protein

70% protein from animal sources



Too Much Added Sugar

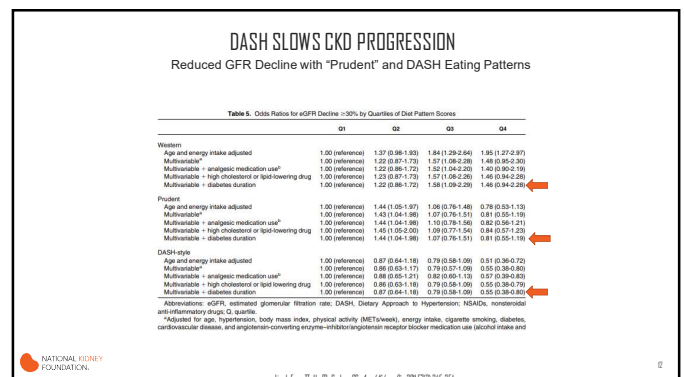
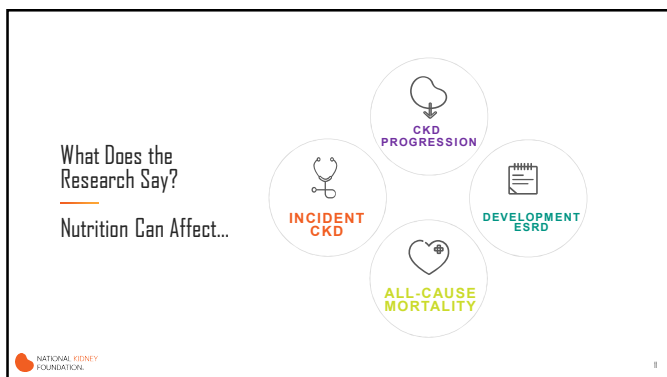
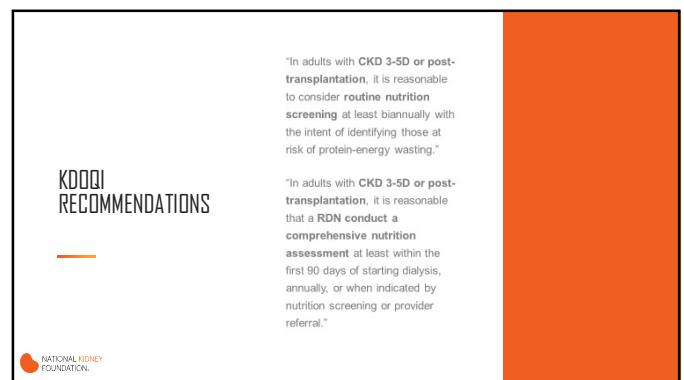
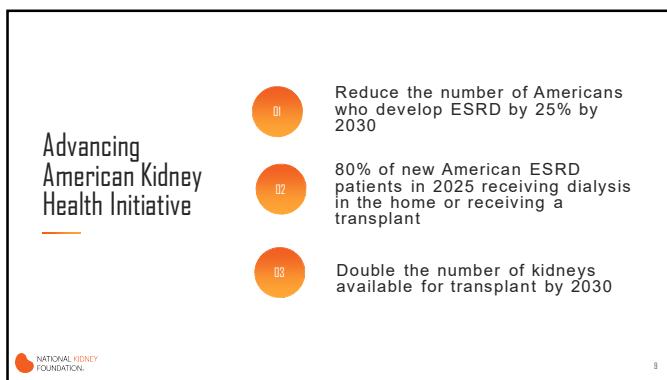
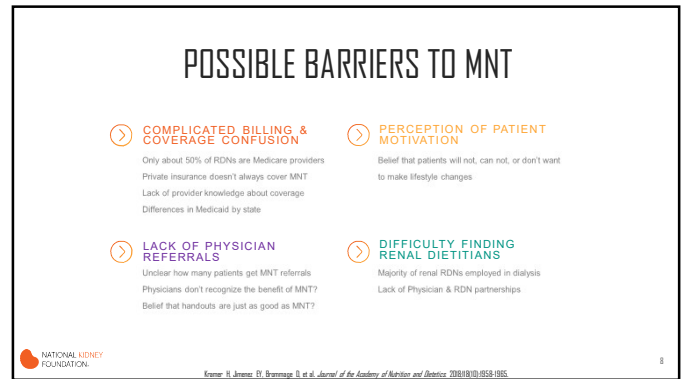
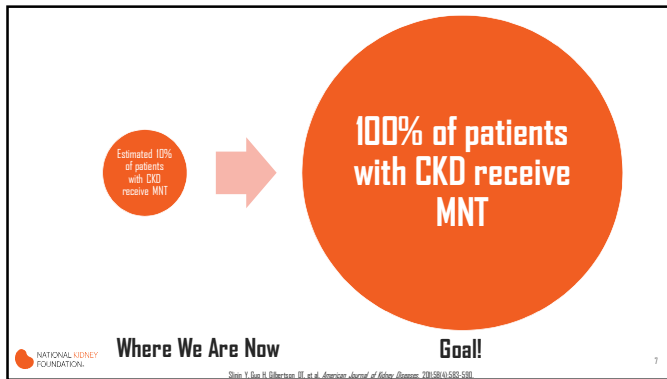
~50% eating too much added sugar (average of 10 teaspoons per day)



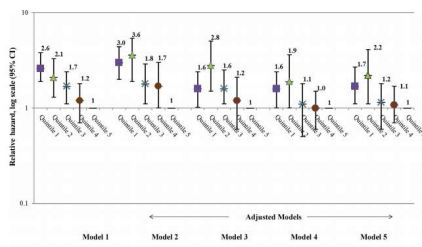
What percent of patients with CKD meet with a dietitian before dialysis?

- A. 10%
- B. 25%
- C. 50%
- D. 75%



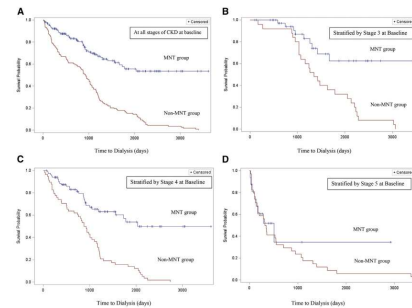


DASH REDUCES RISK ESRD



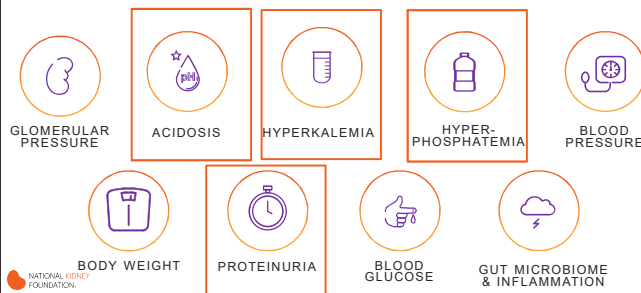
Bresnau J, Gross JD, Iain US, et al. *Kidney International*. 2008;65(6):1433-1442.

MNT SLOWS TIME TO DIALYSIS



de Zeeuw D, Heersche J, Calzavara P, et al. *Ann Intern Med*. 2006;144:1-8.

How MNT Slows CKD Progression



ACIDOSIS & POTENTIAL RENAL ACID LOAD



PRAL of Individual Foods

	4oz Sirloin Steak	4oz Cod	4oz Chicken Breast
Calories	266	133	221
Protein (g)	31	21	34
Phosphorus (mg)	247	390	240
Absorbed Phosphorus (mg)	~185	~293	~180
Potassium (mg)	387	328	276
Magnesium (mg)	24	28	31
Calcium (mg)	19	11	16
PRAL (mEq)	15	17	19

DIETARY ACID LOAD PREDICTS ESRD

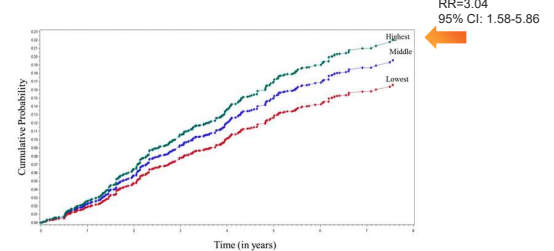
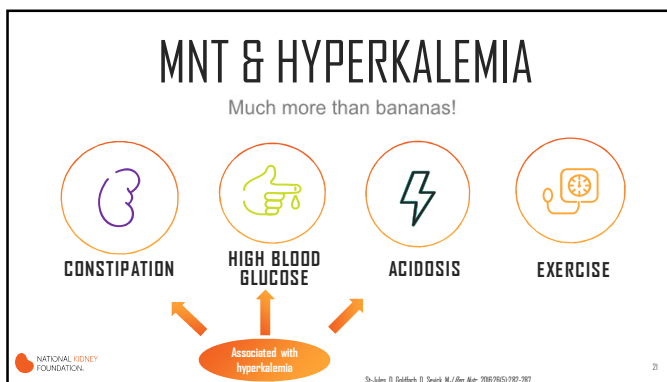
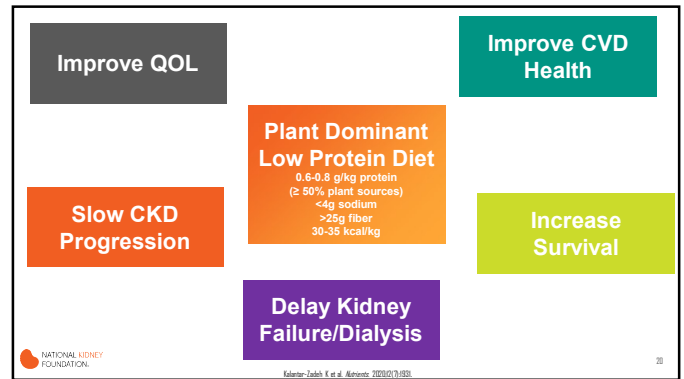
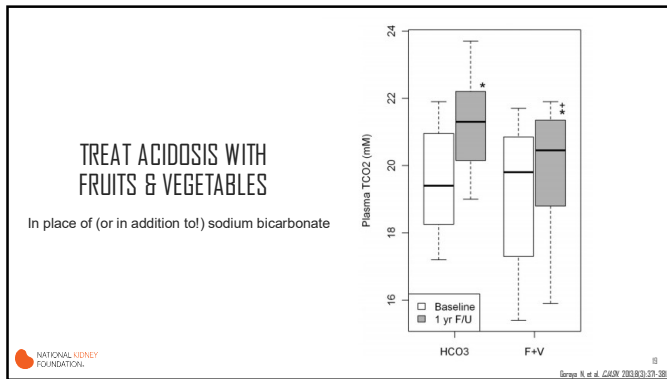


Figure 1. A greater risk of ESRD was associated with a higher dietary acid load (DAL). Crude cumulative probability of ESRD for participants with varying levels of DAL.

Bresnau J, Gross JD, Weisner DB, et al. *J Am Soc Nephrol*. 2005;16(1):103-110.

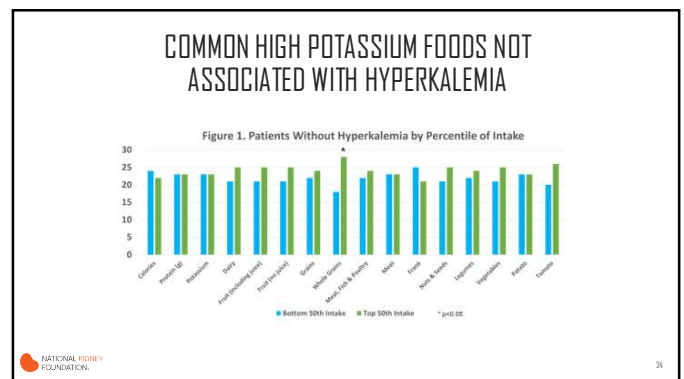
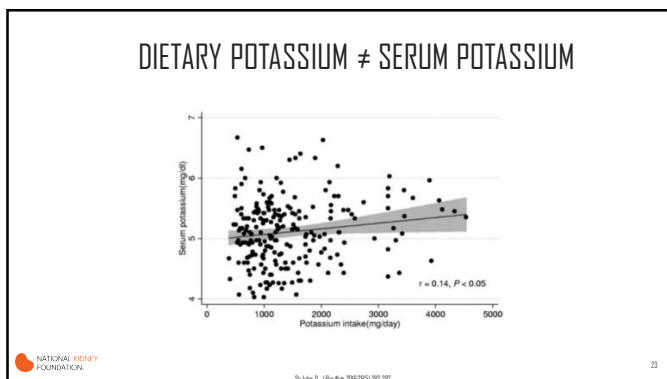


POTASSIUM FOOD ADDITIVES

- Increasingly common in food supply
- Can increase potassium content of meat up to 300%
- Especially common in:
 - Low sodium products
 - Sugar free products
 - "Enhanced meat"

Crystal Light Lemonade

Source: R. *Journal of Renal Nutrition* 2009;19(4):355-355



Phosphorus

Hyperphosphatemia is associated with disease progression and CVD mortality



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Marin KJ, Goodwin EA. *CARD*. 2018;32(448-449). 1.Phillips LR. *Nat Rev Nephrol*. 2017;13(10):247-268.

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PROTEINURIA



NATIONAL KIDNEY FOUNDATION

Kotler A, Beresnev J, Nelson Gray L, et al. *Am J Kidney Dis*. 2003;41(3):530-537. 1.Gu GJ, Du Y, Ferraresi AR, Kabanov-Jabek K. *Curr Opin Clin Nutr Metab Care*. 2017;20(1):77-85.

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CO-MORBIDITIES

Nutrition can help control common co-morbidities in CKD.



HYPERTENSION



DIABETES



CARDIOVASCULAR DISEASE



GOUT

Better control = slower disease progression
Consistent diet & lifestyle recommendations

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MNT & PROTEIN ENERGY WASTING



"In adults with CKD 3-5D or post-transplantation, it is reasonable to consider routine nutrition screening at least biannually with the intent of identifying those at risk of protein-energy wasting."



PEW one of the strongest predictors of mortality in CKD



Protein Energy Wasting (PEW) 20-25% in early CKD
Increased prevalence through disease progression



Delicate balance between traditional "renal" diet restrictions & adequate calorie & protein intake
Especially difficult in the elderly

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Baker LA, et al. *Kidney Dis*. 2013;1(1):107-108. 1.Clinical Nutrition Month 2013/10/15-16/16. 1.Clinical Nutrition Month 2013/10/15-16/16.

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Recommendations

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PROPOSED SOLUTIONS



EDUCATE PRATITIONERS & PATIENTS
Nutrition matters
Insurance coverage



ADVOCATE
Greater insurance coverage

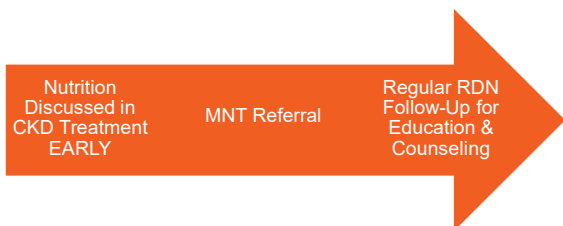


BELIEVE IN OUR PATIENTS
Many patients WANT to know what they can do to slow disease progression.

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IDEAL PATIENT FLOW



Nutrition Education

Nutrition Counseling

Table 4. Comparison of Renal Diet Knowledge and Adherence to Diet Restriction

Nutrient	Assess of Diet Restriction ^a Nutrient Intake $\pm$ SD (n)	Food Knowledge Percentile: Nutrient Intake $\pm$ SD (n)	Food Knowledge ^b
Sodium	Yes: 2,309 $\pm$ 1,003 mg (65) No/unsure (0) P-value: N/A	$\geq$ 50th percentile: 2,197 $\pm$ 960 mg (41) <50th percentile: 2,517 $\pm$ 1,068 mg (22) P-value: .25	$r = -0.078$ $P = .544$
Potassium			
All patients	Yes: 1,793 $\pm$ 765 mg (59) No/unsure: 2,076 $\pm$ 808 mg (13) P-value: .27	$\geq$ 50th percentile: 1,820 $\pm$ 748 mg (23) <50th percentile: 1,870 $\pm$ 801 mg (40) P-value: .807	$r = -0.088$ $P = .491$
Hyperkalemia (n = 17)	Yes: 1,786 $\pm$ 558 mg (16) No/unsure: 731 mg (1) P-value: .08	$\geq$ 50th percentile: 1,765 $\pm$ 590 mg (6) <50th percentile: 643 $\pm$ 227 mg (8) P-value: .778	$r = 0.024$ $P = .917$
No hyperkalemia (n = 48)	Yes: 1,796 $\pm$ 853 mg (34) No/unsure: 2,188 $\pm$ 731 mg (12) P-value: .14	$\geq$ 50th percentile: 1,784 $\pm$ 165 mg (23) <50th percentile: 2,014 $\pm$ 182 mg (23) P-value: .355	$r = -0.107$ $P = .478$
Phosphorus	Yes: 785 $\pm$ 353 mg (31) No/unsure: 907 $\pm$ 416 mg (32) P-value: .21	$\geq$ 50th percentile: 849 $\pm$ 349 (21) <50th percentile: 846 $\pm$ 410 mg (42) P-value: .977	$r = -0.053$ $P = .877$
Protein	Yes: 54.4 $\pm$ 29.7 g (59) No/unsure: 57.0 $\pm$ 23.3 g (24) P-value: .71	N/A	N/A

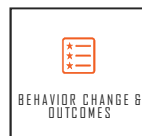
N/A, not available; SD, standard deviation.

^aDifferences determined using t-tests.

^bDifferences determined using t-tests. 50th percentile of Food Knowledge Score was used for each nutrient (sodium: 85.7%, potassium: 41.7%, phosphorus: 5.0%).

^cSpearman's rho correlation.

IMPORTANCE OF REGULAR DIETITIAN FOLLOW-UP



BEHAVIOR CHANGE &
OUTCOMES



BUILD RAPPORT



NUTRITION NEEDS
CHANGE

INCREASE ACCESS TO DIETITIANS



HIRE RDN IN
NEPHROLOGY
CLINICS



PARTNER WITH
LOCAL RDN



VIRTUAL RDN
PRACTICES



CREATIVE WAYS
TO REACH MORE
PATIENTS

- Academy of Nutrition & Dietetics
 - <https://www.eatright.org/find-an-expert>
- National Kidney Foundation
 - <https://sites.google.com/view/ckdrrd/home>

Calling All Dietitians!

It is up to US to
elevate nutrition
as routine in CKD
treatment

YOU ARE YOUR BEST ADVOCATE!

Who better to help explain what
dietitians do than a dietitian?



EDUCATE THE HEALTHCARE TEAM & PATIENTS

We offer so much more than education
Insurance coverage
Many patients want nutrition guidance



EMPOWER FUTURE RDNs

Garner interest in renal dietetics



