

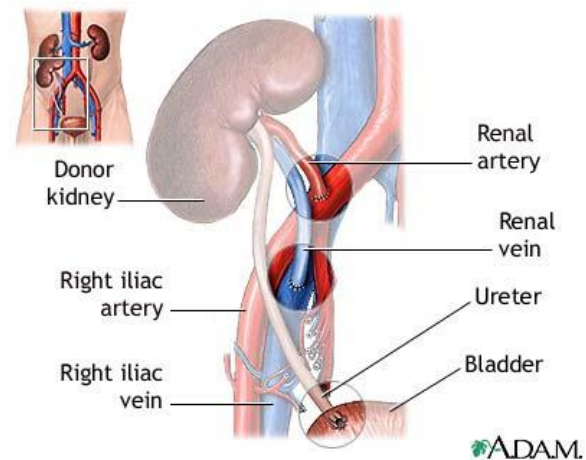
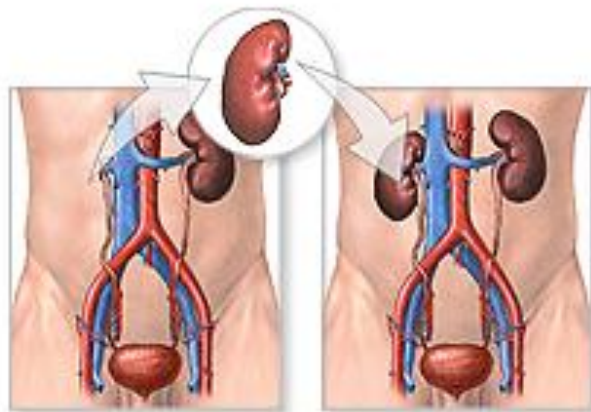
Renal Transplant

Janelle Morris and Justin Roberts

A series of horizontal lines in shades of teal and white, extending from the right side of the slide towards the center, positioned below the authors' names.

Renal Transplant

- Kidney Transplant is the most effective treatment for end stage renal disease.
- The transplanted kidney can come from either a living or deceased donor.



ADAM.

Stages of Renal Failure

Stage	Description	GFR (mL/min)
1	Kidney damage (protein in the urine) with normal or elevated GFR	90 or more
2	Kidney damage with mildly decreased GFR	60–89
3	Kidney damage with moderately decreased GFR	30–59
4	Kidney damage with severely decreased GFR	15–29
5	Kidney failure: end-stage renal disease (ESRD). Patients who have Stage 5 disease require dialysis or transplantation to survive.	Less than 15

- National Kidney Foundation. "About chronic kidney disease." 2008.www.kidney.org/professionals/KLS/aboutCKD.cfm (2 Jan. 2008).

End Stage Renal Disease

- Irreversible kidney failure.
- Common causes
 - Diabetes
 - Hypertension
 - Glomerulonephritis

End Stage Renal Disease

- Signs and Symptoms
 - Hypertension
 - Azotemia
 - Hyperkalemia
 - Anemia
 - Edema
 - Hyperphosphatemia
 - Metabolic Acidosis

Medication post operation:

- *Neora 450mg Q 12hrs*
- *Imuran 150mg Q d*
- *Prednisone 90g Q d*
- *Magnesium oxide 400mg TID*
- *Bactrim, Neutra-phos, Persantine, omeprazole, Glucophage*
- *Side effects expected*
 - *Protein catabolism*
 - *Hyperlipidemia*
 - *Sodium retention*
 - *Weight gain*
 - *Glucose intolerance*
 - *Inhibition Ca/VitD/Phos metabolism*
 - *Hyperkalemia*
 - *Hypertension*

MNT for Renal Transplantation

- Adequate protein and calories
- Heart Healthy Diet
- Sodium restriction
- Long term nutrition and weight control

Renal Transplant

- <http://www.youtube.com/watch?v=OKDA7BYzDRU&feature=related>

Case Study

- Enez Joaquin
- Age 26
- Sex: female
- Education: High school
- Occupation: Secretary
- Household members:
 - Husband age 28, Type 2 Diabetes under control (diagnosis age 18)
 - Daughter age 9, in good health
- *Family history:* mother and father DM diagnosis
- Ethnic background: Pima Indian



Reason for Admit



- Patient admitted for deceased donor kidney transplant.

Patient History



- *Type 2 Diabetes Mellitus* diagnosis at age 13
- *Renal function* progressively declined over 7 years
- *Onset of disease*: Stage 5 chronic kidney disease 2 years ago
 - hemodialysis
 - transplant evaluation
 - placed on kidney transplant list
- *Tx*: Control BP; prep for transplant; nutrition consult
- *Patient compliant* with medication and kidney replacement regimes
- *Patient admits to drinking alcohol 12oz beer 1x/week*

Assessment: Anthropometric Measurements

- Height: 60"
- Weight: 165 lb
- BMI: 32
 - Stage II obese
- IBW: 100 lb



Dry/Edema-free weight



➤ Weight without excess fluids which build up between dialysis sessions

- $aBW_{ef} = BW_{ef} + \{(SBW - BW) \times 0.25\}$

$$aBW_{ef} = 165 + \{65 - 165\} \times 0.25$$

$$= 165 + \{-100\} \times 0.25$$

$$= 140 \text{ lbs}$$

- $\%IBW = 140 / 100 \text{ lbs} = 140\%$

- Use if:

- $< 95\%$ or $> 115\%$

Based on NHANES II data (Nelms, 2007 p630)(NHANES II)



Assessment

- Energy Requirements
 - EER: $665 + (9.6 \times 63.3\text{kg}) + (1.8 \times 152.4) - (4.7 \times 26)$
 - = $1425 \times 1.3 \times 1.2 = 2,223 \pm 10\%$
 - = 2,000-2,450kcal s/day
 - Energy: 35 kcal/kg SBW
 - $140\text{lbs} / 2.2 = 63.3\text{kg}$
 - $63.3\text{kg} \times 35\text{kcal/kg} = 2,226\text{kcal}$
- **Post-Kidney Transplant Patients.** before-and-after trial obese hyperhomocysteinuric patients with a new kidney transplant (one year post-transplant) suggests that a diet of less than 30kcal per kg per day can significantly reduce BMI, LDL-cholesterol and TG) after one year. (Grade II) (EAL)



Assessment

- Protein Requirements
 - Protein: 1.2g/kg SBW
 - $1.2\text{g/kg} \times 63.6\text{kg} = 76.32\text{g prot/d}$
- Results from one study of kidney transplant patients with declined function suggest that a low-protein diet (0.55g per kg per day) can reduce proteinuria, compared to high-protein diet (2.0g per kg per day) (Salahudenn AK, 1992)(Grade A).
- Until there is stronger evidence to suggest otherwise, low protein intake (i.e. 0.55 g/kg) in kidney transplant recipients with chronic graft rejection should be avoided, as this may be associated with negative nitrogen balance. (Chadban, S et al., 2010)(Level III)

Assessment: Labs



Lab	Normal	Admit	D/C	Interpret
Albumin	3.5-5	3.8	3.9	
Na ²⁺	136-145	136	138	
PO ₄	2.3-4.7	6.3	4.5	Decreased kidney function
Magnesium	1.8-3.0	2.9	2.7	
Glucose	70-110	282	200	Uncontrolled DM
BUN	8-18	69	55	Decreased kidney function
Creatinine	0.6-1.2	12.0	8.5	
Alk phos	30-120	131		
Chol	120-199	200		Inflamed glomerulus → change in lipid metabolism
TG	35-135	195		
HbA _{1c}	3.9-5.2	7.1		Uncontrolled DM
RBC	4.2-5.4	4.0		Erythropoiesis
HGB	12-15	10.9		
HCT	37-47	35		

Dietary History



Previous nutrition therapy: yes, 2 years ago+ Renal RD q 2-3 months

Food purchase/prep: Self

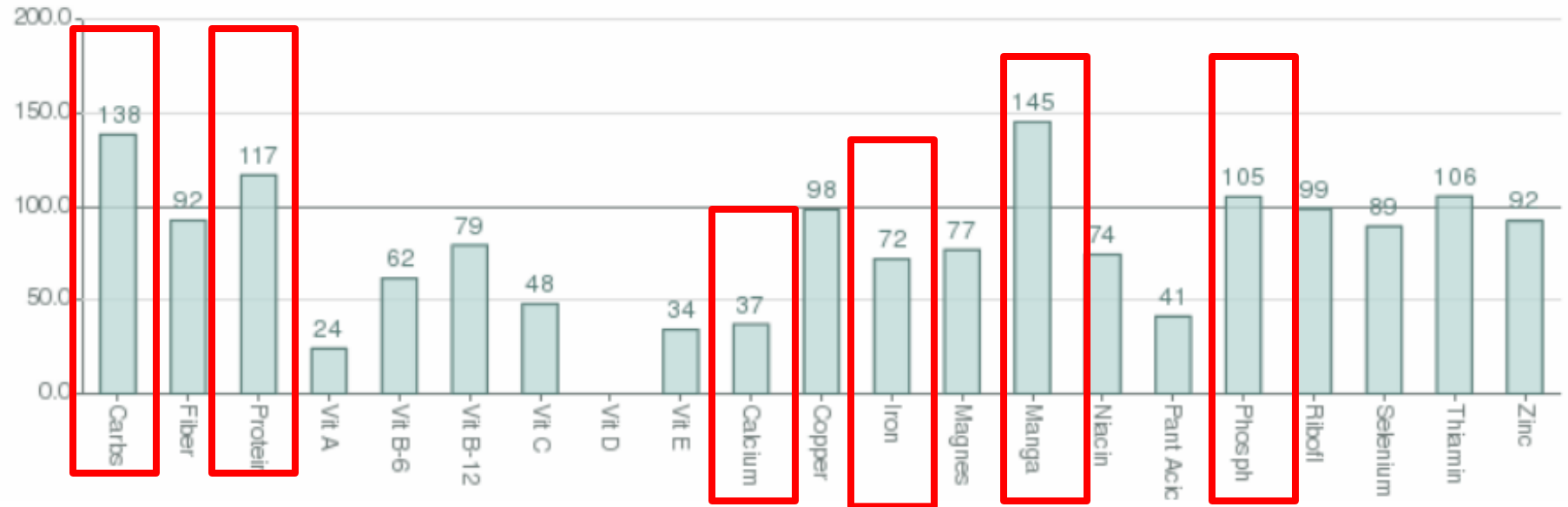
Usual Dietary Intake

Breakfast	1 soft-cooked egg, 2 slices wheat toast with 1 tsp. low-fat margarine, 1 c art. Sweetened cranberry juice
Lunch	2 beef tamales with 1/4 c chili con carne, 1 can diet coke
Dinner	2 soft-shell tacos made with 1/2 c black beans, 2 flour tortillas, 1/2 c shredded lettuce, 1/4 c tomatoes 1/4 c chopped onions, 1 can diet coke
Snack	6 vanilla wafers

24-hour recall: N/A



- Calories
- Nutrition
- %-RDA/AI Graph**
- Cal. Balance
- Custom Nutrition Goals



Description

This bar chart displays your average daily nutrition as a percentage of your RDA (recommended dietary allowance) or AI (adequate intake).

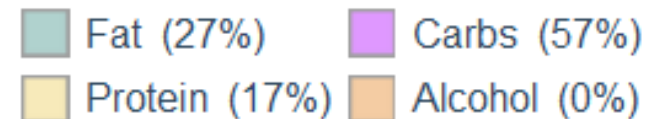
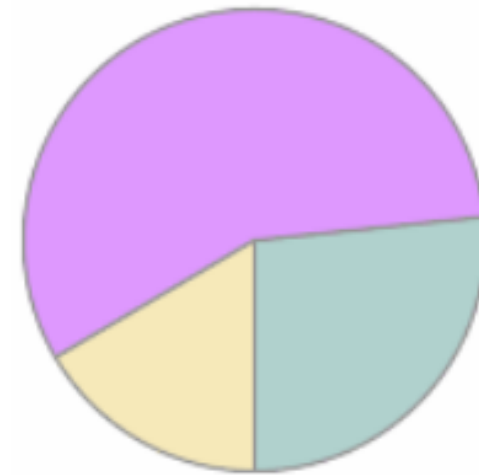
More Info

- [Calorie Balance Report](#)
- [Calories Eaten vs. Burned Report](#)

Sodium → 2,460.8 mg
Potassium → 1,658.0 mg



	Grams	Calories	%-Cals
Calories		1,247	
Fat	37.0	332	27 %
Saturated	10.9	98	8 %
Polyunsaturated	4.5	40	3 %
Monounsaturated	12.3	111	9 %
Carbohydrate	180.0	708	57 %
Dietary Fiber	23.1		
Protein	53.7	206	17 %
Alcohol	0.0	0	0 %



- Estimated Energy needs: 2,226kcal
- Estimated Protein needs: 76.32g prot/d
- Fluid Restrict: 1,000mL + urine output
 - Fluids Estimation: 32 oz → 946mL

Diagnosis



- PES
 - Food and nutrient-related knowledge deficit (NB-1.1), related to new dietary recommendations for post kidney transplant, as evidenced by recent kidney transplant.

Intervention

- Food and nutrient delivery (ND-1)
 - Modify patient diet to Dialysis ADA diet (1.2g/kg protein, 2g K⁺, 1g PO₄, 2 g Na²⁺, Fluid Restriction 1,000mL+ urine output)
 - Why....?

Treatment

- Diet Order Recommendation: Dialysis ADA Therapeutic Diet for 6-8 weeks
 - 35 kcal/kg
 - $63.3\text{kg} \times 35\text{kcal/kg} = 2,226\text{kcal}$
 - 1.2g protein/kg
 - $1.2\text{g protein/kg} \times 75\text{kg} = 90\text{g protein}$
 - CHO Controlled
 - 2g K⁺
 - 1 g phosphorous
 - 2g Na²⁺
 - 1,000mL fluid + urine output
 - Adequate Ca²⁺ and Vit D

Sample day....



Breakfast	1 soft-cooked egg, 2 slices wheat toast with 1 tbsp. low-fat margarine, 1 c grapes
Snack	1 4oz lite strawberry yogurt, celery with peanut butter
Lunch	2 chicken tamale with $\frac{1}{4}$ c chili con carne, $\frac{1}{2}$ can diet coke
Snack	$\frac{1}{2}$ c sugar free vanilla pudding, low fat mozzarella string cheese, 2 low sodium crackers
Dinner	2 soft-shell tacos made with $\frac{1}{2}$ c black beans, 1 whole wheat tortilla(6"), $\frac{1}{2}$ c shredded lettuce, $\frac{1}{4}$ c tomatoes $\frac{1}{4}$ c chopped onions, $\frac{1}{2}$ can diet coke, dinner salad with Italian dressing
Snack	6 vanilla wafers, $\frac{1}{4}$ c cottage cheese

Intervention

- Coordination of Other Care During Nutrition Care (RC-1)
 - Refer patient to and collaborate with renal care team: Physician, Registered Nurse, Social worker
- Nutrition –Related Behavior Modification Therapy (C-1)
 - Educate on heart healthy modifications to diet and lifestyle
 - Make 1-3 goals for patient to try
 - Motivational Interviewing and goal setting approaches
 - → patient chooses from provided options

Outcome Goals

Patient likes yogurt and wants to start eating a lite yogurt as a snack in the morning

Patient hears there are tasty Mrs. Dash varieties to try instead of using salt

Patient wants to start walking with her daughter for 30 minutes, 4 days per week

- Weak observational data also support dietary protein and salt restriction to stabilize renal function in kidney transplant patients.
- One RCT in patients with a recent kidney transplant showed that a one-year term of cardiovascular exercise may improve patients' health-related QOL by decreasing physical limitations

(EAL summary) **What are the effects of physical activity interventions on the factors of disease progression and quality of life in patients with a kidney transplant? (CKD 2008) (Grade III)**

When to use the Decision Tree: Use this tool when trying to determine whether a specific activity or service (such as assuming responsibility for instructing patients with diabetes on insulin pump usage or ordering nutrition related labs) falls within your individual scope of practice.

Instructions for Use:

Start on the left side of the diagram and match numbered boxes with each "Question to Ask Yourself" on the right of the diagram. Fully consider all decision points.



Questions to Ask Yourself

1. Does the license or credential I hold permit me to perform this activity or service?
2. Is the activity or service consistent with the following?
 - Entry level dietetics education and credentialing (CADE and CDR)
 - ADA Standards of Practice, Standards of Professional Performance, Code of Ethics
 - ADA position statements or practice papers; dietetics literature/research
 - Nutrition practice guidelines or protocols
 - National organization standards of practice
 - Institution job description or privileges
 - Accrediting Organization Standards
 - Federal Statutes and Regulations
3. Would the activity or service be within the accepted "standard of practice" that would be provided in similar circumstances by reasonable and prudent dietetics practitioners who have similar training, education, skill, competence, and experience?
4. Have I acquired the depth and breadth of knowledge needed to safely and effectively perform this activity or service through training, such as a pre-professional program, a continuing education program, or self-study?
5. Have I personally demonstrated current knowledge, skills, and competence to safely perform this activity or service?
6. Am I personally prepared to accept the consequences of my actions?

IF YOU HAVE ANSWERED YES TO EACH OF THESE QUESTIONS, perform the activity or service with valid order, when necessary, and in accordance with organizational

Is it within our scope of practice to treat Mrs. Enez?

Food and nutrient delivery (ND-1)
 Modify patient's Diet order to Renal → **Not in California**

Food and nutrient delivery (ND-1)
 Provide patient with nutrition and lifestyle education → **Yes**

Coordination of Other Care During Nutrition Care (RC-1)
 → **Yes**

Nutrition –Related Behavior Modification Therapy (C-1)
 MI and Goal Setting → **Yes**

Monitoring

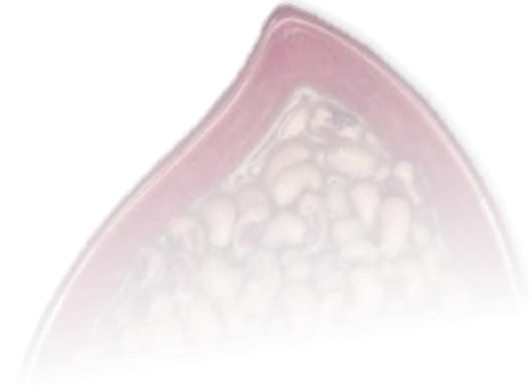
- Weekly blood tests for 6-8 weeks post transplant: Renal panel, including Na^{2+} , K^{+} , phosphorous, lipids, glucose and protein.
 - Continue monitoring once a month after initial 2 month period post transplant
- Monitor fluid intake and output once per week until normalized

Follow-Up Recommendations

- Increase follow-up visits with Renal RD to 1x per month for 6 months
 - Ensure low Potassium and carbohydrate intake while on cyclosporine
 - Ensure adequate Ca²⁺, PO₄⁻, Vit D
 - Help manage possible weight gain 2' Medication
- After approx. 1 month post transplant
 - Decrease protein intake → 1g/kg/d
 - Decrease energy → <30g/kg/d

Follow-Up Recommendations

- Long term:
 - Advise patient on heart friendly, carbohydrate controlled diet plan



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