Conferencia Patrocinada

Boydorr NUTRITION

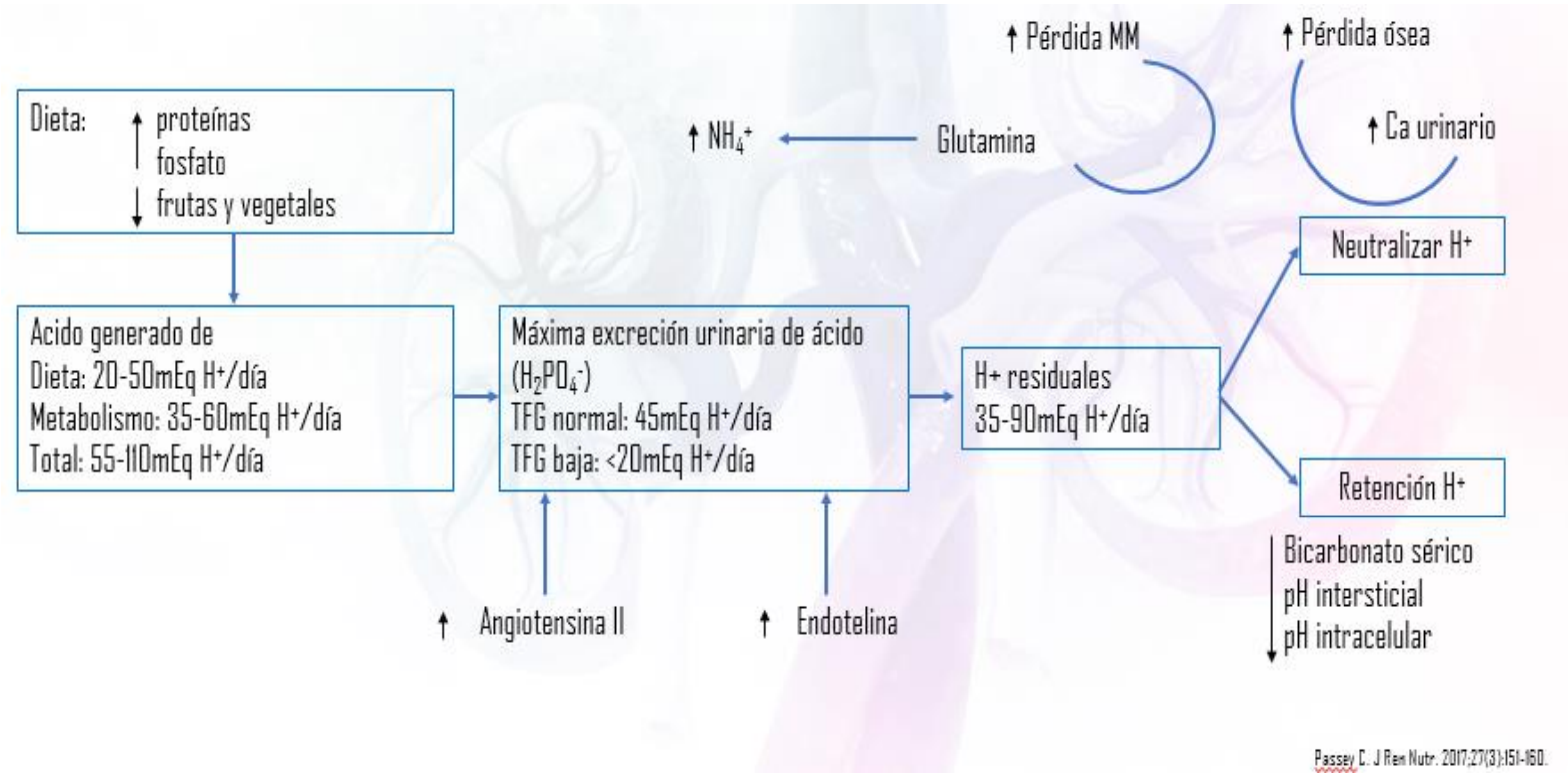
Carga ácida y ERC: el papel de la nutrición

Cristina Posada Álvarez

Carga ácida y ERC: el papel de la nutrición

CRISTINA POSADA ÁLVAREZ
ND ESP. BIOQUÍMICA CLÍNICA
DIRECTORA ACADÉMICA DE CELAN

Acidosis metabólica



Consecuencias

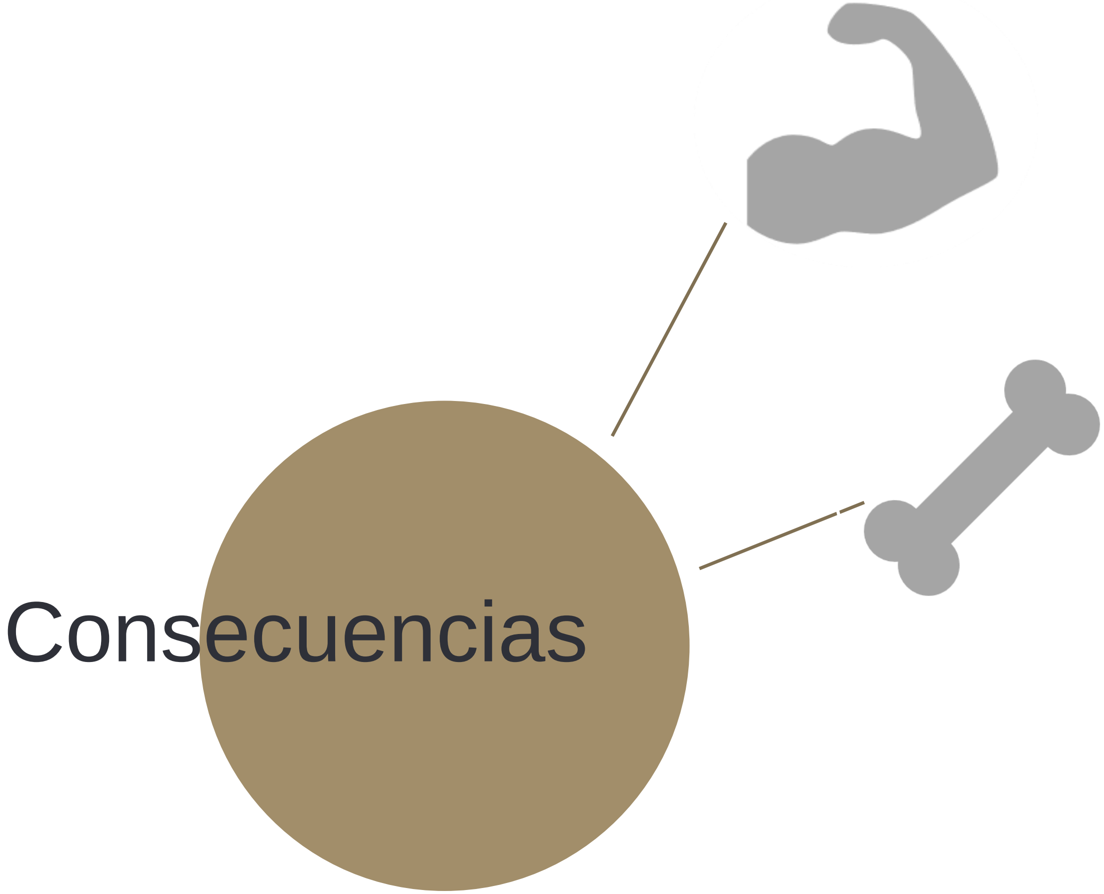
Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Consecuencias

Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Consecuencias

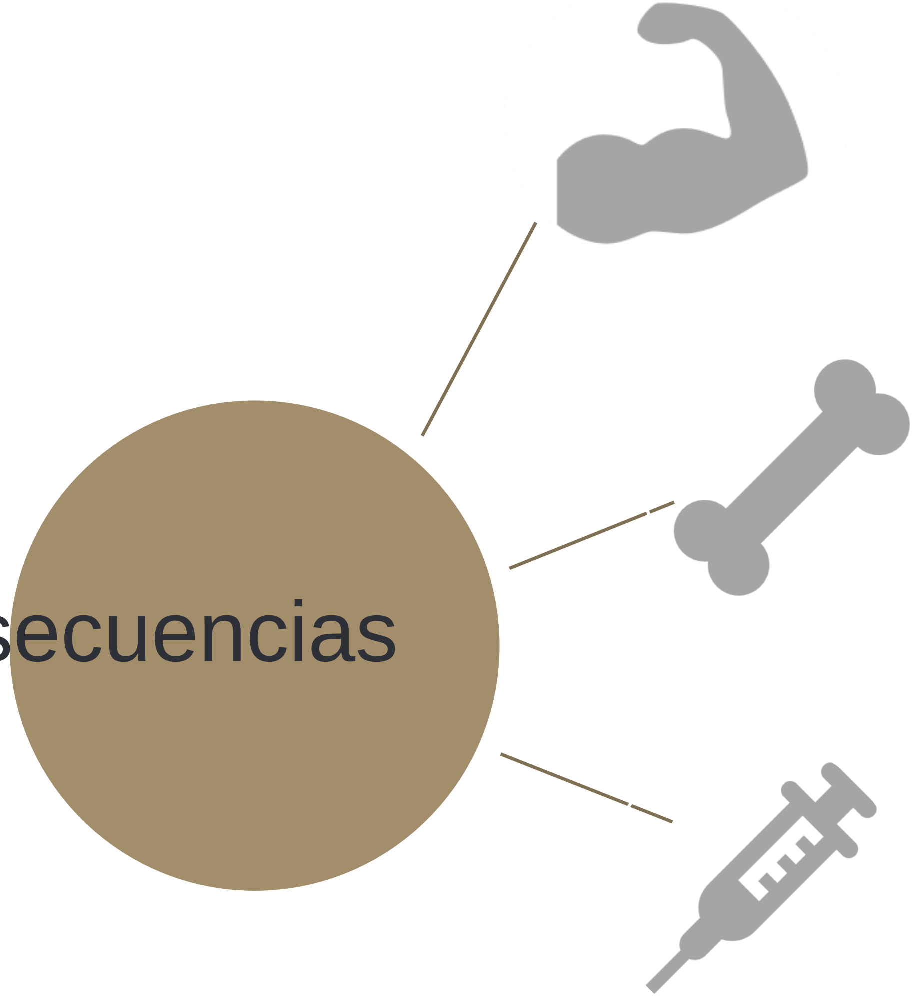
Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..



Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.

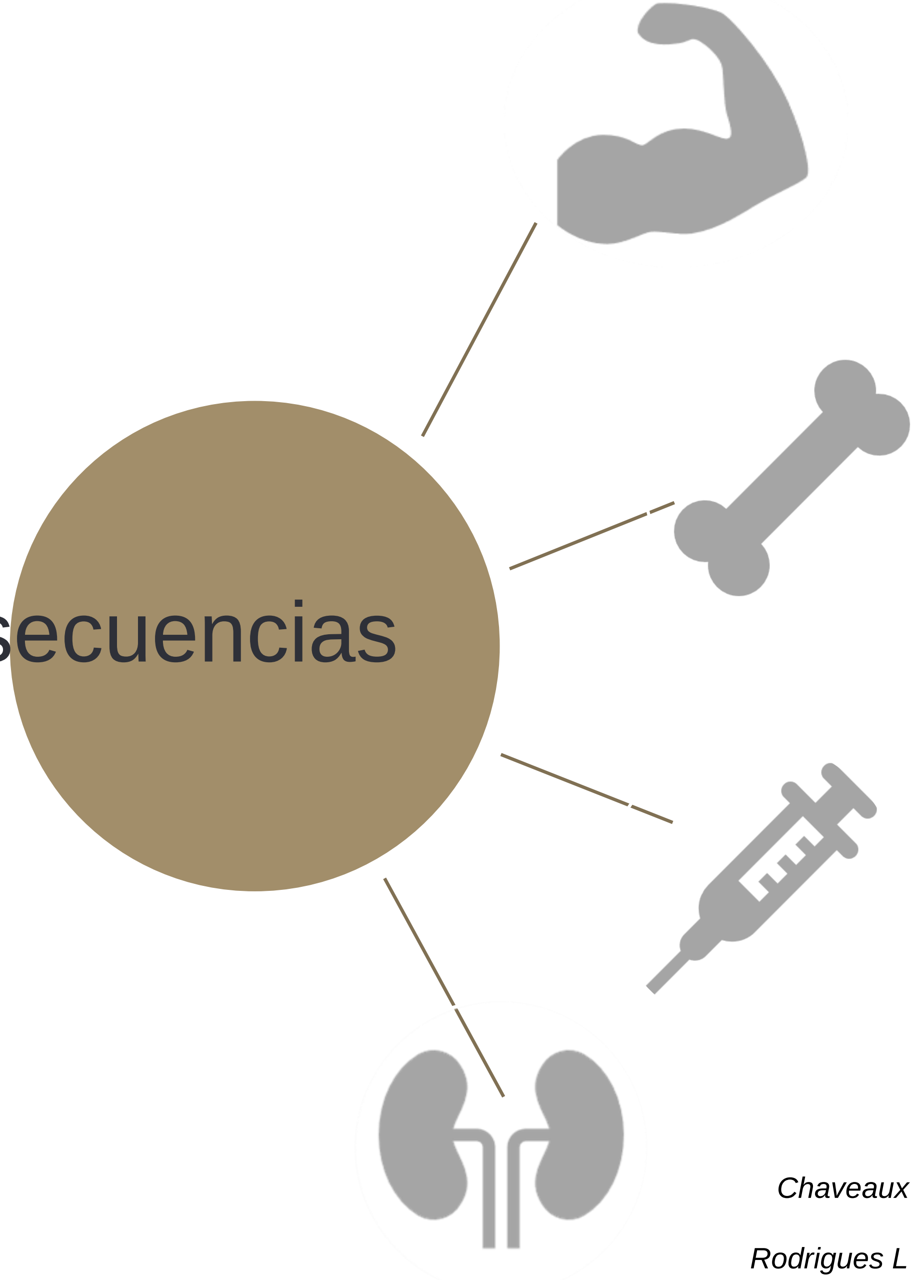
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Consecuencias

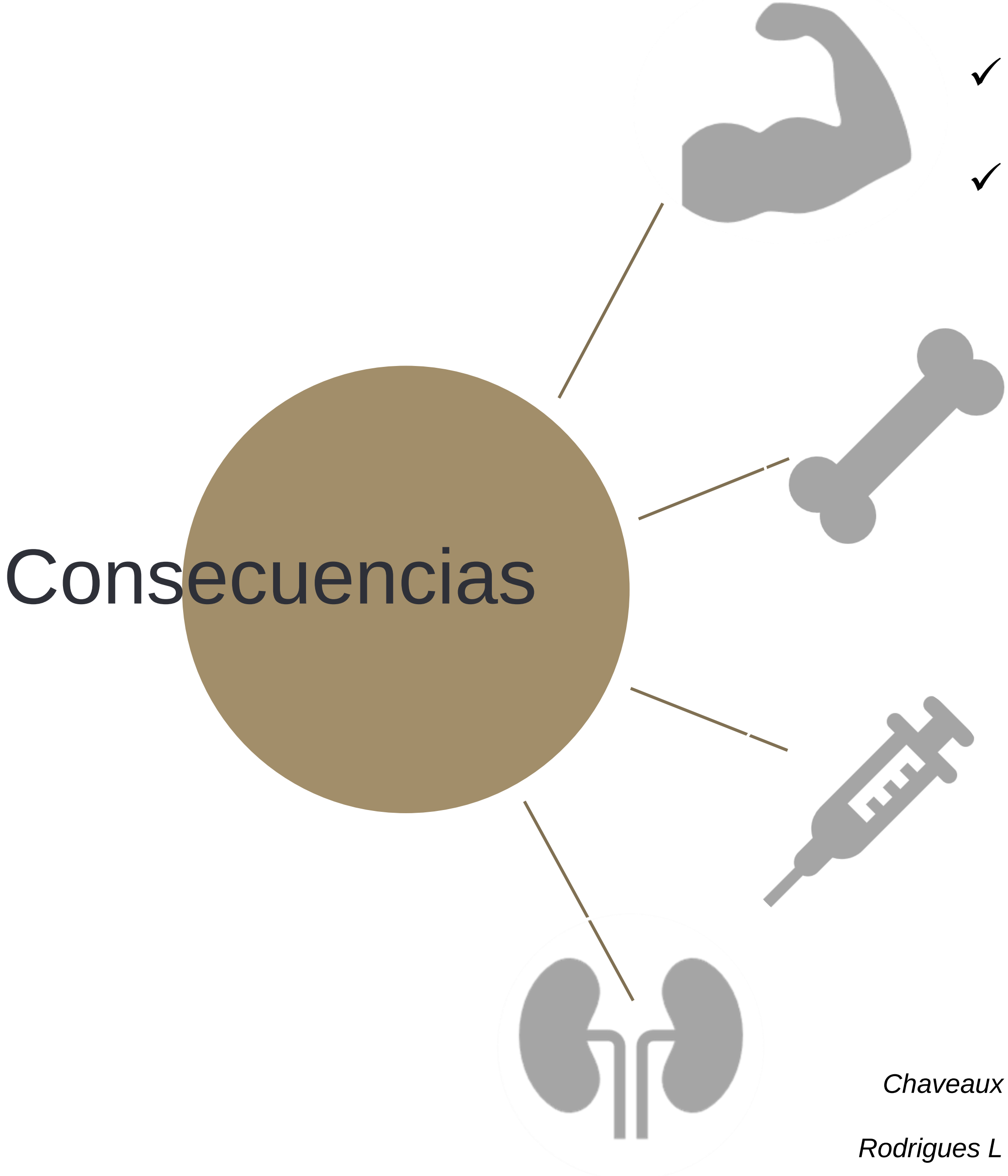


Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Consecuencias



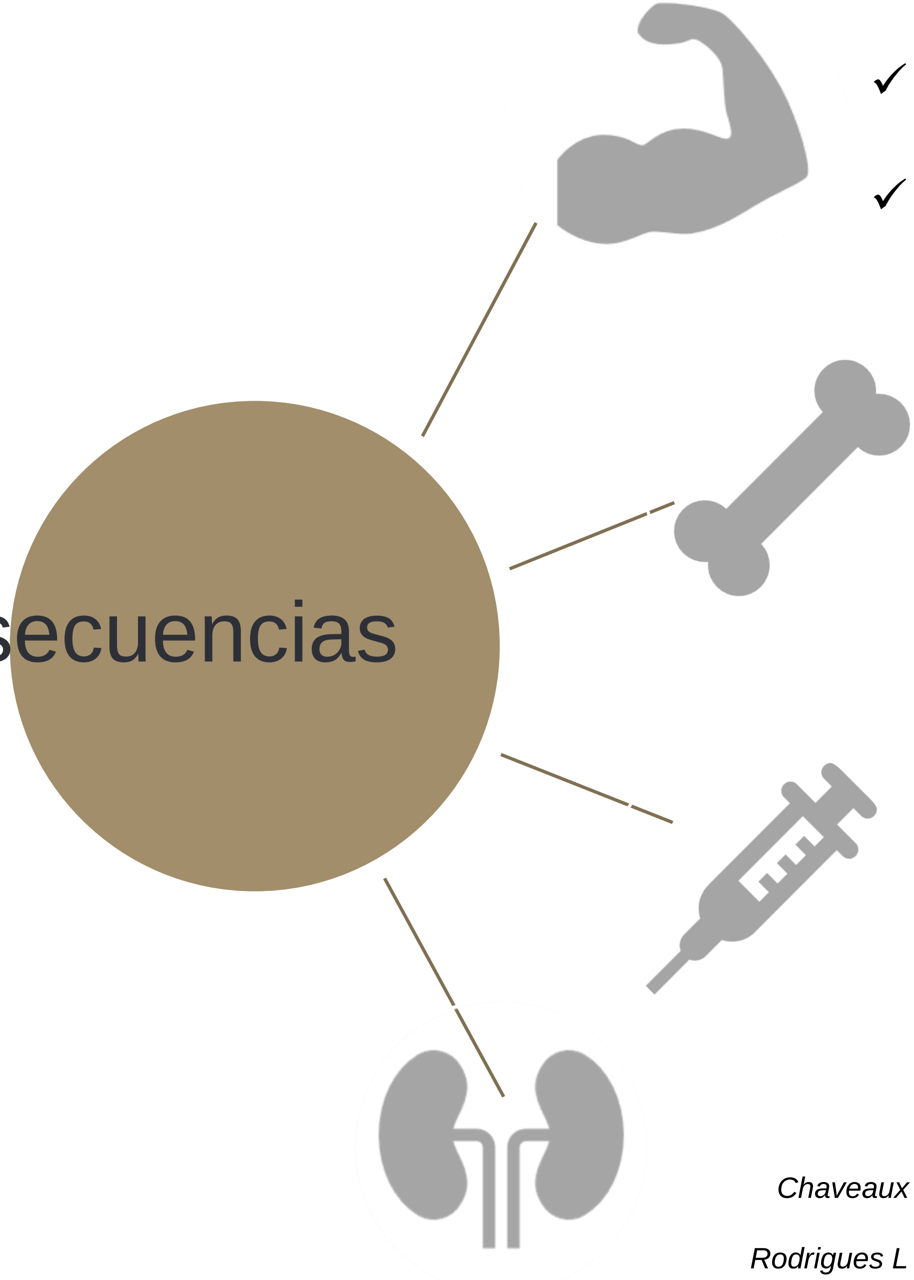
Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..



- ✓ Activación sistema ubiquitina-proteasoma
- ✓ Activación caspasa 3

Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Consecuencias

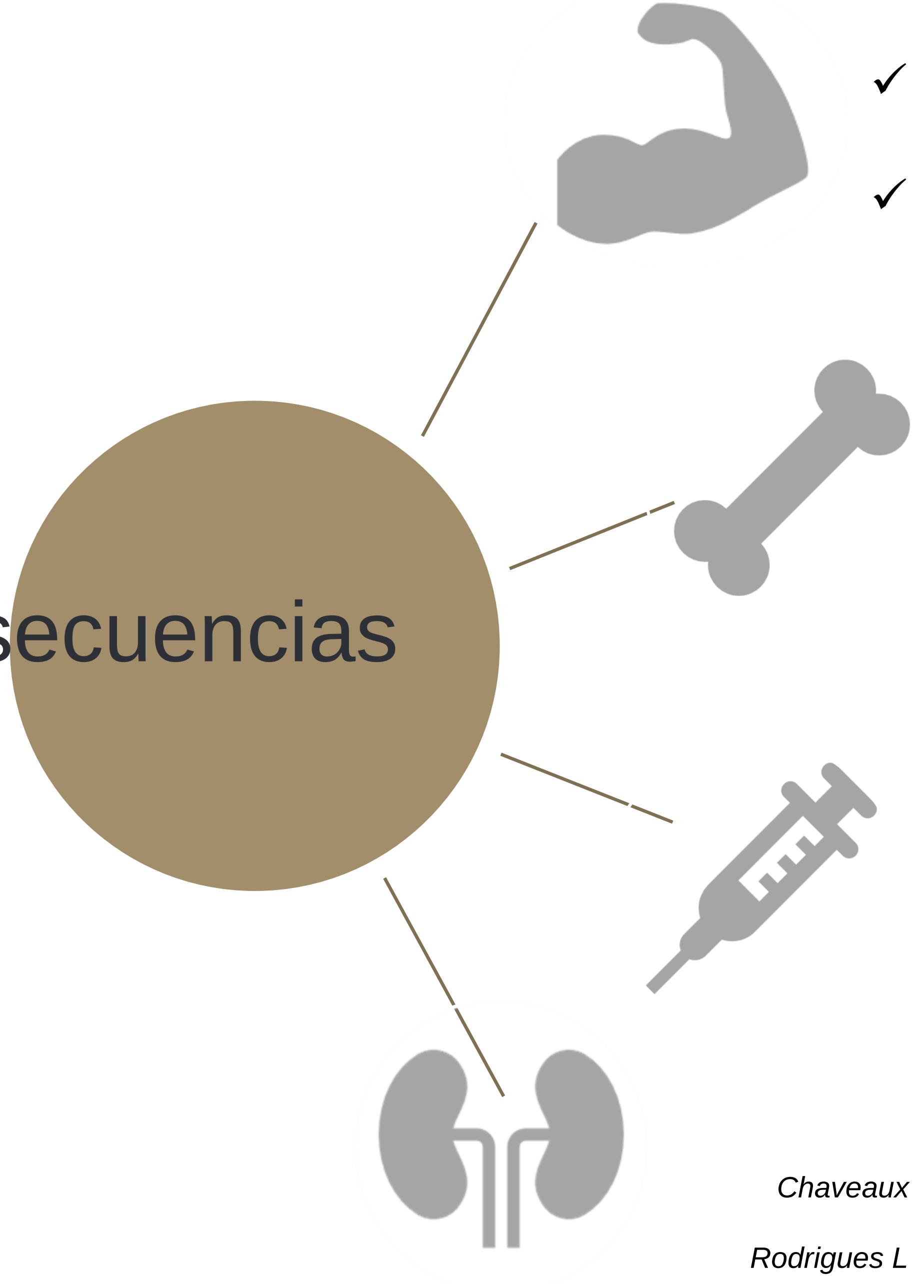


- ✓ Activación sistema ubiquitina-proteasoma
- ✓ Activación caspasa 3

- ✓ Activación de osteoclastos
- ✓ Inhibición osteoblastos

Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Consecuencias



- ✓ Activación sistema ubiquitina-proteasoma
- ✓ Activación caspasa 3

- ✓ Activación de osteoclastos
- ✓ Inhibición osteoblastos

- ✓ Inflamación

Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.

Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220..

High Dietary Acid Load Predicts ESRD among Adults with CKD

Tanushree Banerjee,* Deidra C. Crews,†‡ Donald E. Wesson,§ Anca M. Tilea,‖ Rajiv Saran,‖¶ Nilka Ríos-Burrows,** Desmond E. Williams,** and Neil R. Powe,*†† for the Centers for Disease Control and Prevention Chronic Kidney Disease Surveillance Team

Table 3. Adjusted RH for ESRD associated with tertiles of estimated DAL stratified by eGFR and albuminuria

Model Adjustment	Low	MDRD Equation (95% CI)				CKD-EPI Equation (95% CI)			
		n	Middle	High	*P* Trend	*n*	Middle	High	*P* Trend
eGFR (ml/min per 1.73 m^2)									
≥45	1.00 (ref)	854	1.55 (0.35 to 2.88)	2.63 (1.35 to 4.13)	0.04	671	1.44 (0.70 to 2.17)	2.26 (1.14 to 3.48)	0.001
<45	1.00 (ref)	485	2.33 (1.06 to 5.10)	4.25 (1.81 to 9.95)	0.001	536	2.12 (1.04 to 4.33)	3.83 (1.68 to 8.71)	0.001
Albuminuria (mg/g)									
<30	1.00 (ref)	722	0.77 (0.44 to 1.39)	1.19 (0.54 to 2.64)	0.21	654	0.76 (0.28 to 2.10)	1.04 (0.44 to 2.52)	0.06
≥30	1.00 (ref)	617	2.42 (1.14 to 5.18)	2.52 (1.10 to 5.76)	0.03	553	3.24 (1.19 to 8.86)	4.39 (1.89 to 10.22)	0.02

Adjusted for demographic factors (age, sex, and race), nutritional factors (BSA, total caloric intake per day, serum bicarbonate, and protein intake), clinical factors (diabetes and hypertension), and kidney function/damage status (eGFR and albuminuria). ref, Reference.

Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700.

Higher estimated net endogenous acid production with lower intake of fruits and vegetables based on a dietary survey is associated with the progression of chronic kidney disease

Koji Toba[1,2,3], Michihiro Hosojima[4*], Hideyuki Kabasawa[4], Shoji Kuwahara[1,5], Toshiko Murayama[1,6,7], Keiko Yamamoto-Kabasawa[8], Ryohei Kaseda[2], Eri Wada[2,9], Reiko Watanabe[10], Naohito Tanabe[10], Yoshiki Suzuki[11], Ichiei Narita[2] and Akihiko Saito[1]

Table 3 Estimated change in mean eGFR from 2008

Year	Estimated change of mean eGFR (95%CI)		Difference (95%CI)	
	NEAP < 50.1 (*n* = 50)	NEAP ≥50.1 (*n* = 45)		*P*
2011	−3.5 (−6.1, −1.0)	−6.1 (−8.8, − 3.4)	2.5 (−1.0, 6.1)	0.163
2014	−2.7 (−6.8, 1.4)	−8.5 (−12.8, −4.2)	5.9 (0.1, 11.6)	0.045

Unit of eGFR is ml/min/1.73 m^2; *BMI* Body mass index, *CI* Confidence interval, *eGFR* estimated glomerular filtration rate, *NEAP* Net endogenous acid production

Linear regression model adjusted for sex, BMI, proteinuria, diagnosis of diabetes in 2011, and baseline eGFR in 2008

Toba K et al. BMC Nephrol. 2019;20(1):421.

Table 4 Comparison of food intake between patients with higher NEAP and those with lower NEAP

	NEAP (mEq/day)		
	< 50.1 (*n* = 50) (25.6–50.1)	≥50.1 (*n* = 45) (50.8–79.2)	*P*
Cereals	227.9 ± 55.4	248.4 ± 64.6	0.099
Potatoes	25.6 ± 24.2	12.2 ± 6.6	< 0.001
Pulses	38.8 ± 43.1	28.6 ± 23.5	0.150
Green and yellow vegetables	68.9 ± 44.5	33.2 ± 20.7	< 0.001
Other vegetables	90.4 ± 51.9	51.3 ± 27.0	< 0.001
Fruits	120.8 ± 74.2	49.2 ± 34.4	< 0.001
Mushrooms	12.5 ± 10.8	5.3 ± 5.5	< 0.001
Algae	6.5 ± 6.3	5.4 ± 4.5	0.325
Fish and shellfish	39.2 ± 22.6	42.4 ± 26.0	0.529
Meats	21.4 ± 12.9	27.6 ± 14.8	0.031
Eggs	14.2 ± 11.2	19.5 ± 14.0	0.044
Dairy products	69.5 ± 79.0	59.9 ± 53.6	0.485
Pastries	26.4 ± 19.1	23.8 ± 19.1	0.511
Alcoholic beverages	33.2 ± 71.2	80.3 ± 127.2	0.031
Non-alcoholic beverages	516.8 ± 281.1	303.6 ± 227.9	< 0.001

Data are expressed as the mean ± standard deviation (g/1000 kcal). NEAP, net endogenous acid production

Toba K et al. BMC Nephrol. 2019;20(1):421.

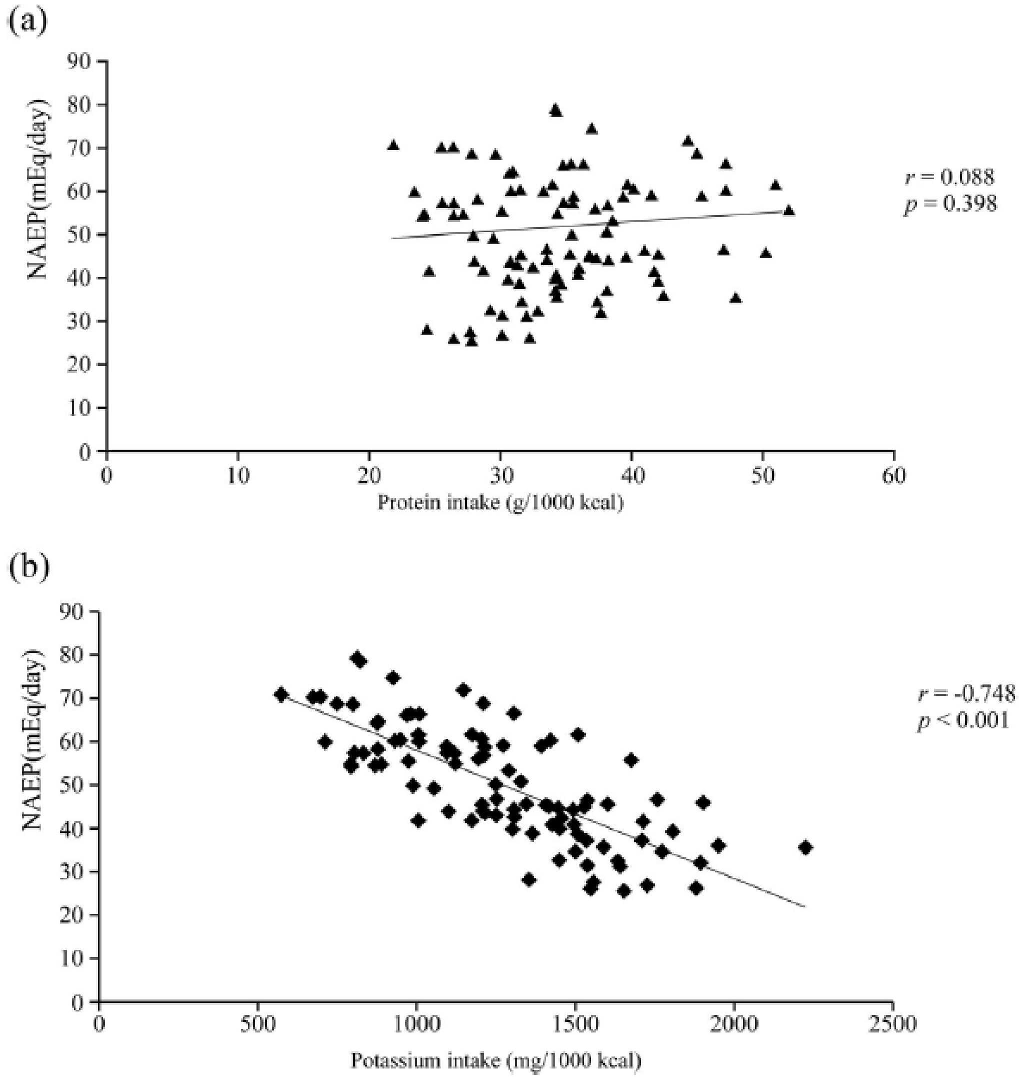


Fig. 2 Correlation of NEAP with protein and potassium intake. Scatter plots of NEAP vs. (**a**) protein intake and (**b**) potassium intake. *r*, Pearson's correlation coefficient. NEAP, net endogenous acid production

Toba K et al. BMC Nephrol. 2019;20(1):421.

Table 5 Crude and adjusted odds ratios for higher NEAP according to higher or lower intake of each food group

	Crude			Adjusted		
	OR	(95%CI)	*P*	OR	(95%CI)	*P*
Cereals (higher)	1.23	(0.55–2.75)	0.619			
Potatoes (lower)	3.56	(1.52–8.26)	0.003			
Sugar (lower)	1.04	(0.47–2.34)	0.914			
Pulses (lower)	1.47	(0.65–3.30)	0.353			
Nuts (higher)	2.25	(0.99–5.12)	0.053			
Green and yellow vegetables (lower)	7.94	(3.18–20.00)	< 0.001	5.18	(1.83–14.66)	0.002
Other vegetables (lower)	3.56	(1.52–8.26)	0.003	3.87	(1.29–11.62)	0.016
Fruits (lower)	6.41	(2.62–15.62)	< 0.001	6.45	(2.19–19.00)	0.001
Mushrooms (lower)	2.96	(1.28–6.80)	0.011			
Algae (lower)	1.04	(0.47–2.34)	0.914			
Fish and shellfish (higher)	1.34	(0.60–2.99)	0.476			
Meats (higher)	2.20	(0.99–5.12)	0.053	2.64	(0.92–7.61)	0.071
Eggs (higher)	2.20	(0.99–5.12)	0.053			
Dairy products (lower)	1.04	(0.47–2.34)	0.914			
Fats (higher)	1.16	(0.47–2.34)	0.753			
Oils (lower)	1.24	(0.55–2.78)	0.604			
Pastries (lower)	1.04	(0.47–2.34)	0.914			
Alcoholic beverages (higher)	1.33	(0.59–2.99)	0.489			
Seasoning (higher)	1.13	(0.51–2.54)	0.762			

CI Confidence interval, *NEAP* Net endogenous acid production, *OR* Odds ratio
Adjusted ORs were calculated using a multivariable logistic regression model. Variables with $p < 0.1$ for the crude ORs were candidates to be included in the multivariable model. From those candidates, variables for the multivariable model were selected by the forward stepwise method

Toba K et al. BMC Nephrol. 2019;20(1):421.

Rodrigues L et al. Eur J Clin Nutr. 2020;74(Suppl 1):69-75.
Adair K et al. Nutrients. 2020;12(4):1007.
Rodrigues L et al. J Ren Nutr. 2018;28(3):215-220.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700.

Carga ácida dietética

+

Proteínas

- Cantidad
- Calidad

Fósforo

−

Potasio

Calcio

Magnesio

Rodrigues L et al. Eur J Clin Nutr. 2020;74(Suppl 1):69-75.
Chaveaux P et al. Nephrol Dial Transplant. 2019; 34:199–207.
Rodrigues L et al. J Ren Nutr. 2018 ;28(3):215-220.

Medición de la carga ácida de la dieta

NEAP [mEq/d] = -10,2
+ 54,5 (g proteína diarios/mEq K diarios)

Dieta occidental: 34-76mEq/día
Dieta ERC: 47-71mEq/día
Dieta ancestral: -88mEq/día

Rodrigues L et al. Eur J Clin Nutr. 2020;74(Suppl 1):69-75.
Alhambra MR et al. Nutr Hosp. 2019;36(1):183-217.
Rodrigues L et al. J Ren Nutr. 2018 ;28(3):215-220.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Medición de la carga ácida de la dieta

NEAP [mEq/d] = -10,2
+ 54,5 (g proteína diarios/mEq K diarios)

PRAL= 0,49 x g proteína
+ 0,037 x mg P
– 0,021 x mg K
– 0,026 x mg Mg
– 0,013 x mg Ca

Dieta occidental: 34-76mEq/día
Dieta ERC: 47-71mEq/día
Dieta ancestral: -88mEq/día

Rodrigues L et al. Eur J Clin Nutr. 2020;74(Suppl 1):69-75.
Alhambra MR et al. Nutr Hosp. 2019;36(1):183-217.
Rodrigues L et al. J Ren Nutr. 2018 ;28(3):215-220.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Medición de la carga ácida de la dieta

Medición de la carga ácida de la dieta

Proteína 40g
(55% animal)
Potasio
983mg/25mEq
Fósforo 612mg
Magnesio 109mg
Calcio 195mg

Medición de la carga ácida de la dieta

Proteína 40g
(55% animal)
Potasio
983mg/25mEq
Fósforo 612mg
Magnesio 109mg
Calcio 195mg

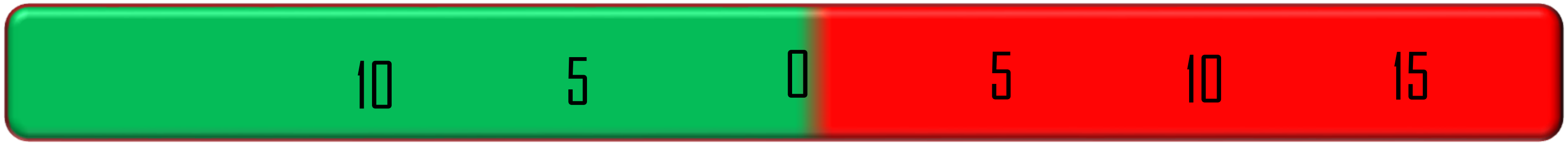
NEAP
76,4mEq/día
PRAL 16,2

Medición de la carga ácida de la dieta

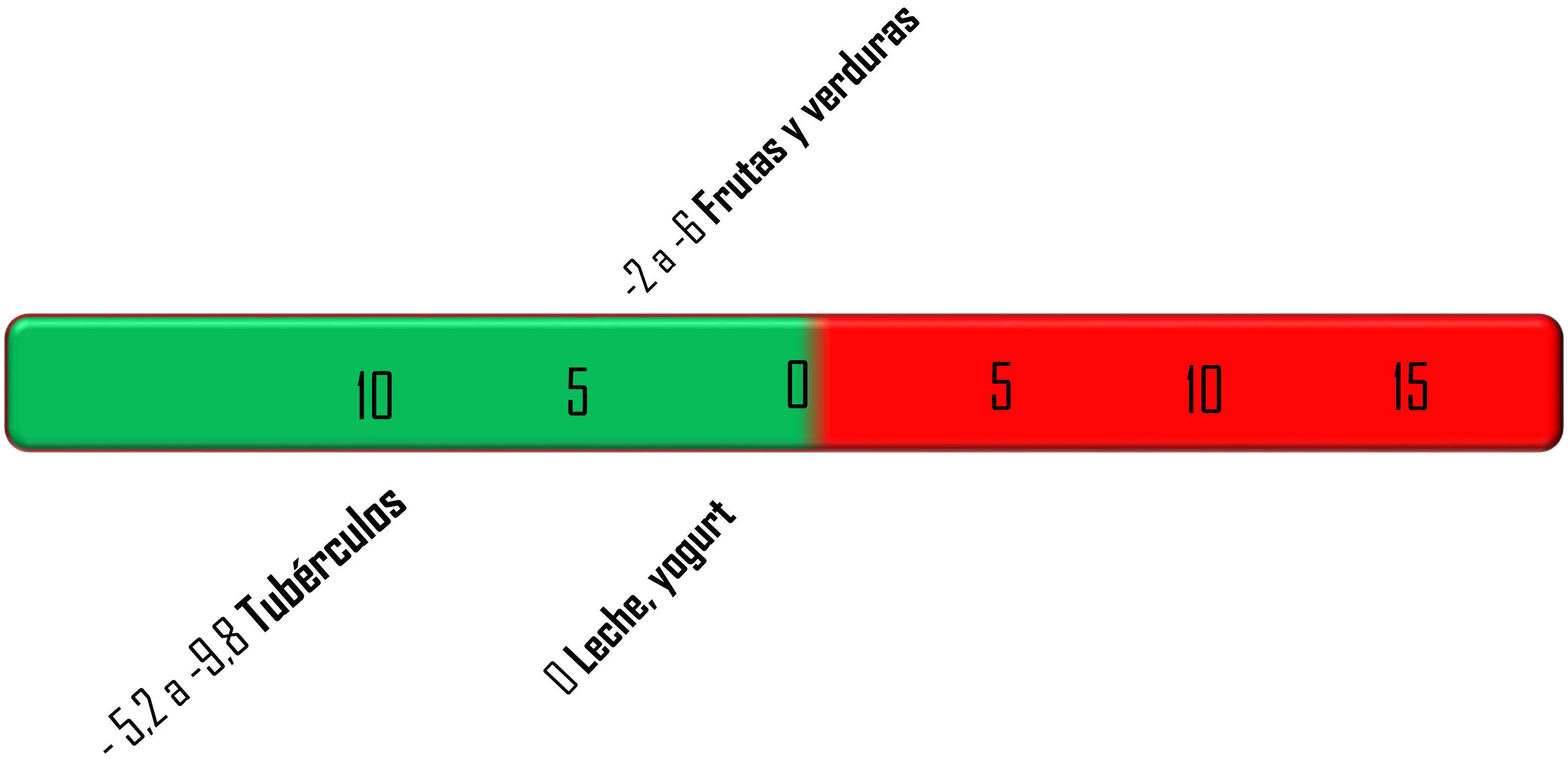
Proteína 40g
(55% animal)
Potasio
983mg/25mEq
Fósforo 612mg
Magnesio 109mg
Calcio 195mg

NEAP
76,4mEq/día
PRAL 16,2

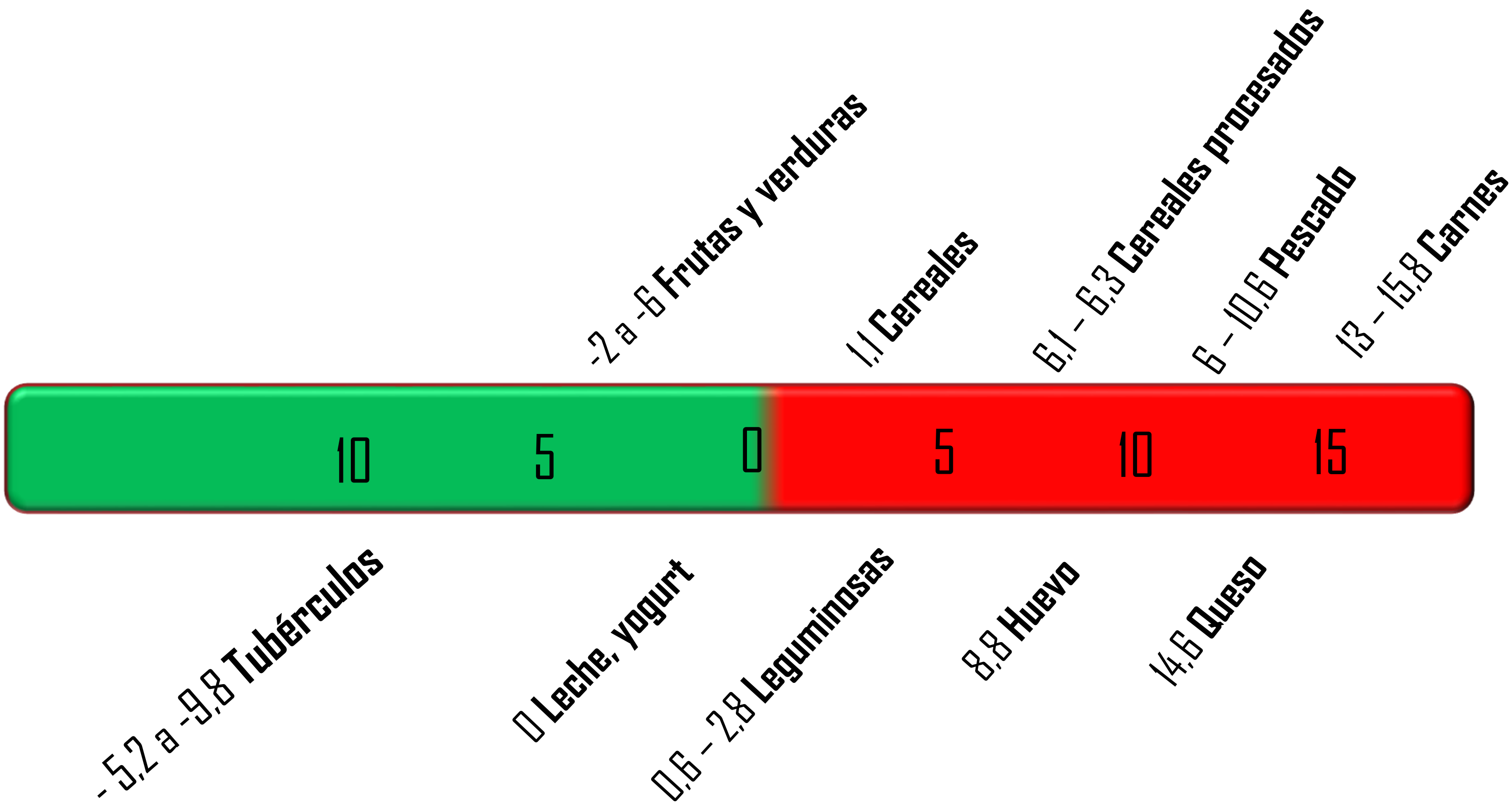
Índice PRAL



Índice PRAL


-2 a -6 Frutas y verduras
10
5
0
5
10
15
- 5,2 a -9,8 Tubérculos
0 Leche, yogurt

Índice PRAL



-2 a -6 Frutas y verduras
1,1 Cereales
6,1 – 6,3 Cereales procesados
6 – 10,6 Pescado
13 – 15,8 Carnes
10
5
0
5
10
15
- 5,2 a -9,8 Tubérculos
0 Leche, yogurt
0,6 – 2,8 Leguminosas
8,8 Huevo
14,6 Queso

KDOQI
KIDNEY DISEASE OUTCOMES QUALITY INITIATIVE
National Kidney Foundation

eat right. Academy of Nutrition and Dietetics

KDOQI CLINICAL PRACTICE GUIDELINE FOR NUTRITION IN CKD: 2020 UPDATE

T. Alp Ikizler, Jerrilynn D. Burrowes, Laura D. Byham-Gray, Katrina L. Campbell, Juan-Jesus Carrero, Winnie Chan, Denis Fouque, Allon N. Friedman, Sana Ghaddar, D. Jordi Goldstein-Fuchs, George A. Kaysen, Joel D. Kopple, Daniel Teta, Angela Yee-Moon Wang, and Lilian Cuppari

Guideline 6: Electrolytes

6.1 Statements on Acid Load

Dietary Management of Net Acid Production (NEAP)

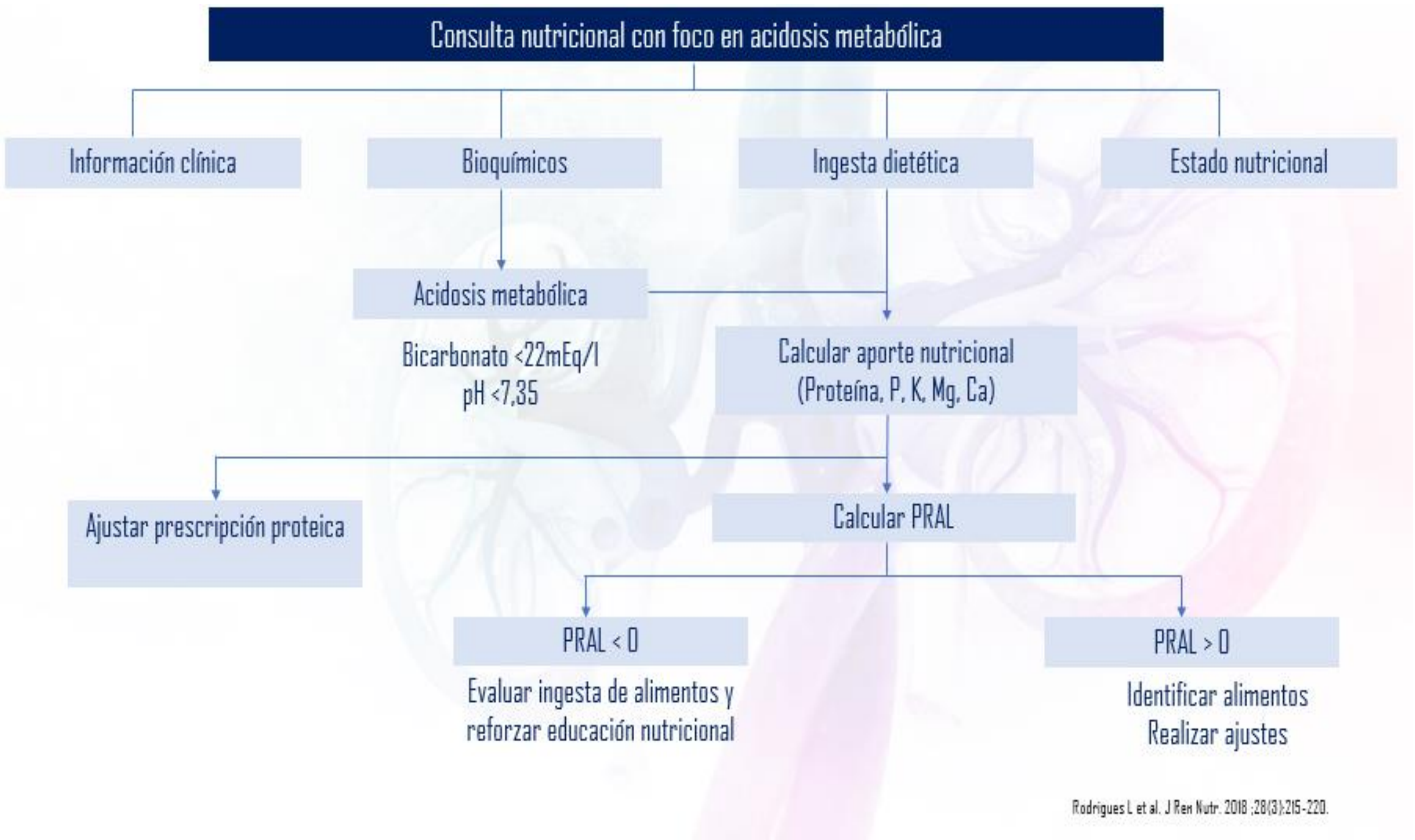
6.1.1 In adults with CKD 1-4, we suggest reducing net acid production (NEAP) through increased dietary intake of fruits and vegetables (*2C*) in order to reduce the rate of decline of residual kidney function.

Bicarbonate Maintenance

6.1.2 In adults with CKD 3-5D, we recommend reducing net acid production (NEAP) through increased bicarbonate or a citric acid/sodium citrate solution supplementation (*1C*) in order to reduce the rate of decline of residual kidney function.

6.1.3 In adults with CKD 3-5D, it is reasonable to maintain serum bicarbonate levels at 24-26 mmol/L (*OPINION*).

Ikizler T et al. Am J Kidney Dis. 2020 ;76(3 Suppl 1):S1-S107.


Consulta nutricional con foco en acidosis metabólica
Información clínica
Bioquímicos
Ingesta dietética
Estado nutricional
Acidosis metabólica
Bicarbonato <22mEq/l
pH <7,35
Calcular aporte nutricional
(Proteína, P, K, Mg, Ca)
Ajustar prescripción proteica
Calcular PRAL
PRAL < 0
Evaluar ingesta de alimentos y
reforzar educación nutricional
PRAL > 0
Identificar alimentos
Realizar ajustes
Rodrigues L et al. J Ren Nutr. 2018 ;28(3):215-220.

Definiciones dietas basadas en plantas

10-15 % VCT proteína
7-15 % VCT grasa
70 – 80 % VCT carbohidratos

DASH
Mediterránea

Carrero J T et al. Nat Rev Nephrol. 2020;16(9):525-542.
Adair K et al. Nutrients. 2020;12(4):1007.

Dieta dominante en plantas - PLADO

Kalantar Zadeh K et al. Nutrients. 2020;12(7):1931.
Adair K et al. Nutrients. 2020;12(4):1007.
Gluba-Brzózka A et al. Nutrients. 2017; 9(4):374.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Dieta dominante en plantas - PLADO

Ventajas	
	- Riesgo de desgaste proteico energético - Inadecuado aporte de aminoácidos esenciales - Alto índice glucémico - Alta carga de potasio e hiperkalemia - Baja palatabilidad y adherencia - Inadecuada ingesta de omega 3 (si es vegano) - Bajo aporte de micronutrientes (B_{12}, Ca, Zn, Fe)

Kalantar Zadeh K et al. Nutrients. 2020;12(7):1931.
Adair K et al. Nutrients. 2020;12(4):1007.
Gluba-Brzózka A et al. Nutrients. 2017; 9(4):374.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Dieta dominante en plantas - PLADO

Ventajas	Desventajas
	• Riesgo de desgaste proteico energético • Inadecuado aporte de aminoácidos esenciales • Alto índice glucémico • Alta carga de potasio e hiperkalemia • Baja palatabilidad y adherencia • Inadecuada ingesta de omega 3 (si es vegano) • Bajo aporte de micronutrientes (B_{12}, Ca, Zn, Fe)

Kalantar Zadeh K et al. Nutrients. 2020;12(7):1931.
Adair K et al. Nutrients. 2020;12(4):1007.
Gluba-Brzózka A et al. Nutrients. 2017; 9(4):374.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Dieta dominante en plantas - PLADO

Ventajas

- Fósforo menos biodisponible (menor absorción)
- Disminución de la carga ácida (Índice PRAL)
- Alto aporte de fibra (motilidad gastrointestinal)
- Cambios favorables en la microbiota
- Reducción de factores de riesgo cardiovascular

Desventajas

- Riesgo de desgaste proteico energético
- Inadecuado aporte de aminoácidos esenciales
- Alto índice glucémico
- Alta carga de potasio e hiperkalemia
- Baja palatabilidad y adherencia
- Inadecuada ingesta de omega 3 (si es vegano)
- Bajo aporte de micronutrientes (B_{12}, Ca, Zn, Fe)

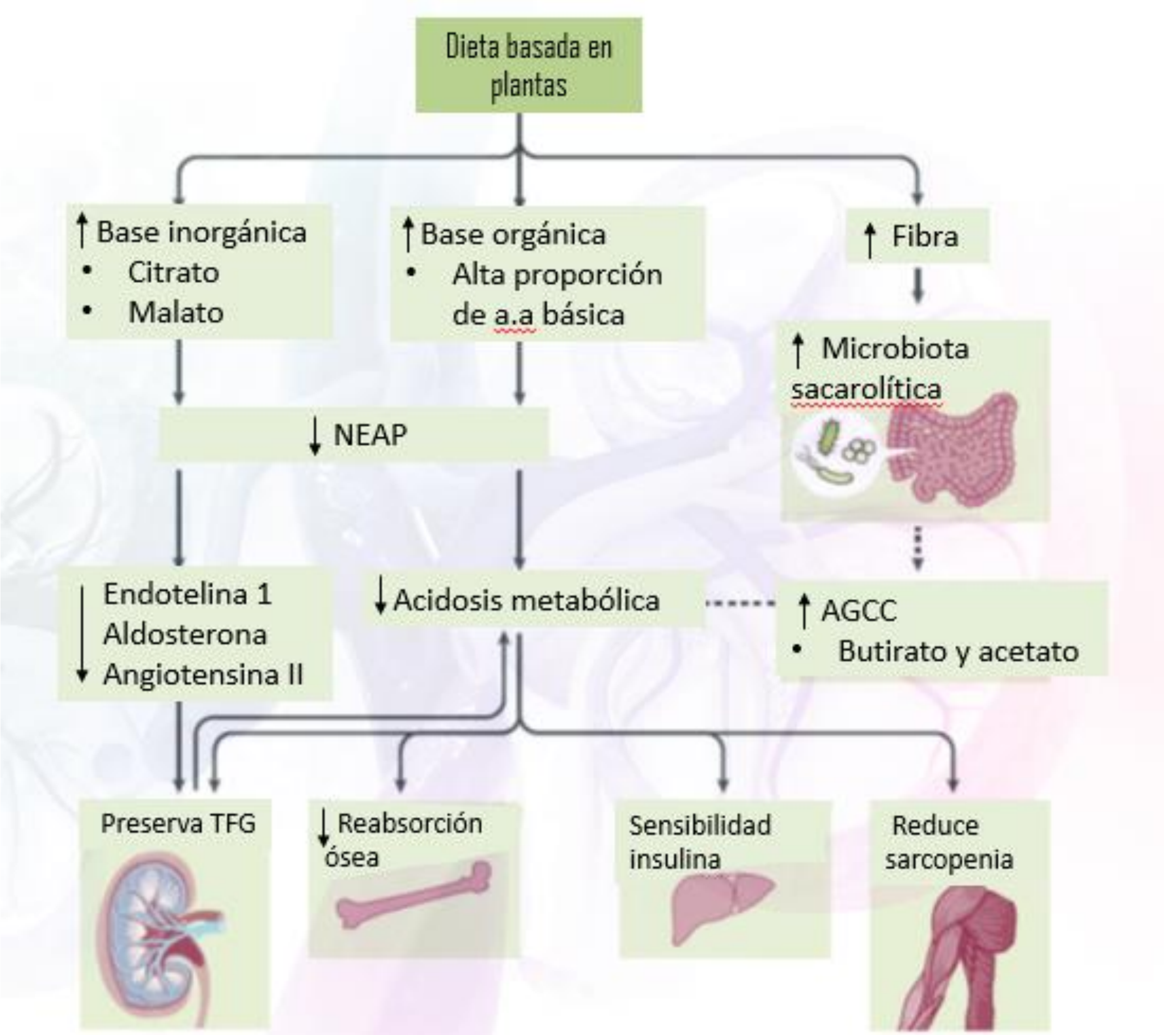
Kalantar Zadeh K et al. Nutrients. 2020;12(7):1931.
Adair K et al. Nutrients. 2020;12(4):1007.
Gluba-Brzózka A et al. Nutrients. 2017; 9(4):374.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Dieta dominante en plantas - PLADO

Ventajas	Desventajas
• Fósforo menos biodisponible (menor absorción) • Disminución de la carga ácida (Índice PRAL) • Alto aporte de fibra (motilidad gastrointestinal) • Cambios favorables en la microbiota • Reducción de factores de riesgo cardiovascular	• Riesgo de desgaste proteico energético • Inadecuado aporte de aminoácidos esenciales • Alto índice glucémico • Alta carga de potasio e hiperkalemia • Baja palatabilidad y adherencia • Inadecuada ingesta de omega 3 (si es vegano) • Bajo aporte de micronutrientes (B_{12}, Ca, Zn, Fe)

Kalantar Zadeh K et al. Nutrients. 2020;12(7):1931.
Adair K et al. Nutrients. 2020;12(4):1007.
Gluba-Brzózka A et al. Nutrients. 2017; 9(4):374.
Banerjee T et al. J Am Soc Nephrol. 2015;26(7):1693-700

Implementación de dieta PLADO



Carrero J T et al. Nat Rev Nephrol. 2020;16(9):525-542.

KDOQI
KIDNEY DISEASE OUTCOMES QUALITY INITIATIVE
National Kidney Foundation

eat right. Academy of Nutrition and Dietetics

KDOQI CLINICAL PRACTICE GUIDELINE FOR NUTRITION IN CKD: 2020 UPDATE

T. Alp Ikizler, Jerrilynn D. Burrowes, Laura D. Byham-Gray, Katrina L. Campbell, Juan-Jesus Carrero, Winnie Chan, Denis Fouque, Allon N. Friedman, Sana Ghaddar, D. Jordi Goldstein-Fuchs, George A. Kaysen, Joel D. Kopple, Daniel Teta, Angela Yee-Moon Wang, and Lilian Cuppari

Guideline 3: Protein and Energy Intake

3.0 Statements on Protein Amount

Protein Restriction, CKD Patients Not on Dialysis and Without Diabetes

3.0.1 In adults with CKD 3-5 who are metabolically stable, we recommend, under close clinical supervision, protein restriction with or without keto acid analogs, to reduce risk for end-stage kidney disease (ESKD)/death (*1A*) and improve quality of life (QoL) (*2C*):

- a low-protein diet providing 0.55–0.60 g dietary protein/kg body weight/day, or
- a very low-protein diet providing 0.28–0.43 g dietary protein/kg body weight/day with additional keto acid/amino acid analogs to meet protein requirements (0.55–0.60 g/kg body weight/day)

Protein Restriction, CKD Patients Not on Dialysis and With Diabetes

3.0.2 In the adult with CKD 3-5 and who has diabetes, it is reasonable to prescribe, under close clinical supervision, a dietary protein intake of 0.6-0.8 g/kg body weight per day to maintain a stable nutritional status and optimize glycemic control (*OPINION*).

Ikizler T et al. Am J Kidney Dis. 2020;76(3 Suppl 1):S1-S107.

Metabólicamente estable

Ikizler T et al. Am J Kidney Dis. 2020 ;76(3 Suppl 1):S1-S107

Metabólicamente estable

Ausencia de:

Ikizler T et al. Am J Kidney Dis. 2020 ;76(3 Suppl 1):S1-S107

Metabólicamente estable

Ausencia de:

- Enfermedades inflamatorias o infecciosas activas
- Hospitalización en las últimas dos semanas
- Diabetes mal controlada
- Enfermedades desgastantes como el cáncer
- Antibióticos o medicamentos inmunosupresores
- Pérdida significativa de peso corporal a corto plazo

Ikizler T et al. Am J Kidney Dis. 2020 ;76(3 Suppl 1):S1-S107

Absorción de potasio

	Vegetal	Animal	Aditivos
			
Absorción	50-60%	70-90%	90-100%

Picard K et al. J Ren Nutr. 2020;S1051-2276(20)30183-7.
Palmer B et al. Kidney360. 2020: 10-34067.

Check for updates

OPEN

Potassium homeostasis and management of dyskalemia in kidney diseases: conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference

Catherine M. Clase[1,2], Juan-Jesus Carrero[3], David H. Ellison[4], Morgan E. Grams[5,6], Brenda R. Hemmelgarn[7,8], Meg J. Jardine[9,10], Csaba P. Kovesdy[11,12], Gregory A. Kline[13], Gregor Lindner[14], Gregorio T. Obrador[15], Biff F. Palmer[16], Michael Cheung[17], David C. Wheeler[18], Wolfgang C. Winkelmayer[19] and Roberto Pecoits-Filho[20,21]; for Conference Participants[22]

Dietary potassium in persons with CKD. To prevent hyperkalemia in patients with advanced CKD and end-stage kidney disease (ESKD) who are undergoing hemodialysis, opinion-based guidelines recommend a low-potassium diet (Supplementary Table S3). This practice is widespread, and studies evaluating adherence to dietary recommendations in patients undergoing hemodialysis consistently report low potassium intake with corresponding low intake of fruits, vegetables, and other plant-derived compounds (e.g., fiber, vitamin C, and carotenoids).[67,68] However, observational studies in persons with CKD or ESKD report weak associations between dietary potassium intake and potassium concentration,[69–72] challenging the belief that the amount of potassium consumed strongly influences potassium concentration.

Clase C et al. Kidney Int. 2020;97(1):42-61

Potassium homeostasis and management of dyskalemia in kidney diseases: conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference

Check for updates

OPEN

Catherine M. Clase[1,2], Juan-Jesus Carrero[3], David H. Ellison[4], Morgan E. Grams[5,6], Brenda R. Hemmelgarn[7,8], Meg J. Jardine[9,10], Csaba P. Kovesdy[11,12], Gregory A. Kline[13], Gregor Lindner[14], Gregorio T. Obrador[15], Biff F. Palmer[16], Michael Cheung[17], David C. Wheeler[18], Wolfgang C. Winkelmayer[19] and Roberto Pecoits-Filho[20,21]; for Conference Participants[22]

Table 6 | Approaches to the management of chronic hyperkalemia

Strategy	Comment
Dietary potassium restriction	• Reliant on lifestyle change • Uncertainty on degree and reliability of response • Poor evidence base to support the practice • Financial cost of special diets • Practical issues in implementation • Potential for harm because of impact of diet on intake of other beneficial nutrients, healthy dietary pattern • Potential for harm through loss of enjoyment in food and impact on social activities

Clase C et al. Kidney Int. 2020;97(1):42-61

Otros aspectos a considerar

Oxalato

- No alcalís

Sal

- Disminuye bicarbonato

Bebidas

- Ácido carbónico
- Ácido fosfórico

Passey C. J Ren Nutr. 2017;27(3):151-160.
Palmer B et al. Kidney360. 2020: 10-34067

En el día a día

En el día a día

En el día a día

2 intercambios de leguminosa y 2 cereal

En el día a día

2 intercambios de leguminosa y 2 cereal

Proteína 39g
(100% vegetal)
Potasio
1364mg/35mEq
Fósforo 691mg
Magnesio 182mg
Calcio 209mg

En el día a día

2 intercambios de leguminosa y 2 cereal

Proteína 39g
(100% vegetal)
Potasio
1364mg/35mEq
Fósforo 691mg
Magnesio 182mg
Calcio 209mg

NEAP 76,4mEq/día
PRAL 16,2

En el día a día

2 intercambios de leguminosa y 2 cereal

Proteína 39g
(100% vegetal)
Potasio
1364mg/35mEq
Fósforo 691mg
Magnesio 182mg
Calcio 209mg

NEAP 50,9mEq/día
PRAL 8,7

NEAP 76,4mEq/día
PRAL 16,2

Otra opción

Otra opción

Otra opción

Otra opción

Proteína 41g (54% animal)
Potasio 1688mg/43mEq
Fósforo 662mg
Magnesio 148mg
Calcio 225mg

Otra opción

Proteína 41g (54% animal)
Potasio 1688mg/43mEq
Fósforo 662mg
Magnesio 148mg
Calcio 225mg

NEAP 76,4mEq/día
PRAL 16,2

Otra opción

Proteína 41g (54% animal)
Potasio 1688mg/43mEq
Fósforo 662mg
Magnesio 148mg
Calcio 225mg

NEAP 76,4mEq/día
PRAL 16,2

NEAP 50,9mEq/día
PRAL 8,7

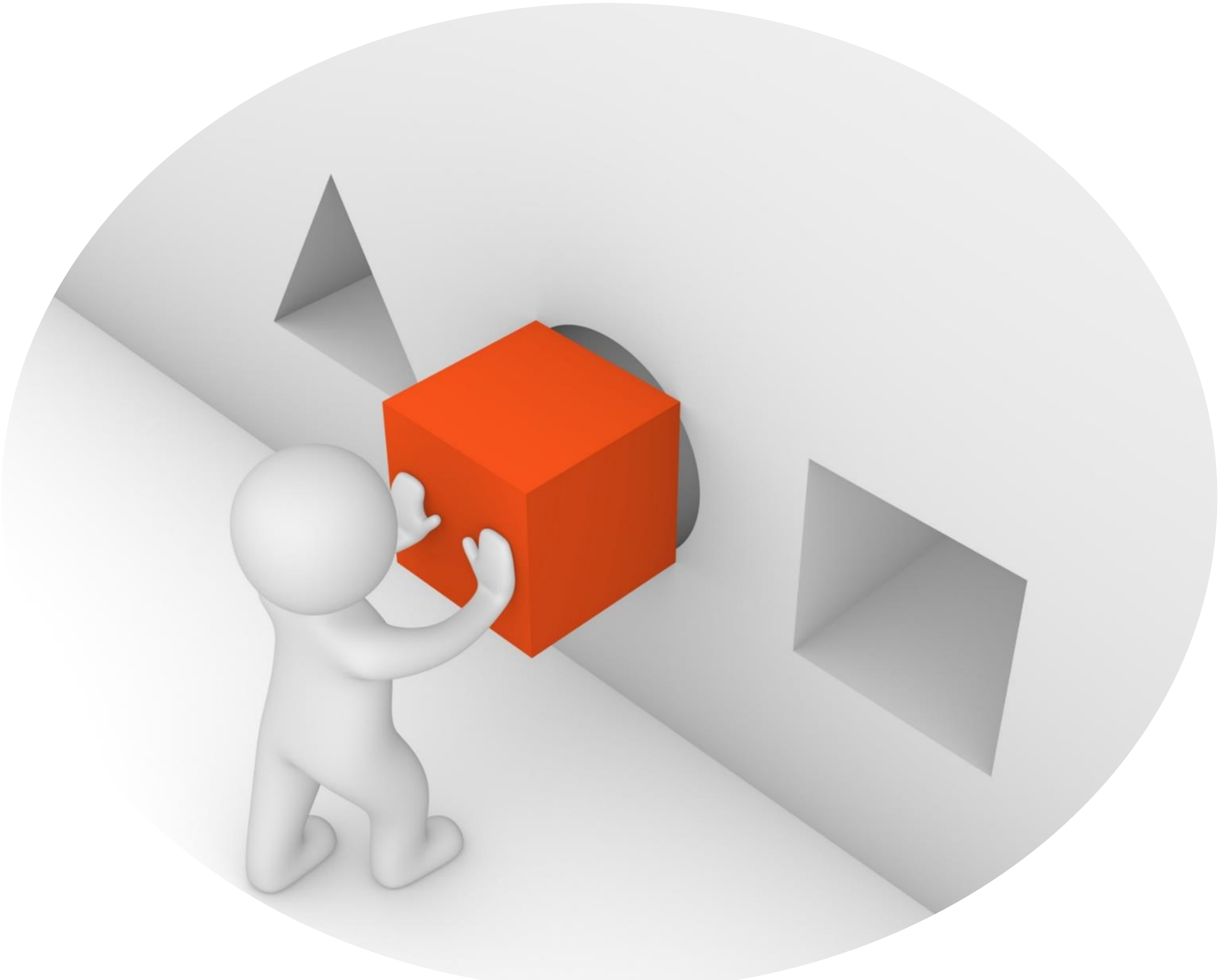
Otra opción

Proteína 41g (54% animal)
Potasio 1688mg/43mEq
Fósforo 662mg
Magnesio 148mg
Calcio 225mg

NEAP 41,5mEq/día
PRAL 2,4

NEAP 76,4mEq/día
PRAL 16,2

NEAP 50,9mEq/día
PRAL 8,7



cristina.posada@nutricioncelan.com

¡Muchas gracias!

CRISTINA POSADA ÁLVAREZ
ND ESP. BIOQUÍMICA CLÍNICA
DIRECTORA ACADÉMICA DE CELAN