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**CALCIUM AND PHOSPHORUS UTILIZATION BY OMNIVORES AND
VEGETARIANS**

The University of Nebraska - Lincoln

PH.D. 1984

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PREVIEW

CALCIUM AND PHOSPHORUS UTILIZATION
BY OMNIVORES AND VEGETARIANS

by

Nweze E. Nnakwe, Ph.D.

A DISSERTATION

Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Philosophy

Major: Interdepartmental Area of Nutrition

Under the Supervision of Professor Constance Kies

Lincoln, Nebraska

May, 1984

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TITLE

Calcium and Phosphorus Utilization

by Omnivores and Vegetarians

BY

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CALCIUM AND PHOSPHORUS UTILIZATION

BY OMNIVORES AND VEGETARIANS

Nweze E. Nnakwe, Ph.D.

Advisor: Constance Kies, Ph.D.

Studies were conducted to investigate the utilization of dietary calcium and phosphorus from two kinds of wheat bran in lacto-ovo-vegetarian, vegan, and omnivore diets by lacto-ovo-vegetarians and omnivores. Normal urinary calcium and phosphorus response to intake of calcium and phosphorus was evaluated using 24-hour composites. Results suggested lacto-ovo-vegetarians showed better ability to absorb calcium and phosphorus from lacto-ovo-vegetarian diets with or without bran supplements than did omnivores. However, lacto-ovo-vegetarians fed bran supplemented diets tended to increase their urinary calcium excretion to a greater extent than did the omnivore group. It was postulated that this hypercalciuria might have been due to the increased ability of the lacto-ovo-vegetarians to absorb phosphorus.

The effect of variations in calcium and phosphorus intake levels fed with either animal or plant proteins on bone breaking strength and calcium and phosphorus utilization of weanling mice was investigated. Sixty-four weanling mice were fed either 0.3% calcium and 0.3% phosphorus or 1.2% calcium and 1.2% phosphorus plus animal or plant protein for eight weeks. Mice fed animal protein diets had more resistance to bone breakage than did the plant

protein fed mice. Feeding of animal proteins in comparison to plant diets apparently inhibited absorption of phosphorus. Feeding of low phosphorus diets also enhanced femur bone breakage resistance in comparison to feeding of high calcium diets which resulted in increased fecal phosphorus excretions and decreased urinary phosphorus excretion.

The attitudes of physicians and nurses as well as nutritional attributes of plant product oriented diets and general nutritional attitudes were surveyed in Imo, Nigeria. Physicians and nurses were found to have favorable attitudes toward nutrition and fairly high nutrition knowledge scores. However, nurses and physicians surveyed were not confident of their knowledge of nutrition; physicians were more confident than the nurses surveyed. A need for education concerning nutritional attributes of plant products was found.

PREVIEW

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PREVIEW

TABLE OF CONTENTS

	Page
Acknowledgments	i
List of Tables	iv
List of Figures	vii
List of Appendix Tables	viii
 INTRODUCTION	 1
LITERATURE REVIEW	4
Conclusion	37
LITERATURE CITED	39
 HUMAN FEEDING STUDY - CALCIUM AND PHOSPHORUS UTILI- ZATION BY OMNIVORES AND VEGETARIANS	
Objective	50
Experimental Plan	50
Results and Discussion	68
Conclusion	93
 ANIMAL STUDY - THE EFFECT OF DIFFERENT LEVELS OF CALCIUM AND PHOSPHORUS WITH EITHER ANIMAL OR PLANT PROTEIN	
Introduction	94
Experimental Procedure	96
Results and Discussion	103
Conclusion	138
LITERATURE CITED	140
 SURVEY - THE GENERAL NUTRITION ATTITUDES AND KNOW- LEDGE OF NURSES AND PHYSICIANS ON NUTRITIONAL ATTRI- BUTES OF PLANT PRODUCT ORIENTED DIETS	
Introduction	141
Experimental Procedure	147
Results and Discussion	151
Conclusion	165
LITERATURE CITED	167
SUMMARY	169
APPENDICES	172

LIST OF TABLES

TABLE		Page
HUMAN STUDY		
1	Experimental plan for Study A. Lacto-ovo-vegetarian fed lacto-ovo-vegetarian diets supplemented with red wheat bran, white wheat bran or no bran	51
2	Randomization of diet, Study A	52
3	Experimental plan for Study B. Omnivores fed lacto-ovo-vegetarian diets supplemented with red wheat bran, white wheat bran or no bran	53
4	Randomization of diets, Study B	54
5	Experimental plan for Study C. Omnivores fed vegetarian diets supplemented with red wheat bran, white wheat bran or no bran	55
6	Randomization of diets, Study C	56
7	Experimental plan for Study D. Omnivores fed omnivore and lacto-ovo-vegetarian diets supplemented with red wheat bran, white wheat bran or no bran	57
8	Randomization of diets, Study D	58
9	Basal diet	61
10	Subject information	64
11	Mean calcium intakes and uncorrected, corrected fecal calcium losses, calcium recoveries, urinary losses and calcium balances of lacto-ovo-vegetarians consuming lacto-ovo-vegetarian diet and omnivores consuming lacto-ovo-vegetarian, omnivore and vegan diet with and without bran supplements	69

LIST OF TABLES (cont.)

TABLE		Page
12	Mean uncorrected and corrected dry fecal weight and urinary creatinine of lacto-ovo-vegetarians consuming lacto-ovo-vegetarian diets and omnivores consuming lacto-ovo-vegetarian, omnivore, and vegan diets with and without bran supplements	71
13	Mean phosphorus intakes, fecal losses, recoveries, urinary phosphorus losses and balances of lacto-ovo-vegetarians consuming lacto-ovo-vegetarian diets and omnivores consuming lacto-ovo-vegetarian, omnivore, and vegan diets with and without bran supplements	75
14	Mean corrected and uncorrected fecal and urinary phosphorus losses, recoveries, and phosphorus Balances of lacto-ovo-vegetarians consuming lacto-ovo-vegetarian diets and omnivores consuming lacto-ovo-vegetarian, omnivore, and vegan diets with and without bran supplements	77
15	Composition of Rations	97
16	Catalog #40060, Vitamin Mix, TEKLAD	99
17	Mineral Mix, Ca-P Deficient	100
18	Effect of various levels of calcium (Ca) and phosphorus (P) fed with soy or egg white protein on mice bone (femur)	104
19	Parameters affected by alterations in dietary protein source and calcium and phosphorus level; statistically significant relationships (orthogonal contrast analysis)	105
20	Summary of effects of alterations in dietary protein and calcium and phosphorus sources in diets of young mice	108

LIST OF TABLES (cont.)

TABLE		Page
21	Effect of various levels of calcium and phosphorus with soy or egg white protein on bone calcium, bone phosphorus, serum calcium, and serum phosphorus	114
22	Effect of various levels of calcium (Ca) and phosphorus (P) with soy or egg white protein on fecal phosphorus, fecal calcium, urine phosphorus, and urine calcium	122
23	Effect of various levels of calcium (Ca) and phosphorus (P) with soy or egg white animal protein on growth of mice	128
24	Response of physicians and nurses to items assessing nutrition knowledge	153
25	Response of physicians and nurses to items assessing nutrition attitudes	160

LIST OF FIGURES

Figure		Page
1	The effect of different levels of phosphorus and source of protein on bone breaking strength	109
2	The effect of different levels of calcium and phosphorus on mice bone weight	111
3	The effect of different levels of calcium and phosphorus on mice bone ash weight	116
4	The effect of different levels of calcium and phosphorus on mice bone calcium	119
5	The effect of different levels of calcium and phosphorus on bone phosphorus and calcium (femur)	120
6	The effect of different levels of calcium and phosphorus on fecal calcium and phosphorus.	124
7	The effect of different levels of calcium and phosphorus on mice serum level	126
8	The effect of different levels of calcium and phosphorus on urinary phosphorus excretion	129
9	The effect of different levels of calcium on mice weight gain	131
10	The effect of different levels of calcium and phosphorus on mice feed intake	132
11	The effect of different levels of calcium and phosphorus on mice feed efficiency	134

LIST OF APPENDIX TABLES

TABLE		Page
A-1	Bread Recipe - 1 Loaf	172
A-2	AACC Certified Wheat Bran Analysis	173
A-3	Invitation to Participate in Human Study	175
A-4	Consent Form	177
A-5	Sample preparation of feces	179
	Serum, feces and urine sample preparation for calcium determination	180
	Serum, feces and urine sample preparation for phosphorus determination	181
A-6	Individual dry fecal weights (g/period) Omnivores fed omnivore diet (Omnivore por- tion of Study D).....	182
	Individual dry fecal weights (g/period) Omnivores fed a vegan diet (Study C)	183
	Individual dry fecal weights (g/period) Lacto-vegetarians fed a lacto-vegetarian diet (Study A)	184
	Individual dry fecal weights (g/period) Omnivores fed a lacto-vegetarian diet (Study B and lacto-vegetarian portion of Study D)	185
A-7	Individual mean urinary excretion values of creatinine (g/day) by diet of omnivores fed a lacto-vegetarian diet (Study B and lacto-vegetarian portion of Study D)	186
	Individual mean urinary excretion values of creatinine (g/day) by diet of lacto- vegetarians fed a lacto-vegetarian diet (Study A)	187
	Individual mean urinary excretion values of creatinine (g/day) of omnivores fed omnivore diet (Omnivore portion of Study D)	188
	Individual mean urinary excretion values of creatinine (g/day) by diet of omni- vores fed a vegan diet (Study C)	189

LIST OF APPENDIX TABLES (cont.)

TABLE		Page
A-8	Individual data; Group 1, lacto-ovo-vegetarian females eating a lacto-vegetarian laboratory controlled diet. Effect of red bran and white bran on parameters of calcium and phosphorus nutritional status	190
A-9	Individual data; Group 2, omnivore females and males eating lacto-vegetarian laboratory controlled diet. Effect of red bran and white bran on parameters of nutritional status	193
A-10	Individual data; Group 3 omnivore females eating an omnivore laboratory controlled diet. Effect of red and white bran on parameters of iron nutritional status	198
A-11	Individual data; Group 4, omnivore females eating a vegan laboratory controlled diet. Effect of red and white bran on parameters of iron nutritional status	201
A-12	ANOVA for Effect of group and diet on urinary calcium values of all subjects in Study I	203
A-13	ANOVA for effect of group and diet on serum phosphorus values of all the subjects in Study I	207
A-14	ANOVA for effect of bran and diet on omnivore fed either omnivore diet or lacto-ovo-vegetarian diet on serum, urine and fecal calcium	211
A-15	ANOVA for effect of bran and diet on omnivores fed either omnivore diet or lacto-ovo-vegetarian diet on serum, urine and fecal phosphorus	220

LIST OF APPENDIX TABLES (cont.)

TABLE		Page
B-1	Procedures for mice bone work	229
	Sample preparation of feces	230
	Serum, feces and urine sample prepara- tion for calcium determination	232
	Serum, feces, and urine sample prepara- tion for phosphorus determination	233
B-2	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment one.	234
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment two.	235
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment three	236
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment four.....	237
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment five.	238
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment six.....	239
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment seven.	240
	Individual mouse initial weight, total weight gain, total feed intake, feed efficiency. Treatment eight.	241
B-3	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment one.	242
	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment two.	243
	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment three.	244
	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment four.	245

LIST OF APPENDIX TABLES (cont.)

TABLE		Page
B-3	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment five.	246
	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment six.	247
	Individual mouse bone breaking strength, ash weight, and bone weight (Femur). Treatment seven.	248
	Individual mouse bone breaking strength, ash weight, and bone weight (femur). Treatment eight.	249
B-4	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment one.	250
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment two.	251
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment three.	252
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment four.	253
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment five.	254
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment six.	255
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment seven.	256
	Individual mouse fecal calcium, urine cal- cium, serum calcium, and bone calcium. Treatment eight.	257
B-5	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment one.	258

LIST OF APPENDIX TABLES (cont.)

TABLE		Page
B-5	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment two.	259
	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment three.	260
	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment four.	261
	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment five.	262
	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment six.	263
	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment seven.	264
	Individual mouse fecal phosphorus, urine phosphorus, serum phosphorus, and bone phosphorus. Treatment eight.	265
B-6	Analysis of variance of bone breaking strength of mice femur	266
B-7	Analysis of variance of mice bone weight	266
B-8	Analysis of variance of mice bone ash weight	266
B-9	Analysis of variance of fecal calcium of mice	267
B-10	Analysis of variance of urine calcium of mice	267
B-11	Analysis of variance of serum cal- cium of mice	267
B-12	Analysis of variance of bone cal- cium of mice	268

LIST OF APPENDIX TABLES (cont.)

TABLE		Page
B-13	Analysis of variance of fecal phosphorus of mice	260
B-14	Analysis of variance of urine phosphorus of mice	268
B-15	Analysis of variance of serum phosphorus of mice	269
B-16	Analysis of variance of bone phosphorus of mice	269
B-17	Orthogonal contrast analysis of bone breaking strength of mice femur	270
B-18	Orthogonal contrast analysis of mice bone weight	270
B-19	Orthogonal contrast analysis of mice bone ash weight	271
B-20	Orthogonal contrast analysis of mice fecal calcium	271
B-21	Orthogonal contrast analysis of mice urinary calcium	272
B-22	Orthogonal contrast analysis of mice serum calcium	272
B-23	Orthogonal contrast analysis of mice bone calcium (femur)	273
B-24	Orthogonal contrast analysis of mice fecal phosphorus	273
B-25	Orthogonal contrast analysis of mice urinary phosphorus	274
B-26	Orthogonal contrast analysis of mice serum phosphorus	274
B-27	Orthogonal contrast analysis of mice bone phosphorus (femur)	275

LIST OF APPENDIX TABLES (cont.)

TABLE		Page
B-28	Least square means for mice bone breaking strength, bone weight, and ash weight	276
B-29	Least square means for mice bone calcium and bone phosphorus	279
B-30	Least square means for mice fecal calcium, fecal phosphorus, urinary calcium, and urinary phosphorus	281
B-31	Least square means for mice initial weight, weight gain, feed intake, and feed efficiency	285
B-32	Least square means for mice serum calcium and phosphorus levels	289
C-1	General linear models procedure	291
C-2	Kendall Tau-B correlation coefficients for scores on the nutrition knowledge and attitudes of the physicians and nurses	293
C-3	Survey of nutrition knowledge	294
C-4	Survey of nutrition attitudes	298
C-5	Introductory letter to survey	301