Supplementary Table 1: Serum levels of vitamins, nutritional markers and biomarkers in chronic pancreatitis patients, stratified by PERT usage

Variable (reference range)	Chronic Pancreatitis patients		p-value*
	PERT use No (135)	PERT use Yes (166)	
Vitamin A (30-105 μg/dL)	36.6 [26.0, 50.5]	43.3 [34.6, 54.1]	0.04
Vitamin B12 (cobalamin) (210-911 pg/mL)	717.0 [562.5, 918.0]	685.5 [568.5, 918.8]	0.87
Vitamin D (25-hydroxy vitamin D3) (10-55 ng/mL)	21.0 [11.8, 31.8]	20.3 [10.9, 34.3]	0.87
Vitamin E (α-tocopherol) (5.7-19.9 mg/L)	8.6 [6.6, 12.2]	8.8 [6.3, 12.2]	0.87
Vitamin E (γ -tocopherol) (≤4.3 mg/L)	1.8 [1.1, 2.8]	1.8 [1.1, 2.8]	0.87
Osteocalcin (9-42 ng/mL)	7.9 [5.3, 12.6]	7.9 [4.9, 12.2]	0.87
Prealbumin (transthyretin) (15-36 mg/dL)	22.0 [15.5, 26.0]	24.0 [20.0, 28.0]	0.015
Retinol Binding Protein (15-67 μg/mL)	32.5 [22.9, 40.2]	36.3 [28.7, 46.6]	0.051
C-reactive protein (CRP) (<0.7 mg/dL)	0.4 [0.1, 1.4]	0.3 [0.1, 0.8]	0.37
TNF-α (pg/mL)**	3.0 [2.0, 4.0]	3.0 [2.0, 3.0]	0.30

Values are shown as median and interquartile range

*Adjusted for multiple comparisons using Hommel's procedure

** TNF-α does not have a standard reference range

Supplementary Table 2: Serum levels of vitamins, nutritional markers and biomarkers in chronic pancreatitis patients, stratified by use of vitamin supplements

Variable (reference range)	Chronic Pancreatitis patients		p-value*
	Vitamin supplements No (132)	Vitamin supplements Yes (168)	
Vitamin A (30-105 μg/dL)	38.3 [26.9, 48.1]	45.0 [32.9, 56.1]	0.021
Vitamin B12 (cobalamin) (210-911 pg/mL)	649.0 [526.8, 835.0]	756.5 [588.5, 949.8]	0.046
Vitamin D (25-hydroxy vitamin D3) (10-55 ng/mL)	18.9 [10.7, 29.6]	22.2 [12.7, 34.8]	0.17
Vitamin E (α-tocopherol) (5.7-19.9 mg/L)	8.0 [6.2, 11.0]	9.5 [6.9, 13.3]	0.02
Vitamin E (γ -tocopherol) (≤4.3 mg/L)	2.2 [1.5, 3.2]	1.6 [1.0, 2.3]	< 0.001
Osteocalcin (9-42 ng/mL)	7.4 [4.9, 11.0]	8.7 [5.2, 14.3]	0.21
Prealbumin (transthyretin) (15-36 mg/dL)	23.0 [17.8, 27.0]	24.0 [19.0, 28.0]	0.31
Retinol Binding Protein (15-67 μg/mL)	32.2 [23.4, 39.1]	36.3 [28.4, 46.5]	0.03
C-reactive protein (CRP) (<0.7 mg/dL)	0.4 [0.1, 1.3]	0.3 [0.1, 0.9]	0.31
TNF-α (pg/mL)**	3.0 [2.0, 3.0]	3.0 [2.0, 4.0]	0.31

Values are shown as median and interquartile range

*Adjusted for multiple comparisons using Hommel's procedure

** TNF-α does not have a standard reference range

Supplementary Table 3: Serum levels of vitamins, nutritional markers and biomarkers in controls, stratified by use of vitamin supplements

Variable (reference range)	Controls		p-value*
	Vitamin supplements No (145)	Vitamin supplements Yes (120)	
Vitamin A (30-105 µg/dL)	44.0 [36.7, 51.2]	47.9 [38.9, 60.4]	0.048
Vitamin B12 (cobalamin) (210-911 pg/mL)	587.0 [446.0, 741.0]	653.0 [516.5, 867.3]	0.03
Vitamin D (25-hydroxy vitamin D3) (10-55 ng/mL)	16.1 [9.8, 27.1]	27.2 [20.0, 36.8]	< 0.001
Vitamin E (α-tocopherol) (5.7-19.9 mg/L)	9.7 [7.8, 11.2]	11.6 [9.4, 13.7]	< 0.001
Vitamin E (γ -tocopherol) (≤4.3 mg/L)	2.4 [1.9, 3.3]	2.0 [1.4, 2.7]	0.002
Osteocalcin (9-42 ng/mL)	10.0 [7.4, 14.2]	9.9 [7.0, 14.5]	0.73
Prealbumin (transthyretin) (15-36 mg/dL)	26.0 [23.0, 29.0]	27.0 [23.0, 31.0]	0.73
Retinol Binding Protein (15-67 µg/mL)	36.7 [28.9, 43.2]	38.0 [30.4, 47.0]	0.71
C-reactive protein (CRP) (<0.7 mg/dL)	0.2 [0.1, 0.6]	0.2 [0.1, 0.4]	0.73
TNF-α (pg/mL)**	3.0 [2.0, 3.0]	3.0 [2.0, 3.0]	0.73

Values are shown as median and interquartile range

*Adjusted for multiple comparisons using Hommel's procedure

** TNF-α does not have a standard reference range

Supplemental Table 4: Multivariable linear regression analyses for predictors of serum levels of vitamins, nutritional markers and biomarkers in CP Patients

	Vitamin A	**Vitamin B12**	**Vitamin D3**	**Vitamin E α Tocopherol**	**Vitamin E γ Tocopherol**	**Osteocalcin**	**Pre-albumin**	**Retinol Binding Protein**	**C reactive protein**	**TNF α**
(Intercept)	3.543 ‡	6.522 ‡	2.943 ‡	2.168 ‡	1.379 ‡	1.962 ‡	3.012 ‡	3.409 ‡	-1.508 ‡	1.608 ‡
Race (*African-American*)	-0.223 ‡		-0.445 ‡	-0.149 *				-0.133 *	0.611 †	0.253 ^
Sex (*male*)				-0.130 *						
Age (*centered*)				0.007 †				0.004 *	0.016 *	
Vitamin Supplementation (*yes*)	0.185 †	0.117 *		0.164 †	-0.158 †	0.169 ^		0.134 *		0.191
PERT (*yes*)	0.147 †						0.177 ‡	0.121 *	-0.387 *	
Diabetes (*yes*)							-0.148 †			
Current BMI										
Underweight					0.054				-0.644 ^	
Overweight					0.222 †				0.142	
Obese					0.313 ‡				0.796 †	
Alcohol consumption										
Former			0.201		-0.223 *		0.102			
Current			0.268 ^		-0.235 *		0.180 *			
Smoking status										
Former			0.207		0.187 *		-0.085		-0.087	
Current			-0.242 *		0.254 ‡		-0.121		0.396	

^ *p<0.10* * *p<0.05* † *p<0.01* ‡ *p<0.001*

All serum levels underwent log transformation prior to modeling except for Vitamin E γ Tocopherol and TNF α, which were transformed using a square root function.