

455 Supplemental Table 1. Prescription medication use reported by group

456 **Young Women**

457 Thyroid hormone replacement - 1

458 Oral contraceptive-2

459

460 **Young Men**

461 None

462 **Elderly Women**

463 Thiazide diuretic - 2

464 Bisphosphonate - 2

465 Thyroid hormone replacement - 2

466 Angiotensin converting enzyme-inhibitor - 2

467 Statin-2

468 Estrogen-1

469

470 **Elderly Men**

471 Calcium channel blocker - 1

472 Statin - 2

473 Proton pump inhibitor - 1

474 Central nervous system stimulant (methylphenidate) - 1

475

476 Supplemental Table 2. Amino acid concentrations ($\mu\text{mol/L}$) over time by age and treatment.

		Young (n = 12)			Elderly (n = 12)			Young vs. Elderly
		Baseline	Final	$P_{\text{Treat*Time}}$	Baseline	Final	$P_{\text{Treat*Time}}$	$P_{\text{Treat*Time*Age}}$
GLU	Saline	70 (12)	58 (12)↓	0.610	92 (12)	89 (14)	0.033	0.074
	BCAA	76 (17)	67 (22)		114 (17)	99 (17)↓↓		
SER	Saline	102(9)	98 (8)	0.031	83 (7)	91 (6)	< 0.001	0.083
	BCAA	96 (7)	76 (5) ↓↓		93 (7)	69 (5) ↓↓		
GLN	Saline	625 (53)	643 (44)	0.038	595 (54)	647 (49)	0.987	0.148
	BCAA	600 (44)	704 (48) ↑		598 (56)	650 (70)		
HIS	Saline	78 (4)	78 (5)	0.119	74 (2)	77 (2)	< 0.001	0.024
	BCAA	77 (5)	71 (4)		81 (2)	66 (3) ↓↓		
GLY	Saline	205 (20)	200 (17)	< 0.001	197 (21)	206 (23)	< 0.001	0.145
	BCAA	196 (14)	130 (8) ↓↓		214 (18)	123 (8) ↓↓		
THR	Saline	144 (16)	118 (14) ↓↓	< 0.001	125 (8)	106 (6) ↓↓	< 0.001	0.297
	BCAA	139 (12)	72 (7) ↓↓		128 (7)	55 (5) ↓↓		
ALA	Saline	297 (15)	254 (15)	0.044	340 (32)	253 (20) ↓	0.604	0.111
	BCAA	297 (18)	310 (21)		365 (36)	260 (18) ↓↓		
ARG	Saline	118 (11)	106 (8)	0.354	106 (11)	111 (9)	0.054	0.037
	BCAA	111 (10)	109 (7)		128 (10)	111 (10)		
TYR	Saline	51 (9)	48 (4)	< 0.001	59 (6)	61 (5)	< 0.001	0.051
	BCAA	49 (5)	19 (2) ↓↓		64 (5)	27 (3) ↓↓		
MET	Saline	28 (3)	25 (3)	0.007	23 (4)	24 (2)	< 0.001	0.031
	BCAA	26 (2)	17 (3) ↓↓		29 (2)	11 (4) ↓↓		
PHE	Saline	44 (4)	54 (4) ↑	<0.001	45 (4)	65 (4) ↑	< 0.001	0.119
	BCAA	44 (4)	33 (3) ↓↓		52 (4)	42 (3) ↓↓		
LYS	Saline	175 (10)	172 (11)	<0.001	150 (22)	167 (21)	0.004	0.087
	BCAA	160 (12)	118 (9) ↓↓		185 (23)	113 (20) ↓↓		

477 ¹ P value between curves of BCAA and Saline.478 ² P value for the BCAA effect between young and elderly participants.

479 ↓ Significant reduction in amino acid concentration (P value < 0.05)

480 ↓↓ Significant reduction in amino acid concentration (P value < 0.01)

481 ↑ Significant increase in amino acid concentration (P value < 0.05)