

## Supplemental Results

### *Characteristics by GDF-8 and GDF-11*

In Health ABC, those with higher GDF-8 levels were more likely to be male, non-White and obese; and to have higher weight, greater total and appendicular lean mass, greater BMI, and taller height than those with lower GDF-8 levels (Supplemental Table 5). Those with higher GDF-8 levels were also stronger (greater grip and leg extension strength) than those with lower GDF-8 levels. The time to complete the 400 m walk varied by quartile of GDF-8 levels with the fastest times in the middle quartiles. Diastolic (but not systolic) blood pressure was also higher in the higher quartiles of GDF-8. Similar findings were noted in CHS, in which those in the highest quartile of GDF-8 also weighed more, had taller height, were stronger, and had higher diastolic blood pressure than those in the lower quartiles of GDF-8 (Supplemental Table 6). GDF-11 levels were higher in those in the higher GDF-8 quartiles.

### *Characteristics by FST and FSTL3*

In Health ABC, those with higher follistatin levels were somewhat older, and had lower levels of GDF-8 but higher levels of FSTL3 than those with lower follistatin levels (Supplemental Table 7). Those with lower follistatin levels were stronger (greater grip strength) and were more likely to report a past cancer diagnosis. In CHS, those with higher follistatin levels were less likely to be male and weigh less, were shorter, were less likely to report angina or coronary heart disease, had lower grip strength, higher FSTL3 levels and greater body fat than those with lower follistatin levels (Supplemental Table 8). Self-reported health varied by follistatin quartiles (but without an obvious pattern).

In Health ABC, those with higher FSTL3 levels were older and weighed more; had higher BMI, percent body fat, and were more likely to be white, report coronary heart disease and to have mobility limitation than those with lower FSTL3 levels (Supplemental Table 9). Those with higher FSTL3 levels also had higher follistatin levels. In Health ABC, those with lower FSTL3 levels had greater grip strength and faster walking speed than those with higher FSTL3 levels. In CHS, those with higher FSTL3 levels were older and weighed more; had higher BMI, systolic blood pressure, and percent body fat; higher prevalence of congestive heart

failure, coronary heart disease, cancer and angina; and, were less likely to report good/excellent self-rated health than those with lower FSTL3 levels (Supplemental Table 10).

Supplemental Table 1. Means of GDF8, GDF11, Follistatin and FSTL3 by race and sex amongst Health ABC and CHS participants.

	Black Men (N=254*)	Black Women (N*=288)	White Men (N*=992)	White Women (N*=1209)	p-value
GDF8, ng/mL	7.69	6.94	7.27	7.06	<.001
GDF11, ng/mL	3.30	3.32	3.35	3.35	0.748
Follistatin, pg/mL	1849	1692	1674	1990	<.001
Follistatin Like-3, pg/mL	8160	8658	9556	9497	<.001

\*423 participants are missing follistatin measurements (69 Black men, 81 Black women, 131 White men, 142 White women), and 84 participants are missing FSTL3 measurements (11 Black men, 13 Black women, 25 White men and 35 White women).

Supplemental Table 2. Means of GDF8, GDF11, Follistatin and FSTL3 by Health ABC and CHS participants

	Health ABC (N=1237*)	CHS (N*=1506)	p-value
GDF8, ng/mL	6.73	7.56	<.001
GDF11, ng/mL	3.28	3.40	<.001
Follistatin, pg/mL	1868	1817	<.001
Follistatin Like-3, pg/mL	8745	9748	<.001

\*423 Health ABC participants are missing follistatin measurements, 84 (75 from HABC, 9 from CHS) participants are missing FSTL3 measurements

Supplemental Table 3. Spearman correlations between GDF-11, GDF-8, follistatin and FSTL-3 in Health ABC and CHS

	GDF-8			Follistatin			FSTL-3		
	All	Health ABC	CHS	All	Health ABC	CHS	All	Health ABC	CHS
GDF-11	0.15 <i>p</i> <.001	0.07 <i>p</i> =0.018	0.17 <i>p</i> <.001	-0.06 <i>p</i> =0.002	-0.08 <i>p</i> =0.017	-0.05 <i>p</i> =0.075	0.04 <i>p</i> =0.021	0.02 <i>p</i> =0.548	0.03 <i>p</i> =0.264
GDF-8				-0.09 <i>p</i> <.001	-0.17 <i>p</i> <.001	-0.03 <i>p</i> =0.198	0.04 <i>p</i> =0.021	-0.03 <i>p</i> =0.394	0.02 <i>p</i> =0.409
Follistatin							0.05 <i>p</i> =0.016	0.08 <i>p</i> =0.021	0.07 <i>p</i> =0.007

Supplemental Table 4. Characteristics (mean  $\pm$  SD or N (%)) by quartile of GDF11, CHS

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<3.02 ng/mL	$\geq$ 3.02-<3.28 ng/mL	$\geq$ 3.28-< 3.60 ng/mL	$\geq$ 3.60 ng/mL	
	(N= 374)	(N= 377)	(N= 371)	(N= 384)	
Age	76.74 $\pm$ 4.73	76.84 $\pm$ 4.75	76.82 $\pm$ 4.81	76.98 $\pm$ 4.77	0.915
Male	146 (39.04)	147 (38.99)	148 (39.89)	176 (45.83)	0.163
Race					0.033
White	366 (97.86)	361 (95.76)	351 (94.61)	364 (94.79)	
Black	8 (2.14)	15 (3.98)	20 (5.39)	16 (4.17)	
Other	0 (0.0)	1 (0.27)	0 (0.0)	4 (1.04)	
Weight, kg	70.45 $\pm$ 14.19	71.81 $\pm$ 14.41	70.71 $\pm$ 13.44	71.72 $\pm$ 12.86	0.41
Height, m	1.64 $\pm$ 0.09	1.64 $\pm$ 0.09	1.64 $\pm$ 0.09	1.64 $\pm$ 0.09	0.843
BMI category					0.009
Normal Weight	166 (44.39)	127 (33.69)	163 (43.94)	132 (34.38)	
Overweight	147 (39.3)	181 (48.01)	153 (41.24)	187 (48.7)	
Obese	61 (16.31)	69 (18.3)	55 (14.82)	65 (16.93)	
Total body fat, %	37.04 $\pm$ 9.43	36.16 $\pm$ 10.23	36.72 $\pm$ 9.44	36.1 $\pm$ 10.16	0.798
Current smoker	16 (4.32)	32 (8.6)	31 (8.42)	29 (7.61)	0.088
Current drinker	185 (49.47)	194 (51.46)	168 (45.28)	193 (50.26)	0.358
Good/excellent self-rated health	306 (81.82)	301 (79.84)	292 (78.71)	311 (81.2)	0.709
Congestive heart failure	22 (5.88)	17 (4.51)	23 (6.2)	31 (8.07)	0.236
Cancer	64 (17.11)	70 (18.57)	81 (21.83)	78 (20.31)	0.389
Chronic obstructive pulmonary disease/bronchitis*	24 (6.59)	18 (4.85)	24 (6.61)	24 (6.37)	0.711
Coronary heart disease	84 (22.46)	76 (20.16)	84 (22.64)	117 (30.47)	0.005
GDF-8, ng/mL	7.20 $\pm$ 1.62	7.35 $\pm$ 3.03	7.70 $\pm$ 1.89	7.98 $\pm$ 1.97	<.001
Follistatin, pg/mL	1918.25 $\pm$ 1087.53	1824.09 $\pm$ 1051.16	1829.43 $\pm$ 1034.71	1699.47 $\pm$ 820.44	0.028
Follistatin-Like-3, pg/mL	9748.9 $\pm$ 2969.55	9704.53 $\pm$ 3075.75	9755.67 $\pm$ 2660.51	9781.42 $\pm$ 2718.73	0.987
Angina	79 (21.1)	69 (18.3)	78 (21.0)	104 (27.1)	0.027
Grip strength, kg	29.49 $\pm$ 9.88	29.63 $\pm$ 9.99	30.13 $\pm$ 10.36	31.02 $\pm$ 10.12	0.146
6m walk speed, m/s	0.93 $\pm$ 0.24	0.9 $\pm$ 0.24	0.9 $\pm$ 0.23	0.92 $\pm$ 0.26	0.274
Appendicular lean mass/ht <sup>2</sup>	6.28 $\pm$ 1.34	6.54 $\pm$ 1.36	6.47 $\pm$ 1.29	6.74 $\pm$ 1.3	0.021

Supplemental Table 5. Characteristics of participants by quartile of GDF8, Health ABC

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<5.39 ng/mL	≥5.39-<6.46 ng/mL	≥6.46-< 7.80 ng/mL	≥7.80 ng/mL	
	N= 308	N= 307	N= 313	N= 309	
Age	73.4 ± 3.0	73.6 ± 2.8	73.4 ± 2.8	73.3 ± 2.9	0.606
Male	121 (39.3)	161 (52.4)	164 (52.4)	183 (59.2)	<.001
Race					<.001
White	223 (72.4)	199 (64.8)	186 (59.4)	151 (48.9)	
Black	85 (27.6)	108 (35.2)	127 (40.6)	158 (51.1)	
Weight, kg	73.0 ± 15.6	75.2 ± 14.2	76.6 ± 15.4	78.1 ± 14.5	<.001
Height, m	1.65 ± 0.09	1.67 ± 0.09	1.67 ± 0.09	1.67 ± 0.09	0.002
BMI category					0.008
Normal Weight	119 (38.6)	100 (32.6)	103 (32.9)	80 (25.9)	
Overweight	125 (40.6)	145 (47.2)	128 (40.9)	138 (44.7)	
Obese	64 (20.8)	62 (20.2)	82 (26.2)	91 (29.4)	
Total body fat, %	36.2 ± 7.3	34.4 ± 7.4	34.3 ± 7.7	33.5 ± 7.5	<.001
Persistent Severe Mobility Limitation	147 (47.7)	121 (39.4)	117 (37.4)	125 (40.5)	0.051
Persistent Mobility Limitation	246 (79.9)	230 (74.9)	241 (77.0)	241 (78.0)	0.523
Current smoker	39 (12.7)	27 (8.8)	22 (7.0)	35 (11.3)	0.083
Current drinker	177 (57.5)	152 (49.8)	161 (51.6)	150 (48.9)	0.139
Good/excellent health	259 (84.4)	263 (85.7)	275 (87.9)	263 (85.1)	0.631
Congestive heart failure	8 (2.6)	8 (2.6)	8 (2.6)	7 (2.3)	0.992
Cancer	73 (23.7)	64 (20.8)	67 (21.4)	51 (16.5)	0.164
Chronic obstructive pulmonary disease/bronchitis*	2 (0.6)	3 (1.0)	4 (1.3)	3 (1.0)	0.888
Coronary heart disease	68 (22.1)	58 (19.0)	63 (20.1)	55 (17.8)	0.579
GDF-11, ng/mL	3.27 ± 1.09	3.29 ± 0.92	3.24 ± 0.39	3.32 ± 0.65	0.634
Follistatin, pg/mL	2061.9 ± 1017.9	1900.2 ± 716.9	1870.4 ± 1030.6	1679.7 ± 638.9	<.001
Follistatin-Like-3, pg/mL	8793.0 ± 2333.3	8754.8 ± 2384.1	8716.3 ± 2307.0	8715.2 ± 2326.5	0.974
Angina	39 (12.9)	30 (9.9)	28 (9.2)	26 (8.7)	0.323
Grip strength, kg	30.84 ± 10.28	33.96 ± 10.84	33.66 ± 10.51	34.75 ± 10.84	<.001
6m walk speed, m/s	1.17 ± 0.22	1.2 ± 0.22	1.2 ± 0.23	1.19 ± 0.24	0.275
Appendicular lean mass/ht <sup>2</sup>	7.17 ± 1.35	7.62 ± 1.3	7.75 ± 1.35	8.09 ± 1.41	<.001

Supplemental Table 6. Characteristics of participants by quartile of GDF8, CHS

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<6.10 ng/mL	≥6.10-<7.17 ng/mL	≥7.17-< 8.54 ng/mL	≥8.54 ng/mL	
	N= 376	N= 373	N= 377	N= 380	
Age	77.0 ± 4.9	76.7 ± 4.7	77.0 ± 4.7	76.6 ± 4.7	0.628
Male	140 (37.2)	143 (38.3)	167 (44.3)	167 (43.9)	0.096
Race					0.639
White	366 (97.3)	355 (95.2)	361 (95.8)	360 (94.7)	
Black	9 (2.4)	16 (4.3)	15 (4.0)	19 (5.0)	
Other	1 (0.3)	2 (0.5)	1 (0.3)	1 (0.3)	
Weight, kg	69.6 ± 12.7	71.0 ± 13.4	71.9 ± 14.7	72.2 ± 13.9	0.036
Height, m	1.63 ± 0.09	1.64 ± 0.09	1.65 ± 0.09	1.65 ± 0.1	0.044
BMI category					0.528
Normal Weight	145 (38.6)	138 (37.0)	155 (41.1)	150 (39.5)	
Overweight	179 (47.6)	170 (45.6)	157 (41.6)	162 (42.6)	
Obese	52 (13.8)	65 (17.4)	65 (17.2)	68 (17.9)	
Total body fat, %	36.8 ± 10.4	36.6 ± 9.8	36.2 ± 9.0	36.3 ± 10.0	0.931
Current smoker	26 (7.0)	33 (9.0)	25 (6.7)	24 (6.4)	0.509
Current drinker	192 (51.1)	180 (48.3)	181 (48.0)	187 (49.2)	0.834
Good/excellent health	311 (82.9)	302 (81.0)	288 (76.4)	309 (81.3)	0.130
Congestive heart failure	20 (5.3)	27 (7.2)	24 (6.4)	22 (5.8)	0.723
Cancer	61 (16.2)	84 (22.5)	70 (18.6)	78 (20.5)	0.157
Chronic obstructive pulmonary disease/bronchitis*	20 (5.4)	33 (9.1)	20 (5.5)	17 (4.5)	0.049
Coronary heart disease	94 (25.0)	90 (24.1)	90 (23.9)	87 (23.0)	0.926
GDF11, ng/mL	3.24 ± 0.55	3.45 ± 0.97	3.37 ± 0.88	3.51 ± 0.85	<.001
Follistatin, pg/mL	1900.2 ± 1157.4	1812.6 ± 952.5	1830.1 ± 1055.9	1726.0 ± 820.1	0.124
Follistatin-Like-3, pg/mL	9577.3 ± 2801.4	9835.8 ± 2965.0	9956.1 ± 2914.0	9624.3 ± 2746.3	0.223
Angina	88 (23.4)	80 (21.5)	86 (22.8)	76 (20.0)	0.676
Grip strength, kg	28.93 ± 9.56	29.6 ± 9.99	29.88 ± 9.75	31.86 ± 10.84	<.001
6m walk speed, m/s	0.89 ± 0.24	0.91 ± 0.25	0.92 ± 0.25	0.92 ± 0.24	0.329
Appendicular lean mass/ht <sup>2</sup>	6.41 ± 1.35	6.41 ± 1.26	6.48 ± 1.3	6.74 ± 1.37	0.071

Supplemental Table 7. Characteristics of participants by quartile of follistatin, Health ABC

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<1343.8 pg/mL	≥1343.8-<1705.6 pg/mL	≥1705.6 -<2188.3 pg/mL	≥2188.3 pg/mL	
	N= 206	N= 204	N= 203	N= 201	
Age	73.0 ± 2.8	73.7 ± 2.8	73.6 ± 2.9	73.6 ± 2.9	0.039
Male	114 (55.3)	116 (56.9)	107 (52.7)	92 (45.8)	0.118
Race					0.113
White	115 (55.8)	123 (60.3)	115 (56.7)	133 (66.2)	
Black	91 (44.2)	81 (39.7)	88 (43.4)	68 (33.8)	
Other					
Weight, kg	75.6 ± 13.6	77.3 ± 15.0	77.3 ± 14.4	74.2 ± 14.6	0.078
Height, m	1.68 ± 0.1	1.68 ± 0.09	1.67 ± 0.09	1.66 ± 0.09	0.082
BMI category					0.340
Normal Weight	71 (34.5)	59 (28.9)	56 (27.6)	68 (33.8)	
Overweight	89 (43.2)	88 (43.1)	87 (42.9)	91 (45.3)	
Obese	46 (22.3)	57 (27.9)	60 (29.6)	42 (20.9)	
Total body fat, %	33.4 ± 7.6	34.1 ± 7.5	34.8 ± 7.3	35.1 ± 7.5	0.099
Persistent Severe Mobility Limitation	72 (35.0)	89 (43.6)	87 (42.9)	81 (40.3)	0.269
Persistent Mobility Limitation	152 (73.8)	161 (78.9)	163 (80.3)	164 (81.6)	0.234
Current smoker	17 (8.3)	18 (8.9)	19 (9.4)	25 (12.4)	0.494
Current drinker	104 (50.5)	106 (52.5)	105 (52.0)	100 (50.0)	0.953
Good/excellent health	177 (85.9)	179 (87.7)	175 (86.2)	164 (81.6)	0.336
Congestive heart failure	5 (2.5)	8 (3.9)	5 (2.5)	5 (2.5)	0.769
Cancer,	51 (24.8)	50 (24.5)	25 (12.3)	38 (18.9)	0.005
Chronic obstructive pulmonary disease/bronchitis*	5 (2.4)	1 (0.5)	2 (1.0)	3 (1.5)	0.368
Coronary heart disease	39 (18.9)	37 (18.1)	49 (24.1)	42 (20.9)	0.444
GDF8, ng/mL	7.29 ± 2.11	6.96 ± 1.80	6.85 ± 1.85	6.57 ± 2.27	0.004
GDF11, ng/mL	3.33 ± 0.57	3.34 ± 0.83	3.34 ± 0.68	3.25 ± 0.54	0.447
Follistatin-Like-3, pg/mL	8584.6 ± 2366.7	8497.3 ± 2018.1	8587.1 ± 1991.9	9094.9 ± 2712	0.037
Angina	19 (9.4)	22 (10.8)	25 (12.7)	23 (11.7)	0.761
Grip strength, kg	35.12 ± 11.49	35.58 ± 10.5	33.58 ± 10.01	31.71 ± 10.55	0.001
6m walk speed, m/s	1.22 ± 0.22	1.19 ± 0.22	1.19 ± 0.24	1.18 ± 0.24	0.438
Appendicular lean mass/ht <sup>2</sup>	7.79 ± 1.3	7.81 ± 1.36	7.86 ± 1.36	7.52 ± 1.47	0.073



Supplemental Table 8. Characteristics of participants by quartile of follistatin, CHS

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<1215.5 pg/mL	≥1215.5 - <1558.9 pg/mL	≥1558.9-< 2070.9 pg/mL	≥2070.9 pg/mL	
	N= 376	N= 377	N= 376	N= 377	
Age	76.5 ± 4.4	76.9 ± 4.7	77.2 ± 5.1	76.8 ± 4.8	0.175
Male	172 (45.7)	181 (48.0)	154 (41.0)	110 (29.2)	<.001
Race					0.626
White	355 (94.4)	360 (95.5)	360 (95.7)	367 (97.3)	
Black	19 (5.1)	16 (4.2)	15 (4.0)	9 (2.4)	
Other	2 (0.5)	1 (0.3)	1 (0.3)	1 (0.3)	
Weight, kg	71.6 ± 13.6	72.7 ± 14.1	71.1 ± 14.0	69.2 ± 13.1	0.004
Height, m	1.65 ± 0.09	1.65 ± 0.10	1.64 ± 0.09	1.62 ± 0.09	<.001
BMI category					0.492
Normal Weight	147 (39.1)	133 (35.3)	147 (39.1)	161 (42.7)	
Overweight	165 (43.9)	182 (48.3)	162 (43.1)	159 (42.2)	
Obese	64 (17.0)	62 (16.4)	67 (17.8)	57 (15.1)	
Total body fat, %	35.1 ± 9.4	34.7 ± 10.1	37.1 ± 10.2	39.5 ± 8.7	<.001
Current smoker	32 (8.6)	20 (5.3)	30 (8.1)	26 (7.0)	0.321
Current drinker	179 (47.6)	184 (48.8)	190 (50.5)	187 (49.6)	0.875
Good/excellent health	295 (78.5)	311 (82.5)	288 (76.8)	316 (83.8)	0.050
Congestive heart failure	18 (4.8)	24 (6.4)	29 (7.7)	22 (5.8)	0.410
Cancer	79 (21.0)	75 (19.9)	62 (16.5)	77 (20.4)	0.397
Chronic obstructive pulmonary disease/bronchitis*	21 (5.7)	18 (4.9)	19 (5.2)	32 (8.6)	0.124
Coronary heart disease	107 (28.5)	84 (22.3)	101 (26.9)	69 (18.3)	0.004
GDF8, ng/mL	7.60 ± 1.93	7.67 ± 3.04	7.55 ± 1.86	7.42 ± 1.80	0.464
GDF11, ng/mL	3.43 ± 0.93	3.35 ± 0.51	3.41 ± 0.70	3.39 ± 1.08	0.651
Follistatin-Like-3, pg/mL	9402.4 ± 2813.6	9729.5 ± 2734.3	10025.0 ± 2831.0	9836.9 ± 3024.9	0.025
Angina	98 (26.1)	76 (20.2)	93 (24.7)	63 (16.7)	<b>0.007</b>
Grip strength, kg	31.2 ± 10.35	31.87 ± 10.84	29.05 ± 9.59	28.17 ± 9.1	<.001
6m walk speed, m/s	0.92 ± 0.23	0.92 ± 0.24	0.89 ± 0.26	0.92 ± 0.24	0.331
Appendicular lean mass/ht <sup>2</sup>	6.66 ± 1.27	6.76 ± 1.33	6.59 ± 1.34	5.98 ± 1.24	<.001

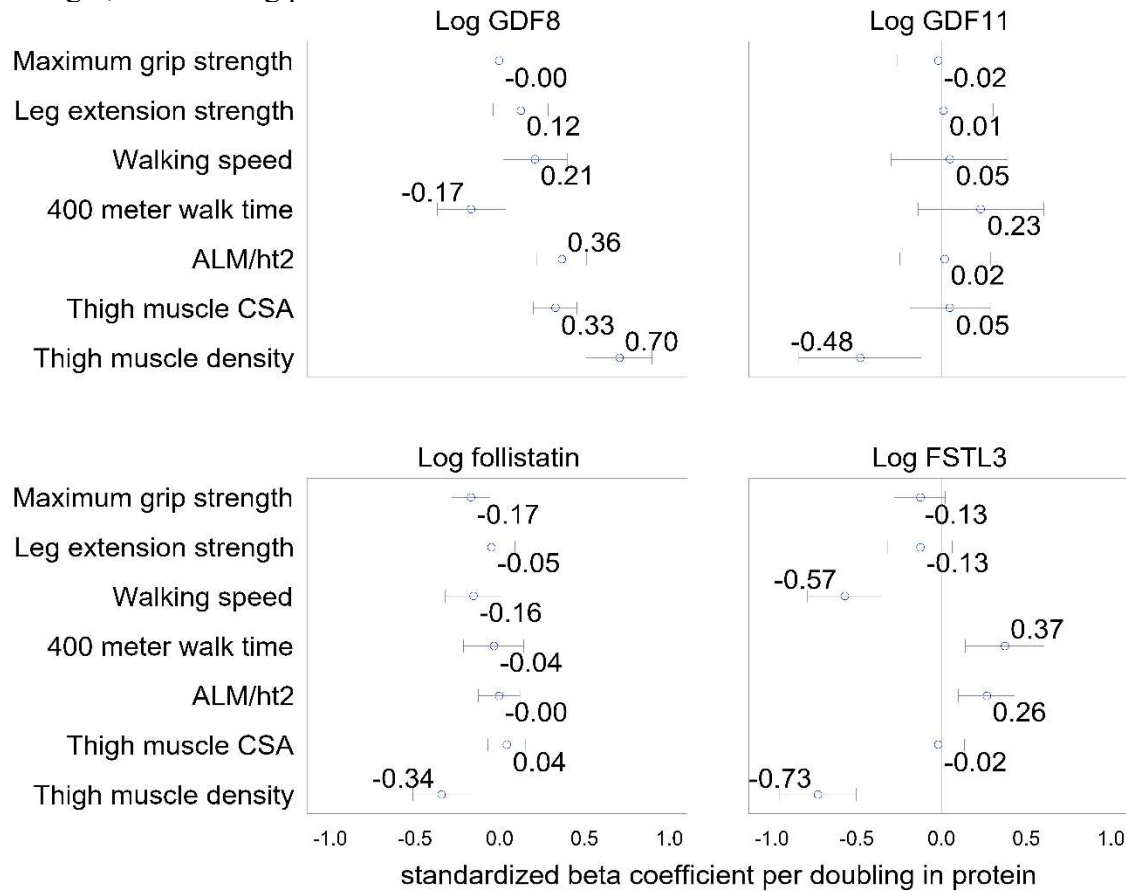
Supplemental Table 9. Characteristics of participants by quartile of FSTL3, Health ABC

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<7242.3pg/mL	≥7242.3-<8391.8 pg/mL	≥8391.8-< 9758.1 pg/mL	≥9758.1 pg/mL	
	N= 292	N= 287	N= 290	N= 293	
Age	72.8 ± 2.7	73.2 ± 2.9	73.7 ± 2.8	73.9 ± 3.0	<.001
Male	160 (54.8)	156 (54.4)	143 (49.3)	137 (46.8)	0.146
Race					<.001
White	120 (41.1)	184 (64.1)	198 (68.3)	205 (70.0)	
Black	172 (58.9)	103 (35.9)	92 (31.7)	88 (30.0)	
Other					
Weight, kg	73.0 ± 15.0	75.3 ± 14.8	78.4 ± 15.1	76.8 ± 14.6	<.001
Height, m	1.67 ± 0.09	1.68 ± 0.09	1.67 ± 0.09	1.66 ± 0.09	0.111
BMI category					<.001
Normal Weight	124 (42.5)	98 (34.1)	76 (26.2)	79 (27.0)	
Overweight	115 (39.4)	128 (44.6)	124 (42.8)	132 (45.1)	
Obese	53 (18.2)	61 (21.3)	90 (31.0)	82 (28.0)	
Total body fat, %	32.5 ± 7.3	33.6 ± 7.4	36.0 ± 7.2	36.3 ± 7.8	<.001
Persistent Severe Mobility Limitation	89 (30.5)	105 (36.6)	125 (43.1)	153 (52.2)	<.001
Persistent Mobility Limitation	204 (69.9)	212 (73.9)	233 (80.3)	244 (83.3)	<.001
Current smoker	44 (15.1)	26 (9.1)	15 (5.2)	32 (10.9)	0.001
Current drinker	158 (54.5)	155 (54.2)	150 (51.7)	145 (49.8)	0.639
Good/excellent health	253 (86.6)	243 (84.7)	248 (85.5)	253 (86.6)	0.883
Congestive heart failure	5 (1.7)	5 (1.8)	7 (2.5)	12 (4.2)	0.204
Cancer	51 (17.5)	60 (20.9)	57 (19.7)	69 (23.5)	0.323
Chronic obstructive pulmonary disease/bronchitis*	4 (1.4)	2 (0.7)	2 (0.7)	4 (1.4)	0.731
Coronary heart disease	39 (13.4)	61 (21.3)	61 (21.0)	68 (23.2)	0.015
GDF8, ng/mL	6.77 ± 1.78	6.76 ± 2.01	6.71 ± 2.06	6.69 ± 2.02	0.963
GDF11, ng/mL	3.21 ± 0.35	3.30 ± 0.80	3.29 ± 0.58	3.37 ± 1.28	0.167
Follistatin, pg/mL	1771.0 ± 713.3	1741.0 ± 607.1	2031.4 ± 1174.9	1919.4 ± 863.6	0.002
Angina	19 (6.6)	31 (11.1)	29 (10.3)	39 (13.4)	0.061
Grip strength, kg	34.92 ± 10.47	34.24 ± 10.81	32.79 ± 10.8	31.87 ± 10.52	0.002
6m walk speed, m/s	1.21 ± 0.23	1.21 ± 0.24	1.19 ± 0.23	1.16 ± 0.22	0.038
Appendicular lean mass/ht <sup>2</sup>	7.79 ± 1.45	7.67 ± 1.42	7.73 ± 1.37	7.55 ± 1.31	0.229

Supplemental Table 10. Characteristics of participants by quartile of FSTL3, CHS

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	p-value
	<7830.3 pg/mL	≥7830.3- <9199.4 pg/mL	≥9199.4- 10925.1pg/mL	≥10925.1pg/mL	
	N= 374	N= 374	N= 374	N= 375	
Age	74.9 ± 3.6	76.1 ± 4.1	77.5 ± 4.9	78.8 ± 5.4	<.001
Male	138 (36.9)	154 (41.2)	159 (42.5)	163 (43.5)	0.272
Race					0.075
White	349 (93.3)	364 (97.3)	362 (96.8)	359 (95.7)	
Black	23 (6.2)	8 (2.1)	11 (2.9)	16 (4.3)	
Other	2 (0.5)	2 (0.5)	1 (0.3)	0 (0.0)	
Weight, kg	68.0 ± 12.7	71.0 ± 13.4	72.1 ± 14.0	73.8 ± 14.3	<.001
Height, m	1.64 ± 0.09	1.64 ± 0.09	1.65 ± 0.10	1.64 ± 0.09	0.766
BMI category					<.001
Normal Weight	189 (50.5)	146 (39.0)	133 (35.6)	114 (30.4)	
Overweight	147 (39.3)	175 (46.8)	176 (47.1)	167 (44.5)	
Obese	38 (10.2)	53 (14.2)	65 (17.4)	94 (25.1)	
Total body fat, %	34.9 ± 10.0	36.6 ± 9.5	36.7 ± 9.6	38.0 ± 10.0	0.033
Current smoker	39 (10.5)	19 (5.1)	23 (6.2)	26 (7.1)	0.027
Current drinker	187 (50.0)	189 (50.5)	192 (51.3)	171 (45.6)	0.396
Good/excellent health	318 (85.0)	318 (85.0)	308 (82.6)	264 (70.4)	<.001
Congestive heart failure	8 (2.1)	15 (4.0)	25 (6.7)	42 (11.2)	<.001
Cancer	53 (14.2)	65 (17.4)	75 (20.1)	100 (26.7)	<.001
Chronic obstructive pulmonary disease/bronchitis*	21 (5.8)	19 (5.2)	22 (6.0)	27 (7.3)	0.666
Coronary heart disease	73 (19.5)	69 (18.5)	105 (28.1)	113 (30.1)	<.001
GDF8, ng/mL	7.59 ± 2.75	7.59 ± 2.33	7.46 ± 1.89	7.58 ± 1.78	0.802
GDF11, ng/mL	3.34 ± 0.65	3.42 ± 0.93	3.39 ± 0.65	3.44 ± 1.03	0.410
Follistatin, pg/mL	1777.4 ± 965.7	1739.2 ± 915.3	1862.3 ± 1054.2	1878.7 ± 1075.6	0.173
Angina	68 (18.2)	62 (16.6)	95 (25.4)	104 (27.7)	<.001
Grip strength, kg	30.45 ± 10.07	30.68 ± 10.3	30.34 ± 9.79	29.01 ± 10.18	0.101
6m walk speed, m/s	0.97 ± 0.24	0.94 ± 0.23	0.91 ± 0.24	0.83 ± 0.24	<.001
Appendicular lean mass/ht <sup>2</sup>	6.42 ± 1.5	6.51 ± 1.31	6.59 ± 1.2	6.52 ± 1.26	0.725

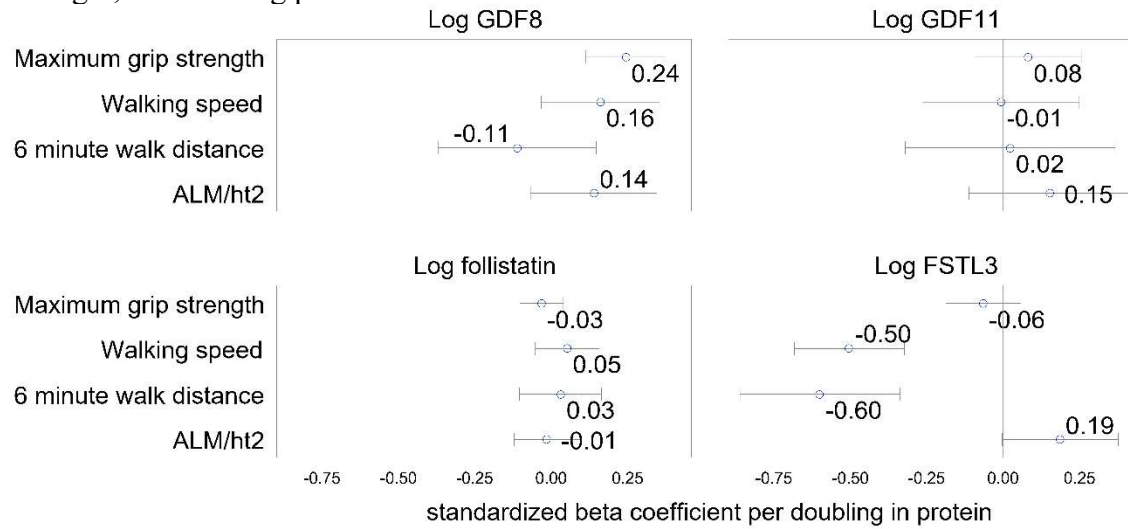
Supplemental Figure 1. Age, sex, and race adjusted beta-coefficients for log GDF-8, log GDF-11, log follistatin and log FSTL3 with lean mass, strength, and walking performance in Health ABC



\*Model is adjusted for age, sex, race, self-rated health, body mass index, cancer, chronic obstructive pulmonary disease, angina, smoking status, drinking status, coronary heart disease, heart failure, cystatin c, c-reactive protein and estimated glomerular filtration rate.

GDF: growth and differentiation factor; FSTL3: follistatin-like 3

Supplemental Figure 2. Age, sex, and race adjusted beta-coefficients for log GDF-8, log GDF-11, log follistatin and log FSTL3 with lean mass, strength, and walking performance in CHS



\*Model is adjusted for age, sex, race, self-rated health, body mass index, cancer, chronic obstructive pulmonary disease, angina, smoking status, drinking status, coronary heart disease, heart failure, cystatin c, c-reactive protein and estimated glomerular filtration rate.  
 GDF: growth and differentiation factor; FSTL3: follistatin-like 3