

Supplemental Information

Table S1 Body compositions of all subjects from the baseline to PiPy

	Baseline	PiPy	Changes for all subjects/males/females	P-values
Relative fat value	18.102±9.146 (15.363±7.995/28.415±4.839)	19.4±8.234 (16.892±7.056/28.941±4.623)	1.289±3.023 (1.5±3.208/0.488±1.997)	<0.001 (<0.001/0.002)
Absolute fat value	12.119±7.381 (11.133±7.626/15.833±4.834)	13.078±6.893 (12.124±7.004/16.708±5.018)	0.957±2.400 (0.987±2.583/0.843±1.513)	<0.001 (<0.001/<0.001)
Non-fat content	52.109±9.989 (55.63±7.918/38.851±4.107)	52.461±8.507 (55.741±5.933/39.979±4.112)	0.255±4.408 (0.027±4.885/1.122±1.276)	0.110 (0.891/<0.001)
Skeleton content	24.223±5.427 (26.315±3.852/16.345±2.42)	24.473±4.895 (26.382±3.348/17.207±2.4)	0.201±1.067 (0.027±1.047/0.861±0.871)	<0.001 (0.526/<0.001)
Skeletal muscle content	10.399±2.686 (11.501±1.728/6.254±1.172)	10.673±2.497 (11.7±1.561/6.766±1.177)	0.248±0.643 (0.179±0.64/0.513±0.586)	<0.001 (<0.001/<0.001)
Skeletal muscle of right leg	5.518±1.09 (5.87±0.908/4.19±0.577)	5.51±0.94 (5.821±0.755/4.325±0.551)	-0.017±0.25 (-0.057±0.25/0.135±0.188)	0.061 (<0.001/<0.001)
Skeletal muscle of left leg	5.501±1.096 (5.855±0.91/4.166±0.591)	5.492±0.938 (5.803±0.75/4.309±0.565)	-0.018±0.266 (-0.06±0.267/0.141±0.195)	0.061 (<0.001/<0.001)
Skeletal muscle content of left arm	1.376±0.361 (1.514±0.261/0.857±0.146)	1.37±0.33 (1.496±0.236/0.891±0.144)	-0.009±0.085 (-0.02±0.087/0.034±0.056)	0.005 (<0.001/<0.001)
Skeletal muscle of right arm	1.428±0.375 (1.574±0.265/0.879±0.147)	1.428±0.347 (1.563±0.244/0.916±0.146)	-0.004±0.084 (-0.014±0.087/0.037±0.056)	0.244 (<0.001/<0.001)
Body moisture content	37.672±6.991 (40.185±5.233/28.21±4.056)	37.732±6.253 (40.062±4.543/28.869±3.172)	-0.012±1.842 (-0.185±1.392/0.65±2.902)	0.863 (0.001/0.005)
Extracellular fluid volume	15.55±2.684 (16.371±2.31/12.461±1.469)	15.405±2.401 (16.138±2.034/12.616±1.46)	-0.171±0.682 (-0.256±0.694/0.152±0.521)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value of left arm (5k)	416.47±66.789 (391.469±42.872/510.612±55.885)	421.16±64.45 (398.468±43.853/507.504±56.862)	4.939±22.645 (6.985±20.618/-2.847±27.824)	<0.001 (<0.001/0.199)
Bioelectrical impedance value of right arm (5k)	410.924±66.629 (385.141±40.63/508.007±54.891)	413.111±64.289 (389.805±41.82/501.794±57.265)	2.447±21.98 (4.677±19.812/-6.035±27.225)	0.002 (<0.001/0.006)
Bioelectrical impedance value of left leg (5k)	270.776±35.562 (261.748±29.527/304.77±35.87)	285.294±35.545 (276.226±29.857/319.797±34.362)	14.582±19.865 (14.304±18.88/15.64±23.271)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value of right leg (5k)	271.196±35.313 (262.254±29.543/304.866±35.024)	285.109±35.8 (275.838±29.882/320.387±34.555)	13.972±19.194 (13.446±18.132/15.974±22.742)	<0.001 (<0.001/<0.001)

Bioelectrical impedance value on the left side of body (5k)	715.847±99.737 (681.079±69.421/846.763±87.074)	735.518±97.454 (703.19±70.343/858.525±87.86)	19.985±36.637 (21.922±34.567/12.617±42.957)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value on the right side of body (5K)	710.636±98.896 (675.254±67.227/843.865±84.484)	727.377±97.484 (694.203±68.657/853.605±87.312)	17.056±35.392 (18.83±33.209/10.305±42.131)	<0.001 (<0.001/0.002)
Bioelectrical impedance value of whole body (5k)	27.752±3.068 (27.143±2.718/30.045±3.231)	27.94±3.025 (27.47±2.827/29.726±3.094)	0.2±1.758 (0.331±1.689/-0.3±1.924)	0.002 (<0.001/0.051)
Bioelectrical impedance value of left arm (10k)	409.303±66.491 (384.331±42.486/503.335±55.535)	413.629±64.081 (390.933±43.355/499.985±56.287)	4.578±21.856 (6.591±19.874/-3.082±26.878)	<0.001 (<0.001/0.15)
Bioelectrical impedance value of right arm (10k)	403.481±66.331 (377.699±40.206/500.561±54.348)	405.38±63.907 (382.056±41.256/494.13±56.627)	2.167±21.199 (4.374±19.053/-6.231±26.322)	0.005 (<0.001/0.003)
Bioelectrical impedance value of left leg (10k)	265.231±35.106 (256.071±28.832/299.724±35.248)	278.87±35.093 (269.721±29.233/313.682±33.765)	13.714±19.017 (13.49±18.021/14.563±22.45)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value of right leg (10k)	265.52±34.87 (256.435±28.851/299.728±34.412)	278.585±35.327 (269.23±29.247/314.181±33.86)	13.135±18.354 (12.67±17.292/14.902±21.903)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value on the left side of body (10k)	701.451±99.011 (666.711±68.345/832.263±86.526)	719.74±96.721 (687.394±69.333/842.819±86.889)	18.63±35.267 (20.515±33.203/11.458±41.552)	<0.001 (<0.001/0.001)
Bioelectrical impedance value on the right side of the body (10K)	695.902±98.359 (660.35±66.124/829.774±83.478)	711.118±96.677 (677.934±67.514/837.386±86.309)	15.575±34.031 (17.484±31.759/8.31±40.862)	<0.001 (<0.001/0.011)
Bio-electrical resistance value of whole body (10k)	26.709±2.969 (26.107±2.606/28.975±3.161)	26.72±2.92 (26.261±2.725/28.463±2.989)	0.024±1.668 (0.16±1.589/-0.494±1.856)	0.695 (0.014/0.001)
Bioelectrical impedance value of left arm (20k)	397.814±66.09 (372.817±41.816/491.936±54.972)	401.561±63.578 (378.821±42.568/488.088±55.482)	4.008±20.804 (5.998±18.867/-3.565±25.622)	<0.001 (<0.001/0.081)
Bioelectrical impedance value of right arm (20k)	391.428±65.875 (365.64±39.503/488.531±53.587)	392.87±63.344 (369.52±40.408/481.718±55.705)	1.721±20.145 (3.905±18.027/-6.59±25.093)	0.018 (<0.001/0.001)
Bioelectrical impedance value of left leg (20k)	255.812±34.322 (246.489±27.695/290.92±34.211)	268.103±34.288 (258.874±28.185/303.218±32.767)	12.381±17.728 (12.249±16.738/12.886±21.129)	<0.001 (<0.001/<0.001)

Bioelectrical impedance value of right leg (20k)	255.897±34.095 (246.638±27.707/290.763±33.395)	267.657±34.491 (258.223±28.181/303.553±32.733)	11.842±17.081 (11.479±16.035/13.227±20.583)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value on the left side of body (20k)	679.541±98.287 (644.562±66.798/811.25±85.4)	695.886±95.824 (663.357±67.819/819.66±85.385)	16.712±33.275 (18.658±31.183/9.308±39.495)	<0.001 (<0.001/0.003)
Bioelectrical impedance value on the right side of the body (20K)	673.22±97.611 (637.432±64.525/807.979±82.176)	686.619±95.67 (653.275±65.873/813.495±84.586)	13.787±32.04 (15.771±29.768/6.238±38.696)	<0.001 (<0.001/0.044)
Bioelectrical impedance value of whole body (20k)	25.61±2.933 (24.965±2.523/28.039±3.097)	25.569±2.875 (25.064±2.643/27.493±2.918)	-0.026±1.587 (0.106±1.506/-0.528±1.783)	0.65 (0.084/<0.001)
Bioelectrical impedance value of left arm (50k)	377.638±64.974 (352.837±40.555/471.025±53.755)	380.621±62.347 (358.073±41.219/466.416±54.058)	3.252±19.459 (5.242±17.61/-4.322±23.878)	<0.001 (<0.001/0.024)
Bioelectrical impedance value of right arm (50k)	370.386±64.592 (344.896±38.208/466.369±52.207)	371.255±61.939 (348.181±38.992/459.055±54.021)	1.158±18.773 (3.322±16.722/-7.076±23.383)	0.089 (<0.001/<0.001)
Bioelectrical impedance value of left leg (50k)	239.016±32.748 (229.706±25.832/274.071±32.351)	249.439±32.671 (240.325±26.394/284.12±31.034)	10.531±15.881 (10.513±14.95/10.6±19.067)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value of right leg (50k)	238.88±32.53 (229.623±25.833/273.738±31.559)	248.843±32.839 (239.528±26.36/284.285±30.905)	10.058±15.272 (9.824±14.291/10.952±18.562)	<0.001 (<0.001/<0.001)
Bioelectrical impedance value on the left side of body (50 K)	640.896±96.268 (606.004±64.032/772.279±83.01)	654.528±93.562 (622.192±65.104/777.57±82.653)	14.026±30.641 (16.094±28.548/6.159±36.602)	<0.001 (<0.001/0.035)
Bioelectrical impedance value on the right side of the body(50 K)	633.526±95.44 (597.929±61.679/767.564±79.697)	644.402±93.16 (611.356±62.998/770.143±81.525)	11.289±29.315 (13.392±27.09/3.286±35.541)	<0.001 (<0.001/0.245)
Bioelectrical impedance value of whole body (50 K)	23.688±2.889 (22.973±2.402/26.382±2.983)	23.556±2.815 (22.975±2.516/25.769±2.802)	-0.116±1.453 (0.01±1.374/-0.594±1.642)	0.028 (0.856/<0.001)
Bioreactance value of left arm (5k)	14.768±2.267 (14.497±2.169/15.788±2.345)	15.267±2.245 (15.066±2.165/16.029±2.383)	0.493±2.048 (0.564±1.94/0.225±2.403)	<0.001 (<0.001/0.24)
Bioreactance value of right arm (5k)	15.169±2.299 (14.933±2.252/16.059±2.262)	15.747±2.328 (15.546±2.257/16.509±2.44)	0.567±2.111 (0.606±2.063/0.418±2.284)	<0.001 (<0.001/0.022)
Bioreactance value of left leg (5k)	11.278±2.262 (11.38±2.279/10.896±2.164)	12.853±2.252 (12.857±2.273/12.839±2.179)	1.557±1.963 (1.451±1.93/1.961±2.039)	<0.001 (<0.001/<0.001)

Bioreactance value of right leg (5k)	11.504±2.254 (11.624±2.264/11.051±2.161)	13.091±2.267 (13.097±2.267/13.066±2.273)	1.571±1.957 (1.451±1.914/2.027±2.056)	<0.001 (<0.001/<0.001)
Bioreactance value of left arm (5k)	26.731±4.044 (26.693±4.09/26.872±3.873)	28.905±3.938 (28.844±3.933/29.135±3.96)	2.149±3.393 (2.119±3.333/2.264±3.624)	<0.001 (<0.001/<0.001)
Bioreactance value of right arm (5k)	27.369±4.181 (27.391±4.303/27.285±3.696)	29.325±4.102 (29.271±4.117/29.528±4.053)	1.928±3.585 (1.85±3.595/2.222±3.539)	<0.001 (<0.001/<0.001)
Bioreactance value of whole body (5k)	1.441±0.294 (1.489±0.288/1.259±0.24)	1.63±0.338 (1.684±0.325/1.421±0.307)	0.187±0.302 (0.193±0.303/0.163±0.301)	<0.001 (<0.001/<0.001)
Bioreactance value of left arm (10k)	20.962±2.944 (20.732±2.882/21.829±3.021)	21.82±3.007 (21.648±2.915/22.471±3.26)	0.848±2.648 (0.907±2.528/0.626±3.06)	<0.001 (<0.001/0.011)
Bioreactance value of right arm (10k)	21.784±3.061 (21.537±3.02/22.714±3.043)	22.499±3.051 (22.311±2.957/23.214±3.295)	0.699±2.637 (0.761±2.527/0.464±3.018)	<0.001 (<0.001/0.054)
Bioreactance value of left leg (10k)	16.418±3.178 (16.581±3.182/15.804±3.096)	18.614±3.111 (18.65±3.124/18.477±3.068)	2.172±2.689 (2.033±2.625/2.702±2.865)	<0.001 (<0.001/<0.001)
Bioreactance value of right leg (10k)	16.745±3.152 (16.931±3.147/16.048±3.082)	18.905±3.119 (18.943±3.102/18.764±3.187)	2.139±2.672 (1.982±2.592/2.738±2.886)	<0.001 (<0.001/<0.001)
Bioreactance value of left arm (10k)	38.922±5.611 (38.979±5.676/38.706±5.37)	41.993±5.473 (41.996±5.435/41.982±5.633)	3.036±4.562 (2.97±4.489/3.288±4.837)	<0.001 (<0.001/<0.001)
Bioreactance value of right arm (10k)	40.018±5.721 (40.085±5.815/39.762±5.358)	42.978±5.586 (42.962±5.527/43.038±5.819)	2.922±4.606 (2.832±4.497/3.265±4.997)	<0.001 (<0.001/<0.001)
Bioreactance value of whole body (10k)	2.033±0.339 (2.104±0.324/1.766±0.25)	2.17±0.329 (2.25±0.3/1.866±0.248)	0.134±0.241 (0.144±0.242/0.099±0.236)	<0.001 (<0.001/<0.001)
Bioreactance value of left arm (20k)	27.368±3.493 (27.003±3.383/28.743±3.568)	28.361±3.591 (28.039±3.438/29.586±3.895)	0.982±2.937 (1.022±2.791/0.831±3.44)	<0.001 (<0.001/0.003)
Bioreactance value of right arm (20k)	28.5±3.657 (28.041±3.523/30.227±3.649)	29.284±3.675 (28.891±3.481/30.778±4.008)	0.769±2.926 (0.834±2.765/0.524±3.473)	<0.001 (<0.001/0.059)
Bioreactance value of left leg (20k)	21.598±3.781 (21.667±3.777/21.338±3.794)	24.175±3.669 (24.106±3.665/24.437±3.685)	2.552±3.085 (2.397±2.978/3.141±3.409)	<0.001 (<0.001/<0.001)
Bioreactance value of right leg (20k)	21.989±3.733 (22.081±3.723/21.643±3.762)	24.496±3.668 (24.422±3.632/24.777±3.802)	2.487±3.044 (2.307±2.916/3.17±3.412)	<0.001 (<0.001/<0.001)
Bioreactance value on the left side of body (20k)	50.592±6.619 (50.501±6.686/50.933±6.372)	54.318±6.483 (54.138±6.417/55.002±6.704)	3.687±5.108 (3.579±4.986/4.099±5.546)	<0.001 (<0.001/<0.001)
Bioreactance value on the right side of body (20k)	52.032±6.754 (51.881±6.83/52.603±6.451)	55.442±6.616 (55.19±6.505/56.404±6.963)	3.372±5.159 (3.256±4.976/3.814±5.799)	<0.001 (<0.001/<0.001)
Bioreactance value of whole body (20k)	2.489±0.412 (2.595±0.372/2.089±0.295)	2.605±0.399 (2.72±0.342/2.168±0.283)	0.113±0.269 (0.122±0.271/0.078±0.26)	<0.001 (<0.001/<0.001)

Bioreactance value of left arm (50k)	31.884±3.96 (31.042±3.525/35.055±3.909)	32.721±4.034 (31.923±3.615/35.759±4.112)	0.834±2.682 (0.868±2.51/0.705±3.26)	<0.001 (<0.001/0.007)
Bioreactance value of right arm (50k)	33.081±4.194 (32.08±3.629/36.849±4.04)	33.798±4.219 (32.868±3.645/37.339±4.382)	0.714±2.653 (0.773±2.454/0.489±3.302)	<0.001 (<0.001/0.064)
Bioreactance value of left leg (50k)	23.926±3.683 (23.696±3.634/24.793±3.75)	26.256±3.621 (25.938±3.571/27.467±3.567)	2.315±2.763 (2.206±2.64/2.729±3.163)	<0.001 (<0.001/<0.001)
Bioreactance value of right leg (50k)	24.324±3.629 (24.115±3.579/25.114±3.716)	26.56±3.613 (26.227±3.541/27.825±3.615)	2.225±2.696 (2.084±2.555/2.762±3.126)	<0.001 (<0.001/<0.001)
Bioreactance value on the left side of body (50k)	56.582±6.671 (55.878±6.566/59.233±6.407)	59.592±6.596 (58.848±6.406/62.424±6.56)	2.99±4.494 (2.922±4.333/3.246±5.066)	<0.001 (<0.001/<0.001)
Bioreactance value on the right side of body (50k)	58.04±6.89 (57.211±6.729/61.164±6.605)	61.085±6.839 (60.201±6.55/64.449±6.891)	3.028±4.532 (2.946±4.31/3.34±5.296)	<0.001 (<0.001/<0.001)
Bioreactance value (50k)	2.681±0.471 (2.822±0.389/2.146±0.356)	2.773±0.472 (2.922±0.376/2.209±0.359)	0.09±0.304 (0.098±0.301/0.064±0.314)	<0.001 (<0.001/0.011)
Resting energy consumption	1383.513±634.027 (1434.983±673.894/1189.709±399.272)	1429.909±570.788 (1480.365±604.518/1237.922±359.822)	44.427±287.105 (45.29±309.503/41.142±178.477)	<0.001 (<0.001/0.004)
Bioelectrical impedance resistance (vector analysis)	637.211±95.585 (601.967±62.492/769.92±80.956)	649.474±93.051 (616.786±63.643/773.854±81.664)	12.666±29.49 (14.754±27.364/4.72±35.455)	<0.001 (<0.001/0.095)
Bioelectrical impedance reactance (vector analysis)	-57.312±6.733 (-56.546±6.602/-60.199±6.451)	-60.336±6.667 (-59.522±6.43/-63.435±6.661)	-3.005±4.432 (-2.93±4.243/-3.291±5.091)	<0.001 (<0.001/<0.001)
Bioelectrical impedance resistance (vector analysis)	0.686±1.076 (0.501±0.929/1.383±1.29)	0.872±1.057 (0.726±0.934/1.431±1.291)	0.188±0.45 (0.223±0.401/0.056±0.584)	<0.001 (<0.001/0.229)
Phase angle	5.188±0.62 (5.374±0.53/4.486±0.394)	5.356±0.566 (5.527±0.473/4.704±0.391)	0.163±0.291 (0.149±0.304/0.218±0.23)	<0.001 (<0.001/<0.001)
Phase angle percentile	10.485±15.562 (9.786±15.267/13.117±16.409)	14.986±18.94 (13.053±17.588/22.34±21.934)	4.466±11.23 (3.226±10.341/9.182±13.114)	<0.001 (<0.001/<0.001)

Table S2A Correlation analysis of body weight, BMI, SBP, DBP and HR at baseline

Gender			Weight	BMI	SBP	DBP	HR	
Male	Weight	r	1	0.906	0.384	0.174	-0.098*	
		P		<0.01	<0.01	<0.01	0.028	
	BMI	r	0.906	1	0.393	0.171	-0.111*	
		P	<0.01		<0.01	<0.01	0.013	
	SBP	r	0.384	0.393	1	0.636	0.025	
		P	<0.01	<0.01		<0.01	0.581	
	DBP	r	0.174	0.171	0.636	1	0.349	
		P	<0.01	<0.01	<0.01		<0.01	
	HR	r	-0.098*	-0.111*	0.025	0.349	1	
		P	0.028	0.013	0.581	<0.01		
	Female	Weight	r	1	0.890	0.375	0.058	-0.140
			P		<0.01	<0.01	0.510	0.111
		BMI	r	0.890	1	0.343	-0.020	-0.262
			P	<0.01		<0.01	0.822	0.003
SBP		r	0.375	0.343	1	0.596	0.095	
		P	<0.01	<0.01		<0.01	0.282	
DBP		r	0.058	-0.020	0.596	1	0.350	
		P	0.510	0.822	<0.01		<0.01	
HR		r	-0.140	-0.262	0.095	0.350	1	
		P	0.111	0.003	0.282	<0.01		

Table S2B Correlation analysis of body weight, BMI, SBP, DBP and HR in PiPy

Gender			Weight	BMI	SBP	DBP	HR	
Male	Weight	r	1	0.904	0.346	0.031	-0.067	
		P		<0.01	<0.01	0.445	0.100	
	BMI	r	0.904	1	0.325	0.011	-0.032	
		P	<0.01		<0.01	0.782	0.426	
	SBP	r	0.346	0.325	1	0.525	0.143	
		P	<0.01	<0.01		<0.01	<0.01	
	DBP	r	0.031	0.011	0.525	1	0.324	
		P	0.445	0.782	<0.01		<0.01	
	HR	r	-0.067	-0.032	0.143	0.324	1	
		P	0.100	0.426	<0.01	<0.01		
	Female	Weight	r	1	0.910	0.177	0.046	0.019
			P		<0.01	0.025	0.565	0.813
BMI		r	0.910	1	0.173	0.044	-0.020	
		P	<0.01		0.028	0.580	0.805	
SBP		r	0.177	0.173	1	0.637	0.244	
		P	0.025	0.028		<0.01	0.002	
DBP		r	0.046	0.044	0.637	1	0.365	
		P	0.565	0.580	<0.01		<0.01	
HR		r	0.019	-0.020	0.244	0.365	1	
		P	0.813	0.805	0.002	<0.01		