

Supplementary Table 2. Characteristics of the longitudinal experimental groups in the PUBMEP population (N = 90).

Characteristic	G1 Normoweight non-IR no change N = 24 ^I		G2 Overweight/Obesity non-IR no change N = 26 ^I		G3 Overweight/Obesity IR to non-IR N = 14 ^I		G4 Overweight/Obesity non-IR to IR N = 16 ^I		G5 Overweight/Obesity IR no change N = 10 ^I		p-value ² baseline	p-value ² follow-up
	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up		
Sex											0.14	0.14
Male	12 (50.00%)		17 (65.38%)		5 (35.71%)		5 (31.25%)		3 (30.00%)			
Female	12 (50.00%)		9 (34.62%)		9 (64.29%)		11 (68.75%)		7 (70.00%)			
Recruitment centre											-	-
Córdoba	0 (0.00%)		5 (19.23%)		1 (7.14%)		5 (31.25%)		0 (0.00%)			
Santiago de Compostela	8 (33.33%)		16 (61.54%)		8 (57.14%)		9 (56.25%)		4 (40.00%)			
Zaragoza	16 (66.67%)		5 (19.23%)		5 (35.71%)		2 (12.50%)		6 (60.00%)			
Tanner stage											-	-
1	24 (100.00%)	-	26 (100.00%)	-	14 (100.00%)	-	16 (100.00%)	-	10 (100.00%)	-		
2	-	5 (20.83%)	-	5 (19.23%)	-	1 (7.14%)	-	1 (6.25%)	-	0 (0.00%)		
3	-	2 (8.33%)	-	8 (30.77%)	-	2 (14.29%)	-	4 (25.00%)	-	2 (20.00%)		
4	-	3 (12.50%)	-	1 (3.85%)	-	3 (21.43%)	-	1 (6.25%)	-	3 (30.00%)		
5	-	14 (58.33%)	-	12 (46.15%)	-	8 (57.14%)	-	10 (62.50%)	-	5 (50.00%)		
Age (years)	8.19 (1.50)	14.73 (1.93)	8.12 (1.71)	13.91 (2.17)	8.90 (1.69)	13.87 (2.28)	7.51 (1.73)	14.17 (1.97)	8.47 (0.93)	13.15 (1.96)	0.27	0.32
BMI (kg/m2)	15.84 (1.44)	19.63 (2.60)	24.14 (2.80)	27.82 (3.68)	25.62 (4.36)	28.71 (5.03)	23.50 (2.58)	31.11 (4.10)	25.60 (4.13)	30.94 (6.74)	<0.001	<0.001
BMI z-score	-0.40 (0.54)	-0.27 (0.58)	2.93 (1.52)	2.11 (0.95)	2.79 (1.57)	2.37 (1.29)	2.46 (1.04)	3.03 (1.14)	2.79 (1.37)	3.05 (1.53)	<0.001	<0.001
WC (cm)	57.65 (4.54)	68.28 (6.15)	78.68 (10.34)	88.30 (11.90)	83.22 (11.46)	93.40 (12.14)	75.34 (8.26)	93.71 (10.85)	80.61 (13.49)	93.71 (10.85)	<0.001	<0.001
WC z-score	-0.42 (0.78)	-0.92 (0.76)	3.39 (2.15)	1.79 (1.30)	3.14 (1.73)	2.53 (1.40)	3.04 (1.40)	2.46 (1.32)	3.01 (1.85)	2.92 (2.32)	<0.001	<0.001
FMI (kg/m2)	3.69 (1.76)	4.32 (2.57)	9.65 (2.73)	10.75 (2.22)	11.60 (3.16)	11.99 (3.04)	8.77 (1.32)	13.50 (3.15)	10.85 (2.53)	17.45 (5.11)	<0.001	<0.001
Glucose (mg/dL)	83.63 (7.35)	87.75 (9.92)	79.58 (7.47)	83.38 (7.77)	83.36 (8.24)	80.64 (7.16)	79.94 (6.81)	87.06 (6.24)	87.80 (8.16)	92.60 (7.66)	0.057	0.005
Glucose z-score	-0.52 (1.12)	-0.49 (1.36)	-1.08 (0.85)	-1.14 (1.12)	-0.60 (1.22)	-1.44 (0.89)	-0.93 (1.14)	-0.56 (0.90)	0.05 (1.06)	0.16 (1.05)	0.046	0.003
Insulin (µU/mL)	4.35 (2.39)	9.53 (3.81)	6.69 (2.76)	9.80 (3.10)	20.12 (7.72)	12.89 (4.72)	7.71 (3.00)	29.11 (10.27)	16.77 (4.59)	25.82 (7.21)	<0.001	<0.001
Insulin z-score	-0.36 (0.81)	-0.03 (0.93)	0.51 (1.00)	0.19 (0.63)	2.51 (0.76)	0.61 (0.85)	0.84 (0.97)	2.15 (0.63)	2.34 (0.49)	2.06 (0.51)	<0.001	<0.001
HOMA-IR	0.89 (0.48)	2.07 (0.87)	1.32 (0.58)	2.03 (0.72)	4.16 (1.74)	2.55 (0.92)	1.53 (0.61)	6.33 (2.50)	3.62 (0.96)	5.91 (1.71)	<0.001	<0.001
HOMA-IR z-score	-0.41 (0.73)	-0.14 (0.89)	0.33 (0.99)	-0.01 (0.66)	2.27 (0.79)	0.32 (0.77)	0.66 (1.03)	1.92 (0.67)	2.22 (0.48)	1.94 (0.53)	<0.001	<0.001
SBP (mmHg)	102.63 (9.03)	103.46 (14.37)	103.12 (14.64)	111.29 (14.10)	114.17 (11.09)	113.00 (9.56)	102.50 (7.75)	114.00 (8.87)	103.80 (14.63)	119.20 (27.46)	0.050	0.11
SBP z-score	0.44 (1.07)	-0.61 (1.67)	0.45 (1.60)	0.26 (1.34)	1.58 (1.09)	0.54 (0.97)	0.49 (0.95)	0.66 (1.01)	0.47 (1.57)	1.30 (2.70)	0.084	0.048
DBP (mmHg)	63.25 (6.55)	69.31 (13.34)	59.64 (7.12)	68.15 (12.09)	69.33 (8.57)	69.58 (9.61)	62.69 (7.91)	67.78 (8.84)	61.30 (14.60)	71.25 (11.33)	0.010	0.73
DBP z-score	0.49 (0.94)	0.67 (1.59)	0.01 (0.89)	0.61 (1.52)	1.22 (1.03)	0.76 (1.14)	0.46 (1.00)	0.51 (1.17)	0.22 (1.76)	1.02 (1.36)	0.012	0.68
TAG (mg/dL)	43.46 (8.86)	64.63 (30.06)	55.04 (16.90)	72.27 (26.03)	78.57 (24.60)	65.07 (25.23)	61.13 (37.51)	91.63 (43.02)	80.90 (40.90)	93.60 (44.22)	<0.001	0.02
TAG z-score	-0.72 (0.45)	-0.15 (0.77)	-0.20 (0.72)	0.14 (0.78)	0.53 (0.82)	-0.15 (0.86)	-0.16 (1.36)	0.57 (1.07)	0.50 (1.08)	0.64 (1.05)	<0.001	0.025

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	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up		
HDLc (mg/dL)	66.59 (14.17)	59.38 (14.45)	54.38 (12.45)	49.69 (10.68)	51.57 (11.20)	47.86 (18.46)	46.81 (11.31)	41.88 (6.16)	50.00 (12.77)	41.10 (16.96)	<0.001	<0.001
HDLc z-score	0.64 (1.08)	0.30 (1.14)	-0.42 (0.94)	-0.45 (0.85)	-0.63 (0.90)	-0.66 (1.39)	-1.04 (0.93)	-1.13 (0.47)	-0.79 (1.05)	-1.21 (1.36)	<0.001	<0.001
LDLc (mg/dL)	103.05 (27.52)	90.84 (29.25)	102.58 (33.06)	92.61 (22.88)	86.93 (16.48)	82.61 (13.64)	93.44 (20.29)	90.45 (20.66)	100.80 (28.73)	90.80 (17.39)	0.34	0.60
LDLc z-score	0.33 (1.11)	0.13 (1.16)	0.30 (1.37)	0.21 (0.97)	-0.34 (0.63)	-0.25 (0.53)	-0.15 (0.86)	0.07 (0.83)	0.17 (1.18)	0.05 (0.75)	0.26	0.58
hs-CRP (mg/L)	1.16 (2.07)	1.47 (1.95)	4.13 (8.74)	3.43 (3.91)	3.65 (4.62)	4.01 (4.69)	4.63 (7.80)	7.15 (9.89)	2.41 (1.01)	5.30 (5.85)	0.003	<0.001
Adiponectin (mg/L)	18.01 (12.53)	13.23 (9.28)	14.84 (7.98)	11.38 (7.24)	12.55 (7.32)	11.20 (8.47)	12.05 (6.73)	8.25 (3.89)	14.91 (9.39)	9.65 (8.61)	0.39	0.33
Leptin (µg/L)	2.66 (2.80)	4.01 (3.43)	14.29 (10.68)	12.53 (8.51)	20.69 (18.55)	12.24 (7.20)	14.85 (6.78)	17.46 (5.63)	23.23 (11.98)	19.41 (7.59)	<0.001	<0.001
Resistin (µg/L)	19.84 (12.42)	20.88 (8.02)	21.45 (18.24)	20.27 (6.31)	21.40 (10.30)	23.49 (10.91)	18.55 (10.66)	21.82 (9.66)	25.59 (18.17)	23.39 (11.08)	0.81	0.94
TNF (ng/L)	3.04 (1.80)	2.75 (0.87)	3.83 (1.49)	2.56 (1.02)	2.46 (1.38)	2.45 (1.12)	3.39 (1.25)	2.79 (0.68)	3.33 (2.06)	2.60 (0.66)	0.067	0.81
IL8 (ng/L)	1.67 (0.95)	4.78 (6.77)	3.56 (5.04)	3.90 (5.63)	1.76 (0.72)	2.73 (2.08)	2.59 (2.39)	1.96 (1.36)	2.10 (2.44)	1.93 (0.70)	0.025	0.052
MCP1 (ng/L)	93.37 (35.08)	112.04 (39.30)	108.04 (41.29)	105.98 (44.45)	100.15 (36.21)	87.97 (29.89)	103.82 (32.27)	108.76 (55.22)	95.49 (40.10)	107.57 (33.59)	0.54	0.53
MPO (µg/L)	40.92 (42.49)	46.60 (64.47)	37.14 (43.72)	114.92 (170.58)	93.18 (211.22)	76.74 (76.17)	31.77 (27.30)	70.92 (72.01)	96.63 (159.38)	54.51 (60.94)	0.54	0.49
tPAI1 (µg/L)	13.33 (9.35)	8.55 (4.79)	20.93 (12.42)	20.83 (11.71)	27.20 (16.51)	19.19 (16.87)	20.86 (10.48)	33.23 (15.77)	24.90 (12.61)	15.76 (5.24)	0.006	<0.001
sICAM1 (mg/L)	0.14 (0.16)	0.32 (0.69)	0.11 (0.07)	0.33 (0.54)	0.12 (0.08)	0.20 (0.36)	0.15 (0.12)	0.10 (0.02)	0.11 (0.04)	0.15 (0.09)	0.75	0.36

¹ N (%); Mean (SD) ² Fisher’s exact test; One-way analysis of means (not assuming equal variances); Kruskal-Wallis rank sum test.

Abbreviations: BMI (Body Mass Index, kg/m²), hs-CRP (high-sensitivity C-reactive Protein, mg/L), DBP (Diastolic Blood Pressure, mmHg), FMI (Fat Mass Index, kg/m²), HDLc (High-Density Lipoprotein Cholesterol, mg/dL), HOMA-IR (Homeostatic Model Assessment for Insulin Resistance), IL8 (Interleukin 8, ng/L), LDLc (Low-Density Lipoprotein Cholesterol, mg/dL), MCP1 (Monocyte Chemoattractant Protein 1, ng/L), MPO (Myeloperoxidase, µg/L), SBP (Systolic Blood Pressure, mmHg), sICAM1 (Soluble Intercellular Adhesion Molecule-1, mg/L), TAG (Triacylglycerol, mg/dL), TNF (Tumour Necrosis Factor, ng/L), tPAI1 (Tissue Plasminogen Activator Inhibitor-1, µg/L), WC (Waist Circumference, cm).