

Extended Data 3. Blood factors that decreased significantly after both aerobic training and resistance training

Blood factor	Unit	All (n = 56)			AT (n = 26)			RT (n = 30)			Change (Δ)		
		Before	After	p value	Before	After	p value	Before	After	p value	AT	RT	p value ^a
Total protein	g/dL	7.03 ± 0.07	6.85 ± 0.07	< 0.01	6.84 ± 0.11	6.67 ± 0.13	< 0.10	7.19 ± 0.08	7.00 ± 0.07	< 0.05	-0.17 ± 0.08	-0.19 ± 0.08	0.87
Albumin	g/dL	4.31 ± 0.04	4.18 ± 0.04	< 0.01	4.22 ± 0.06	4.10 ± 0.07	< 0.10	4.39 ± 0.05	4.25 ± 0.05	< 0.01	-0.12 ± 0.05	-0.14 ± 0.05	0.87
Insulin	μU/mL	5.66 ± 0.37	4.35 ± 0.25	< 0.0001	6.25 ± 0.74	4.49 ± 0.50	< 0.01	5.15 ± 0.25	4.24 ± 0.22	< 0.01	-1.93 ± 0.27	-0.91 ± 0.27	< 0.10
Eotaxin	pg/mL	23.92 ± 1.07	21.64 ± 1.01	< 0.01	21.71 ± 1.16	19.80 ± 1.07	< 0.01	25.84 ± 1.67	23.23 ± 1.60	< 0.05	-1.91 ± 1.24	-2.61 ± 1.24	0.64
IL-18	pg/mL	47.22 ± 4.22	40.08 ± 2.87	< 0.05	38.75 ± 1.59	34.51 ± 1.35	< 0.01	54.56 ± 7.55	44.91 ± 5.10	< 0.10	-4.24 ± 5.20	-9.65 ± 5.20	0.35
LIF	Fl ^b	1.99 ± 0.82	0.99 ± 0.77	< 0.001	3.79 ± 1.43	2.25 ± 1.17	< 0.01	0.42 ± 0.81	-0.10 ± 1.01	< 0.05	-1.54 ± 0.50	-0.52 ± 0.58	0.19
M-CSF	pg/mL	13.74 ± 0.75	11.59 ± 0.51	< 0.001	13.23 ± 1.08	10.92 ± 0.76	< 0.01	14.19 ± 1.04	12.16 ± 0.67	< 0.05	-2.31 ± 0.94	-2.03 ± 0.94	0.82
I-309/CCL1	pg/mL	27.09 ± 0.49	25.71 ± 0.56	< 0.01	26.92 ± 0.68	25.80 ± 0.85	< 0.05	27.23 ± 0.71	25.62 ± 0.77	< 0.05	-1.12 ± 0.62	-1.61 ± 0.62	0.56
IGF-I	ng/mL	61.52 ± 2.42	54.25 ± 2.46	< 0.0001	62.35 ± 4.09	54.34 ± 3.66	< 0.01	60.81 ± 2.85	54.17 ± 3.39	< 0.01	-8.00 ± 1.96	-6.64 ± 1.96	0.66
ACTH	pg/mL	12.54 ± 0.90	9.88 ± 0.69	< 0.001	10.54 ± 1.08	7.82 ± 0.67	< 0.01	14.34 ± 1.33	11.72 ± 1.06	< 0.05	-2.72 ± 1.20	-2.53 ± 1.20	0.90
afp	μIU/mL	4.06 ± 0.43	3.11 ± 0.31	< 0.01	3.46 ± 0.43	2.63 ± 0.38	< 0.10	4.58 ± 0.71	3.53 ± 0.48	< 0.05	-0.83 ± 0.40	-1.17 ± 0.40	0.56
EGF	pg/mL	186.07 ± 10.62	107.26 ± 10.44	< 0.0001	179.68 ± 15.45	113.54 ± 17.14	< 0.01	191.62 ± 14.80	101.82 ± 12.80	< 0.0001	-66.14 ± 17.86	-89.80 ± 17.86	0.38
FLRG	ng/mL	17.61 ± 0.59	15.66 ± 0.47	< 0.0001	17.46 ± 0.83	15.61 ± 0.65	< 0.01	17.74 ± 0.84	15.71 ± 0.69	< 0.01	-1.85 ± 0.57	-2.03 ± 0.57	0.83
NT-Pro-ANP	ng/mL	6.44 ± 0.36	5.58 ± 0.35	< 0.001	5.70 ± 0.50	4.97 ± 0.53	< 0.05	7.08 ± 0.50	6.11 ± 0.45	< 0.01	-0.73 ± 0.28	-0.97 ± 0.28	0.60
Prolactin	ng/mL	26.2 ± 4.72	18.99 ± 3.54	< 0.001	21.46 ± 3.04	14.79 ± 2.14	< 0.01	30.32 ± 8.40	22.63 ± 6.33	< 0.05	-6.67 ± 2.93	-7.69 ± 2.93	0.78
Chemerin	ng/mL	5.40 ± 0.21	5.07 ± 0.17	< 0.01	5.70 ± 0.30	5.31 ± 0.22	< 0.05	5.14 ± 0.30	4.87 ± 0.25	< 0.10	-0.39 ± 0.14	-0.28 ± 0.14	0.61
CD40 Ligand/TNFSF5	ng/mL	8.98 ± 0.32	6.81 ± 0.33	< 0.0001	8.38 ± 0.46	6.63 ± 0.46	< 0.001	9.49 ± 0.42	6.96 ± 0.47	< 0.001	-1.76 ± 0.60	-2.53 ± 0.60	0.30
Flt-3 Ligand	pg/mL	127.94 ± 5.63	116.72 ± 5.32	< 0.0001	127.83 ± 9.68	117.81 ± 9.11	< 0.01	128.03 ± 6.50	115.78 ± 6.17	< 0.0001	-10.01 ± 1.99	-12.25 ± 1.99	0.55
VEGFR2/KDR/Flk-1	ng/mL	10.39 ± 0.38	9.93 ± 0.37	< 0.001	10.33 ± 0.57	9.89 ± 0.56	< 0.05	10.44 ± 0.52	9.96 ± 0.51	< 0.05	-0.43 ± 0.19	-0.48 ± 0.19	0.85
Syndecan-1/CD138	ng/mL	2.66 ± 0.07	2.44 ± 0.07	< 0.0001	2.63 ± 0.10	2.37 ± 0.10	< 0.0001	2.69 ± 0.10	2.50 ± 0.09	< 0.001	-0.25 ± 0.04	-0.19 ± 0.04	0.32
Dkk-1	ng/mL	3.33 ± 0.14	3.08 ± 0.14	< 0.01	3.03 ± 0.13	2.87 ± 0.13	< 0.05	3.59 ± 0.23	3.26 ± 0.24	< 0.05	-0.16 ± 0.14	-0.33 ± 0.14	0.32
Cathepsin S	ng/mL	3.04 ± 0.17	2.81 ± 0.16	< 0.01	3.05 ± 0.29	2.77 ± 0.27	< 0.10	3.04 ± 0.21	2.84 ± 0.18	< 0.01	-0.27 ± 0.06	-0.20 ± 0.06	0.64
Osteoprotegerin	pg/mL	763.14 ± 20.66	723.33 ± 20.15	< 0.0001	737.09 ± 22.75	690.81 ± 22.13	< 0.001	785.71 ± 32.97	751.52 ± 31.81	< 0.01	-46.28 ± 10.76	-34.19 ± 10.76	0.46
Follistatin-like 1/FSTL1	ng/mL	10.65 ± 0.23	10.18 ± 0.25	< 0.0001	10.48 ± 0.38	9.80 ± 0.41	< 0.001	10.80 ± 0.29	10.5 ± 0.31	< 0.05	-0.67 ± 0.11	-0.30 ± 0.11	< 0.10
IL-1 R1	ng/mL	1.45 ± 0.03	1.40 ± 0.03	< 0.01	1.40 ± 0.03	1.34 ± 0.03	< 0.05	1.49 ± 0.04	1.46 ± 0.04	< 0.10	-0.06 ± 0.01	-0.03 ± 0.01	0.25
HB-EGF	pg/mL	230.57 ± 9.91	204.46 ± 9.67	< 0.01	216.11 ± 11.42	199.12 ± 11.53	< 0.05	243.10 ± 15.45	209.09 ± 15.17	< 0.05	-16.99 ± 12.93	-34.01 ± 12.93	0.28
SPARC	μg/mL	1.48 ± 0.04	1.35 ± 0.05	< 0.01	1.43 ± 0.06	1.35 ± 0.06	< 0.05	1.52 ± 0.06	1.36 ± 0.07	< 0.05	-0.08 ± 0.07	-0.16 ± 0.07	0.38
HMW Adiponectin	μg/mL	7.91 ± 0.60	6.36 ± 0.48	< 0.0001	8.46 ± 0.89	7.35 ± 0.79	< 0.01	7.42 ± 0.81	5.50 ± 0.53	< 0.0001	-1.11 ± 0.37	-1.92 ± 0.37	0.14
PDGF-AA	ng/mL	4.35 ± 0.14	3.98 ± 0.14	< 0.01	4.23 ± 0.20	3.96 ± 0.18	< 0.05	4.45 ± 0.21	4.00 ± 0.22	< 0.10	-0.27 ± 0.23	-0.45 ± 0.23	0.50
Angiopoietin-1	ng/mL	59.99 ± 2.08	54.9 ± 2.10	< 0.01	59.08 ± 3.01	55.76 ± 2.76	< 0.10	60.78 ± 2.92	54.16 ± 3.14	< 0.05	-3.31 ± 3.04	-6.62 ± 3.04	0.37
TIMP-1	ng/mL	120.28 ± 2.43	110.87 ± 2.84	< 0.0001	113.14 ± 3.5	108.35 ± 3.82	< 0.05	126.46 ± 2.99	113.06 ± 4.15	< 0.001	-4.80 ± 3.21	-13.4 ± 3.21	< 0.05
CD14	μg/mL	1.42 ± 0.06	1.28 ± 0.04	< 0.01	1.45 ± 0.09	1.28 ± 0.04	< 0.10	1.39 ± 0.07	1.28 ± 0.07	< 0.05	-0.17 ± 0.04	-0.11 ± 0.04	0.53
Serpin E1/PAI-1	ng/mL	95.21 ± 3.20	85.45 ± 3.31	< 0.001	90.31 ± 4.74	82.78 ± 3.55	< 0.05	99.46 ± 4.27	87.77 ± 5.38	< 0.05	-7.53 ± 4.28	-11.69 ± 4.28	0.43
Adiponectin/Acrp30	μg/mL	6.71 ± 0.30	5.94 ± 0.25	< 0.0001	6.83 ± 0.44	6.24 ± 0.42	< 0.01	6.61 ± 0.41	5.68 ± 0.30	< 0.001	-0.59 ± 0.21	-0.93 ± 0.21	0.26
CXCL7/NAP-2	μg/mL	2.88 ± 0.06	2.65 ± 0.07	< 0.01	2.77 ± 0.08	2.66 ± 0.08	< 0.10	2.97 ± 0.10	2.64 ± 0.12	< 0.01	-0.11 ± 0.11	-0.33 ± 0.11	< 0.10
Serpin A7/TBG	μg/mL	10.80 ± 0.22	10.26 ± 0.21	< 0.001	10.82 ± 0.33	10.36 ± 0.34	< 0.05	10.79 ± 0.30	10.18 ± 0.27	< 0.01	-0.46 ± 0.23	-0.60 ± 0.23	0.65
Angiogenin	ng/mL	293.74 ± 9.35	263.78 ± 7.66	< 0.0001	301.08 ± 13.01	272.16 ± 10.42	< 0.0001	287.39 ± 13.42	256.51 ± 11.08	< 0.001	-28.92 ± 7.86	-30.87 ± 7.86	0.85
Properdin	μg/mL	17.71 ± 0.39	16.68 ± 0.34	< 0.001	17.28 ± 0.49	16.47 ± 0.53	< 0.05	18.08 ± 0.58	16.87 ± 0.45	< 0.01	-0.82 ± 0.40	-1.21 ± 0.40	0.45
Serpin A10/ZPI	μg/mL	3.72 ± 0.11	3.52 ± 0.10	< 0.01	3.77 ± 0.20	3.56 ± 0.16	< 0.10	3.68 ± 0.12	3.48 ± 0.12	< 0.05	-0.21 ± 0.08	-0.20 ± 0.08	0.94
Serpin C1	μg/mL	936.71 ± 54.92	647.98 ± 46.04	< 0.0001	878.34 ± 81.49	650.24 ± 73.24	< 0.05	985.35 ± 74.40	646.02 ± 59.13	< 0.001	-194.32 ± 85.68	-339.33 ± 85.68	0.25
3-Aminobutyric acid	μM	0.43 ± 0.01	0.37 ± 0.01	< 0.001	0.43 ± 0.02	0.37 ± 0.02	< 0.05	0.43 ± 0.01	0.37 ± 0.01	< 0.01	-0.30 ± 0.08	-0.18 ± 0.08	0.26
Lactic acid	μM	1256.73 ± 92.18	882.32 ± 52.84	< 0.001	1326.93 ± 172.08	765.78 ± 56.98	< 0.01	1195.9 ± 87.65	983.32 ± 81.87	< 0.10	-395.74 ± 78.89	-258.21 ± 78.89	0.43
S-Methylcysteine	μM	5.91 ± 0.25	4.93 ± 0.25	< 0.01	5.83 ± 0.36	4.77 ± 0.39	< 0.05	5.97 ± 0.36	5.07 ± 0.33	< 0.10	-1.15 ± 0.46	-0.94 ± 0.46	0.76

Values show the means ± standard errors (SEs). The change value was calculated as delta (Δ) by subtracting the baseline value measured before the training intervention from the value measured after the training intervention. Statistical analyses were performed with two-sided paired *t* tests for the intragroup difference, ^atwo-sided independent *t* tests for the intergroup difference, and ^bWilcoxon signed-rank sum tests for the intragroup difference of FI value. AT, aerobic training; FI, fluorescence intensity; IL, interleukin; IU, international units; RT, resistance training