

“Associations between body composition and glycemic control: an exploratory analysis of bioelectrical impedance parameters in adolescents with type 1 diabetes”

Supplemental material

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Supplemental File 1. Results of Spearman correlation analyse.

Supplemental File 2. Correlations between glycemic control indicators and auxological or bioelectrical impedance analysis-derived parameters according to participants’ biological sex. Spearman test was applied.

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Supplemental File 1. Results of Spearman correlation analyse.

	HbA1c	Mean HbA1c	TIR	TAR1	TAR2	TBR1	TBR2	CV	Mean SG	SD SG	TTD
BMI z-score	r = 0.066 p = 0.455	r = 0.162 p = 0.063	r = -0.015 p = 0.874	r = 0.038 p = 0.678	r = 0.040 p = 0.663	r = 0.036 p = 0.691	r = -0.063 p = 0.487	r = 0.020 p = 0.828	r = 0.021 p = 0.823	r = 0.013 p = 0.888	r = -0.153 p = 0.091
Waist/height ratio	r = 0.110 p = 0.221	r = 0.167 p = 0.063	r = -0.080 p = 0.393	r = 0.098 p = 0.298	r = 0.131 p = 0.163	r = -0.037 p = 0.696	r = -0.087 p = 0.354	r = 0.038 p = 0.689	r = 0.116 p = 0.228	r = 0.095 p = 0.328	r = -0.145 p = 0.117
Waist/hip ratio	r = 0.055 p = 0.538	r = 0.034 p = 0.697	r = -0.039 p = 0.673	r = 0.055 p = 0.547	r = 0.064 p = 0.490	r = -0.088 p = 0.341	r = -0.104 p = 0.258	r = 0.015 p = 0.869	r = 0.047 p = 0.618	r = 0.100 p = 0.288	r = -0.103 p = 0.260
FFM (%)	r = -0.093 p = 0.303	r = -0.085 p = 0.349	r = -0.128 p = 0.176	r = 0.118 p = 0.212	r = 0.109 p = 0.246	r = -0.002 p = 0.980	r = -0.019 p = 0.845	r = 0.141 p = 0.135	r = 0.092 p = 0.342	r = 0.165 p = 0.087	r = 0.044 p = 0.637
FM (%)	r = 0.106 p = 0.241	r = 0.117 p = 0.196	r = 0.107 p = 0.257	r = -0.101 p = 0.283	r = -0.097 p = 0.301	r = -0.007 p = 0.942	r = 0.009 p = 0.925	r = -0.148 p = 0.117	r = -0.069 p = 0.478	r = -0.148 p = 0.125	r = -0.075 p = 0.418
MM (%)	r = -0.160 p = 0.076	r = -0.170 p = 0.059	r = -0.036 p = 0.703	r = 0.024 p = 0.800	r = 0.021 p = 0.822	r = 0.016 p = 0.862	r = 0.027 p = 0.772	r = 0.086 p = 0.367	r = -0.010 p = 0.915	r = 0.065 p = 0.506	r = -0.009 p = 0.922
Visceral fat	r = 0.153 p = 0.080	r = 0.221* p = 0.011	r = -0.074 p = 0.418	r = 0.058 p = 0.526	r = 0.127 p = 0.164	r = 0.037 p = 0.687	r = -0.048 p = 0.600	r = 0.064 p = 0.487	r = 0.138 p = 0.138	r = 0.095 p = 0.310	r = -0.101 p = 0.266

BMI: body mass index; CV: coefficient of variation; FFM: fat-free mass; FM: fat mass; HbA1c: glycated hemoglobin; MM: muscular mass; SD: standard deviation; SG: sensor glucose; TAR1: time above range [180-250 mg/dl]; TAR2: time above range [>250 mg/dl]; TBR1: time below range [54-70 mg/dl]; TBR2: time below range [<54 mg/dl]; TIR: time in range; TTD: total daily dose.

* Correlation is significant at the level of 0.05.

Supplemental File 2. Correlations between glycemic control indicators and auxological or bioelectrical impedance analysis-derived parameters according to participants' biological sex. Spearman test was applied.

Males (N = 66)											
	HbA1c	Mean HbA1c	TIR	TAR1	TAR2	TBR1	TBR2	CV	Mean SG	SD SG	TDD
BMI z-score	r = 0.137 p = 0.275	r = 0.225 p = 0.071	r = -0.071 p = 0.582	r = 0.074 p = 0.569	r = 0.016 p = 0.904	r = -0.029 p = 0.823	r = 0.019 p = 0.882	r = 0.023 p = 0.859	r = 0.086 p = 0.518	r = 0.051 p = 0.703	r = -0.196 p = 0.129
Waist/height ratio	r = 0.247 p = 0.061	r = 0.270* p = 0.040	r = -0.144 p = 0.294	r = 0.179 p = 0.192	r = 0.069 p = 0.619	r = -0.188 p = 0.170	r = -0.110 p = 0.424	r = -0.060 p = 0.662	r = 0.234 p = 0.095	r = 0.111 p = 0.432	r = -0.261 p = 0.054
Waist/hip ratio	r = 0.139 p = 0.277	r = 0.093 p = 0.468	r = -0.083 p = 0.528	r = 0.135 p = 0.302	r = 0.021 p = 0.871	r = -0.118 p = 0.368	r = -0.019 p = 0.887	r = -0.094 p = 0.474	r = 0.111 p = 0.411	r = 0.077 p = 0.568	r = -0.162 p = 0.220
FFM (%)	r = -0.166 p = 0.212	r = -0.258 p = 0.050	r = -0.004 p = 0.975	r = -0.048 p = 0.726	r = 0.086 p = 0.531	r = 0.196 p = 0.152	r = 0.165 p = 0.229	r = 0.171 p = 0.213	r = -0.071 p = 0.616	r = 0.010 p = 0.942	r = 0.225 p = 0.099
FM (%)	r = 0.168 p = 0.208	r = 0.242 p = 0.067	r = -0.037 p = 0.789	r = 0.094 p = 0.496	r = -0.035 p = 0.802	r = -0.234 p = 0.085	r = -0.213 p = 0.118	r = -0.162 p = 0.238	r = 0.123 p = 0.386	r = 0.017 p = 0.905	r = -0.205 p = 0.133
MM (%)	r = -0.111 p = 0.407	r = -0.217 p = 0.102	r = -0.050 p = 0.718	r = -0.027 p = 0.845	r = 0.145 p = 0.292	r = 0.191 p = 0.162	r = 0.164 p = 0.231	r = 0.225 p = 0.098	r = -0.018 p = 0.902	r = 0.033 p = 0.814	r = 0.218 p = 0.110
Visceral fat	r = 0.258* p = 0.038	r = 0.350* p = 0.004	r = -0.118 p = 0.359	r = 0.099 p = 0.446	r = 0.105 p = 0.415	r = 0.036 p = 0.779	r = -0.088 p = 0.497	r = 0.067 p = 0.604	r = 0.221 p = 0.092	r = 0.150 p = 0.258	r = -0.166 p = 0.202

Females (N = 67)											
	HbA1c	Mean HbA1c	TIR	TAR1	TAR2	TBR1	TBR2	CV	Mean SG	SD SG	TDD
BMI z-score	r = -0.032 p = 0.798	r = 0.090 p = 0.471	r = 0.024 p = 0.854	r = 0.014 p = 0.914	r = 0.070 p = 0.593	r = 0.092 p = 0.484	r = -0.166 p = 0.204	r = 0.031 p = 0.817	r = -0.055 p = 0.684	r = -0.024 p = 0.861	r = -0.132 p = 0.302
Waist/height ratio	r = -0.025 p = 0.838	r = 0.066 p = 0.595	r = -0.005 p = 0.970	r = 0.024 p = 0.856	r = 0.137 p = 0.297	r = 0.100 p = 0.445	r = -0.064 p = 0.626	r = 0.097 p = 0.466	r = 0.023 p = 0.866	r = 0.034 p = 0.803	r = -0.052 p = 0.687

Waist/hip ratio	r = 0.111 p = 0.373	r = 0.016 p = 0.900	r = 0.059 p = 0.654	r = -0.125 p = 0.343	r = 0.044 p = 0.736	r = 0.078 p = 0.555	r = -0.085 p = 0.517	r = 0.039 p = 0.768	r = -0.037 p = 0.786	r = 0.030 p = 0.825	r = 0.006 p = 0.964
FFM (%)	r = -0.089 p = 0.477	r = -0.060 p = 0.634	r = -0.124 p = 0.351	r = 0.105 p = 0.429	r = 0.018 p = 0.889	r = -0.001 p = 0.992	r = -0.070 p = 0.600	r = 0.007 p = 0.960	r = 0.162 p = 0.233	r = 0.178 p = 0.190	r = 0.032 p = 0.805
FM (%)	r = 0.117 p = 0.350	r = 0.152 p = 0.222	r = 0.049 p = 0.710	r = -0.046 p = 0.726	r = 0.016 p = 0.906	r = 0.016 p = 0.903	r = 0.088 p = 0.506	r = -0.011 p = 0.936	r = -0.101 p = 0.456	r = -0.112 p = 0.406	r = -0.117 p = 0.363
MM (%)	r = -0.163 p = 0.190	r = -0.164 p = 0.189	r = 0.036 p = 0.785	r = -0.035 p = 0.791	r = -0.145 p = 0.274	r = -0.022 p = 0.872	r = -0.045 p = 0.736	r = -0.094 p = 0.484	r = 0.012 p = 0.929	r = 0.026 p = 0.847	r = -0.044 p = 0.735
Visceral fat	r = 0.034 p = 0.782	r = 0.075 p = 0.545	r = -0.037 p = 0.777	r = 0.018 p = 0.892	r = 0.135 p = 0.304	r = 0.037 p = 0.779	r = -0.006 p = 0.963	r = 0.069 p = 0.602	r = 0.039 p = 0.774	r = 0.036 p = 0.788	r = -0.059 p = 0.645

Supplemental File 3. Sensitivity analysis adjusted for age, sex, diabetes duration, BMI, and AID use to assess exploratory association between 12-month HbA1c and visceral fat.

Variable	β	SE	t	p
Intercept	6.270	0.510	12.291	< 0.001
Age (years)	0.022	0.031	0.712	0.478
Diabetes duration (years)	0.039	0.017	2.362	0.020
Sex (male vs female)	0.061	0.124	0.488	0.626
BMI z-score	0.063	0.080	0.795	0.428
AID use (yes vs no)	-0.400	0.134	-2.979	0.003
Visceral fat	0.016	0.010	1.496	0.137
R² = 0.14 Adj. R² = 0.099 F = 3.398 p = 0.004				