

Lipidome profiling in childhood obesity compared to adults: a pilot study

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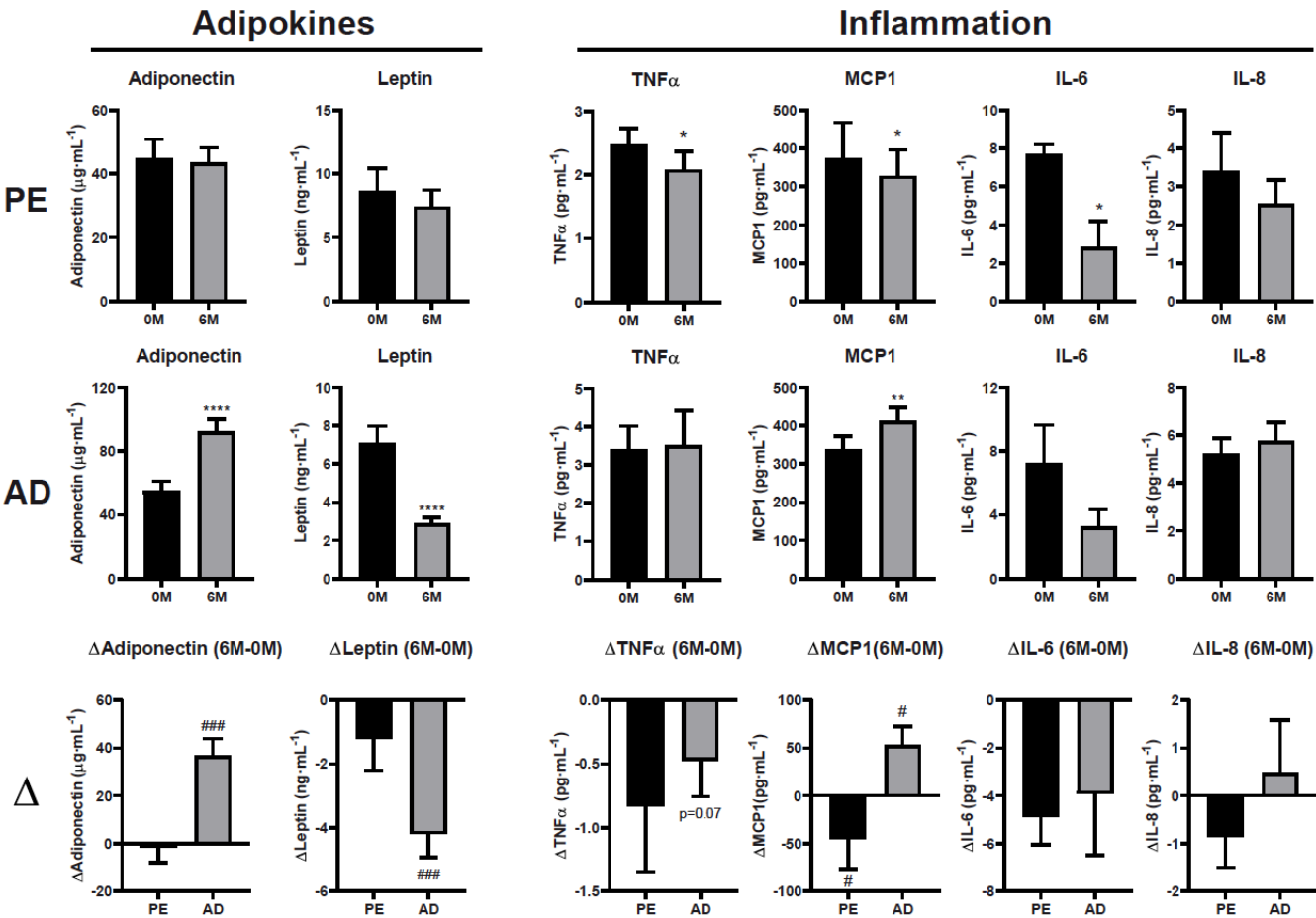
Supplementary file S5

a. Adipokines and inflammatory biomarkers response to 6-month intervention in the PE cohort (upper row), the AD cohort (middle row) and the difference (Δ , lower row) between 6M-0M. Data shown are means \pm standard error of the mean (SEM). Paired samples Wilcoxon test was used to assess differences between 6M and 0M, while one-sample signed-rank test was used to assess differences from unaltered status (null hypothesis: $\Delta=0$ units) in the lower panels compare TNF- α (tumor necrosis factor alfa), MCP1 (monocyte chemoattractant protein-1), IL-8 (interleukin-8) and IL-6 (interleukin-6). *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$, ****: $p < 0.0001$, 6M vs 0M. #: $p < 0.05$, ##: $p < 0.01$, ###: $p < 0.001$, vs $\Delta=0$.

Correlation between adipokines, inflammatory and clinical biomarkers in the pediatric (b) and adult (c) cohorts. Spearman's correlation was conducted for pre-intervention (0M), post-intervention (6M) and difference 6M-0M (Δ) for all variables. Pearson's correlation coefficient (ρ), effective N used for each correlation and p -values (sig. bilateral) are shown for each correlation; $p < 0.05$ was considered as the threshold of statistical significance and significant correlations were highlighted in green. BMI (body mass index), HOMA-IR (homeostatic model assessment insulin resistance), HbA1c (glycated hemoglobin), CRP (C reactive protein), TG (triglycerides), CHOL (cholesterol), HDL-c (high-density lipoprotein-cholesterol), LDL-c (low-density lipoprotein-

cholesterol, AST (aspartate aminotransferase), ALT (alanine aminotransferase), GGT (gamma-glutamyl transpeptidase).

a. Adipokines and inflammatory biomarkers response to 6-month intervention in PE and AD cohort.



b. Correlation between adipokines, inflammatory and clinical biomarkers. Pediatric cohort.

		OM						6M						Delta					
		Adiponectin	Leptin	TNF-a	MCP1	IL-6	IL-8	Adiponectin	Leptin	TNF-a	MCP1	IL-6	IL-8	Adiponectin	Leptin	TNF-a	MCP1	IL-6	IL-8
Adiponectin	Spearman's rho		-0.236	-0.146	0.006	-0.800	0.286		0.152	0.636	-0.564	-0.400	0.167		-0.200	-0.115	-0.249		-0.262
	Sig. (bilateral)		0.511	0.687	0.987	0.200	0.493		0.676	0.048	0.090	0.600	0.693		0.580	0.751	0.487		0.531
	N		10	10	10	4	8		10	10	10	4	8		10	10	10		8
Leptin	Spearman's rho	-0.236		0.348	0.152	0.400	0.143	0.152		0.067	-0.273	-0.400	0.643	-0.200		-0.127	0.006		0.524
	Sig. (bilateral)	0.511		0.325	0.676	0.600	0.736	0.676		0.855	0.446	0.600	0.086	0.580		0.726	0.987		0.183
	N	10		10	10	4	8	10		10	10	4	8	10		10	10		8
TNF-a	Spearman's rho	-0.146	0.348		-0.037	0.800	-0.491	0.636	0.067		-0.006	0.200	-0.167	-0.115	-0.127		0.146		-0.595
	Sig. (bilateral)	0.687	0.325		0.920	0.200	0.217	0.048	0.855		0.987	0.800	0.693	0.751	0.726		0.688		0.120
	N	10	10		10	4	8	10	10		10	4	8	10	10		10		8
MCP1	Spearman's rho	0.006	0.152	-0.037		0.400	0.000	-0.564	-0.273	-0.006		0.800	-0.500	-0.249	0.006	0.146			-0.683
	Sig. (bilateral)	0.987	0.676	0.920		0.600	1.000	0.090	0.446	0.987		0.200	0.207	0.487	0.987	0.688			0.062
	N	10	10	10		4	8	10	10		10	4	8	10	10	10			8
IL6	Spearman's rho	-0.800	0.400	0.800	0.400		0.400	-0.400	-0.400	0.200	0.800		0.500						
	Sig. (bilateral)	0.200	0.600	0.200	0.600		0.600	0.600	0.600	0.800	0.200		0.667						
	N	4	4	4	4		4	4	4	4	4		3						
IL8	Spearman's rho	0.286	0.143	-0.491	0.000	0.400		0.167	0.643	-0.167	-0.500	0.500		-0.262	0.524	-0.595	-0.683		
	Sig. (bilateral)	0.493	0.736	0.217	1.000	0.600		0.693	0.086	0.693	0.207	0.667		0.531	0.183	0.120	0.062		
	N	8	8	8	8	4		8	8	8	8	3		8	8	8	8		
Weight	Spearman's rho	-0.248	0.491	0.384	0.067		-0.238	-0.267	0.533	-0.200	-0.033	0.500	0.500	-0.082	0.119	-0.157	0.243	-0.341	-0.032
	Sig. (bilateral)	0.489	0.150	0.273	0.855		0.570	0.488	0.139	0.606	0.932	0.667	0.207	0.666	0.547	0.444	0.213	0.233	0.887
	N	10	10	10	10		8	9	9	9	9	3	8	30	28	26	28	14	22
BMI	Spearman's rho	-0.164	0.612	0.311	0.261	-0.200	0.190	-0.450	0.483	-0.033	0.200	0.500	0.643	0.113	0.165	-0.174	0.004	-0.024	0.041
	Sig. (bilateral)	0.651	0.060	0.382	0.467	0.800	0.651	0.224	0.187	0.932	0.606	0.667	0.086	0.553	0.402	0.395	0.982	0.935	0.855
	N	10	10	10	10	4	8	9	9	9	9	3	8	30	28	26	28	14	22
Waist Circumference	Spearman's rho	-0.775	0.685	0.482	0.144	0.738	-0.116	0.143	0.600	0.371	0.314		0.425	0.022	-0.054	-0.195	0.211	0.182	0.270
	Sig. (bilateral)	0.041	0.090	0.274	0.758	0.262	0.827	0.787	0.208	0.468	0.544		0.397	0.922	0.820	0.438	0.372	0.592	0.294
	N	7	7	7	7	4	6	6	6	6	6		6	22	20	18	20	11	17
Insulin	Spearman's rho	-0.248	0.442	0.927	-0.018		-0.452	-0.418	0.406	-0.115	0.358	0.800	0.425	-0.426	0.134	0.334	0.064	0.500	-0.216
	Sig. (bilateral)	0.489	0.200	0.000	0.960		0.280	0.229	0.244	0.751	0.310	0.200	0.289	0.220	0.713	0.345	0.861	0.667	0.608
	N	10	10	10	10		8	10	10	10	10	4	8	10	10	10	10	3	8
Glucose	Spearman's rho	-0.518	0.055	0.543	-0.104	0.400	-0.790	-0.036	-0.188	0.182	0.024	0.200	-0.012	-0.463	0.616	0.140	0.180		0.422
	Sig. (bilateral)	0.125	0.880	0.105	0.776	0.600	0.020	0.920	0.602	0.614	0.947	0.800	0.978	0.177	0.058	0.699	0.618		0.298
	N	10	10	10	10	4	8	10	10	10	10	4	8	10	10	10	10		8
HOMA1R	Spearman's rho	-0.345	0.503	0.896	0.079		-0.476	-0.285	0.370	0.176	0.297	0.800	0.500	-0.370	0.297	0.358	0.274	0.500	-0.238
	Sig. (bilateral)	0.328	0.138	0.000	0.829		0.233	0.425	0.293	0.627	0.405	0.200	0.207	0.293	0.405	0.310	0.444	0.667	0.570
	N	10	10	10	10		8	10	10	10	10	4	8	10	10	10	10	3	8
HbA1c	Spearman's rho	0.301	-0.408	-0.060	0.125	0.316	-0.398	-0.325	0.188	-0.375	-0.069	-0.316	0.049	-0.056	0.477	-0.646	-0.604		0.756
	Sig. (bilateral)	0.398	0.242	0.869	0.730	0.684	0.329	0.359	0.604	0.285	0.850	0.684	0.909	0.877	0.164	0.044	0.064		0.030
	N	10	10	10	10	4	8	10	10	10	10	4	8	10	10	10	10		8
TG	Spearman's rho	0.049	0.644	0.771	0.061	0.200	-0.310	0.492	0.620	0.657	-0.176	-0.400	0.286	0.042	0.127	0.794	-0.079	0.500	-0.381
	Sig. (bilateral)	0.894	0.044	0.009	0.868	0.800	0.456	0.148	0.056	0.039	0.626	0.600	0.493	0.907	0.726	0.006	0.828	0.667	0.352
	N	10	10	10	10	4	8	10	10	10	10	4	8	10	10	10	10	3	8
Chol	Spearman's rho	0.237	0.188	0.187	0.347	-0.400	-0.500	0.164	0.091	0.539	0.406	-0.400	-0.571						
	Sig. (bilateral)	0.510	0.602	0.606	0.327	0.600	0.207	0.651	0.803	0.108	0.244	0.600	0.139						
	N	10	10	10	10	4	8	10	10	10	10	4	8						
HDL	Spearman's rho	-0.065	-0.006	-0.110	0.321	-0.400	-0.238	0.065	-0.091	0.224	0.164	-0.400	-0.857	0.760	-0.109	-0.231	0.012		-0.452
	Sig. (bilateral)	0.881	0.987	0.763	0.365	0.600	0.570	0.881	0.803	0.533	0.651	0.600	0.007	0.011	0.763	0.521	0.973		0.260
	N	10	10	10	10	4	8	10	10	10	10	4	8	10	10	10	10		8
LDL	Spearman's rho	0.049	0.158	0.006	0.584	0.200	-0.143	0.109	-0.049	0.450	0.365	0.200	-0.476	0.359	-0.018	-0.723	-0.256	0.500	0.405
	Sig. (bilateral)	0.894	0.663	0.987	0.077	0.800	0.736	0.763	0.894	0.192	0.300	0.800	0.233	0.309	0.960	0.018	0.475	0.667	0.320
	N	10	10	10	10	4	8	10	10	10	10	4	8	10	10	10	10	3	8
Urea	Spearman's rho	0.213	0.055	0.303	0.395	0.800	0.144	0.328	-0.091	0.225	-0.219	-1.000	-0.611						
	Sig. (bilateral)	0.555	0.881	0.395	0.258	0.200	0.734	0.354	0.802	0.532	0.544		0.108						
	N	10	10	10	10	4	8	10	10	10	10	4	8						
Creatinine	Spearman's rho	-0.055	0.127	-0.030	0.358	0.200	-0.452	-0.024	0.036	0.043	0.304	-0.800	-0.475						
	Sig. (bilateral)	0.881	0.726	0.933	0.310	0.800	0.260	0.947	0.920	0.907	0.393	0.200	0.230						
	N	10	10	10	10	4	8	10	10	10	10	4	8						
AST	Spearman's rho	0.192	-0.201	0.165	0.351		-0.786												
	Sig. (bilateral)	0.620	0.604	0.672	0.354		0.036												
	N	9	9	9	9		7												
ALT	Spearman's rho	-0.164	-0.316	0.217	0.109	0.105	-0.802	0.059	0.151	0.050	0.286	-0.949	-0.703						
	Sig. (bilateral)	0.650	0.374	0.547	0.763	0.895	0.017	0.881	0.698	0.897	0.456	0.051	0.078						
	N	10	10	10	10	4	8	9	9	9	9	4	7						

c. Correlation between adipokines, inflammatory and clinical biomarkers. Adult cohort.

		OM						6M						Delta					
		Adiponectin	Leptin	TNF- α	MCP1	IL-6	IL-8	Adiponectin	Leptin	TNF- α	MCP1	IL-6	IL-8	Adiponectin	Leptin	TNF- α	MCP1	IL-6	IL-8
Adiponectin	Spearman's rho		0,212	0,203	0,239	0,586	0,172		0,008	0,420	0,365	0,049	0,549		-0,006	-0,226	0,048	0,055	0,296
	Sig. (bilateral)		0,279	0,319	0,220	0,008	0,412		0,967	0,033	0,056	0,848	0,008		0,976	0,268	0,809	0,852	0,180
	N		28	26	28	19	25		28	26	28	18	22		28	26	28	14	22
Leptin	Spearman's rho	0,212		0,171	0,274	0,134	0,067	0,008		-0,129	0,048	-0,101	0,082	-0,006		0,014	0,032	0,103	-0,181
	Sig. (bilateral)	0,279		0,403	0,159	0,584	0,751	0,967		0,531	0,810	0,690	0,717	0,976		0,946	0,873	0,725	0,420
	N	28		26	28	19	25	28		26	28	18	22	28		26	28	14	22
TNF- α	Spearman's rho	0,203	0,171		0,796	0,371	0,238	0,420	-0,129		0,554	0,214	0,372	-0,226	0,014		0,178	0,191	-0,238
	Sig. (bilateral)	0,319	0,403		0,000	0,130	0,274	0,033	0,531		0,003	0,394	0,097	0,268	0,946		0,385	0,513	0,311
	N	26	26		26	18	23	26	26		26	18	21	26	26		26	14	20
MCP1	Spearman's rho	0,239	0,274	0,796		0,306	0,248	0,365	0,048	0,554		-0,225	0,332	0,048	0,032	0,178		-0,011	0,495
	Sig. (bilateral)	0,220	0,159	0,000		0,203	0,233	0,056	0,810	0,003		0,369	0,131	0,809	0,873	0,385		0,970	0,019
	N	28	28	26		19	25	28	28	26		18	22	28	28	26		14	22
IL6	Spearman's rho	0,451	0,134	0,371	0,306		0,579	0,049	-0,101	0,214	-0,225		0,473	0,055	0,103	0,191	-0,011		0,287
	Sig. (bilateral)	0,053	0,584	0,130	0,203		0,015	0,848	0,690	0,394	0,369		0,103	0,852	0,725	0,513	0,970		0,366
	N	19	19	18	19		17	18	18	18	18		13	14	14	14	14		12
IL8	Spearman's rho	0,172	0,067	0,238	0,248	0,395		0,549	0,082	0,372	0,332	0,473		0,296	-0,181	-0,238	0,495	0,287	
	Sig. (bilateral)	0,412	0,751	0,274	0,233	0,117		0,008	0,717	0,097	0,131	0,103		0,180	0,420	0,311	0,019	0,366	
	N	25	25	23	25	17		22	22	21	22	13		22	22	20	22	12	
Height	Spearman's rho	-0,233	-0,022	0,387	0,439	0,082	0,256	-0,281	-0,333	0,181	0,160	0,382	-0,128						
	Sig. (bilateral)	0,215	0,911	0,051	0,020	0,739	0,216	0,132	0,084	0,376	0,415	0,118	0,571						
	N	30	28	26	28	19	25	30	28	26	28	18	22						
Weight	Spearman's rho	-0,077	0,292	0,388	0,468	0,375	0,204	-0,043	0,470	-0,031	0,078	0,105	-0,188	-0,082	0,119	-0,157	0,243	-0,341	-0,032
	Sig. (bilateral)	0,688	0,132	0,050	0,012	0,114	0,327	0,820	0,012	0,879	0,692	0,677	0,402	0,666	0,547	0,444	0,213	0,233	0,887
	N	30	28	26	28	19	25	30	28	26	28	18	22	30	28	26	28	14	22
BMI	Spearman's rho	0,072	0,385	0,179	0,189	0,203	-0,127	-0,420	0,043	-0,221	-0,298	0,068	-0,472	0,113	0,165	-0,174	0,004	-0,024	0,041
	Sig. (bilateral)	0,706	0,043	0,382	0,334	0,405	0,545	0,021	0,829	0,278	0,124	0,788	0,027	0,553	0,402	0,395	0,982	0,935	0,855
	N	30	28	26	28	19	25	30	28	26	28	18	22	30	28	26	28	14	22
Waist Circumference	Spearman's rho	-0,204	0,252	0,477	0,600	-0,125	0,133	-0,450	0,015	-0,323	-0,335	0,197	-0,405	0,022	-0,054	-0,195	0,211	0,182	0,270
	Sig. (bilateral)	0,328	0,246	0,029	0,002	0,644	0,565	0,013	0,941	0,108	0,081	0,433	0,062	0,922	0,820	0,438	0,372	0,592	0,294
	N	25	23	21	23	16	21	30	28	26	28	18	22	22	20	18	20	11	17
Insulin	Spearman's rho	-0,202	-0,191	-0,012	-0,073	-0,091	-0,265	-0,034	-0,001	-0,315	-0,112	-0,320	0,147	0,119	-0,035	0,062	-0,127	-0,271	-0,425
	Sig. (bilateral)	0,284	0,332	0,954	0,713	0,710	0,200	0,859	0,997	0,117	0,571	0,196	0,514	0,548	0,864	0,768	0,526	0,349	0,125
	N	30	28	26	28	19	25	30	28	26	28	18	22	28	27	25	27	14	22
Glucose	Spearman's rho	-0,141	0,031	0,061	0,095	-0,304	-0,568	0,276	-0,202	-0,046	-0,032	-0,599	-0,218	0,015	0,369	-0,085	-0,243	-0,029	-0,249
	Sig. (bilateral)	0,456	0,874	0,767	0,631	0,205	0,003	0,139	0,303	0,824	0,871	0,009	0,330	0,938	0,058	0,681	0,223	0,922	0,276
	N	30	28	26	28	19	25	30	28	26	28	18	22	28	27	26	27	14	21
HOMA1r	Spearman's rho	-0,204	-0,211	-0,013	-0,042	-0,121	-0,299	0,340	-0,300	0,181	0,155	-0,084	0,224	0,084	-0,073	0,124	-0,106	-0,361	-0,411
	Sig. (bilateral)	0,280	0,280	0,951	0,830	0,621	0,146	0,066	0,120	0,376	0,432	0,740	0,316	0,667	0,713	0,547	0,591	0,205	0,057
	N	30	28	26	28	19	25	30	28	26	28	18	22	29	28	26	28	14	22
HbA1c	Spearman's rho	-0,185	-0,036	0,025	0,003	-0,180	-0,099	-0,523	-0,084	-0,242	-0,276	0,284	-0,405	-0,048	0,079	-0,084	-0,019	0,399	0,037
	Sig. (bilateral)	0,336	0,857	0,905	0,989	0,462	0,638	0,003	0,671	0,234	0,155	0,253	0,061	0,814	0,709	0,703	0,930	0,158	0,873
	N	29	27	25	27	19	25	30	28	26	28	18	22	27	25	23	25	14	21
CRP	Spearman's rho	-0,096	0,376	0,023	0,485	0,054	-0,055	-0,096	0,376	0,023	0,485	0,054	-0,055	0,238	0,100	-0,259	-0,185	0,515	0,215
	Sig. (bilateral)	0,613	0,049	0,913	0,009	0,828	0,794	0,613	0,049	0,913	0,009	0,828	0,794	0,252	0,649	0,258	0,397	0,087	0,362
	N	30	28	26	28	19	25	30	28	26	28	19	25	25	23	21	23	12	20
TG	Spearman's rho	-0,264	-0,111	0,245	0,089	-0,171	0,008	0,331	0,028	0,097	0,447	0,034	0,391	-0,041	-0,175	0,425	0,251	-0,061	-0,019
	Sig. (bilateral)	0,158	0,575	0,228	0,653	0,483	0,968	0,074	0,889	0,638	0,017	0,893	0,072	0,831	0,382	0,034	0,207	0,844	0,935
	N	30	28	26	28	19	25	30	28	26	28	18	22	29	27	25	27	13	21
Chol	Spearman's rho	0,186	0,279	-0,042	-0,041	-0,215	0,038	-0,079	0,148	0,312	0,079	0,340	0,125						
	Sig. (bilateral)	0,325	0,151	0,838	0,835	0,376	0,858	0,678	0,452	0,120	0,691	0,167	0,578						
	N	30	28	26	28	19	25	30	28	26	28	18	22						
HDL	Spearman's rho	0,433	0,150	-0,085	-0,046	0,219	0,098	0,432	-0,029	-0,372	-0,128	0,062	-0,372	0,200	0,264	-0,278	0,013	0,108	-0,038
	Sig. (bilateral)	0,017	0,447	0,680	0,817	0,367	0,641	0,017	0,885	0,061	0,517	0,807	0,088	0,299	0,183	0,179	0,949	0,714	0,871
	N	30	28	26	28	19	25	30	28	26	28	18	22	29	27	25	27	14	21
LDL	Spearman's rho	0,076	0,312	-0,196	-0,261	-0,238	0,002	0,061	0,221	0,177	0,157	0,246	0,125	0,033	0,077	-0,101	0,024	-0,055	0,313
	Sig. (bilateral)	0,691	0,106	0,336	0,180	0,327	0,994	0,781	0,336	0,468	0,496	0,396	0,657	0,863	0,698	0,622	0,904	0,852	0,156
	N	30	28	26	28	19	25	23	21	19	21	14	15	30	28	26	28	14	22
Urea	Spearman's rho	0,065	0,007	0,004	-0,227	-0,215	-0,209	0,530	0,054	0,195	0,232	-0,227	0,427						
	Sig. (bilateral)	0,734	0,972	0,983	0,245	0,378	0,316	0,003	0,785	0,340	0,235	0,364	0,047						
	N	30	28	26	28	19	25	30	28	26	28	18	22						
Creatinine	Spearman's rho	0,007	-0,016	0,272	0,062	0,048	0,412	-0,028											