

Metabolomics analysis reveals altered metabolites in lean compared with obese adolescents and additional metabolic shifts associated with hyperinsulinaemia and insulin resistance in obese adolescents: a cross-sectional study

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Online Resource 5: *P*-values for comparisons between the groups at each time point during the oral glucose tolerance test (0 – 120 min)

	0 min	5 min	10 min	15 min	30 min	60 min	90 min	120 min
Valine								
Lean, NI vs obese, NI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lean, NI vs obese, HI	0.003	0.003	0.001	0.005	0.001	0.000	0.001	0.000
Lean, NI vs obese, HI + IGT	0.061	0.013	0.005	0.068	0.007	0.004	0.005	0.001
Obese, NI vs obese, HI	0.042	0.012	0.002	0.010	0.013	0.009	0.006	0.011
Obese, NI vs obese, HI + IGT	0.528	0.050	0.015	0.098	0.110	0.117	0.021	0.036
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Leucine								
Lean, NI vs obese, NI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lean, NI vs obese, HI	0.001	0.003	0.001	0.002	0.000	0.002	0.049	0.034
Lean, NI vs obese, HI + IGT	0.020	0.018	0.004	0.040	0.005	0.009	0.052	0.027
Obese, NI vs obese, HI	0.008	0.003	0.000	0.007	0.002	0.013	0.009	0.012
Obese, NI vs obese, HI + IGT	0.161	0.017	0.002	0.087	0.043	0.058	0.010	0.009
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Isoleucine								
Lean, NI vs obese, NI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lean, NI vs obese, HI	0.002	0.002	0.000	0.002	0.000	0.001	0.015	0.016
Lean, NI vs obese, HI + IGT	0.076	0.006	0.004	0.080	0.009	0.008	0.023	0.008
Obese, NI vs obese, HI	0.037	0.021	0.001	0.022	0.022	0.029	0.079	0.088
Obese, NI vs obese, HI + IGT	0.763	0.062	0.010	0.473	0.244	0.221	0.119	0.053
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Tyrosine								
Lean, NI vs obese, NI	0.710	1.000	0.699	1.000	0.631	0.729	1.000	1.000
Lean, NI vs obese, HI	0.000	0.000	0.000	<.0001	<.0001	<.0001	0.000	0.000
Lean, NI vs obese, HI + IGT	0.003	0.001	0.002	<.0001	0.001	0.000	0.001	0.002
Obese, NI vs obese, HI	0.043	0.028	0.085	0.001	0.017	0.029	0.009	0.032
Obese, NI vs obese, HI + IGT	0.306	0.128	0.338	0.002	0.153	0.100	0.018	0.087
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

NI, normal insulin; HI, high insulin, IGT, impaired glucose tolerance;

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Online Resource 5: continued

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Serine								
Lean, NI vs obese, NI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lean, NI vs obese, HI	0.243	0.141	0.256	0.401	0.429	0.161	0.136	0.104
Lean, NI vs obese, HI + IGT	0.009	0.020	0.005	0.032	0.035	0.023	0.035	0.007
Obese, NI vs obese, HI	0.530	0.954	0.718	1.000	0.206	0.207	0.424	0.577
Obese, NI vs obese, HI + IGT	0.029	0.237	0.031	0.146	0.015	0.034	0.141	0.073
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Glycine								
Lean, NI vs obese, NI	1.000	1.000	1.000	1.000	1.000	1.000	0.753	1.000
Lean, NI vs obese, HI	0.825	0.227	0.467	0.976	0.384	0.054	0.042	0.202
Lean, NI vs obese, HI + IGT	0.138	0.178	0.045	0.441	0.195	0.093	0.010	0.042
Obese, NI vs obese, HI	1.000	1.000	1.000	1.000	1.000	0.916	1.000	1.000
Obese, NI vs obese, HI + IGT	0.315	1.000	1.000	1.000	0.792	1.000	0.711	0.427
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Myo-Inositol								
Lean, NI vs obese, NI	0.185	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lean, NI vs obese, HI	0.719	1.000	1.000	1.000	0.662	0.012	0.060	0.030
Lean, NI vs obese, HI + IGT	1.000	1.000	0.765	1.000	0.029	0.001	0.012	0.003
Obese, NI vs obese, HI	1.000	1.000	1.000	1.000	0.746	0.384	1.000	0.731
Obese, NI vs obese, HI + IGT	0.212	1.000	0.199	1.000	0.041	0.071	0.627	0.184
Obese, HI vs obese, HI + IGT	0.838	1.000	0.669	1.000	1.000	1.000	1.000	1.000
Dimethylsulfone								
Lean, NI vs obese, NI	1.000	0.382	1.000	0.676	1.000	1.000	1.000	1.000
Lean, NI vs obese, HI	0.185	0.011	0.249	1.000	0.483	0.016	0.034	0.050
Lean, NI vs obese, HI + IGT	0.112	0.001	0.040	1.000	0.076	0.060	0.005	0.048
Obese, NI vs obese, HI	0.876	1.000	1.000	0.080	0.744	0.011	0.818	0.476
Obese, NI vs obese, HI + IGT	0.620	0.405	0.501	0.508	0.145	0.041	0.240	0.486
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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Online Resource 5: continued

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O-Acetylcarnitine								
Lean, NI vs obese, NI	0.019	0.109	0.044	0.016	0.001	0.000	0.062	0.029
Lean, NI vs obese, HI	0.061	0.493	0.166	0.086	0.031	0.073	0.302	0.520
Lean, NI vs obese, HI + IGT	0.394	1.000	0.148	0.068	0.041	0.172	0.466	0.712
Obese, NI vs obese, HI	1.000	1.000	1.000	1.000	1.000	0.477	1.000	1.000
Obese, NI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	0.184	1.000	0.853
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Glutamate								
Lean, NI vs obese, NI	0.135	0.620	1.000	0.107	0.633	0.058	0.372	1.000
Lean, NI vs obese, HI	0.019	0.008	0.259	0.047	0.081	0.188	0.888	0.091
Lean, NI vs obese, HI + IGT	0.280	0.003	0.017	0.025	0.030	0.011	0.048	0.005
Obese, NI vs obese, HI	1.000	0.745	1.000	1.000	1.000	1.000	1.000	1.000
Obese, NI vs obese, HI + IGT	1.000	0.459	0.459	1.000	1.000	1.000	1.000	0.285
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Alanine								
Lean, NI vs obese, NI	0.351	0.430	0.494	1.000	0.215	0.250	1.000	0.939
Lean, NI vs obese, HI	0.005	0.003	0.007	0.013	0.004	0.005	0.071	0.083
Lean, NI vs obese, HI + IGT	0.011	0.008	0.045	0.089	0.029	0.023	0.134	0.088
Obese, NI vs obese, HI	0.915	0.619	0.860	0.315	1.000	1.000	1.000	1.000
Obese, NI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pyruvate								
Lean, NI vs obese, NI	1.000	1.000	1.000	1.000	1.000	0.041	1.000	1.000
Lean, NI vs obese, HI	0.050	0.828	1.000	1.000	1.000	0.206	1.000	1.000
Lean, NI vs obese, HI + IGT	0.036	0.071	0.134	0.300	0.888	0.024	0.283	0.115
Obese, NI vs obese, HI	0.957	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Obese, NI vs obese, HI + IGT	0.821	0.751	1.000	0.970	1.000	1.000	1.000	1.000
Obese, HI vs obese, HI + IGT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.929

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