

SUPPLEMENTARY DATA

**Supplementary Table 1.** Descriptive characteristics of study subjects by BMI subgroup.

	*non-T2DM					
Descriptive Statistics	BMI<30		BMI≥30	T2DM		
N	43		50	31		
Race (%)	56% EA, 42% AA		36% EA, 64% AA	64% EA, 36% AA		
Gender (% Male)	47%		30%	48%		
Diabetic Status	2 IFG/ 5 IGT		1 IFG/ 10 IGT	32 TD2M		
Age (years)	41	± 10	41	± 10	45	± 9
Glucose disposal rate (mg/kgLBM/min)	15.1	± 4.2	12.7	± 3.7†	7.4	± 2.4‡
HOMA-IR	3.12	± 2.23	4.70	± 2.30‡	6.97	± 5.68‡
Waist (cm)	89	± 8	105	± 13‡	103	± 14‡
BMI (kg/m <sup>2</sup> )	26.7	± 2.0	35.2	± 3.8‡	30.4	± 5.6‡
Percent Fat	33.4	± 9.2	44.1	± 8.2‡	32.8	± 8.0
Lean Mass (kg)	48.8	± 9.9	52.4	± 11.5	57.1	± 13.8†
REE (kcal/day)	1519	± 250	1639	± 297	1684	± 335
Resting RQ	0.846	± 0.060	0.857	± 0.060	0.825	± 0.040§
FFA (mmol)	0.49	± 0.21	0.55	± 0.19	0.66	± 0.47
HDL (mg/dl)	51.3	± 22.6	48.6	± 16.9	35.4	± 10.0‡
LDL (mg/dl)	118.5	± 38.4	119.8	± 40.5	119.9	± 36.3
Fasting glucose (mg/dl)	90.5	± 8.3	93.8	± 11.3	213.5	± 77.2‡
Fasting insulin (μU/ml)	13.6	± 8.2	20.3	± 9.3‡	15.4	± 15.5

Data are reported as mean ± standard deviation, unless stated otherwise.

\*T2DM, type 2 diabetes mellitus; EA, European American; AA, African American; IFG, impaired fasting glucose; IGT, impaired glucose tolerance; REE, resting energy expenditure; kcal, kilocalories; RQ, respiratory quotient; HDL, high-density lipoprotein; LDL, low-density lipoprotein.

†p<0.05 compared to BMI<30

‡p<0.01 compared to BMI<30

§p<0.05 compared to BMI>30

||p<0.01 compared to BMI>30

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**Supplementary Table 2.** Serum amino acid contents by BMI subgroup.

Amino Acid (μM)	*ALL (N=124)		BMI<30 (N=43)		BMI≥30 (N=50)		T2DM (N=31)	
Gly	278.9	± 82.8	286.1	± 85.4	292.7	± 88.0	246.8	± 61.8
Leu/Ile	178.2	± 40.1	159.9	± 36.3	177.6	± 37.1§	204.4	± 36.0‡¶
Ala	352.1	± 114.9	333.6	± 121.2	364.9	± 107.0	357.1	± 118.0
Ser	107.3	± 24.0	104.4	± 22.5	109.8	± 27.2	107.3	± 20.4
Pro	191.2	± 61.7	187.3	± 59.0	198.1	± 66.7	185.8	± 57.6
Val	267.2	± 52.6	245.3	± 45.5	273.8	± 52.9†	286.8	± 52.2‡
Met	18.0	± 4.2	18.0	± 4.9	18.8	± 3.6	16.7	± 3.8
His	65.1	± 12.8	66.6	± 13.6	67.5	± 12.5	59.2	± 10.2*¶
Phe	74.2	± 13.8	70.9	± 15.3	76.2	± 12.8	75.6	± 12.4
Tyr	77.5	± 24.6	69.3	± 19.9	84.3	± 24.2‡	77.9	± 28.1
Asx	121.2	± 62.1	80.9	± 47.2	86.4	± 42.2	121.2	± 62.1‡
Glx	92.0	± 23.1	86.1	± 24.3	89.9	± 20.5	103.5	± 22.0‡
Orn	51.1	± 13.9	48.5	± 14.1	51.6	± 14.4	53.7	± 12.7
Cit	31.9	± 9.0	32.6	± 10.1	31.3	± 8.1	31.7	± 8.8
Arg	80.8	± 22.8	79.7	± 24.4	82.4	± 22.2	79.7	± 21.9

Data are reported as mean ± standard deviation, unless stated otherwise

\*ALL, all subjects included; T2DM, type 2 diabetes mellitus; Amino acid abbreviations listed in Table 2

†p<0.05 compared to BMI<30

‡p<0.01 compared to BMI<30

§p=0.057 compared to BMI<30

||p<0.05 compared to BMI≥30

¶p<0.01 compared to BMI≥30