Supplemental Material

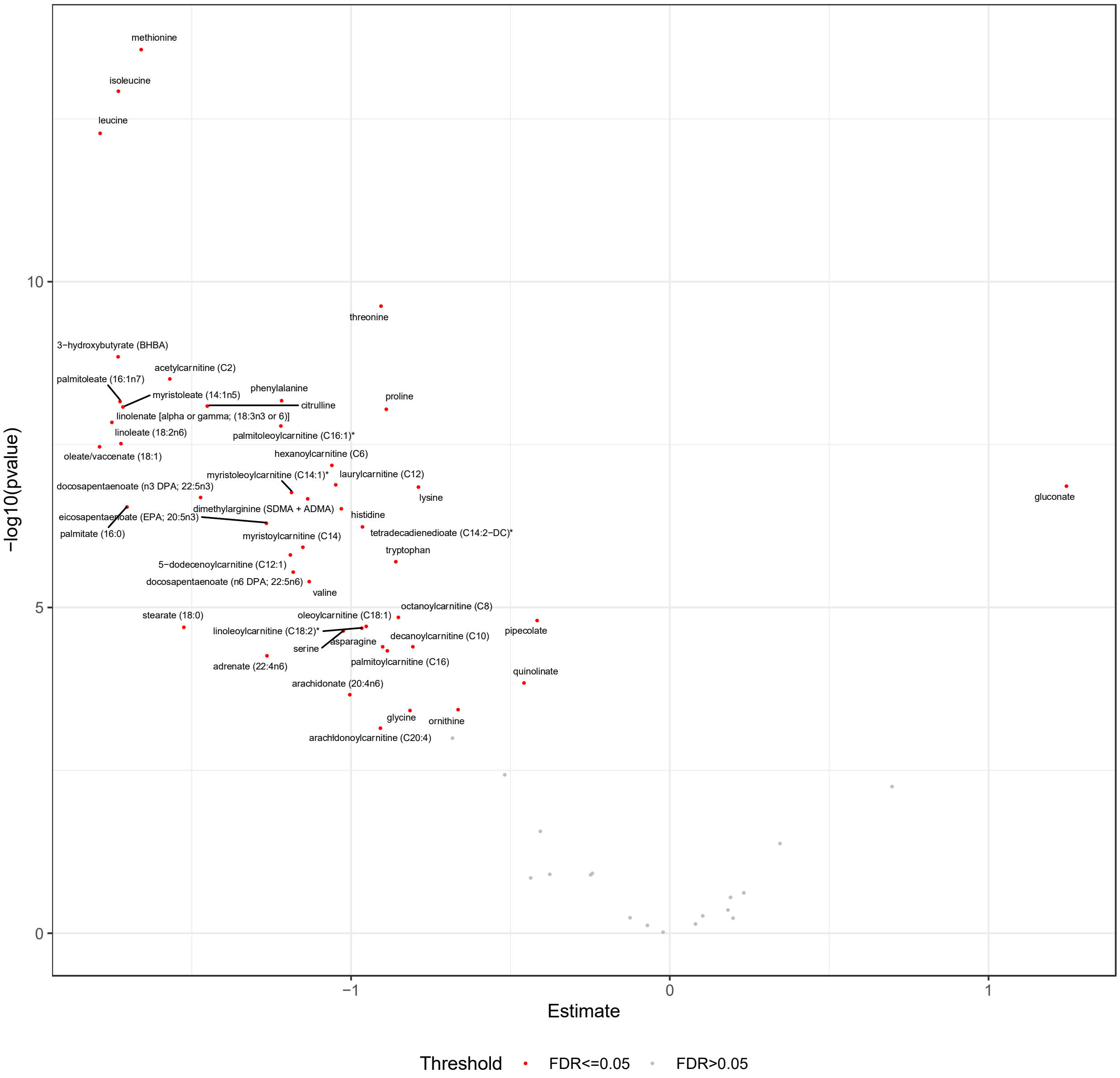

Figure S1. Mean Δfast-120min for metabolites during mid-pregnancy. This volcano plot displays mean Δfast-120min post-OGTT and -log$_{10}$ *P* values for all candidate metabolites (n=65) among PEARLS participants at the mid-pregnancy visit (about 36 weeks) (n=18). Metabolites labeled with red passed the false discovery rate threshold of $p < 0.05$. Abbreviations: FDR, false discovery rate; OGTT, oral glucose tolerance test; PEARLS, Pregnancy and EARly Lifestyle improvement Study; Δfast-120min, changing in glucose from fasting to 120 minutes during the OGTT.

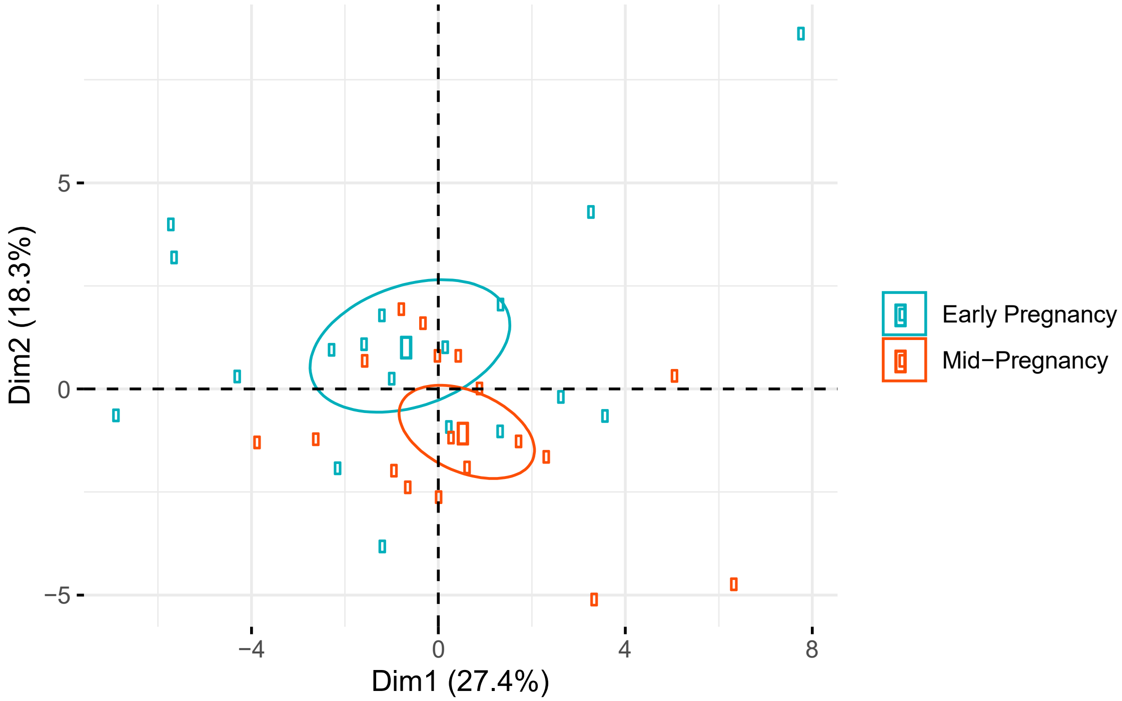

Figure S2. Score plot of principle component (PC) 1 versus PC2 for changes in metabolites from fasting to 120 minutes by pregnancy time. Comparison of changes in metabolites from fasting to 120 minutes (Δfast-120min) post-oral glucose tolerance test at early and mid-pregnancy for PEARLS participants (n=18). Depicts plot of first two components of each principal component (PC) analysis. Dimension 1 (Dim1) represents PC1 and Dimension 2 (Dim2) represents PC2. Percentage of variation in Δfast-120min explained by each PC is presented in parentheses. Ellipses represent 95% confidence intervals.

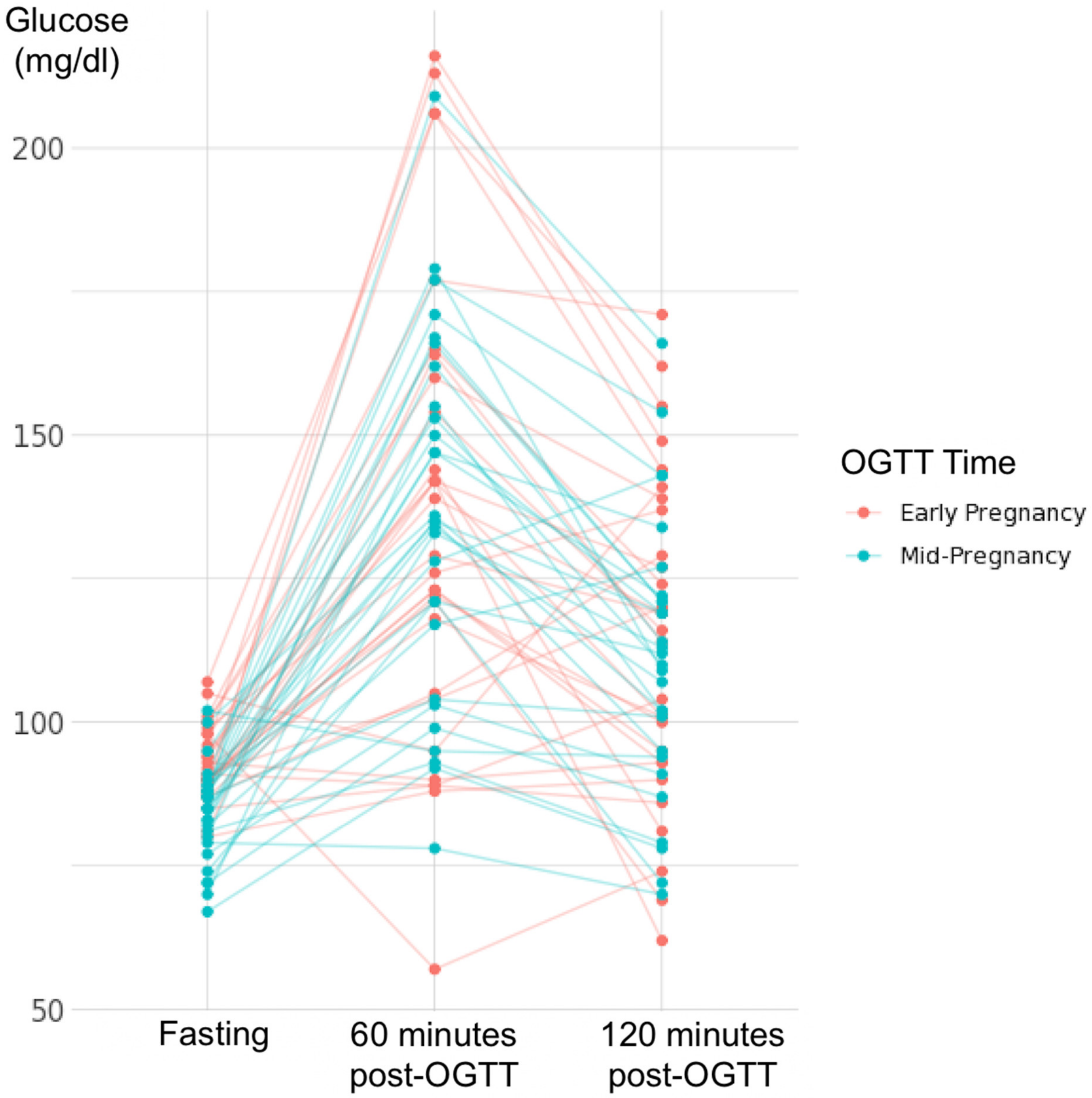

Figure S3. Changes in glucose during an oral glucose tolerance test (OGTT) at early and mid-pregnancy by participant in the Pregnancy and EARly Lifestyle improvement Study (PEARLS). *P*>0.05 for paired Student's t-test comparing mean change in glucose from fasting to 120 minutes post-OGTT conducted at early versus mid-pregnancy.

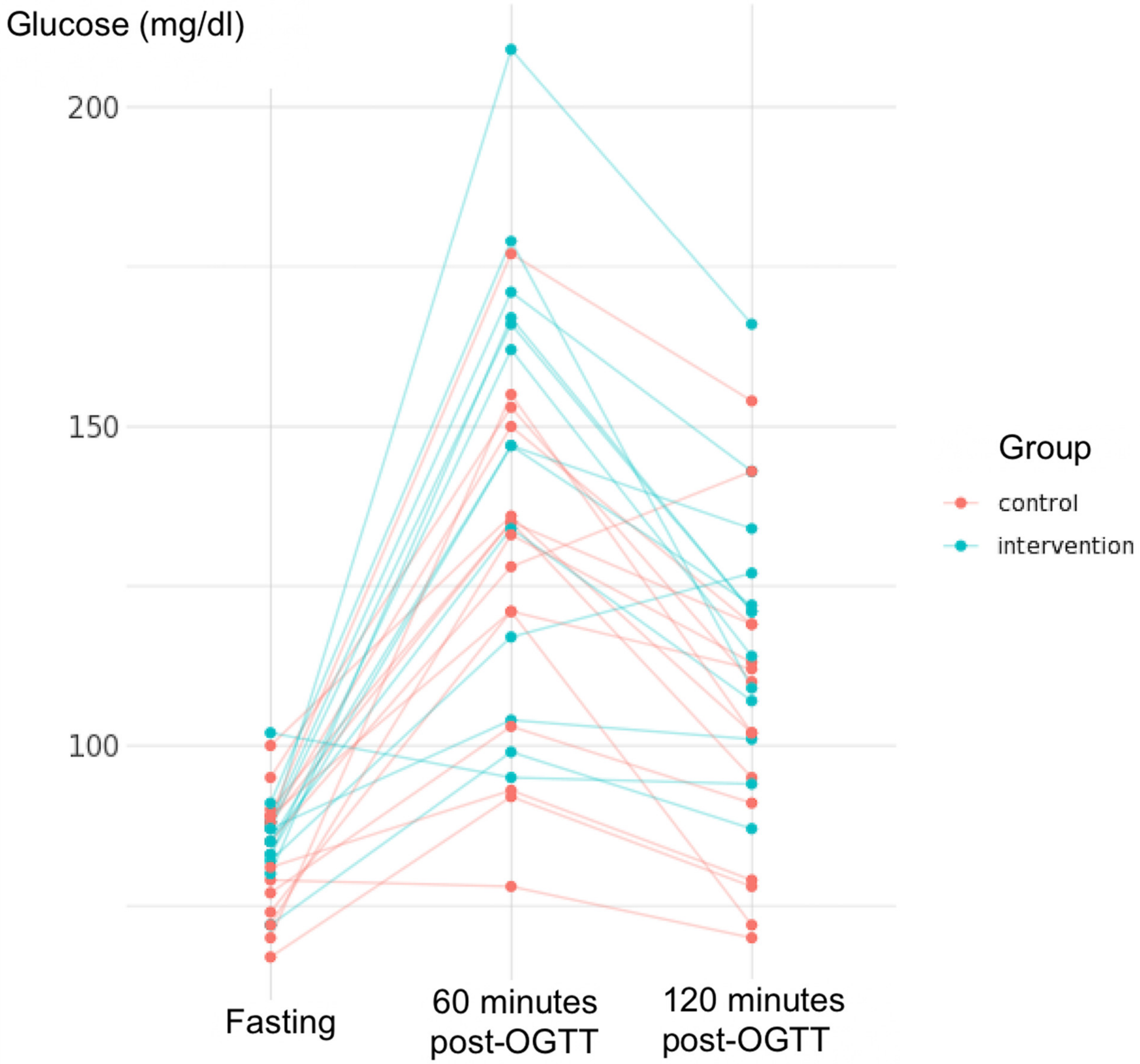

Figure S4. Changes in glucose during an oral glucose tolerance test (OGTT) by intervention status at mid-pregnancy and by participants of the Pregnancy and EARly Lifestyle improvement Study (PEARLS). *P*>0.05 for Student's t-test comparing mean change in glucose from fasting to 120 minutes post-OGTT among the intervention and control groups at mid-pregnancy.

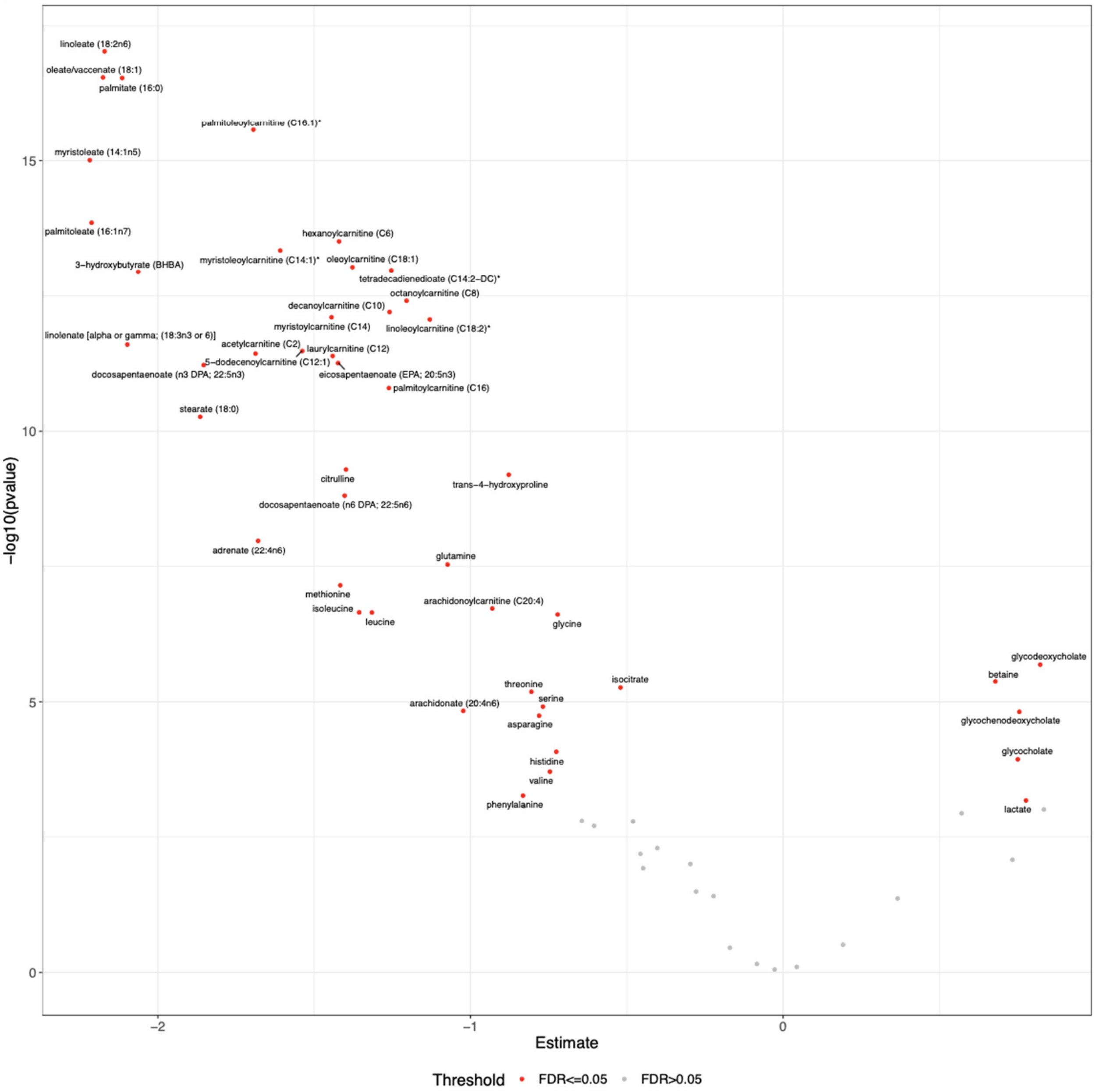

Figure S5. Mean Δfast-120min for metabolites at early pregnancy adjusting for maternal age. This volcano plot displays mean Δfast-120min post-OGTT and -log10 P values for all candidate metabolites (n=65) among PEARLS participants at the baseline visit (n=29). Metabolites labeled with red passed the false discovery rate threshold of $p < 0.05$. Abbreviations: FDR, false discovery rate; OGTT, oral glucose tolerance test; PEARLS, Pregnancy and EARly Lifestyle improvement Study; Δfast-120min, changing in glucose from fasting to 120 minutes during the OGTT.

Table S1. Mean difference in top principal component (PC) scores for fasting metabolites at early (n=29) and mid-pregnancy (n=18) in intervention group compared to the control group among PEARLS participants.

	β (SE)	***P* value**
Baseline		
PC1	0.9 (1.5)	0.58
PC2	1.1 (1.2)	0.37
Mid-Pregnancy		
PC1	-2.7 (1.6)	0.12
PC2	-1.5 (1.2)	0.23

Table S2. Factor loadings for linear combination of metabolites defining principal component 1 (PC1) for fasting metabolites at mid-pregnancy among Pregnancy and EARly Lifestyle improvement Study (PEARLS) participants.

Metabolite	**PC1 Weight at mid-pregnancy[1]**
myristoleoylcarnitine (C14:1)*	**-0.24**
palmitoleoylcarnitine (C16:1)*	**-0.24**
leucine	0.00
linoleoylcarnitine (C18:2)*	-0.15
5-dodecenoylcarnitine (C12:1)	**-0.24**
myristoylcarnitine (C14)	**-0.20**
palmitoylcarnitine (C16)	**-0.21**
3-hydroxybutyrate (BHBA)	**-0.21**
oleoylcarnitine (C18:1)	0.06
asparagine	-0.13
glycodeoxycholate	0.14
tryptophan	0.06
glutamine	-0.05
adrenate (22:4n6)	0.02
isoleucine	-0.15
linoleate (18:2n6)	-0.16
ornithine	0.09
glycocholate	0.09
linolenate [alpha or gamma; (18:3n3 or 6)]	-0.12
pyruvate	0.10
hexanoylcarnitine (C6)	**-0.22**
oleate/vaccenate (18:1)	-0.18
acetylcarnitine (C2)	-0.12
glycochenodeoxycholate	0.08
palmitoleate (16:1n7)	-0.14
laurylcarnitine (C12)	**-0.22**

tetradecadienedioate (C14:2-DC)*	-0.11
myristoleate (14:1n5)	-0.09
valine	0.00
methionine	-0.03
lactate	**-0.20**
decanoylcarnitine (C10)	0.03
dimethylarginine (SDMA + ADMA)	-0.09
octanoylcarnitine (C8)	**-0.20**
alanine	0.04
arginine	0.04
phenylalanine	-0.02
docosapentaenoate (n6 DPA; 22:5n6)	-0.09
isocitrate	-0.08
threonine	-0.02
eicosapentaenoate (EPA; 20:5n3)	-0.14
lysine	-0.07
uridine	-0.05
palmitate (16:0)	-0.14
glycine	0.07
stearoylcarnitine (C18)	-0.13
betaine	-0.17
stearate (18:0)	-0.12
2-aminoadipate	-0.01
aspartate	0.06
quinolinate	-0.06
histidine	0.04
docosapentaenoate (n3 DPA; 22:5n3)	-0.18
citrulline	0.07
urate	-0.15
fructose	0.01
tyrosine	-0.01
proline	0.00
hypoxanthine	0.03
arachidonate (20:4n6)	-0.13
taurine	0.06
trans-4-hydroxyproline	0.10
glutamate	0.11
serine	0.07
arachidonoylcarnitine (C20:4)	-0.12

[1] Weights correspond to PCA presented in Figure 2B.

Table S3. Mean change in metabolites from fasting to 120 minutes post-OGTT (Δfast-120min) for targeted metabolites during early versus mid-pregnancy among PEARLS participants.

Metabolite	**HMDB ID**	**Biological Description**	**Early Pregnancy**[1]		**Mid-Pregnancy**[2]		**Early vs. Mid-Pregnancy**[3]
			Mean (SD) Change	**FDR-Adjusted *P*-value**	**Mean (SD) Change**	**FDR-Adjusted *P*-value**	***P*-value**
myristoleate (14:1n5)	HMDB02000	Long Chain Monounsaturated Fatty Acid	-2.2 (0.7)	**6.35E-14**	-1.5 (0.7)	**1.37E-06**	0.001
tetradecadienedioate (C14:2-DC)*	NA	Fatty Acid, Dicarboxylate	-1.3 (0.5)	**6.95E-12**	-0.8 (0.4)	**5.55E-06**	0.008
trans-4-hydroxyproline	HMDB00725	Urea cycle; Arginine and Proline Metabolism	-0.8 (0.3)	**4.11E-08**	-0.4 (0.5)	0.25	0.008
glycocholate	HMDB00138	Primary Bile Acid Metabolism	0.7 (0.7)	**7.44E-03**	0.1 (0.7)	0.99	0.01
palmitoleate (16:1n7)	HMDB03229	Long Chain Monounsaturated Fatty Acid	-2.2 (0.9)	**9.09E-13**	-1.6 (0.6)	**2.09E-07**	0.02
laurylcarnitine (C12)	HMDB02250	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	-1.5 (0.7)	**2.66E-10**	-1.0 (0.5)	**6.21E-05**	0.02
dimethylarginine (SDMA + ADMA)	HMDB01539	Urea cycle; Arginine and Proline Metabolism	-0.5 (0.8)	0.10	-1.0 (0.5)	**2.29E-06**	0.02
octanoylcarnitine (C8)	HMDB00791	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	-1.3 (0.4)	**2.54E-11**	-0.9 (0.5)	**1.98E-04**	0.02
decanoylcarnitine (C10)	HMDB00651	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	-1.3 (0.5)	**4.13E-11**	-0.9 (0.6)	**1.15E-03**	0.02
docosapentaenoate (n3 DPA; 22:5n3)	HMDB06528	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-2.0 (0.8)	**3.92E-10**	-1.5 (0.7)	**1.35E-05**	0.02
oleate/vaccenate (18:1)	NA	Long Chain Monounsaturated Fatty Acid	-2.3 (0.8)	**1.81E-10**	-1.6 (0.8)	**6.06E-06**	0.02
linolenate [alpha or gamma; (18:3n3 or 6)]	HMDB03073	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-2.2 (0.8)	**1.64E-10**	-1.6 (0.7)	**9.81E-07**	0.02
betaine	HMDB00043	Glycine, Serine and Threonine Metabolism	0.7 (0.7)	**2.72E-04**	0.2 (0.5)	0.99	0.03
linoleate (18:2n6)	HMDB00673	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-2.3 (0.9)	**4.60E-10**	-1.6 (0.7)	**2.13E-06**	0.03
docosapentaenoate (n6 DPA; 22:5n6)	HMDB01976	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-1.6 (0.7)	**9.94E-08**	-1.1 (0.7)	**1.67E-04**	0.03
3-hydroxybutyrate (BHBA)	HMDB00357	Ketone Bodies	-2.1 (0.6)	**7.39E-12**	-1.6 (0.7)	**8.92E-05**	0.03
isocitrate	HMDB00193	Tricarboxylic Acid Cycle	-0.6 (0.5)	**3.51E-04**	0.02 (0.9)	0.99	0.03
palmitate (16:0)	HMDB00220	Long Chain Saturated Fatty Acid	-2.3 (0.9)	**1.81E-10**	-1.6 (0.8)	**1.30E-05**	0.03
glycochenodeoxycholate	HMDB00637	Primary Bile Acid Metabolism	0.8 (0.8)	**9.84E-04**	0.3 (0.7)	0.99	0.03
hexanoylcarnitine (C6)	HMDB00705	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	-1.5 (0.5)	**2.01E-12**	-1.2 (0.6)	**5.27E-06**	0.04
myristoleoylcarnitine (C14:1)*	NA	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	-1.6 (0.6)	**2.98E-12**	-1.2 (0.6)	**8.61E-06**	0.05
adrenate (22:4n6)	HMDB02226	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-1.8 (1.0)	**6.80E-07**	-1.2 (1.0)	**4.75E-03**	0.07

5-dodecenoylcarnitine (C12:1)	HMDB13326	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	-1.6 (0.7)	**2.15E-10**	-1.2 (0.7)	**2.06E-04**	0.08
stearate (18:0)	HMDB00827	Long Chain Saturated Fatty Acid	-2.0 (0.8)	**3.52E-09**	-1.5 (1.0)	**9.35E-04**	0.09
hypoxanthine	HMDB00157	Purine Metabolism, (Hypo)Xanthine/Inosine containing	0.8 (1.6)	0.16	0.1 (0.9)	0.99	0.09
glycodeoxycholate	HMDB00631	Secondary Bile Acid Metabolism	0.7 (0.8)	**1.33E-04**	0.2 (0.7)	0.99	0.10
palmitoleoylcarnitine (C16:1)*	NA	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	-1.5 (0.4)	**1.73E-14**	-1.3 (0.6)	**5.90E-04**	0.14
lysine	HMDB00182	Lysine Metabolism	-0.5 (0.6)	0.33	-0.7 (0.3)	**6.25E-06**	0.15
acetylcarnitine (C2)	HMDB00201	Fatty Acid Metabolism (Acyl Carnitine, Short Chain)	-1.6 (0.6)	**2.41E-10**	-1.3 (0.5)	**6.53E-08**	0.16
oleoylcarnitine (C18:1)	HMDB05065	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	-1.3 (0.6)	**6.08E-12**	-1.0 (0.7)	**1.71E-03**	0.20
pyruvate	HMDB00243	Glycolysis, Gluconeogenesis, and Pyruvate Metabolism	0.6 (1.0)	0.07	0.3 (0.6)	0.99	0.27
palmitoylcarnitine (C16)	HMDB00222	Fatty Acid Metabolism (Acyl Carnitine, Long Chain Saturated)	-1.2 (0.7)	**1.04E-09**	-0.9 (0.7)	**3.99E-03**	0.29
ornithine	HMDB03374	Urea cycle; Arginine and Proline Metabolism	-0.4 (0.6)	0.99	-0.5 (0.5)	**0.02**	0.32
taurine	HMDB00251	Methionine, Cysteine, SAM and Taurine Metabolism	0.3 (1.0)	0.99	-0.01 (1.1)	0.99	0.34
myristoylcarnitine (C14)	HMDB05066	Fatty Acid Metabolism (Acyl Carnitine, Long Chain Saturated)	-1.4 (0.6)	**5.15E-11**	-1.2 (0.7)	**9.28E-05**	0.34
glutamine	HMDB00641	Glutamate Metabolism	-1.1 (0.7)	**1.89E-06**	-0.9 (0.6)	**2.48E-06**	0.35
linoleoylcarnitine (C18:2)*	HMDB06469	Fatty Acid Metabolism (Acyl Carnitine, Polyunsaturated)	-1.1 (0.5)	**5.63E-11**	-0.9 (0.7)	**1.35E-03**	0.37
proline	HMDB00162	Urea cycle; Arginine and Proline Metabolism	-0.6 (0.7)	0.77	-0.7 (0.3)	**9.73E-08**	0.44
aspartate	HMDB00191	Alanine and Aspartate Metabolism	0.1 (1.1)	0.99	-0.2 (0.8)	0.99	0.45
serine	HMDB00187	Glycine, Serine and Threonine Metabolism	-0.8 (0.8)	**7.93E-04**	-1.0 (0.7)	**2.15E-03**	0.50
arachidonate (20:4n6)	HMDB01043	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-1.1 (0.9)	**9.48E-04**	-1.0 (0.9)	**0.02**	0.51
glutamate	HMDB00148	Glutamate Metabolism	-0.1 (1.1)	0.99	-0.3 (0.8)	0.99	0.52
phenylalanine	HMDB00159	Phenylalanine Metabolism	-1.0 (1.0)	**0.03**	-1.2 (0.6)	**5.64E-06**	0.54
eicosapentaenoate (EPA; 20:5n3)	HMDB01999	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	-1.5 (0.6)	**3.60E-10**	-1.3 (0.7)	**3.95E-05**	0.55
quinolinate	HMDB00232	Nicotinate and Nicotinamide Metabolism	-0.3 (0.6)	0.99	-0.4 (0.4)	0.05	0.57
tryptophan	HMDB00929	Tryptophan Metabolism	-0.7 (0.8)	0.42	-0.7 (0.4)	**8.14E-07**	0.60
stearoylcarnitine (C18)	HMDB00848	Fatty Acid Metabolism (Acyl Carnitine, Long Chain Saturated)	-0.6 (1.1)	0.10	-0.4 (0.7)	0.99	0.66
glycine	HMDB00123	Glycine, Serine and Threonine Metabolism	-0.7 (0.6)	**1.58E-05**	-0.8 (0.7)	**0.01**	0.67
lactate	HMDB00190	Glycolysis, Gluconeogenesis, and Pyruvate Metabolism	0.7 (1.3)	**0.04**	0.6 (0.9)	0.83	0.68
threonine	HMDB00167	Glycine, Serine and Threonine Metabolism	-0.9 (0.6)	**4.21E-04**	-0.8 (0.2)	**2.06E-09**	0.70

urate	HMDB00289	Purine Metabolism, (Hypo)Xanthine/Inosine containing	-0.3 (0.5)	0.65	-0.2 (0.6)	0.99	0.70
isoleucine	HMDB00172	Leucine, Isoleucine and Valine Metabolism	-1.5 (0.6)	**1.44E-05**	-1.6 (0.3)	**1.33E-11**	0.73
fructose	HMDB00660	Fructose, Mannose and Galactose Metabolism	0.5 (1.6)	0.54	0.7 (0.9)	0.43	0.73
leucine	NA	Leucine, Isoleucine and Valine Metabolism	-1.5 (0.7)	**1.45E-05**	-1.5 (0.4)	**1.36E-10**	0.73
histidine	HMDB00177	Histidine Metabolism	-0.9 (0.7)	**5.40E-03**	-1.0 (0.5)	**1.66E-05**	0.81
valine	HMDB00883	Leucine, Isoleucine and Valine Metabolism	-0.9 (0.7)	**0.01**	-0.9 (0.5)	**1.20E-04**	0.85
alanine	HMDB00161	Alanine and Aspartate Metabolism	-0.1 (0.8)	0.99	-0.1 (0.5)	0.99	0.87
arachidonoylcarnitine (C20:4)	NA	Fatty Acid Metabolism (Acyl Carnitine, Polyunsaturated)	-0.8 (0.7)	**1.22E-05**	-0.7 (0.7)	**0.03**	0.89
methionine	HMDB00696	Methionine, Cysteine, SAM and Taurine Metabolism	-1.6 (0.8)	**4.57E-06**	-1.5 (0.4)	**2.07E-10**	0.90
2-aminoadipate	HMDB00510	Lysine Metabolism	-0.3 (1.0)	0.99	-0.4 (0.9)	0.99	0.91
arginine	HMDB00517	Urea cycle; Arginine and Proline Metabolism	-0.6 (1.0)	**0.01**	-0.7 (0.7)	0.05	0.92
uridine	HMDB00296	Pyrimidine Metabolism, Uracil containing	0.3 (0.7)	0.99	0.2 (0.6)	0.99	0.92
asparagine	HMDB00168	Alanine and Aspartate Metabolism	-0.9 (0.7)	**1.16E-03**	-0.9 (0.7)	**1.68E-03**	0.93
citrulline	HMDB00094	Urea cycle; Arginine and Proline Metabolism	-1.5 (0.6)	**3.30E-08**	-1.5 (0.6)	**3.31E-07**	0.97
tyrosine	HMDB00158	Tyrosine Metabolism	-1.0 (1.0)	0.06	-1.0 (1.0)	**0.04**	0.99

[1] Values represent mean changes in metabolites at fasting versus 120 min at the OGTT conducted at during early pregnancy (N=29), and *p*-values represent paired Student *t* tests to examine difference between these two time points after FDR correction for multiple testing. [2] Values represent mean changes in metabolites at fasting versus 120 min at the OGTT conducted at mid-pregnancy (about 36 weeks) (N=18), and *p*-values represent paired Student *t* tests to examine difference between these two time points after FDR correction for multiple testing. [3] P-values represent paired Student's *t* tests without FDR correction comparing mean differences during the OGTT (fasting to 120 minutes) at early versus mid-pregnancy (N=18). Abbreviations: FDR, False Discovery Rate; OGTT, oral glucose tolerance test; PEARLS, Pregnancy and EARly Lifestyle improvement Study; SD, standard deviation.

Table S4. Mean difference in top principal component (PC) scores for changes in metabolites from fasting to 120 minutes (Δfast-120min) during early compared to mid-pregnancy (n=18).

	Percent of variation in Δfast-120min explained by PC	**β (SE)**	***P* value**
PC1	27.4%	1.2 (1.1)	0.26
PC2	18.3%	-2.1 (0.8)	**0.01**

Table S5. Factor loadings from principal component (PC) analysis at early and mid-pregnancy. Loadings are derived from PCA comparing metabolite levels during an oral glucose tolerance test (OGTT) among Pregnancy and EARly Lifestyle improvement Study (PEARLS) participants during early (n=29) and mid- (n=18) pregnancy, and PC analysis comparing changes in metabolites from fasting to 120 minutes (Δfast-120min) at baseline versus 36 weeks.

Metabolite	HMDB ID	References[1]	Biological Pathway	PC1: OGTT Metabolites Early Pregnancy[2]	PC1: OGTT Metabolites Mid-Pregnancy[3]	PC2: ΔFast-120Min Early versus Mid-Pregnancy[4]
oleate/vaccenate (18:1)	NA	(1–3)	Long Chain Monounsaturated Fatty Acid	0.21	0.18	-0.17
palmitoleate (16:1n7)	HMDB03229	(1,2)	Long Chain Monounsaturated Fatty Acid	0.20	0.18	-0.10
linoleate (18:2n6)	HMDB00673	(1,3–5)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.20	0.19	0.08
palmitate (16:0)	HMDB00220	(2,4,5)	Long Chain Saturated Fatty Acid	0.20	0.19	0.13
linolenate [alpha or gamma; (18:3n3 or 6)]	HMDB03073	(4,5)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.20	0.18	0.00
myristoleate (14:1n5)	HMDB02000	(1,2,4–6)	Long Chain Monounsaturated Fatty Acid	0.20	0.16	0.09
docosapentaenoate (n3 DPA; 22:5n3)	HMDB06528	(4,5)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.19	0.19	0.03
3-hydroxybutyrate (BHBA)	HMDB00929	(6–8)	Ketone Bodies	0.19	0.15	0.12
palmitoleoylcarnitine (C16:1)*	HMDB00641	(6,7)	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	0.18	0.19	0.15
adrenate (22:4n6)	HMDB02226	(3,5)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.18	0.17	-0.17
stearate (18:0)	HMDB00827	(2,4)	Long Chain Saturated Fatty Acid	0.18	0.16	-0.20
myristoleoylcarnitine (C14:1)*	NA	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	0.17	0.19	0.11
acetylcarnitine (C2)	HMDB00201	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Short Chain)	0.17	0.15	0.08
5-dodecenoylcarnitine (C12:1)	HMDB13326	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	0.17	0.19	0.18
myristoylcarnitine (C14)	HMDB05066	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Long Chain Saturated)	0.17	0.19	0.10
laurylcarnitine (C12)	HMDB02250	(1,4,6)	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	0.17	0.17	0.16
leucine	NA	(6–9)	Leucine, Isoleucine and Valine Metabolism	0.16	0.14	-0.10
docosapentaenoate (n6 DPA; 22:5n6)	HMDB01976	(4,5)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.16	0.14	0.21
oleoylcarnitine (C18:1)	HMDB05065	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Monounsaturated)	0.15	0.17	0.21
hexanoylcarnitine (C6)	HMDB00705	(2,5,6)	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	0.15	0.19	0.13

eicosapentaenoate (EPA; 20:5n3)	HMDB01999	(3,5)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.15	0.17	0.08
decanoylcarnitine (C10)	HMDB00651	(1,2,4,6)	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	0.15	0.17	0.11
isoleucine	HMDB00172	(4,6–9)	Leucine, Isoleucine and Valine Metabolism	0.15	0.13	0.04
palmitoylcarnitine (C16)	HMDB00222	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Long Chain Saturated)	0.14	0.17	0.12
octanoylcarnitine (C8)	HMDB00791	(2,4,6)	Fatty Acid Metabolism (Acyl Carnitine, Medium Chain)	0.14	0.17	0.18
arachidonate (20:4n6)	HMDB01043	(5,10)	Long Chain Polyunsaturated Fatty Acid (n3 and n6)	0.14	0.15	0.01
methionine	HMDB00696	(4,6–8)	Methionine, Cysteine, SAM and Taurine Metabolism	0.14	0.15	-0.01
phenylalanine	HMDB00159	(4,6–8)	Phenylalanine Metabolism	0.14	0.14	0.02
tyrosine	HMDB00158	(4,6,8)	Tyrosine Metabolism	0.12	0.1	0.21
linoleoylcarnitine (C18:2)*	HMDB06469	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Polyunsaturated)	0.11	0.14	-0.15
arachidonoylcarnitine (C20:4)	NA	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Polyunsaturated)	0.11	0.12	-0.17
serine	HMDB00187	(4,6,7)	Glycine, Serine and Threonine Metabolism	0.11	0.06	-0.19
valine	HMDB00883	(4,6–8)	Leucine, Isoleucine and Valine Metabolism	0.10	0.08	-0.16
citrulline	HMDB00094	(3,4,6,8)	Urea cycle; Arginine and Proline Metabolism	0.10	0.09	0.01
arginine	HMDB00517	(4,6)	Urea cycle; Arginine and Proline Metabolism	0.10	0.04	-0.01
tetradecadienedioate (C14:2-DC)*	NA	(2,4–6)	Fatty Acid, Dicarboxylate	0.09	0.10	0.01
tryptophan	HMDB00357	(4,6)	Tryptophan Metabolism	0.09	0.07	-0.13
glutamine	NA	(2,4–6)	Glutamate Metabolism	0.09	0.11	0.08
dimethylarginine (SDMA + ADMA)	HMDB01539	(1,4,6)	Urea cycle; Arginine and Proline Metabolism	0.09	0.12	-0.03
lysine	HMDB00182	(6–8)	Lysine Metabolism	0.08	0.09	0.01
proline	HMDB00162	(6,7)	Urea cycle; Arginine and Proline Metabolism	0.08	0.07	0.15
histidine	HMDB00177	(6–8)	Histidine Metabolism	0.08	0.09	-0.17
glutamate	HMDB00148	(4,6,7)	Glutamate Metabolism	0.08	-0.01	0.10
stearoylcarnitine (C18)	HMDB00848	(2,4–6)	Fatty Acid Metabolism (Acyl Carnitine, Long Chain Saturated)	0.07	0.12	0.03
asparagine	HMDB00168	(3,4,6,7)	Alanine and Aspartate Metabolism	0.07	0.09	0.04
ornithine	HMDB03374	(3,4,6,8)	Urea cycle; Arginine and Proline Metabolism	0.07	0.03	-0.07
glycine	HMDB00123	(3,4,6,7)	Glycine, Serine and Threonine Metabolism	0.07	0.06	0.21
threonine	HMDB00167	(6,7)	Glycine, Serine and Threonine Metabolism	0.06	0.08	0.12
trans-4-hydroxyproline	HMDB00725	(6,7)	Urea cycle; Arginine and Proline Metabolism	0.06	0.01	0.14
aspartate	HMDB00191	(4,6,7)	Alanine and Aspartate Metabolism	0.05	0.03	-0.19
quinolinate	HMDB00232	(6,9)	Nicotinate and Nicotinamide Metabolism	0.05	0.07	0.15
uridine	HMDB00296	(6,9)	Pyrimidine Metabolism, Uracil containing	0.04	0.02	0.03

2-aminoadipate	HMDB00510	(6,11)	Lysine Metabolism	0.04	0.05	-0.05
urate	HMDB00289	(1,6)	Purine Metabolism, (Hypo)Xanthine/Inosine containing	0.04	0.07	0.18
alanine	HMDB00161	(3,6,7)	Alanine and Aspartate Metabolism	0.03	0.03	-0.07
taurine	HMDB00251	(6,9)	Methionine, Cysteine, SAM and Taurine Metabolism	0.02	0.01	0.11
isocitrate	HMDB00193	(4,6)	TCA Cycle	0.01	0.02	0.12
fructose	HMDB00660	(4,6)	Fructose, Mannose and Galactose Metabolism	0.01	-0.06	0.15
glycocholate	HMDB00138	(2,6,8)	Primary Bile Acid Metabolism	-0.01	-0.03	0.13
betaine	HMDB00043	(3,6)	Glycine, Serine and Threonine Metabolism	-0.02	0.03	0.11
hypoxanthine	HMDB00157	(6,8)	Purine Metabolism, (Hypo)Xanthine/Inosine containing	-0.03	0.00	-0.02
lactate	HMDB00190	(3,4,6,8)	Glycolysis, Gluconeogenesis, and Pyruvate Metabolism	-0.03	-0.04	-0.04
glycochenodeoxycholate	HMDB00637	(2,5,6,8)	Primary Bile Acid Metabolism	-0.04	-0.05	-0.07
glycodeoxycholate	HMDB00631	(1,2,6)	Secondary Bile Acid Metabolism	-0.04	-0.07	-0.11
pyruvate	HMDB00243	(3,4,8)	Glycolysis, Gluconeogenesis, and Pyruvate Metabolism	-0.05	-0.08	0.17

[1] Previous studies that have observed significant changes in metabolite or related metabolites during an oral glucose tolerance test. [2] Factor loadings correspond to PC1 in Figure 3A. [3] Factor loadings correspond to PC1 in Figure 3B. [4] Factor loadings correspond to PC2 in Figure S2. We present loadings for only PC2 here because PC1 was significantly associated with the time during pregnancy that the OGTT was conducted.

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