Suppl. Tables

Supp. Table 1 – Feature selection parameters

physical parameters	sex
	age
	height
	weight
	BMI (kg/m2)
	BSA acc. Mosteller (m2)
	BP systolic
	BP diastolic
	waist circumference (cm)
	hip circumference (cm)
	menopause current
	smoking number of risk factors
medical history	exertional dyspnea
	dyspnea at rest edema
	visible engorgement of the neck veins
	pulmonary rattling noises year of first HF diagnosis
	year of first HF diagnosis not known
	NYHA class
	age at first HF diagnosis
	time since first HF diagnosis
	diabetes mellitus
	Hypertension
	Hyperlipidemia
	Hyperuricemia
	alcohol consumption (drinks per week)
	coronary heart disease angina pectoris
	time since last myocardial infarction
	primary valve disease congenital heart disease cardiomyopathy
	primary cause for heart failure hepato-jugular reflux
	orthopnea
	paroxysmal dyspnoe at night nocturnal cough
	fatique and performance problems
	nocturia
	noctoria - how often
	sleep apnoe smoking (pack-years)
	leukocytes
	cerebrovascular disease

ECG parameters	PQ-time
	QRS-time
	QT-time
	AV-block
	left bundle branch block
	right bundle branch block
	24h ECG
	HR (min)
	HR (max)
	HR
	(average)
	sNN50
	sNN6%
	SDNN
	SDNNI
	SDANN
	RMSSD
	heart rate
lipids	total cholesterol LDL-
	cholesterol
	HDL-cholesterol
Biochemical parameters	Hemoglobin
	(mmol/L) creatinin
	(µmol/L) uric acid
	(µmol/L)
	sodium potassium
	creatinin clearance
	hematocrit
	platelets
	HbA1c (%)
	TSH
	date of blood analysis
echocardiography parameters	LVDD (mm)
	LVDS (mm)
	LA (mm)
	IV septal thickness (mm)
	posterior wall thickness (mm)
	LVEF (%)
	mitral valve insufficiency
	aorta insufficiency
	triscupid valve
	insufficiency
	end-diastolic LVV (Teichholz, mL) end-
	systolic LVV (Teichholz, mL)
	LVEF (Teichholz, %)
	Aorta diameter
	posterior wall thickness - end systolic end-
	diastolic left ventricular volume end-systolic left
	ventricular volume
	LV mass

left ventricular end-diastolic diameter (apical long axis)
left ventricular end-diastolic diameter (apical short axis)
left atrium end-systolic diameter (apical long axis) left
atrium end-systolic diameter (apical short axis)

A1 LA-area (4 chamber view)

A2 LA-area (2 chamber view)
E-wave
A-wave
Mitral deceleration time
isovolumetric relaxation time (IVRT)
A-wave duration
Valsalva - E-wave
Valsalva - A-wave
Valsalva - deceleration time
Myocardial performance index (TEI)
a Myocardial performance index
(TEI) b
tissue e'-wave (lateral) tissue
a'-wave (lateral) tissue e'-wave
(medial) tissue a'-wave
(medial) pulmonary valve
systolic flow pulmonary valve
diastolic flow pulmonary valve
atrial reversal duration of atrial
reversal
Flow-Propagation-Time (Vp)
degree of diastolic dysfunction E/e'
medial
pulmonary valve
insufficiency triscupidvalve
gradient stroke volume at
baseline cardiac output

CPET parameters	maximal watt
	maximal test duration
	BP systolic (rest)
	BP diastolic (rest)
	BP systolic (test)
	BP diastolic (test)
	HF (maximal)
	HF (rest)
	RQ (rest)
	RQ (max)
	RQ (max - post test)
	VE (rest)
	VE (max)
	peak VO2
	watt @aerobic threshold
	VO2@AT
	VE/VCO2 slope
	Borg score
strength test parameters	lat pull (1RM) arm pull
	(1RM) bench press
	(1RM) arm push (1RM)
	leg press - lying (1RM)
	leg press - sitting
	(1RM)
psychological parameters	total major depression acc. to PHQ-9
	major/minor depression acc. to PHQ-9
	SF-36 physical function
	SF-36 body role function
	SF-36 pain
	SF-36 overall health
	SF-36 vitality
	SF-36 social function
	SF-36 emotional role
	SF-36 physical health
	SF-36 physical
	SF-36 psychological health
	SF-12 physical
	SF-12 psychological health
	depression
Medication	ACE inhibitors
	AT1-antagonists beta
	blocker thiazide loop
	diuretics aldosterone
	antagonists other
	diuretics cardiac
	glycosides nitrate
	Calcium antagonists antiarrhythmic
	drugs
	statins

other lipid lowering medications
ASS
other platelets inhibitors
Vitamin K antagonists
other anti-coagulation
insulin
oral antidepressive medication
antidepressive medication hypnotic
and/or sedative medication
Allopurinol oral contraceptives
postmenopausal hormone therapy
inhalable medication
antiphlogistics other
medication
ACE-inhibitors - active substance 1
ACE-inhibitors - daily dose 1
ACE-inhibitors - active substance 2
ACE-inhibitors - daily dose 2
AT1-receptor antagonists - active substance 1
AT1-receptor antagonists - daily dose 1
AT1-receptor antagonists - active substance 2
AT1-receptor antagonists - daily dose 2 beta-
blocker - active substance 1 beta-blocker -
daily dose 1 beta-blocker - active substance
2 beta-blocker - daily dose 2 thiazide
diuretics - active substance 1 thiazide
diuretics - daily dose 1 thiazide diuretics -
active substance 2 thiazide diuretics - daily
dose 2 loop diuretics - active substance 1
loop diuretics - daily dose 1 loop diuretics -
active substance 2 loop diuretics - daily dose
2 aldosterone antagonists - active substance
1 aldosterone antagonists - daily dose 1
aldosterone antagonists - active substance 2
aldosterone antagonists - daily dose 2
Potassium-sparing diuretics
Potassium-sparing diuretics - active substance 1
Potassium-sparing diuretics - daily dose 1
Potassium-sparing diuretics - active substance 2
Potassium-sparing diuretics - daily dose 2 other
diuretics - active substance 1 other diuretics - daily
dose 1 other diuretics - active substance 2 other
diuretics - daily dose 2 cardiac glycosides - active
substance 1 cardiac glycosides - daily dose 1 cardiac
glycosides - active substance 2 cardiac glycosides -
daily dose 2 nitrates (continuous medication) - active
substance 1 nitrates (continuous medication) - daily
dose 1 nitrates (continuous medication) - active
substance 2 nitrates (continuous medication) - daily
dose 2
Calcium-antagonists - active substance 1

Calcium-antagonists - daily dose 1
Calcium-antagonists - active substance 2
Calcium-antagonists - daily dose 2
antiarrhythmic drugs - active substance 1
antiarrhythmic drugs - daily dose 1
antiarrhythmic drugs - active substance 2
antiarrhythmic drugs - daily dose 2 statin
- active substance 1 statin - daily dose 1
statin - active substance 2 statin - daily
dose 2
other lipid lowering medication - active substance 1
other lipid lowering medication - daily dose 1 other
lipid lowering medication - active substance 2 other
lipid lowering medication - daily dose 2
ASS - daily dose
other platelet inhibitors - active substance 1
other platelet inhibitors - daily dose 1 other
platelet inhibitors - active substance 2 other
platelet inhibitors - daily dose 2
Vitamin K antagonists - active substance 1
Vitamin K antagonists - daily dose 1
Vitamin K antagonists - active substance 2
Vitamin K antagonists - daily dose 2 other
anti-coagulants - active substance 1 other
anti-coagulants - daily dose 1 other anti-
coagulants - active substance 2 other anti-
coagulants - daily dose 2 Insulin - active
substance 1 insulin - daily dose 1 Insulin -
active substance 2 insulin - daily dose 2
oral anti-diabetics - active substance 1
oral anti-diabetics - daily dose 1 oral anti-
diabetics - active substance 2 oral anti-
diabetics - daily dose 2 oral anti-diabetics
- active substance 3 oral anti-diabetics -
daily dose 3 oral anti-diabetics - active
substance 4 oral anti-diabetics - daily
dose 4
oral substance - active substance 1 oral
substance - daily dose 1 oral substance -
active substance 2 oral substance - daily
dose 2 inhalable medication - active
substance 1 inhalable medication - daily
dose 1 inhalable medication - active
substance 2 inhalable medication - daily
dose 2 anti-depressives - active substance
1 anti-depressives - daily dose 1 anti-
depressives - active substance 2 anti-
depressives - daily dose 2
hypnotic and/or sedative medication - active substance 1
hypnotic and/or sedative medication - daily dose 1
hypnotic and/or sedative medication - active substance 2

hypnotic and/or sedative medication - daily dose 2
Allopurinol - daily dose antiphlogistics - active substance 1 antiphlogistics - daily dose 1 antiphlogistics - active substance 2 antiphlogistics - daily dose 2
change from Baseline to follow-up delta VO2peak
delta LAVI
delta E/e' delta VO2peak mean delta
LAVI mean delta
E/e' mean delta body weight delta BMI
delta systolic BP
delta diastolic BP
delta resting heart rate delta
hemoglobin delta
creatinine delta uric acid delta cholesterol
delta glomerular filtration rate delta
resting heart rate (ecg) delta body surface area delta
LVDD delta LDVS
delta LVEF delta
waist circumference
delta hip circumference delta
leukocytes delta
hematocrit delta
platelets delta LDL
delta HDL delta
LVEDD delta
LVVES delta
VO2@AT delta
VE/VCO2 slope
delta maximal HR
delta stroke volume
delta E/e' medial

Suppl. Table 2 – Metabolites associated with change in VO_2peak

Class	Metabolite	Exercise		Overlap with other outcome parameters		
		Baseline	Follow-up	E/e'	VE/VCO2 slope	LAVI
Amino Acid	Tryptophan	57.32 (52.89; 63.17)	54.15 (48.23; 61.40)			
Biogenic amines	Spermidine	0.2 (0.16; 0.24)	0.18 (0.15; 0.20)			
Glycerophospholipids	lysoPC a C16:0	95.52 (86.91; 102.98)	83.76 (72.60; 94.22)			
	lysoPC a C17:0	1.76 (1.45; 2.12)	1.6 (1.38; 1.91)			
	lysoPC a C26:1	0.06 (0.05; 0.07)	0.06 (0.05; 0.07)			
	PC aa C32:0	13.67 (11.32; 15.79)	13.83 (11.74; 15.51)			
	PC aa C36:0	1.87 (1.38; 2.42)	1.87 (1.50; 2.45)			
	PC aa C36:4	171.01 (154.43; 193.88)	167.99 (149.04; 193.58)			
	PC aa C36:5	26.38 (20.35; 36.74)	25.65 (19.52; 39.31)			
	PC aa C36:6	1.06 (0.85; 1.26)	1.06 (0.81; 1.39)			
	PC aa C38:0	2.25 (1.88; 2.95)	2.18 (2.82; 2.72)			
	PC aa C38:1	0.73 (0.46; 0.95)	0.64 (0.46; 0.98)			
	PC aa C38:4	96.64 (85.28; 113.56)	94.85 (82.42; 110.47)			
	PC aa C38:5	50.2 (44.62; 59.50)	50.62 (40.98; 62.20)			
	PC aa C38:6	80.43 (69.52; 103.25)	81.32 (61.76; 103.74)			
	PC aa C40:1	0.36 (0.34; 0.39)	0.36 (0.34; 0.45)			
	PC aa C40:3	0.45 (0.39; 0.55)	0.43 (0.36; 0.49)			
	PC aa C40:5	8.38 (7.28; 10.60)	8.19 (6.65; 9.79)			
	PC aa C40:6	25.95 (23.10; 31.66)	25.13 (19.22; 34.09)			
	PC aa C42:2	0.19 (0.16; 0.23)	0.19 (0.17; 0.23)			
	PC aa C42:5	0.29	0.26			

		(0.25; 0.34)	(0.24; 0.34)	
	PC aa C42:6	0.41	0.43	
		(0.35; 0.48)	(0.37; 0.50)	
	PC ae C30:2	0.11	0.1	
		(0.08; 0.13)	(0.08; 0.13)	
	PC ae C32:2	0.63	0.64	
		(0.50; 0.80)	(0.52; 0.81)	
	PC ae C34:0	1.36	1.48	
		(1.04; 1.88)	(1.08; 1.73)	
	PC ae C36:0	0.71	0.71	
		(0.63; 0.90)	(0.61; 0.85)	
	PC ae C36:5	9.84	9.98	
		(8.53; 11.54)	(7.98; 11.73)	
	PC ae C38:0	1.97	1.88	
		(1.59; 2.36)	(1.55; 2.39)	
	PC ae C38:6	6.13	6.26	
		(5.47; 7.95)	(5.41; 7.69)	
	PC ae C40:1	1.06	1.01	
		(0.88; 1.28)	(0.85; 1.19)	
	PC ae C40:2	1.7	1.54	
		(0.88; 1.28)	(1.25; 2.10)	
	PC ae C40:5	2.99	2.93	
		(2.64; 3.57)	(2.42; 3.35)	
	PC ae C40:6	3.9	3.75	
		(3.45; 5.04)	(3.32; 4.82)	
	PC ae C42:2	0.5	0.49	
		(0.42; 0.62)	(0.40; 0.57)	
	PC ae C42:3	0.67	0.66	
		(0.58; 0.81)	(0.55; 0.78)	
	PC ae C44:3	0.14	0.13	
		(0.12; 0.15)	(0.11; 0.14)	
	PC ae C44:6	0.81	0.77	
		(0.66; 0.95)	(0.64; 0.98)	
sphingolipids	SM OH C16:1	2.66	2.64	
		(2.09; 3.28)	(2.03; 3.24)	
	SM C18:0	17.59	17.22	
		(14.73; 21.29)	(14.02; 20.03)	
	SM C24:1	29.96	26.62	
		(25.41; 33.74)	(23.91; 31.00)	
	SM C26:0	0.11	0.11	
		(0.09; 0.13)	(0.09; 0.13)	
	SM C26:1	0.24	0.21	
		(0.20; 0.30)	(0.18; 0.28)	

Suppl. Table 3 – Metabolites associated with change in VE/VCO_2 slope

		Exercise		Overlap with other outcome parameters		
Class	Metabolite	Baseline	Follow-up	E/e'	VO2peak	LAVI
Amino Acid	Leucine	134.25 (117.00; 150.00)	129.5 (113.87; 143.55)			
Biogenic amines	ADMA	0.41 (0.36; 0.47)	0.35 (0.30; 0.44)			
	Serotonin	0.1 (0.05; 0.14)	0.09 (0.05; 0.12)			
	Taurine	48.97 (41.22; 58.07)	47.15 (37.69; 55.97)			
Glycerophospholipids	lysoPC aa C24:0	0.1 (0.09; 0.11)	0.1 (0.08; 0.11)			
	PC aa C24:0	0.09 (0.09; 0.10)	0.09 (0.09; 0.09)			
	PC aa C38:0	2.25 (1.88; 2.95)	2.18 (2.82; 2.72)		[redacted]	
	PC aa C38:1	0.73 (0.46; 0.95)	0.64 (0.46; 0.98)			
	PC aa C40:2	0.24 (0.22; 0.30)	0.23 (0.19; 0.28)			
	PC aa C40:3	0.45 (0.39; 0.55)	0.43 (0.36; 0.49)		[redacted]	
	PC aa C42:0	0.41 (0.34; 052)	0.43 (0.36; 0.51)			
	PC aa C42:1	0.2 (0.18; 0.26)	0.22 (0.18; 0.26)			
	PC aa C42:2	0.19 (0.16; 0.23)	0.19 (0.17; 0.23)		[redacted]	
	PC ae C32:1	2.43 (2.09; 3.15)	2.6 (2.08; 2.95)			
	PC ae C34:2	9.83 (8.12; 13.13)	10.18 (8.54; 13.09)			[redacted]
	PC ae C34:3	6.77 (5.27; 8.28)	6.79 (5.42; 8.36)			
	PC ae C36:3	6.33 (5.61; 8.12)	6.9 (5.53; 7.86)			
	PC ae C36:4	14.34 (12.91; 17.07)	15.1 (11.86; 18.44)			
	PC ae C36:5	9.84 (8.53; 11.54)	9.98 (7.98; 11.73)		[redacted]	
	PC ae C38:2	1.65 (1.32; 2.03)	1.54 (1.31; 1.87)			
	PC ae C38:4	11.21 (9.89; 13.10)	10.97 (10.03; 13.73)			
	PC ae C38:6	6.13 (5.47; 7.95)	6.26 (5.41; 7.69)		[redacted]	
	PC ae C40:1	1.06	1.01			

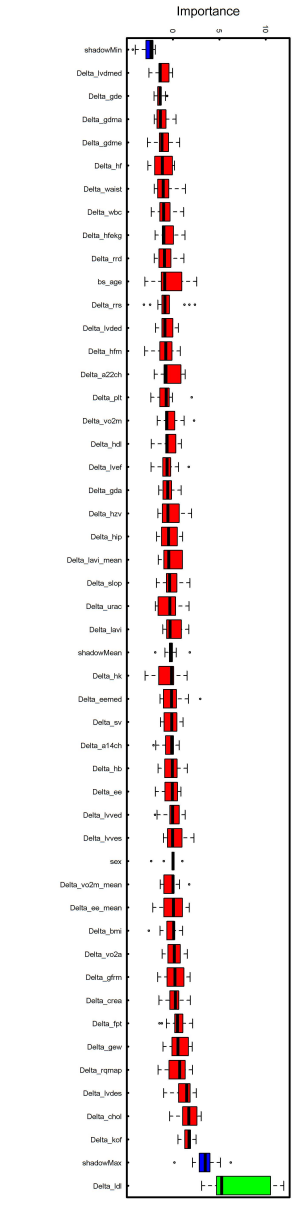
		(0.88; 1.28)	(0.85; 1.19)	[redacted]
	PC ae C40:3	0.97 (0.83; 1.14)	0.88 (0.75; 1.10)	
	PC ae C40:4	1.84 (1.61; 2.08)	1.7 (1.50; 2.00)	
	PC ae C40:5	2.99 (2.64; 3.57)	2.93 (2.42; 3.35)	[redacted]
	PC ae C42:1	0.3 (0.25; 0.35)	0.31 (0.26; 0.33)	
	PC ae C42:3	0.67 (0.58; 0.81)	0.66 (0.55; 0.78)	[redacted]
	PC ae C42:4	0.62 (0.51; 0.72)	0.6 (0.49; 0.70)	
	PC ae C44:3	0.14 (0.12; 0.15)	0.13 (0.11; 0.14)	[redacted]
	PC ae C44:4	0.29 (0.25; 0.33)	0.29 (0.24; 0.32)	
	PC ae C44:5	1.13 (0.92; 1.39)	1.08 (0.93; 1.42)	[redacted]
	PC ae C44:6	0.81 (0.66; 0.95)	0.77 (0.64; 0.98)	[redacted]
Sugars	H1	5281 (4990; 5894)	5400 (4850; 5721)	[redacted]

Suppl. Table 4 – Metabolites associated with change in E/e'

		Exercise		Overlap with other outcome parameters		
Class	Metabolite	Baseline	Follow-up	VE/VCO2 slope	VO2peak	LAVI
Amino Acid	Glycine	190.6 (166.6; 235.9)	176.5 (154.1; 209.2)			
	Serine	91.6 (83.4; 107.3)	95.1 (90.6; 103.8)			
Biogenic amines	Spermine	0.13 (0.12; 0.14)	0.12 (0.12; 0.13)			
Sphingolipids	SM C18:0	17.59 (14.72; 21.29)	17.22 (14.02; 20.03)		[redacted]	
	SM C22:3	1.07 (0.92; 1.27)	1.19 (0.85; 1.31)			
Glycerophospholipids	PC aa C38:5	50.2 (44.6; 59.5)	50.6 (41.0; 62.2)		[redacted]	
	PC aa C40:5	8.38 (7.28; 10.60)	8.19 (6.65; 9.79)			
	PC ae C30:1	0.08 (0.03; 0.12)	0.06 (0.02; 0.09)			
	PC ae C44:5	1.13 (0.92; 1.39)	1.08 (0.93; 1.42)	[redacted]		
Acetylcarnitine	Propionylcarnitine (C3)	0.37 (0.31; 0.44)	0.34 (0.29; 0.45)			
	Valerylcarnitine (C5)	0.14 (0.11; 0.16)	0.14 (0.11; 0.17)			
Sugars	H1	5281 (4990; 5894)	5400 (4850; 5721)	[redacted]		

Suppl. Table 5 – Metabolites associated with change in LAVI

		Exercise		Overlap with other outcome parameters		
Class	Metabolite	Baseline	Follow-up	E/e'	VO2peak	VE/VCO2 slope
Acetylcarnitine	Tetradecadienylcarnitine (C14:2)	0.04 (0.04; 0.05)	0.04 (0.04; 0.05)			
Amino Acid	Lysine	174.5 (156.8; 193.0)	172.5 (157.7; 188.4)			
Biogenic amines	Serotonin	0.1 (0.05; 0.14)	0.09 (0.05; 0.12)			■
	Spermidine	0.2 (0.16; 0.24)	0.18 (0.15; 0.20)		■	
Glycerophospholipids	PC aa C36:2	197.8 (166.9; 219.2)	193.1 (155.1; 228.3)			
	PC aa C38:4	96.6 (85.3; 113.6)	94.9 (82.4; 110.5)		■	
	PC ae C34:2	9.83 (8.12; 13.1)	10.2 (8.5; 13.1)			■
	PC ae C34:3	6.77 (5.27; 8.28)	6.79 (5.42; 8.36)			■
	PC ae C36:3	6.34 (5.61; 8.12)	6.9 (5.53; 7.86)			■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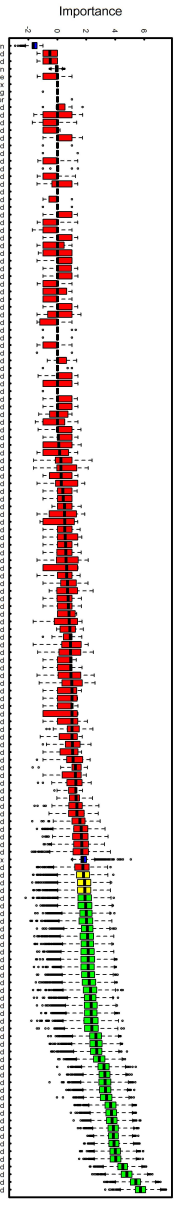
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C4_resid
C5_resid
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Gln_resid
Gly_resid
His_resid
Ile_resid
Leu_resid
Lys_resid
Met_resid
Orn_resid
Thr_resid
Trp_resid
Tyr_resid
Val_resid
ADMA_resid
alpha_AAA_resid
Creatinine_resid
Kynurenine_resid
Met_SO_resid
SDMA_resid
Serotonin_resid
t4_OH_Pro_resid
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PC_aa_C34_3_resid
PC_aa_C34_4_resid
PC_aa_C40_2_resid
PC_aa_C42_4_resid
PC_ae_C30_2_resid
PC_ae_C44_4_resid
H1_resid
Ac_Orn_resid
lysoPC_a_C26_1_resid
Asp_resid
lysoPC_a_C24_0_resid
PC_aa_C32_1_resid
Phe_resid
PC_aa_C40_3_resid
PC_aa_C42_2_resid
PC_aa_C38_2_resid
PC_aa_C42_6_resid
SM_C26_1_resid
SM_C26_0_resid
lysoPC_a_C18_2_resid
PC_aa_C42_5_resid
PC_ae_C38_1_resid
PC_aa_C32_3_resid
C14_1_resid
PC_aa_C40_4_resid
PC_aa_C36_2_resid
PC_aa_C34_2_resid
PC_aa_C34_2_resid
PC_ae_C40_3_resid
PC_ae_C40_2_resid
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PC_aa_C30_0_resid
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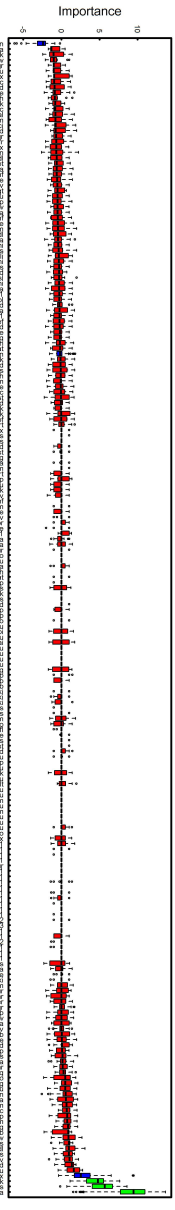
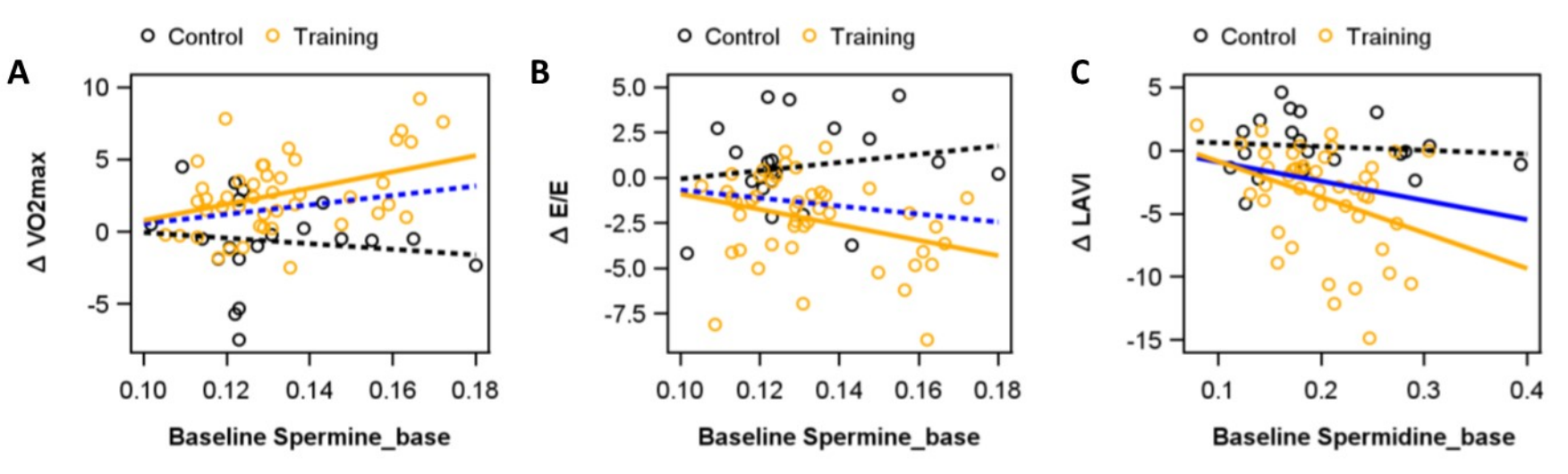
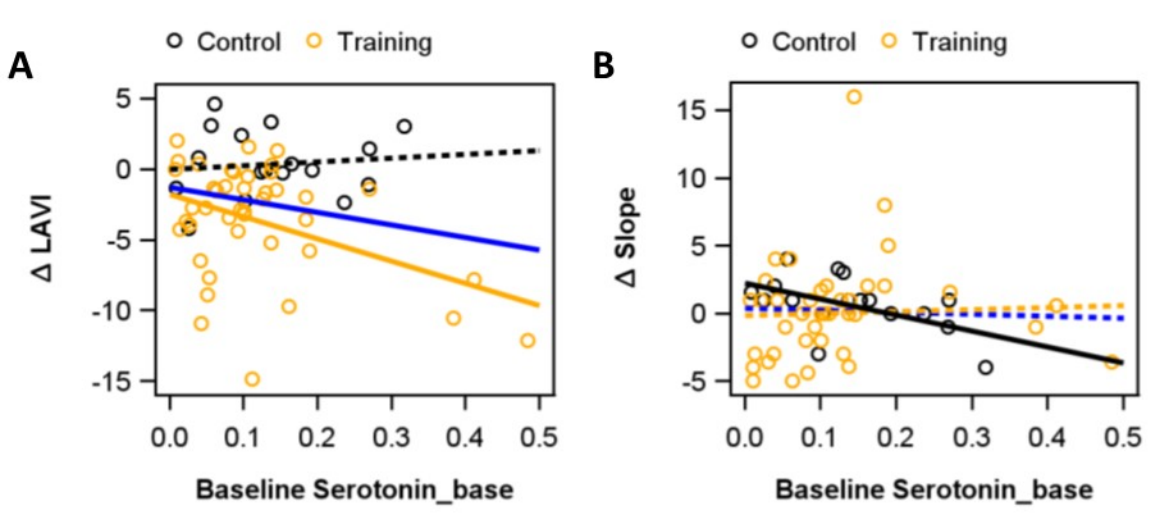
PC_ae_C36_3_resid
lysoPC_a_C20_4_resid
Spermidine_resid
PC_ae_C30_0_resid
PC_ae_C34_3_resid
PC_ae_C36_4_resid
PC_ae_C38_3_resid
PC_ae_C42_5_resid
Pro_resid
Taurine_resid
PC_aa_C38_1_resid
C10_resid
C16_resid
PC_aa_C36_4_resid
PC_aa_C38_6_resid
PC_aa_C36_6_resid
SM_C18_1_resid
lysoPC_a_C28_1_resid
PC_aa_C40_6_resid
PC_ae_C42_1_resid
PC_ae_C36_5_resid
PC_ae_C38_0_resid
PC_aa_C28_1_resid
PC_ae_C32_2_resid
PC_ae_C38_4_resid
lysoPC_a_C17_0_resid
SM_C20_2_resid
lysoPC_a_C20_3_resid
lysoPC_a_C26_0_resid
SM_C16_1_resid
shadowMax
PC_ae_C36_2_resid
PC_aa_C34_1_resid
lysoPC_a_C16_0_resid
SM_C24_1_resid
PC_aa_C38_0_resid
PC_ae_C42_4_resid
lysoPC_a_C16_0_resid
PC_aa_C36_1_resid
PC_ae_C36_6_resid
Spermine_resid
PC_ae_C40_4_resid
PC_ae_C36_1_resid
PC_ae_C44_6_resid
PC_ae_C42_3_resid
PC_ae_C36_3_resid
PC_ae_C44_5_resid
PC_ae_C42_2_resid
PC_ae_C36_5_resid
PC_ae_C32_1_resid
PC_ae_C42_0_resid
PC_ae_C38_3_resid
lysoPC_a_C18_1_resid
SM__OH__C22_2_resid
SM__OH__C16_1_resid
PC_aa_C36_0_resid
PC_ae_C44_3_resid
SM_C18_0_resid
SM_C24_0_resid
SM__OH__C14_1_resid
PC_aa_C32_0_resid
PC_ae_C40_5_resid
PC_ae_C40_1_resid
PC_ae_C34_0_resid
PC_ae_C34_1_resid
PC_ae_C38_4_resid
PC_ae_C38_5_resid
PC_ae_C40_6_resid
PC_ae_C40_0_resid
SM__OH__C22_1_resid
SM_C16_0_resid
PC_aa_C36_5_resid
PC_aa_C42_1_resid


Importance
shadowMin
bc_vgrid
bc_vmid
br_dchr
bs_gr
br_bbeu
bo_bbeu
bl_ccc
bu_hvrd
bu_dchme
bu_a14ch
br_bbeu
br_urac
HzVOsat
bl_chcl
bu_esmed
bu_edur
bc_hfr
bo_bbeu
bs_bdm
br_ldl
bu_fpl
bb_hfmea
bu_hfr
bu_mbp
bu_thedv
bs_afl
bu_pvadu
bu_dchme
bs_gew
bl_chsa
bl_hb
br_bbeu
bo_chsn
bu_hved
bu_gbma
bu_hfr
bu_hdeg
br_dchl
bc_bdmi
bq_lsea
bu_hfr
bu_hved
br_bmi
bu_gbtr
bm_bdmi
bu_chcl
bk_rrd
bu_thdg
bm_bdmi
bu_hvrd
bb_rmead
bu_gde
bu_bbsa
bu_hzv
bl_ldl
shadowMean
bd_chb
bu_hsed
bl_hb
br_bbr
bl_dmi
bu_gbme
bu_urac
bk_vas3
bu_hved
bl_mtsk
bq_fpt
bu_hvrd
bu_hvrt
sex
bz_bdy
bz_chsa
bz_cks3
bz_hvst
br_srg
bh_mbp
bz_hvrt
br_hgt
br_hb
bz_hbrd
bz_smok
bz_bmi
bz_bdmi
bz_cm
bq_cbave
bm_dapr
bm_acp
bm_afl
bm_bhb
bm_bha
bm_dur
bm_aldo
bm_adu
bm_bcr
bm_serh
bm_stat
bm_ldl
bm_ast
bm_hba
bm_ins
bm_bad
bm_bap
bm_bgl
bm_alb
bm_chl
bz_hbg
bl_hb
br_creat
bl_vracu
bl_hdu
bl_hb
bl_bu
be_pu
bs_tfvt
bc_hb
bc_hct
bz_ast
bz_bg
bq_hdl
bq_hdw
bq_bmm
bq_mmg
bz_hyrt
bc_bmi
bc_gbdys
br_nhdel
bz_mued
bu_hu
bl_hct
bl_whcir
bl_hk
bl_hbd
bl_rbc
br_gdur
bl_hdm
bl_hbm
bl_hdhd
bm_qbu
bm_ibu
bm_bmw
bm_tcmw
bm_ttl_w
bm_thw
bm_dl_w
bm_bhw
bm_kdw
bm_hdw
bm_adw
bm_ahw
bm_ndw
bm_slow
bm_lbw
bm_mhw
bm_pdw
bm_oadw
bm_bedw
bm_oadw
bm_ahw
bm_phw
bm_degw
bm_ehw
bm_ldw
bu_bvfs
bu_bvls
bz_ass
bc_vo2m
bc_bedur
bc_mvmr
bc_vsr
bc_vsp
bb_efcb
bbc_hfpmr
bl_hu
bu_fpl
bu_bbb
bs_agea
bu_hvfpl
bm_vea
bl_hdw
bu_tea
bo_mbnr
bc_bedu
bd_vsp
bd_vsr
bl_hdgm
bc_mvmr
bq_fpt
bl_rbc
bk_bbr
bq_vo2m
bl_hgt
bl_hd
bd_pfvv
bl_hvcd
bl_hdl
bl_hb
bc_au
bu_hvtec
shadowMax
bq_ldlc
bq_tgaa
bq_vlla


A
Control
Training
Δ VO2max
10
5
0
-5
0.10
0.12
0.14
0.16
0.18
Baseline Spermine_base
B
Control
Training
Δ E/E
5.0
2.5
0.0
-2.5
-5.0
-7.5
0.10
0.12
0.14
0.16
0.18
Baseline Spermine_base
C
Control
Training
Δ LAVI
5
0
-5
-10
-15
0.1
0.2
0.3
0.4
Baseline Spermidine_base


A
Control
Training
Δ LAVI
5
0
-5
-10
-15
0.0
0.1
0.2
0.3
0.4
0.5
Baseline Serotonin_base
B
Control
Training
Δ Slope
15
10
5
0
-5
0.0
0.1
0.2
0.3
0.4
0.5
Baseline Serotonin_base