Table S1. Baseline characteristics of the complete GOTO study population*

	N	Mean	SD
Age (years)	164	63.0	5.7
% Female	81	49.4	
% Lipid lowering medication	29	17.7	
% Antihypertensive medication	51	31.1	
Anthropometrics			
Height (m)	163	1.7	0.1
Weight (kg)	163	79.4	9.8
BMI (kg/m2)	163	27.0	2.5
Waist circumference (cm)	164	96.1	8.0
Hip circumference (cm)	164	104.3	5.4
Waist/hip ratio (cm)	164	0.9	0.1
Waist/height ratio	163	56.1	4.6
DXA measures			
Whole body lean mass (kg)	142	54.1	9.7
Whole body fat (kg)	142	25.6	6.2
Whole body fat (%)	142	32.3	7.3
Trunk fat (kg)	142	13.1	3.6
Trunk fat (%)	142	32.7	7.2
Android fat (kg)	142	2.2	0.7
Android fat (%)	142	35.1	7.3
Gynoid fat (kg)	142	4.1	1.1
Gynoid fat (%)	142	32.8	8.2
Leg fat (kg)	142	8.32	2.67
Leg fat (%)	142	32.13	9.36
Trunk fat /whole body fat ratio	142	0.51	0.06
Adroid fat /whole body fat ratio	142	0.09	0.02
Gynoid fat /whole body fat ratio	142	0.16	0.02
Leg fat /whole body fat ratio	142	0.32	0.06
Android fat/gynoid fat ratio	142	1.10	0.20
Whole body fat/Whole body lean mass ratio*	142	0.49	0.17

*The complete group 164 participants
SD= standard deviation

Table S2. Nomenclature of the 65 metabolic biomarkers

Parameter	Description	Percentage missing values
XXL-VLDL-L	Total lipids in chylomicrons and extremely large VLDL (mmol/l)	2.3
XL-VLDL-L	Total lipids in very large VLDL (mmol/l)	3.0
L-VLDL-L	Total lipids in large VLDL (mmol/l)	1.5
M-VLDL-L	Total lipids in medium VLDL (mmol/l)	0.0
S-VLDL-L	Total lipids in small VLDL (mmol/l)	0.0
XS-VLDL-L	Total lipids in very small VLDL (mmol/l)	0.0
IDL-L	Total lipids in IDL (mmol/l)	0.0
L-LDL-L	Total lipids in large LDL (mmol/l)	0.0
M-LDL-L	Total lipids in medium LDL (mmol/l)	0.0
S-LDL-L	Total lipids in small LDL (mmol/l)	0.0
XL-HDL-L	Total lipids in very large HDL (mmol/l)	0.0
L-HDL-L	Total lipids in large HDL (mmol/l)	2.3
M-HDL-L	Total lipids in medium HDL (mmol/l)	0.0
S-HDL-L	Total lipids in small HDL (mmol/l)	0.0
VLDL-D	Mean diameter for VLDL particles (nm)	0.0
LDL-D	Mean diameter for LDL particles (nm)	0.0
HDL-D	Mean diameter for HDL particles (nm)	0.0
Serum_C	Serum total cholesterol (mmol/l)	0.0
non-HDL-C	Total cholesterol in non-HDL (mmol/l)	0.0
VLDL-C	Total cholesterol in VLDL (mmol/l)	0.0
IDL-C	Total cholesterol in IDL (mmol/l)	0.0
LDL-C	Total cholesterol in LDL (mmol/l)	0.0
HDL-C	Total cholesterol in HDL (mmol/l)	0.0
Est-C	Esterified cholesterol (mmol/l)	1.5
Serum-TG	Serum total triglycerides (mmol/l)	0.0
Tot-PG	Total phosphoglycerides (mmol/l)	1.5
PC	Phosphatidylcholine and other cholines (mmol/l)	1.5
SM	Sphingomyelins (mmol/l)	1.5
ApoA1	Apolipoprotein A-I (g/l)	0.0
ApoB	Apolipoprotein B (g/l)	0.0
Tot-FA	Total fatty acids (mmol/l)	1.5
FALen	Estimated description of fatty acid chain length, not actual carbon number ()	1.5
UnsatDeg	Estimated degree of unsaturation ()	1.5
DHA	22:6, docosahexaenoic acid (mmol/l)	1.5
LA	18:2, linoleic acid (mmol/l)	1.5
FAw3	Omega-3 fatty acids (mmol/l)	1.5
FAw6	Omega-6 fatty acids (mmol/l)	1.5
PUFA	Polyunsaturated fatty acids (mmol/l)	1.5
MUFA	Monounsaturated fatty acids; 16:1, 18:1 (mmol/l)	1.5
SFA	Saturated fatty acids (mmol/l)	1.5
FAw3_FA	Ratio of omega-3 fatty acids to total fatty acids (%)	1.5
FAw6_FA	Ratio of omega-6 fatty acids to total fatty acids (%)	1.5
PUFA_FA	Ratio of polyunsaturated fatty acids to total fatty acids (%)	1.5
MUFA_FA	Ratio of monounsaturated fatty acids to total fatty acids (%)	1.5
SFA_FA	Ratio of saturated fatty acids to total fatty acids (%)	1.5
Glc	Glucose (mmol/l)	0.0
Lac	Lactate (mmol/l)	0.0
Pyr	Pyruvate (mmol/l)	0.8
Cit	Citrate (mmol/l)	0.0
Glol	Glycerol (mmol/l)	1.5
Ala	Alanine (mmol/l)	0.8
Gln	Glutamine (mmol/l)	0.0
Gly	Glycine (mmol/l)	0.0
His	Histidine (mmol/l)	0.0
Ile	Isoleucine (mmol/l)	0.8
Leu	Leucine (mmol/l)	0.8
Val	Valine (mmol/l)	1.5
Phe	Phenylalanine (mmol/l)	0.0
Tyr	Tyrosine (mmol/l)	0.0
Ace	Acetate (mmol/l)	0.0
AcAce	Acetoacetate (mmol/l)	0.0
bOHBut	3-hydroxybutyrate (mmol/l)	1.5
Crea	Creatinine (mmol/l)	0.0
Alb	Albumin (signal area)	0.0
GP	Glycoprotein acetyls, mainly a1-acid glycoprotein (mmol/l)	0.0

Table S3. Significance of effect of lifestyle change on 1H-NMR metabolic biomarkers

According to Supplemental table 2B from Van der Rest et al, Aging 2016 doi: 10.18632/aging.100877

Parameter	Description	N	Coefficient*	CI lower bound	CI upper bound	p-value
XXL-VLDL-L	Total lipids in chylomicrons and extremely large VLDL (mmol/l)	115	-0.24	-0.40	-0.09	1.96E-03
XL-VLDL-L	Total lipids in very large VLDL (mmol/l)	103	-0.31	-0.47	-0.14	2.36E-04
L-VLDL-L	Total lipids in large VLDL (mmol/l)	119	-0.29	-0.42	-0.16	1.10E-05
M-VLDL-L	Total lipids in medium VLDL (mmol/l)	134	-0.23	-0.34	-0.12	2.86E-05
S-VLDL-L	Total lipids in small VLDL (mmol/l)	134	-0.28	-0.39	-0.18	2.23E-07
XS-VLDL-L	Total lipids in very small VLDL (mmol/l)	134	-0.28	-0.40	-0.17	1.28E-06
IDL-L	Total lipids in IDL (mmol/l)	134	-0.24	-0.34	-0.15	1.39E-06
L-LDL-L	Total lipids in large LDL (mmol/l)	134	-0.23	-0.33	-0.13	6.53E-06
M-LDL-L	Total lipids in medium LDL (mmol/l)	134	-0.24	-0.35	-0.13	1.32E-05
S-LDL-L	Total lipids in small LDL (mmol/l)	134	-0.27	-0.37	-0.16	7.95E-07
XL-HDL-L	Total lipids in very large HDL (mmol/l)	133	0.07	-0.05	0.19	2.53E-01
L-HDL-L	Total lipids in large HDL (mmol/l)	127	0.08	-0.01	0.17	6.89E-02
M-HDL-L	Total lipids in medium HDL (mmol/l)	134	-0.12	-0.25	0.02	8.94E-02
S-HDL-L	Total lipids in small HDL (mmol/l)	134	-0.20	-0.37	-0.03	2.22E-02
VLDL-D	Mean diameter for VLDL particles (nm)	134	-0.14	-0.27	0.00	4.20E-02
LDL-D	Mean diameter for LDL particles (nm)	134	0.12	-0.07	0.30	2.26E-01
HDL-D	Mean diameter for HDL particles (nm)	134	0.11	0.01	0.21	2.86E-02
Serum_C	Serum total cholesterol (mmol/l)	130	-0.19	-0.31	-0.06	2.91E-03
non-HDL-C	Total cholesterol in non-HDL (mmol/l)	151	-0.25	-0.36	-0.14	4.07E-06
VLDL-C	Total cholesterol in VLDL (mmol/l)	134	-0.30	-0.42	-0.18	3.56E-07
IDL-C	Total cholesterol in IDL (mmol/l)	134	-0.27	-0.37	-0.17	1.94E-07
LDL-C	Total cholesterol in LDL (mmol/l)	134	-0.25	-0.35	-0.14	4.68E-06
HDL-C	Total cholesterol in HDL (mmol/l)	134	0.01	-0.08	0.09	8.99E-01
Est-C	Esterified cholesterol (mmol/l)	130	-0.31	-0.42	-0.20	1.28E-08
Serum-TG	Serum total triglycerides (mmol/l)	134	-0.18	-0.29	-0.07	1.80E-03
Tot-PG	Total phosphoglycerides (mmol/l)	130	-0.26	-0.39	-0.13	1.30E-04
PC	Phosphatidylcholine and other cholines (mmol/l)	130	-0.17	-0.30	-0.04	8.00E-03
SM	Sphingomyelins (mmol/l)	130	-0.26	-0.36	-0.16	3.73E-07
ApoA1	Apolipoprotein A-I (g/l)	134	-0.15	-0.25	-0.05	4.21E-03
ApoB	Apolipoprotein B (g/l)	134	-0.31	-0.41	-0.22	1.12E-10
Tot-FA	Total fatty acids (mmol/l)	130	-0.22	-0.34	-0.10	3.87E-04
FALen	Estimated description of fatty acid chain length, not actual carbon number ()	130	0.41	0.22	0.61	2.43E-05
UnsatDeg	Estimated degree of unsaturation ()	130	-0.12	-0.28	0.03	1.10E-01
DHA	22:6, docosahexaenoic acid (mmol/l)	130	-0.06	-0.17	0.06	3.44E-01
LA	18:2, linoleic acid (mmol/l)	130	-0.26	-0.38	-0.14	1.75E-05
FAw3	Omega-3 fatty acids (mmol/l)	130	-0.02	-0.18	0.15	8.40E-01
FAw6	Omega-6 fatty acids (mmol/l)	130	-0.17	-0.31	-0.03	1.85E-02
PUFA	Polyunsaturated fatty acids (mmol/l)	130	-0.32	-0.43	-0.20	5.03E-08
MUFA	Monounsaturated fatty acids; 16:1, 18:1 (mmol/l)	130	-0.21	-0.32	-0.10	2.11E-04
SFA	Saturated fatty acids (mmol/l)	130	-0.10	-0.24	0.04	1.50E-01
FAw3_FA	Ratio of omega-3 fatty acids to total fatty acids (%)	130	-0.02	-0.18	0.15	8.40E-01
FAw6_FA	Ratio of omega-6 fatty acids to total fatty acids (%)	130	-0.17	-0.31	-0.03	1.85E-02
PUFA_FA	Ratio of polyunsaturated fatty acids to total fatty acids (%)	130	-0.17	-0.31	-0.02	2.24E-02
MUFA_FA	Ratio of monounsaturated fatty acids to total fatty acids (%)	130	-0.13	-0.25	-0.01	2.85E-02
SFA_FA	Ratio of saturated fatty acids to total fatty acids (%)	130	0.38	0.19	0.57	7.53E-05
Glc	Glucose (mmol/l)	162	-0.24	-0.38	-0.11	4.98E-04
Lac	Lactate (mmol/l)	162	-0.05	-0.23	0.13	6.02E-01
Pyr	Pyruvate (mmol/l)	161	-0.26	-0.43	-0.09	2.26E-03
Cit	Citrate (mmol/l)	162	0.20	0.05	0.35	1.00E-02
Glol	Glycerol (mmol/l)	157	-0.17	-0.30	-0.04	1.08E-02
Ala	Alanine (mmol/l)	161	0.01	-0.13	0.15	8.72E-01
Gln	Glutamine (mmol/l)	162	0.19	0.06	0.33	4.43E-03
Gly	Glycine (mmol/l)	161	0.20	0.12	0.29	1.50E-06
His	Histidine (mmol/l)	162	-0.52	-0.71	-0.34	3.23E-08
Ile	Isoleucine (mmol/l)	161	-0.12	-0.24	0.00	5.30E-02
Leu	Leucine (mmol/l)	161	-0.18	-0.31	-0.05	8.22E-03
Val	Valine (mmol/l)	160	-0.12	-0.26	0.03	1.08E-01
Phe	Phenylalanine (mmol/l)	162	-0.01	-0.17	0.14	8.52E-01
Tyr	Tyrosine (mmol/l)	162	-0.24	-0.41	-0.07	5.35E-03
Ace	Acetate (mmol/l)	162	-0.01	-0.13	0.11	8.48E-01
AcAce	Acetoacetate (mmol/l)	162	-0.10	-0.26	0.07	2.41E-01
bOHBut	3-hydroxybutyrate (mmol/l)	158	-0.15	-0.30	-0.01	3.77E-02
Crea	Creatinine (mmol/l)	162	-0.09	-0.19	0.01	7.10E-02
Alb	Albumin (signal area)	162	-0.07	-0.22	0.08	3.64E-01
GP	Glycoprotein acetyls, mainly a1-acid glycoprotein (mmol/l)	162	-0.15	-0.27	-0.04	7.83E-03

*The significance of the effects of the intervention on metabolite measures were determined using a linear mixed model adjusted for age, gender, status (longevity family member or control) (fixed effects), household, and individual (random effects).
Green p-values indicate nominal significant (p-value<0.05) changes in metabolite levels due to the lifestyle intervention (46 metabolites).
CI= confidence interval

Table S4. Changes in body composition due to the lifestyle intervention

	ALL				FEMALE				MALE			
	N	Mean change	SD	p-value*	N	Mean change	SD	p-value#	N	Mean change	SD	p-value#
Anthropometrics												
Weight (kg)	132	-3.36	2.33	**<0.001**	65	-3.35	2.09	**<0.001**	67	-3.37	2.55	**<0.001**
BMI (kg/m2)	132	-1.14	0.80	**<0.001**	65	-1.24	0.79	**<0.001**	67	-1.05	0.81	**<0.001**
Waist circumference (cm)	132	-4.51	5.44	**<0.001**	65	-4.60	5.43	**<0.001**	67	-4.42	5.50	**<0.001**
Hip circumference (cm)	132	-2.95	4.30	**<0.001**	65	-3.53	4.29	**<0.001**	67	-2.40	4.26	**<0.001**
Waist/hip ratio (cm)	132	-0.02	0.05	**<0.001**	64	-0.02	0.05	0.018	67	-0.02	0.04	**<0.001**
Waist/height ratio	132	-2.65	3.23	**<0.001**	64	-2.81	3.32	**<0.001**	67	-2.49	3.16	**<0.001**
DXA measures												
Whole body lean mass (kg)	132	-1.2	1.2	**<0.001**	65	-1.1	1.2	**<0.001**	67	-1.4	1.2	**<0.001**
Whole body fat (kg)	132	-2.2	1.8	**<0.001**	65	-2.3	1.7	**<0.001**	67	-2.1	1.9	**<0.001**
Whole body fat (%)	132	-1.5	1.7	**<0.001**	65	-1.5	1.7	**<0.001**	67	-1.5	1.7	**<0.001**
Trunk fat (kg)	132	-1.5	1.1	**<0.001**	65	-1.5	1.1	**<0.001**	67	-1.6	1.2	**<0.001**
Trunk fat (%)	132	-2.2	2.2	**<0.001**	65	-2.1	2.2	**<0.001**	67	-2.3	2.2	**<0.001**
Android fat (kg)	132	-0.3	0.3	**<0.001**	65	-0.3	0.3	**<0.001**	67	-0.4	0.3	**<0.001**
Android fat (%)	132	-2.6	3.0	**<0.001**	65	-2.4	3.1	**<0.001**	67	-2.9	2.9	**<0.001**
Gynoid fat (kg)	132	-0.3	0.3	**<0.001**	65	-0.4	0.3	**<0.001**	67	-0.2	0.3	**<0.001**
Gynoid fat (%)	132	-0.9	1.8	**<0.001**	65	-1.1	1.9	**<0.001**	67	-0.7	1.6	**<0.001**
Leg fat (kg)	132	-0.5	0.7	**<0.001**	65	-0.7	0.8	**<0.001**	67	-0.4	0.6	**<0.001**
Leg fat (%)	132	-0.8	1.7	**<0.001**	65	-0.9	1.8	**<0.001**	67	-0.7	1.6	**<0.001**
Trunk fat /whole body fat ratio	132	0.81	1.6	**<0.001**	65	0.83	2.0	**<0.001**	67	0.78	1.0	**<0.001**
Android fat /whole body fat ratio	132	0.23	1.1	**<0.001**	65	0.33	1.5	**<0.001**	67	0.14	0.2	**<0.001**
Gynoid fat /whole body fat ratio	132	0.06	0.9	**<0.001**	65	0.12	0.8	**<0.001**	67	0.00	1.0	**<0.001**
Leg fat /whole body fat ratio	132	0.11	1.6	**<0.001**	65	0.10	2.0	**<0.001**	67	0.11	1.2	**<0.001**
Android fat/gynoid fat ratio	132	-0.06	0.1	**<0.001**	65	-0.04	0.1	**<0.001**	67	-0.09	0.1	**<0.001**
Whole body fat/Whole body lean mass ratio	132	-0.03	0.0	**<0.001**	65	-0.04	0.0	**<0.001**	67	-0.03	0.0	**<0.001**

*The significance of the effects of the intervention on body composition measures were determined using a linear mixed model adjusted for age, gender, status (longevity family member or control) (fixed effects), household, and individual (random effects).
#The significance of the effects of the intervention on body composition measures were determined using a linear mixed model adjusted for age, status (longevity family member or control) (fixed effects), and individual (random effects).
SD= standard deviation