

## Supplementary Tables

**TABLE S1. Characteristics of 275 participants followed over 4.5 years compared with 927 participants from the African-PREDICT cohort.**

	Participants included in this sub study N=275	Participants from African- PREDICT cohort not included in analyses N=927	Mean difference (95% CI of diff.)	P
Men, N (%)	125 (45.5)	453 (48.9)		0.32
Black, N (%)	138 (50.2)	469 (50.6)		0.91
Age (years)	25.4 ± 3.16	24.3 ± 3.06	-1.11 (-1.53; -0.70)	<b>&lt;0.001</b>
<b>Anthropometric measurements</b>				
Height (cm)	168 ± 9.23	168 ± 9.60	0.10 (-1.19; 1.38)	0.88
Weight (kg)	73.3 ± 18.3	70.6 ± 17.0	-2.76 (-5.09; -0.43)	<b>0.020</b>
BMI (kg/m <sup>2</sup> )	25.8 ± 5.79	24.8 ± 5.43	-0.99 (-1.74; 0.25)	<b>0.009</b>
<b>Frequency of obesity based on:</b>				
BMI ≥ 30 kg/m <sup>2</sup> , N (%)	60 (21.8)	136 (14.7)		<b>0.005</b>
<b>Blood pressure</b>				
Clinic SBP (mmHg)	120 ± 12.4	119 ± 12.0	-0.93 (-2.56; 0.69)	0.26
Clinic DBP (mmHg)	78.9 ± 8.07	78.4 ± 7.85	-0.63 (-1.69; 0.44)	0.25
<b>Echocardiography</b>				
LVMi (g/m <sup>2</sup> )	70.7 ± 15.7	74.0 ± 18.6	2.93 (0.66; 5.22)	<b>0.012</b>
<b>Urinary profile</b>				
24hr MBG excretion (nmol/day)	3.38 (1.12; 9.13)	3.32 (1.06; 9.30)		0.70
Estimated salt intake (g/day) <sup>†</sup>	7.73 (2.80; 19.4)	7.76 (2.55; 20.3)		0.92

Data presented as mean ± SD and geometric mean (5<sup>th</sup> and 95<sup>th</sup> percentiles)

<sup>†</sup> Estimated salt intake based on 24hr sodium excretion

BMI, body mass index; DBP, diastolic blood pressure; LVMi, left ventricular mass index; MBG, marinobufagenin

**TABLE S2A. Characteristics of 215 participants with a BMI < 30kg/m<sup>2</sup> (non-obese) followed over 4.5 years.**

	<b>Baseline</b>	<b>Follow-up</b>	<b>Difference</b>	<b>P</b>
Men, N (%)	101 (47.0)	101 (47.0)		
Black, N (%)	110 (51.2)	110 (51.2)		
Age (years)	25.3 ± 3.16	29.9 ± 3.23	4.57 (4.45; 4.69)	<0.001
<b>Anthropometric measurements</b>				
Height (m)	1.69 ± 0.09	1.69 ± 0.09	0.00 (-0.001; 0.001)	0.92
Weight (kg)	66.7 ± 12.5	71.1 ± 15.2	4.46 (3.17; 5.75)	<0.001
Waist circumference (cm)	76.3 ± 9.43	78.2 ± 10.4	1.88 (1.13; 2.63)	<0.001
BMI (kg/m <sup>2</sup> )	23.4 ± 3.32	27.8 ± 4.36	1.42 (1.10; 1.73)	<0.001
WHtR	0.45 ± 0.05	0.46 ± 0.06	0.01 (0.01; 0.02)	<0.001
<b>Blood pressure</b>				
Clinic SBP (mmHg)	119 ± 12.6	115 ± 12.6	-3.84 (-5.14; -2.55)	<0.001
Clinic DBP (mmHg)	78.5 ± 8.07	78.6 ± 9.18	0.13 (-0.89; 1.15)	0.81
Central SBP (mmHg)	108 ± 9.40	109 ± 10.2	0.40 (-0.67; 1.48)	0.46
Hypertension, N (%) <sup>#</sup>	27 (12.6)	29 (13.5)		0.86
<b>Echocardiography</b>				
LVMi (g/m <sup>2</sup> )	70.5 ± 15.9	76.3 ± 18.3	5.81 (3.67; 7.95)	<0.001
IVS <sub>d</sub> (cm/m)	0.46 ± 0.10	0.52 ± 0.09	0.05 (0.04; 0.07)	<0.001
LVID <sub>d</sub> (cm/m)	2.80 ± 0.24	2.75 ± 0.23	-0.06 (-0.08; -0.03)	<0.001
PWT <sub>d</sub> (cm/m)	0.48 ± 0.08	0.53 ± 0.09	0.04 (0.03; 0.06)	<0.001
EDVi (mL/m)	61.9 ± 12.8	58.7 ± 12.8	-3.14 (-4.48; -1.80)	<0.001
SVi (ml/m <sup>2.04</sup> )	24.2 ± 5.22	22.6 ± 4.82	-1.69 (-2.30; -1.07)	<0.001
<b>Urinary profile</b>				
eGFR (ml/min/1.73m <sup>2</sup> )	111 ± 16.9	108 ± 16.9	-3.09 (-5.07; -1.12)	0.002
MBG exc. (nmol/day)	3.34 (1.12; 9.13)			
Estimated NaCl intake (g/day)	7.63 (2.80; 20.0)	7.10 (1.62; 22.8)	-0.29 (9.15)	0.60
<b>Biochemical profile</b>				
Glucose (mmol/L)	4.59 ± 0.79	4.01 ± 0.65	-0.58 (-0.71; -0.45)	<0.001
HDL-C (mmol/L)	1.39 ± 0.41	1.30 ± 0.34	-0.10 (-0.13; -0.06)	<0.001
LDL-C (mmol/L)	2.70 ± 0.90	2.56 ± 0.85	-0.14 (-0.23; -0.04)	0.006
C-reactive protein (mg/L)	0.80 (0.10; 6.15)	0.86 (0.14; 7.77)	0.00 (1.17)	0.27
γ-glutamyl transferase (U/L)	21.0 (8.76; 64.3)	20.1 (7.22; 62.4)	-0.37 (8.16)	0.30

Data presented as mean ± SD and geometric mean (5<sup>th</sup> and 95<sup>th</sup> percentiles)

Difference from baseline to follow up represented as mean (95% CI) for normally distributed data and median (IQR) for non-parametric data

<sup>#</sup> Hypertension: Clinic SBP ≥ 140mmHg/DBP ≥ 90mmHg

BMI, body mass index; DBP, diastolic blood pressure; EDVi, end diastolic volume index; eGFR: estimated glomerular filtration rate; HDL-C: high density lipoprotein cholesterol; IVS<sub>d</sub>: interventricular septum at end-diastole; LDL-C: low density lipoprotein cholesterol; LVID<sub>d</sub>: LV internal diameter at end-diastole; LVMi, left ventricular mass index; MBG, marinobufagenin; PWT<sub>d</sub>: posterior wall thickness at end-diastole SBP, systolic blood pressure; SVi, stroke volume index; WC, waist circumference; WHtR, waist/height ratio

**TABLE S2B. Characteristics of 60 participants with a BMI  $\geq 30\text{kg/m}^2$  (obese) followed over 4.5 years.**

	<b>Baseline</b>	<b>Follow-up</b>	<b>Difference</b>	<b>P</b>
Men, N (%)	24 (40.0)	24 (40.0)		
Black, N (%)	28 (46.7)	28 (46.7)		
Age (years)	25.8 $\pm$ 3.18	30.4 $\pm$ 3.15	4.68 (4.48; 4.89)	<b>&lt;0.001</b>
<b>Anthropometric measurements</b>				
Height (m)	1.67 $\pm$ 0.09	1.67 $\pm$ 0.09	0.001 (-0.002; 0.003)	0.57
Weight (kg)	97.1 $\pm$ 15.9	102 $\pm$ 16.9	5.30 (2.90; 7.69)	<b>&lt;0.001</b>
Waist circumference (cm)	100 $\pm$ 12.7	101 $\pm$ 12.8	0.87 (-1.35; 3.09)	0.44
BMI (kg/m <sup>2</sup> )	34.4 $\pm$ 4.34	36.3 $\pm$ 5.21	1.86 (1.00; 2.72)	<b>&lt;0.001</b>
WHtR	0.60 $\pm$ 0.07	0.60 $\pm$ 0.07	0.005 (-0.01; 0.02)	0.42
<b>Blood pressure</b>				
Clinic SBP (mmHg)	124 $\pm$ 10.5	121 $\pm$ 12.3	-3.47 (-6.56; -0.38)	<b>0.029</b>
Clinic DBP (mmHg)	80.8 $\pm$ 7.90	81.7 $\pm$ 10.1	0.93 (-1.39; 3.26)	0.43
Central SBP (mmHg)	113 $\pm$ 8.90	116 $\pm$ 9.54	2.58 (0.17; 4.99)	<b>0.037</b>
Hypertension, N (%) <sup>#</sup>	12 (20.0)	13 (21.7)		1.00
<b>Echocardiography</b>				
LVMi (g/m <sup>2</sup> )	71.7 $\pm$ 15.1	83.1 $\pm$ 19.2	11.3 (6.43; 16.2)	<b>&lt;0.001</b>
IVS <sub>d</sub> (cm/m)	0.50 $\pm$ 0.10	0.59 $\pm$ 0.09	0.09 (0.06; 0.11)	<b>&lt;0.001</b>
LVID <sub>d</sub> (cm/m)	2.99 $\pm$ 0.23	2.89 $\pm$ 0.21	-0.10 (-0.16; -0.04)	<b>0.002</b>
PWT <sub>d</sub> (cm/m)	0.54 $\pm$ 0.09	0.60 $\pm$ 0.10	0.06 (0.03; 0.10)	<b>&lt;0.001</b>
EDVi (mL/m)	71.5 $\pm$ 14.3	65.8 $\pm$ 12.0	-5.68 (-8.77; -2.59)	<b>0.001</b>
SVi (ml/m <sup>2.04</sup> )	28.3 $\pm$ 5.41	25.1 $\pm$ 5.00	-3.24 (-4.72; -1.75)	<b>&lt;0.001</b>
<b>Urinary profile</b>				
eGFR (ml/min/1.73m <sup>2</sup> )	111 $\pm$ 15.1	107 $\pm$ 15.2	-3.33 (-7.26; 0.59)	0.095
MBG exc. (nmol/day)	3.52 (0.93; 9.34)			
Estimated NaCl intake (g/day)	8.09 (2.57; 19.3)	7.27 (1.30; 28.0)	1.08 (12.7)	0.66
<b>Biochemical profile</b>				
Glucose (mmol/L)	4.79 $\pm$ 0.66	4.36 $\pm$ 0.54	-0.43 (-0.63; -0.24)	<b>&lt;0.001</b>
HDL-C (mmol/L)	1.14 $\pm$ 0.27	1.09 $\pm$ 0.25	-0.05 (-0.10; 0.01)	0.087
LDL-C (mmol/L)	3.18 $\pm$ 0.89	3.01 $\pm$ 1.02	-0.17 (-0.33; -0.01)	<b>0.041</b>
C-reactive protein (mg/L)	2.80 (0.47; 60.9)	2.40 (0.23; 15.5)	0.06 (4.55)	0.51
$\gamma$ -glutamyl transferase (U/L)	25.4 (8.37; 60.9)	26.8 (7.12; 138)	-1.37 (14.6)	0.73

Data presented as mean  $\pm$  SD and geometric mean (5<sup>th</sup> and 95<sup>th</sup> percentiles)

Difference from baseline to follow up represented as mean (95% CI) for normally distributed data and median (IQR) for non-parametric data

<sup>#</sup> Hypertension: Clinic SBP  $\geq 140\text{mmHg}$ /DBP  $\geq 90\text{mmHg}$

BMI, body mass index; DBP, diastolic blood pressure; EDVi, end diastolic volume index; eGFR: estimated glomerular filtration rate; HDL-C: high density lipoprotein cholesterol; IVS<sub>d</sub>: interventricular septum at end-diastole; LDL-C: low density lipoprotein cholesterol; LVID<sub>d</sub>: LV internal diameter at end-diastole; LVMi, left ventricular mass index; MBG, marinobufagenin; PWT<sub>d</sub>: posterior wall thickness at end-diastole SBP, systolic blood pressure; SVi, stroke volume index; WC, waist circumference; WHtR, waist/height ratio

**TABLE S3. Multiple regression analyses with follow-up LVMI and percentage change in LVMI as dependent variables and baseline MBG excretion as the main independent variable.**

Dependent variable	MBG excretion (nmol/day)								
	Normal 18.6-24.9 kg/m <sup>2</sup> N=123			Overweight 25-29.9 kg/m <sup>2</sup> N=73			Obese BMI>30 kg/m <sup>2</sup> N=56		
	Adj R <sup>2</sup>	Std. $\beta$	<i>P</i>	Adj R <sup>2</sup>	Std. $\beta$	<i>P</i>	Adj R <sup>2</sup>	Std. $\beta$	<i>P</i>
LVMI (g/m <sup>2</sup> )	0.37	NS		0.44	NS		0.35	0.311	<b>0.007</b>
% $\Delta$ LVMI	0.19	NS		0.29	-0.190	0.074	0.40	0.336	<b>0.003</b>
<i>Sensitivity analysis additionally adjusted for estimated salt intake</i>									
LVMI (g/m <sup>2</sup> )	0.37	NS		0.44	NS		0.35	0.311	<b>0.008</b>
% $\Delta$ LVMI	0.19	NS		0.29	-0.190	0.074	0.40	0.337	<b>0.003</b>
<i>Sensitivity analysis additionally adjusted for estradiol</i>									
LVMI (g/m <sup>2</sup> )	0.39	NS		0.46	NS		0.47	0.305	<b>0.007</b>
% $\Delta$ LVMI	0.22	NS		0.32	-0.221	<b>0.035</b>	0.50	0.344	<b>0.002</b>

Adjusted for sex, ethnicity, age, clinic SBP, eGFR, glucose, HDL, CRP, GGT and baseline LVMI. NS refers to  $P > 0.05$ .

**TABLE S4: Backward stepwise regression model with obesity defined according to BMI, WC and WHtR criteria**

	Dependent variables			
	LVMi (g/m <sup>2</sup> )		% Δ LVMi	
<b>Obese; N=51</b>				
Adj R <sup>2</sup>	0.36		0.37	
<b>Independent variables</b>	Std. β	P	Std. β	P
MBG excretion (nmol/day)	0.310	0.009	0.350	0.003
Glucose (mmol/L)	0.270	0.028	0.288	0.019
Baseline LVMi (g/m <sup>2</sup> )	0.353	0.005	-0.570	<0.001

Adjusted for sex, ethnicity, age, clinic SBP, eGFR, glucose, HDL, CRP, GGT and baseline LVMi

\*Obesity: BMI >30 kg/m<sup>2</sup> and WC >94cm for white men; >81.2cm for black men; >80cm for white women and >81cm for black women and WHtR >0.5

**TABLE S5. Backward stepwise multiple regression analyses with follow-up LVMI and percentage change in LVMI as dependent variables, and baseline estimated NaCl intake as the main independent variable.**

Dependent variables	Estimated NaCl intake (g/day)								
	Normal 18.6-24.9 kg/m <sup>2</sup> N=123			Overweight 25-29.9 kg/m <sup>2</sup> N=73			Obese BMI>30 kg/m <sup>2</sup> N=56		
	Adj R <sup>2</sup>	Std. $\beta$	<i>P</i>	Adj R <sup>2</sup>	Std. $\beta$	<i>P</i>	Adj R <sup>2</sup>	Std. $\beta$	<i>P</i>
LVMI (g/m <sup>2</sup> )	0.37	NS		0.44	NS		0.31	NS	
% $\Delta$ LVMI*	0.19	NS		0.27	NS		0.32	0.202	0.090

Adjusted for sex, ethnicity, age, clinic SBP, eGFR, glucose, HDL, CRP, GGT and baseline LVMI

**TABLE S6: Estradiol levels of men and women in the African-PREDICT study**

	<b>Men</b>	<b>Women</b>	<b>P</b>
<b>Total group</b>	N=122	N=140	
Estradiol (pg/ml)	37.0 (21.6; 66.7)	54.2 (6.44; 305)	<b>&lt;0.001</b>
<b>Normal weight</b>	N=58	N=62	
Estradiol (pg/ml)	40.7 (21.3; 72.2)	59.0 (6.38; 299)	<b>0.019</b>
<b>Overweight</b>	N=35	N=39	
Estradiol (pg/ml)	32.5 (19.5; 51.2)	46.2 (6.09; 254)	0.055
<b>Obese</b>	N=23	N=31	
Estradiol (pg/ml)	34.6 (21.7; 46.1)	57.6 (15.0; 426)	<b>0.006</b>

**TABLE S7: Pearson correlations between the percentage change in LVMI and estradiol in men and women**

	% change LVMI	
	Men	Women
<b>Total group</b>		
Estradiol (pg/ml)	r=0.009; p=0.92	r=-0.032; p=0.71
<b>Normal weight</b>		
Estradiol (pg/ml)	r=0.183; p=0.17	r=0.236; p=0.065
<b>Overweight</b>		
Estradiol (pg/ml)	r=-0.054; p=0.76	r=-0.316; p=0.050
<b>Obese</b>		
Estradiol (pg/ml)	r=-0.313; p=0.15	r=-0.303; p=0.098