

Table S1: Demographic and cardiovascular characteristics of excluded and included participants for the respective analyses.

	Serum magnesium			Dietary magnesium		
	excluded	included	P value	excluded	included	P value
LVF	(N = 36)	(N = 363)		(N = 114)	(N = 285)	
BMI (kg/m2)	30.00 (5.92)	27.95 (4.78)	0.017	28.98 (5.11)	27.79 (4.80)	0.029
Waist circumference (cm)	103.54(16.62)	98.12(14.01)	0.030	101.13(14.63)	97.60 (14.11)	0.026
Hypertension	19 (52.8%)	117 (32.2%)	0.022	.....	.....	.....
Diabetes	12 (33.3%)	42 (11.6%)	0.001	26 (22.8%)	28 (9.8%)	0.002
Hypertensive medication	17 (47.2%)	85 (23.4%)	0.003	.....	.....	.....
Diabetic medication	7 (19.4%)	25 (6.9%)	0.020	.....	.....	.....
HbA1c (%)	.....	.....	.....	5.73 (1.03)	5.52 (0.57)	0.008
RVF	(N = 66)	(N = 333)		(N = 138)	(N = 261)	
Weight (Kg)	.....	.....	.....	85.61 (16.52)	81.63 (16.45)	0.022
BMI (kg/m2)	.....	.....	.....	28.81 (4.89)	27.77 (4.90)	0.046
Waist circumference (cm)	.....	.....	.....	101.06(14.00)	97.31 (14.36)	0.013
Systolic BP (mmHg)	.....	.....	.....	123.59(16.85)	119.12(16.49)	0.011
Triglycerides (mg/dl)	.....	.....	.....	145.95(95.44)	124.09(77.83)	0.014
Diuretics med	.....	.....	.....	11 (8.0%)	43 (16.5%)	0.027
Carotid plaque	(N = 154)	(N = 245)		(N = 213)	(N = 186)	
Male	77 (50.0%)	153 (62.4)	0.019	.....	.....	.....
BMI (kg/m2)	29.06 (5.63)	27.55 (4.32)	0.003	28.70 (5.22)	27.48 (4.47)	0.013
Waist circumference (cm)	.....	.....	.....	99.98 (14.96)	97.05 (13.45)	0.041
Diabetes	14 (9.1%)	40 (16.3%)	<0.001	28 (13.1%)	26 (14.0%)	0.010
Diabetic medication	6 (3.9%)	26 (10.6)	0.027	.....	.....	.....
Serum potassium (mmol/l)	4.24 (0.26)	4.32 (0.29)	0.005	.....	.....	.....

Only variables with significant differences (p<0.05) between included and excluded participants are presented. Values are reported as the mean (SD) or n (%), unless otherwise specified.
BP, blood pressure; BMI, body mass index

Table S2: Demographic and cardiovascular risk factors by serum and dietary magnesium

	All	Low serum & dietary Mg	Low serum & high dietary Mg	High serum & low dietary Mg	High serum & dietary Mg	P value
	N = 311 (77.9%)	N = 75 (24.1%)	N = 66 (21.2%)	N = 79 (25.4%)	N = 91 (29.3%)	
Age (years)	56.39 (9.10)	57.08 (9.07)	57.52 (9.86)	54.71 (9.30)	56.47 (8.30)	0.247
Male sex	175 (56.3%)	56 (74.7%)	27 (40.9%)	62 (78.5%)	30 (33.0%)	<0.001
Weight (kg)	82.23 (16.60)	85.65 (17.00)	80.31 (16.35)	85.93 (14.71)	77.60 (16.89)	0.002
BMI (kg/m2)	27.95 (4.97)	28.25 (5.04)	28.16 (5.31)	28.14 (4.27)	27.39 (5.25)	0.650
Smoking						0.584
Never smoker	115 (37.0%)	24 (32.0%)	31 (47.0%)	28 (35.4%)	32 (35.2%)	
Ex-smoker	136 (43.7%)	37 (49.3%)	25 (37.9%)	33 (41.8%)	41 (45.1%)	
Smoker	60 (19.3%)	14 (18.7%)	10 (15.2%)	18 (22.8%)	18 (19.8%)	
Waist circumference (cm)	97.99 (14.56)	101.29 (15.19)	96.51 (14.08)	100.44 (12.64)	94.22 (15.12)	0.005
Systolic BP (mmHg)	120.05 (16.36)	124.89 (16.62)	119.49 (14.39)	121.46 (15.94)	115.23 (16.75)	0.002
Diastolic BP (mmHg)	74.80 (9.90)	77.08 (10.59)	73.97 (8.86)	75.55 (9.35)	72.88 (10.20)	0.039
Physically active	189 (60.8%)	44 (58.7%)	39 (59.1%)	44 (55.7%)	62 (68.1%)	0.371
Hypertension	108 (34.7%)	33 (44.0%)	21 (31.8%)	27 (34.2%)	27 (29.7%)	0.615
Glucose (mg/dl)	103.44 (18.28)	110.73 (25.44)	102.73 (15.70)	100.75 (14.11)	100.29 (14.39)	0.001
HbA1c (%)	5.53 (0.59)	5.70 (0.78)	5.53 (0.61)	5.43 (0.41)	5.50 (0.49)	0.034
Diabetes						0.037
No	192 (61.7%)	42 (56.0%)	40 (60.6%)	51 (64.6%)	59 (64.8%)	
Prediabetes	83 (26.7%)	17 (22.7%)	16 (24.2%)	23 (29.1%)	27 (29.7%)	
Diabetes	36 (11.6%)	16 (21.3%)	10 (15.2%)	5 (6.3%)	5 (5.5%)	
Total cholesterol (mg/dl)	217.67 (36.18)	158.52 (117.74)	212.85 (32.56)	216.30 (38.57)	223.27 (36.29)	0.313
HDL-C (mg/dl)	62.63 (17.82)	58.28 (17.40)	66.07 (16.46)	59.47 (16.48)	66.45 (19.13)	0.003
LDL-C (mg/dl)	139.31 (33.50)	137.96 (33.09)	108.92 (52.99)	140.48 (35.23)	143.05 (33.79)	0.417
Triglycerides (mg/dl)	127.65 (79.43)	142.52 (107.30)	132.14 (91.27)	130.44 (70.52)	113.35 (52.24)	<0.001
eGFR (ml/min/1.73 m2)	86.63 (13.10)	87.86 (14.04)	85.08 (13.01)	86.15 (12.68)	87.15 (12.79)	0.608
Energy intake (kcal/day)	1841.53 (414.39)	1949.80 (354.41)	1698.68 (374.16)	2056.87 (404.33)	1668.96 (387.11)	<0.001
Dietary calcium (mg/day)	763.29 (205.97)	724.21 (185.42)	803.69 (247.47)	753.60 (201.50)	774.60 (189.09)	0.127
Dietary potassium (mg/day)	2532.28 (503.22)	2462.53 (447.17)	2587.66 (560.32)	2565.46 (489.62)	2520.81 (515.67)	0.454
Dietary phosphate (mg/day)	1111.75 (263.84)	1094.27 (229.00)	1111.44 (297.10)	1165.73 (254.06)	1079.52 (270.37)	0.172
Diabetic medication	23 (7.4%)	11 (14.7%)	8 (12.1%)	2 (2.5%)	2 (2.2%)	0.003
Antihypertensive medication	84 (27.0%)	24 (32.0%)	18 (27.3%)	21 (26.6%)	21 (23.1%)	0.643
Lipid lowering medication	34 (10.9%)	14 (18.7%)	4 (6.1%)	7 (8.9%)	9 (9.9%)	0.083
Diuretics medication	49 (15.8%)	9 (12.0%)	10 (15.2%)	13 (16.5%)	17 (18.7%)	0.698
Anticoagulant medication	8 (2.6%)	3 (4.0%)	1 (1.5%)	1 (1.3%)	3 (3.3%)	0.652

Values are reported as the mean (SD) or n (%), unless otherwise specified. BP, blood pressure; BMI, body mass index; eGFR, estimated glomerular filtration rate

Table S3: Correlation between serum and dietary magnesium with cardiovascular risk factors and imaging markers of subclinical cardiovascular disease, assessed by Spearman correlation.

	Serum magnesium (mg/dl)		Dietary magnesium (mg/day)	
	r coefficient	p value	r coefficient	p value
Covariates	(N= 394)		(N = 311)	
Age (years)	-0.082	0.103	-0.104	0.068
Weight (kg)	-0.024	0.635	0.193	<0.001
BMI (kg/m2)	-0.007	0.893	-0.074	0.192
Waist circumference (cm)	-0.030	0.547	0.069	0.225
Systolic BP (mmHg)	-0.149	0.003	0.125	0.028
Diastolic BP (mmHg)	-0.094	0.061	0.095	0.094
Glucose (mg/dl)	-0.147	0.003	0.003	0.953
HbA1c (%)	-0.053	0.293	-0.135	0.017
Total cholesterol (mg/dl)	0.103	0.04	-0.053	0.354
HDL-C (mg/dl)	-0.037	0.465	-0.033	0.561
LDL-C (mg/dl)	0.131	0.009	-0.022	0.701
Triglycerides (mg/dl)	0.003	0.952	0.013	0.810
eGFR (ml/min/1.73 m2)	0.013	0.790	0.02	0.730
Serum potassium (mmol/l)	-0.027	0.596	.....	.....
Serum phosphate (mmol/l)	0.101	0.045	.....	.....
Serum magnesium (mmol/l)	1	0.000	0.038	0.501
Energy intake (kcal/day)	.....	.....	0.845	<0.001
Dietary calcium (mg/day)	.....	.....	0.580	<0.001
Dietary potassium (mg/day)	.....	.....	0.899	<0.001
Dietary phosphate (mg/day)	.....	.....	0.914	<0.001
Left ventricular function	(N = 366)		(N = 287)	
Early diastolic filling rate (ml/s)	0.028	0.598	0.113	0.055
Late diastolic filling rate (ml/s)	0.017	0.746	0.088	0.136
End diastolic volume (ml/m2)	-0.030	0.564	0.192	0.001
End systolic volume (ml/m2)	-0.009	0.860	0.205	<0.001
Stroke volume (ml/m2)	-0.015	0.775	0.133	0.024
Cardiac output (ml/min/m2)	-0.068	0.195	0.172	0.003
Ejection fraction (%)	-0.018	0.727	-0.137	0.021
Peak ejection rate (ml/s)	-0.022	0.696	-0.166	0.005
Myocardial mass (g/m2)	-0.058	0.267	0.224	<0.001
Remodeling index (g/ml/m2)	0.008	0.877	-0.185	0.002
Mean diastolic thickness (mm/m2)	-0.068	0.195	-0.120	0.042
Right ventricular function	(N = 334)		(N = 263)	
End diastolic volume (ml/m2)	-0.089	0.103	0.256	<0.001
End systolic volume (ml/m2)	-0.134	0.014	0.327	<0.001
Stroke volume (ml/m2)	-0.008	0.878	0.098	0.112
Cardiac output (ml/min/m2)	-0.072	0.187	0.168	0.006
Ejection fraction (%)	0.122	0.025	-0.285	<0.001
Carotid plaque	(N = 248)		(N = 188)	
Wall thickness left (mm)	-0.044	0.488	0.001	0.994
Wall thickness right (mm)	-0.132	0.037	-0.046	0.530

Table S4: Imaging markers of subclinical cardiovascular disease by serum and dietary magnesium

	All	Low serum & dietary Mg	Low serum & high dietary Mg	High serum & low dietary Mg	High serum & dietary Mg	P value
Left ventricular function	N = 287 (91.7%)	N = 71 (24.7%)	N = 61 (21.3%)	N = 70 (24.4%)	N = 85 (29.6%)	
Early diastolic filling rate (ml/s)	229.48 (115.39)	233.10 (117.45)	217.20 (107.66)	220.80 (103.04)	242.40 (128.39)	0.529
Late diastolic filling rate (ml/s)	227.74 (110.88)	229.09 (125.44)	219.41 (104.52)	224.82 (112.71)	234.99 (101.95)	0.859
End diastolic volume (ml/m2)	66.65 (14.81)	66.42 (16.49)	66.42 (16.49)	64.36 (13.00)	68.18 (14.31)	0.437
End systolic volume (ml/m2)	20.73 (8.08)	20.95 (8.62)	20.76 (8.55)	20.00 (6.93)	21.12 (8.26)	0.845
Stroke volume (ml/m2)	45.94 (9.43)	46.36 (9.74)	45.66 (10.62)	44.39 (8.51)	47.05 (8.94)	0.352
Cardiac output (ml/min/m2)	3041.45 (574.70)	3116.56 (609.98)	3046.41 (657.54)	2977.80 (501.93)	3027.58 (538.81)	0.549
Ejection fraction (%)	69.53 (7.27)	69.61 (7.38)	69.46 (7.97)	69.31 (6.50)	69.69 (7.38)	0.990
Peak ejection rate (ml/s)	356.40 (133.62)	368.23 (151.20)	331.74 (117.99)	354.20 (121.53)	366.04 (137.87)	0.379
Myocardial mass (g/m2)	70.71 (12.72)	74.96 (12.40)	67.75 (12.51)	72.16 (12.67)	68.08 (12.20)	0.001
LGE	9 (3.1%)	2 (2.8%)	1 (1.6%)	1 (1.4%)	5 (5.9%)	0.354
Remodeling index (g/ml/m2)	0.57 (0.14)	0.59 (0.15)	0.56 (0.16)	0.58 (0.15)	0.55 (0.11)	0.363
Mean diastolic thickness (mm/m2)	4.81 (0.63)	4.94 (0.69)	4.74 (0.64)	4.81 (0.60)	4.76 (0.58)	0.216
Right ventricular function	N = 263 (84%)	N = 65 (24.7%)	N = 52 (19.8%)	N = 63 (23.9%)	N = 83 (31.6%)	
End diastolic volume (ml/m2)	85.66 (17.65)	88.17 (18.09)	86.85 (19.94)	83.59 (16.21)	84.51 (16.85)	0.431
End systolic volume (ml/m2)	40.52 (12.03)	43.07 (12.45)	41.12 (12.15)	39.59 (11.21)	38.84 (12.06)	0.169
Stroke volume (ml/m2)	45.18 (9.00)	45.16 (8.82)	45.74 (10.55)	43.99 (8.49)	45.74 (8.52)	0.653
Cardiac output (ml/min/m2)	1561.98(1314.1)	3043.38 (608.65)	3022.10 (675.59)	2956.78 (508.55)	2905.67 (524.66)	0.470
Ejection fraction (%)	53.21 (6.89)	51.71 (6.71)	53.08 (6.41)	53.05 (6.94)	54.59 (7.14)	0.090
Carotid plaque	N = 188 (60.1%)	N = 57 (30.3%)	N= 40 (21.3%)	N = 43 (22.9)	N = 48 (25.5%)	
Presence of plaque	41 (21.8%)	11 (19.3%)	6 (15.0%)	12 (27.9%)	12 (25.0%)	0.471
Presence of plaque type						0.135
AHA type I	147 (78.2%)	46 (80.7%)	34 (85.0%)	31 (72.1%)	36 (75.0%)	
AHA type III	28 (14.9%)	7 (12.3%)	5 (12.5%)	8 (18.6%)	8 (16.7%)	
AHA type V	7 (3.7%)	2 (3.5%)	1 (2.5%)	4 (9.3%)	0 (0.0%)	
AHA type VI or VII	6 (3.2%)	2 (3.5%)	0 (0.0%)	0 (0.0%)	4 (8.3%)	
Wall thickness left (mm)	0.75 (0.11)	0.77 (0.13)	0.75 (0.09)	0.74 (0.09)	0.74 (0.11)	0.444
Wall thickness right (mm)	0.76 (0.10)	0.79 (0.11)	0.76 (0.10)	0.73 (0.08)	0.73 (0.11)	0.016

Values are reported as the mean (SD), n (%), unless otherwise indicated