Supplementary Material

Table S1: Choice of breakfast-formulae

	Non-DM		T2DM	
	Without AHD	**With AHD**	**Without AHD**	**With AHD**
Formula 1: cereals	1	1	0	0
Formula 2: yoghurt	4	4	3	1
Formula 3: milk	1	4	3	1
Formula 4: gingerbread	3	6	1	2

Data: frequencies; AHD= antihypertensive drugs; formula 1= 60 g cereals (Special K, Kellogg's), 200 g semi-skimmed milk, 125 g semi-skimmed cottage cheese; formula 2= 90 g light brown bread, 15 g butter (Halvarine, Blue Band), 17 g cream cheese (La vache qui rit), 15 g jam (reduced sugars), 125 g low-fat yoghurt; formula 3= 90 g light brown bread, 200 g semi-skimmed milk, 15 g butter (Halvarine, Blue Band), 15 g jam (reduced sugars), 30 g cheese (Gouda, Hollandic); formula 4= 90 g light brown bread, 15 g butter (Halvarine, Blue Band), 25 g gingerbread (reduced sugars), 30 g cheese (Gouda, Hollandic), 125 g low-fat yoghurt. For nutrient composition we refer to our published protocol-paper [1].

Table S2: Characteristics of participants

	Non-DM		T2DM	
	Without AHD	**With AHD**	**Without AHD**	**With AHD**
N	9	15	7	4
Sex (♀/♂)	5/4	9/6	3/4	1/3
Age (years)	59.7 ± 5.3	59.3 ± 5.8	67.7 ± 5.9	65.0 ± 7.0
Weight (kg)	75.8 ± 13.1	77.8 ± 15.0	74.6 ± 15.8	82.9 ± 8.1
BMI (kg/m²) [range]	25.7 ± 3.9	26.8 ± 5.0	25.5 ± 3.5	27.5 ± 1.8
	[20.9 – 32.7]	[18.2 – 35.5]	[21.1 – 31.9]	[24.9 – 29.0]
Fatmass (%)	31.6 ± 9.7	32.1 ± 9.1	29.7 ± 5.8	29.6 ± 6.0
Waist-to-hip ratio	0.90 ± 0.06	0.91 ± 0.07	0.92 ± 0.14	0.98 ± 0.02
Baseline SBP (mmHg) [range]	115.4 ± 10.7	116.4 ± 11.3	121.2 ± 17.0	131.9 ± 6.7
	[99.0 – 132.3]	[100.2 – 141.5]	[91.2 – 143.7]	[125.3 – 137.8]
Baseline DBP (mmHg) [range]	72,0 ± 6,7	74.4 ± 8.0	73.7 ± 9.4	77.6 ± 5.8
	[61.3 – 85.3]	[60.3 – 89.0]	[58.8 – 88.0]	[72.7 – 84.5]
Baseline mean arterial pressure (mmHg) [range]	86.5 ± 7.8 [74.3 – 101.0]	88.4 ± 8.9 [73.7 – 103.4]	89.5 ± 11.8 [69.6 – 106.6]	95.7 ± 5.0 [90.3 – 102.3]
HbA1c (%)	5.7 ± 0.4	5.9 ± 0.2	7.1 ± 0.7	6.7 ± 0.5
Duration diabetes (years) [range]	NA	NA	9.3 ± 6.4	9.3 ± 4.3
			[5 – 23]	[6 – 15]
Antihyperglycemic drugs (n)	NA	NA	**6**	**4**
-Metformin			5	4
-Sulfonylurea			1	1
-DPP4-inhibitors			0	0
-GLP-1-RA			1	1
-SGLT-2			1	0
-Insulin			1	0
Duration of hypertension (years)[range]	NA	7.5 ± 5.5	NA	9.0 ± 3.2
		[2 – 20]		[6 – 13]
Antihypertensive drugs (n)(%)	NA	**15 (62.5%)**	NA	**4 (36.4%)**
-ACEi		11		1
-ARB		4		3
Lipid-lowering drugs (n)(%)	**2**	**3**	**4**	**3**
-HMG-CoA reductase inhibitors	1	3	4	3
-Fibrates	1	0	0	0
History of smoking (n)	2.2 ± 5.1	3.9 ± 7.6	10.2 ± 16.6	6.3 ± 12.5
Autonomic profile[a]				
-Orthostatic intolerance	2.7 ± 5.3	1.9 ± 5.0	1.7 ± 4.5	4.0 ± 8.0
-Vasomotor function	0.0 ± 0.0	0.3 ± 0.9	0.1 ± 0.3	0.6 ± 1.2
Daytime sleepiness[b]	5.9 ± 3.0	8.2 ± 3.8	6.3 ± 2.4	4.8 ± 1.0

Data: means ± SD or frequencies at first visit; [a]data obtained through the Autonomic Symptoms Profile Questionnaire; [b]data obtained through the Epworth Sleepiness Scale; DPP4= dipeptidylpeptidase-4; GLP-1=glucagon-like peptide-1-receptor agonist; HMG-CoA= 3-hydroxy-3-methylglutaryl-coenzyme A; SGLT-2= sodium glucose-cotransporter 2 inhibitors. No differences between subgroups of T2DM subjects, neither between subgroups of non-diabetic subjects.

Table S3: Autonomic Symptoms Profile Questionnaire

ID	Ortostatic	Vaso-motor	Secreto-motor	Gastro-intestinal	Bladder	Pupillo-motor	Total
Non-DM without AHD							
ngnb101	0	0	6.42	10.68	0	1.65	18.75
ngnb103	0	0	2.14	0.89	0	2.64	5.67
ngnb204	0	0	6.42	0	0	0	6.42
ngnb205	0	0	2.14	0	0	0.33	2.47
ngnb206	0	0	2.14	0.89	1.11	0.66	4.8
ngnb207	0	0	0	2.67	3.33	1.65	7.65
ngnb108	12	0	0	5.34	1.11	0	18.45
ngnb109	0	0	6.42	1.78	0	1.98	10.18
ngnb111	12	0	0	2.67	0	0.99	15.66
Non-DM with AHD							
ngac201	12	0	0	0.89	0	1.32	14.21
ngac102	0	0	2.14	0	1.11	1.65	4.9
ngac104	0	0	0	4.45	0	0	4.45
ngac105	16	1.66	2.14	0.89	2.22	2.64	25.55
ngac206	0	0	0	3.56	1.11	1.65	6.32
ngac107	0	0	2.14	0.89	1.11	0	4.14
ngac108	0	0	2.14	0	1.11	2.64	5.89
ngac109	0	0	0	3.56	0	1.32	4.88
ngac110	0	0	2.14	0	0	0.99	3.13
ngac211	0	0	0	0.89	1.11	1.32	3.32
ngac212	0	0	0	3.56	0	0	3.56
ngab101	0	3.32	8.56	0.89	2.22	2.97	17.96
ngab202	0	0	2.14	1.78	0	0	3.92
ngab203	0	0	2.14	1.78	2.22	0.99	7.13
ngab104	0	0	2.14	0.89	0	0.66	3.69
T2DM without AHD							
dmac201	0	0	8.56	3.56	3.33	0	15.45
dmnb101	0	0	4.28	1.78	0	1.65	7.71
dmnb103	12	0.83	4.28	2.67	3.33	1.32	24.43
dmnb204	0	0	0	2.67	0	0	2.67
dmnb105	0	0	8.56	8.01	0	2.31	18.88
ngnb202	0	0	2.14	0	1.11	0.99	4.24
dmnb207	0	0	2.14	3.56	0	0.99	6.69
T2DM with AHD							
dmab201	16	0	2.14	2.67	4.44	1.98	27.23
dmab202	0	0	0	5.34	0	1.32	6.66
dmab103	0	2.49	6.42	4.45	1.11	1.32	15.79
dmac202	0	0	0	0.89	0	0	0.89

Scoring of questionnaire was done via Sletten et al. (2012) [2], each column represents the total score of the participants within each domain and the last column represents the sum of the scores of all domains multiplied with their Cronbach α coefficient; AHD= antihypertensive drugs.

Table S4: Epworth Sleepiness Scale

ID	ESS_1	ESS_2	ESS_3	ESS_4	ESS_5	ESS_6	ESS_7	ESS_8	ESS_total
Non-DM without AHD									
ngnb101	1	3	1	1	2	0	1	0	9
ngnb103	0	3	1	2	2	0	1	0	9
ngnb204	0	0	1	0	1	0	0	0	2
ngnb205	1	2	1	1	2	0	1	0	8
ngnb206	0	1	0	1	1	0	0	0	3
ngnb207	2	3	1	0	2	0	1	0	9
ngnb108	1	1	0	0	3	0	0	0	5
ngnb109	0	1	0	0	1	0	0	0	2
ngnb111	2	3	0	0	1	0	0	0	6
Non-DM with AHD									
ngac201	2	0	0	0	2	0	0	0	4
ngac102	2	2	2	2	2	1	2	2	15
ngac104	3	3	0	1	3	0	0	0	10
ngac105	2	2	0	0	2	0	0	0	6
ngac206	1	0	0	3	3	0	2	0	9
ngac107	0	3	1	0	2	0	3	0	9
ngac108	3	3	2	2	2	1	2	2	17
ngac109	1	1	0	0	2	0	1	0	5
ngac110	1	2	0	1	3	0	0	0	7
ngac211	1	2	0	missing	3	0	2	0	8
ngac212	0	2	0	0	3	0	0	0	5
ngab101	missing	missing	missing	missing	missing	missing	missing	missing	missing
ngab202	1	3	0	1	2	0	1	0	8
ngab203	1	2	0	0	2	0	2	0	7
ngab104	1	0	0	0	2	0	2	0	5
T2DM without AHD									
dmac201	3	2	1	1	2	0	0	0	9
dmnb101	1	3	1	missing	3	0	0	0	8
dmnb103	0	0	0	0	3	0	0	0	3
dmnb204	0	2	1	0	2	0	1	0	6
dmnb105	0	3	0	0	3	0	1	0	7
ngnb202	0	1	0	1	1	0	0	0	3
dmnb207	2	3	0	0	3	0	0	0	8
T2DM with AHD									
dmab201	0	2	0	0	2	0	0	0	4
dmab202	missing	2	0	1	2	0	1	0	6
dmab103	1	2	0	0	1	0	0	0	4
dmac202	0	2	0	0	2	0	1	0	5

Scoring of questionnaire was done via Sander et al. (2016) [3]; *AHD= antihypertensive drugs; ESS_x= represents number of question within the questionnaire 'Epworth Sleepiness Scale'; ESS_total= represents total score on the questionnaire, calculated via sum of each ESS_x.*

Table S5: Fasting blood results

	Non-DM				T2DM			
	Without AHD		**With AHD**		**Without AHD**		**With AHD**	
	CF	**placebo**	**CF**	**placebo**	**CF**	**placebo**	**CF**	**placebo**
Glucose (fasting) (mg/dL)	**94.2 ± 9.1**	**90.0 ± 8.0 ∫**	98.8 ± 6.8	**100.5 ± 7.4***	125.9 ± 19.0	124.6 ± 10.9	131.0 ± 25.7	132.3 ± 26.0
Insulin (mU/L)	9.0 ± 7.7	7.9 ± 5.3	11.1 ± 5.8	11.1 ± 5.2	8.0 ± 7.1	7.6 ± 5.3	12.2 ± 2.7	12.9 ± 6.1
HOMA[a]	2.2 ± 2.0	1.8 ± 1.3	2.6 ± 1.4	2.8 ± 1.3	2.6 ± 2.5	2.4 ± 1.7	3.9 ± 1.0	4.1 ± 1.6
QUICKI[b]	0.35 ± 0.03	0.36 ± 0.03	0.34 ± 0.02	0.33 ± 0.02	0.35 ± 0.05	0.35 ± 0.04	0.31 ± 0.01	0.31 ± 0.02
Uric acid (mg/dL)	4.5 ± 0.9	4.6 ± 1.0	4.8 ± 1.0	5.0 ± 1.4	4.9 ± 1.3	5.0 ± 1.2	5.3 ± 0.7	5.5 ± 0.7
Triglycerides (mg/dL)	107.3 ± 36.4	92.6 ± 24.3	111.4 ± 40.7	116.1 ± 49.0	115.4 ± 48.7	104,4 ± 36.0	171.6 ± 99.8	125.6 ± 52.1
FFA (nmol/L)	0.57 ± 0.12	0.48 ± 0.10	0.54 ± 0.19	0.59 ± 0.23	0.66 ± 0.12	**0.63 ± 0.11**	0.43 ± 0.11	**0.42 ± 0.08***
HDL-cholesterol (mg/dL)	56.7 ± 12.6	56.1 ± 12.8	58.5 ± 22.0	59.1 ± 16.2	51.2 ± 15.7	52.5 ± 19.2	55.1 ± 13.6	56.1 ± 15.9
LDL-cholesterol (mg/dL)[c]	121.2 ± 30.1	121.9 ± 28.7	129.2 ± 39.6	125.7 ± 41.6	96.5 ± 36.8	97.6 ± 38.1	78.0 ± 17.7	83.8 ± 8.5
Total cholesterol (mg/dL)	199.4 ± 38.0	196.6 ± 36.9	210.0 ± 53.2	208.0 ± 51.7	170.7 ± 48.2	171.0 ± 50.6	167.4 ± 23.3	165.0 ± 23.4
CRP (mg/dL)	**1.1 ± 0.6**	2.2 ± 2.9	**3.0 ± 4.1***	3.1 ± 5.5	1.6 ± 0.6	1.7 ± 0.6	2.1 ± 1.6	1.2 ± 0.5
Vitamin C (mg/dL)	0.6 ± 0.3	0.7 ± 0.4	0.7 ± 0.3	0.7 ± 0.3	0.7 ± 0.3	0.7 ± 0.3	0.4 ± 0.1	0.4 ± 0.2
Vitamin A (µg/dL)[d]	61.8 ± 9.7		70.9 ± 14.0		74.5 ± 16.6		74.2 ± 14.8	
Vitamin E (mg/dL)[d]	1.2 ± 0.2		1.3 ± 0.4		1.2 ± 0.3		1.2 ± 0.3	
Haptoglobin (g/L)[d]	0.8 ± 0.3		1.1 ± 0.4		1.2 ± 0.7		1.2 ± 0.5	

Data: means ± standard deviation (SD) or frequencies at first visit unless specified differently; [a]calculated via fasting insulin (mU/L) x fasting glucose (mg/dL) / 405; [b]calculated via 1/(log(insulin (mU/L))+log(glucose (mg/dL))); [c]calculated via the Friedewald Formula; [d]only measured once, at first visit; AHD= antihypertensive drugs; CF= cocoa flavanols; CRP= C-reactive protein; FFA= free fatty acids; HDL= high density lipoprotein; LDL= low density lipoprotein; *= differences between subgroups (p<0.025); ∫= significant difference between both visits (p<0.025).

Table S6: Results of additional outcome measurements

	Non-DM		T2DM	
	Without AHD	**With AHD**	**Without AHD**	**With AHD**
Accelerometry:				
Wearing time (minutes/day)	867.5 ± 21.4	879.4 ± 11.3	826.6 ± 64.8	869.5 ± 25.3
Valid days (days/week)	6.9 ± 0.3	6.8 ± 0.6	6.9 ± 0.4	6.2 ± 1.5
Step counts (n/day)	7677.7 ± 2041.1	7427.1 ± 3079.7	6593.9 ± 2239.0	6593.6 ± 2699.6
Moderate (minutes/week)	356.2 ± 178.5	292.8 ± 243.6	194.9 ± 136.0	171.5 ± 181.3
Vigorous (minutes/week)	6.7 ± 14.3	6.1 ± 14.7	8.6 ± 21.8	3.0 ± 5.4
Very vigorous (minutes/week)	0.1 ± 0.3	1.1 ± 4.4	0.0 ± 0.0	3.5 ± 7.0
MVPA (minutes/week)	363.0 ± 181.5	300.1 ± 251.9	203.4 ± 140.8	178.0 ± 184.6
Continuous Glucose Monitoring System:				
Glycemic excursions:				
% time in range (70-180 mg/dL)	96.3 ± 4.6	97.6 ± 2.6	89.7 ± 10.6	70.5 ± 12.8
% time in hypoglycemic range				
<70 mg/dL	1.4 ± 2.2	1.0 ± 1.5	0.0 ± 0.0	2.3 ± 4.1
% time in hyperglycemic range				
>180 mg/dL	2.3 ± 4.1	1.4 ± 2.2	10.3 ± 10.6	27.2 ± 16.2
>250 mg/dL	0.2 ± 0.6	0.1 ± 0.2	0.9 ± 1.2	2.5 ± 2.6
Area under curve (mg/dL/minute)				
Below 70mg/dL	0.1 ± 0.2	0.1 ± 0.1	0.0 ± 0.0	0.3 ± 0.6
Above 180 mg/dL	0.7 ± 1.2	0.3 ± 0.6	3.0 ± 3.4	8.4 ± 5.5
Above 250 mg/dL	0.1 ± 0.3	0.0 ± 0.1	0.2 ± 0.4	1.2 ± 1.1
Glycemic variability:				
Standard deviation (mg/dL)	20.5 ± 10.0	19.3 ± 7.3	29.4 ± 8.9	40.3 ± 8.7
Coefficient of variation (%)[a]	18.1 ± 8.1	16.9 ± 6.1	21.1 ± 5.4	27.0 ± 9.8
MAGE (mg/dL)	46.8 ± 23.9	44.0 ± 20.1	71.8 ± 22.3	97.0 ± 19.6
Low blood glucose index	0.7 ± 0.6	0.5 ± 0.4	0.1 ± 0.1	0.6 ± 1.0
High blood glucose index	0.7 ± 0.9	0.6 ± 0.5	2.7 ± 1.6	5.4 ± 2.8
Data sufficiency (%)	100.0 ± 0.0	99.8 ± 0.5	99.9 ± 0.1	99.8 ± 0.2
Days CGM worn (n)	6.0 ± 0.0	5.8 ± 0.6	6.0 ± 0.0	6.0 ± 0.0

Data: means ± standard deviation (minimum – maximum); [a]calculated by mean blood glucose divided by standard deviation; AHD= antihypertensive drugs; MAGE= mean amplitude of glycemic excursions; MVPA= moderate to vigorous physical activity. No significant differences between subgroups of T2DM subjects, neither between subgroups of non-diabetic subjects.

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2.   Sletten DM, Suarez GA, Low PA, Mandrekar J, Singer W, editors. COMPASS 31: a refined and abbreviated Composite Autonomic Symptom Score. *Mayo Clinic Proceedings*; 2012: Elsevier.

3.   Sander C, Hegerl U, Wirkner K, Walter N, Kocalevent R-D, Petrowski K, et al. Normative values of the Epworth Sleepiness Scale (ESS), derived from a large German sample. *Sleep and Breathing* (2016) 20(4):1337-45.