

## Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Larsen TM, Dalskov S-M, van Baak M, et al. Diets with high or low protein content and glycemic index for weight-loss maintenance. *N Engl J Med* 2010;363:2102-13.

Online Supplement.

*Urinary analyses*

Urinary nitrogen was determined by Dumas combustion methodology, using a VarioMax CN analyzer (Elementar, Hanau, Germany) and urinary PABA by spectrophotometry (Stasar, Gilford Instruments Laboratories, Oberlin, USA). Plasma urea nitrogen concentration was analyzed by colorimetric assays (Ortho-Clinical Diagnostics, Johnson & Johnson, Birkerød, Denmark)

*Adverse Events reported during the 26 week dietary intervention period*

	LP		HP		CTR
	LGI	HGI	LGI	HGI	
<b>Cardiovascular disorders</b>					
Angina				1	
Hypertension	1		2		4
Lymphedema	1		1		1
Phlebitis					1
Thrombosis			1		1
<b>TOTAL</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>7</b>
<b>Nervous system disorders</b>					
Anxiety		1	1	1	1
Brain injury			1		1
Depressed mood		1	1	1	2
Dizziness	2	1	2		2
Headache	21	13	12	11	13
Insomnia		1			
Migraine	2	3	3	2	3
Sleeplessness					1
Stress			2		
<b>TOTAL</b>	<b>25</b>	<b>20</b>	<b>22</b>	<b>15</b>	<b>23</b>
<b>Gastrointestinal disorders</b>					
Stomach pain	7	1	5		2
Gastric pain	2		2		1
Gastroenteritis	3	4	6	3	1
Constipation	2		1	2	3
Diarrhea	3	2	3	4	3
Obstipation		2	2		
Oesophageal immobility					1
Menstruation pain	1	2	8		3
Cholelithiasis	2	2	2	1	
Dental problems			3	3	1
<b>TOTAL</b>	<b>20</b>	<b>13</b>	<b>32</b>	<b>13</b>	<b>15</b>
<b>Infections and infestations</b>					
Virus infection (influenza)	37	17	23	21	32
Infection (other)	6	2	7	3	8
Sinus infection			1		
Eye infection	1	2			1
Bronchitis				2	1
Pneumonia	2				
Asthma			1		
Allergic reaction	3	2	1	6	3
Pharyngitis	1			1	
Coughing	1		3	1	
<b>TOTAL</b>	<b>51</b>	<b>23</b>	<b>36</b>	<b>34</b>	<b>45</b>

<b>Musculoskeletal and connective tissue disorders</b>					
Pain in extremities	5	2	9	8	8
Back pain	3	3	5	4	9
Muscle pain	1		1		
Osteoarthritis				1	1
<b>TOTAL</b>	<b>9</b>	<b>5</b>	<b>15</b>	<b>13</b>	<b>18</b>
<b>Other Endocrinological disorders</b>					
Hypothyroidism		1	2		
Kidney stones					1
PCOS				1	
<b>TOTAL</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>Injury, poisoning and procedural complications</b>					
Cosmetic surgery	1		2		1
Hernia surgery			1	1	
Injury (minor)	1			3	
Insect bite	1	1	3		1
Abortion					1
<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>4</b>	<b>3</b>
<b>Other</b>					
Anemia		1	1	1	1
Hair loss	3	1		2	
Skin disorder			2	1	1
Pregnancy					1
Other	15	9	6	16	11
<b>TOTAL</b>	<b>18</b>	<b>11</b>	<b>9</b>	<b>20</b>	<b>14</b>
<b>Total number of AE</b>	<b>128</b>	<b>74</b>	<b>126</b>	<b>101</b>	<b>126</b>
<b>Rate of AE per participant*</b>	<b>1.21</b>	<b>0.76</b>	<b>1.02</b>	<b>0.94</b>	<b>1.11</b>

\*The rate of AE in the five diets were compared by Poisson-regression (overall difference p=0.02)

**Table 2. Mean unadjusted changes in body weight and anthropometry from randomisation to post-intervention, energy and nutrient intake, and markers of compliance in the 5 dietary groups at baseline (week -9 to-11) to post-intervention (week 26).**

		LP				HP				CTR diet	
		LGI		HGI		LGI		HGI			
<b>Anthropometry</b>		N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD
Body weight (kg)	Rand → W26	106	0.33±4.85	97	1.67±5.19	124	-0.38±6.47	107	0.57±5.52	114	0.84±4.76
FFM (kg)	Rand → W26	86	0.86±2.29	75	1.59±2.55	102	0.54±3.45	87	1.00±4.71	93	1.37±3.10
FM (kg)	Rand → W26	86	-0.98±4.63	75	-0.10±4.60	102	-1.03±5.25	87	-0.22±5.88	93	-0.78±4.41
Waist circumference (cm)	Rand → W26	101	0.48±7.08	91	0.87±7.03	115	-0.30±6.42	101	1.14±6.49	105	0.74±5.58
Hip circumference (cm)	Rand → W26	104	-0.63±6.24	92	0.20±5.95	117	-0.53±5.93	100	-0.56±5.74	108	-0.30±5.07
Sagittal diameter (cm)	Rand → W26	101	0.12±1.62	92	0.26±2.00	114	-0.09±1.92	100	-0.06±2.18	110	0.26±2.33
<b>Energy and nutrient intake</b>											
		N	Intake	N	Intake	N	Intake	N	Intake	N	Intake
Energy intake (kJ/d)	Screening	140	9200±3451	141	9924±3341	151	9520±3186	142	9471±3319	139	9440±2914
	Week 4	94	5814±2307	109	6151±2073	128	6653±2655	109	6109±1904	119	6722±2353
	Week 26	78	6946±2586	69	6859±2515	100	7264±2698	82	6588±2256	84	7255±2866
	Δ S →W26	76	-2198±3761	64	-2280±3130	98	-2183±3134	76	-2470±2535	79	-2257±3306

CHO intake (E %)	Screening	140	42.2± 8.4	141	44.5± 8.4	151	43.8± 8.5	142	44.6± 8.6	139	43.4± 8.6
	Week 4	94	53.4± 10.6	109	50.6± 11.0	128	45.1± 8.3	109	46.4± 7.5	119	46.9± 9.0
	Week 26	78	51.5± 9.3	69	50.9± 9.3	100	45.5± 8.1	82	45.5± 6.5	84	46.9± 9.0
	Δ S →W26	76	8.6± 9.1	64	6.4± 9.6	98	0.8± 10.6	76	0.1± 7.6	79	3.0± 8.9
	Screening	140	37.5± 7.5	141	36.5± 7.0	151	36.5± 7.4	142	36.2± 7.3	139	37.1± 7.2
Total fat intake (E %)	Week 4	94	28.1± 10.0	109	28.9± 8.4	128	31.6± 8.5	109	30.1± 7.7	119	31.9± 8.7
	Week 26	78	29.6± 8.0	69	30.4± 8.8	100	31.2± 8.0	82	31.2± 7.2	84	32.4± 8.0
	Δ S →W26	76	-7.7± 9.3	64	-5.6± 9.7	98	-4.5± 9.8	76	-5.0± 8.4	79	-3.7± 8.9
	Screening	125	12.8± 4.0	125	12.6± 3.9	133	12.6± 4.1	129	12.4± 4.3	126	12.6± 4.4
	Saturated fat (E%)	Week 4	80	5.8± 4.5	94	5.7± 3.6	112	7.7± 4.7	91	6.8± 3.3	97
Week 26		64	7.6± 4.9	57	7.9± 5.3	85	7.8± 4.2	67	7.2± 3.7	71	8.1± 4.7
Δ S →W26		64	-5.3± 5.5	55	-4.1± 5.6	83	-4.7± 6.3	66	-5.5± 5.2	69	-4.2± 5.9
Screening		125	12.4± 5.7	125	11.3± 5.2	133	11.4± 5.0	128	11.8± 5.6	125	11.5± 4.9
Monounsaturated fat (E%)		Week 4	80	6.1± 4.9	91	6.6± 4.7	111	7.6± 5.7	91	6.7± 3.9	97
	Week 26	64	7.3± 4.5	55	7.1± 4.5	83	7.2± 4.4	66	7.3± 3.9	69	7.0± 3.7
	Δ S →W26	64	-5.1± 6.6	55	-3.2± 5.2	83	-3.1± 5.2	66	-4.1± 5.5	69	-3.9± 5.3
	Screening	125	8.2± 5.1	125	7.9± 5.2	133	7.6± 4.7	128	7.4± 4.5	125	8.1± 5.0
	Polyunsaturated fat (E%)	Week 4	80	4.4± 4.0	91	4.8± 3.7	111	5.6± 4.7	91	5.1± 3.6	97
Week 26		64	5.7± 6.0	55	6.6± 5.1	83	5.5± 4.0	66	5.3± 3.8	69	5.6± 4.5
Δ S →W26		64	-2.9± 5.6	55	-2.2± 4.4	83	-2.5± 4.5	66	-2.5± 3.7	69	-3.1± 4.9

Protein intake (E %)	Screening	140	18.3± 5.0	141	16.9± 4.0	151	17.2± 4.1	142	16.5± 3.8	139	16.9± 4.4
	Week 4	94	17.8± 4.7	109	18.6± 5.0	128	21.5± 4.6	109	22.1± 5.4	119	19.6± 4.5
	Week 26	78	17.8± 5.1	69	17.0± 3.7	100	21.6± 5.0	82	21.9± 5.6	84	18.6± 4.0
	Δ S →W26	76	-0.1± 5.2	64	-0.2± 4.8	98	4.5± 5.1	76	6.1± 6.0	79	1.8± 5.0
Alcohol intake (E %)	Screening	140	2.1± 5.5	141	2.1± 3.2	151	2.5± 4.0	142	2.8± 3.9	139	2.6± 4.7
	Week 4	94	0.7± 1.6	109	2.0± 4.2	128	1.7± 3.4	109	1.4± 3.2	119	1.6± 3.4
	Week 26	78	1.2± 2.8	69	1.7± 3.1	100	1.6± 3.5	82	1.4± 2.6	84	2.1± 3.3
	Δ S →W26	76	-0.7± 6.7	64	-0.7± 3.4	98	-0.8± 3.6	76	-1.3± 4.0	79	-1.1± 4.3
Glycemic Index	Screening	140	60.9± 5.4	141	60.9± 4.0	151	60.8± 5.2	142	61.4± 4.6	139	61.7± 4.8
	Week 4	94	55.4± 5.3	109	60.6± 5.9	128	57.5± 5.4	109	61.3± 6.6	119	58.5± 5.9
	Week 26	78	56.4± 4.7	69	61.3± 5.1	100	56.5± 5.5	82	61.1± 5.4	84	58.8± 4.9
	Δ S →W26	76	-4.7± 7.2	64	0.7± 5.9	98	-4.3± 6.7	76	0± 6.1	79	-2.3± 6.1
Glycemic Load (g/d)	Screening	140	138.5± 53.7	141	159.2± 62.6	151	149.3± 60.3	142	152.1± 65.9	139	148.0± 55.2
	Week 4	94	101.2± 43.8	109	111.2± 46.5	128	100.1± 41.6	109	103.6± 41.6	119	110.1± 50.5
	Week 26	78	120.9± 56.5	69	124.7± 53.2	100	110.4± 47.2	82	108.2± 42.0	84	119.4± 55.3
	Δ S →W26	76	-17.5± 62.5	64	-21.3± 65.5	98	-40.4± 57.2	76	-39.0± 46.3	79	-30.4± 59.6
Simple sugars (g/d)	Screening	125	80.1± 50.0	125	91.8± 48.9	133	84.5± 52.6	128	88.8± 67.8	125	78.4± 38.8
	Week 4	90	58.5± 36.8	94	70.9± 34.9	117	60.8± 36.6	101	59.3± 28.9	105	69.1± 37.0
	Week 26	70	74.5± 49.6	57	71.3± 44.4	88	67.2± 35.9	72	61.9± 29.6	73	73.1± 39.7
	Δ S →W26	64	3.5± 48.4	55	-14.8± 58.3	83	-22.5± 57.9	66	-27.3± 37.2	69	-8.9± 41.7
Fiber (g/day)	Screening	140	19.3± 8.9	141	18.7± 8.2	151	19.8± 8.6	143	18.9± 8.1	139	19.5± 8.0
	Week 4	94	21.5±	109	20.5±	128	19.4±	109	18.8±	119	19.9±

	Week 26		10.4		9.2		8.4		7.6		8.0
	Δ S →W26	78	22.4± 11.2	69	19.6± 9.7	100	20.9± 11.4	82	18.6± 7.8	85	20.1± 10.5
		76	1.7± 14.7	64	1.6± 10.4	98	1.6± 13.5	76	0.1± 7.6	80	0.1± 11.7
Starch (g/day)	Screening	125	114.6± 48.1	125	134.2± 58.4	133	127.1± 57.3	128	126.5± 51.3	125	128.5± 54.0
	Week 4	82	94.5± 50.0	94	99.0± 47.2	112	91.1± 42.0	100	90.6± 40.8	105	90.4± 49.3
	Week 26	65	101.4± 54.6	57	117.3± 56.0	85	96.5± 47.7	72	94.7± 44.7	73	95.6± 47.0
	Δ S →W26	64	-14.8± 67.2	55	-13.8± 75.6	83	-30.7± 54.0	66	-29.0± 46.6	69	-39.9± 54.7
<b>Markers of dietary compliance</b>											
24 hour urinary nitrogen excretion (mg/L)	Screening	136	8529.0± 3818.0	143	8046.9± 3455.9	148	8168.5± 3457.4	147	8238.0± 3485.9	141	8873.6± 3584.4
	Week 4	121	6855.9± 3974.4	115	7023.1± 3674.6	128	7425.9± 3546.5	124	7847.2± 3583.9	127	7361.7± 3585.9
	Week 14	98	7572.9± 3784.3	87	7372.8± 3742.1	110	7392.2± 3322.8	108	8983.6± 3965.5	115	7300.1± 3478.4
	Week 26	97	8066.3± 4091.8	95	7470.3± 3354.2	110	8072.9± 3977.5	103	8430.1± 3457.5	109	7522.2± 3318.8
	Δ S →W26	88	-313.7± 3958.3	89	-826.1± 3852.9	103	161.9± 3741.4	97	-156.7± 3667.9	102	-903.2± 3575.7
24 hour urinary PABA excretion (recovery percentage)	Screening	136	121.3± 62.3	142	126.6± 70.8	145	118.2± 60.6	144	129.0± 61.1	139	143.0± 73.1
	Week 4	118	111.4± 63.7	110	115.6± 65.1	125	110.7± 60.1	115	114.8± 68.1	125	110.9± 64.5
	Week 14	95	117.0± 58.2	84	114.1± 72.1	109	104.3± 52.0	107	119.2± 70.0	111	109.6± 61.9
	Week 26	98	117.3± 70.4	92	96.0± 60.7	107	101.3± 53.8	100	114.5± 61.1	110	111.9± 63.1
	Δ S →W26	89	-8.2± 76.2	87	-30.0± 75.8	99	-11.0± 59.0	94	-23.8± 64.7	100	-25.2± 72.6
Plasma urea (mmol/L)	Screening	149	4.9± 1.3	152	4.7± 1.2	157	4.8± 1.3	154	4.6± 1.3	152	4.8± 1.2
	Week 26	107	4.9± 1.3	92	4.7± 1.2	121	5.3± 1.2	108	5.1± 1.2	115	4.9± 1.3

	$\Delta S \rightarrow W26$	106	0.1± 1.2	90	0.2± 1.0	120	0.4± 1.1	108	0.4± 1.2	115	0.1± 1.0
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Abbreviations in table: Body Weight (BW), Fat Free Mass (FFM), Fat Mass (FM), Carbohydrates (CHO), Low Glycemic Index (LGI), Low Protein (LP), High Glycemic Index (HGI), HP (High Protein), change from screening to week 26 ( $\Delta S \rightarrow W26$ )

Data on  $\Delta S \rightarrow W26$  are provided for subjects who completed registration of dietary intake at both screening and at week 26.

Data are presented as means  $\pm$  SD

The Online Supplement contains a more detailed description of the dietary intake and compliance markers.