

A randomised controlled study shows supplementation of overweight and obese adults with lactobacilli and bifidobacteria reduces bodyweight and improves well-being

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SUPPLEMENTARY DATA

Supplementary Figure S1. Quality of Life Questionnaire (QoLQ)

Participant number:			
Date (dd/mm/yy):			
Stage of trial (please circle as appropriate)	1	2	3

Over the period of the last 3 months, how would you rate your:											
(please circle as appropriate with a score of 0 being very poor and a score of 10 being very good)											
General wellness	0	1	2	3	4	5	6	7	8	9	10
State of health	0	1	2	3	4	5	6	7	8	9	10
State of energy	0	1	2	3	4	5	6	7	8	9	10
State of mood	0	1	2	3	4	5	6	7	8	9	10
Sleep quality	0	1	2	3	4	5	6	7	8	9	10

Supplementary Table S1: Physiological changes from baseline in the total study population

Outcome	Group(s)	3 months		6 months		
		% change	<i>p</i> value	Difference (95% CI)	% change	<i>p</i> value
Weight (kg)	Between	-0.01	0.9843	-1.30 (-1.77, -0.83)	-1.53	<0.0001
	Active	0.05	0.7994	-1.34 (-1.68, -1.01)	-1.57	<0.0001
	Placebo	0.06	0.7779	-0.04 (-0.38, 0.29)	-0.05	0.7994
BMI (kg/m²)	Between	0.00	0.9956	-0.45 (-0.62, -0.28)	-1.54	<0.0001
	Active	0.07	0.7448	-0.47 (-0.59, -0.35)	-1.61	<0.0001
	Placebo	0.07	0.7390	-0.02 (-0.13, 0.10)	-0.07	0.7736
WC (cm)	Between		NM	-0.94 (-1.35, -0.52)	-0.94	<0.0001
	Active		NM	-0.93 (-1.22, -0.63)	-0.93	<0.0001
	Placebo		NM	0.01 (-0.29, 0.30)	0.01	0.9549
WtHR	Between		NM	-0.006 (-0.009, -0.003)	-1.19	<0.0001
	Active		NM	-0.006 (-0.008, -0.004)	-1.02	<0.0001
	Placebo		NM	0.001 (-0.001, 0.003)	0.17	0.5347
SBP (mmHg)	Between	0.43	0.6035	0.69 (-1.40, 2.77)	0.47	0.5168
	Active	0.50	0.3897	-2.28 (-3.75, -0.81)	-1.77	0.0026
	Placebo	0.07	0.9002	-2.92 (-4.43, -1.49)	-2.24	<0.0001
DBP (mmHg)	Between	-0.21	0.8283	-0.44 (-2.00, 1.13)	-0.54	0.5389
	Active	-0.25	0.7165	-0.82 (-1.93, 0.29)	-1.04	0.1451
	Placebo	-0.04	0.9550	-0.39 (-1.50, 0.72)	-0.49	0.4930

Data is presented as mean change (110 participants per group) with 95% confidence intervals (CIs) and *p* values calculated using a linear mixed model (LMM).

Abbreviations: BMI, body mass index; WC, waist circumference; WtHR, waist to height ratio; SBP, systolic blood pressure; DBP, diastolic blood pressure; NM, not measured

Supplementary Table S2: Body weight changes from baseline in the stratified subgroups at 6 months.

Stratification	Group(s)	n	Baseline Mean (SD)	6 Months			
				Difference (95% CI)	%	p value	
BMI (SG1)	<30 (SG1a)	Between	71/78	-1.40 (-1.95, -0.84)	-1.88	<0.0001	
		Active	71	79.14(10.05)	-1.50 (-1.90, -1.10)	-1.90	<0.0001
		Placebo	78	80.03(9.74)	-0.10 (-0.48, 0.28)	-0.01	0.6080
	≥30 (SG1b)	Between	39/32	-1.16 (-2.08, -0.23)	-1.20	0.0147	
		Active	39	96.15(11.32)	-1.06 (-1.68, -0.45)	-1.10	0.0010
		Placebo	32	93.58(10.46)	0.09 (-0.59, 0.78)	0.10	0.7863
Gender (SG2)	Male (SG2a)	Between	44/43	-1.31 (-1.86, -0.76)	-1.36	<0.0001	
		Active	44	96.50(10.16)	-1.36 (-1.74, -0.97)	-1.41	<0.0001
		Placebo	43	92.16(10.17)	-0.05 (-0.44, 0.34)	-0.05	0.7906
	Female (SG2b)	Between	66/67	-1.26 (-1.96, -0.56)	-1.62	0.0005	
		Active	66	77.62(9.10)	-1.32 (-1.81, -0.82)	-1.70	<0.0001
		Placebo	67	78.71(9.36)	-0.06 (-0.55, 0.44)	-0.08	0.8259
TC (SG3)	<5.2 (SG3a)	Between	56/52	-1.28 (-2.01, -0.56)	-1.47	0.0007	
		Active	56	86.96(13.92)	-1.36 (-1.86, -0.86)	-1.56	<0.0001
		Placebo	52	85.48(12.09)	-0.08 (-0.60, 0.44)	-0.09	0.7717
	5.2-6.19 (SG3b)	Between	33/33	-0.70 (-1.54, 0.14)	-0.80	0.1010	
		Active	33	84.70(13.23)	-1.21 (-1.80, -0.62)	-1.43	0.0001
		Placebo	33	81.42(12.29)	-0.51 (-1.11, 0.08)	-0.63	0.0866
≥6.2 (SG3c)	Between	21/25	-2.08 (-3.04, -1.12)	-2.54	<0.0001		
	Active	21	81.14(11.04)	-1.47 (-2.17, -0.76)	-1.81	0.0001	
	Placebo	25	84.18(9.66)	0.61 (-0.04, 1.26)	0.72	0.0637	
Age (SG4)	<40 (SG4a)	Between	34/26	-1.13 (-1.99, -0.28)	-0.73	0.0103	
		Active	34	87.44(13.08)	-0.89 (-1.45, -0.33)	-1.02	0.0024
		Placebo	26	84.54(10.38)	0.24 (-0.40, 0.88)	-0.28	0.4546
	40-49 (SG4b)	Between	36/37	-0.97 (-1.69, -0.25)	-1.21	0.0087	
		Active	36	81.50(11.77)	-1.33 (-1.84, -0.82)	-1.63	<0.0001
		Placebo	37	84.57(13.35)	-0.36 (-0.86, 0.15)	-0.43	0.1630
≥50 (SG4c)	Between	40/47	-1.76 (-2.64, -0.87)	-2.02	0.0002		
	Active	40	86.55(14.33)	-1.72 (-2.37, -1.08)	-1.99	<0.0001	
	Placebo	47	83.18(11.13)	0.03 (-0.56, 0.63)	0.04	0.9171	

Data is presented as mean change (110 participants per group) with 95% CIs and p values calculated using a generalized mixed model (GLM).

Abbreviations: n, number of participants; BMI, body mass index; WC, waist circumference; WtHR, waist to height ratio; SBP, systolic blood pressure; DBP, diastolic blood pressure; NM, not measured.

Supplementary Table S3: Changes from baseline in plasma biochemistry in SG3c (TC \geq 6.2 mmol/L)

Outcome	Group(s)	n	Baseline Mean (SD)	SG3c: TC \geq 6.2 mmol/L		
				Difference (95% CI)	% change	p value
TC (mmol/L)	Between	21/25		-0.083 (-0.60, 0.44)	-1.28	0.7481
	Active	21	6.92(0.50)	-0.558 (-0.94, -0.18)	-8.06	0.0053
	Placebo	25	7.00(0.87)	-0.475 (-0.83, -0.12)	-6.79	0.0092
HDL-C (mmol/L)	Between	21/25		-0.056 (-0.21, 0.09)	-3.15	0.4523
	Active	21	1.52(0.39)	-0.121 (-0.23, -0.01)	-7.96	0.0308
	Placebo	25	1.33(0.35)	-0.064 (-0.16, 0.04)	-4.81	0.2002
LDL-C (mmol/L)	Between	21/25		-0.305 (-0.68, 0.07)	-6.59	0.1048
	Active	21	4.58(0.52)	-0.396 (-0.67, -0.12)	-8.65	0.0055
	Placebo	25	4.43(0.94)	-0.091 (-0.34, 0.16)	-2.05	0.4694
sdLDL-C (mmol/L)	Between	19/22		-0.220 (-0.41, -0.03)	-17.60	0.0241
	Active	19	1.25(0.51)	-0.190 (-0.33, -0.05)	-15.20	0.0090
	Placebo	22	1.29(0.53)	0.031 (-0.100, 0.16)	2.40	0.6272
TG (mmol/L)	Between	21/25		0.558 (-0.19, 1.31)	18.60	0.1418
	Active	21	1.89(1.32)	0.049 (-0.49, 0.59)	2.59	0.8570
	Placebo	25	3.18(2.59)	-0.509 (-1.00, -0.01)	-16.01	0.0444

Data is presented as mean change with 95% CIs and p values were calculated using a GLM.

Abbreviations: n, number of participants; TC, total cholesterol; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; sdLDL-C, small dense LDL, TG, triglycerides; CRP, C-reactive protein.

Supplementary Table S4: Changes from baseline in quality of life questionnaire (QoLQ) scores in the active and placebo groups of the total study population

Outcome	Group(s)	3 months			6 months		
		Difference (95% CI)	% change	<i>p</i> value	Difference (95% CI)	% change	<i>p</i> value
General Wellness	Active	0.89 (0.64, 1.15)	11.63	<0.0001	0.84 (0.58, 1.10)	10.98	<0.0001
	Placebo	0.41 (0.15, 0.66)	5.29	0.0022	0.42 (0.17, 0.68)	5.42	0.0014
State of Health	Active	0.59 (0.33, 0.84)	7.40	<0.0001	0.48 (0.22, 0.73)	6.02	0.0003
	Placebo	0.13 (-0.12, 0.38)	1.62	0.3065	0.24 (-0.01, 0.49)	2.99	0.0622
State of Energy	Active	0.65 (0.38, 0.92)	8.50	<0.0001	0.52 (0.24, 0.79)	6.80	0.0002
	Placebo	0.23 (-0.04, 0.50)	2.97	0.0969	0.43 (0.16, 0.70)	5.55	0.0021
State of Mood	Active	0.65 (0.39, 0.91)	8.31	<0.0001	0.67 (0.41, 0.92)	8.57	<0.0001
	Placebo	0.25 (-0.01, 0.51)	3.20	0.0559	0.59 (0.33, 0.85)	7.55	<0.0001
Sleep Quality	Active	0.41 (0.08, 0.74)	5.35	0.0140	0.30 (-0.03, 0.62)	3.92	0.0781
	Placebo	0.17 (-0.16, 0.50)	2.16	0.3150	0.51 (0.18, 0.84)	6.47	0.0024

Data is presented as mean changes (110 participants per group) with 95% CIs and *p* values were calculated using a LMM.