Online Supplemental Information

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Supplemental Tables

Supplemental Table S1: PRISMA Checklist

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2-3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	5
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5-6, Supplemental Table S2
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5, Supplemental Table S1
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Supplemental Table S1
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5-6, Figure 1
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6

Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6, Supplemental Table S2
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6-7
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	7-8
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	8
Section/topic	**#**	**Checklist item**	**Reported on page #**
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	9
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	7-10
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	10, Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	10-11, Table 1, Supplemental Tables S2-S3
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	11, Supplemental Figures S1-S2
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	11-13, Figures 2-3, Supplemental Figures S3-S7
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	11-13, Figures 2-3, Supplemental Figures S3-S7
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	11,15 Supplemental

			Table S1, S2, S12, S15, S17, S20
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	12-16, Supplemental Tables S4-S10, Supplemental Figures S8-S26
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	16-22
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	19-21
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	22-23
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	26-31

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

Supplemental Table S2: Search strategy for studies assessing the effect of pasta in the context of low-GI dietary patterns on body weight in randomized controlled trials

Database	Search Period	Search Terms
Medline	1946 to February 07, 2017	1. pasta/ 2. spaghetti/ 3. macaroni/ 4. lasagna/ 5. fusilli/ 6. noodle/ 7. glycaemic index.tw. 8. glycemic index.tw. 9. glycaemic ind*.tw. 10. glycemic ind*.tw. 11. glycemic load*.tw. 12. glycaemic load*.tw. 13. glycemic index/ 14. body mass index/ 15. body mass index.tw. 16. BMI.tw. 17. overweight.tw. 18. weight*.tw. 19. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 20. 14 or 15 or 16 or 17 or 18 21. 19 and 20 22. limit 21 to animals 23. 21 not 22
Embase	1946 to February 07, 2017	1. pasta/ 2. spaghetti/ 3. macaroni/ 4. lasagna/ 5. fusilli/ 6. noodle/ 7. glycaemic index.tw. 8. glycemic index.tw. 9. glycaemic ind*.tw. 10. glycemic ind*.tw. 11. glycemic load*.tw. 12. glycaemic load*.tw. 13. glycemic index/ 14. body mass index/ 15. body mass index.tw. 16. BMI.tw. 17. overweight.tw. 18. weight*.tw.

		19. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 20. 14 or 15 or 16 or 17 or 18 21. 19 and 20 22. limit 21 to animals 23. 21 not 22
The Cochrane Library	1946 to February 07, 2017	1. pasta/ 2. spaghetti/ 3. macaroni/ 4. lasagna/ 5. fusilli/ 6. noodle/ 7. glycemic index/ 8. glycaemic ind*.tw. 9. glycemic ind*.tw. 10. glycemic load*.tw. 11. glycaemic load*.tw. 12. exp body weight/ 13. body weight*.tw. 14. BMI.tw. 15. body mass index/ 16. body mass index.tw. 17. weight*.tw. 18. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 19. 12 or 13 or 14 or 15 or 16 or 17 20. 18 and 19 21. limit 20 to animals 22. 20 not 21

Supplemental Table S3: PICO framework of the search strategy

PICO framework[a] defined in the present systematic review and meta-analysis			
Participants	**Interventions**	**Comparators**	**Outcomes**
Adult men and women excluding pregnant or breastfeeding women	Low glycemic index interventions where pasta is included as part of the intervention	Higher glycemic index diets where pasta is not included as part of the intervention	Body weight Body mass index (BMI) Body Fat (%) Waist circumference Waist-to-hip ratio

[a]Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart LA and PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. Systematic Reviews 2015; 4:1. https://doi.org/10.1186/2046-4053-4-1

Supplement Table S4a: Trial characteristics

Overweight/Obese Trials

Study	Subjects	Sample Description	Mean Age (y) (SD)	Mean Baseline Body Weight (kg) (SD)	Mean Baseline BMI (kg/m^2) (SD)	Mean GI:GL of diet (SD) ¶ ¶ ¶	Pasta Dose (serv/wk)	Setting	Design	Energy Balance§	Duration (wks)	Diet Composition % (SD)§§	Dietary Prescription	Funding Source
Karl et al. 2015 ‡‡‡	39 (19M:20F)**	OB, OP					2.33	USA	P	Negative+ Neutral	17		CR to 2/3kcal; Metabolic	Agency
Low GI	20		56 (5)*	92.9 (13.6)*	32.3 (3.4)*	42:133						68:15:16		
Higher GI	19		56 (5)*	94 (9.7)*	33.4 (2.6)*	61:201						70:16:14		
Pereira et al. 2015	19 (4M:15F)**	OW, IP/OP					NR	Brazil	P	Neutral	6.4		Ad libitum	Unknown
Low GI	10		28(5)	80.0(12.6)	29.9 (2.1)	41.2(2.2) ¥ **						48.3:16.1:32.8		
Higher GI	9		26(3)	79.1(12.2)	29.1 (2.0)	74.1(2.9) ¥ **						54.6:12.7:34.4		
Buscemi et al. 2013	40 (19M:21F)**	OW/OB, high CVD risk, OP					NR	Italy	P	Negative	12		CR to 20kcal/kg/d; Ad libitum	Unknown
Low GI	19		51 (8)	93.8 (17.3)	34.3 (6.6)	48.1: 138						56:18:26		
Higher GI	21		49 (8)	93.2 (14.4)	34.5 (5.1)	59.3: 174						57:16:27		
Costa et al. 2012	17 (7M:10F)	OW, IP/OP	25.4 (5.8)	84.1(16.3)	26.3(3.2)		NR	Brazil	C	Neutral	4		Ab libitum,2 meals+3 fruit/d provided	NR
Low GI						47.5(3.8)						58.6:13.9:25.5		
Higher GI						61.6(2.8)						55.4:14.2:30.3		
Jebb et al. 2010 - High MUFA	225**	OH, some CV risk factors, OP	~52		~28.5$^+$		1.75	UK	P	Neutral	24		Ad Libitum, key foods provided	Agency, foods by industry
Low GI	115			83.7 (69.6-93.1)¶¶		~55.2						~44.6:16.4:35.7****		
Higher GI	110			80.5 (70.0-92.1)¶¶		~63.3						~44.9:15.3:35.6****		
Jebb et al. 2010 - Low Fat	250**	OH, some CV risk factors, OP	~52		~28.5$^+$		3.5	UK	P	Neutral	24		Ad Libitum, key foods provided	Agency, foods by industry
Low GI	117			79.4 (70.1- 91.8)¶¶		~56.3						~51.5:14.2:26.1****		
Higher GI	111			80.7 (71.4- 91.4)¶¶		~64.4						~51.1:15.7:27.5****		
Larsen et al. 2010-High Pro	231**	OW/OB, OP			NR		NR	Europe	P	Neutral	26		Ad libitum	Agency
Low GI	124		42.1 (6.5)	88.5 (15.6)		~56.5: 108.9						~43:22:32		
Higher GI	107		42 (5.7)	89.5 (17.1)		~61.4: 113.1						~45:23:31		
Larsen et al. 2010 - Low Pro	203 **	OW/OB, OP			NR		NR	Europe	P	Neutral	26		Ad libitum	Agency
Low GI	106		42.2 (5.7)	88.4 (15.7)		~56.2: 121						~51:18:30		
Higher GI	97		42 (5.9)	86.6 (13.8)		~61.6: 137.9						~51:17:31		

Supplement Table S4b: Trial characteristics continued

Overweight/Obese Trials continued

Study	Subjects	Sample Description	Mean Age (y) (SD)	Mean Baseline Body Weight (kg) (SD)	Mean Baseline BMI (kg/m^2) (SD)	Mean GI:GL of diet (SD) ¶ ¶ ¶	Pasta Dose (serv/wk)	Setting	Design	Energy Balance§	Duration (wks)	Diet Composition % (SD)§§	Dietary Prescription	Funding Source
Solomon et al. 2010	22 (8M:14F)**	OB, Pre-T2DM, OP					7	USA	P	Neutral	12		Metabolic plus excerise program	Agency
Low GI	10 (3M:7F)		67 (6)	97.4 (12.0)	34.9 (1.1)	39.8 (0.9)						54.7(0.3):28.3(0.3):17.0(0.3)		
Higher GI	12 (5M:7F)		64 (3)	94.7 (15.2)	34.1 (1.1)	80.0 (2.1)						55.6(0.7):27.8(0.7):16.6(0.3)		
Philippou et al. 2009- 6 mo	38**	≥1 CHD risk factors, OP	(35-65) ¶				NR	UK	P	Negative (for all but n=2)	24		500kcal CR; Ad libitum	Agency
Low GI	22			91.3(14.8)***	29.1 (3.6)***	50.6 (4.6): 114.4(31.5)								
Higher GI	16			97.5(16.4)***	30.5 (3.5)***	63.2(5.6): 175.0(45.6)								
Philippou et al. 2009- 4 mo	42**	OW, OP	(18-65)¶				NR	UK	P	Neutral	16		Ad libitum	Unknown
Low GI	23			87.2 (15.3)	32.5 (4.8)	49.7(5.7):89.7(27.5)						47.6(6.7):19.5(4.2):31.8(5.8)		
Higher GI	19			83.6 (13.4)	31.3 (4.8)	63.7(9.4):136.8(56.3)						48.9(7):19.3(4.9):30.9(9)		
Abete et al. 2008	32 (18M:14F)	OB, OP	36(7)				2.33	Spain	P	Negative	8		30% CR; Ad libitum, 3-day menus	Agency
Low GI	16			94.3(16.1)	32.8 (4.3)	(40-45)¶						50.2 (1.8);18.3(1.6);31.5(1.6)		
Higher GI	16			94.4(13.1)	32.2 (4.4)	(60-65)¶						47.8(6.8);19.6(5.6);32.6(4.3)		
Aston et al. 2008	19 (0M:19F)**	OW/OB, OP	51.9(7.6)	87.5 (15)	33.1 (4.9)		3.33	UK	C	Neutral	12		Ad libitum, key CHO foods provided	Agency
Low GI						55.5(3.8): 133.8(22.9)****						51.4(6.0):17.0(2.4):32.2(5.1)****		
Higher GI						63.9(3): 138.8(30.5)****						47.6(6.1):17.6(3.3):34.1(5.7)****		
Jensen et al. 2008	44 (0M:44F)**	OW, OP	(20-40)¶				3	Denmark	P	Neutral	10		Ad libitum, partial provision, menu plans	Agency, Industry
Low GI	22 (0M:22F)			77.9(6.9)	27.4 (1.5)	72¥						~57(5):17(0):23(5) ‡		
Higher GI	22 (0M:22F)			80.2(1.4)	27.6 (0.3)	95¥						~57(5):17(0):22(5) ‡		
Philippou et al. 2008	13 (5M:8F)**	≥1 CHD risk factors, OP					NR	UK	P	Negative	12		500kcal CR; Ad libitum	Agency
Low GI	7 (3M:4F)		54 (49-58)¶¶	81.5 (4.7)***	28.7 (2.1)***	51.3(51.0-52.0): 105.6 (76.9-110.1)¶¶						46.0(37.8-51.0): 17.1(15.7-17.4): 32.8(31.3-37.1)¶¶		
Higher GI	6 (2M:4F)		45 (39-50)¶¶	89.7 (12.8)***	31.5 (4.4)***	59.3(59.2-64.0): 114.7(98.5-134.9)¶¶						49.4(47.8-51.7):19.6(14.0-23.1):29.2(25.2-34.5)¶¶		

Supplement Table S4c: Trial characteristics continued

Overweight/Obese Trials continued														
Study	Subjects	Sample Description	Mean Age (y) (SD)	Mean Baseline Body Weight (kg) (SD)	Mean Baseline BMI (kg/m^2) (SD)	Mean GI:GL of diet (SD) ¶ ¶ ¶	Pasta Dose (serv/wk)	Setting	Design	Energy Balance§	Duration (wks)	Diet Composition % (SD)§§	Dietary Prescription	Funding Source
Bellisle et al. 2007	65 (0M:65F)**	OW/OB, OP					NR	France	P	Neutral	12		Ad libitum	Industry
Low GI	35		46.1 (13.6)	80 (13.2)	30.2 (4.1)	na								
Higher GI	30		45.3 (12.0)	79 (13.1)	30.4 (4.4)	na								
de Rougemont et al. 2007	38 (22M:16F)**	OW, OP					2.8	France	P	Neutral	5		Ad libitum, some foods provided	Agency, Industry
Low GI	19		36.3 (8.7)	77.2 (9.6)	27.5 (1.3)	46.5 (1.3)						42.6 (3.9):19.8 (1.7):37.7 (4.4)		
Higher GI	19		40.4 (9.6)	77.3 (9.2)	27.2 (1.3)	66.3 (2.6)						44.1 (3.5):17.6 (1.7):38.4 (3.1)		
Sichieri et al. 2007	123 (OM:123F) **	OW, OP					NR	Brazil	P	Negative	72		100-300kcal CR; 6-d menu and exchange lists provided	Agency
Low GI	63		37.2 (5.4)*	67.7 (6.6)*	na	21(38): 74(84)						59.5 (6.3): 13.3: 27.2(4.6)		
Higher GI	60		37.5 (5.6)*	68.5 (7.5)*	na	51(28): 199(43)						61.6 (6.2): 12.3: 26.1(4.7)		
McMillian-Price et al. 2006-High Carb	64(16M:48F)	OW/OB, OP					NR	Australia	P	Negative	12		Ad libitum, key foods and meals provided	Agency-Industry
Low GI	32		30.5 (7.9)	87.1 (15.3)	30.6 (4.5)	45 (6):89 (28)						56 (6):19 (0):22 (6)		
Higher GI	32		31.8 (9.6)	86 (10.7)	30.9 (3.4)	70 (6):129 (45)						60 (6):18 (6):19 (6)		
McMillian-Price et al. 2006-High Protein	65(15M:50F)	OW/OB, OP					NR	Australia	P	Negative	12		Ad libitum, key foods and meals provided	Agency-Industry
Low GI	33		34.6 (8.6)	88.4 (17.2)	32.1 (5.2)	44 (6):59 (23)						40 (11):26 (6):28 (6)		
Higher GI	32		30.2 (8.5)	87.7 (16.4)	31.3 (4.5)	59 (6):75 (17)						42 (6):28 (6):27 (6)		
Wolever et al. 2002	24 (5M:19F)**	IGT, OP					NR	Canada	P	Neutral	16		Ad libitum, partial provision	Agency
Low GI	13(3M:10F)		55.2 (10.8)	79.7 (13.1)***	29.7 (4.3)	54.4 (2.5):91.8 (9.4)						54.8 (6.1):19.4 (1.8):24.7 (5.8)		
Higher GI	11(2M:9F)		58.8 (13.3)	76.4 (20.4)***	29.3 (7.3)	59.3 (2.0):96.8 (11.6)						52.8 (6.6):17.4 (2.3):27.9 (6.3)		

Supplement Table S4d: Trial characteristics continued

Diabetes Trials

Study	Subjects	Sample Description	Mean Age (y) (SD)	Mean Baseline Body Weight (kg) (SD)	Mean Baseline BMI (kg/m^2) (SD)	Mean GI:GL of diet (SD) ¶ ¶ ¶	Pasta Dose (serv/wk)	Setting	Design	Energy Balance§	Duration (wks)	Diet Composition % (SD)§§	Dietary Prescription	Funding Source
Jenkins et al. 2014	141(77M:64F)	T2DM, OP					NR	Canada	P	Neutral	12		Ad libitum, bread supplement	Industry Association
Low GI	70 (38M:32F)		59 (10)	85 (20)	30 (5)	~51:53						~38.5:19.8:37.2		
Higher GI	71 (39M:32F)		59 (10)	84 (19)	31 (6)	~62:89						~49.2:19.8:27.4		
Visek et al. 2014	20 (12M:8F)	T2DM, OP	62.7 (5.8)	91.9 (14.1)	32 (4.2)		NR	Czech Republic	C	Neutral	12		Ad libitum	Agency
Low GI						49 (48-51)¶ ¶						~37.2:18.0:36.0		
Higher GI						68 (61-72)¶ ¶						~36.2:17.3:40.0		
Jenkins et al. 2012	121 (61M: 60F)	T2DM, OP					NR	Canada	P	Neutral	12		Ad libitum	Agency
Low GI	60		58 (10.1)	85.6 (20.1)	31.4 (7.0)	47: 80						45.4:22.8:30.5		
Higher GI	61		61 (7.8)	82.5 (17.2)	29.9 (5.5)	58: 100						48.3:21.4:28.5		
Yusof et al. 2009	100**	T2DM, OP	NR				NR	Malaysia	P	Neutral	12		Ad libitum, key foods provided to lowGI group	Agency
Low GI	51			69.12 (13.33)	27.05 (4.91)	57(6): 108(32)						52(4):18(3):30(4)		
Higher GI	49			66.83 (11.50)	26.79 (4.65)	64(5): 131(30)						54(4):17(3):28(5)		
Jenkins et al 2008	210 (125M:82F)	T2DM, OP					NR	Canada	P	Neutral	24		Ad libitum	Agency
Low GI	106 (65M:41F)		60 (10)	87.0 (20.0)	30.6 (6.0)	49.4: 91.5						44.0:21.2:33.3		
Higher GI	104 (63M:41F)		61 (9)	87.8 (19.4)	31.2 (5.8)	59.3: 117.9						47.5:20.7:30.5		
Wolever et al. 2008	103	T2DM, OW/OB, OP					NR	Canada	P	Neutral	52		Ad libitum, key foods provided	Agency
Low GI	55		60.6 (7.5)*	81.1 (18.7)*	31.6 (4.5)*	55.1 (3.0): 133 (14.8)						51.9 (6.7):20.6(3.0):26.5 (5.9)		
Higher GI	48		60.4 (7.9)*	84.4(18.0)*	30.1 (4.3)*	63.2 (2.8): 135 (20.8)						46.5 (6.2):20.4 (2.8):30.8 (4.8)		

Supplement Table S4e: Trial characteristics continued

Study	Subjects	Sample Description	Mean Age (y) (SD)	Mean Baseline Body Weight (kg) (SD)	Mean Baseline BMI (kg/m^2) (SD)	Mean GI:GL of diet (SD) ¶ ¶ ¶	Pasta Dose (serv/wk)	Setting	Design	Energy Balance§	Duration (wks)	Diet Composition % (SD)§§	Dietary Prescription	Funding Source
Diabetes Trials continued														
Jimenez-Cruz et al. 2003	14 (6M:8F)**	T2DM, OP	59 (34)				NR	Mexico	C	Neutral	6		Ad libitum	Industry
Low GI				91.6 (24.3)	32.4 (6.0)	44(3.4): 86(19.8)						60:21:23		
Higher GI				92.6 (25.4)	32.3 (6.0)	56(4.9): 139(27.3)						64:18:20		
Heilbronn et al. 2002	45 (23M:22F)**	T2DM, OW, OP			NR		3.5	Australia	P	Negative	8		CR to1500kcal/d; Ad libitum, partial provision	Unknown
Low GI	24 (11M:13F)		56.0(9.4)	91.7(16.2)		43						58.9 (2.9):22.2 (1.5):17.9 (3.9)		
Higher GI	21 (12M:9F)		57.5(9.6)	93.2 (13.3)		75						60.8 (2.3):21.7 (0.9):17.1 (2.3)		
Fontvieille et al. 1992	18 (12M:6F)	T1DM/T2DM, OP	47.2(11.6)	NR	24.8(2.6)		4.7	France	C	Neutral	5		Ad libitum	Agency, Industry
Low GI						38.1(5.3)						45.8(7.2):18.0(2.5):36.2(6.8)		
Higher GI						64.2(3.1)						44.9(7.3):18.8(1.6):36.3(6.0)		
Fontvielle et al. 1988	8 (4M:4F)	T1DM, OP	43.5 (9.9)	NR	24.1 (6.8)		3.5	France	C	Neutral	3		Ad libitum, partial provision	Agency, Industry
Low GI						46.5(2.5)						46.1 (4.5):17.4 (1.4):35.0 (2.8)		
Higher GI						60.1 (5.1)						45.4 (4.5):16.9 (1.7):36.0 (2.8)		
CHD Trial														
Frost et al. 2004	55 (48M:7F)**	CHD, OP					NR	UK	P	Neutral §§§	12		Ad Libitum	Unknown
Low GI	26 (23M:3F)		63.6 (9.4)	81.2 (12.2)	26.9 (3.3)	50(4):115(39)						49 (5):18 (5):31 (5)		
Higher GI	29 (25M: 4F)		61.8 (9)	81.7 (16.7)	28.7 (4.6)	57(4):106(34)						47 (10):18 (5):32 (10)		

Abbreviations: BMI=Body Mass Index; C=Crossover design; Carb=Carbohydrate; CED= carbohydrate exchange diet; CHD= Coronary Heart Disease; CR= calorie restriction; CV=cardiovascular; GI= glycemic index; GL=glycemic load; IGT= impaired glucose tolerance; IP=inpatient; IR= insulin resistant; High Carb= high carbohydrate; HI= hyperinsulinemic; M = male; mo=months; MUFA=monounsaturated fatty acids; na=not available; T1DM=type 1 diabetes mellitus; T2DM = type 2 diabetes mellitus; OB= obese; OH=otherwise healthy; OP = outpatient; OW= overweight; P=Parallel design; SD= standard deviation; F = female; UK= United Kingdom; USA= United States of America; wks=weeks; y= years

§Negative energy balance diets were designed for weight loss, Neutral energy balance diets for weight maintenance, where all diets are isocaloric between test and control groups; §§Energy from carbohydrate: protein: fat for the planned diet or if not planned; §§§ Participants were advised to lose weight if they had a BMI>28kg/m2.

¶ Range of values; ¶¶ median and interquartile range (IQR); ¶ ¶ ¶ Actual GI/GL or if not available, planned;

* Calculated before dropout; **Completer Analysis, as used in data analysis; *** completer analysis, data obtained from authors; **** based on less participants than in analysis;

+ approximate based on all study arms; ¥ approximate based on test meals; ‡ approximate based on n=45 from Sloth et al. 2004, the original publication of this study;

‡‡‡ analysis includes weight loss and weight maintenance phases

Supplemental Table S5: Sensitivity analysis of the systematic removal of each trial*

	MD [95% CI], P-value **I^2, P-value**					
	Body Weight (kg) N=32	**BMI (kg/m^2) N=18**	**Body Fat (%) N=10**	**Waist Circumference (cm) N=18**	**Waist-to-hip Ratio N=6**	**Sagittal Abdominal Diameter (cm) N=3**
All studies	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.51	-0.26 [-0.36, -0.16], P<0.01 0.00%, P=0.91	-0.01 [-0.58, 0.56], P=0.98 65%, P=0.003	-0.46 [-1.05, 0.14], P=0.13 62%, P<0.01	-0.00 [-0.01, 0.00], P=0.27 0.00%, P=0.52	-0.09 [-0.34, 0.16], P=0.48 0.00%, P=0.92
Removal of:						
OW/OB						
Pereira et al. 2015	-0.61 [-0.82, -0.39], P<0.01 0.00%, P=0.54	-0.24 [-0.34, -0.14], P<0.01 0.00%, P=0.93	0.19 [-0.25, 0.63], P=0.39 36%, P=0.13	-0.37 [-1.04, 0.31], P=0.28 62%, P<0.01	-0.00 [-0.01, 0.01], P=0.67 0.00%, P=0.58	n/a
Karl et al. 2015	-0.62 [-0.83, -0.41], P<0.01 0.00%, P=0.50	-0.25 [-0.35, -0.16], P<0.01 0.00%, P=0.91	0.10 [-0.51, 0.71], P=0.74 64%, P<0.01	n/a	n/a	n/a
Buscemi et al. 2013	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	-0.26 [-0.36, -0.16], P<0.01 0.00%, P=0.86	-0.08 [-0.63, 0.48], P=0.79 64%, P<0.01	-0.46 [-1.06, 0.15], P=0.14 64%, P<0.01	n/a	n/a
Costa et al. 2012	-0.62 [-0.84, -0.41], P<0.01 0.00%, P=0.46	-0.26 [-0.37, -0.16], P<0.01 0.00%, P=0.86	-0.06 [-0.73, 0.61], P=0.86 66%, P<0.01	-0.33 [-0.94, 0.28], P=0.29 59%, P<0.01	n/a	n/a
Jebb et al. 2010 - LowFat	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	n/a	n/a	n/a	n/a	n/a
Larsen et al. 2010 - LowPro	-0.60 [-0.81, -0.38], P<0.01 0.00%, P=0.57	n/a	n/a	-0.45 [-1.09, 0.18], P=0.16 64%, P<0.01	n/a	-0.05 [-0.39, 0.29], P=0.79 0.00%, P=0.86
Jebb et al. 2010-HighMUFA	-0.64 [-0.85, -0.43], P<0.01 0.00%, P=0.65	n/a	n/a	n/a	n/a	n/a
Larsen et al. 2010 - HighPro	-0.62 [-0.83, -0.41], P<0.01 0.00%, P=0.48	n/a	n/a	-0.37 [-1.00, 0.26], P=0.26 62%, P<0.01	n/a	-0.13 [-0.45, 0.19], P=0.42 0.00%, P=0.92
Solomon et al. 2010	-0.63 [-0.84, -0.42], P<0.01	-0.26 [-0.36, -0.16], P<0.01	n/a	n/a	n/a	n/a

	0.00%, P=0.47	0.00%, P=0.88				
Philippou et al. 2009 - 6mnth	-0.65 [-0.86, -0.44], P<0.01 0.00%, P=0.59	-0.28 [-0.37, -0.18], P<0.01 0.00%, P=0.97	-0.12 [-0.71, 0.48], P=0.70 65%, P<0.01	-0.55 [-1.15, 0.04], P=0.07 61%, P<0.01	n/a	n/a
Philippou et al. 2009 - 4mnth	-0.61 [-0.83, -0.40], P<0.01 0.00%, P=0.48	-0.25 [-0.35, -0.15], P<0.01 0.00%, P=0.89	-0.09 [-0.72, 0.54], P=0.78 66%, P<0.01	-0.44 [-1.08, 0.19], P=0.17 64%, P<0.01	n/a	n/a
Abete et al. 2008	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.47	n/a	n/a	n/a	n/a	n/a
Philippou et al. 2008	-0.62 [-0.83, -0.42], P<0.01 0.00%, P=0.48	-0.26 [-0.35, -0.16], P<0.01 0.00%, P=0.89	-0.06 [-0.68, 0.55], P=0.84 68%, P<0.01	-0.41 [-1.02, 0.19], P=0.18 63%, P<0.01	n/a	n/a
Aston et al. 2008	-0.66 [-0.87, -0.44], P<0.01 0.00%, P=0.52	n/a	-0.00 [-0.70, 0.69], P=0.99 68%, P<0.01	-0.54 [-1.14, 0.07], P=0.08 62%, P<0.01	n/a	n/a
Jensen et al. 2008	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	-0.27 [-0.36, -0.17], P<0.01 0.00%, P=0.88	n/a	-0.44 [-1.05, 0.18], P=0.16 64%, P<0.01	-0.00 [-0.01, 0.00], P=0.24 0.00%, P=0.41	-0.09 [-0.35, 0.18], P=0.51 0.00%, P=0.69
de Rougemont et al. 2007	-0.57 [-0.80, -0.34], P<0.01 0.00%, P=0.53	-0.25 [-0.36, -0.14], P<0.01 0.00%, P=0.87	0.06 [-0.57, 0.70], P=0.84 67%, P<0.01	n/a	n/a	n/a
Sichieri et al. 2007	-0.66 [-0.88, -0.45], P<0.01 0.00%, P=0.53	n/a	n/a	n/a	n/a	n/a
Bellisle et al. 2007	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.47	-0.26 [-0.36, -0.16], P<0.01 0.00%, P=0.88	n/a	-0.47 [-1.08, 0.13], P=0.13 64%, P<0.01	-0.00 [-0.01, 0.00], P=0.14 0.00%, P=0.70	n/a
McMillan-Price et al. 2006 - HighCHO	-0.61 [-0.82, -0.39], P<0.01 0.00%, P=0.51	n/a	n/a	-0.38 [-1.01, 0.25], P=0.23 63%, P<0.01	n/a	n/a
McMillan-Price et al. 2006 - HighPro	-0.70 [-0.91, -0.49], P<0.01 0.00%, P=0.91	n/a	n/a	**-0.62 [-1.19, -0.05], P=0.03 55% , P<0.01**	n/a	n/a
Wolever et al. 2002	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	n/a	n/a	n/a	n/a	n/a
Diabetes:						
Visek et al. 2014	-0.63 [-0.84, -0.42], P<0.01	-0.26 [-0.36, -0.16], P<0.01	0.01 [-0.57, 0.60], P=0.96	n/a	n/a	n/a

	0.00%, P=0.46	0.00%, P=0.86	68%, P<0.01			
Jenkins et al. 2014	-0.66 [-0.88, -0.43], P<0.01 0.00%, P=0.47	-0.29 [-0.39, -0.18], P<0.01 0.00%, P=0.94	n/a	**-0.61 [-1.18, -0.04], P=0.04 50%, P=0.01**	-0.00 [-0.01, 0.00], P=0.21 0.00%, P=0.43	n/a
Jenkins et al. 2012	-0.62 [-0.84, -0.40], P<0.01 0.00%, P=0.46	-0.25 [-0.35, -0.15], P<0.01 0.00%, P=0.87	n/a	-0.44 [-1.05, 0.17], P=0.16 64%, P<0.01	-0.00 [-0.01, 0.01], P=0.64 0.00%, P=0.53	n/a
Yusof et al. 2009	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	-0.26 [-0.36, -0.16], P<0.01 0.00%, P=0.87	n/a	-0.33 [-0.95, 0.28], P=0.29 58%, P<0.01	n/a	n/a
Jenkins et al. 2008	-0.61 [-0.83, -0.40], P<0.01 0.00%, P=0.48	-0.25 [-0.36, -0.15], P<0.01 0.00%, P=0.87	n/a	n/a	n/a	n/a
Wolever et al. 2008	-0.64 [-0.84, -0.43], P<0.01 0.00%, P=0.57	n/a	n/a	-0.50 [-1.10, 0.09], P=0.10 62%, P<0.01	n/a	n/a
Jimenez-Cruz et al. 2003	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	-0.26 [-0.35, -0.16], P<0.01 0.00%, P=0.86	n/a	n/a	n/a	n/a
Heilbronn et al. 2002	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.47	n/a	n/a	n/a	n/a	n/a
Fontvieille et al. 1992	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	n/a	n/a	n/a	n/a	n/a
Fontvielle et al. 1988	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.46	n/a	n/a	n/a	n/a	n/a
CHD						
Frost et al. 2004	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.47	-0.26 [-0.36, -0.17], P<0.01 0.00%, P=0.89	n/a	-0.48 [-1.09, 0.12], P=0.12 63%, P<0.01	-0.00 [-0.01, 0.00], P=0.25 1%, P=0.40	n/a

*Sensitivity analysis included the removal of each single study from the meta-analyses one at a time and the summary effect was recalculated. An influential outlier was considered a study whose removal changed the magnitude of the pooled effect by >10%. BMI, body mass index; CHD, coronary heart disease; CHO, carbohydrate; CI, confidence interval; MD, mean difference; mnth, month; MUFA, monounsaturated fatty acids; n/a, not applicable; OB, obese; OW, overweight; Pro, protein

Supplemental Table S6: Sensitivity analyses of the use of correlation coefficients of 0.25 and 0.75 for crossover trials

	MD (95% CI), P-value I^2, P-value		
	Correlation Coefficient used in the Primary Analysis	Correlation Coefficient used in Sensitivity Analyses	
Outcome (no. crossover trials/total)	**0.5**	**0.25**	**0.75**
Body Weight, kg (6*/32)	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.51	-0.63 [-0.84, -0.42], P<0.01 0.00%, P=0.51	-0.63 [-0.84, -0.43], P<0.01 0.00%, P=0.51
BMI, kg/m^2 (3/18)	-0.26 [-0.36, -0.16], P<0.01 0.00%, P=0.91	-0.26 [-0.36, -0.16], P<0.01 0.00%, P=0.90	-0.26 [-0.35, -0.17], P<0.01 0.00%, P=0.90
Body Fat, % (3*/10)	-0.01 [-0.58, 0.56], P=0.98 65%, P<0.01	-0.00 [-0.58, 0.58], P=0.99 64%, P<0.01	-0.02 [-0.57, 0.54], P=0.96 66%, P<0.01
Waist Circumference, cm (2*/18)	-0.46 [-1.05, 0.14], P=0.13 62%, P<0.01	-0.44 [-1.04, 0.15], P=0.14 60%, P<0.01	-0.46 [-1.07, 0.14], P=0.13 65%, P<0.01
Waist-to-hip Ratio (0/6)	-0.00 [-0.01, 0.00], P=0.27 0.00%, P=0.52	n/a	n/a
Sagittal Abdominal Diameter, cm (0/6)	-0.09 [-0.34, 0.16], P=0.48 0.00%, P=0.92	n/a	n/a

*One of these crossover trials did not require the use of a correlation coefficient as complete data was available

BMI, body mass index; CI, confidence interval; MD, mean difference; no., number

Supplement Table S7. Continuous meta-regression analysis for the effect of pasta in the context of low-GI dietary patterns on body weight (kg)[1]

Subgroup	Range	No. trials	N	β (95% CI)	Residual I^2	P value
Baseline BMI	24.1 – 37.1 kg/m^2	32	2448	-0.04 (-0.13, 0.06)	0.00%	0.454
Follow-up	3 – 72 wks	32	2448	0.01 (-0.01, 0.02)	0.00%	0.314
Dose Pasta	1.75 – 7.0 serv/wk	11	740	0.29 (-0.91, 1.50)	0.00%	0.595
GI[3]	21 - 72	31	2383	-0.01 (-0.04, 0.02)	0.45%	0.482
Difference in GI[2]	4.9 - 40.2	31	2383	-0.00 (-0.04, 0.03)	2.75%	0.811
Fiber[3]	8.0 - 39.4g/d	27	1851	0.02 (-0.01, 0.06)	0.00%	0.221
Change in Fiber[4]	-7.5 - +13.8g/d	17	1571	-0.02 (-0.07, 0.04)	23.13%	0.595
Difference in Fiber[2]	-8.5 - +15.3g/d	27	1851	-0.01 (-0.06, 0.04)	0.00%	0.701
Saturated Fat[3]	5.1 - 12.5%	14	1396	-0.05 (-0.30, 0.20)	34.32%	0.648
Change in Saturated Fat[4]	-8.2 - -1.2%	12	1309	-0.01 (-0.29, 0.28)	46.27%	0.965
Difference in Saturated Fat[2]	-2.0 - +2.3%	14	1396	-0.34 (-1.08, 0.39)	32.80%	0.329
CHO[3]	37.2 - 68.0%	30	2345	-0.01 (-0.05, 0.03)	0.00%	0.541
Change in CHO[4]	-7.2 - +10.1%	19	2046	-0.07 (-0.12, -0.01)	0.00%	**0.016**
Difference in CHO[2]	-11.1 - +5.4%	30	2345	0.02 (-0.05, 0.10)	0.00%	0.547
Protein[3]	13.3 - 26.1%	30	2345	0.04 (-0.04, 0.12)	0.00%	0.332

Change in Protein[4]	-0.5 - +8.6%	19	2046	0.15 (0.03, 0.27)	0.00%	**0.017**
Difference in Protein[2]	-2.5 - +3.4%	30	2345	-0.18 (-0.38, 0.02)	0.00%	0.069
Fat[3]	16.0 - 37.7%	30	2345	0.01 (-0.05, 0.06)	0.00%	0.852
Change in Fat[4]	-12.2 - +5.4%	19	2046	0.05 (-0.02, 0.12)	17.73%	0.122
Difference in Fat[2]	-4.4 - +10.6%	30	2345	0.02 (-0.05, 0.09)	0.00%	0.610

1 Data is presented as between group mean difference (95% CI) for a 1-unit change in the predictor variable. β –coefficients were estimated using continuous meta-regression analysis. A positive β -coefficient implies an increase in body weight on the pasta/low-GI intervention as the subgroup variable increases, and a negative β -coefficient implies a decrease in body weight. Residual I^2 reports inter-study heterogeneity not explained by the subgroup and was estimated using the Cochran Q statistic. BMI, body mass index; CHO, carbohydrate; GI, glycemic index

2 Difference in diet variable between the intervention and control arms

3 Intake at the end of study in the intervention arm

4 Change in intake from end of study from baseline in intervention arm

Supplemental Table S8. Continuous meta-regression analysis for the effect of pasta in the context of low-GI dietary patterns on BMI (kg/m²)[1]

Subgroup	Range	No. trials	N	β (95% CI)	Residual I^2	P value
Baseline BMI	26.3 – 37.1 kg/m²	18	1038	-0.01 (-0.06, 0.03)	0.00%	0.559
Follow-up	4 – 24 wks	18	1038	0.00 (-0.01, 0.02)	0.00%	0.559
Dose Pasta*	2.33 – 7.0 serv/wk	4	143			
GI[3]	39.8 - 72	17	973	0.01 (-0.01, 0.03)	0.00%	0.153
Difference in GI[2]	7.0 - 40.2	17	973	-0.01 (-0.03, 0.01)	0.00%	0.275
Fiber[3]	8.0 - 39.4g/d	16	935	0.01 (-0.01, 0.02)	0.00%	0.366
Change in Fiber[4]	-1.8 - +12.4g/d	10	758	0.00 (-0.03, 0.03)	0.00%	0.846
Difference in Fiber[2]	-4.9 - +13.0g/d	16	935	-0.00 (-0.02, 0.02)	0.00%	0.821
Saturated Fat*[3]	7.6 - 12.5%	7				
Change in Saturated Fat*[4]	-2.4 - -1.2%	6				
Difference in Saturated Fat*[2]	-1.0 - +2.3%	7				
CHO[3]	37.2 - 68.0%	16	935	-0.00 (-0.02, 0.01)	0.00%	0.594
Change in CHO[4]	-5.6 - +3.2%	10	758	-0.02 (-0.06, 0.02)	0.00%	0.325
Difference in CHO[2]	-11.1 - +2.0%	16	935	-0.01 (-0.03, 0.02)	0.00%	0.531
Protein[3]	13.9 – 22.8%	16	935	0.00 (-0.04, 0.04)	0.00%	0.905

Change in Protein[4]	-0.2 - +3.0%	10	758	0.01 (-0.11, 0.14)	0.00%	0.786
Difference in Protein[2]	-2.5 - +3.4%	16	935	-0.03 (-0.12, 0.06)	0.00%	0.441
Fat[3]	16.0 - 37.7%	16	935	0.00 (-0.02, 0.02)	0.00%	0.717
Change in Fat[4]	-4.8 - +5.4%	10	758	0.02 (-0.02, 0.06)	0.00%	0.240
Difference in Fat[2]	-4.4 - +10.6%	16	935	0.01 (-0.01, 0.04)	0.00%	0.299

*For Dose, there were <10 trials so subgroup analyses were not performed.

1 Data is presented as between group mean difference (95% CI) for a 1-unit change in the predictor variable. β –coefficients were estimated using continuous meta-regression analysis. A positive β -coefficient implies an increase in BMI on the pasta/low-GI intervention as the subgroup variable increases, and a negative β -coefficient implies a decrease in BMI. Residual I^2 reports inter-study heterogeneity not explained by the subgroup and was estimated using the Cochran Q statistic. BMI, body mass index; CHO, carbohydrate; GI, glycemic index; wk, week

2 Difference in diet variable between the intervention and control arms

3 Intake at the end of study in the intervention arm

4 Change in intake from end of study from baseline in intervention arm

Supplemental Table S9. Continuous meta-regression analysis for the effect of pasta in the context of low-GI dietary patterns on body fat (%)[1]

Subgroup	Range	No. trials	N	β (95% CI)	Residual I^2	P value
Baseline BMI	26.3 – 36.0 kg/m^2	10	285	-0.02 (-0.26, 0.23)	67.69%	0.890
Follow-up	4 – 24 wks	10	285	0.06 (-0.06, 0.17)	66.00%	0.303
Dose Pasta*	2.33 - 3.33 serv/wk	3	96			
GI[3]	39.8 - 72	10	285	0.12 (-0.00, 0.25)	52.21%	0.053
Difference in GI[2]	7.0 - 40.2	10	285	-0.09 (-0.15, -0.03)	19.39%	**0.008**
Fiber*[3]	8.0 - 39.4g/d	8	228			
Change in Fiber*[4]	-1.8 - +12.4g/d	4	87			
Difference in Fiber*[2]	-4.9 - +13.0g/d	8	228			
Saturated Fat*[3]	7.6 - 12.5%	3	93			
Change in Saturated Fat*[4]	-2.4 - -1.2%	2	51			
Difference in Saturated Fat*[2]	-1.0 - +2.3%	3	93			
CHO*[3]	37.2 - 68.0%	9	247			
Change in CHO*[4]	-5.6 - +3.2%	4	87			
Difference in CHO*[2]	-11.1 - +2.0%	9	247			
Protein*[3]	13.9 – 22.8%	9	247			

Change in Protein*[4]	-0.2 - +3.0%	4	87			
Difference in Protein*[2]	-2.5 - +3.4%	9	247			
Fat*[3]	16.0 - 37.7%	9	247			
Change in Fat*[4]	-4.8 - +5.4%	4	87			
Difference in Fat*[2]	-4.4 - +10.6%	9	247			

*There were <10 trials so subgroup analyses were not performed.

1 Data is presented as between group mean difference (95% CI) for a 1-unit change in the predictor variable. β –coefficients were estimated using continuous meta-regression analysis. A positive β -coefficient implies an increase in body fat on the pasta/low-GI intervention as the subgroup variable increases, and a negative β -coefficient implies a decrease in body fat. Residual I^2 reports inter-study heterogeneity not explained by the subgroup and was estimated using the Cochran Q statistic. BMI, body mass index; CHO, carbohydrate; GI, glycemic index; wk, week

2 Difference in diet variable between the intervention and control arms

3 Intake at the end of study in the intervention arm

4 Change in intake from end of study from baseline in intervention arm

Supplemental Table S10. Continuous meta-regression analysis for the effect of pasta in the context of low-GI dietary patterns on waist circumference (cm)[1]

Subgroup	Range	No. trials	N	β (95% CI)	Residual I^2	P value
Baseline BMI	26.3 – 36.0 kg/m^2	18	1380	0.10 (-0.13, 0.32)	59.02%	0.372
Follow-up	4 – 52 wks	18	1380	0.05 (-0.03, 0.13)	60.50%	0.225
Dose Pasta*	3.0 – 3.33 serv/wk	2	63			
GI[3]	41.2 – 72.0	17	1315	-0.01 (-0.12, 0.10)	66.00%	0.841
Difference in GI[2]	4.9 – 32.9	17	1315	-0.02 (-0.10, 0.06)	64.51%	0.596
Fiber[3]	8.0 - 39.4g/d	15	1258	0.05 (-0.05, 0.14)	59.60%	0.342
Change in Fiber[4]	-1.8 - +13.8g/d	13	1176	0.01 (-0.17, 0.20)	70.59%	0.861
Difference in Fiber[2]	-4.9 - +15.3g/d	15	1258	-0.00 (-0.14, 0.13)	64.86%	0.939
Saturated Fat*[3]	6.1 – 10.1%	8	604			
Change in Saturated Fat*[4]	-7.6 - -1.2%	7	562			
Difference in Saturated Fat*[2]	-2.0 - +2.3%	8	604			
CHO[3]	38.5 - 58.6%	16	1277	-0.11 (-0.19, -0.04)	27.06%	**0.007**
Change in CHO[4]	-7.2 - +10.1%	13	1176	-0.09 (-0.23, 0.04)	57.19%	0.148
Difference in CHO[2]	-11.1 - +5.4%	16	1277	-0.01 (-0.18, 0.17)	60.81%	0.947
Protein[3]	13.9 – 26.1%	16	1277	0.20 (0.01, 0.38)	43.92%	**0.038**

Change in Protein[4]	-0.3 - +8.6%	13	1176	0.19 (-0.09, 0.46)	63.38%	0.165
Difference in Protein[2]	-2.5 - +3.4%	16	1277	-0.14 (-0.66, 0.38)	62.79%	0.570
Fat[3]	22.0 - 37.2%	16	1277	0.10 (-0.05, 0.26)	53.48%	0.185
Change in Fat[4]	-12.2 - +5.4%	13	1176	0.08 (-0.07, 0.24)	61.15%	0.274
Difference in Fat[2]	-4.4 - +10.6%	16	1277	0.09 (-0.06, 0.25)	47.17%	0.220

*There were <10 trials so subgroup analyses were not performed.

1 Data is presented as between group mean difference (95% CI) for a 1-unit change in the predictor variable. β –coefficients were estimated using continuous meta-regression analysis. A positive β -coefficient implies an increase in waist circumference on the pasta/low-GI intervention as the subgroup variable increases, and a negative β -coefficient implies a decrease in waist circumference. Residual I^2 reports inter-study heterogeneity not explained by the subgroup and was estimated using the Cochran Q statistic. BMI, body mass index; CHO, carbohydrate; GI, glycemic index; wk, week

2 Difference in diet variable between the intervention and control arms

3 Intake at the end of study in the intervention arm

4 Change in intake from end of study from baseline in intervention arm

Supplementary Table S11. Post-hoc piecewise linear continuous dose-response meta-regression analyses for the effect of pasta intake in the context of low-GI dietary patterns on body weight (kg)

Dose threshold of servings of pasta consumed per week	Dose ranges of servings of pasta consumed per week	β (95% CIs) *	Residual I^2 †	*p*-value
3.0	≤3.0	-0.70 (–3.27, 1.86)	0.00%	0.890
	>3.0	0.91 (–0.89, 2.70)		
3.33	≤3.33	0.05 (–1.80, 1.89)	0.00%	0.518
	>3.33	0.44 (–1.75, 2.63)		
3.5	≤3.5	0.09 (–1.65, 1.82)	0.00%	0.888
	>3.5	0.46 (–1.89, 2.81)		

* β is the slope derived from the piecewise linear meta-regression analyses and represents the treatment effect on body weight for doses above and below each dose-threshold representing servings of pasta consumption per week; † The residual I^2 value indicates heterogeneity unexplained by each dose-threshold.

Supplementary Table S12: GRADE assessment of study quality

Quality assessment*							№ of patients		Effect	Quality Importance
№ of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication Bias	Pasta/LGI diet	Higher GI diet	Absolute (95% CI)	
Body Weight (follow up: median 12 weeks)										
32	randomised trials	not serious	not serious	serious [a]	not serious	none	1294	1228	MD **-0.63 kg** (-0.84 to -0.42)	⊕⊕⊕◯ MODERATE[a] Due to downgrade for indirectness
BMI (follow up: median 12 weeks)										
18	randomised trials	not serious	not serious	serious [a]	not serious	none	551	538	MD **-0.26 kg/m^2** (-0.36 to -0.16)	⊕⊕⊕◯ MODERATE[a] Due to downgrade for indirectness
Waist Circumference (follow up: median 12 weeks)										
18	randomised trials	not serious	serious [b]	serious [a]	not serious	none	717	624	MD **-0.46 cm** (-1.05 to 0.14)	⊕⊕◯◯ LOW [a,b] Due to downgrade for inconsistency and indirectness

Quality assessment*							№ of patients		Effect	Quality Importance
№ of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Publication Bias**	**Pasta/LGI diet**	**Higher GI diet**	**Absolute (95% CI)**	
Body Fat (follow up: median 12 weeks)										
10	randomised trials	not serious	serious [c]	serious [a]	not serious	none	176	165	MD **-0.01 %** (-0.58 to 0.56)	⊕⊕◯◯ LOW [a,c] Due to downgrade for inconsistency and indirectness
Waist-to-hip Ratio (follow up: median 12 weeks)										
6	randomised trials	not serious	not serious	serious [a]	not serious	none [d]	223	222	MD **-0.00** (-0.01 to 0.00)	⊕⊕⊕◯ MODERATE[a] Due to downgrade for indirectness
Sagittal Abdominal Diameter (follow up: median 26 weeks)										
3	randomised trials	not serious	not serious	serious [a]	not serious	none [d]	237	214	MD **-0.09 cm** (-0.34 to 0.16)	⊕⊕⊕◯ MODERATE[a] Due to downgrade for indirectness

CI, Confidence interval; GI, glycemic index; LGI, low glycemic index; MD, Mean difference

*All outcomes started with high quality evidence since all studies were randomized controlled trials. Risk of Bias –We rated down for risk of bias if the majority of studies were considered to be at high risk of bias. Inconsistency – We assessed inconsistency using I^2 estimates where an I^2=50%, P<0.10 or higher indicates substantial heterogeneity. I^2 is the percentage of variability in the treatment estimates that is attributable to heterogeneity between studies. We rated down for inconsistency if there was substantial heterogeneity that was unexplained by any a priori sensitivity or subgroup analyses. Indirectness – We rated down for indirectness if there were factors present relating to the participants, interventions, or outcomes that limited the generalizability of the results. Imprecision – We rated down for imprecision if the 95% confidence interval (95% CI) crossed the minimally important difference (MID) for harm. MIDs used for each outcome were: 0.5kg for body weight (based on Johnston et al. JAMA 2014;312(9):923-33); 0.2kg/m^2 for BMI; 2.0cm for waist circumference; 2.0% for body fat; 0.02 for waist-to-hip ratio; 2.0cm for sagittal abdominal diameter.

a. Downgrade for serious indirectness, since most of the available trials did not quantify the amount of pasta consumed in the context of the low-GI dietary patterns

b. Downgrade for serious inconsistency, as there was evidence of substantial inter-study (I^2=62%, P-heterogeneity<0.001), which could not be explained

c. Downgrade for serious inconsistency, as there was evidence of substantial inter-study (I^2= 65%, P-heterogeneity=0.003), which could not be explained

d. No downgrade for publication bias, as publication bias could not be assessed due to lack of power for assessing funnel plot asymmetry and small study effects (<10 trials included in the meta-analysis)

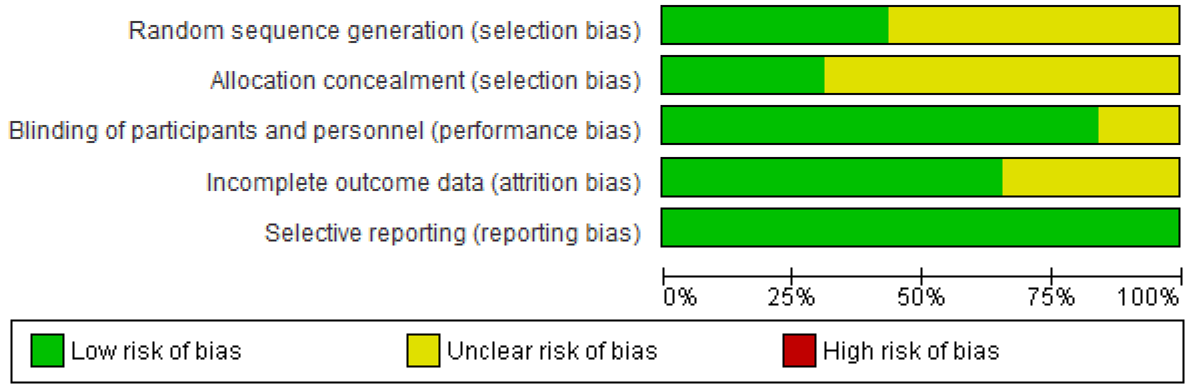
Supplemental Figures

Supplemental Figure S1: Cochrane risk of bias summary for all included trials

	Random Sequence Generation	Allocation Concealment	Blinding of Participants, Personnel and Outcome Assessment	Incomplete Outcome Data	Selective Reporting
Abete et al. 2008	?	?	?	+	+
Aston et al. 2008	+	?	+	+	+
Bellisle et al. 2007	?	?	?	?	+
Buscemi et al. 2012	+	+	+	?	+
Cost et al. 2012	?	?	+	+	+
de Rougemont et al. 2007	?	+	+	+	+
Fontvielle et al. 1992	?	?	+	+	+
Fontvielle et al. 1988	?	?	+	+	+
Frost et al. 2004	?	?	+	+	+
Heilbronn et al. 2002	?	?	+	?	+
Jebb et al. 2010 - HighMUFA	+	?	+	?	+
Jebb et al. 2010 - LowFat	+	?	+	?	+
Jenkins et al. 2014	+	+	+	+	+
Jenkins et al. 2012	+	+	+	+	+
Jenkins et al. 2008	+	+	+	+	+
Jensen et al. 2008	?	?	+	+	+
Jimenez-Cruz et al. 2003	?	?	?	?	+
Karl et al. 2015	+	+	+	+	+
Larsen et al. 2010 -LowPro	+	+	+	+	+
Larsen et al. 2010 -HighPro	+	+	+	+	+
McMillan-Price et al. 2006- HighCHO	?	?	+	+	+
McMillan-Price et al. 2006- HighPro	?	?	+	+	+
Pereira et al. 2015	?	?	+	?	+
Philippou et al. 2008	?	?	+	?	+
Philippou et al. 2009-4mo	?	?	+	?	+
Philippou et al. 2009-6mo	?	?	?	?	+
Sicheri et al. 2007	+	?	+	?	+
Solomon et al. 2010	?	?	+	+	+
Visek et al. 2014	?	?	+	+	+
Wolever et al. 2008	+	+	?	+	+
Wolever et al. 2002	+	+	+	+	+
Yusof et al. 2009	+	?	+	+	+

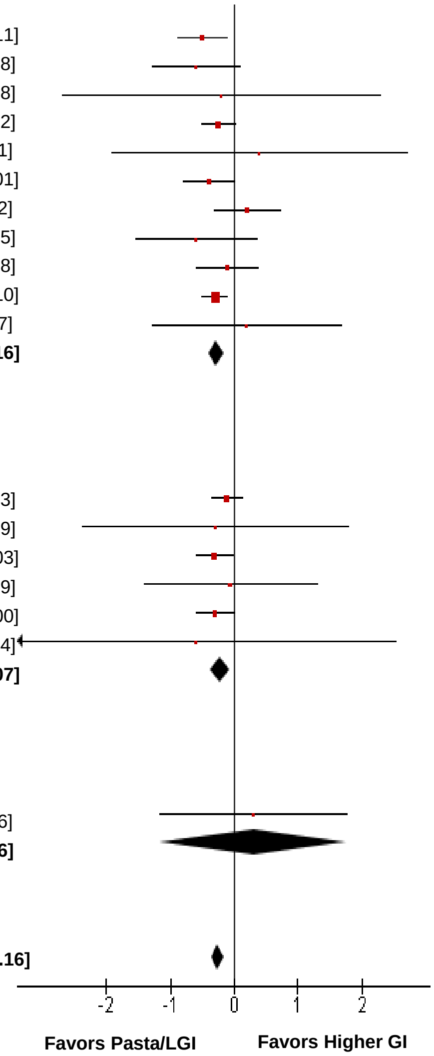
Summary of risk of bias ratings for each individual trial included in the meta-analysis.

Supplemental Figure S2: Risk of bias proportion graph for all included trials



Supplemental Figure S3: Forest plot of randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on BMI (kg/m²) (n= 1038).

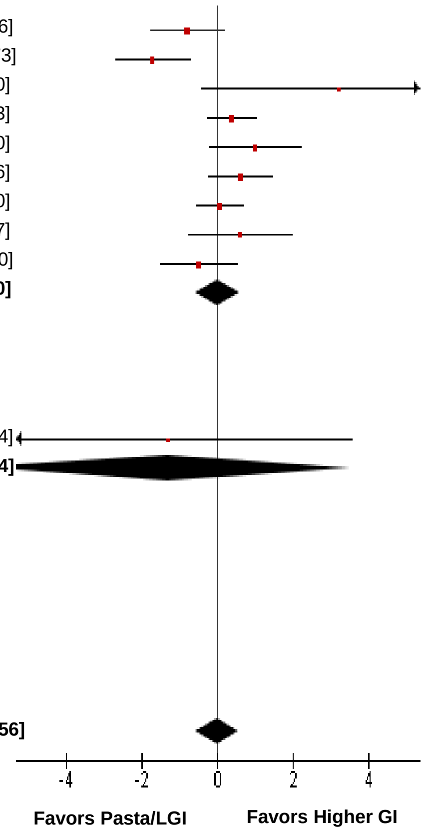
Study or Subgroup	Year	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI) BMI (kg/m²)
Overweight/Obese				
Pereira et al.	2015	10	9	-0.50 [-0.89, -0.11]
Karl et al.	2015	20	19	-0.60 [-1.28, 0.08]
Buscemi et al.	2013	19	21	-0.20 [-2.68, 2.28]
Costa et al.	2012	17	17	-0.24 [-0.50, 0.02]
Solomon et al.	2010	10	12	0.40 [-1.91, 2.71]
Philippou et al. - 4mnth	2009	23	19	-0.40 [-0.79, -0.01]
Philippou et al. - 6mnth	2009	22	16	0.20 [-0.32, 0.72]
Philippou et al.	2008	7	6	-0.60 [-1.55, 0.35]
Jensen et al.	2008	22	22	-0.10 [-0.58, 0.38]
de Rougemont et al.	2007	19	19	-0.30 [-0.50, -0.10]
Bellisle et al.	2007	35	30	0.20 [-1.27, 1.67]
Subtotal				**-0.28 [-0.41, -0.16]**
Heterogeneity: Tau² = 0.00; Chi² = 7.61, df = 10 (P = 0.67); I² = 0%				
Test for overall effect: Z = 4.54 (P < 0.00001)				
Diabetes				
Jenkins et al.	2014	70	71	-0.11 [-0.36, 0.13]
Visek et al.	2014	20	20	-0.29 [-2.37, 1.79]
Jenkins et al.	2012	60	61	-0.31 [-0.60, -0.03]
Yusof et al.	2009	51	49	-0.06 [-1.41, 1.29]
Jenkins et al.	2008	106	104	-0.30 [-0.60, -0.00]
Jimenez-Cruz et al.	2003	14	14	-0.60 [-3.74, 2.54]
Subtotal				**-0.23 [-0.38, -0.07]**
Heterogeneity: Tau² = 0.00; Chi² = 1.58, df = 5 (P = 0.90); I² = 0%				
Test for overall effect: Z = 2.84 (P = 0.005)				
CHD				
Frost et al.	2004	26	29	0.30 [-1.16, 1.76]
Subtotal				**0.30 [-1.16, 1.76]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.40 (P = 0.69)				
Total				**-0.26 [-0.36, -0.16]**
Heterogeneity: Tau² = 0.00; Chi² = 10.09, df = 17 (P = 0.90); I² = 0%				
Test for overall effect: Z = 5.29 (P < 0.00001)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance random effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant, and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. BMI, body mass index; CHD, coronary heart disease; CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet

Supplemental Figure S4: Forest plot of randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on body fat (%) (n= 285).

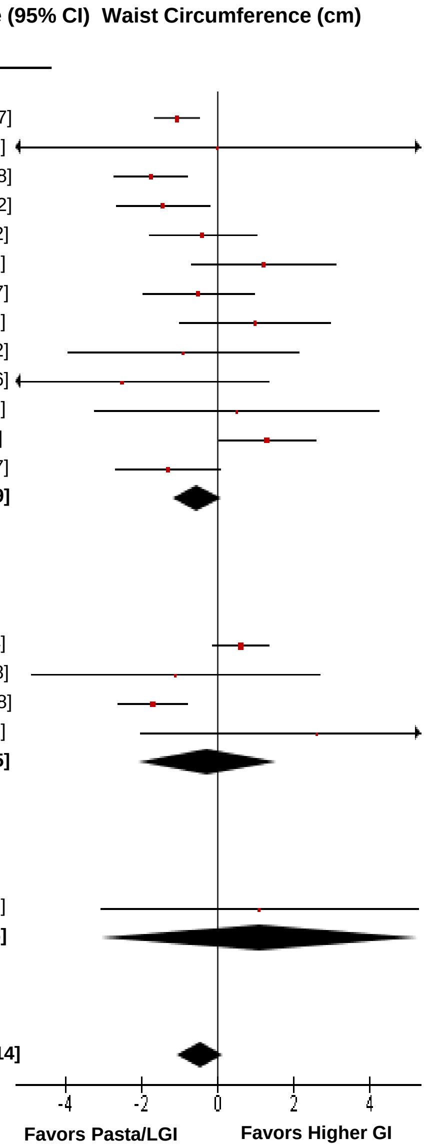
Study or Subgroup	Year	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI) Body Fat (%)
Overweight/Obese				
Karl et al.	2015	20	19	-0.80 [-1.76, 0.16]
Pereira et al.	2015	10	9	-1.71 [-2.69, -0.73]
Buscemi et al.	2013	19	21	3.20 [-0.40, 6.80]
Costa et al.	2012	17	17	0.38 [-0.27, 1.03]
Philippou et al. - 6mnth	2009	22	16	1.00 [-0.20, 2.20]
Philippou et al. - 4mnth	2009	23	19	0.60 [-0.26, 1.46]
Aston et al.	2008	19	19	0.07 [-0.56, 0.70]
Philippou et al.	2008	7	6	0.60 [-0.77, 1.97]
de Rougemont et al.	2007	19	19	-0.50 [-1.50, 0.50]
Subtotal				**0.01 [-0.57, 0.60]**
Heterogeneity: Tau² = 0.49; Chi² = 25.14, df = 8 (P = 0.001); I² = 68%				
Test for overall effect: Z = 0.04 (P = 0.96)				
Diabetes				
Visek et al. 2014	2014	20	20	-1.30 [-6.14, 3.54]
Subtotal				**-1.30 [-6.14, 3.54]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.53 (P = 0.60)				
CHD	-	-	-	-
Subtotal				
Heterogeneity: Not applicable				
Test for overall effect: Not applicable				
Total				**-0.01 [-0.58, 0.56]**
Heterogeneity: Tau² = 0.47; Chi² = 25.41, df = 9 (P = 0.003); I² = 65%				
Test for overall effect: Z = 0.02 (P = 0.98)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance random effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant, and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. CHD, coronary heart disease; CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet

Supplemental Figure S5: Forest plot of randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on waist circumference (cm) (n = 1380).

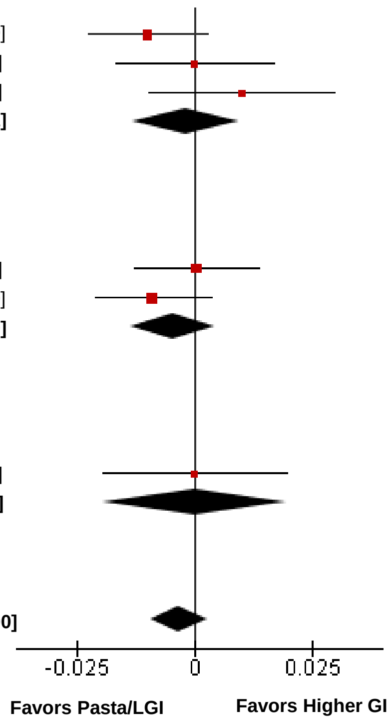
Study or Subgroup	Year	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI)
Overweight/Obese				
Pereira et al.	2015	10	9	-1.06 [-1.65, -0.47]
Buscemi et al.	2013	19	21	0.00 [-5.56, 5.56]
Costa et al.	2012	17	17	-1.75 [-2.72, -0.78]
Larsen et al. - HighPro	2010	115	101	-1.44 [-2.66, -0.22]
Larsen et al. – LowPro	2010	101	91	-0.39 [-1.80, 1.02]
Philippou et al. - 6mnth	2009	22	16	1.20 [-0.68, 3.08]
Philippou et al. - 4mnth	2009	23	19	-0.50 [-1.97, 0.97]
Aston et al.	2008	19	19	0.99 [-0.99, 2.97]
Jensen et al.	2008	22	22	-0.90 [-3.92, 2.12]
Philippou et al.	2008	7	6	-2.50 [-6.36, 1.36]
Bellisle et al.	2007	35	30	0.50 [-3.22, 4.22]
McMillan-Price et al.-HighCHO	2006	33	32	1.30 [0.02, 2.58]
McMillan-Price et al.-HighPro	2006	32	32	-1.30 [-2.67, 0.07]
Subtotal				**-0.54 [-1.17, 0.09]**
Heterogeneity: Tau² = 0.59; Chi² = 25.63, df = 12 (P = 0.01); I² = 53%				
Test for overall effect: Z = 1.68 (P = 0.09)				
Diabetes				
Jenkins et al.	2014	70	71	0.60 [-0.14, 1.34]
Jenkins et al.	2012	60	61	-1.10 [-4.88, 2.68]
Yusof et al.	2009	51	0	-1.69 [-2.60, -0.78]
Wolever et al.	2008	55	48	2.60 [-2.02, 7.22]
Subtotal				**-0.26 [-2.08, 1.55]**
Heterogeneity: Tau² = 2.13; Chi² = 16.22, df = 3 (P = 0.001); I² = 82%				
Test for overall effect: Z = 0.28 (P = 0.78)				
CHD				
Frost et al.	2004	26	29	1.10 [-3.06, 5.26]
Subtotal				**1.10 [-3.06, 5.26]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.52 (P = 0.60)				
Total				**-0.46 [-1.05, 0.14]**
Heterogeneity: Tau² = 0.78; Chi² = 44.49, df = 17 (P = 0.0003); I² = 62%				
Test for overall effect: Z = 1.50 (P = 0.13)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance random effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant, and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. CHD, coronary heart disease; CHO, carbohydrate; CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet; Pro, protein

Supplemental Figure S6: Forest plot of randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on waist-to-hip ratio (n = 445).

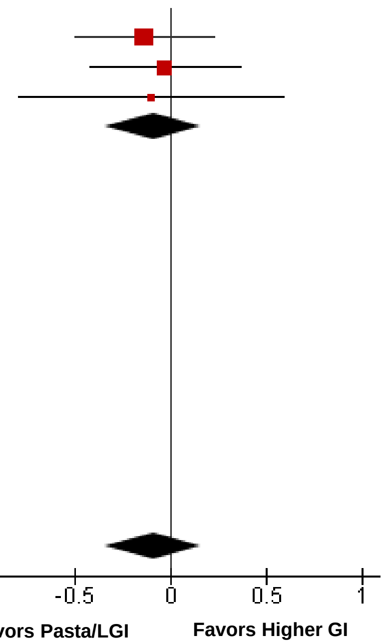
Study or Subgroup	Year	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI) W:H Ratio
Overweight/Obese				
Pereira et al.	2015	10	9	-0.01 [-0.02, 0.00]
Jensen et al.	2008	22	22	0.00 [-0.02, 0.02]
Bellisle et al.	2007	35	30	0.01 [-0.01, 0.03]
Subtotal				**-0.00 [-0.01, 0.01]**
Heterogeneity: Tau² = 0.00; Chi² = 2.98, df = 2 (P = 0.23); I² = 33%				
Test for overall effect: Z = 0.33 (P = 0.74)				
Diabetes				
Jenkins et al.	2014	70	71	0.00 [-0.01, 0.01]
Jenkins et al.	2012	60	61	-0.01 [-0.02, 0.00]
Subtotal				**-0.00 [-0.01, 0.00]**
Heterogeneity: Tau² = 0.00; Chi² = 1.00, df = 1 (P = 0.32); I² = 0%				
Test for overall effect: Z = 1.01 (P = 0.31)				
CHD				
Frost et al.	2004	26	29	0.00 [-0.02, 0.02]
Subtotal				**0.00 [-0.02, 0.02]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.00 (P = 1.00)				
Total				**-0.00 [-0.01, 0.00]**
Heterogeneity: Tau² = 0.00; Chi² = 4.17, df = 5 (P = 0.52); I² = 0%				
Test for overall effect: Z = 1.11 (P = 0.27)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance random effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant, and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. CHD, coronary heart disease; CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet

Supplemental Figure S7: Forest plot of randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on sagittal abdominal diameter (cm) (n = 478).

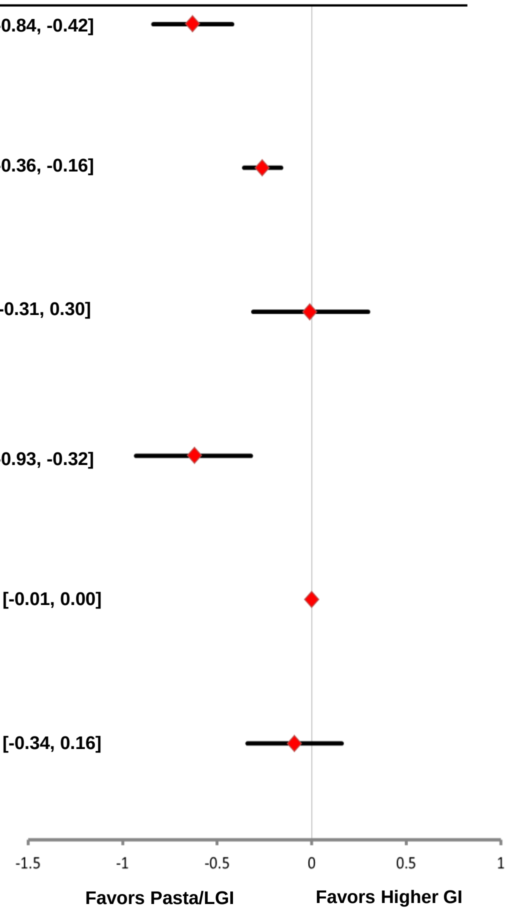
Study or Subgroup	Year	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI) Sagittal Abdominal Diameter (cm)
Overweight/Obese				
Larsen et al. - LowPro	2010	101	92	-0.14 [-0.50, 0.22]
Larsen et al.– HighPro	2010	114	100	-0.03 [-0.42, 0.36]
Jensen et al.	2008	22	22	-0.10 [-0.79, 0.59]
Subtotal				**-0.09 [-0.34, 0.16]**
Heterogeneity: Tau² = 0.00; Chi² = 2.98, df = 2 (P = 0.23); I² = 33%				
Test for overall effect: Z = 0.33 (P = 0.74)				
Diabetes	-	-	-	-
Subtotal				
Heterogeneity: Not applicable				
Test for overall effect: Not applicable				
CHD	-	-	-	-
Subtotal				
Heterogeneity: Not applicable				
Test for overall effect: Not applicable				
Total				**-0.09 [-0.34, 0.16]**
Heterogeneity: Tau² = 0.00; Chi² = 0.16, df = 2 (P = 0.92); I² = 0%				
Test for overall effect: Z = 0.71 (P = 0.48)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance random effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant, and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. CHD, coronary heart disease; CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet; Pro, protein

Supplemental Figure S8: Forest plot of randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on body weight (kg) using fixed effects models (n = 2448).

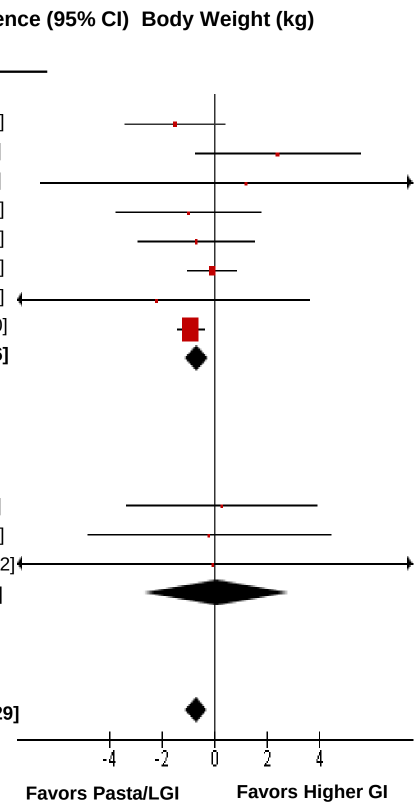
Outcome	# trials	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI)
Body Weight (kg)	32	1294	1228	**-0.63 [-0.84, -0.42]**
Heterogeneity: Chi² = 30.14, df = 31 (P = 0.51); I² = 0% Test for overall effect: Z = 5.93 (P < 0.00001)				
BMI (kg/m²)	18	551	538	**-0.26 [-0.36, -0.16]**
Heterogeneity: Chi² = 10.09, df = 17 (P = 0.90); I² = 0% Test for overall effect: Z = 5.29 (P < 0.00001)				
Body Fat (%)	10	176	165	**-0.01 [-0.31, 0.30]**
Heterogeneity: Chi² = 25.41, df = 9 (P = 0.003); I² = 65% Test for overall effect: Z = 0.03 (P = 0.97)				
Waist Circumference (cm)	18	717	624	**-0.62 [-0.93, -0.32]**
Heterogeneity: Chi² = 44.49, df = 17 (P = 0.0003); I² = 62% Test for overall effect: Z = 3.99 (P < 0.0001)				
Waist:Hip Ratio	6	223	222	**-0.00 [-0.01, 0.00]**
Heterogeneity: Chi² = 4.17, df = 5 (P = 0.52); I² = 0% Test for overall effect: Z = 1.11 (P = 0.27)				
Sagittal Abdominal Diameter (cm)	3	237	214	**-0.09 [-0.34, 0.16]**
Heterogeneity: Chi² = 0.16, df = 2 (P = 0.92); I² = 0% Test for overall effect: Z = 0.71 (P = 0.48)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance fixed effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant, and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. CHD, coronary heart disease; CHO, carbohydrate; CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet; MUFA, monounsaturated fatty acids; Pro, protein.

Supplemental Figure S9: Forest plot of the randomized controlled trials of the effect of pasta in the context of low-GI dietary patterns on body weight (kg) which contain data for the approximation of pasta intake (n = 740).

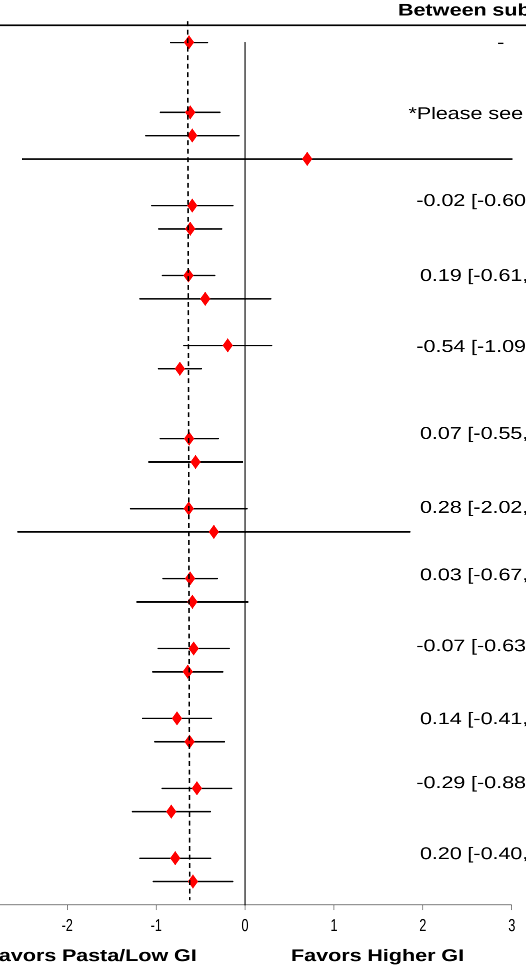
Study or Subgroup	Year	N (Pasta/LGI)	N (HGI)	Mean difference (95% CI)
Overweight/Obese				
Karl et al.	2015	20	19	-1.50 [-3.39, 0.39]
Jebb et al. -HighMUFA	2010	115	110	2.40 [-0.74, 5.54]
Solomon et al.	2010	10	12	1.20 [-6.60, 9.00]
Jebb et al. - LowFat	2010	117	111	-1.00 [-3.74, 1.74]
Jensen et al.	2008	22	22	-0.70 [-2.91, 1.51]
Aston et al.	2008	19	19	-0.10 [-1.04, 0.84]
Abete et al.	2008	16	16	-2.19 [-7.99, 3.60]
de Rougemont et al.	2007	19	19	-0.90 [-1.40, -0.40]
Subtotal				**-0.70 [-1.14, -0.26]**
Heterogeneity: Tau² = 0.01; Chi² = 7.12, df = 7 (P = 0.42); I² = 2%				
Test for overall effect: Z = 3.15 (P = 0.002)				
Diabetes				
Heilbronn et al.	2002	24	21	0.29 [-3.33, 3.91]
Fontvieille et al.	1992	18	18	-0.20 [-4.82, 4.42]
Fontvielle et al.	1988	8	8	-0.06 [-10.34, 10.22]
Subtotal				**0.09 [-2.65, 2.84]**
Heterogeneity: Tau² = 0.00; Chi² = 0.03, df = 2 (P = 0.99); I² = 0%				
Test for overall effect: Z = 0.07 (P = 0.95)				
Total				**-0.70 [-1.10, -0.29]**
Heterogeneity: Tau² = 0.00; Chi² = 7.48, df = 10 (P = 0.68); I² = 0%				
Test for overall effect: Z = 3.35 (P = 0.0008)				



Data are expressed as mean differences represented by a square and 95% CIs by the line through the square. 95% CIs exceeding the plot's bounds are represented by an arrowhead. Pooled effect estimates are represented by diamonds and were estimated with the use of generic inverse variance random effects models. Between-study heterogeneity was assessed by the Cochran Q statistic, where P<0.10 is considered statistically significant and quantified by the I^2 statistic, where $I^2 \geq 50\%$ is considered evidence of substantial heterogeneity. CI, confidence interval; HGI, higher glycemic index diet; GI, glycemic index; LGI, low glycemic index diet; MUFA, monounsaturated fatty acids

Supplemental Figure S10: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on body weight (kg) (n = 2448).

Subgroup	Level	No. comparisons	N	Mean difference [95% CI] in body weight [kg] Within subgroups	Between subgroups	Residual I²	P-value
Total		32	2448	-0.63 [-0.84, -0.42]	-	-	-
Metabolic Phenotype	OW/OB	21	1613	-0.62 [-0.95, -0.28]	*Please see legend	2.86%	0.889
	Diabetes	10	780	-0.59 [-1.12, -0.07]			
	CHD	1	55	0.70 [-4.89, 6.29]			
Baseline BMI	≤30kg/m²	14	972	-0.59 [-1.05, -0.13]	-0.02 [-0.60, 0.56]	0.24%	0.934
	>30kg/m²	18	1476	-0.62 [-0.97, -0.26]			
Design	Parallel	26	2352	-0.64 [-0.93, -0.34]	0.19 [-0.61, 0.98]	0.00%	0.632
	Crossover	6	96	-0.45 [-1.18, 0.29]			
Energy Balance	Negative	9	459	-0.19 [-0.69, 0.30]	-0.54 [-1.09, 0.01]	0.00%	**0.056**
	Neutral	23	1989	-0.73 [-0.98, -0.49]			
	Positive	0	0				
Follow-up	<24-weeks	24	1065	-0.63 [-0.96, -0.30]	0.07 [-0.55, 0.70]	0.35%	0.814
	≥24-weeks	8	1383	-0.56 [-1.09, -0.03]			
Dose Pasta	<3.3 serv/wk	5	378	-0.63 [-1.29, 0.02]	0.28 [-2.02, 2.58]	0.00%	0.788
	≥3.3serv/wk	6	362	-0.35 [-2.56, 1.86]			
Test GI┼	≤55	23	1208	-0.62 [-0.93, -0.31]	0.03 [-0.67, 0.72]	2.99%	0.941
	>55	8	1175	-0.59 [-1.22, 0.03]			
GI btw trt┼	≤12.6	16	1787	-0.58 [-0.98, -0.18]	-0.07 [-0.63, 0.50]	2.60%	0.810
	>12.6	15	596	-0.64 [-1.04, -0.25]			
Test Fibre‡	≤28.0g/d	14	861	-0.77 [-1.15, -0.38]	0.14 [-0.41, 0.69]	0.00%	0.604
	>28.0g/d	13	990	-0.62 [-1.02, -0.23]			
Fibre within test‖	≤4.63g/d	9	867	-0.54 [-0.93, -0.15]	-0.29 [-0.88, 0.30]	18.80%	0.316
	>4.63g/d	8	704	-0.83 [-1.27, -0.39]			
Fibre btw trt‡	≤2.40g/d	15	1005	-0.79 [-1.19, -0.38]	0.20 [-0.40, 0.80]	0.00%	0.500
	>2.40g/d	12	846	-0.59 [-1.03, -0.14]			



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on body weight. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. BMI, body mass index; btw, between; CHD, coronary heart disease; CI, confidence interval; GI, glycemic index (glucose scale); OB, obese; OW, overweight; serv, serving; trt, treatment; wk, week.

*Pairwise between-subgroup mean differences (95% CIs) for Metabolic Phenotype were as follows: 0.02kg (-0.08, 0.65) (1 vs. 2) to 1.32kg (-4.28, 6.91) (1 vs. 3) to -1.29kg (-6.91, 4.32) (2 vs. 3).

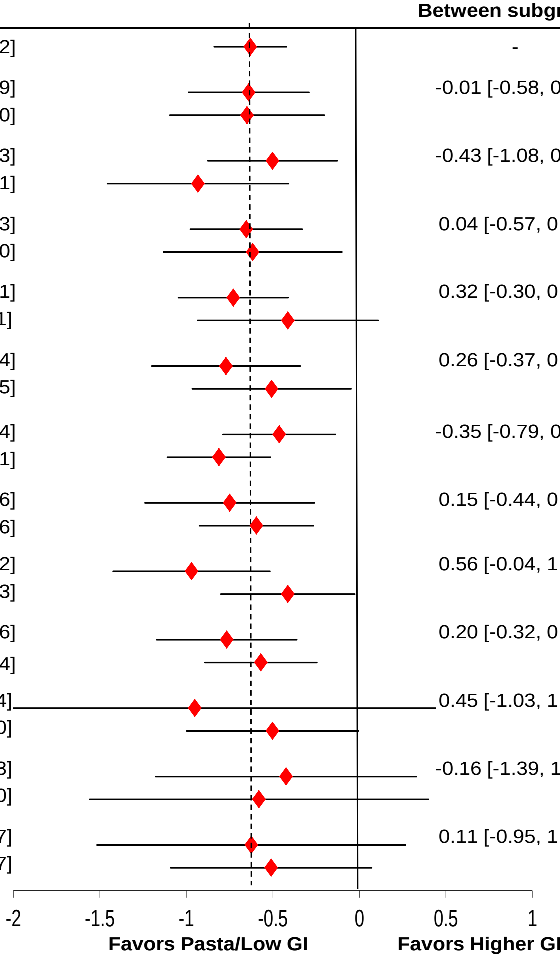
┼ data available on 31 studies

‖ data available on 17 studies

ł data available on 27 studies

Supplemental Figure S11: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on body weight (kg) continued (n = 2448).

Subgroup	Level	No. comparisons	N	Mean difference [95% CI] in body weight [kg]: Within subgroups	Mean difference [95% CI] in body weight [kg]: Between subgroups	Residual I^2	P-value
Total		32	2448	-0.63 [-0.84, -0.42]	-	-	-
Test CHO§	<50%	14	1206	-0.64 [-0.99, -0.29]	-0.01 [-0.58, 0.56]	0.00%	0.972
	≥50%	16	1139	-0.65 [-1.10, -0.20]			
CHO within trt¥	≤1.70%	10	1118	-0.50 [-0.88, -0.13]	-0.43 [-1.08, 0.21]	21.43%	0.176
	>1.70%	9	928	-0.93 [-1.46, -0.41]			
CHO btw trt§	≤ -0.94%	15	1074	-0.65 [-0.98, -0.33]	0.04 [-0.57, 0.65]	0.00%	0.902
	> -0.94%	15	1271	-0.62 [-1.13, -0.10]			
Test Protein§	<20%	23	1556	-0.73 [-1.05, -0.41]	0.32 [-0.30, 0.93]	0.00%	0.300
	≥20%	7	789	-0.41 [-0.94, 0.11]			
Protein within trt¥	≤ 0.95%	10	1212	-0.77 [-1.20, -0.34]	0.26 [-0.37, 0.89]	24.29%	0.389
	> 0.95%	9	834	-0.51 [-0.97, -0.05]			
Protein btw trt§	≤ 0.45%	15	1091	-0.46 [-0.79, -0.14]	-0.35 [-0.79, 0.09]	0.00%	0.118
	> 0.45%	15	1254	-0.81 [-1.11, -0.51]			
Test Fat§	<30%	13	988	-0.75 [-1.24, -0.26]	0.15 [-0.44, 0.75]	0.00%	0.597
	≥30%	17	1357	-0.59 [-0.93, -0.26]			
Fat within trt¥	≤-2.80%	10	1165	-0.97 [-1.42, -0.52]	0.56 [-0.04, 1.15]	14.44%	0.066
	>-2.80%	9	881	-0.41 [-0.80, -0.03]			
Fat btw trt§	≤0.30%	15	1071	-0.77 [-1.17, -0.36]	0.20 [-0.32, 0.72]	0.00%	0.443
	>0.30%	15	1274	-0.57 [-0.89, -0.24]			
Test SFA¶	≤ 7.0%	2	109	-0.95 [-2.34, 0.44]	0.45 [-1.03, 1.93]	35.83%	0.521
	> 7.0%	12	1287	-0.50 [-1.00, 0.00]			
SFA within trtΨ	≤ -2.21%	6	763	-0.42 [-1.18, 0.33]	-0.16 [-1.39, 1.08]	46.25%	0.784
	> - 2.21%	6	546	-0.58 [-1.56, 0.40]			
SFA btw trt¶	≤ -0.50%	7	640	-0.62 [-1.52, 0.27]	0.11 [-0.95, 1.18]	37.76%	0.818
	> -0.50%	7	756	-0.51 [-1.09, 0.07]			



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on body weight. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. BMI, body mass index; btw, between; CI, confidence interval; GI, glycemic index (glucose scale); trt, treatment.

§ data available on 30 studies

¥ data available on 19 studies

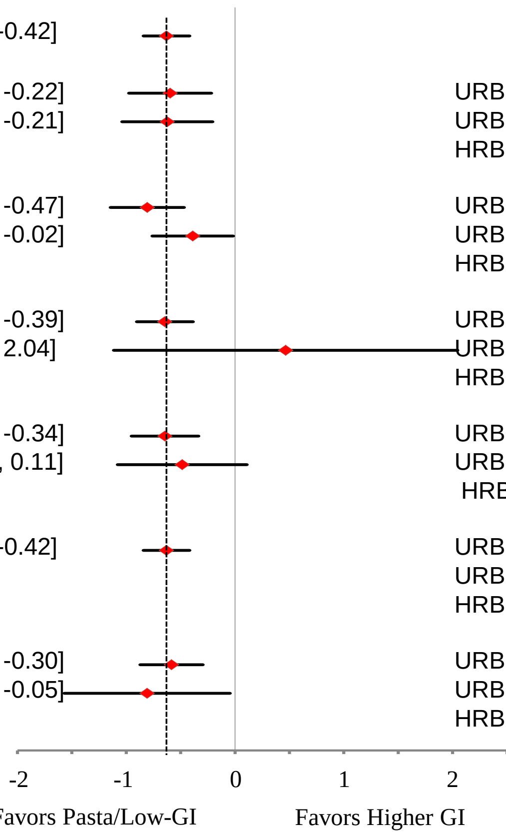
¶ data available on 14 studies

Ψ data available on 12 studies

Supplemental Figure S12: A priori subgroup analyses on risk of bias for the effect of pasta in the context of low-GI dietary patterns on body weight (kg) (n = 2448).

Mean difference (95% CI) in Body Weight, kg

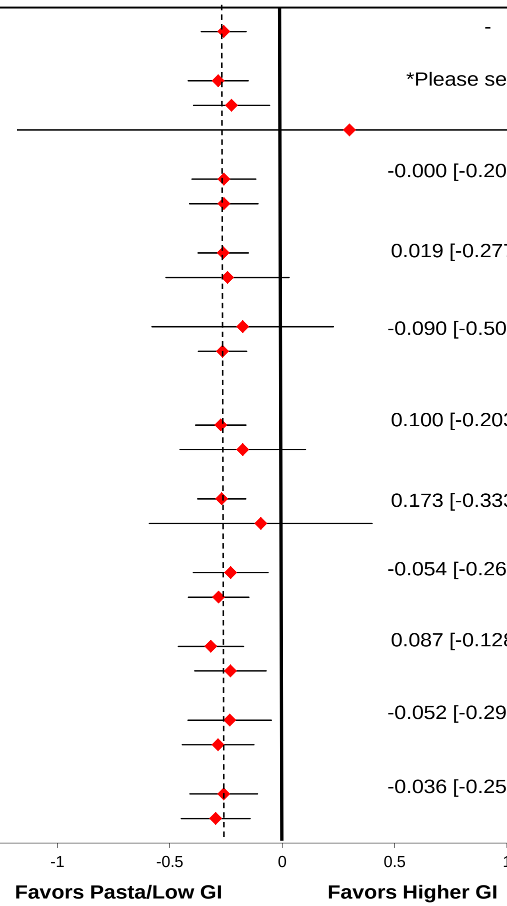
Subgroup	Level	Trials	N	Within subgroups	Between subgroups	Residual I^2	P-value
Total		32	2448	-0.63 [-0.84, -0.42]			
Sequence Generation	LRB	14	1829	-0.60 [-0.97, -0.22]	URB+HRB= *	0.00%	0.924
	URB	18	619	-0.62 [-1.04, -0.21]	URB+LRB= -0.03 [-0.59, 0.53]		
	HRB	0	0	*	HRB+LRB= *		
Allocation Concealment	LRB	10	1150	-0.81 [-1.14, -0.47]	URB+HRB= *	0.00%	0.098
	URB	22	1298	-0.39 [-0.76, -0.02]	URB+LRB=0.42 [-0.08, 0.92]		
	HRB	0	0	*	HRB+LRB= *		
Blinding §	LRB	27	2275	-0.64 [-0.90, -0.39]	URB+HRB= *	0.00%	0.166
	URB	5	173	0.47 [-1.11, 2.04]	URB+LRB=1.11 [-0.49, 2.71]		
	HRB	0	0	*	HRB+LRB= *		
Incomplete Outcome Data	LRB	21	1574	-0.64 [-0.95, -0.34]	URB+HRB=*	0.00%	0.630
	URB	11	874	-0.48, [-1.08, 0.11]	URB+LRB=0.16 [-0.51, 0.83]		
	HRB	0	0	*	HRB+LRB=*		
Selective Outcome Reporting	LRB	32	2448	-0.63 [-0.84, -0.42]	URB+HRB=*	*	*
	URB	0	0	**	URB+LRB=**		
	HRB	0	0	*	HRB+LRB=*		
Overall Risk of Bias	LRB	24	2180	-0.58 [-0.87, -0.30]	URB+HRB=*	0.00%	0.577
	URB	8	268	-0.81 [-1.57, -0.05]	URB+LRB= -0.22 [-1.03, 0.59]		
	HRB	0	0	*	HRB+LRB=*		



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on body weight. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. LRB=Low Risk of Bias, URB= Unclear Risk of Bias, HRB=High Risk of Bias. *Within and between subgroup analysis could not be performed against HRB since no values for HRB subgroup. ** no values for URB subgroup. §Blinding of Participants, Personnel, and Outcome Assessors.

Supplemental Figure S13: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on body mass index, BMI (kg/m²) (n = 1038).

Subgroup	Level	No. com-parisons	N	Mean difference [95% CI] in BMI [kg/m²]: Within subgroups	Mean difference [95% CI] in BMI [kg/m²]: Between subgroups	Residual I²	P-value
Total		18	1038	-0.26 [-0.36, -0.16]	-	-	-
Metabolic Phenotype	OW/OB	11	377	-0.284 [-0.418, -0.151]	*Please see legend	0.00%	0.644
	Diabetes	6	606	-0.255 [-0.394, -0.056]			
	CHD	1	55	0.300 [-1.288, 1.888]			
Baseline BMI	≤30kg/m²	8	324	-0.259 [-0.401, -0.117]	-0.000 [-0.209, 0.208]	0.00%	0.998
	>30kg/m²	10	714	-0.259 [-0.412, -0.107]			
Design	Parallel	15	987	-0.262 [-0.374, -0.150]	0.019 [-0.277, 0.315]	0.00%	0.895
	Crossover	3	51	-0.243 [-0.517, 0.031]			
Energy Balance	Negative	4	130	-0.175 [-0.579, 0.228]	-0.090 [-0.507, 0.328]	0.00%	0.654
	Neutral	14	980	-0.265 [-0.373, -0.158]			
	Positive	0	0				
Follow-up	<24-weeks	16	790	-0.273 [-0.385, -0.161]	0.100 [-0.203, 0.398]	0.00%	0.502
	≥24-weeks	2	248	-0.175 [-0.454, 0.104]			
Test GI┼	≤55	15	829	-0.269 [-0.376, -0.162]	0.173 [-0.333, 0.680]	0.00%	0.477
	>55	2	144	-0.095 [-0.591, 0.400]			
GI btw trt┼	<12.6	8	694	-0.229 [-0.395, -0.063]	-0.054 [-0.268, 0.160]	0.00%	0.600
	≥12.6	9	279	-0.283 [-0.417, -0.148]			
Test Fibre‡	≤28.0g/d	8	304	-0.317 [-0.462, -0.172]	0.087 [-0.128, 0.302]	0.00%	0.401
	>28.0g/d	8	631	-0.230 [-0.389, -0.071]			
Fibre within test‖	≤4.95g/d	5	245	-0.233 [-0.419, -0.048]	-0.052 [-0.296, 0.192]	0.00%	0.637
	>4.95g/d	5	513	-0.285 [-0.444, -0.126]			
Fibre btw trt‡	≤2.40g/d	9	377	-0.260 [-0.410, -0.110]	-0.036 [-0.250, 0.179]	0.00%	0.726
	>2.40g/d	7	558	-0.296 [-0.449, -0.143]			



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on BMI. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. There were less than 10 trials available for categorical subgroup assessment for dose (n=3 trials), therefore analyses were not performed. BMI, body mass index; btw, between; CI, confidence interval; GI, glycemic index (glucose scale); OB, obese; OW, overweight; trt, treatment.

*Pairwise between-subgroup mean differences (95% CIs) for Metabolic Phenotype were as follows: 0.059kg/m^2 (-0.156, 0.274) (1 vs. 2) to 0.584kg/m^2 (-1.009, 2.178) (1 vs. 3) to -0.525kg/m^2 (-2.122, 1.072) (2 vs. 3).

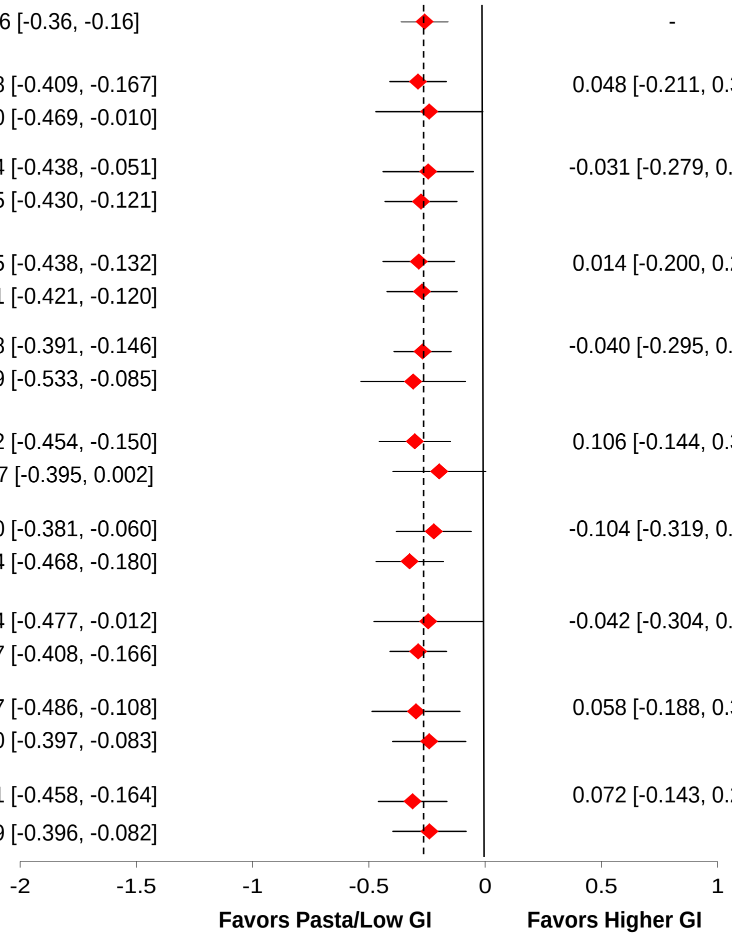
┼ data available on 17 studies

ƚ data available on 16 studies

‖ data available on 10 studies

Supplemental Figure S14: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on body mass index, BMI (kg/m^2) continued (n = 1038).

Subgroup	Level	No. comparisons	N	Mean difference [95% CI] in BMI [kg/m^2] Within subgroups	Mean difference [95% CI] in BMI [kg/m^2] Between subgroups	Residual I^2	P-value
Total		18	1038	-0.26 [-0.36, -0.16]	-	-	-
Test CHO§	< 50%	9	659	-0.288 [-0.409, -0.167]	0.048 [-0.211, 0.308]	0.00%	0.696
	≥ 50%	7	276	-0.240 [-0.469, -0.010]			
CHO within trt¥	≤ 1.35%	5	436	-0.244 [-0.438, -0.051]	-0.031 [-0.279, 0.217]	0.00%	0.781
	> 1.35%	5	322	-0.275 [-0.430, -0.121]			
CHO btw trt§	≤ -1.75%	8	657	-0.285 [-0.438, -0.132]	0.014 [-0.200, 0.229]	0.00%	0.888
	> -1.75%	8	278	-0.271 [-0.421, -0.120]			
Test Protein§	< 20%	13	590	-0.268 [-0.391, -0.146]	-0.040 [-0.295, 0.215]	0.00%	0.741
	≥ 20%	3	345	-0.309 [-0.533, -0.085]			
Protein within trt¥	≤ 1.04%	5	339	-0.302 [-0.454, -0.150]	0.106 [-0.144, 0.356]	0.00%	0.358
	> 1.04%	5	419	-0.197 [-0.395, 0.002]			
Protein btw trt§	≤ 0.45%	8	373	-0.220 [-0.381, -0.060]	-0.104 [-0.319, 0.112]	0.00%	0.319
	> 0.45%	8	562	-0.324 [-0.468, -0.180]			
Test Fat§	< 30%	6	176	-0.244 [-0.477, -0.012]	-0.042 [-0.304, 0.220]	0.00%	0.734
	≥ 30%	10	759	-0.287 [-0.408, -0.166]			
Fat within trt¥	≤ -2.60%	5	303	-0.297 [-0.486, -0.108]	0.058 [-0.188, 0.303]	0.00%	0.604
	> -2.60%	5	455	-0.240 [-0.397, -0.083]			
Fat btw trt§	≤ 0.95%	8	253	-0.311 [-0.458, -0.164]	0.072 [-0.143, 0.287]	0.00%	0.483
	> 0.95%	8	682	-0.239 [-0.396, -0.082]			



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on

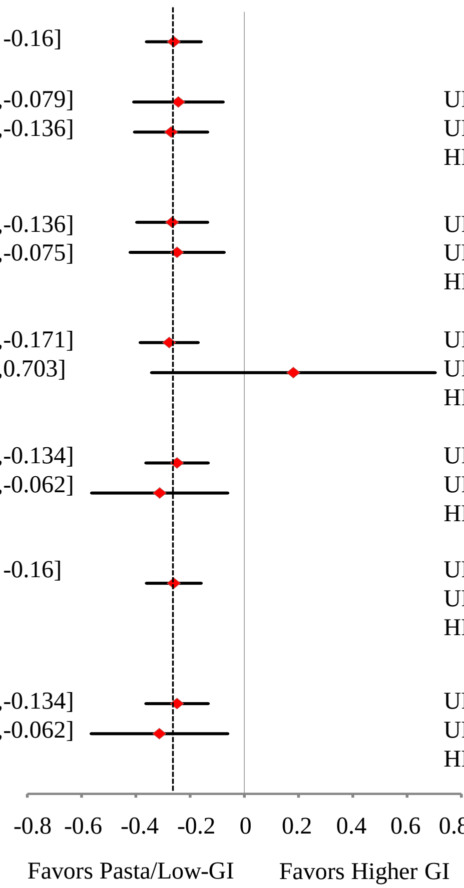
BMI. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. There were less than 10 trials available for categorical subgroup assessment for test saturated fat (n=7 trials), saturated fat within treatment (n=6 trials) and saturated fat between treatments (n=7 trials), therefore analyses were not performed. BMI, body mass index; btw, between; CHO, carbohydrate; CI = confidence interval; GI, glycemic index (glucose scale); trt, treatment.

§ data available on 16 studies

¥ data available on 10 studies

Supplemental Figure S15: A priori subgroup analyses on risk of bias for the effect of pasta in the context of low-GI dietary patterns on body mass index, BMI (kg/m^2) (n = 1038).

				Mean difference (95% CI) in BMI, kg/m^2			
Subgroup	**Level**	**Trials**	**N**	**Within subgroups**	**Between subgroups**	**Residual I^2**	**P-value**
Total		18	1038	-0.26 [-0.36, -0.16]			
Sequence Generation	LRB	6	651	-0.243[-0.407,-0.079]	URB+HRB= *	0.00%	0.788
	URB	12	387	-0.270[-0.404,-0.136]	URB+LRB= -0.027 [-0.239, 0.185]		
	HRB	0	0	*	HRB+LRB= *		
Allocation Concealment	LRB	6	589	-0.266[-0.396,-0.136]	URB+HRB= *	0.00%	0.859
	URB	12	449	-0.248[-0.420,-0.075]	URB+LRB=0.018[-0.198, 0.234]		
	HRB	0	0	*	HRB+LRB= *		
Blinding §	LRB	15	921	-0.277[-0.383,-0.171]	URB+HRB= *	0.00%	0.087
	URB	3	117	0.181[-0.341,0.703]	URB+LRB=0.458[-0.074, 0.991]		
	HRB	0	0	*	HRB+LRB= *		
Incomplete Outcome Data	LRB	11	807	-0.248[-0.362,-0.134]	URB+HRB=*	0.00%	0.628
	URB	7	231	-0.312[-0.562,-0.062]	URB+LRB=-0.064 [-0.339, 0.211]		
	HRB	0	0	*	HRB+LRB=*		
Selective Outcome Reporting	LRB	18	1038	-0.26 [-0.36, -0.16]	URB+HRB=*	*	*
	URB	0	0	**	URB+LRB=**		
	HRB	0	0	*	HRB+LRB=*		
Overall Risk of Bias	LRB	12	847	-0.248[-0.362,-0.134]	URB+HRB=*	0.00%	0.624
	URB	6	191	-0.313[-0.564,-0.062]	URB+LRB=-0.065 [-0.341, 0.211]		
	HRB	0	0	*	HRB+LRB=*		

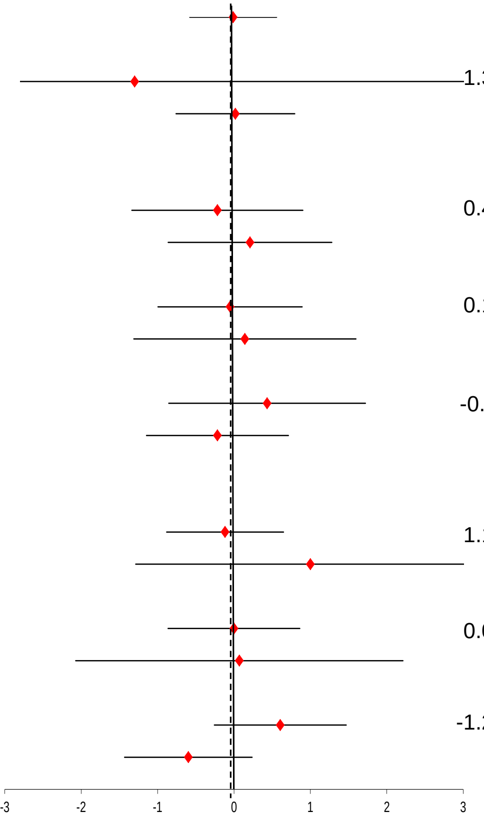


The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on BMI. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. BMI, body mass index; CI, confidence interval; HRB, High Risk of Bias; GI, glycemic index; LRB, Low Risk of Bias; URB, Unclear Risk of Bias.

*Within and between subgroup analyses could not be performed against HRB since no values for HRB subgroup.
** no values for URB subgroup.
§Blinding of Participants, Personnel, and Outcome Assessors.

Supplemental Figure S16: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on body fat (%) (n = 285).

Subgroup	Level	No. comparisons	N	Mean difference [95% CI] in body fat [%]: Within subgroups	Mean difference [95% CI] in body fat [%]: Between subgroups	Residual I^2	P-value
Total		10	285	-0.01 [-0.58, 0.56]	-	-	-
Metabolic Phenotype	OW/OB	9	265	-1.300 [-7.782, 5.182]	1.319 [-5.210, 7.847]	68.17%	0.654
	Diabetes	1	20	0.019 [-0.760, 0.797]			
	CHD	0	0				
Baseline BMI	≤30kg/m²	4	112	-0.217 [-1.338, 0.903]	0.427 [-1.125, 1.978]	67.72%	0.544
	>30kg/m²	6	173	0.210 [-0.863, 1.282]			
Design	Parallel	7	229	-0.051 [-0.996, 0.893]	0.194 [-1.540, 1.929]	66.40%	0.803
	Crossover	3	56	0.143 [-1.312, 1.598]			
Energy Balance	Negative	4	130	0.434 [-0.856, 1.723]	-0.650 [-2.241, 0.940]	68.11%	0.373
	Neutral	6	155	-0.216 [-1.147, 0.714]			
	Positive						
Follow-up	<24-weeks	9	247	-0.116 [-0.883, 0.650]	1.116 [-1.300, 3.529]	64.50%	0.317
	≥24-weeks	1	38	1.000 [-1.288, 3.288]			
Test GI	≤55	9	266	-0.000 [-0.864, 0.863]	0.070 [-2.241, 2.382]	68.43%	0.946
	>55	1	19	0.070 [-2.074, 2.214]			
GI btw trt	≤14.1	5	152	0.606 [-0.258, 1.471]	-1.204 [-2.407, -0.008]	55.49%	0.050
	>14.1	5	153	-0.597 [-1.434, 0.239]			



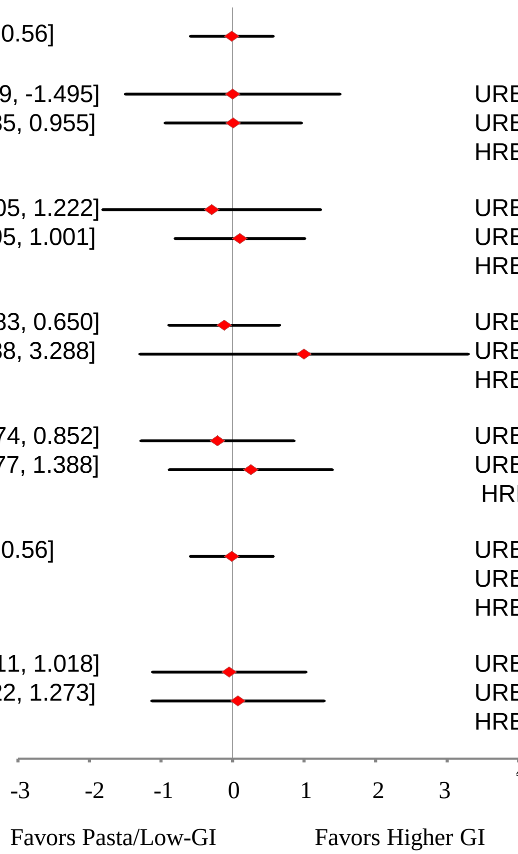
Favors Pasta/Low GI **Favors Higher GI**

The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on body fat. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. There were less than 10 trials available for categorical subgroup assessment for dose (n=3), test carbohydrate, protein and fat (n=9), carbohydrate, protein and fat within treatment (n=4), carbohydrate, protein and fat between treatment (n=9), test fibre (n=8), fibre within treatment (n=4), fibre between treatment (n=8), test saturated fat (n=3 trials), saturated fat within treatment (n=2 trials) and saturated fat between treatments (n=3 trials), therefore analyses were not performed. BMI, body mass index; btw, between; CHO, carbohydrate; CI = confidence interval; GI, glycemic index (glucose scale); OB, obese; OW, overweight; trt, treatment.

Supplemental Figure S17: A priori subgroup analyses on risk of bias for the effect of pasta in the context of low-GI dietary patterns on body fat (%) (n = 285).

Mean difference (95% CI) in Body Fat, %

Subgroup	Level	Trials	N	Within subgroups	Between subgroups	Residual I^2	P-value
Total		10	285	-0.01 [-0.58, 0.56]			
Sequence Generation	LRB	3	98	0.003 [-1.489, -1.495]	URB+HRB= *	68.16%	0.993
	URB	7	187	0.010 [-0.935, 0.955]	URB+LRB= 0.007 [-1.760, 1.773]		
	HRB	0	0	*	HRB+LRB= *		
Allocation Concealment	LRB	3	117	-0.291 [-1.805, 1.222]	URB+HRB= *	64.70%	0.619
	URB	7	168	0.103 [-0.795, 1.001]	URB+LRB=0.395 [-1.365, 2.155]		
	HRB	0	0	*	HRB+LRB= *		
Blinding §	LRB	9	247	-0.116 [-0.883, 0.650]	URB+HRB= *	64.50%	0.317
	URB	1	38	1.000 [-1.288, 3.288]	URB+LRB=1.116 [-1.296, 3.529]		
	HRB	0	0	*	HRB+LRB= *		
Incomplete Outcome Data	LRB	5	133	-0.211 [-1.274, 0.852]	URB+HRB=*	68.34%	0.508
	URB	5	152	0.256, [-0.877, 1.388]	URB+LRB=0.467 [-1.087, 2.020]		
	HRB	0	0	*	HRB+LRB=*		
Selective Outcome Reporting	LRB	10	285	-0.01 [-0.58, 0.56]	URB+HRB=*	*	*
	URB	0	0	**	URB+LRB=**		
	HRB	0	0	*	HRB+LRB=*		
Overall Risk of Bias	LRB	64	173	-0.047 [-1.111, 1.018]	URB+HRB=*	68.51%	0.865
	URB	4	112	0.076 [-1.122, 1.273]	URB+LRB= 0.122 [-1.480, 1.725]		
	HRB	0	0	*	HRB+LRB=*		



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on body fat. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. CI, confidence interval; HRB, High Risk of Bias; GI, glycemic index; LRB, Low Risk of Bias; URB, Unclear Risk of Bias

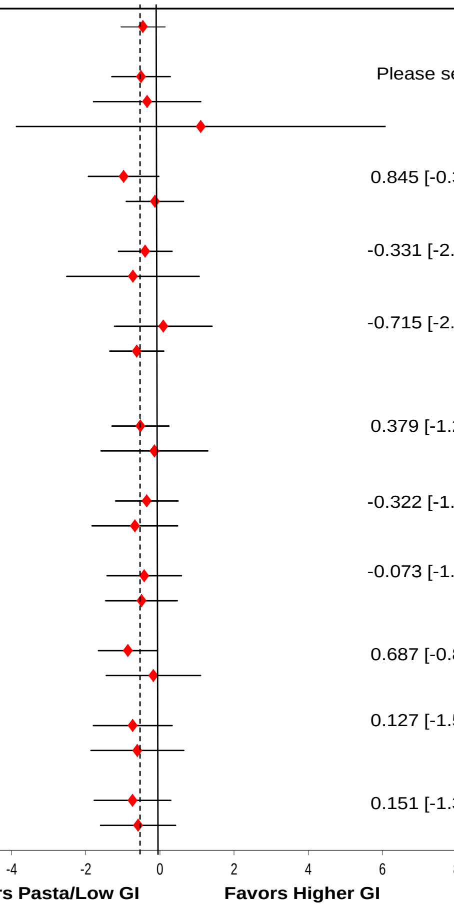
*Within and between subgroup analyses could not be performed against HRB since no values for HRB subgroup.

** no values for URB subgroup.

§ Blinding of Participants, Personnel, and Outcome Assessors.

Supplemental Figure S18: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on waist circumference (cm) (n = 1380).

Subgroup	Level	No. com-Parisons	N	Mean difference [95% CI] in waist circumference [cm] Within subgroups	Between subgroups	Residual I^2	P-value
Total		18	1380	-0.46 [-1.05, 0.14]	-	-	-
Metabolic Phenotype	OW/OB	13	860	-0.508 [-1.301, 0.285]	Please see legend*	64.16%	0.787
	Diabetes	4	465	-0.345 [-1.798, 1.1-8]			
	CHD	1	55	1.100 [-3.878, 6.078]			
Baseline BMI	≤30kg/m^2	6	273	-0.980 [-1.935, -0.026]	0.845 [-0.385, 2.075]	47.12%	0.165
	>30kg/m^2	12	1107	-0.135 [-0.911, 0.641]			
Design	Parallel	16	1344	-0.398 [-1.125, 0.330]	-0.331 [-2.264, 1.603]	62.27%	0.722
	Crossover	2	36	-0.728 [-2.520, 1.063]			
Energy Balance	Negative	5	220	0.091 [-1.231, 1.412]	-0.715 [-2.225, 0.795]	60.08%	0.330
	Neutral	13	1160	-0.624 [-1.355, 0.107]			
	Positive	0	0				
Follow-up	<24-weeks	14	805	-0.526 [-1.299, 0.246]	0.379 [-1.258, 2.017]	63.91%	0.630
	≥24-weeks	4	575	-0.147 [-1.591, 1.297]			
Test GI†	≤55	11	615	-0.354 [-1.202, 0.493]	-0.322 [-1.758, 1.113]	63.94%	0.639
	>55	6	700	-0.676 [-1.835, 0.482]			
GI btw trt†	≤11.0	9	986	-0.424 [-1.433, 0.584]	-0.073 [-1.472, 1.326]	64.79%	0.913
	>11.0	8	329	-0.497 [-1.467, 0.473]			
Test Fibre‡	≤28.0g/d	9	745	-0.865 [-1.664, -0.065]	0.687 [-0.818, 2.192]	53.29%	0.342
	>28.0g/d	6	513	-0.178 [-1.453, 1.098]			
Fibre within test‖	≤3.0g/d	7	603	-0.735 [-1.802, 0.332]	0.127 [-1.521, 1.774]	69.00%	0.869
	>3.0g/d	6	573	-0.609 [-1.864, 0.647]			
Fibre btw trt‡	<2.40g/d	7	477	-0.740 [-1.780, 0.299]	0.151 [-1.303, 1.604]	65.19%	0.826
	≥2.40g/d	8	781	-0.590 [-1.606, 0.426]			



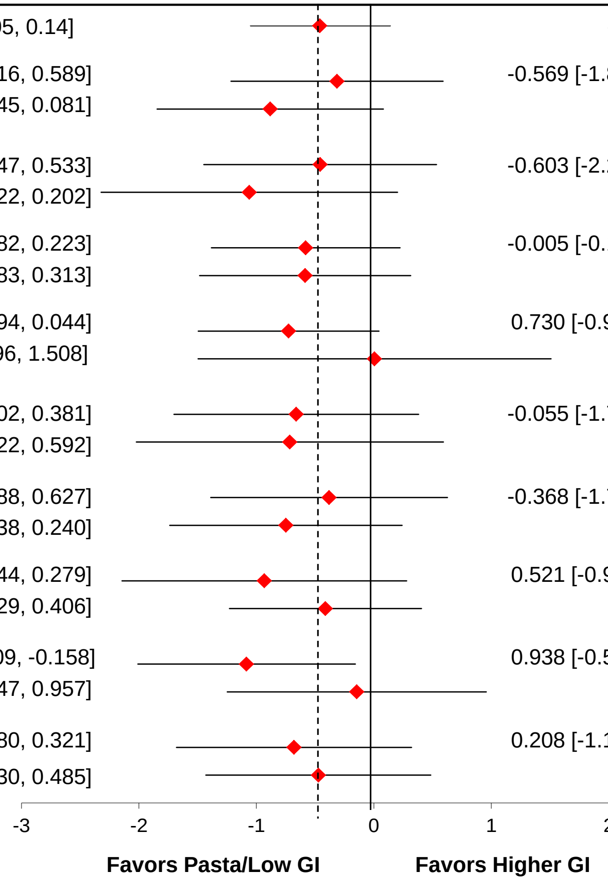
The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on waist circumference. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are

represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. There were less than 10 trials available for categorical subgroup assessment for dose (n=2 trials), therefore analyses were not performed. BMI, body mass index; btw, between; CI = confidence interval; GI, glycemic index (glucose scale); OB, obese; OW, overweight; trt, treatment.

*Pairwise between-subgroup mean differences (95% CIs) for Metabolic Phenotype were as follows: 0.163cm (-1.492, 1.818) (1 vs. 2) to 1.608cm (-3.432, 6.648) (1 vs. 3) to -1.445cm (-6.630, 3.740) (2 vs. 3).
┼ data available on 17 studies
ł data available on 15 studies

Supplemental Figure S19: A priori subgroup analyses for the effect of pasta in the context of low-GI dietary patterns on waist circumference (cm) continued (n = 1380).

Subgroup	Level	No. com-parisons	N	Mean difference [95% CI] in waist circumference [cm]: Within subgroups	Mean difference [95% CI] in waist circumference [cm]: Between subgroups	Residual I^2	P-value
Total		18	1380	-0.46 [-1.05, 0.14]	-	-	-
Test CHO§	< 50%	8	687	-0.313 [-1.216, 0.589]	-0.569 [-1.889, 0.751]	59.05%	0.371
	≥ 50%	8	590	-0.882 [-1.845, 0.081]			
CHO within trt¥	≤ 1.0%	7	732	-0.457 [-1.447, 0.533]	-0.603 [-2.208, 1.001]	67.96%	0.426
	> 1.0%	6	444	-1.060 [-2.322, 0.202]			
CHO btw trt§	≤ -0.99%	8	540	-0.580 [-1.382, 0.223]	-0.005 [-0.179, 0.168]	60.81%	0.947
	> -0.99%	8	737	-0.585 [-1.483, 0.313]			
Test Protein§	< 20%	12	757	-0.725 [-1.494, 0.044]	0.730 [-0.957, 2.418]	63.40%	0.369
	≥ 20%	4	520	0.006 [-1.496, 1.508]			
Protein within trt¥	≤ 1.1%	7	638	-0.661 [-1.702, 0.381]	-0.055 [-1.726, 1.616]	70.43%	0.944
	> 1.1%	6	538	-0.715 [-2.022, 0.592]			
Protein btw trt§	≤ 0.20%	9	589	-0.381 [-1.388, 0.627]	-0.368 [-1.780, 1.043]	65.29%	0.585
	> 0.20%	7	688	-0.749 [-1.738, 0.240]			
Test Fat§	< 30%	6	471	-0.932 [-2.144, 0.279]	0.521 [-0.941, 1.982]	62.58%	0.457
	≥ 30%	10	806	-0.412 [-1.229, 0.406]			
Fat within trt¥	≤ -3.0%	7	681	-1.084 [-2.009, -0.158]	0.938 [-0.501, 2.378]	59.63%	0.179
	> -3.0%	6	495	-0.145 [-1.247, 0.957]			
Fat btw trt§	≤ 0.85%	8	687	-0.680 [-1.680, 0.321]	0.208 [-1.177, 1.592]	60.12%	0.753
	> 0.85%	8	590	-0.472 [-1.430, 0.485]			



The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on waist circumference. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are

represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. Within and between-treatment changes were categorically assessed based on the median intakes. There were less than 10 trials available for categorical subgroup assessment for test saturated fat (n=8 trials), saturated fat within treatment (n=7 trials) and saturated fat between treatments (n=8 trials), therefore analyses were not performed. BMI, body mass index; btw, between; CHO, carbohydrate; CI = confidence interval; GI, glycemic index (glucose scale); trt, treatment.

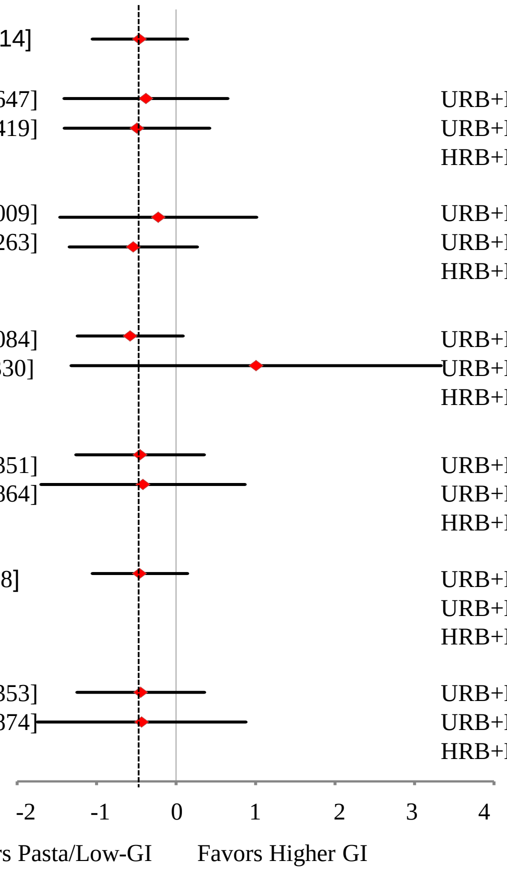
§ data available on 16 studies

¥ data available on 13 studies

Supplemental Figure S20: A priori subgroup analyses on risk of bias for the effect of pasta in the context of low-GI dietary patterns on waist circumference (cm) (n = 1380).

Mean difference (95% CI) in waist circumference, cm

Subgroup	Level	Trials	N	Within subgroups	Between subgroups	Residual I^2	P-value
Total		18	1380	-0.46 [-1.05, 0.14]			
Sequence Generation	LRB	8	958	-0.379[-1.405,0.647]	URB+HRB= *	62.73%	0.864
	URB	10	422	-0.492[-1.402,0.419]	URB+LRB= -0.112[-1.484,1.259]		
	HRB	0	0	*	HRB+LRB= *		
Allocation Concealment	LRB	6	839	-0.224[-1.458,1.009]	URB+HRB= *	58.10%	0.657
	URB	12	541	-0.538[-1.339,0.263]	URB+LRB=-0.314[-1.784,1.156]		
	HRB	0	0	*	HRB+LRB= *		
Blinding §	LRB	16	1277	-0.577[-1.238,0.084]	URB+HRB= *	60.49%	0.184
	URB	2	103	1.007[-1.317,3.330]	URB+LRB=1.583[-0.832,3.999]		
	HRB	0	0	*	HRB+LRB= *		
Incomplete Outcome Data	LRB	12	1163	-0.453[-1.256,0.351]	URB+HRB=*	63.41%	0.959
	URB	6	217	-0.416[-1.695,0.864]	URB+LRB= 0.037[-1.474,1.548]		
	HRB	0	0	*	HRB+LRB=*		
Selective Outcome Reporting	LRB	18	1380	-0.33[-0.94,0.28]	URB+HRB=*	*	*
	URB	0	0	**	URB+LRB=**		
	HRB	0	0	*	HRB+LRB=*		
Overall Risk of Bias	LRB	13	1203	-0.445[-1.243,0.353]	URB+HRB=*	63.37%	0.987
	URB	5	177	-0.433[-1.741,0.874]	URB+LRB= 0.012[-1.520,1.544]		
	HRB	0	0	*	HRB+LRB=*		

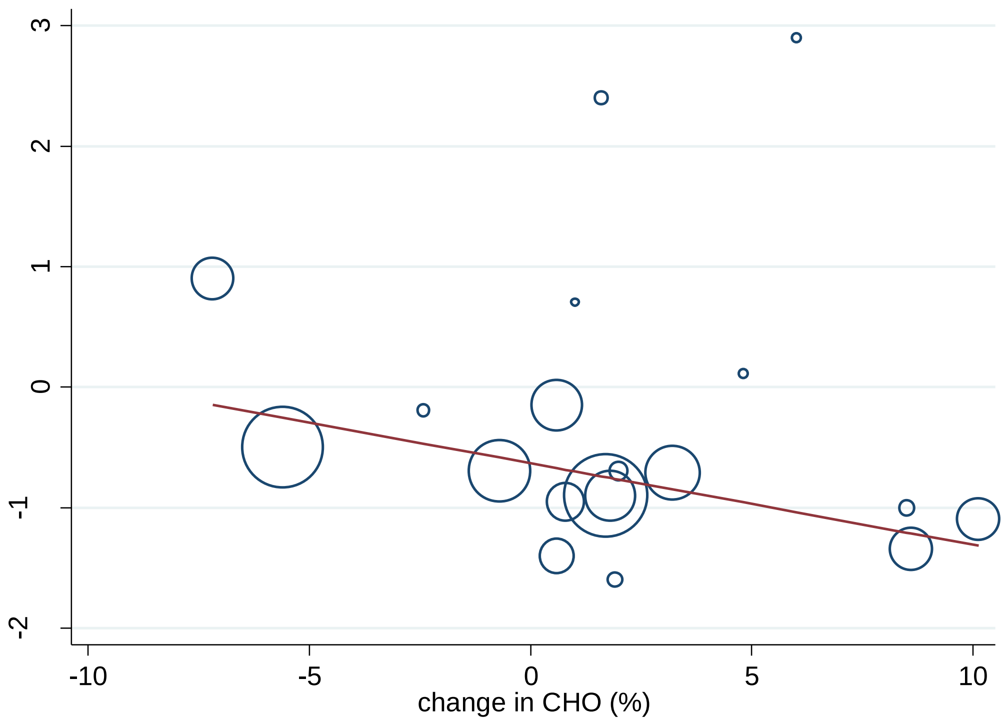


The dashed line represents the pooled estimate for the overall primary analysis of pasta in the context of low-GI dietary patterns on waist circumference. Within subgroup mean differences are the pooled effect estimates represented by a diamond. 95% CIs are

represented by the line through the square. The residual I^2 was estimated by the Cochran Q statistic and indicates the between study heterogeneity unexplained by the variability in response because of the specific between studies factor. $P < 0.05$ indicates that the effect size differed between levels of the subgroup. CI, confidence interval; HRB, High Risk of Bias; GI, glycemic index; LRB, Low Risk of Bias; URB, Unclear Risk of Bias

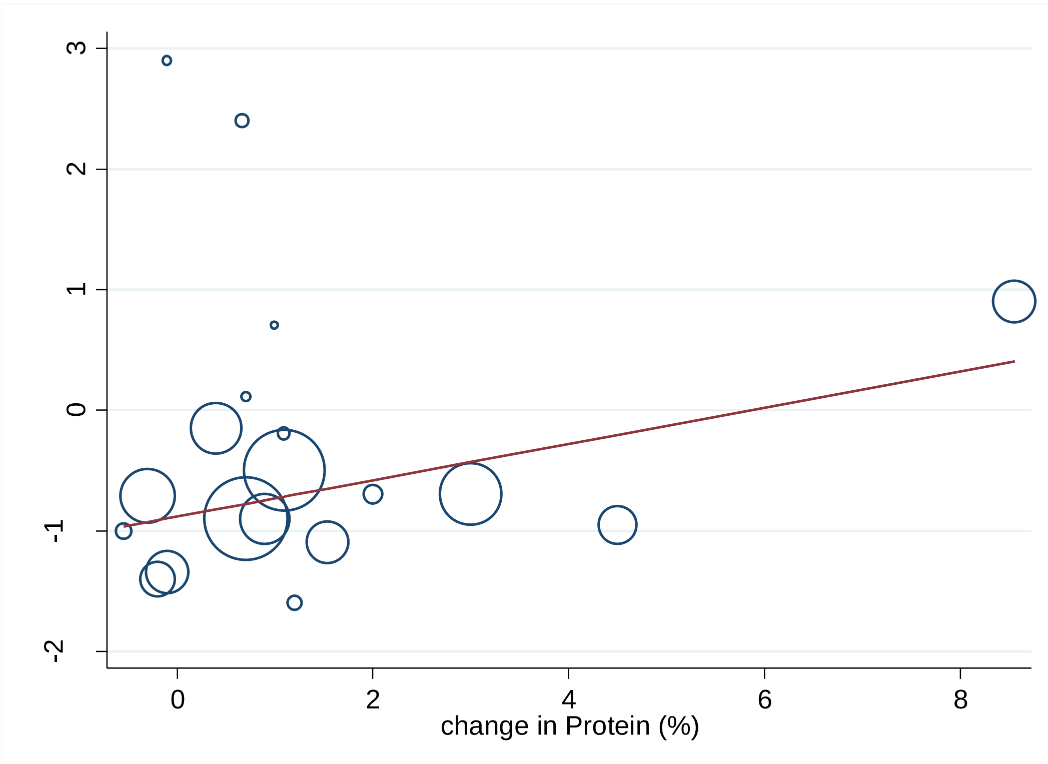
*Within and between subgroup analyses could not be performed against HRB since no values for HRB subgroup.
** no values for URB subgroup.
§Blinding of Participants, Personnel, and Outcome Assessors.

Supplemental Figure S21: Continuous meta-regression for change in carbohydrate intake in the low-GI dietary pattern intervention arms by change in body weight (n=19)



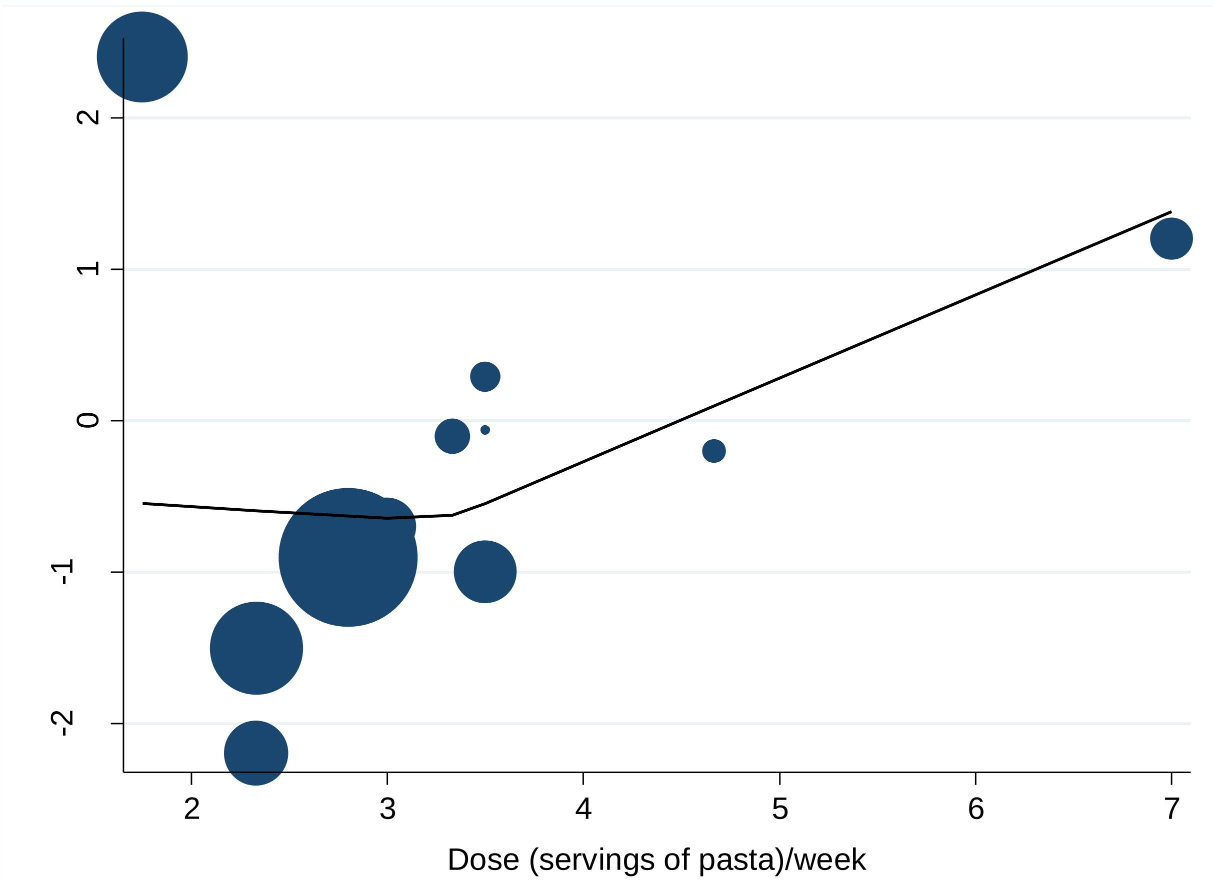
CHO, carbohydrate; MD, mean difference

Supplemental Figure S22: Continuous meta-regression for change in protein intake in the low-GI dietary pattern intervention arms by change in body weight (n=19)

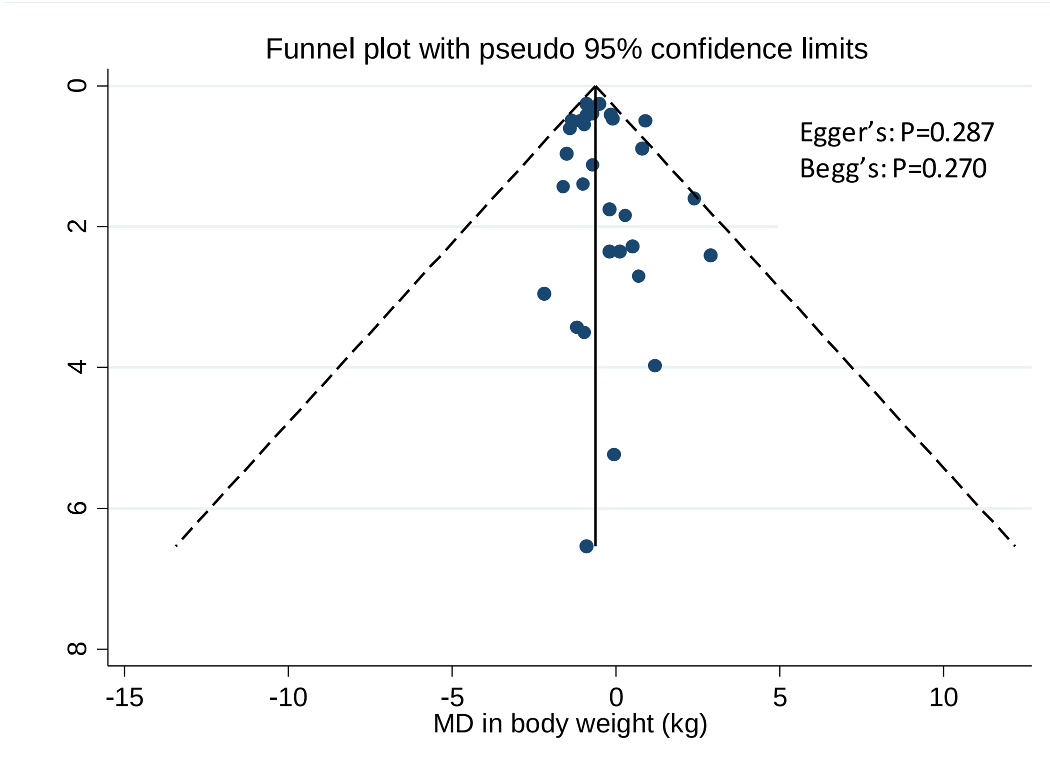


MD, mean difference

Supplemental Figure S23: Pasta intake dose-response analyses by spline curve modeling (MKSPLINE procedure

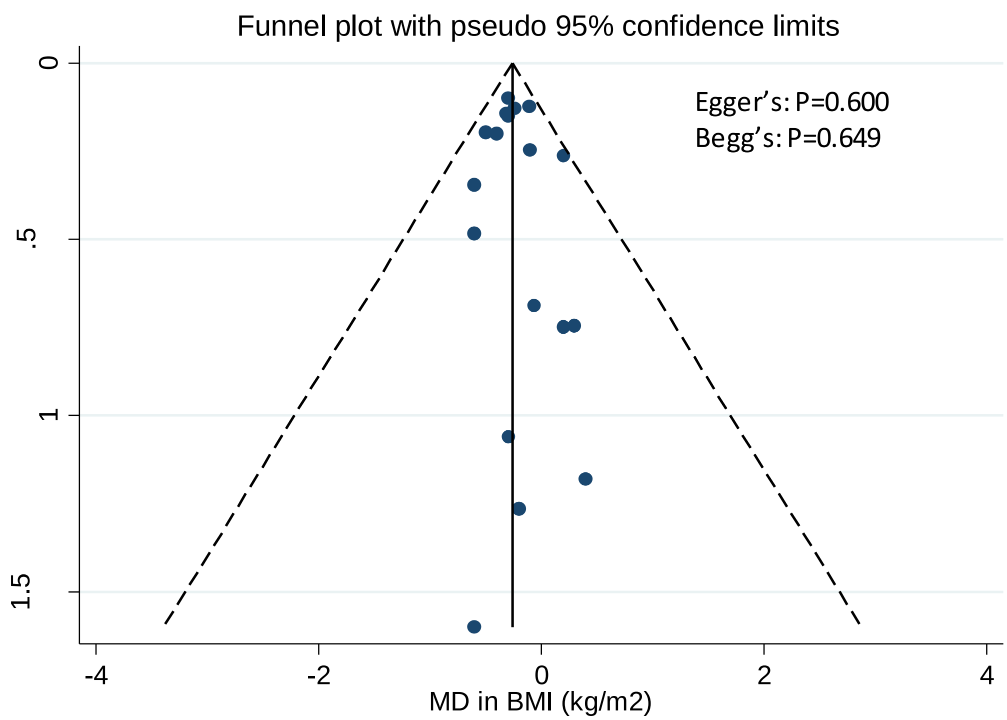


Supplemental Figure S24: Funnel plot for the effect of pasta in the context of low-GI dietary patterns on body weight (kg)



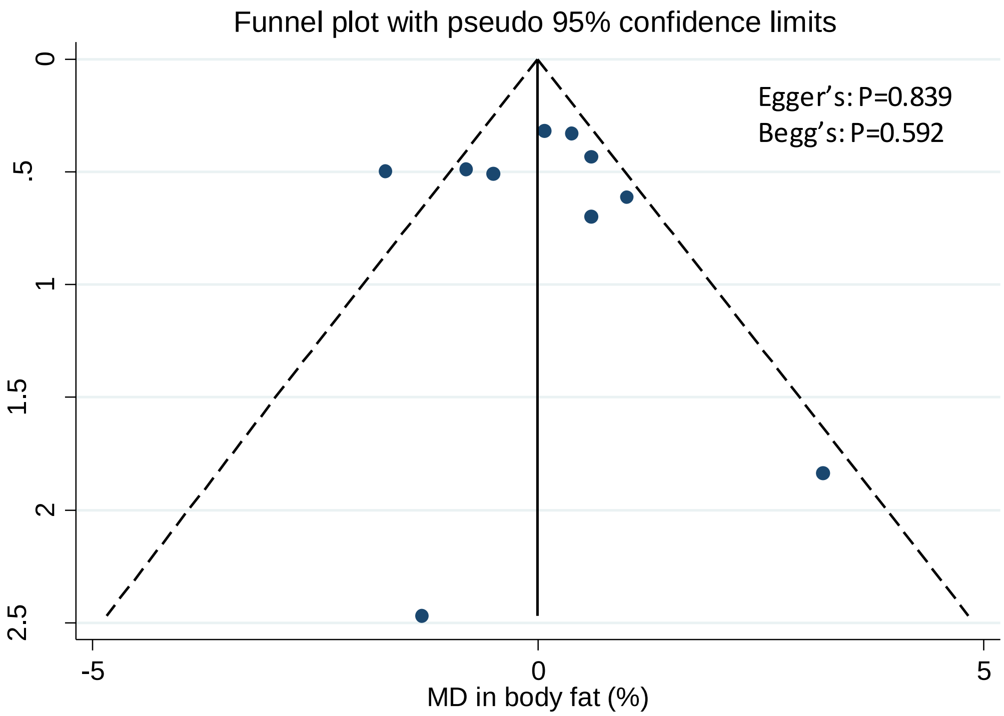
The solid line represents the overall pooled estimate for all studies included in the meta-analysis expressed as a weighted mean difference. Dashed lines represent 95% CIs. P values are derived from the quantitative assessment of publication bias by the Egger and Begg tests.

Supplemental Figure S25: Funnel plot for the effect of pasta in the context of low-GI dietary patterns on BMI (kg/m²).



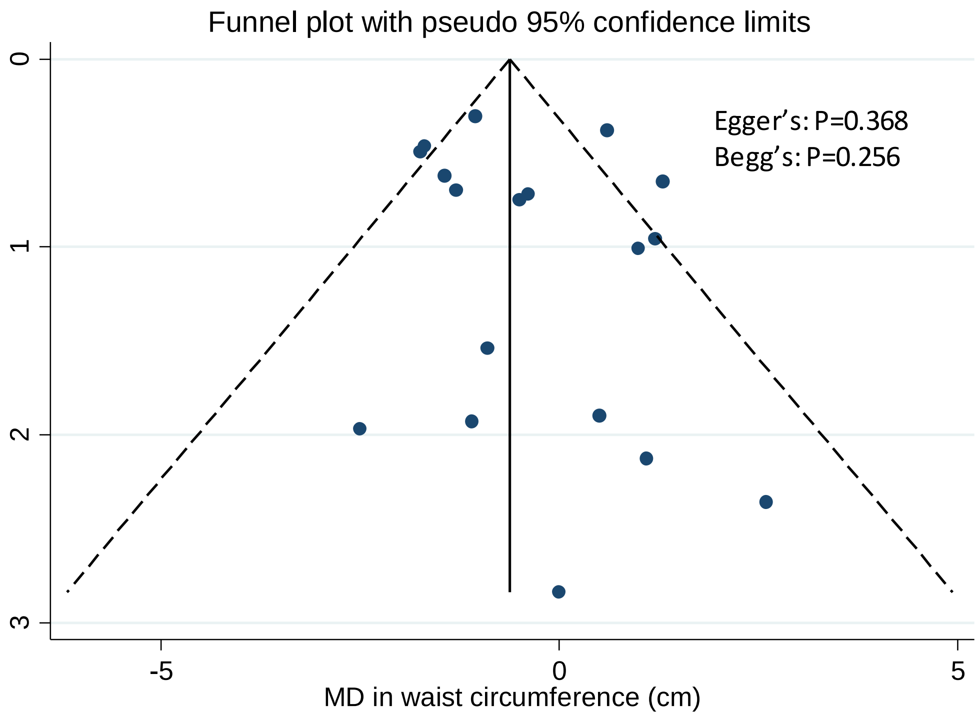
The solid line represents the overall pooled estimate for all studies included in the meta-analysis expressed as a weighted mean difference. Dashed lines represent 95% CIs. P values are derived from the quantitative assessment of publication bias by the Egger and Begg tests.

Supplemental Figure S26: Funnel plot for the effect of pasta in the context of low-GI dietary patterns on body fat (%).



The solid line represents the overall pooled estimate for all studies included in the meta-analysis expressed as a weighted mean difference. Dashed lines represent 95% CIs. P values are derived from the quantitative assessment of publication bias by the Egger and Begg tests.

Supplemental Figure S27: Funnel plot for the effect of pasta in the context of low-GI dietary patterns on waist circumference (cm).



The solid line represents the overall pooled estimate for all studies included in the meta-analysis expressed as a weighted mean difference. Dashed lines represent 95% CIs. P values are derived from the quantitative assessment of publication bias by the Egger and Begg tests.