Bazian

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1 **Appendix A: Individually modifiable behaviours covered by the evidence review**

Food and drinks	Energy and nutrients	Eating Patterns	Physical activity and exercise	Sedentary behaviour	Other factors
1. High energy dense foods	1. Fat/protein/carbohydrate	1. Eating speed /rate	1. Active leisure/recreation	1. Amount of sedentary time	1. Sleep (amount and quality)
2. (Low) energy dense foods	2. Glycaemic index/ glycaemic load	2. Eating/meal/snack frequency (eating occasions)	2. Activities of daily living (e.g. housework, garden, DIY)	2. Sitting	2. Monitoring – e.g. weight, waist, clothes fit, pedometers, food diaries
3. Whole grain	3. Fibre	3. Eating pattern - consistency, weekend vs. weekdays, energy intake split/timing through the day	3. Incidental physical activity-(active habits) e.g. stairs	3. Standing	3. Over holiday/Christmas weight gain
4. Refined grains	4. Calorie control (watching what you eat)	4. Setting or distractions (e.g. table vs. TV viewing)	4. Walking (including steps – travel or leisure)	4. TV and other screen - time, eating and viewing, displaced activity	4. Stress minimising activities
5. Fruit and vegetables	5. Energy density	5. Family meal (+eating with children)	5. Sport	5. Other sedentary activities – reading / commuting	5. Support e.g. partner, social support, buddy
6. Meat and fish	6. Artificial sweeteners	6. Portion size	6. Active play (e.g. after school)	6. Breaks in sedentary time (e.g. workplace breaks such as	6. Avoiding screen advertising (e.g. advert free versus advert containing

Food and drinks	Energy and nutrients	Eating Patterns	Physical activity and exercise	Sedentary behaviour	Other factors
				meeting breaks, walking breaks)	viewing)
7. Milk and other dairy	7. Sugar, high fructose corn syrup, sucrose, glucose	7. Snacking/snacks	7. Active travel/commuting	7. More active screen time (active versus passive gaming)	
8. Nuts/legumes	8. Caffeine	8. Grazing/gorging	8. Cycling (travel or leisure)		
9. Dietary pattern – specific combination of foods	9. Catechins	9. Eating out	9. Strength/aerobic		
10. Vegan / vegetarian		10. Take away meals/fast food	10. Intensity, time, frequency (total volume) 11. Intensity (same volume, high intensity vs. low intensity)		
Drinks: 11. Sugar sweetened drinks 12. Fruit juice 13. Water 14. Alcohol – wine, beer, spirits 15. Tea and coffee 16. Artificially sweetened beverages		11. Meal planning			

Food and drinks	Energy and nutrients	Eating Patterns	Physical activity and exercise	Sedentary behaviour	Other factors
17. Low-calorie drinks/Low-sugar drinks/Sugar-reduced-drinks					
		12. Meal skipping (including breakfast skipping)			
		13. Drinks with meals			
		14. Breakfast			

2 Appendix B: Methods

2.1 Systematic searches

NICE and expert advisers provided potentially relevant references that were used to test the search strategy. These were also appraised for inclusion along with the search results. Systematic review searches covered the period 2005 to 2013, and primary study searches covered the period 1995 to 2013. Sample search strategies are reported in Section 2.1.4 below.

The first stage of systematic review searching took a broad approach. It combined three main facets to identify reviews relevant for Review 1:

- a facet targeting overweight and obesity prevention and healthy weight maintenance
- a facet targeting the broad areas such as diet, physical activity, and sedentary behaviour that the factors being assessed fall into
- a facet targeting systematic reviews (methodological filter).

The search also included a facet to identify reviews relevant for the complementary evidence review on message communication.

This strategy did not include specific terms focusing on each individual factor, but was intended to be broad enough to capture reviews addressing any factors such as these that were being assessed in the context of overweight and obesity prevention and healthy weight maintenance.

Scoping searches were carried out to identify which of the areas not covered by the first stage search looked most likely to provide additional reviews, to target second stage searching most efficiently. Potentially relevant reviews identified in these scoping searches were also assessed for inclusion.

2.1.1 Stage 1 search: Broad search for systematic reviews

Bibliographic databases (general and subject-specific) were searched to identify evidence from systematic reviews on the individually modifiable behaviours in the a priori list (Appendix A). An online search for systematic reviews in the grey literature (non-journal published papers) was also carried out on key websites.

Bibliographic database searches

The following bibliographic databases were searched:

- MEDLINE and MEDLINE In Process (OvidSP)

- Cochrane Database of Systematic Reviews
- HTA database (Centre for Reviews and Dissemination)
- Database of Abstracts of Reviews of Effects (DARE) (Centre for Reviews and Dissemination)
- Applied Social Sciences Index and Abstracts (ASSIA) (Proquest)
- Social Policy and Practice Database (Ovid)
- PsycINFO (Ovid)
- EPPI databases which include both journal published and grey literature: Bibliomap and DoPHER (Database of Promoting Health Effectiveness Reviews)
- healthevidence.org (registry of public health systematic reviews identified through searches of databases and websites including some covered in the list above, plus EMBASE, CINAHL, BIOSIS, SPORTDiscus, and Sociological Abstracts as well as reference list searches)

The SIGN systematic review filter was used for searching the MEDLINE, MEDLINE In Process and PsycINFO databases. The Medline search strategy was translated for the other databases, and adapted to take into account database size, coverage, available search facilities and available indexing terms.

A broad search on obesity prevention *only* without using the terms relating to the broad behavioural areas being targeted or the methodological filter was carried out in the following databases:

- Cochrane Database of Systematic Reviews
- HTA database (Centre for Reviews and Dissemination)
- Database of Abstracts of Reviews of Effects (DARE) (Centre for Reviews and Dissemination)
- DoPHER (Database of Promoting Health Effectiveness Reviews)
- healthevidence.org (registry of public health systematic reviews)

The same approach was used for some of the smaller databases such as Medline-In-Process database. The SIGN systematic review filter was used in the Medline-In-Process database. This search was adapted to take into account the more limited functionality and coverage of the Applied Social Sciences Index and Abstracts (ASSIA) and the Social Policy and Practice Database.

The search outputs were entered into Reference Manager.

Grey literature searches

Grey literature includes reports produced by government, academics, business and industry, theses or dissertations in electronic formats, but which are not controlled by commercial publishers/journals, i.e. where publishing is not the primary activity of the producing body.

We searched the following key websites for relevant grey literature reports:

- Department of Health
- Public Health England
- National Obesity Observatory
- Harvard School of Public Health: The Obesity Prevention Source
- Centre for Diet and Activity Research
- WHO
- World Cancer Research Fund International (WCRF)
- Nutrition Evidence Library (NEL) U.S. Department of Agriculture
- Weight Management FAB approach (Food, Activity, and Behavioural Support)
- Health Improvement and Innovation Resource Centre (New Zealand)
- Food Standards Agency
- Sport England
- Obesity Learning Centre
- BASES 'British Association of Sport and Exercise Sciences'
- BASEM 'British Association of Sport and Exercise Medicine'
- European College of Sport Science
- CDC obesity http://www.cdc.gov/obesity/index.html
- Foresight obesity http://www.bis.gov.uk/foresight/our-work/projects/published-projects/tackling-obesities
- Institute of Medicine (IOM)
- National Weight Control Registry
- Scientific Advisory Committee on Nutrition (SACN)
- NICE Evidence

2.1.2 Stage 2 search: Targeted search for systematic reviews

Based on gaps in the systematic review evidence identified in Stage 1 (see Section 2.2.3 for description of review mapping), the areas to be targeted in Stage 2 searching were discussed and agreed with NICE.

The search was focused on the following factors:

- Eating patterns (e.g. consistency, energy intake split through the day)
- Caffeine

- Coffee
- Holiday/Christmas weight gain
- Incidental physical activities (e.g. stair climbing)
- Breaks in sedentary time
- Sitting
- Stress-minimising activities
- Monitoring (e.g. self-weighing)
- Support

Stage 1 searches using only the broad obesity prevention facet should have identified all relevant reviews, and adding terms to this would not be anticipated to produce any additional hits. Therefore stage 2 searches were conducted only in the databases where Stage 1 searches were not limited to the broad obesity prevention facet.

2.1.3 Stage 3 search: Primary study searches

Based on gaps in the systematic review evidence identified in Stages 1 and 2 (see Section 2.2.3 for description of review mapping), the areas to be targeted in Stage 3 searching were discussed and agreed with NICE.

The search was focused on the following factors:

- Meal planning
- Holiday/Christmas weight gain
- Standing

The searches for Stage 3 were conducted in all databases excluding the secondary research databases:

- MEDLINE and MEDLINE In Process (OvidSP) (see below for Medline search strategy)
- Cochrane Central Register of Controlled Trials (CENTRAL)
- Applied Social Sciences Index and Abstracts (ASSIA) (Proquest, supplied by NICE)
- Social Policy and Practice Database (Ovid, supplied by NICE)
- PsycINFO (Ovid, supplied by NICE)
- EPPI databases which include both journal published and grey literature: Bibliomap and TRoPHI (Trials Register of Promoting Health Interventions)

2.1.4 Sample search strategies

Medline search strategy for Stage 1 broad systematic review search

Numbers in parentheses are # documents retrieved in MEDLINE (OvidSP).

Database: Ovid MEDLINE(R) <1946 to October Week 4 2013>

1 exp Obesity/ (141897)
2 Overweight/ (12114)
3 Weight Gain/ (23048)
4 Ideal Body Weight/ (115)
5 ((prevent* or reduc* or tackl* or address*) adj5 (obes* or "weight gain" or "excess weight" or overweight)).ti,ab. (18701)
6 ((maintain* or maintenance or prevent* or reduc* or control* or manag* or monitor* or healthy or normal or average) and (weight or bmi or body mass index or body fat or waist circumference or adiposity)).ti,ab. (392017)
7 (non obese or nonobese or non overweight or nonoverweight).ti,ab. (13360)
8 1 or 2 or 3 or 4 or 5 or 6 or 7 (503573)
9 Primary Prevention/ (14169)
10 Risk Factors/ (571499)
11 Health Promotion/ (53932)
12 Health Behavior/ (34680)
13 Health Education/ (52861)
14 Health Communication/ (497)
15 Information Dissemination/ (10367)
16 Marketing of Health Services/ (14042)
17 Health Knowledge, Attitudes, Practice/ (73857)
18 Risk Reduction Behavior/ (7539)
19 (promot* or advert* or marketing or program* or campaign* or scheme* or initiative* or strateg* or communicat* or message).ti,ab. (1831094)
20 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 (2444462)
21 Diet/ (109483)
22 exp *beverages/ or exp *food/ (683397)
23 exp Food Habits/ (21305)
24 Feeding Behavior/ (39759)
25 Energy Intake/ (31631)
26 (diet* or food* or eat*).ti. (211889)
27 exp Exercise/ (114912)
28 Motor Activity/ (79082)
29 Physical Fitness/ (22453)
30 (physical* or exercis* or fit* or aerobic*).ti. (184236)
31 Life Style/ (43434)
32 Sedentary Lifestyle/ (2568)
33 Size Perception/ (3877)
34 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 (1243671)
35 20 or 34 (3504940)
36 8 and 35 (191681)
37 Meta-Analysis as Topic/ (14079)
38 meta analy$.tw. (57428)
39 metaanaly$.tw. (1278)
40 Meta-Analysis/ (51298)
41 (systematic adj (review$1 or overview$1)).tw. (46645)
42 exp "Review Literature as Topic"/ (7635)
43 37 or 38 or 39 or 40 or 41 or 42 (114860)
44 cochrane.ab. (33111)
45 embase.ab. (29566)
46 (psychlit or psyclit).ab. (1189)
47 (psychinfo or psycinfo).ab. (9892)
48 (cinahl or cinhal).ab. (10882)
49 science citation index.ab. (2320)
50 bids.ab. (394)
51 cancerlit.ab. (739)
52 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 (50861)

53 reference list$.ab. (11616)
54 bibliograph$.ab. (11748)
55 hand-search$.ab. (4216)
56 relevant journals.ab. (898)
57 manual search$.ab. (2224)
58 53 or 54 or 55 or 56 or 57 (27351)
59 selection criteria.ab. (26048)
60 data extraction.ab. (10031)
61 59 or 60 (33618)
62 Review/ (1915234)
63 61 and 62 (25914)
64 Comment/ (534284)
65 Letter/ (804607)
66 Editorial/ (335541)
67 animal/ (5493002)
68 human/ (13649513)
69 67 not (67 and 68) (3962474)
70 64 or 65 or 66 or 69 (5154801)
71 43 or 52 or 58 or 63 (145675)
72 71 not 70 (136714)
73 36 and 72 (4330)
74 limit 73 to (english language and yr="2005 -Current") (3157)

Search strategies for stage 2 focused systematic review search

Database: Ovid MEDLINE(R) <1946 to November Week 3 2013>
1 exp Obesity/ (142945)
2 Overweight/ (12299)
3 Weight Gain/ (23205)
4 Ideal Body Weight/ (121)
5 ((prevent* or reduc* or tackl* or address*) adj5 (obes* or "weight gain" or "excess weight" or overweight)).ti,ab. (18862)
6 ((maintain* or maintenance or prevent* or reduc* or control* or monitor* or healthy or normal or average) and (weight or bmi or body mass index or body fat or waist circumference or adiposity)).ti,ab. (385493)
7 (non obese or nonobese or non overweight or nonoverweight).ti,ab. (13464)
8 1 or 2 or 3 or 4 or 5 or 6 or 7 (499364)
9 ((meal or eating or diet*) adj3 (pattern or habit or irregular)).ti,ab. (3528)
10 Coffee/ (4754)
11 coffee.ti,ab. (8263)
12 caffeine.ti,ab. (21680)
13 Caffeine/ (20280)
14 (holiday or Christmas).ti,ab. (3195)
15 Holidays/ (2159)
16 9 or 10 or 11 or 12 or 13 or 14 or 15 (42002)
17 stair*.ti,ab. (5622)
18 ((sedentary or sitting) adj5 (time or break*)).ti,ab. (1521)
19 (stress adj3 (reduc* or minimi*)).ti,ab. (15417)
20 (self-monitor* or self-weigh*).ti,ab. (4528)
21 Social Support/ (52277)
22 ((psychological or social) adj3 (support or network)).ti,ab. (28206)
23 17 or 18 or 19 or 20 or 21 or 22 (91604)
24 16 or 23 (133360)
25 8 and 24 (7725)
26 Meta-Analysis as Topic/ (14196)
27 meta analy$.tw. (58408)
28 metaanaly$.tw. (1286)
29 Meta-Analysis/ (52213)

30 (systematic adj (review$1 or overview$1)).tw. (47522)
31 exp "Review Literature as Topic"/ (7732)
32 26 or 27 or 28 or 29 or 30 or 31 (116583)
33 cochrane.ab. (33754)
34 embase.ab. (30194)
35 (psychlit or psyclit).ab. (1193)
36 (psychinfo or psycinfo).ab. (10152)
37 (cinahl or cinhal).ab. (11088)
38 science citation index.ab. (2372)
39 bids.ab. (395)
40 cancerlit.ab. (739)
41 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 (51910)
42 reference list$.ab. (11809)
43 bibliograph$.ab. (11863)
44 hand-search$.ab. (4252)
45 relevant journals.ab. (914)
46 manual search$.ab. (2265)
47 42 or 43 or 44 or 45 or 46 (27707)
48 selection criteria.ab. (26402)
49 data extraction.ab. (10177)
50 48 or 49 (34086)
51 Review/ (1924416)
52 50 and 51 (26304)
53 Comment/ (538304)
54 Letter/ (808271)
55 Editorial/ (337516)
56 animal/ (5513005)
57 human/ (13712248)
58 56 not (56 and 57) (3974347)
59 53 or 54 or 55 or 58 (5173095)
60 32 or 41 or 47 or 52 (147811)
61 60 not 59 (138759)
62 25 and 61 (205)
63 limit 62 to (english language and yr="2005 -Current") (151)

Sample search strategy for Stage 3: primary study search

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and OviD MEDLINE(R) <1946 to Present> Search Strategy:

1 exp Obesity/ (144151)
2 Overweight/ (12498)
3 Weight Gain/ (23356)
4 Ideal Body Weight/ (121)
5 ((prevent* or reduc* or tackl* or address*) adj5 (obes* or "weight gain" or "excess weight" or overweight)).ti,ab. (20763)
6 ((maintain* or maintenance or prevent* or reduc* or control* or manag* or monitor* or healthy or normal or average) and (weight or bmi or body mass index or body fat or waist circumference or adiposity)).ti,ab. (425240)
7 (non obese or nonobese or non overweight or nonoverweight).ti,ab. (14275)
8 1 or 2 or 3 or 4 or 5 or 6 or 7 (539354)
9 (holiday or Christmas).ti,ab. (3462)
10 Holidays/ (2171)
11 9 or 10 (4911)
12 8 and 11 (108)
13 ((meal* or menu) and plan*).ti,ab. (2643)
14 8 and 13 (493)
15 (stand or standing).ti. (10782)

16 8 and 15 (401)
17 Randomized Controlled Trials as Topic/ (103814)
18 Randomized Controlled Trial/ (395285)
19 Random Allocation/ (82260)
20 Double-Blind Method/ (132982)
21 Single Blind Method/ (19826)
22 Clinical trial/ (508008)
23 clinical trial, phase i.pt. (16502)
24 clinical trial, phase ii.pt. (27300)
25 clinical trial, phase iii.pt. (10407)
26 clinical trial, phase iv.pt. (1014)
27 controlled clinical trial.pt. (90572)
28 randomized controlled trial.pt. (395285)
29 multicenter study.pt. (185820)
30 clinical trial.pt. (508008)
31 exp Clinical Trials as Topic/ (299072)
32 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 (1088792)
33 (clinical adj trial$).tw. (230108)
34 ((singl$ or doubl$ or treb$ or tripl$) adj (blind$3 or mask$3)).tw. (136258)
35 Placebos/ (33961)
36 placebo$.tw. (170964)
37 randomly allocated.tw. (17431)
38 (allocated adj2 random$).tw. (20044)
39 33 or 34 or 35 or 36 or 37 or 38 (447196)
40 32 or 39 (1241852)
41 case report.tw. (205280)
42 Letter/ (838323)
43 Historical Article/ (302092)
44 41 or 42 or 43 (1334094)
45 40 not 44 (1211323)
46 Epidemiologic studies/ (6316)
47 exp case control studies/ (674283)
48 exp cohort studies/ (1384167)
49 Case control.tw. (80852)
50 (cohort adj (study or studies)).tw. (90911)
51 Cohort analy$.tw. (3850)
52 (Follow up adj (study or studies)).tw. (38340)
53 (observational adj (study or studies)).tw. (46443)
54 Longitudinal.tw. (147448)
55 Retrospective.tw. (278034)
56 Cross sectional.tw. (176313)
57 Cross-sectional studies/ (183409)
58 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 (1941703)
59 45 or 58 (2861180)
60 12 and 59 (42)
61 14 and 59 (194)
62 16 and 59 (136)
63 limit 60 to (english language and yr="1995 -Current") (36)
64 limit 61 to (english language and yr="1995 -Current") (182)
65 limit 62 to (english language and yr="1995 -Current") (129)

2.2 Selecting studies for inclusion

Studies were evaluated for inclusion against the criteria listed in the sifting protocol below. Broadly, systematic reviews of the association between the individually modifiable behaviours listed in Appendix A and healthy weight maintenance or overweight and obesity prevention were included. As many systematic reviews are unlikely to match the current review's inclusion criteria fully, potentially relevant reviews were included at early sifting stages unless it was clear that they were entirely non-relevant to the current scope.

Parameters	Sifting criteria	Additional comments
Questions covered	What individually modifiable behaviours may help children and young people to maintain a healthy weight or prevent excess weight gain? What individually modifiable behaviours may help adults to maintain a healthy weight or prevent excess weight gain?	Reviews addressing other questions were tagged 'wrong question'
Exposures/ interventions covered	**Exposures:** Individually modifiable behaviours listed in Appendix A that may help children, young people and adults to maintain a healthy weight or prevent excess weight gain **Interventions:** Interventions that target the individually modifiable behaviours listed in Appendix A and that are specifically aimed at maintaining a healthy weight or preventing excess weight gain	Interventions should consist of an action that an individual can choose to perform themselves, rather than one requiring external intervention
Exposures/ interventions not covered	Interventions to prevent obesity that are covered in other sections of NICE clinical guideline 43. That is, sections 1.1.2 to 1.1.7, and section 1.2, i.e. interventions that take place in/offered by: – The NHS – Local authorities and partners in the community – Early years settings – Schools – Workplaces – Self-help, commercial and community programmes	Records excluded on these criteria were tagged 'wrong intervention/exposure' at second (title and abstract) and third (full text) sift. **NB** Personal characteristics such as gender, SES and ethnicity of the populations included in studies where noted. If studies find that impact of the individual factors/ behaviours or interventions targeting them vary based on these

Parameters	Sifting criteria	Additional comments
	Very low calorie diets Environmental factors beyond people's control (for example, the provision of cycle paths or content of school meals). Programmes, services or treatments for people who are overweight or obese (including lifestyle weight management services and pharmacological or surgical treatments). Management of medical conditions that may increase the risk of excess weight gain, being overweight or obese. Programmes, services or treatments for people who are underweight. Infant feeding (with breast milk or infant formula) and weaning. Complementary/non-mainstream therapies to prevent someone from becoming overweight or obese or to manage these conditions (for example, acupuncture, hypnotherapy, medicinal plants). Studies aiming to define 'overweight' and 'obese'. Related activities to combat obesity that are covered by other NICE guidance (such as breastfeeding). Parenting Health (or other) professional led interventions Work / school based interventions Working circumstances e.g. shift working Personal circumstances /characteristics that are not under solely under an individual's control (see Additional comment), e.g.: – gender – marital status – parental weight (impact on their children) – menopause – puberty – birth weight	characteristics this was reported.

Parameters	Sifting criteria	Additional comments
	– socioeconomic status – ethnicity – self esteem Smoking	
Populations (groups) that will be covered	All adults and children who are not undergoing management or treatment for being overweight or obese.	The focus is on the general population (i.e. mixed populations)
Populations (groups) that will not be covered	Infants who have not been weaned Pregnant women Adults and children who are taking part in programmes or are receiving treatment for being overweight or obese (including lifestyle weight management programmes, pharmacological or surgical treatment). Adults and children who are taking part in programmes or receiving treatment for being underweight Populations that are selected solely on the basis of being overweight or obese, or having been overweight and obese and now reached a healthy weight (e.g. studies which follow groups who have taken part in weight loss interventions) Studies specifically in selected population subgroups (see Additional comments), e.g.: – post-pregnancy – learning difficulties – mental health conditions – disabilities – (NB people in these groups as well as those who are overweight or obese are part of the general population, but studies selecting participants on these characteristics exclusively will be excluded)	Records excluded on this criterion were tagged 'wrong population' at second (title and abstract) and third (full text) sift. (Weaning or 'complementary feeding' is the transition from an exclusively milk-based diet to a diet based on solid foods.) **NB** The presence of population subgroups such as those with learning difficulties, mental health conditions, or disabilities in included studies will be noted. If studies find that the impact of the individual factors/behaviours or interventions targeting them vary in these subgroups this will also be reported.
Comparators that will be covered	Studies of exposures: – No exposure – A different level of exposure (e.g. less versus more physical activity/calories/of a	

Parameters	Sifting criteria	Additional comments
	food/nutrient) Intervention studies: – No intervention – Usual care – Placebo/sham A different level of the intervention (e.g. less versus more physical activity/calories/of a food/nutrient)	
Comparators that will not be covered	Intervention studies: Studies that compare interventions aimed at different behaviours e.g. physical activity intervention vs. diet based intervention	Records excluded on this criterion will be tagged 'wrong comparator' at second title and abstract and full text sift
Outcomes that will be covered	**Weight and related outcomes** Maintenance of weight or avoidance of weight gain in the short, medium and long term. Anthropometric measures such as BMI, waist circumference, percentage of healthy weight, or fat mass. **Modifiable risk factor (behavioural) outcomes (to be extracted from intervention studies which also address weight and related outcomes)** Diet Physical activity Frequency of weight monitoring	Only studies reporting weight or related outcomes will be included.
Outcomes that will not be covered	**Determinant outcomes** Psychological outcomes such as self-efficacy or motivation. Process measures such as acceptability of information (method or content) that aims to help people maintain a healthy weight.	Records excluded for on this criteria tagged 'wrong outcome at second title and abstract and full text sift.
Study types/designs to be included	Systematic Reviews (SRs) RCTs and cluster RCTs of any duration Prospective cohort studies lasting 12 months or longer	NB Due to the mixed nature of studies included in the reviews identified, reviews were not excluded if they included retrospective cohort studies, or cohort studies lasting less than 12 months

Parameters	Sifting criteria	Additional comments
Studies types/designs that will not be included	Studies that are not SRs, RCTs, or prospective cohorts. Studies published before 2005 Economic analyses (references of these studies to be forwarded to NICE) Non-English language studies. Non-OECD countries studies. Citations without an abstract. Systematic reviews of systematic reviews	Records excluded for on this criteria tagged 'wrong study type' at second title and abstract and full text sift.

2.2.1 First pass appraisal

Evidence identified in the searches was first filtered at the title/abstract level by an Information Specialist to remove any clearly non-relevant material. Any queries regarding inclusion/exclusion were resolved by discussion with a second Information Specialist. Any outstanding queries were resolved by discussion with NICE. Studies were excluded at this stage if they were:

- Clearly non-relevant topics or populations or information (e.g. letters, animal studies, studies in specific settings or delivered by healthcare professionals)
- Non-relevant study design/type (i.e. not systematic review in Stage 1 or 2 searches, or not RCTs/prospective cohort studies in Stage 3 searches)

A random sample of 200 citations identified in the search for systematic reviews were double sifted by a second Information Specialist. A kappa of 0.60 or greater was considered to reflect good inter-rater reliability. The double sift of systematic reviews resulted in agreement above the agreed threshold (kappa=0.68). Ten per cent of the records identified in the search for primary studies were double sifted by a second Information Specialist. The double sift resulted in agreement above the agreed threshold (kappa=0.79).

This stage of screening acted as a "coarse filter" and erred on the side of inclusion, to avoid exclusion of studies that may be relevant. The filtered references were tagged in a Reference Manager database and passed on to a Research Analyst for second pass appraisal.

2.2.2 Second pass appraisal

A Health Research Analyst conducted a more detailed assessment of the title/abstract of records tagged during the first sift. Relevant studies were selected for full text appraisal. Studies were appraised using the sifting criteria described. As few systematic reviews were

anticipated to fully match the scope of the current review, those that had inclusion criteria that partially overlapped or had unclear overlap with the scope were included at this stage, e.g. the following:

- **Study designs:** reviews where included study designs were a mix of relevant and non-relevant study designs (RCTs and/or cohort studies plus other study designs) or where study designs were unclear
- **Settings:** reviews where included studies were in a mix of relevant and non-relevant settings (general community plus school/work settings) or where settings were unclear
- **Populations:** reviews including studies in a mix of general populations and selected obese/overweight populations and/or populations with a specific condition or where populations were unclear
- **Intervention/exposure:** reviews including studies of factor(s) of interest as well as other factors or where factors addressed were unclear
- **Comparator:** reviews where comparators were unclear or mixed
- **Outcome:** reviews had to mention measuring a weight related outcome for inclusion

Studies were not excluded based on duration of included studies, as this was difficult to judge at the title and abstract level. Reasons for exclusion of studies were recorded in the Reference Manager database at this stage (see Appendix C for excluded study bibliography). These reasons could include:

- Wrong question (i.e. studies not addressing the question about factors associated with weight maintenance, or interventions for healthy weight maintenance)
- Wrong population (e.g. studies with inclusion restricted to overweight or obese individuals)
- Wrong study design/type (i.e. not a systematic review in Stages 1 and 2; not an RCT or prospective cohort study in Stage 3)
- Wrong exposure/intervention (e.g. studies clearly not relating to an individually modifiable behaviour on the agreed list, or clearly in an entirely work/school-based setting)
- Wrong comparator (e.g. studies solely comparing the weight maintenance effects of interventions targeting different individually modifiable behaviours e.g. diet vs. physical activity)
- Wrong outcome (e.g. studies solely addressing knowledge outcomes or other non-weight-related outcomes)

Any queries regarding inclusion/exclusion were resolved by discussion with a second analyst. Any outstanding queries were resolved by discussion with NICE. If it was still unclear whether a study met inclusion/exclusion criteria, the full text was obtained. A 10% sample of citations were then double sifted by a second Health Research Analyst for reviews, which resulted in good inter-rater reliability (kappa=0.63). For primary study searches the small number of

records selected for second pass appraisal (12 studies), all of the records were double screened by a second analyst and there was 100% agreement. Kappa was not calculated for this, as it may be under-estimated in sample sizes (Crewson 2005).

This stage of screening acted as a finer filter than the first pass appraisal, but again erred on the side of inclusion if details were not sufficient to allow decisions about the eligibility of the paper. Papers selected for full text appraisal were tagged in Reference Manager.

2.2.3 Systematic review mapping

In order to identify areas to be targeted for stage 2 and 3 searches, a rapid, rough mapping of the systematic reviews identified against the factors being assessed was carried out at the end of the second pass appraisal of Stage 1 and Stage 2 searches. As part of mapping at the end of Stage 1, for factors where no or few reviews were mapped, text word searches were carried out in the dataset to ensure that no potentially relevant reviews which had been missed.

Reviews were grouped according to which factors they appeared to cover based on title and abstract. The number of reviews that appeared to cover each factor was listed. An initial rapid quality assessment was designed to capture indications of review quality from the title and abstract. These were broadly based on criteria for definition of systematic reviews in the Database of Abstracts of Reviews of Effects (DARE). Reviews were given a score out of 4, by summing the total number of the following criteria it met:

- The review identifies itself in the title or abstract as a systematic review
- The review reports that it conforms to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards
- The abstract reports that two or more sources were searched
- The abstract reports the review's inclusion/exclusion criteria

Discussion and decision of which factors to target with searches was based around:

- Number of reviews covering the factor
- Quality of the reviews covering the factor
- Publication dates of reviews covering the factor (a proxy measure for being up-to-date)
- Likelihood of identifying additional reviews on the factor based on the number and type of hits identified in rapid scoping searches in PubMed (any potentially relevant reviews identified in these scoping searches were also added to the RefMan database)
- Potential for the factor to be covered by reviews on related factors (e.g. findings from reviews on energy density would also be relevant to the factors low and high energy dense foods)
- Match of the reviews identified to the factors being targeted

- Whether the factor was covered in by existing CG43 guidance (as adding nuance to existing guidance would be more likely for areas where there were no existing recommendations)
- Practical factors relating to search (e.g. specificity of terms involved)
- Whether the factor might be better suited to a primary study search (i.e. relatively newly researched topics might be less likely to be covered by systematic reviews)

The initial plan had been to assess match between the identified reviews' scope and that of the current review. In the end, this was not considered, as reviews that were completely outside of the scope were excluded, and of a sample of 63 reviews assessed, none were clearly a complete match to scope. Hence, this level of assessment would be unlikely to be a good way of differentiating the identified reviews. Expert advisers also provided input on any areas where they felt reviews might be missing.

In general,

- Factors where no reviews identified were considered first
- Factors where a review was identified were considered after this if:
  - There was only 1 SR on the factor, or
  - SRs identified did not appear to match well with the concept being searched for, or
  - All SRs identified had a lower quality score based on title and abstract (quality score 0 or 1).

2.2.4 Full text appraisal

The full text papers were appraised by a Research Analyst. Information on reason for exclusion was recorded (see Appendix C for excluded study bibliography). A 10% sample of full texts were planned to be double screened at this stage. This would have been a relatively low number of studies, and for low sample sizes the kappa statistic may be under-estimated (Crewson 2005). For this reason, alternative approaches were agreed with NICE.

For the reviews, to ensure that no reviews were excluded inappropriately, a more conservative approach was taken where all papers excluded at full text were assessed by a second analyst for inclusion/exclusion. Disagreements regarding inclusion/exclusion were resolved by discussion, with recourse to a third analyst as needed.

As anticipated at second pass appraisal, systematic reviews tended not to fully match the scope of the current review. Therefore, those that had inclusion criteria that partially overlapped with the scope were included at this stage. Reviews whose inclusion criteria or included studies fell completely outside of the scope of the current review in terms of study design, setting, population, intervention/exposure, comparator, or outcome were excluded.

Reviews were not excluded solely based on the duration of follow up of the included studies. Whether included cohort studies were prospective or retrospective was also not used as a reason for exclusion of reviews.

For the primary studies, all full texts were appraised by a second analyst.

2.2.5 Systematic reviews generically assessing overweight and obesity prevention

A number of reviews were identified which generically addressed overweight and obesity prevention, rather than specifically asking questions about the factors listed in Table 1 and describing results in a way that clearly separates results by factor.

The 'generic reviews' generally asked questions about effective overweight and obesity prevention interventions, or about the association between non-specific exposures rather than focusing on specific modifiable behaviours or factors (e.g. physical activity in general, with no further detail on the type, frequency, intensity or duration). They were sifted using the same criteria and process outlined in Sections 3.4.1 to 3.4.3. Due to the large volume of reviews identified which specifically addressed the factors listed in Table 1, these factor-specific reviews were prioritised for extraction, as they are more likely to provide clear answers regarding the relationship between the individually modifiable behaviours/factors on healthy weight maintenance.

The 'generic reviews' are listed in Appendix C.

2.3 Quality appraisal

Quality appraisal was carried out for all reviews selected at full text using a checklist based on the NICE systematic review quality checklist and the Critical Appraisal Skills Programme (CASP) systematic review quality checklist. Primary studies were assessed using the appropriate NICE quantitative study checklist. These checklists are provided in Appendix D. The ratings are broadly as follows:

[++] All or most of the checklist criteria have been fulfilled, indicating a high quality study.

[+] Some of the checklist criteria have been fulfilled, indicating a moderate quality study.

[-] Few or no checklist criteria have been fulfilled, indicating a low quality study.

A 10% sample of included reviews (n=14) was double quality appraised by a second research analyst. The kappa score obtained for this did not meet the required threshold for good inter-rater reliability (kappa=0.45; agreement 64%). This may in part have been due to the low number of studies double appraised. Areas where ratings did not agree were reviewed. In one

case, the lack of agreement was due to mis-entering of one of the question ratings into Excel, correcting this led to a kappa of 0.54 (agreement 71%). After discussion of the differences in ratings, other differences related to grey areas. Only one rating was changed due to presence of additional study tables in the supplementary information that had not been identified by the original reviewer.

A repeat sample of 14 papers was reviewed, and again agreement was 71%, but kappa was lower (kappa=0.20). This is likely to have been due to the low prevalence of the [-] and [++] categories in this sample (0 and 2 papers) - kappa can be under-estimated if any of the categories are uncommon as chance agreement is high (Sim and Wright, 2005). Therefore combining the samples still gave a low kappa (kappa=0.45; agreement 71%).

The 3 papers where ratings differed in the second sample all lay at the boundary between two rating categories, and differed by a single point difference on the total quality score (out of 8). To investigate whether underlying agreement was high, and to increase the sample size for the analysis, the kappa statistic was recalculated based on the answers to the eight individual questions for all 18 studies. This gave an agreement of 87%, and a kappa of 0.73, showing good inter-rater reliability. It was agreed with NICE that this indicated good underlying agreement and that further review was not required.

2.4 Data extraction

For factors covered by multiple reviews, the reviews were assessed and the highest quality, most up-to-date, and most relevant (i.e. best match for the scope) reviews covering children, young people and adults were selected for extraction. The aim was to have at least one review covering children and young people and at least one covering adults for each factor. More than one review of similar quality, search date, or relevance could be included if they covered pools of studies that did not overlap completely. For reviews not prioritised for extraction, reasons were recorded (see Appendix E), and review conclusions were extracted to give an idea of the direction of effect.

No reviews matched the scope of the current review exactly. The scope of the included reviews was assessed mainly in the following areas:

1. **Population** – reviews including some studies not matching the current review scope (e.g. overweigh/obese people and/or people with specific conditions) were considered a partial match
2. **Study design** – reviews including some studies not matching the current review scope (e.g. cross sectional studies) were considered a partial match
3. **Setting** - reviews including some studies not matching the current review scope (e.g. school- or work-based studies) were considered a partial match

The intervention/exposures were not assessed for match, as these had to match the factors being assessed for inclusion. Time (i.e. follow up period) was also not assessed for match, as few reviews utilised duration of follow up as an inclusion criterion. Comparators were also not assessed for match as this did not provide an informative way of separating the reviews, few studies explicitly specified comparators in their inclusion criteria (particularly those including cohort studies), and the reviews including RCTs often included mixed comparators. No papers assessed at full text were excluded on this parameter. Although not specifically assessed for match with scope, any limitations relating to these areas were noted.

Where the duration of follow up was used as an inclusion criterion it was noted in the evidence tables, and where duration of follow up was a limitation this was also noted.

Many reviews did not provide in depth reporting of e.g. the level of exposures being compared in the included studies. This data was extracted where possible.

Where the review itself provided separate results and conclusions based on the different populations, settings, or outcomes it included, those most relevant to the current review (i.e. most closely matching the scope) were extracted. For example, if a review gave results for overweight and obese populations separately from those for general weight populations, the latter were reported. If results were not reported or summarised by the review separately, overall results and conclusions were reported. Due to limitations in the time available for the review, authors were not contacted for additional information, nor were underlying primary studies or related references obtained.

3 Appendix C: Excluded study bibliography

This appendix lists reasons for exclusion of studies at second (title and abstract) and third (full text) sift.

Wrong Population (15 studies)

1. Boutelle KN, Kirschenbaum DS, Baker RC et al. How can obese weight controllers minimize weight gain during the high risk holiday season? By self-monitoring very consistently. Health Psychology. 1999;18(4):364-8.

2. Boutelle KN. The efficacy of a self-monitoring intervention to promote weight management during the holidays. Dissertation Abstracts International: Section B: The Sciences and Engineering. 1111;.57(9-B).

3. Galani C, Schneider H. Prevention and treatment of obesity with lifestyle interventions: review and meta-analysis. International Journal of Public Health. 2007;52(6):348-59.

4. Hu T, Mills KT, Yao L et al. Effects of low-carbohydrate diets versus low-fat diets on metabolic risk factors: a meta-analysis of randomized controlled clinical trials. American Journal of Epidemiology. 2012;176 Suppl 7:S44-S54.

5. Hursel R, Viechtbauer W, Westerterp-Plantenga MS. The effects of green tea on weight loss and weight maintenance: a meta-analysis. International Journal of Obesity. 2009 20090714 [Epub ahead of print];33(9):956-61.

6. Lepe M, Bacardi GM, Jimenez CA. Long-term efficacy of high-protein diets: a systematic review. Nutricion Hospitalaria. 2011;26(6):1256-9.

7. Musaiger AO. Overweight and obesity in eastern mediterranean region: prevalence and possible causes. Journal of Obesity. 2011 20110918 [Epub ahead of print];2011:407237.

8. Nordmann AJ, Nordmann A, Briel M et al. Effects of low-carbohydrate vs low-fat diets on weight loss and cardiovascular risk factors: a meta-analysis of randomized controlled trials. Archives of Internal Medicine. 2006;166(3):285-93.

9. Rego Costa AC, Rosado EL, Soares-Mota M. Influence of the dietary intake of medium chain triglycerides on body composition, energy expenditure and satiety: a systematic review. Nutricion Hospitalaria. 2012;27(1):103-8.

10. Schwingshackl L, Hoffmann G. Long-term effects of low glycemic index/load vs. high glycemic index/load diets on parameters of obesity and obesity-associated risks: a systematic review and meta-analysis. Nutrition Metabolism & Cardiovascular Diseases. 2013 20130617 [Epub ahead of print];23(8):699-706.

11. Steyn NP, Temple NJ. Evidence to support a food-based dietary guideline on sugar consumption in South Africa. BMC Public Health. 2012 20120704 [Epub ahead of print];12:502.

12. U.S. Department of Agriculture. Are high-protein (>35%) hypocaloric diets safe and effective for long term (more than six months) weight loss or maintenance? (DGAC 2010). Washington (DC): U.S. Department of Agriculture; 2010. Available from: http://www.nel.gov/conclusion.cfm?conclusion_statement_id=250328&highlight=hypocaloric&home=1.

13. U.S. Department of Agriculture. Are low-carbohydrate (less than 45%) hypocaloric diets safe and effective for long-term (more than six months) weight loss or maintenance?

Washington (DC): U.S. Department of Agriculture; 2010. Available from: http://www.nel.gov/conclusion.cfm?conclusion_statement_id=250327.

14. U.S. Department of Agriculture. What is the relationship between diet self-monitoring and body weight? (DGAC 2010). Washington (DC): U.S. Department of Agriculture; 2010g. Available from: http://www.nel.gov/conclusion.cfm?conclusion_statement_id=250321.

15. Weinheimer EM, Sands LP, Campbell WW. A systematic review of the separate and combined effects of energy restriction and exercise on fat-free mass in middle-aged and older adults: implications for sarcopenic obesity. Nutrition Reviews. 2010;68(7):375-88.

Wrong Exposure/Intervention (47 studies)

1. Adriaanse MA, Vinkers CD, de Ridder DT et al. Do implementation intentions help to eat a healthy diet? A systematic review and meta-analysis of the empirical evidence. Appetite. 2011 21056605 [Epub ahead of print];56(1):SP-183.

2. Barr-Anderson DJ, AuYoung M, Whitt-Glover MC et al. Integration of short bouts of physical activity into organizational routine a systematic review of the literature. [Review]. American Journal of Preventive Medicine. 2011;40(1):76-93.

3. Beets MW, Beighle A, Erwin HE et al. After school program impact on physical activity and fitness: A meta analysis. American Journal of Preventive Medicine. 2009 19362799 [Epub ahead of print];36(6):SP-527.

4. Bhopal RS, Rafnsson SB. Could mitochondrial efficiency explain the susceptibility to adiposity, metabolic syndrome, diabetes and cardiovascular diseases in South Asian populations?. International Journal of Epidemiology. 2009 20090507 [Epub ahead of print];38(4):1072-81.

5. Blaine B. Does depression cause obesity?: A meta-analysis of longitudinal studies of depression and weight control. Journal of Health Psychology. 2008;13(8):1190-7.

6. Chapman J, Qureshi N, Kai J. Effectiveness of physical activity and dietary interventions in South Asian populations: a systematic review. British Journal of General Practice. 2013;63(607):e104-e114.

7. Chillon P, Evenson KR, Vaughn A et al. A systematic review of interventions for promoting active transportation to school. The International Journal of Behavioral Nutrition and Physical Activity. 2011 21320322 [Epub ahead of print];8(1):SP-10.

8. Delavari M, Sonderlund AL, Swinburn B et al. Acculturation and obesity among migrant populations in high income countries--a systematic review. BMC Public Health. 2013 20130510 [Epub ahead of print];13:458.

9. DeMattia L, Lemont L, Meurer L. Do interventions to limit sedentary behaviours change behaviour and reduce childhood obesity: a critical review of the literature. Obesity Reviews. 2007;8(1):69-81.

10. Finlay SJ, Faulkner G. Physical activity promotion through the mass media: inception, production, transmission and consumption. Prev Med. 2005;40(2):121-30.

11. Fraser J, Skouteris H, McCabe M et al. Paternal influences on children's weight gain: A systematic review. Fathering. 2011;9:(3):257-67.

12. Giskes K, Kamphuis CB, Van Lenthe FJ et al. A systematic review of associations between environmental factors, energy and fat intakes among adults: is there evidence

for environments that encourage obesogenic dietary intakes?. Public Health Nutrition. 2007 20070222 [Epub ahead of print];10(10):1005-17.

13. Giskes K, van LF, Avendano-Pabon M et al. A systematic review of environmental factors and obesogenic dietary intakes among adults: are we getting closer to understanding obesogenic environments?. Obesity Reviews. 2011;12(5):e95-e106.

14. Goodman C, Anise A. What is known about the effectiveness of economic instruments to reduce consumption of foods high in saturated fats and other energy-dense foods for preventing and treating obesity? 2006. Available from: http://www.euro.who.int/__data/assets/pdf_file/0010/74467/E88909.pdf.

15. Grasser G, Van Dyck D., Titze S et al. Objectively measured walkability and active transport and weight-related outcomes in adults: a systematic review. International Journal of Public Health. 2013 20121206 [Epub ahead of print];58(4):615-25.

16. Holsten JE. Obesity and the community food environment: a systematic review. Public Health Nutrition. 2009 20080514 [Epub ahead of print];12(3):397-405.

17. Incledon E, Wake M, Hay M. Psychological predictors of adiposity: systematic review of longitudinal studies. International Journal of Pediatric Obesity. 2011 20110119 [Epub ahead of print];6(2-2):e1-11.

18. Jensen JD, Hartmann H, de MA et al. Economic incentives and nutritional behavior of children in the school setting: A systematic review. Nutrition Reviews. 2011 22029832 [Epub ahead of print];69(11):SP-660.

19. Jones A, Bentham G, Foster C et al. Tackling obesities: Future choices - Obesogenic environments - Evidence review. London: Government Office for Science; 2007. Available from: https://www.bis.gov.uk/assets/foresight/docs/obesity/03.pdf.

20. Katz DL, O'Connell M, Yeh MC et al. Public health strategies for preventing and controlling overweight and obesity in school and worksite settings: a report on recommendations of the Task Force on Community Preventive Services. Morbidity & Mortality Weekly Report. 2005;Recommendations & Reports. 54(RR-10):1-12.

21. Liber A, Szajewska H. Effects of inulin-type fructans on appetite, energy intake, and body weight in children and adults: systematic review of randomized controlled trials. Annals of Nutrition & Metabolism. 2013 20130723 [Epub ahead of print];63(1-2):42-54.

22. Lubans DR, Morgan PJ, Cliff DP et al. Fundamental movement skills in children and adolescents: review of associated health benefits. Sports Medicine. 2010;40(12):1019-35.

23. Ludy MJ, Moore GE, Mattes RD. The effects of capsaicin and capsiate on energy balance: critical review and meta-analyses of studies in humans. Chemical Senses. 2012 20111029 [Epub ahead of print];37(2):103-21.

24. Luppino FS, de Wit LM, Bouvy PF et al. Overweight, obesity, and depression: a systematic review and meta-analysis of longitudinal studies. Archives of General Psychiatry. 2010;67(3):220-9.

25. Michie S, Abraham C, Whittington C et al. Effective techniques in healthy eating and physical activity interventions: A meta-regression. Health Psychology. 2009 19916637 [Epub ahead of print];28(6):SP-690.

26. Midei AJ, Matthews KA. Interpersonal violence in childhood as a risk factor for obesity: a systematic review of the literature and proposed pathways. Obesity Reviews. 2011 20110315 [Epub ahead of print];12(5):e159-e172.

27. Ohkawara K, Tanaka S, Miyachi M et al. A dose-response relation between aerobic exercise and visceral fat reduction: systematic review of clinical trials. International Journal of Obesity. 2007 20070717 [Epub ahead of print];31(12):1786-97.

28. Osei-Assibey G, Kyrou I, Adi Y et al. Dietary and lifestyle interventions for weight management in adults from minority ethnic/non-White groups: a systematic review. Obesity Reviews. 2010;11(11):769-76.

29. Peters J, Sinn N, Campbell K et al. Parental influences on the diets of 2-5-year-old children: Systematic review of interventions. Early Child Development and Care. 2012;182(7):SP-837.

30. Public Health England. Obesity and the environment briefing: increasing physical activity and active travel. 2013. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/256796/Briefing_Obesity_and_active_travel_final.pdf.

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34. Soler RE, Leeks KD, Buchanan LR et al. Point-of-decision prompts to increase stair use. A systematic review update. American Journal of Preventive Medicine. 2010;38(2 Suppl):S292-S300.

35. Thamotharan S, Lange K, Zale EL et al. The role of impulsivity in pediatric obesity and weight status: a meta-analytic review. Clinical Psychology Review. 2013 20121220 [Epub ahead of print];33(2):253-62.

36. Trowman R, Dumville JC, Hahn S et al. A systematic review of the effects of calcium supplementation on body weight. British Journal of Nutrition. 2006;95(6):1033-8.

37. U.S.Department of Agriculture. What is the relationship between the environment, body weight and fruit/vegetable consumption? (DGAC 2010). Washington (DC): U.S. Department of Agriculture; 2010.

38. U.S.Department of Agriculture. What is the relationship between the intake of soy protein and body weight? (DGAC 2010). Washington (DC): U.S. Department of Agriculture; 2010.

39. Vainik U, Dagher A, Dube L et al. Neurobehavioural correlates of body mass index and eating behaviours in adults: a systematic review. Neuroscience & Biobehavioral Reviews. 2013 20121219 [Epub ahead of print];37(3):279-99.

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41. van der Horst K, Oenema A, Ferreira I et al. A systematic review of environmental correlates of obesity-related dietary behaviors in youth. Health Education Research. 2007 20060721 [Epub ahead of print];22(2):203-26.

42. van Sluijs EM, Kriemler S, McMinn AM. The effect of community and family interventions on young people's physical activity levels: A review of reviews and updated systematic review. British Journal of Sports Medicine. 2011 21836175 [Epub ahead of print];45(11):SP-914.

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44. Weng SF, Redsell SA, Swift JA et al. Systematic review and meta-analyses of risk factors for childhood overweight identifiable during infancy. Archives of Disease in Childhood. 2012 20121029 [Epub ahead of print];97(12):1019-26.

45. Westwood M, Fayter D, Hartley S et al. Childhood obesity: should primary school children be routinely screened? A systematic review and discussion of the evidence. Archives of Disease in Childhood. 2007;92(5):416-22.

46. Whiting S, Derbyshire E, Tiwari BK. Capsaicinoids and capsinoids. A potential role for weight management? A systematic review of the evidence. Appetite. 2012 20120522 [Epub ahead of print];59(2):341-8.

47. Winzenberg T, Shaw K, Fryer J et al. Calcium supplements in healthy children do not affect weight gain, height, or body composition. Obesity. 2007;15(7):1789-98.

Wrong Outcome (41 studies)

1. Atkin AJ, Gorely T, Biddle SJ et al. Interventions to promote physical activity in young people conducted in the hours immediately after school: A systematic review. International Journal of Behavioral Medicine. 2011 20658358 [Epub ahead of print];18(3):SP-176.

2. Ayala GX, Baquero B, Klinger S. A systematic review of the relationship between acculturation and diet among Latinos in the United States: implications for future research. Journal of the American Dietetic Association. 2008;108(8):1330-44.

3. Barnett A, Cerin E, Baranowski T. Active video games for youth: a systematic review. Journal of Physical Activity & Health. 2011;8(5):724-37.

4. Behringer M, Vom HA, Yue Z et al. Effects of resistance training in children and adolescents: A meta-analysis. Pediatrics. 2010 20974785 [Epub ahead of print];126(5):SP-e1199.

5. Biddiss E, Irwin J. Active video games to promote physical activity in children and youth: A systematic review. Archives of Pediatrics & Adolescent Medicine. 2010 20603468 [Epub ahead of print];164(7):SP-664.

6. Bird EL, Baker G, Mutrie N et al. Behavior change techniques used to promote walking and cycling: A systematic review. Health Psychology. 2013 23477577 [Epub ahead of print];32(8):SP-829.

7. Chapman CD, Benedict C, Brooks SJ et al. Lifestyle determinants of the drive to eat: a meta-analysis. American Journal of Clinical Nutrition. 2012 20120725 [Epub ahead of print];96(3):492-7.

8. Clark MJ, Slavin JL. The effect of fiber on satiety and food intake: a systematic review. Journal of the American College of Nutrition. 2013;32(3):200-11.

9. Conn VS, Hafdahl AR, Mehr DR. Interventions to increase physical activity among healthy adults: Meta-analysis of outcomes. American Journal of Public Health. 2011 21330590 [Epub ahead of print];101(4):SP-751.

10. Cruz-Ferreira A, Fernandes J, Laranjo L et al. A systematic review of the effects of Pilates method of exercise in healthy people. Archives of Physical Medicine and Rehabilitation. 2011 22030232 [Epub ahead of print];92(12):SP-2071.

11. De CM, De DE, De B, I et al. Correlates of energy balance-related behaviours in preschool children: a systematic review. Obesity Reviews. 2012;13 Suppl 1:13-28.

12. De MF, Van Lenthe FJ, Spittaels H et al. Interventions for promoting physical activity among European teenagers: A systematic review. International Journal of Behavioral Nutrtional and Physical Activity. 2009 19961623 [Epub ahead of print];6:SP-82.

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16. Kelley GA, Kelley KS. Aerobic exercise and lipids and lipoproteins in children and adolescents: a meta-analysis of randomized controlled trials. Atherosclerosis. 2007 20060630 [Epub ahead of print];191(2):447-53.

17. Kelley GA, Kelley KS. Impact of progressive resistance training on lipids and lipoproteins in adults: A meta-analysis of randomized controlled trials. Preventive Medicine. 2009 19013187 [Epub ahead of print];48(1):SP-9.

18. Kelley GA, Kelley KS, Roberts S et al. Efficacy of aerobic exercise and a prudent diet for improving selected lipids and lipoproteins in adults: A meta-analysis of randomized controlled trials. BMC Medicine. 2011 21676220 [Epub ahead of print];9:SP-74.

19. Kelley GA, Kelley KS, Roberts S et al. Comparison of aerobic exercise, diet or both on lipids and lipoproteins in adults: A meta-analysis of randomized controlled trials. Clinical Nutrition. 2012 22154987 [Epub ahead of print];31(2):SP-156.

20. Kelley GA, Kelley KS. Effects of diet, aerobic exercise, or both on non-HDL-C in adults: A meta-analysis of randomized controlled trials. Cholesterol. 2012 23198142 [Epub ahead of print];2012:840935.

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4 Appendix D: Quality appraisal templates

Rapid title and abstract quality appraisal criteria for systematic reviews

Reviews were given a score out of 4, by summing the total number of the following criteria it met:

- The review identifies itself in the title or abstract as a systematic review
- The review reports that it conforms to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards
- The abstract reports that two or more sources were searched
- The abstract reports the review's inclusion/exclusion criteria

These questions were based on criteria for definition of systematic reviews in the Database of Abstracts of Reviews of Effects (DARE).

Full text systematic review quality appraisal template

The checklist was based on the NICE systematic review quality checklist ('Methods for the development of NICE public health guidance (third edition)') and the Critical Appraisal Skills Programme (CASP) systematic review quality checklist. Reviews were awarded one point for each criterion met, with those scoring 0-2 rated as low quality [-], those scoring 3-5 rated as moderate quality [+], and those scoring 6-8 rated as high quality [++].

Study identification (author, year, REFID)			Total score (score 1 for each criterion met):	
Factor:				
Checklist completed by:				
		In this review this criterion is met:		
1.	Does the review address an appropriate and clearly-focused question that is relevant to 1 or more of the guidance topic's key questions? *Answer Yes if the review aimed to look at one of the specific behaviours being assessed rather than general areas (e.g. physical activity/diet/sedentary/lifestyle interventions)*	Yes	No	Unclear
2.	Does the review include the types of study/s relevant to the key research question/s? *Study types related to our review question are RCTs and cohort studies.* • *Answer Yes if these are the only study types included (if only RCTs or only cohorts/longitudinal observational answer Yes)* • *Answer No if other study types are included (e.g. RCTs and cross-sectional)* *(Not penalising cohorts that don't specify prospective design)*	Yes	No	Unclear
3.	Is the literature search sufficiently rigorous to identify all the relevant studies? *Must meet following criteria for a Yes:* • *At least 2 electronic sources should be searched* • *Must include years and databases searched* • *Key words must be stated*	Yes	No	Unclear
4.	Is the study quality of included studies appropriately assessed and reported? *Must meet following criteria for a Yes:* • *Methods of assessment provided* • *Quality of included studies reported* • *Quality of included studies considered in conclusions*	Yes	No	Unclear
5.	Is an adequate description of the	Yes	No	Unclear

	analytical methodology used included, and are the methods used appropriate to the question? • *e.g. if meta-analysis is used is it appropriate and is heterogeneity assessed and taken into consideration if it exists* • *if mixed study types are included, are these analysed separately in the results section?*			
6.	Were the characteristics of the included studies provided? *E.g. In an aggregated form such as a table, data should be provided on the participants, interventions/ exposures and outcomes.*	Yes	No	Unclear
7.	Were potential conflicts of interest reported? *Potential sources of support should be clearly acknowledged for the systematic review and considered for the included studies.*	Yes	No	Unclear
8.	Can the results be applied to the UK population? • *Answer Yes if majority of studies in OECD countries* • *If country not specified, consider context of research question to UK*	Yes	No	Unclear

Primary study quality assessment template

Primary studies were assessed using the NICE checklist for quantitative studies reporting correlations and associations ('Methods for the development of NICE public health guidance (third edition)'). Individual questions in the checklist sections 1 to 4 are rated as follows (in section 5 NR and NA are not options):

++	Indicates that for that particular aspect of study design, the study has been designed or conducted in such a way as to minimise the risk of bias.
+	Indicates that either the answer to the checklist question is not clear from the way the study is reported, or that the study may not have addressed all potential sources of bias for that particular aspect of study design.
–	Should be reserved for those aspects of the study design in which significant sources of bias may persist.
Not reported (NR)	Should be reserved for those aspects in which the study under review fails to report how they have (or might have) been considered.
Not applicable (NA)	Should be reserved for those study design aspects that are not applicable given the study design under review (for example, allocation concealment would not be applicable for case–control studies).

Study identification: Include full citation details		
Study design: • Refer to the 'Methods for the development of NICE public health guidance (third edition)' glossary of study designs and the algorithm for classifying experimental and observational study designs to best describe the paper's underpinning study design		
Guidance topic:		
Assessed by:		
Section 1: Population		
1.1 Is the source population or source area well described? • Was the country (e.g. developed or non-developed, type of health care system), setting (primary schools, community centres etc), location (urban, rural), population demographics etc adequately described?	Rating:	Comments:
1.2 Is the eligible population or area representative of the source population or area? • Was the recruitment of individuals, clusters or areas well defined (e.g. advertisement, birth register)? • Was the eligible population representative of the source? Were important groups underrepresented?	Rating:	Comments:
1.3 Do the selected participants or areas represent the eligible population or area? • Was the method of selection of participants from the eligible population well described? • What % of selected individuals or clusters agreed to participate?	Rating:	Comments:

Were there any sources of bias? • Were the inclusion or exclusion criteria explicit and appropriate?		
Section 2: Method of selection of exposure (or comparison) group		
2.1 Selection of exposure (and comparison) group. How was selection bias minimised? • How was selection bias minimised?	Rating:	Comments:
2.2 Was the selection of explanatory variables based on a sound theoretical basis? • How sound was the theoretical basis for selecting the explanatory variables?	Rating:	Comments:
2.3 Was the contamination acceptably low? • Did any in the comparison group receive the exposure? • If so, was it sufficient to cause important bias?	Rating:	Comments:
2.4 How well were likely confounding factors identified and controlled? • Were there likely to be other confounding factors not considered or appropriately adjusted for? • Was this sufficient to cause important bias?	Rating:	Comments:
2.5 Is the setting applicable to the UK? • Did the setting differ significantly from the UK?	Rating:	Comments:
Section 3: Outcomes		
3.1 Were the outcome measures and procedures reliable? • Were outcome measures subjective or objective (e.g. biochemically validated nicotine levels ++ vs self-reported smoking −)? • How reliable were outcome measures (e.g. inter- or intra-rater reliability scores)? • Was there any indication that measures had been validated (e.g. validated against a gold standard measure or assessed for content validity)?	Rating:	Comments:
3.2 Were the outcome measurements complete? • Were all or most of the study participants who met the defined study outcome definitions likely to have been identified?	Rating:	Comments:
3.3 Were all the important outcomes assessed? • Were all the important benefits and harms assessed? • Was it possible to determine the overall balance of benefits and harms of the intervention versus comparison?	Rating:	Comments:
3.4 Was there a similar follow-up time in exposure and comparison groups? • If groups are followed for different lengths of time, then more events are likely to occur in the group followed-up for longer distorting the comparison. • Analyses can be adjusted to allow for differences in length of follow-up (e.g. using person-years).	Rating:	Comments:
3.5 Was follow-up time meaningful? • Was follow-up long enough to assess long-term benefits and harms? • Was it too long, e.g. participants lost to follow-up?	Rating:	Comments:
Section 4: Analyses		
4.1 Was the study sufficiently powered to detect an intervention	Rating:	Comments:

effect (if one exists)? • A power of 0.8 (i.e. it is likely to see an effect of a given size if one exists, 80% of the time) is the conventionally accepted standard. • Is a power calculation presented? If not, what is the expected effect size? Is the sample size adequate?		
4.2 Were multiple explanatory variables considered in the analyses? • Were there sufficient explanatory variables considered in the analysis?	Rating:	Comments:
4.3 Were the analytical methods appropriate? • Were important differences in follow-up time and likely confounders adjusted for?	Rating:	Comments:
4.6 Was the precision of association given or calculable? Is association meaningful? • Were confidence intervals or p values for effect estimates given or possible to calculate? • Were CIs wide or were they sufficiently precise to aid decision-making? If precision is lacking, is this because the study is under-powered?	Rating:	Comments:
Section 5: Summary		
5.1 Are the study results internally valid (i.e. unbiased)? • How well did the study minimise sources of bias (i.e. adjusting for potential confounders)? • Were there significant flaws in the study design?	Rating:	Comments:
5.2 Are the findings generalisable to the source population (i.e. externally valid)? • Are there sufficient details given about the study to determine if the findings are generalisable to the source population? • Consider: participants, interventions and comparisons, outcomes, resource and policy implications.	Rating:	Comments:

5 Appendix E: Summary table of non-prioritised reviews

See attached document for Summary table of non-prioritised reviews.

6 Appendix F: Evidence tables

See attached document for evidence tables.