NHLBI Evidence Table: RF8-SR

PMID	First Author	Title	Year	Study Type	CVD	RF by CQ	Study Origin	Setting	Search Range	Data Sources	Study Eligibility Criteria	Number of Studies	Main Study Objective	Target Population	Patient Characteristics	Interv. Studies (n)	Interv. Study Characteristics	Interv. Type	Specific Intervention Examined	Intervention Results/Conclusions	OB Studies (n)	OB Study Characteristics	Observational Relationship Assessed	Observational Results/Conclusions	Main Reported Findings by Critical Question	Limitations of Studies Reviewed	Quality of SR
8483856	Serdula MK	Do obese children become obese adults? A review of the literature	1993	SR	None	Q5 (RF8) Q6 (RF2, RF3, RF8) Q8 (RF8)	USA	Don't Know/NR	1970-July 1992	MEDLINE Bibliographies of included studies	Included anthropometric measurements of participants both as children who were < 18 yr and as adults who were ≥ 18 yr Epidemiologic studies conducted in the US or Europe Published in English Exclusions: Descriptive studies limited only to obese children or only to obese adults	17	Examine the relationship between obesity in childhood and obesity in adulthood	Pediatric/ Young Adults	Age range at initial obesity assessment: 6 mo -16 yr Age range at final obesity assessment: 18-53 yr Born over a broad period starting from 1927	N/A	N/A	N/A	N/A	N/A	17 Cohort: 16 CC: 1	Interval between initial and final assessment: 2-45 yr	Obesity in childhood and obesity in adulthood Minority/groups of low SES and obesity tracking	Epidemiologic studies consistently find a positive association between anthropometric measures of obesity in childhood and those in adulthood About a third (26-41%) of obese preschool children were obese as adults, and about half (42-63%) of obese school-age children were obese as adults Risk for becoming an obese adult 2- to 6.5-fold higher for obese children than for nonobese children Risk for adult obesity is greater among children who were at more extreme levels of obesity and for children who were obese at older ages Many obese adults not obese as children; the proportion of obese adults who were obese as children ranged from 5-44% Data sparse for minorities and for groups of low SES; in 1 study that investigated differences between blacks and whites at ages 2-14 yr with follow-up at ages 10-24 yr, correlations for W/H^2 were lower for white females (r = 0.57) than for black females (r = 0.72), black males (r = 0.72), or white males (r = 0.70)	Q5: Data for tracking of childhood obesity are sparse for minorities and groups of low SES Q6: The risk for adult obesity was greater among children who were obese at older ages Q8: Epidemiologic studies consistently find a positive association between anthropometric measures of obesity in childhood and those in adulthood; although obese children are at higher risk for obesity in adulthood, most obese adults were not obese as children	Most of the studies were conducted among relatively young, predominantly white populations. Data are sparse for minorities and for groups of low-SES populations that have a high prevalence of adults obesity and who, therefore may have different patterns of tracking Longer follow-ups needed to establish the tracking of childhood obesity into middle-age, when the prevalence of adult obesity is greatest Comparison between studies was difficult because of differences in anthropometric indicators and cutoffs used to define obesity which resulted in a broad range of obesity and prevalence in both childhood and adulthood Potential bias through differential loss to follow-up and measurement or reporting error	Good
8778547	Epstein LH	Exercise in treating obesity in children and adolescents	1996	SR	None	Q10 (RF8)	USA	Don't Know/NR	NR	MEDLINE Psychological abstracts Cross reference of experimental and review articles	Articles in which obese children and adolescents were placed on exercise programs for the purpose of weight loss Children or adolescents defined as obese using objective criteria for obesity Obese children or adolescents provided either different types of exercise programs or an exercise program compared with a no-exercise control condition	13	Review the use of exercise programs with obese children and adolescents	Pediatric/ Young Adults	Age range: 6-15 yr Studies that included males and females: 12 Studies that included only males: 1	13	NR	Behavioral	Exercise vs. no exercise Diet vs. diet + exercise Diet vs. diet + exercise vs. no intervention Structure of the exercise programs (e.g., lifestyle exercise, aerobic exercise, decreasing sedentary behaviors)	Both studies that compared exercise versus no exercise controls were school-based; neither showed significant effects of exercise on weight variables or fitness The 5 studies that contrasted diet versus diet and exercise demonstrated better changes in weight and fitness for diet and exercise groups than diet alone None of the studies that examined a no-treatment control group versus diet versus diet and exercise found differences between the diet and diet plus exercise groups Studies contrasting different types of exercise programs demonstrated that the weight loss effects of activity programs can be enhanced up to 2 yr by using lifestyle versus more programmed aerobic exercise; the 2 exercise groups were both equally effective in maintenance of weight and did not differ in contrast to the calisthenics control at 10 yr Reducing access to preferred sedentary behaviors was found to be superior to reinforcing active behavior choices for weight control and fitness improvement at 1 yr	N/A	N/A	N/A	N/A	Q10: Exercise is an important adjunctive treatment for childhood and adolescent obesity. Additional research is needed on the best type of exercise program that promotes added weight loss beyond that of diet alone and which promotes long-term change	Limited number of controlled studies indicates the need for more research	Good
9226480	Power C	Measurement and long-term health risks of child and adolescent fatness	1997	SR	Atherosc lerosis	Q3 (RF8) Q6, (RF2, RF3, RF8) Q8 (RF8)	UK	Don't Know/NR	1985-1996	MEDLINE BIDS (EMBASE and Science Citation Index) Citations of key papers	Studies of child and adult adiposity relationships and studies of long-term disease risks associated with child and adolescent adiposity For assessment of child and adolescent adiposity and long-term health outcomes, included studies with baseline information on adiposity before age 20 and adult health outcomes several decades later	NR	Summarize the evidence on the relationship between child and adolescent and adult adiposity and associated long-term health risks	Pediatric/ Young Adults	NR	N/A	N/A	N/A	N/A	N/A	NR	NR	Child/adolescent adiposity and adult adiposity Child/adolescent adiposity and long-term health outcomes	Consistently elevated risks of adult obesity evident for fatter children; associations between adolescent and adult adiposity stronger than those between childhood and adulthood, but prediction of adult obesity only moderate Because adiposity associated with growth has stabilized after 18-20 yr, increases in adiposity after 18-20 yr are more likely to be pathological than increases at younger ages that may be associated with normal growth. Ages 18-20 yr could therefore be an important life stage to focus preventive strategies Associations with adult adiposity strengthen with increasing age in childhood; age of adiposity rebound predicts adult BMI, but probably not as well as BMI in childhood 1 study found that adolescent overweight is associated with increased mortality, primarily in men, and especially for coronary heart disease, atherosclerosis, and colorectal cancer Change from normal weight in adolescence to overweight in adulthood ("acquired obesity") may be associated with increased morbidity in adulthood	Q3, Q6: Adolescent overweight is associated with increased mortality, primarily in men, and especially for coronary heart disease, atherosclerosis, and colorectal cancer Q6: Increases in adiposity after 18-20 yr are more likely to be pathological than increases at younger ages that may be associated with normal growth Q8: Elevated risks of adult obesity are evident for fatter children, although the prediction of adult obesity from child and adolescent adiposity measures is only moderate	Too few studies on which to base firm conclusions Few studies investigated long-term risks, with information on both child and adolescent and adult life adiposity Data for women are particularly scarce Some studies of long term risk have been limited to special populations, such as college alumni	Excellent
9376884	Glenny AM	The treatment and prevention of obesity: a systematic review of the literature	1997	SR	None	Q10 (RF8) Q11 (RF8) Q13 (RF8)	UK	Mult Settings	NR	MEDLINE EMBASE BIDS PsychLIT Citations in identified reviews Contributions from peer reviewers	RCTs evaluating the effectiveness of interventions for treatment of obesity and the maintenance of weight loss Non-randomized studies with a concurrent control group were included to assess obesity prevention Observed participants for minimum of 1 yr (duration of intervention or combination of intervention and follow-up phase) Reported any of the following outcome measures both at baseline and post intervention/follow-up: measures of weight change relative to baseline values (e.g., absolute weight loss, percentage of weight loss); measures of fat content (e.g., BMI, ponderal index, skinfold thickness, FFM, fat loss); measures of fat distribution (e.g., waist-hip ratio, waist size)	97 papers reporting on 99 studies	Determine the effectiveness of interventions designed to prevent and treat obesity, and maintain weight loss	Pediatric/ Young Adults	NR	97	Sample size < 30 or not stated: 62 Conducted in US: > 60%	Behavioral	Family therapy to prevent obesity in children Treating parents and children together Parental involvement in treatment of childhood obesity Controlled exercise + diet Reinforcement of behavioral, diet, and exercise strategies Protein sparing modified fast (PSMF) vs. hypocaloric balanced diet (HBD)	Only 1 study was identified that addressed the prevention of obesity in children. Family therapy produced promising results in preventing the progression to severe obesity in children, when compared to no treatment Role of parental involvement in the treatment of childhood obesity remains uncertain; further evaluation of the parents' role needs to be undertaken before its true benefit can be established 1 study found that the addition of controlled exercise produced statistically significant decreases in body weight at 6 mo compared to diet alone; effect was not maintained at 1 yr 1 study found mean weight loss for subjects receiving monthly reinforcement was 3.65 kg during 1 yr follow up compared to mean loss of 1.9 kg for group undergoing monthly physical measurements alone 1 study compared PSMF with HBD diet; mean weight loss at 10 wk for PSMF diet 11.2 kg, 8.2 kg for HBD; mean weight for both groups returned to baseline at 1 yr	N/A	N/A	N/A	N/A	Q10: Reduction of sedentary behavior appears to be the most effective intervention for achieving weight loss Q11: Reduction of sedentary behavior appears to be the most effective intervention for maintaining weight loss Q13: Only 1 study was identified that addressed the prevention of obesity in children. Family therapy produced promising results in preventing the progression to severe obesity in children, when compared to no treatment	With the exception of the community based interventions, the sample sizes for the studies included were, in general, small. Some of the smallest sample sizes were seen in the studies on children/adolescents where the size of the intervention groups was as low as 10	Good
9376884	Glenny AM	The treatment and prevention of obesity: a systematic review of the literature	1997																Lifestyle changes (e.g., reinforcing different levels of activity, "Shapedown" program based on cognitive, behavioral, affective, and interactional techniques)	When targeting obese children, the reduction of sedentary behavior appears to be the most effective intervention for both achieving and maintaining weight loss						
10340805	Story M	School-based approaches for preventing and treating obesity	1999	SR	None	Q10 (RF8) Q11 (RF8) Q13 (RF8)	USA	Community (schools)	1966-1996	NR	Controlled experimental studies School-based interventions Secondary prevention studies: Target overweight children Primary prevention studies: Target whole populations or high-risk groups	Secondary prevention studies: 12 Primary prevention studies: NR	Assess the ability of school-based interventions to treat or prevent obesity	Pediatric/ Young Adults	Secondary prevention studies: Age range: 5-15 yr	Secondary prevention studies: 12 Primary prevention studies: NR	Secondary prevention studies: Intervention length range: 9 wk - 6 mo Intervention frequency range: 1-5 times/wk Almost all studies included both physical activity and nutrition education	Behavioral	School-based secondary interventions targeting overweight youth (e.g., goal setting, stimulus control) School-based primary interventions targeting whole population (e.g., classroom nutrition education, enhanced aerobic-type physical education)	In 11 out of the 12 controlled experimental research studies, intervention group had a significantly greater reduction in percentage of overweight compared to the control group; the mean reduction in percent overweight across the studies was about 10% Overall, interventions aimed at younger children were more successful than those with adolescents and treatment effects were generally larger for heavier children The long-term effects of school-based treatments remain unknown Only a few primary prevention research studies targeted specifically to obesity prevention have been conducted. Therefore, efficacy has not been established School-based primary prevention programs, that target reduction of CVD risk factors, have not proved effective in reducing the percentage of overweight in youth	N/A	N/A	N/A	N/A	Q10: In 11 of 12 secondary intervention studies, the intervention group had a significantly greater reduction in percentage of overweight compared with the control group Q11: The long-term effects of school-based treatments remain unknown Q13: Only a few primary prevention research studies targeted specifically to obesity prevention have been conducted. Therefore, efficacy has not been established	Only 2 of the studies had follow-up data of at least 6 mo A few of the studies had small samples sizes In some cases nonparticipants were used as controls; thus, motivational and personality factors may have influenced study outcomes	Good

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10641588	Parsons TJ	Childhood predictors of adult obesity: a systematic review	1999	SR	None	Q5 (RF8) Q8 (RF 8)	UK	Don't Know/NR	Start date of database - Spring 1998	MEDLINE EMBASE CAB abstracts PSYCLIT Sport Discus Conference abstracts Consultations with experts Potentially relevant longitudinal studies that were known about at the time	Longitudinal observational studies of healthy children ≥ 1 yr duration Included baseline measurement of a proposed risk factor during childhood (< 18 yr) Participants from a developed industrialized country Studies of any measure of fatness, leanness or relative weight, or change in fatness, leanness or relative weight; absolute change in weight was considered only if it occurred wholly within adulthood (≥ 18 yr), since height is assumed to be constant Studies of all predictors of obesity that were addressed in the literature, which were relevant from a public health perspective and potentially amenable to change	NR	Identify factors in childhood that might influence development of obesity in adulthood	Pediatric/ Young Adults	NR	N/A	N/A	N/A	N/A	N/A	NR	NR	SES in childhood and fatness in childhood SES in childhood and fatness in adulthood Birth weight and later BMI Early maturation and subsequent fatness Physical activity and subsequent fatness Diet and subsequent fatness Interrelationships between risk factors	No clear relationship between SES in early life and childhood fatness Strong consistent relationship between low SES in early life and increased fatness in adulthood Good evidence from large and reasonably long-term studies for an apparently clear relationship for increased fatness with higher birth weight; in studies which attempted to address potential confounding by gestational age, parental fatness, or social group, the relationship was less consistent. The relationship between earlier maturation and greater subsequent fatness appeared to be consistent, but studies rarely addressed confounding factors No evidence for an influence of activity in infancy on later fatness; inconsistent but suggestive evidence for a protective effect of activity in childhood on later fatness No clear evidence for an effect of infant feeding on later fatness emerged, but follow-up to adulthood was rare, with only 1 study measuring fatness after 7 yr. Studies investigating diet in childhood were limited and inconclusive	Q5: No clear relationship between SES in early life and childhood fatness; strong consistent relationship between low SES in early life and increased fatness in adulthood Q5: Individuals of higher SES have been reported to eat a healthier diet and have an increased level of physical activity Q6: In younger children, participation in sports and exercise decreased from higher to lower social classes or income group; similar trend seen in girls, but not in boys Q6: Good evidence for an apparently clear relationship for increased fatness with higher birthweight; relationship between earlier maturation and greater subsequent fatness appeared to be consistent Q6: Studies investigating the role of diet or activity were generally small, and included diverse methods of risk factor measurement. There was almost no evidence for an influence of activity in infancy on later fatness, and inconsistent but suggestive evidence for a protective effect of activity in childhood on later fatness. Studies investigating diet in childhood were limited and inconclusive	Few datasets with measurements of risk factors in childhood and outcome measures in adulthood identified Different definitions and methodologies of measurement were employed for both risk factors and outcomes	Good
10641588	Parsons TJ	Childhood predictors of adult obesity: a systematic review	1999								Exclusions: < 1 yr of duration Studies in which basic information, such as numbers of participants, the ages at which they were measured, or sufficient definition of risk factor or outcome was lacking, or not referenced to a previous publication Studies concerning minority groups (Pima Indians, vegans, children born preterm or to diabetic mothers) Studies of predictors which usually concern older children, such as smoking by the child, contraception, and pregnancy occurring under the age of 18 Studies that included measures of fat distribution rather than overall fatness												Individuals of higher SES reported to eat healthier diet and have increased levels of physical activity; prevalence of regular and vigorous activity reported to be greater among Whites and to increase with level of education In younger children (2 ± 10 yr), participation in sports and exercise decreased from higher to lower social classes or income group; similar trend seen in girls (11 ± 15 yr), but not in boys			
10759291	Sakurai Y	Duration of obesity and risk of non-insulin-dependent diabetes mellitus	2000	SR	None	Q6 (RF3, RF6, RF8, RF14)	Japan	Don't Know/NR	1966-1999	MEDLINE Included 4 articles that were concerned with this theme but were not picked up by the MEDLINE search	Exclusions: Articles not in English language Articles with no description of either glucose intolerance or insulin dysregulation Review articles with insufficient description of the definition of obesity Review articles that described animal-based experimental studies	13 Children: 4 Adults: 8 Children, adolescents, and adults: 1	Examine the effect of the duration of obesity on glucose intolerance and insulin dysregulation	Pediatric/ Young Adults	NR	N/A	N/A	N/A	N/A	N/A	13 CrS: 2 CC: 5 Cohort: 1 Interventio n: 5	Definition of overweight among children-based studies: ≥ 20% or 2 SD over ideal weight Cutoff point for overweight in adult-based studies: 25.0 to 30.0 kg/m^2 of BMI All of the children-based and 4 adult-based studies used the number of years from the onset of overweight as the definition of the duration of obesity. Other studies used the person-years method	Duration of obesity and the prevalence/incidence of glucose tolerance (NIDDM or IGT) Duration of obesity on insulin dysregulation (insulin resistance and beta-cell dysfunction)	5 studies focused on the prevalence or incidence of NIDDM or IGT; the others were interested in pre-diabetic metabolism, such as insulin resistance, insulin sensitivity, and glucose oxidation 4 studies showed a positive association between the duration of obesity and the prevalence/incidence of NIDDM or IGT 4 studies showed a dose response relationship between the duration and the risk of NIDDM 1 study did not find an increase of the prevalence of disease with increasing duration of obesity Findings on the effect of the duration of obesity on insulin dysregulation were inconsistent, with some studies noting an increase, some noting a decrease, and some noting no effect	Q6: The prevalence or incidence of NIDDM or impaired glucose tolerance is probably associated with the duration of obesity. The effect of prolonged obesity on insulin dysregulation is still unclear	Inconsistent definitions of "obesity" and "duration" Accuracy of the data on body weight; several studies used the data from questionnaires or interviews which were subject to probable recall bias	Fair
12917914	Summerbell CD	Interventions for treating obesity in children	2003	SR	None	Q10 (RF8)	UK	Clinical	1985-Jul 2001	Cochrane Controlled Trials Register MEDLINE EMBASE CINAHL ARC Service PsychLIT Silver Platter CD-ROM Science Citation Index Social Science Citation Index DARE	RCTs, based on inclusion criteria adopted by the original review RCTs that were specifically designed to treat obesity in children and observed participants for a minimum of 6 mo Participants < 18 yr at commencement of study Lifestyle interventions (dietary, physical activity, and/or behavioral therapy interventions) for treating obesity in children Studies had to report one or more of the following primary outcomes, presenting a baseline and a post-intervention measurement: measured (not self-reported) weight and height; estimates of overweight (in percent) and BMI	18	Update the treatment of childhood obesity section of the review conducted by NHS Centre for Reviews and Dissemination Assess effects of a range of lifestyle interventions designed to treat obesity in childhood; specifically to evaluate any of combination of lifestyle (dietary, physical activity, behavioral therapy) interventions compared with any other combination of these interventions or no treatment	Pediatric/ Young Adults	975 participants	18	Studies that focused on: Exercise, physical activity, or the reduction of sedentary behaviors: 5 In US: 4 In Austria: 1 Behaviorally oriented treatment programs: 13 In US: 8 In Australia: 2 In Israel: 1 In Sweden: 1 In Germany: 1	Behavioral	Changes in physical activity and sedentary behaviors (e.g., lifestyle exercise, aerobic exercise, calisthenics) Problem-solving vs. usual care or behavioral therapy Behavioral therapy vs. no treatment or usual care Behavior therapy at varying degrees of family involvement (e.g., therapy with focus on parental responsibility vs. child responsibility)	Trials too small to draw any conclusions Some data in favor of a reduction in sedentary behavior; children should be encouraged to increase their levels of physical activity even if there is no great benefit in terms of weight reduction May be some additional benefit to behavior therapy where parents, rather than the child, are given the primary responsibility for behavior change Relaxation may be as effective as behavioral therapy Results showed significantly better relative weight change at 6 mo and 1 yr for children in mastery criteria and contingent reinforcement group compared with control group; results not maintained at 2 yr	N/A	N/A	N/A	N/A	Q10: There is a limited amount of quality data on the effects of programs to treat childhood obesity, and as such no conclusions can be drawn with confidence; there is a limited amount of quality data on the components of programs to treat childhood obesity that favor one program over another	Many of the studies had small sample sizes, high drop-out rates, and unreliable outcome measurements Many of the studies may be non-generalizable owing to sampling problems - the best research in the field has been conducted in populations who are most likely to respond to interventions, tending to be white, more middle class, better motivated, better educated families Wide range of interventions tested makes comparison of studies difficult Impact of programs on adverse outcomes is rarely considered, and long-term outcomes beyond 1 yr are virtually non-existent	Excellent
12917914	Summerbell CD	Interventions for treating obesity in children	2003							National Health Service Economic Evaluation Database (NHS EED) Health Technology Assessment database Kings fun database, HELM, DH-Data PsychINFO Silver Platter CD-ROM	Exclusions: Studies in pregnant females or the critically ill Interventions that specifically dealt with treatment of eating disorders							Cognitive behavioral therapy vs. relaxation Behavioral therapy vs. mastery criteria + contingent reinforcement							
12937090	Reilly JJ	Health consequences of obesity	2003	SR	Multiple	Q1 Q2 (RF8) Q3 (RF8) Q6 (RF4, RF5, RF6, RF8, RF12, RF14) Q8 (RF8)	UK	Mult Setting	Jan 1981-Dec 2001	MEDLINE EMBASE CINAHL Healthstar Cochrane Library Reference lists from relevant papers Contents pages of 29 relevant specialist journals from Jan 1997 - Dec 2001	Subjects aged 1-18 yr Exclusions: Studies that did not define obesity Case studies Reviews of case studies Studies that did not include a control group Studies with very small sample sizes	NR	Provide a critically appraised, evidence based, summary of the consequences of childhood obesity in the short term (for the child) and longer term (in adulthood)	Other	NR	N/A	N/A	N/A	N/A	N/A	NR	NR	Obesity, BP, dyslipidemia, insulin resistance, LV mass, endothelial function, and atherosclerosis	Studies consistently showed associations between obesity (often defined as BMI > 85th or 95th percentiles) and most of the major cardiovascular risk factors: high BP; dyslipidemia; abnormalities in LV mass and/or function; abnormalities in endothelial function; and hyperinsulinemia and/or insulin resistance Studies observed significant clustering of cardiovascular risk factors with pediatric obesity Extent of asymptomatic atherosclerotic lesions in childhood and adolescence is predicted by the number of cardiovascular risk factors present Childhood obesity (and central adiposity) have adverse effects on the cardiovascular system which are similar to those known in adults 6/7 studies reported persistence of childhood obesity into adulthood 3 high quality studies suggested associations between pediatric obesity and low grade systemic inflammation Persistence of childhood obesity into adulthood was substantially more likely where children had at least 1 obese parent, where obesity is more severe (BMI > 95th percentile compared to BMI > 85th percentile) and present at older ages	Q1: Extent of asymptomatic atherosclerotic lesions in childhood and adolescence is predicted by the number of cardiovascular risk factors present Q2: Associations between obesity and abnormalities in LV mass and/or function and abnormalities in endothelial function Significant associations between atherogenic profiles associated with obesity in childhood and those in adulthood Q3: Associations between obesity and abnormalities in LV mass and/or function and abnormalities in endothelial function Q6: Childhood obesity is strongly associated with the presence and clustering of cardiovascular risk factors in childhood Associations between obesity and most of the major cardiovascular risk factors: high BP; dyslipidaemia; hyperinsulinaemia and/or insulin resistance Q8: Obesity in childhood tends to persist into adulthood Adolescent obesity is probably even more likely to persist into adulthood than childhood obesity	High risk of bias Associations cannot provide definitive evidence of causation or the direction of causation Lack of data on prevalence of many co-morbidities in the pediatric population Heterogeneity of studies identified in review process	Good

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12937090	Reilly JJ	Health consequences of obesity	2003																					Adolescent obesity is more likely to persist into adulthood than childhood obesity Significant associations between atherogenic profiles associated with obesity in childhood and those in adulthood Some co-morbidities of obesity in childhood (e.g. type 2 diabetes, PCOS) are now fairly well established, although evidence base somewhat limited			
15461192	Bautista-Castano I	Effectiveness of interventions in the prevention of childhood obesity	2004	SR	None	Q6 (RF2, RF8) Q13 (RF8, RF9, RF11)	Spain	Mult Settings	Jan 1993-Dec 2003	MEDLINE Specialist journals in associated areas (pediatrics, internal medicine, public health, family and general medicine) Secondary journals involved in dissemination of evidence (ACP Journal Club, Evidence-based Medicine, Clinical Evidence, Bandolier)	Study conducted in humans Prevention interventions that deal with effects on ponderal status RCTs and non-randomized intervention studies with control groups Studies with groups observed for ≥ 12 wk Studies with populations between 0-18 yr	14	Review interventions conducted over the past 11 yr in family, school, and community environments, directed towards the prevention of childhood obesity	Pediatric/ Young Adults	NR	14	Length of follow-up: 3 yr: 2 studies 2 yr: 4 studies 7 mo-1 yr: 5 studies 3 mo: 3 studies Number of subjects: 50-100: 3 studies 100-500: 6 studies 500-1000: 1 study > 1000: 4 studies Setting: Community: 2 studies School: 12 studies	Behavioral	Nutritional education and physical activity Physical activity without nutritional education Parental participation School-food facilities interventions	3/9 studies using nutritional education and physical activity interventions showed an effect, in boys as well as in girls or in girls alone, combined, as well, a life-style habit modification 2/4 studies that promoted physical activity without nutritional education showed no effectiveness in the prevention of excessive weight gain 3/7 studies with parental support in the intervention showed effectiveness, but in boys only 5 studies involving school-food facilities interventions found no evidence of efficacy without additional interventions 7 studies had no effect on BMI 4 studies had a positive effect on BMI Decreasing sedentary activity such as watching television positively influences the effectiveness of interventions designed to prevent childhood obesity Interventions designed to prevent excessive weight gain and applied over 6 mo to 1 yr seem to be more effective than shorter-term interventions and, as well, to those extending over longer periods	N/A	N/A	N/A	N/A	Q13: Interventions designed to prevent excessive weight gain and applied over 6 mo to 1 yr seem to be more effective than shorter-term interventions and, as well, to those extending over longer periods Interventions involving nutritional education with promotion of physical activity are more effective if combined with behavior modifications Interventions involving school-food facilities not efficacious in improving effectiveness of intervention Decreasing sedentary activity such as watching television positively influences the effectiveness of interventions designed to prevent childhood obesity Q6, Q13: Studies with parental support in the intervention showed effectiveness, but in boys only	Publication bias Factors apart from school of family could influence weight status of children Variable length of follow-up made between-study comparisons difficult Studies involving parental participation had no comparisons between the same intervention with or without parental participation	Excellent
15801873	Stuart WP	An integrative review of interventions for adolescent weight loss	2005	SR	None	Q10 (RF8)	USA	Don't Know/NR	1980-2003	CINAHL MEDLINE Article bibliographies	English-language journal articles Studies using comparison or control groups Interventions directed at reductions in adolescent BMI or body weight Participants between 11 and 19 yr	17	Conduct a systematic review to describe the scope, domain, and effectiveness of weight loss interventions with overweight adolescents	Pediatric/ Young Adults	Male: 32% White/Caucasian: 44% African American/Black: 38% Asian American: 0.5% Latino/Hispanic: 2.5% Other: 15%	17	Sample size range: 20-82	Multiple Interventions	Parental participation Exercise interventions Dietary interventions Monetary rewards Telephone and mail-based interventions Medication interventions	No consistent treatment has been identified as the "gold standard" for producing weight loss in overweight adolescents Parental involvement is an important variable Preventive rather than intervention is the better choice School nurses are in a unique position to join the community in planning effective lifestyle changes	N/A	N/A	N/A	N/A	Q10: No consistent treatment has been identified as the "gold standard" for producing weight loss in overweight adolescents	Study findings have not been validated by replication Samples failed to include adequate representation of Latino/African American male participants Infrequent and inconsistent family participation Need for attention to study dropout rates and need for conceptual frameworks to guide the studies	Excellent
15836564	Monteiro PO	Rapid growth in infancy and childhood and obesity in later life--a systematic review	2005	SR	None	Q6 (RF2, RF8) Q8 (RF8)	Brazil	Don't Know/NR	NR	MEDLINE Bibliographic references of electronically selected articles	Studies with human subjects Articles with accompaniment component including cohorts or other studies with access to prior data Articles dealing with association between rate of early growth (during childhood) and overweight or obesity at any age	15	Organize current knowledge and evaluate the results of different studies on the influence of rapid growth on the occurrence of obesity, especially among children and teenagers	Pediatric/ Young Adults	NR	N/A	N/A		N/A	N/A	15	NR	Rapid early growth during childhood and overweight or obesity	13 articles found significant associations between early rapid growth - whatever the definition - and the occurrence of overweight, obesity, or greater adiposity measures, regardless of the ages at which they were measured 3 studies found effects of growth during 1st yr of life on subsequent obesity seemed more marked among girls than boys	Q8: Significant associations between early rapid growth - whatever the definition - and the occurrence of overweight, obesity, or greater adiposity measures, regardless of the ages at which they were measured Q6, Q8: 3 studies found effects of growth during 1st yr of life on subsequent obesity seemed more marked among girls than boys	Definitions of exposure, rapid growth, age at exposure, age at which outcomes were measured, intervals between measurements, and outcome definitions varied between studies Lack of confounding control for family and SES variables Few studies discuss follow-up losses, which is fundamental in cohort studies No studies provided statistical power for associations investigated	Excellent to good
15960868	Wareham NJ	Physical activity and obesity prevention: a review of the current evidence	2005	SR	None	Q6 (RF8, RF11) Q13 (RF8, RF9, RF11)	UK	Mult Settings	Since 2000	PubMed Psyclit	Interventional studies: Physical activity promotion as a main component of intervention Reports effects on changes in weight or body composition Intervention not aimed at weight reduction or preventing weight regain Observational studies: Longitudinal or prospective cohort studies Evaluates association between physical activity and weight change in adults and children Provides baseline physical activity or change in physical activity Use of change in body composition as an outcome measure Exclusions: Cross-sectional studies	47 Interventional studies: 17 Observational studies: 30	Update the two previous reviews by summarizing the literature published since 2000 on observational studies studying the longitudinal association between physical activity and weight change Update the two previous reviews by summarizing the papers published from 2000 onwards on controlled trials studying interventions aimed at preventing weight gain in both adults and children by increasing physical activity or decreasing physical inactivity	Other	NR	17 Children and adolescents: 11 Adults: 6	NR	Behavioral	School based physical education classes Reducing sedentary behavior and family based interventions	3/11 trials showed small intervention effect on body composition at follow-up, with 2 reporting effects for boys only Several non-effective trials report on positive changes in physical activity levels or on dietary behavior, but do not show significant differences in body weight or body composition at follow-up between intervention and control Comprehensive school-based interventions aimed at increasing physical activity levels through physical education classes and behavior change are most likely to be effective in preventing weight gain, whereas interventions aimed at reducing sedentary behavior and family-based interventions seem to be less effective	30 Children and adolescents: 16 Adults: 14	NR	Weight gain and physical activity	5 studies reporting on the longitudinal association between self-reported physical activity and weight gain in children did not find an association. The other 6 studies show inverse association between higher levels of physical activity and weight gain or a positive association with sedentary activity 2 studies showed that self-reported physical activity in childhood and adolescence has an association with body composition in adulthood 5 studies reported on the longitudinal association between objectively-measured physical activity or physical activity-related energy expenditure and weight gain in children, and the results were mixed	Q6: 5 studies reporting on the longitudinal association between self-reported physical activity and weight gain in children did not find an association. The other 6 studies show inverse association between higher levels of physical activity and weight gain or a positive association with sedentary activity 2 studies showed that self-reported physical activity in childhood and adolescence have an association with body composition in adulthood 5 studies reported on the longitudinal association between objectively-measured physical activity or physical activity-related energy expenditure and weight gain in children, and the results were mixed Q13: 3/11 trials showed small intervention effect on body composition at follow-up, with 2 reporting effects for boys only Several non-effective trials report on positive changes in physical activity levels or on dietary behavior, but do not show significant differences in body weight or body composition at follow-up between intervention and control Comprehensive school-based interventions aimed at increasing physical activity levels through physical education classes and behavior change are most likely to be effective in preventing weight gain, whereas interventions aimed at reducing sedentary behavior and family-based interventions seem to be less effective	Confounding Reverse causality Measurement errors	Excellent but not outstanding
15995013	Whitlock EP	Screening and interventions for childhood overweight: a summary of evidence for the US Preventive Services Task Force	2005	SR	None	Q5 (RF8) Q8 (RF8) Q10 (RF8)	USA	Clinical	1966-Apr 2004 1996-Apr 2004	MEDLINE PsycINFO DARE CINAHL Cochrane Library	Interventions conducted in primary care or feasible for primary care conduct or referral Interventions categorized as pharmaceutical, surgical, or behavioral counseling interventions Reported weight outcomes, preferably as BMI or BMI percentile changes Studies of trials used to evaluate effectiveness of interventions had to be from Western industrialized nations and published since 1985	NR	Examine the evidence for the benefits and harms of screening and early treatment of overweight among children and adolescents in clinical settings	Pediatric/ Young Adults	NR	22	NR	Multiple Interventions	Clinical screening for overweight Behavioral counseling (e.g., behavioral modification, special diets, and/or activity components delivered to children and/or parents) Pharmacotherapy (e.g., sibutramine) Surgery	No trials of screening programs to identify and to treat childhood overweight have been reported Interventions to treat overweight adolescents in clinical settings have not been shown to have clinically significant benefits, and they are not widely available Because existing trials report modest short- to medium-term improvements (10–20% decrease in percentage of overweight or a few units of change in BMI), overweight improvements among children and adolescents seem possible	NR	NR	Prevalence of overweight (BMI ≥ 95th percentile) by racial/ethnic groups, age, and gender Overweight in children and obesity in adulthood Overweight in childhood and poor health outcomes in adulthood	Overweight (BMI > 95th percentile) prevalence in 1999–2002 was 10% among 2-5 yr old children and 16% among 6 yr old children For children 2-5 yr, prevalences were similar for all racial/ethnic subgroups and both genders but were lower than those for older children in the same racial/ethnic subgroups. Among children 6-11 yr, differences were seen between racial/ethnic subgroups, with significantly more Mexican American (21.8%) and non-Hispanic black (19.8%) children being categorized as overweight, compared with non-Hispanic white children (13.5%) (p<0.05); gender-specific differences were also apparent Among youths 12-19 yr, significantly more non-Hispanic black (21.1%) and Mexican American (22.5%) youths had overweight BMI measurements than did non-Hispanic white youths (13.7%) (p<0.05), with no differences between male and female youths Single BMI measures track reasonably well from childhood and adolescence (ages 6-18 yr) into young adulthood (ages 20-37 yr), as evidenced by longitudinal studies showing low/moderate (r = 0.2-0.4) or moderate/high (r = 0.5-0.8) correlations between childhood and adult BMI measures	Overweight (BMI > 95th percentile) prevalence in 1999–2002 was 10% among 2-5 yr old children and 16% among 6 yr old children For children 2-5 yr, prevalences were similar for all racial/ethnic subgroups and both genders but were lower than those for older children in the same racial/ethnic subgroups. 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15995013	Whitlock EP	Screening and interventions for childhood overweight: a summary of evidence for the US Preventive Services Task Force	2005																					Increased tracking (r ≥ 0.6 or elevated odds of adult obesity) is seen for older children (> 8 yr), for younger children (6-12 yr) who are more overweight, and for children with an obese parent; gender differences in tracking are not consistent across ages or within age categories; limited data for tracking are available comparing white and black children			

NHLBI Evidence Table: RF8-SR

PMID	First Author	Title	Year	Study Type	CVD	RF by CQ	Study Origin	Setting	Search Range	Data Sources	Study Eligibility Criteria	Number of Studies	Main Study Objective	Target Population	Patient Characteristics	Interv. Studies (n)	Interv. Study Characteristics	Interv. Type	Specific Intervention Examined	Intervention Results/Conclusions	OB Studies (n)	OB Study Characteristics	Observational Relationship Assessed	Observational Results/Conclusions	Main Reported Findings by Critical Question	Limitations of Studies Reviewed	Quality of SR
16034868	Summerbell CD	Interventions for preventing obesity in children	2005	SR	None	Q13 (RF8, RF9, RF11)	UK	Mult settings	1990-Feb 2005	MEDLINE PsycINFO EMBASE CINAHL CENTRAL	RCTs and controlled CTs ≥ 12 wk Participants < 18 yr Addressed an intervention that aimed to improve food intake, physical activity and/or prevent obesity Compared diet and/or physical activity interventions to a non-intervention control group that received usual care of another active intervention Reported ≥ 1 of the following primary outcomes: weight and height, percent fat content, BMI, ponderal index, skinfold thickness Exclusions: Trials that were exclusively in individuals > 18 yr Studies in pregnant females or the critically ill	22	Assess the effectiveness of interventions designed to prevent obesity in childhood through diet, physical activity and/or lifestyle and social support	Pediatric/ Young Adults	NR	22	Duration of studies: 12 wk - 3 yr Long-term studies (≥ 12 mo): 10 Short-term studies (12 wk - 12 mo): 12 School/Preschool-based: 19 Family-based: 2 Community-based: 1	Behavioral	Dietary education vs. control Physical activity vs. control Dietary vs. physical activity interventions Dietary interventions + physical interventions	6 of the 10 long-term studies combined dietary education and physical activity interventions; 5 resulted in no difference in overweight status between groups and 1 resulted in improvements for girls receiving the intervention, but not boys 2 studies focused on physical activity alone; of these, a multi-media approach appeared to be effective in preventing obesity 2 studies focused on nutrition education alone, but neither were effective in preventing obesity 4 of the 12 short-term studies focused on interventions to increase physical activity levels, and 2 of these studies resulted in minor reductions in overweight status in favor of the intervention; the other 8 studies combined advice on diet and physical activity, but none had a significant impact No studies were found that compared dietary versus physical activity interventions	N/A	N/A	N/A	N/A	Q13: Nearly all studies included resulted in some improvement in diet or physical activity Studies that focused on combining dietary and physical activity approaches did not significantly improve BMI, but some studies that focused on dietary or physical activity approaches showed a small but positive impact on BMI status; the results of these studies indicate that the interventions employed to date have, largely, not impacted weight status of children to any significant degree	All 22 studies had some methodological weaknesses and none of the included studies fulfilled all the necessary quality criteria The studies, overall, have largely been underpowered and/or poorly designed, given the complexity of the intervention and the outcomes sought The reliability of some of the reported measures for secondary outcomes, such as diet and physical activity, remains a significant weakness of these studies Many of the studies included have unit of allocation errors, since allocation was often by institution (e.g., school) but assessment was by individual child	Excellent
16034868	Summerbell CD	Interventions for preventing obesity in children	2005								Intervention that specifically dealt with treatment of eating disorders Studies of interventions designed specifically for the treatment of childhood obesity																
16227306	Baird J	Being big or growing fast: systematic review of size and growth in infancy and later obesity	2005	SR	None	Q6 (RF8, RF13) Q8 (RF8)	Mult	Don't Know/NR	Start date of databases-June 2005	MEDLINE EMBASE Bibliographies of included studies Contacted first authors of included studies and other experts to identify further published or unpublished analyses	Described the relation between infant growth or size and the development of overweight/obesity at any later age Assessed overweight/obesity outcomes Studies of infant size: ≥ 1 measurement of infant size between 3 mo and 2 yr Studies of infant growth: ≥ 2 measurements of size up to 2 yr, of which at least one was between 3 mo and 2 yr	24	Assess the association between infant size or growth and subsequent obesity and to determine if any association has been stable over time	Pediatric/ Young Adults	Studies of infant size: Age range: 3-35 yr	N/A	N/A	N/A	N/A	N/A	24 Cohort: 22 CC: 2	All but 2 studies were based in developed countries Definitions of both the exposure (infant size or growth) and the outcome (obesity) varied between studies	Infant size and obesity in childhood Infant size and obesity in adolescence Infant size and obesity in adulthood Infant growth and obesity in childhood, adolescence, and adulthood	4/6 studies on childhood found that infants who had been obese or who were in the highest end of the distribution for weight were more likely to be obese at ages 5-7 yr, with ORs ranging from 1.50-9.38 4/5 studies on adolescence found that larger size in infancy was related to increased risk of obesity at 9-18 yr. Effect sizes ranged between RR of 1.35 and OR of 3.0 for adolescent obesity in infants at the highest end of the weight distribution or in obese compared with non-obese infants 3/7 studies on adulthood reported significant associations between infant size and later obesity 7/10 studies on infant growth found that more rapid growth in infancy was associated with greater risk of obesity at ages 4.5-20 yr, with ORs ranging between 1.06-5.70 for studies on childhood, and 1.41-5.22 for studies on adolescents and young adults There was no evidence to suggest that exposure at a particular time during infancy was critical. Larger size or a rapid phase of growth at a range of intervals during the first and second year of life predisposed to later obesity	Q6: Most studies of infant growth found that infants who grew more rapidly (usually measured as weight gain) were more likely to be obese in childhood, adolescence, and early adulthood than other infants Q8: Most studies of infant size found that infants who were defined as obese or who were at the highest end of the distribution for weight or body mass index were more likely to develop obesity in childhood, adolescence, or early adulthood than other infants	Most studies had at least a medium risk of bias in relation to the review question Less than half of the studies of infant size took adequate account of confounding factors Definitions of both the exposure (infant size or growth) and the outcome (obesity) varied between studies	Fair
16371076	Flynn MA	Reducing obesity and related chronic disease risk in children and youth: a synthesis of evidence with 'best practice' recommendations	2006	SR	None	Q5 (RF8) Q6 (RF2, RF3, RF8) Q10 (RF8) Q13 (RF8)	Canada	Mult Settings	1982-2003	MEDLINE PreMEDLINE CINAHL CDSR ACP Journal Club DARE CCTR Health Star PAIS Proceedings First Population Index Proquest Digital Dissertations PsycINFO	Include ≥ 1 of the following outcomes/process indicators: Indices of overweight/obesity (e.g., anthropometry, BMI) Risk factors for obesity (e.g., exercise/activity levels, fitness, dietary habits/food choice) Chronic disease risk factors/markers associated with obesity (e.g., BP, blood glucose and insulin levels, blood lipids levels, leptin levels) Chronic disease associated with obesity (e.g., Type 2 diabetes, CVD) Adverse effects Numbers invited vs. numbers completing program Descriptions of individuals or community groups participating Other information evaluating how program was proceeding (e.g., acceptability/popularity, access)	158 Articles reporting on the same study populations were grouped together; synthesis of findings is based on 147 programs/ studies	Develop best practice recommendations based on a systematic review of programs addressing prevention and treatment of childhood obesity and related risk of chronic diseases	Pediatric/ Young Adults	Studies targeting: 1-5 yr: 9 6-12 yr: 73 13-18 yr: 34 6-18 yr: 31 Males: 4 Females: 17 Males + females: 126 Minorities: 31 Universal population: 60 Selected population: 25 Targeted population: 56 Universal + selected population: 6	158	Duration + follow-up ≤ 1 yr: 106 Duration + follow-up > 1 yr: 41 Studies that included: Physical activity: 94 Diet: 52 Behavior: 73 Family: 77 Environment: 25 Reward/incentive: 38 Psychosocial support: 37 Health education: 101 Physical activity: 5 Diet: 31 Physical activity + diet: 65 Setting: Pre-school: 1 Primary school: 45 Secondary school: 21 Home: 4 Community: 21 Clinic: 55	Behavioral	Physical activity Diet Behavior Family Environment Reward/incentive Psychosocial support Health education: Physical activity Diet Physical activity + diet	Current programs lead to short-term improvements in outcomes in obesity and chronic disease prevention Schools are a critical setting for programs and indicators such as body composition, chronic disease risk factors, and fitness Physical activity is a critical intervention in obesity prevention and reduction programs Programs in clinical settings tended to report positive outcomes in body composition and chronic disorders because they targeted already overweight children. Body composition and chronic disease risk factors were commonly reported outcomes in school and clinical settings, and improvement in these indicators was particularly evident in these settings No programs were identified that specifically targeted immigrants and their potentially specialized needs (e.g., different food supply in a new country). Children 0–6 yr of age and males represented other population subgroups where obesity prevention programs and evidence of effectiveness were limited	N/A	N/A	N/A	N/A	Q5: Although immigrants new to developed countries may be more vulnerable to the obesogenic environment, no programs were identified that specifically targeted immigrants and their potentially specialized needs Q6: Children 0–6 yr of age and males represented population subgroups where obesity prevention programs and evidence of effectiveness were limited Q10: Current programs lead to short-term improvements in outcomes in obesity and chronic disease prevention Q13: Physical activity is a critical intervention in obesity prevention and reduction programs.	Few programs assessed psychosocial well-being Few studies set in the community and home environment Lack of programs with long-term follow-up limits the ability to determine if the short-term changes are sustained, and if lifestyle behaviors are permanently affected Lack of adequate methodological rigor across programs Some studies did not adequately control for potential confounders Accurate assessment of nutrition, physical activity and psychosocial outcomes are challenging because of the validity of self-report behavior which tends to align with socially desirable norms	Good to very good
16371076	Flynn MA	Reducing obesity and related chronic disease risk in children and youth: a synthesis of evidence with 'best practice' recommendations	2006							Sociological Abstracts Sports Discus ERIC AGRICOLA EMBASE International Journal of Obesity Article bibliographies The Internet	Exclusions: Majority of participants > 17yr Involved children/adolescents who had compromised physical health because of a chronic condition (e.g. diabetes, respiratory dysfunction) or mental illness (e.g., eating disorders) Primarily focused on: children of diabetic mothers, low-birthweight/pre-term infants and pregnant adolescents Case studies, surgical interventions Program reports associated with marketing materials/products Foreign language reports without an English abstract and not identified as relevant by the Key informants No reported indicators of either outcome or process																
16570086	Flodmark CE	Interventions to prevent obesity in children and adolescents: a systematic literature review	2006	SR	None	Q13 (RF8)	Sweden	Don't Know/NR	2001-May 2004 Update from 2002 systematic review	PubMed Cochrane Library Reference lists of relevant studies NHS Economic Evaluation Database	Study addressed prevention of overweight or obesity Follow-up lasted ≥ 12 mo Included a control group Results measured as BMI, skinfold thickness, or percent of overweight/obesity Children recruited from normal or high-risk populations Exclusions: Studies targeting obese or overweight children	39 Includes studies from 6 systematic reviews	Review scientific evidence for medical interventions aimed at preventing obesity during childhood and adolescence	Pediatric/ Young Adults	Total N: 33852	NR	NR	Behavioral	Interventions to prevent obesity	Of the 39 studies, 15 studies indicated positive results, while 24 studies did not show any significant effect 41% percent of the studies, including 40% of the 33 852 children studied, showed a positive effect from prevention The observed results of the positive and negative studies are unlikely to be a random chance phenomenon (p=0.000061)	N/A	N/A	N/A	N/A	Q13: It is possible to prevent obesity in children and adolescents through limited, school-based programs that combine the promotion of healthy dietary habits and physical activity	Studies featured diverse endpoints	Good to very good

NHLBI Evidence Table: RF8-SR

PMID	First Author	Title	Year	Study Type	CVD	RF by CQ	Study Origin	Setting	Search Range	Data Sources	Study Eligibility Criteria	Number of Studies	Main Study Objective	Target Population	Patient Characteristics	Interv. Studies (n)	Interv. Study Characteristics	Interv. Type	Specific Intervention Examined	Intervention Results/Conclusions	OB Studies (n)	OB Study Characteristics	Observational Relationship Assessed	Observational Results/Conclusions	Main Reported Findings by Critical Question	Limitations of Studies Reviewed	Quality of SR
17212797	DeMattia L	Do interventions to limit sedentary behaviours change behaviour and reduce childhood obesity? A critical review of the literature	2007	SR	None	Q10 (RF8, RF11) Q13 (RF8, RF11)	USA	Mult Settings	1966-Jun 2004 Updated search: 1966-Feb 2005	MedLine PsycInfo Health Star Data sources for updated search: PsycInfo Health Star Cochrane Database of Systematic Reviews Cumulative Index of Nursing and Allied Health Literature	Controlled interventional studies (i.e., RCTs, CTs, comparative studies, multicenter studies) in children or adolescents Examined interventions that reduced sedentary behavior (defined as recreational screen time) or controlled weight by reducing sedentary behavior Designed to reduce sedentary behavior in a natural setting (e.g., at home) Multilevel interventions that included a reduction in sedentary behavior with other modalities (e.g., diet, exercise) were also eligible Outcomes included a measure of sedentary behavior or weight Exclusions: Purely observational CrS and cohort studies Studies of behavior within a controlled laboratory setting	12	Determine whether interventions that emphasize decreasing sedentary behaviors in children and adolescents result in behavior change and weight control	Pediatric/ Young Adults	NR	12	Clinic-based studies studies: 6 Population-based prevention studies: 6	Behavioral	Specialty clinic interventions Primary care interventions Pre-school interventions Elementary school interventions Middle school interventions	Interventions with an emphasis on decreasing sedentary behavior consistently result in positive health behavior change as measured by self-reported TV/video use and are associated with improvement of weight parameters Virtually all of the interventions slowed the increase of subjects' BMI relative to similar aged controls; however, as sedentary behavior messages were often combined with other health information (e.g., healthy eating and exercise), it is impossible to estimate the magnitude of the weight influences because of sedentary behavior messages alone	N/A	N/A	N/A	There were 6 studies that targeted overweight children in clinical settings and 6 that addressed sedentary behavior in a population setting. All interventions significantly reduced sedentary behavior and improved weight indices but the weight changes were small.	Q10,13: Emphasis on decreasing sedentary behavior is effective in decreasing sedentary behaviour and controlling weight in children and adolescents	Heterogeneity of the studies made the anticipated quantitative synthesis impractical Over-reliance on published literature can lead to an overestimate of benefit (although a funnel plot of all available results did not show evidence of a publication bias) Majority of the studies looked at interventions in the United States which could limit the generalizability to other countries All 4 specialty clinic studies came from the same author Measurements of sedentary behaviors were primarily self-report questionnaires	Good
17449522	Westwood M	Childhood obesity: should primary school children be routinely screened? A systematic review and discussion of the evidence	2007	SR	None	Q13 (RF8)	UK	Mult Settings	Through July 2005	Published and unpublished studies (in any language) from electronic databases Clinical experts Primary Care Trusts and Strategic Health Authorities Reference lists of retrieved studies	Children aged 4-11 yr in Western Europe, North America, or Australia/New Zealand Evaluated measures of overweight and obesity as part of a population-level assessment Exclusions: Primary outcome measure was prevalence of overweight/obesity Case reports	13	Examine the clinical effectiveness of monitoring for overweight and obesity	Pediatric/ Young Adults	Age: 4-11 yr	13	Diagnostic accuracy studies: 11	Other	Effectiveness of monitoring and screening for overweight and obesity in primary school children	No studies were identified that assessed the effectiveness of monitoring or screening for overweight and obesity 11 studies examined the diagnostic accuracy of measures used to identify overweight and obesity in comparison with direct measurement of body fat. BMI was the predominant measure of overweight and obesity evaluated. Heterogeneity between studies precluded any generalization about what is the optimum measure of overweight and obesity The remaining studies examined the attitudes of children, parents, and health professionals to monitoring	N/A	N/A	N/A	N/A	Q13: No studies were identified that assessed the effectiveness of monitoring or screening for overweight and obesity	Heterogeneity between studies precluded generalizations regarding findings	Good
17467752	Connelly JB	A systematic review of controlled trials of interventions to prevent childhood obesity and overweight: a realistic synthesis of the evidence	2007	SR	None	Q10 (RF8) Q13 (RF8)	UK	Mult Settings	Through April 2006	Medline EMBASE CINAHL PsycINFO Reference lists of included trials and published reviews	Ages 0-18 yr Trials had to include an outcome measuring an index of adiposity Follow-up period ≥ 12 wk	28	Present practice-relevant guidance on interventions to reduce at least 1 measure of adiposity in child populations that do or do not contain overweight or obese children	Pediatric/ Young Adults	NR	28	NR	Behavioral	Compulsory and voluntary provision of aerobic physical activity to reduce adiposity	11 trials were found to be effective in reducing adiposity and 17 were found to be ineffective. The main factor distinguishing the effective interventions from the ineffective interventions was the compulsory provision of physical activity in the former and the voluntary provision in the latter	N/A	N/A	N/A	N/A	Q10,13: Compulsory aerobic physical activity was effective in reducing adiposity in study populations with and without overweight or obese children	NR	Good - A "realistic" approach to the SR was taken with studies defined by 4 a priori characteristics which were selected as likely predicting a successful outcome.
17557972	Bluford DA	Interventions to prevent or treat obesity in preschool children: a review of evaluated programs	2007	SR	None	Q10 (RF8) Q11 (RF8) Q13 (RF8)	USA	Mult Settings	1966-March 2005	Medline CINAHL PsycINFO EMBASE Current Contents Chronic Disease Prevention File Sociological Abstracts	Domestic and international studies of preschool-age children that used physical activity and nutritional strategies in interventions to prevent or treat overweight Duration ≥ 3 mo Measured outcome variable of weight status, BMI, or body fat Exclusions: Case reports or series	7	Identify effective programs to prevent or treat overweight among 2 to < 6 yr old children	Parental/ Family/ Caregiver	Age: 9 - 70 mo	7	Conducted in US: 4 Conducted in US and Canada: 1 Conducted in Thailand: 1 Conducted in Singapore: 1 Settings studied: school, daycare/ Head Start, clinics, and home Sample sizes: 17-1,128 participants	Behavioral	4 RCTs focused on obesity prevention programs including: school-based aerobic exercise program, parent education/support program, education program to reduce TV viewing, and diet and physical activity program in Head Start sites 1 study examined the effects of a obesity prevention intervention consisting of a food service modification to reduce saturated fat intake in Head Start sites	5 of the 7 interventions reviewed used both nutritional/diet- and physical activity-focused strategies to effect weight status 4 studies (2 prevention and 2 treatment interventions) achieved significant reductions in weight status or body fat: 3 studies used some form of nutrition education or diet component and all 4 included either guidance for or a directed physical activity program. Two studies actively involved parents and 1 study passively involved parents. Three of the 4 studies sustained reductions at 1 or 2 yr after program initiation 3 studies (all prevention interventions) did not result in significant reductions in weight status; all had a diet component but only one included directed physical activity Other significant changes reported were reductions in TV viewing, cholesterol, and parental restriction of child feeding	N/A	N/A	N/A	N/A	Q10: Both treatment intervention studies reported a statistically significant reduction in weight status, or body fat. All were multicomponent interventions that targeted behavior change Q11: One study of a school-based dietary and physical activity intervention reported 1- and 2-yr follow-up assessments after the intervention took place. The study found no differences between the intervention and control (i.e., general health program) in BMI z-scores at the end of the 14-week program, however, at the 1- and 2-yr follow-up, BMI z-scores in the intervention group were statistically significantly reduced compared to the control group. The intervention group also had a significantly lower percentage of calories form saturated fat than the control group at 1-yr follow-up Q13: Two of the 5 prevention intervention studies reported a statistically significant reduction in weight status, or body fat. All were multicomponent interventions that targeted behavior change	Heterogeneity of settings, methodologies, intervention strategies, definitions of obesity and outcome measures makes comparisons among studies difficult Parental reporting of behavioral changes during studies may have biased study results Some studies did not monitor behavior changes or lack thereof None of the studies included a cost-effectiveness component Lack of evidence on most effective component, duration, and intensity of interventions	Good - small number of studies.
17557972	Bluford DA	Interventions to prevent or treat obesity in preschool children: a review of evaluated programs	2007																1 study examined the effects of obesity treatment using an adapted version of Epstein's Traffic Light Diet, pre-intervention training of mothers and physical activity for parents and children 1 study focused on obesity treatment using a behavioral counseling program for mildly or moderately obese children								
18574384	Parry LL	A systematic review of parental perception of overweight status in children	2008	Include	None	Q10 (RF8)	UK	Mult Settings	Jan 1990-Aug 2007	MEDLINE EMBASE PsycINFO CINAHL	Study population must include primary care-givers of children aged 2-12 yr. The study had assessed parental perception of their child's weight status and compared it with a recognized standard for defining overweight, on the basis of objective measurements of the child's weight and height taken. Peer-reviewed or published study. Inception to August 2007. Excluded: Studies in which perception was determined after height/weight measurements were taken.	16,128 children (23 studies)	Systematically review the proportion of parents able to recognize overweight status in their children who were recorded as being overweight by internationally recognized standards.	Parental/ Family/ Caregiver	Has a child of 2-12 yr	N/A	N/A	N/A	N/A	N/A	23 Studies	Heterogenous sample. North/Central America: 10 Australia: 6 Europe: 5 South America: 3 Included a wide range of SES & ethnic groups. Studies were published between 1990 & 2007, 22/23 after 1999.	Care-giver's perception of their child's overweight status and the actual overweight status of the child as determined by an objective, international standard.	There is wide variability in parental perception of overweight in their children, from 6.2 to 73%. In 19 of 23 studies, less than half of parents identified their child as overweight.	Q10: Independent parental perception of child overweight is poor. Effective obesity control measures will require objective measures of obesity and parental education as a critical first step.	Electronic databases are subject to publication bias and are not exhaustive, and therefore potentially relevant studies may not have been identified. Subject to variable quality of reporting by authors. Several studies were not population based and used healthcare services or educational settings, limiting the generalizability of the findings. Study designs were largely questionnaire-based surveys and subject to reporting bias. Those who responded might have been more interested in child health, and therefore parental perception may be poorer than reported. Heterogeneity of the study groups and tools for measurement of overweight children limits the value of the random effects meta-analysis presented. Most included studies had small sample sizes making estimates less precise.	Good within the limits of available studies.