NHLBI Evidence Table: RF8-MA

wthor Title Year Study Type LH Physical activity in the treatment 1999 MA N	CVD RF by CQ !	itudy Origin Setting	Jan1966-Nov MEDLINE	s Study Eligibility Criteria Obese children or adolescents	Number of Studies Main Study Objective 13 Review the utility of exercise as a	Study Pop. (N) Target Population NR Pediatric/	Patient Characteristics Study Characteristics Interv. Type NR NR Behavioral	Specific Intervention Examined Observational Relationship Assessed Exercise N/A	Outcomes Measured Weight	Treatment Effect and Statistical Significance The effect size of diet and exercise versus diet was 0.45, indicating that	Main Reported Findings by Critical Question Q10: Exercise adds to the effect of diet in the short-term treatment	Limitations of Studies Reviewed t There was not enough research to evaluate the effects of	Quality of Good
of childhood overweight and obesity: current evidence and research issues		Know/NR	2 1998 PsychINFO	Studies that provided different types of exercise program or an exercise program that was compared with an exercise conjugation that was Subjects randomly assigned to groups or assigned by maching on demographic and anthropometric variables Exercise programs lasting ≥ 2 mo	6 evaluated in meta- analysis	Young Adults		Exercise + diet	Body fat Percent overweight	exercise adds to the effect of diet in the short-term treatment of pediatric obesity Small number of studies for analysis which was therefore limited to diet vs diet • exercise.	of pediatric obesity. The effect is almost one-half a standard deviation greater than the effect of diet alone	exercise alone versus no exercise or compare different exercise programs to make firm conclusions	
iMT Follow up exercise studies in 2003 MA N pediatric obesity, implications for long term effectiveness	lone Q10 (RF8) (ISA Don't Know/NR	1960-2002 Current Conte MEDU.NE Dissertation Addrada Psychological Adstract Sport Discus Hand coss- referencing	At least 6 subjects per group Subjects consisted of children between 4-17 yr Pre-test and post-test measures for either BMI or percentage body fait Used exercise (e.g., walking, joping, cycle ergomentr, high predition resistance exercise, and combinitions) as mode of training Training programs lasted 8 wk or more Full-ength publications Apparently healthy children and adolescents Follow-up assessments at 1 yr Exclusions: Lack of/malitylity to botain data on changes in percentage body fait resulting from training Use of same subject pool in multiple studies Cross-sectional studies Acute-response studies Acute-response studies Acute-response studies Acute-response studies Acute-response studies Acute-response studies	8 Examine the effects of exercise training pediatric obeaty, immediately after trained at 1 yr follow-up and at 1 yr follow-up	g on After Pediatric/ ing interventio Young Adults r. 307 At 1 yr 236	Age range: 4-17 yr Subjects free from endoorle diesen (SD): 12.75 wk (5.9) endoorle diesen intervention comorbidites Mean intervention frequency (SD): 3.9 days/wk (1.5)	Exercise training (e.g., walking, jogging, N/A cycle argometry)	Percentage body fat	Body fat decreased significantly at the end of interventions (0: 1.0.4 (0.35); 95% C1: 0.41 to 1.6) Significant decrease in body fat 1 yr after interventions (0: 0.84 (0.51); 95% C1: 0.25 to 0.94) Persentage body fat measured at the end of exercise training, exercise duration, cercerise mode, and program length accounted for 53-86% of the variance for persentage body fat 1 yr According to Cohen's categories for classification of effect size values, the degree to which exercise transform groupman in podiation clearly produced favorable changes in percentage body fat was "large". The greatest treatment effects observed at the end of the exercise study and 1 yr later were derived from 3 studies using a resistance training component of the service training on processing and the service training component of the service training on processing and the service training component of the service training on the service training component of the service training on the service training component of the service training on the service section of the service training component of the service training on the service training component of the service training on the service section of the service training component of the service training on the service section of the service training component of the service training on the service section of the service training component of the service training on the service section of the sect	yielded significant decreases in percentage body fat immediately after intervention	measurement periods after the intervention Inability of studies to control for confounding variables	Fair
Breast-feeding and childhood 2004 MA N obeaty-a systematic review	Jone Q6 (RF8, RF13) C Q13 (RF8)	iermany Don't KnowiNR	1966- Dec 2003 EMBASE EMBASE: Cochrane Libr 1988- Dec 2003 Google Cochrane Hand-search in Library: original articles		9 investigate the relationship between breastfeeding and obesity in childhood	 >69,000 Parental/ Family/ Caregiver 	NR NA	N/A Early feeding-modes and childhood obesity	Posted crude and adjusted odds ratios (ACR) for obstatly in childhood defined as BMI percentiles To be included in the analysis, studies needed to be adjusted for a least 3 of the following obstatling overweight, permitsl smaking, deta factors, physical activity and SES.	Stratified analyses showed no differences regarding different study types, age groups, definition of breastfeeding or obesity and number of confounding factors adjusted	OR: A dose-dependent effect of breast-feeding duration on the prevalence of obesity was reported in 4 studies OR: Stratified analyses showed no differences regarding different age groups Q13. Breastfeeding seems to have a small but consistent protective effect against obesity in children	Classical MA requires RC%: however, randomization of investitedong on an individual level in ord etitical and no duater-randomized C16 on breastfeeding and obesity have been published yet! Residual condunding factors (e.g., SES, maternal weight bidfweight mataria moking) remain a potential limitatio Publication bias cannot be excluded definitively	
JA Effective weight loss for 2006 MA N overweight initiern a material initiation and the second studies analysis of intervention studies	Q10 (RFB) 0	ISA Don't Know/NR	1980-2002 CINAHL MEDLINE ProQuest Num PsychiNFO Social Science Socialogy abstracts Health STAR Health STAR Health STAR Eritic Dissertation Abstracts Manual search Article retrieva using ancestry	7 or more subjects per group Age range 6-16 by (mean age not s 12) Group mean and BS for weight-loss and control groups available in published literature Exclusions: Studies of children with chronic litness Retrospective studies	7 Examine the effectiveness of weight to interventions for children	ss 894 Pediatric/ Young Adults	Mean age: 10.77 yr Sample izze range: 7. Behavioral 57 (per transment or control group) Mean sample size: Traetment proz. 25 Control group: 20	Weight bas interventions (i.e. dietary, fraining, ny-siada advidy, parentai involvement)	Weight loss	Among 14 Interventions the average effect size was 0.95 (95% CI: 0.79 to 1.11) Effect sizes for the 7 studies was 1.70 (95% CI: 0.79 to 3.33)	010. Interventions had "harps effect size (d. 0.95), do f interventions featured significant improvements Length of intervention correlates with better outcomes	Statistical data not often provided for all independent variables Multiple interventions in individual studies make identifyin individual effects hard Study results not stratified by age 07 (210 polenial studies, only 7 were feit to meet inclusion oriteria. To be included, a study had to report weight loss given growth in children, wit loss is an very statc oriterion or define success. With these inclusion oriteria only highly size will be artifactually high.	1
E Efficacy of exercise for treating overweight in children and addescents: a systematic review	ione G10 (RF8) I	iternationa Mult Setti	NovDiec 2004 (varies according to database) PREMEDLINE CAB ABSTRA PsycINFO SPORTDiscus Evidence Bas Medicine Rev (Cochrane Cer Register of	RCTs Cohorts were of children or adolescents aged 18 yr defined aa being overweightlobese CTS Reported yne- and post-lest or change in any overweight outcome Al least 1 oercröse or physical activity treatment am was investigated ether in isolation or as an adjunct to an alternative treatment simultaneously prescribed to the control/comparison group	13 papers on Determine the efficacy of exercise alor 14 studies for treating overweight in children/adolescents	e 481 Pediatric/ Young Adults	Mean age (SD) reported in 9 studies: duration (SD): 16 wk. Behavioral (7) (7) Age ranges: 13-16 yr. Conducted in US: 8 (reported in 1 study). Conducted in Australia: 8 -12 yr. (reported in 1 study). Conducted in Australia: 9 -12 yr. (reported in 1 study). Conducted in Australia: 9 -10 yr. Conducted in Australia: Conducted in Australia: Conducted in Reader. Conducted in Reader. Studies in byls only: 1 studies in girls only: 1 studies in byls and gender characteristics: 1 Conducted in Seeden.	Aerobic exercise + det Aerobic exercise + det Aerobic exercise + weight-training exercise + det	Pooled standardized mean differenc (SMD) for: Percent body fat Body weight Central obesity Pooled weighted mean difference (WMD) for: Percent body fat Body weight Central obesity	R Few studies were of robust design. The pooled SMD was -0.4 6.0 7 -0.1 , mol 000) for parcent body fat, and -0.2 (is 0.1 t. pc 0017) for portent objects you comes, whereas the pooled WMD was - 2.7 kg (-1 kg, 0.8 kg, p-0.0 7) for body weight, all of which favore devertion. Pooled effects on body weight were significant and larger for elucies of higher doses, whereas mongrificant and annihiler effects were also for studies of lower doses of exercise (155-180 min/wk vs. 120-150 min/wk)	fat in overweight childrenladdescents, but effects on body weight and central obesity are inconclusive	broadly equivalent to, and often larger than, the magnitud	Good
A meta-analytic review of deality 2006 MA N inversion programs for children and adolescents: the skinny on interventions that work	lone Q6 (RF9) (Q6 (RF2, RF3, RF9) Q13 (RF9)	ISA Don't Know/NR	MEDLINE Distantiation Abstracts International CINAHL Tables of counts publishing arti- in this area Catations of narrative revie References of Identified antio Articles under	Effect sizes for weight gain prevention efforts as assessed by differential change in body fat measures Studies that tested whether the change in outcomes over time were significantly greater in est the intervention group vs. the control group Trials that used logistic regression or survival ess models to compare rates of onset of obesity or overweight of the state of the	A6 Summarize scheelig: prevention program ind their effects and investigation programs design features associated with larger 64 effect sizes	ns NR Pediatric/ Young Adults	NR NR Behavioral	Variety of obesity protention programs Instituting psychoedicational content distance improvement, increase in addity, and reduction in sedentary behavior	BMI Risk for obesity onset	significantly larger than zero ($z = 24$, $p < 0.01$). Effect sizes ranged from $z = 0.24$ to (3.0 , 0.01) is inneretificar ($z < 10$ the $z < 10$ parameters evaluated 1) ourcl ($z < 10$ the $z < 10$ parameters evaluated 1) ourcl ($z < 10$ the $z < 10$ parameters $z < 10$ the $z < 10$ parameters $z < $	group in each sample was significantly related to effect sizes Q8: Participant gender and duration in weeks, number of behavioral targets, and wheeher the third was a pilot study did not abov significant unque effects in the multivariate model Univariate analysis included target effects for fennale-only trials compared to model sear and neak-only trials and for programs targeting children 22.3 years addisects for fennales > 11 yr vs. preadelescents > 9.23 and 5 11 yr	NR	Good
A meta-analytic review of obesity 2006 prevention programs for children and adolescents: the skinny on interventions that work				Exclusions: Triais that compared only active interventions Triais that only tested for significant changes within either intervention or control condition Triais described as obesity treatment programs by the author									

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PMID	First Author Title Y	fear Study CVD	RF by CQ Study Origin	Setting Search Range Data Sources	Study Eligibility Criteria	Number of Main Study Objective	Study Pop	Target Patient Char	aracteristics Study Characteristics Interv	erv. Type	Specific Intervention Examined	Observational Relationship Assessed Outcom	omes Measured	Treatment Effect and Statistical Significance	Main Reported Findings by Critical Question	Limitations of Studies Reviewed	Quality of MA
16953014 1	Collins CE Measuring effectiveness of 200 Centre Latevention in the device of the constraint of the co	06 MA None C10	(RF8) Australia	Dont KnowNR (childrost earch control of PRENEDUNE 2004) 2004 DARE EMBASE DARE Codvrane EMBASE DARE Codvrane EMBASE Dare Codvrane EMBASE Desetation Austrom Current Concepts Dissertation Austrom Current Concepts Dissertation Austrom Reference lists Artice bibliographies	Targeted overweight or obese children/adolescents tri < 18 yr Subjects were free-living patients. In-patients In for a strain of the strain of the strain dinical obesity units or students attending community programs, one-off programs, camps, or sis schools Reported at least 1 of the following primary percentage of children overweight for age, waits automes: percentile of BMI (sgm); BMI s soors; MI or percentage of children overweight for age, waits a man of the following of body fat. 4 History are preventioned of the following of body fat.	included in rest plot of	2,262	Pediatric/ Young Adults	Intervention length range: 6 wk - 16 mo Follow-up length range: 1 mo - 10 yr	cor and Phị Die (i.e Die inte cor	etary inferention in isolation in isolation in the upmotifications dire proceedings of intervention in in mbmation with lifestyle modifications dire psychological therapies ysical activity etary modification with standard control a., no treatment , a. no treatment , a. no treatment evention and/or control with various mbmations of lifestyle modifications and ychological components	N/A Weght		The 8 studies including interventions that contained a dietary component were effective in achieving failure weight basis in overweightbooks children and adolescontik (pooled standardzof and failed and the standardzof and the standardzof the 4 studies with follow-up data suggest a diminishing effect of the intervention vert time (pooled standardzof mean difference: -0.64, 95% CI: -0.89 to -0.39)	010. Intreventions that contain a didary component are effective i addreving relative weight loss in overweight/coese children and addrescents	Not possible to evaluate the effectiveness of delary of the second seco	
17070638	roung KM Anterba-anaytes of family- 200 behavioral weight-foots treatments for children	Q10 MA None Q10	(RF8) USA	Don't 1967 greatert Psychif C KnowNR (HypeNPC), MEDLINE) MECLINE 1982 greatest CINAH. (CINAHL)	5-12 yr old children as targets of intervention 51 dies evaluating programs with the primary goal of child weight-folse Behavioral treatments including the following methods: psychodexadani, stimuliau control, developing behavioral awareness, identifying poldematic behavior, modifying current behavior, and maintaining behavior of hange Family involvement in intervention defined as having a minimum of 1 parentiguardian involved in aisest 1 aspect of treatment Exclusions: Duplicate titles from multiple searches Non-English language Dissertations or reviews Studies with adul-only amples Studies with adul-only targeted weight-maintenance or prevention of bealsy rather than weight loss	Examine the relative benefits of adding a family component to childhood weight-los interventions	666 s	Caregiver age restricti cutoffs for b classified as overweight, current chilu involvement	sisting of period (SD): 11.56 wk tions, (5.27) being Mean weekly meeting , and no time (SD): 78.57 min Id (16.10) tit in other atment for (inclusion of a	cor Stu trea trea Ro par obe oth	tabilished child cognitive-behavioral orgame (e.g., curvorpand stimulus tritor (Lees, Traffic Light Diet) uside included combrations of 3 lypes of astment groups. family-behavioral, other atternet, and control de of aparents varied; in some conditions, ereals were themsensive banking bandler for esity concurrently with children, while in reconditions they were being trained to as the child's "helper"		ze for weight [lb] action for BMI/z-BMI	Using pectent overweight a large and significant mean effect aze of -0.83 (SSO-68) was clusted for the large-behavioral tradments, (19% Ci-1-1.66 to -0.73). The average effect size for the other treatment groups was of moderat magnitude (th-0.55 SEO-44, 19.8% Ci-1.46 to 0.44), but because the Ci (the -0.16 SEO-64, 19.8% Ci-1.46 to 0.44), but because the Ci (the -0.16 SEO-64, 19.9% Ci-0.75 to 0.39). The control groups was of small magnitude and non-significant (the -0.16 SEO-64, 19.5% Ci-0.75 to 0.39). Using ponote, the offect aize for the family-behavioral treatment groups was of large magnitude, significant (the -0.16 SEO-64, 15.0% Ci-1.00 to -0.12) and homogeneous (0(5)=37, 40-0.08). The effect size for the dimeripheneous (10, 19-0.22, pc4.33). The the other treatment groups was of a large magnitude, significant (the -0.35 SEO-64, 59.5% Ci-0.25 SEO-64, 59.5% Ci-0.25 SEO-64, 59.5% Ci-0.25 SEO 50.5% Ci (the -0.16 SEO-64, 10.16 to -0.12) and homogeneous (0(1)=0.42, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The dimeripheneous (10, 19-0.22, -0.43). The diffect size for the dimeripheneous (10, 19-0.22, -0.43). The dimeripheneous dimeripheneous (10, 19-0.22, -0.43). The single 2 dMI study yielded a large negative effect.	produce large and reliable effects, whereas other treatments and control conditions did not yield large or statistically reliable outcomes	NA	Good
	Vang Y The obesity equidemic in the 200 United States-gender, age, socioeconomic, malailethnic, and geographic characteristics: a systematic review and meta- regression analysis		(RF2), RF3, RF8)		80 Studies that quantitatively assessed obesity and/or in everweight prevalence in the US rep 20 us qu	ver that Provide a comprehensive description studied in the current obesity politicity. If the trends, and dispatifies across gender, ago trends, and dispatifies across gender, ago dispatifies that and across the polyticity of a calleform (course) and in polyticity of the dispatifies have changed over the dispatifies there changed over the analysis in the interval of the dispatifies the second second second second second the analysis in the dispatifies the second second second the second second second second the second s	NR r	Pediatric/ NR Young Adults	Most of the findings None were based on nationally inpresentative data; includes studies includes studies methods: BRFSS, Youth Risk Behavior Surwelliance System, and National Lodiescent Health	N/	a	adolescents of different ages, races/ethnicities, SES groups, and geographic areas over time (BMI ≥ 85 th perc	overweight (BMI ≥ 95 [*] II	In 2003-2004, more than one-third (~35%) of older US children and adolescents aged 6-19 yr were at Kis for overweight, and almost 17% were overweight; the figures were lower for young children aged 2-5 yr (26.2% and 13.9%, respectively). The overall national average prevalence is similar among boys and girls; however, large gender differences exist in some racial/ethnic groups. In 1999-2000 and 2003-2004, the prevalence of both uncomes was higher among non-Hispanic Black and Maxican-American female and among non-Hispanic Black and Maxican-American female American males and non-Hispanic White males and females. In all age groups, the prevalence of overweight had increased since the 1950s. Between 1976-1980 and 2003-2004, the average annual rate of increase was approximately 0.5% for children and adolescents aged 2 yr or older Between 1971-1974 and 1999-2002, on average, US children's and adolescent Blui Increased by 1.4 points and by 2 points among adolescent boys and girls, respectively SES was inversely related to prevalence of obesity among Whites but not among African Americans or Hispanics. NNANES data show considerable racial/ethnic disparities in obesity. Non-Hispanic White children and adolescents had the lowest prevalence compared with their non-Hispanic Black and Mexican approximately related to prevalence of obesity among Whites but not among African Americans or Hispanics.	disparties in obeally. Non-Hispanic White children and addescent that to lowest prevalence compared with her non-Hispanic Black and Mexican-American contemparts. In children aged 6-11 yr, non-Hispanic Black grins and Mexican- American boys have by far the fastset annual increase in the prevalence of overweight. SES was inversely related to providence of obealty among Whites but not atmong African Americans or Hispanics. Few studies have examined the regional differences in overweight among US children and addisecrits. Ge: 12 2003-2004, more than one-hird (~35%) of older US children and adolescents. Ge: 12 003-2004, more than one-hird (~35%) of older US children and adolescents. Ge: 12 003-2004, more than one-hird (~35%) of older US children and adolescents. Ge: 12 003-2004, more than one-hird (~35%) of older US children and adolescents. Ge: 12 003-2004, more than one-higge previation is similar among boys and grits, however, large gender differences exist insure a langer gaps and adolescents. Gender of both outcomes a howed a langer gaps and adolescents. But prevalence of both outcomes and adolescents more gaps and adolescents Blats among boys and grits, however, large gender differences blats and boys and grits, however, large gender differences blats and boys and grits, however, large gender differences blats and boys and grits, however, large and adolescents blats and adolescents blats and barring and gaps and gaps and adolescents blats and barring and gaps and gaps and gaits, nearbarring barrings and adolescents. The outcomes and adolescents blats and gaits, respectively	Information on self-reported weight and height han been widely used in epidemiology cuttelss. including some large, national monitoring survey programs such as BRFSS. Although some studies have suggested good agreement between self-reported and measurde weight and height, others show considerable reporting bias. Pediatric analysis based on measured results from VHARES. Discrepancies in classifications of obesity/overweight may affect estimates of prevalence and trends	Good
	Vang Y The obesily epidemic in the United States-genotic space opergraphic concentrations: a systematic review and meta- regression analysis	07												not among African Americans or Hispanics Limited studies have examined the regional differences in overweight among US children and addescencer. Devious research based on the NHANES III data shows that the rural-urban differences are small, and they vary across age groups. Another recent study found that compared with US addescents living in newer suburbs, those living in rural working-class, seturban, and mule-thenicity urban areas were approximately 30% more likely to be overweight, independent of SES, age, and ethnicit. It is estimated that about one- statuts from children and about non-half of obses school- age children become obses adults, although findings from different studies varied considerably Linear regression models were used to project the average annual increase in the prevalence of overweight and obsely through 2015. Regarding children aged 6–11 yr, non-Hispanc Black gris and Mexican-American boys have by far the fastest annual increase in the prevalence of overweight, which is expected to reach 31.1% and 32.9%,	obcordy setting for choles produced would hold in the distantiation that of bester strong on the children become obcord would be a subtract of the children become obcord would be a subtract of the children become obcord of the children become ob		
17846100	Villey DE Unergie enterventions in the one-weight a instantial of childhood one-weight a incommode of anatoximated controlled folia:	WA Nore Q10	(RF8) USA	Clinical Pirst available Medine year Aug PhysicNFO 2005 Contraite Register	RCTs of idestyle interventions focused on weight 14 loss or weight contof for yound need 19 yr or younger that compared an active treatment with information/education-only control through August, 2005. Active treatment is defined as any combination of children provide and the physical treatment. Study results reported in English. Treatment duration of at least 4 weeks. Participants overweight at baseline	Studies Evaluate the efficacy of pediatric weight loss treatment.	527 (14 RCTs	Young Adults Male: 34.89 Female: 65.	5.2% Average sample size per study: 35.2 s: 2-19 yr participants. d in 7 nly 2-12 yr		tive treatment interventions for I i	NA Weight % Oorweight BMI		Proceedings the three controls are strateging incorrectly of a difference of the control in which in a fixed-effects model at both end of treatment ($q = 7.5, p < 0.01$) and follow-up ($q = 0.01$) indicated positive effects of lifestyle interventions on weight outcomes. For comparison line horing an advect lifestyle intervention and a control condition in which information/education-ordy was delivered. The weighted control in which information/education-ordy was delivered. The weighted effects of the lifestyle treatments on weight outcomes. For comparisons lines ($q = 0.11$, $q < 0.01$) weighted indicating positive effects of the lifestyle treatments on weight outcomes. For comparisons lines ($q = 0.11$, $q < 0.01$) weight significant. Indicating positive effects of the lifestyle treatments on weight outcomes. Mean overall effect size for all studies combined was 0.91(C10.32, 1.50). For the 8 RCTs half used % overweight as an outcome meanure, the resulting decreases were 8.2% and 8.3%. The average participant receiving number decreases were 8.2% and 8.3%. The average participant receiving number weight outcomes are also as the statement of information-feature on the outline shall be made.	C10: The meta-analysis fourd that active Hestyle interventions produce significant treatment effects uneversitight children when compared with no-treatment/waR-list control groups.	Using effect sizes as the only piece of data to compare treatments, which are based on the manyluke of change and the variability in treatment response. Limited vise for moderators in this analysis, and these could have contributed to weight loss. May have underestrate in this analysis, and these filestyle interventions. Insufficiencies in reporting of the design, implementation, and analysis of studies were present. All of the included studies conducted completer makyees reflect sizes. Patient and study demographic features were infrequently reported. Difficult to empirically compare the safety and acceptability of lestyle interventions.	Good