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| First author | Setting and Date | Inclusion exclusion criteria | Details of intervention | Maternal age – mean (SD) | Baseline BMI – mean (SD) | Primipara – (%) | C-section - (%) | Preterm (<37 weeks) - (%) | Overall risk of bias |
| Barakat 201362 | Madrid, Spain  Sep 2007 – Jan 2011 | Singleton pregnancy, sedentary,  no contraindications to exercise.  Sample: 510 (255 int, 225 con)  Final analyses: 210 int, 218 con | Group exercise classes, 50-  55 mins, 3/week. Sessions consisted  of aerobic, muscle strength and  flexibility activities.  Duration: 28 weeks | 31 (3), 31 (4), *p*=0.906 | 24.1 (4.1), 23.7 (3.8), *p*=0.354**#** | **-** | 15.7, 20.6, *p*=0.187 | - | Random: Unclear  AC: Unclear  Blinding: Unclear  Data: Low  SR: High  Other: Unclear |
| Barakat 201163 | Madrid, Spain | Singleton pregnancy.  Excluded: Not planning to  give birth at study hospital,  contraindications to exercise.  Sample: 80 (40 int, 40 con)  Final analyses: 34 int, 33 con | Group exercise classes, 35-45  mins, 3/week. Sessions consisted of  a warm-up, core session of toning  and very light resistance  exercise, and a cool-down.  Duration: 33 weeks | 31 (3), 30 (3), *p*>0.05 | 23.9 (3), 24.8 (4), *p*>0.05 | 76.5, 36.4, *p*=0.04 | 20.6, 30.3, *p*>0.05 | - | Random: Low  AC: Unclear  Blinding: Unclear  Data: Low  SR: Unclear  Other: Unclear |
| Barakat 201259 | Madrid, Spain | Singleton pregnancy  Excluded: Contraindications such  as CVD, risk of premature  labour, diabetes.  Sample: 100 (50 int, 50 con)  Final analyses: 40 int, 43 con | Group exercise classes, 35-45  mins, 3/week, 2 x land-based and 1  aquatic. Each session consisted of a  warm- up, core session of light  resistance activities, and cool-down.  Duration: 30 weeks | 32 (4), 31 (3), *p*>0.05 | 22.7 (2.8), 23 (2.9), *p*>0.05**#** | 65.0, 48.8, *p*>0.05 | 30, 14, *p*>0.05 | - | Random: Unclear  AC: Unclear  Blinding: Unclear  Data: Low  SR: Unclear  Other: Unclear |
| Barakat  200960 | Madrid, Spain  Jan 2000 - Mar 2002 | Singleton pregnancy, sedentary,  no risk of pre-term delivery, no  contraindications to exercise.  Sample: 160 (80 int, 80 con)  Final analyses: 72 int, 70 con | Group exercise classes, 35-40  mins, 3/week. Sessions were  individually controlled and  consisted of light-moderate PA.  Duration: 26 weeks | 30.4 (2.9), 29.5 (3.7), *p*>0.1 | 24.3 (0.5), 23.4 (0.5), *p*>0.1 | 72.2, 57.1, *p*>0.1 | - | - | Random: Unclear  AC: Unclear  Blinding: Unclear  Data: Unclear  SR: High  Other: Unclear |
| Barakat 201661 | Madrid, Spain  Dec 2011- Jan 2015 | Singleton pregnancy.  Excluded: diabetes or GDM at  baseline, risk of preterm delivery.  Sample: 840 (420 int, 420 con)  Final analyses: 382 int 383 con | Group exercise classes, 50-55  mins, 3/week. Each session  consisted of a warm-up, core  session of moderate resistance  exercise, and a cool-down.  Duration: 30 weeks | 31.6 (4.2), 31.8 (4.5), *p*>0.05 | 23.6 (3.8), 23.4 (4.2), *p*>0.05 | 67.8, 59.8 *p*>0.05 | 19.1, 21.7 *p*=0.38 | 7.6, 9.7, *p*=0.31 | Random: Low  AC: Unclear  Blinding: Unclear  Data: Low  SR: Unclear  Other: Unclear |
| Barakat 201464 | Madrid, Spain | Singleton pregnancy.  Excluded: Contraindications to  exercise.  Sample: 320 (160 int, 160 con)  Final analyses: 138 int 152 con | Group exercise classes, 55-60  mins, 3/week. Sessions consisted of  a warm- up, core session of toning  and resistance activities, and  cool-down.  Duration: 30 weeks | 31.4 (3.2), 31.7 (4.5), *p*=0.54 | 24.0 (4.3), 23.6 (4.0), *p*=0.45 | 60.9, 54.6, *p*=0.19 | - | 4.3, 7.2 *p*=0.73 | Random: Low  AC : Unclear  Blinding: Unclear  Data: Low  SR: High  Other: Unclear |
| Bisson65 | Quebec, Canada Oct 2011 - Nov 2013 | Singleton pregnancy, > 18 years,  Obese.  Excluded: Contraindications to  exercise, a high level of pre-  gestational exercise.  Sample: 50 (25 int, 25 con)  Final analyses: 23 int, 22 con | A 12-week, supervised exercise  program at a hospital-based centre.  Participants were individually  supervised once/week and invited to  2 more sessions/week. On non-  training days women were  encouraged to be as active as  possible.  Duration: 12 weeks | 30.5 (3.7), 31.0 (4.0), *p*=0.664 | 35.2 (5.4), 34.3 (4.1), *p*=0.877 | 44.0, 44.0, *p*=1.0 | - | 33, 33, *p*=NR | Random: Low  AC : Unclear  Blinding: Unclear  Data: Low  SR: High  Other: Unclear |
| Cavalcante66 | Sao Paulo, Brazil Mar 2002 - Nov 2004 | Singleton pregnancy, 16-20  weeks  gestation, sedentary.  Excluded: > 2 caesarean  births, contraindication to  exercise  Sample: 71 (34 int 37 con) | Water aerobic classes, 50 mins,  3/week. Sessions were in an indoor  swimming pool and involved  moderate-intensity exercises so that  women worked at 70% of capacity.  Duration: 20-24 weeks | 25.8 (4.6), 24.4 (5.8), *p*>0.05 | 24.1 (4.5), 23.4 (3.8), *p*=0.48**#** | 47.1, 62.2, *p*>0.05 | 36.4, 45.9, *p*=0.57 | - | Random: Low  AC: Low  Blinding: Unclear  Data: Unclear  SR: Unclear  Other: High |
| Chen67 | Chendou, China | Sample size: 100 (50 int, 50 con)  Final analyses: 50 int, 50 con | 1 x health education lecture and 1 x  PA lecture.  Duration: 2nd trimester -  delivery | 27.9 (4.4) *p*>0.05 | - | - | 24.0, 48.0,  *p=*0.05 | - | Random: High  AC: High  Blinding: High  Data: Unclear  SR: Unclear  Other: Unclear |
| Clapp 200032 | Ohio, United States | Singleton pregnancy, enrolled  before conception.  Excluded: Substance use,  premature labour, HTN, GDM,  IUGR, failure to maintain  exercise regimen.  Sample size: 46 randomized  Final analyses: 22  intervention, 24 control | Weight-bearing exercise, 20  minutes, three to five times per  week at an intensity between  55-60% of capacity.  Duration: 30 weeks | 31 (1) | - | - | - | - | Random: Unclear  AC: Unclear  Blinding: Unclear  Data: Low  SR: Unclear  Other: Unclear |
| Clapp 200233 | Ohio, United States | Singleton pregnancy, enrolled  before conception, regularly  exercising.  Excluded: Substance use,  premature labour, mid-  trimester bleeding, HTN, GDM  IUGR, failure to maintain  exercise regimen.  Sample: 80 randomized  Final analyses: 26 Lo-Hi, 24  Mod-Mod, 25 Hi-Lo | *Lo-Hi:* Weight-bearing exercise  (treadmill, step aerobics or stair  stepper) 20 minutes, 5 days/week  until week 20, then gradually  increasing to 60 minutes by week 24  and maintaining until the end of  pregnancy.  *Mod-Mod:* Weight-bearing exercise  (treadmill, step aerobics or stair  stepper) 40 minutes, 5 days/week  From 8 weeks to end of pregnancy  *Hi-Lo:* Weight-bearing exercise  (treadmill, step aerobics or stair  stepper) 60 minutes, 5 days/week  until week 20, then gradually  decreasing to 20 mins by the  end of pregnancy.  Duration: 32 weeks | Lo-Hi: 31 (1), Mod-Mod: 30 (1), Hi- Lo: 32 (1), *p*=NS | - | Parity:\*\*\* Lo-Hi:0.5 (0.2), Mod-Mod: 0.4 (0.1), Hi- Lo: 0.6 (0.2), p=NS | - | - | Random: Unclear  AC: Unclear  Blinding: Unclear  Data: Unclear  SR: Unclear  Other: Unclear |
| Dekker- Nikert68 | Brisbane, Australia | Singleton pregnancy, >12 weeks gestation, obese.  Excluded: Contraindication to exercise, non-English speaking, type 1 diabetes, anemia, heart or lung disease, cerclage, hyperthyroidism, poorly controlled seizures, heavy smoker.  Sample: 50 randomized  Final analyses: 19 int, 16 con | At baseline, all participants attended a group education session regarding exercise, nutrition and GWG. Women were given an individualised exercise plan and attended monthly face-to-face consultations with physiotherapists.  Duration: 26 weeks | 30.8 (4.9), 30.3 (5.6), *p*= NR | 35.8 (7.3), 35.6 (9.0), *p*= NR | - | 47, 25, *p*=NR | - | Random: Unclear  AC: Unclear  Blinding: Unclear  Data: High  SR: Low  Other: Unclear |
| Garshasbi69 | Tehran, Iran  Apr 2003- Jan 2004 | Singleton pregnancy, 20-28 years, 17-22 weeks gestation, housewives or high-school graduates.  Excluded: Contraindications to aerobic exercise, exercise before pregnancy, orthopaedic disease.  Sample: 266 (161 int, 105 con)  Final analyses: 107 int, 105 con | 60 min program for strengthening abdominal muscles consisting of 15 movements, 3 days per week. Supervised by a midwife.  Duration: 18-23 weeks | 26.3 (4.9), 26.5 (4.4), *p*=0.432 | 26.0 (4.8), 25.6 (5.1), *p*=0.603 | 100,100, *p*=NR | - | - | Random: Unclear  AC: Low  Blinding: Unclear  Data: High  SR: Unclear  Other: Unclear |
| Kong70 | Iowa, United States | Singleton pregnancy, 18-45 years, overweight or obese, < 3, 30 min sessions of PA 6 months before enrolment.  Excluded: History of chronic disease such as CVD, thyroid disease, prior GDM, smoking.  Sample: 42 (19 int, 23 con)  Final analyses: 18 int, 19 con  (Overweight 9 int, 10 con, obese 9 int, 9 con) | An unsupervised walking program consisting of a safety training session regarding 30 mins of leisure activity according to guidelines. Women were given a treadmill for intervention and encouraged to walk in any setting.  Duration: 22 weeks | Overweight:  26.2 (2.6), 27.3 (3.6) , *p*=NR  Obese:  28.6 (5.3), 25.7 (4.0), *p*=NR | Overweight:  26.5 (1.2), 27.4 (1.4), *p*=NR**#**  Obese:  34.7 (4.6), 34.2 (3.6), *p*=NR**#** | Overweight: 33.3, 50.0, *p*=NR  Obese:  33.3, 33.3, *p*=NR | Overweight  0.0, 40.0, *p*=NR  Obese:  55.6, 50.0, *p*=NR | Overweight 0.0, 10.1, *p*=NR  Obese: 0.0, 0.0, *p*=NR | Random: Low  AC: Low  Blinding: Low  Data: Low  SR: Unclear  Other: Low |
| Nascimento71 | Sao Paulo, Brazil Aug 2008 - Mar 2010 | Singleton pregnancy, ≥18 years, 14-24 weeks gestation, BMI ≥26kg/m2.  Excluded: multiple gestations, contraindications to exercise.  Sample: 82 (40 int, 42 con)  Final analyses: 39 int, 41 con | A weekly group exercise class consisting of stretching, upper and lower limb strengthening and relaxation. Women were encouraged to walk 5 days per week.  Duration: 20 weeks | 29.7 (6.8), 30.9 (5.9), *p*=0.479 | 34.8 (6.6), 36.4 (6.9), *p*=0.259**#** | 30.0, 23.8, *p*=0.141 | 65.8, 72.8, *p*=0.521 | - | Random: Low  AC: Unclear  Blinding: Unclear  Data: Low  SR: Unclear  Other: Unclear |
| Oostdam44 | Amsterdam, Netherlands Jan 2007- Jan 2011 | Singleton pregnancy, overweight or obese with previous GDM, macrosomia or first-grade relative with T2DM.  Excluded: > 20 weeks gestation, < 18 years, GDM, HTN, alcohol or drug use, other health complications.  Sample: 121 (62 int, 59 con)  Final analyses (ITT): 40 int, 45 con | 2 x 60 minute PA sessions with aerobic and strength exercises supervised by a physiotherapist at participating hospital.  Duration: 25 weeks (women also followed up 12 weeks post-partum). | 30.8 (5.2), 30.1 (4.5), *p*=0.48 | 33.0 (3.7), 33.9 (5.6), *p*=0.38 | 38.3, 28.0, *p*=0.28 | 23.3, 23.5, *p*=0.99 | - | Random: Low  AC: Low  Blinding: Unclear  Data: Unclear  SR: Low  Other: Low |
| Perales72 | Madrid, Spain  Oct 2009 - Jan 2013 | Singleton pregnancy, overweight or obese.  Excluded: Obstetric complications.  Sample: 129 (65 int, 64 con)  Final analyses: 52 int, 54 con | Group exercise program, 55-60 mins, three times per week. Warm up, core aerobic activities, and cool down.  Duration: 30 weeks | 32.0 (3.7), 33.4 (4.0), *p*=0.06 | 27.9 (3.1), 28.0 (2.6), *p*=0.83 | - | 37.5, 52.0, *p*=0.76 | - | Random: Low  AC: Unclear  Blinding: Unclear  Data: Low  SR: low  Other: Unclear |
| Ruiz73 | Madrid, Spain  Sep 2007 - Jan 2011 | Singleton pregnancy, sedentary, not at risk of preterm delivery.  Excluded: Contraindication to exercise  Sample: 962 (481 int, 481 con)  Final analyses: 481 int, 481 con | Group exercise classes, 55-60 mins, 3 days per week. Session consisted of a warm-up, core session of moderate intensity aerobic and resistance exercises, and cool-down.  Duration: 30 weeks | 31.6 (4), 31.9 (4), *p*=0.24 | 23.7 (3.9), 23.5 (4.2), *p*=0.35 | - | 19.3, 19.6, *p*=0.367 | 1.9, 1.0, *p*=0.483 | Random: Low  AC: Unclear  Blinding: Unclear  Data: Low  SR: Low  Other: Low |
| Results presented: Intervention, control. Abbreviations: NR= Not reported, NS= Not significant, Int = intervention group, Con = control group, Random = Randomization; AC = Allocation concealment; Blinding = Blinding of participants, personal and outcome; Data = Incomplete data; SR = Selective reporting; Other = Other bias; Lo = Low; Mod = Moderate; Hi = High; HTN = Hypertension; IUGR = Inter-uterine growth restriction; GDM = Gestational diabetes mellitus; T2DM = Type two diabetes mellitus; ITT = Intention to treat. Symbols: ‘-‘= data not available; #= Pre-pregnancy BMI; \*\* = Mean (SEM). | | | | | | | | | |