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PHYSICAL ACTIVITY INTERVENTIONS FOR OVERWEIGHT AND OBESITY DURING PREGNANCY: A SYSTEMATIC REVIEW OF THE CONTENT OF BEHAVIOUR CHANGE INTERVENTIONS

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Aim The aim of this study was to identify and summarise the effectiveness of physical activity (PA) interventions on PA levels for pregnant women with overweight and obesity, with a specific emphasis on the behaviour change techniques (BCTs) employed.

Methods A systematic review and meta-analysis of PA intervention studies using the PRISMA statement was conducted. Searches were conducted of eight databases in January 2018. Strict inclusion/exclusion criteria were employed. Primary outcome measures included change in PA levels, subjectively or objectively measured with physical fitness as a secondary outcome. The BCT taxonomy V1 was used to identify BCTs. Meta-analyses using random effect models assessed the intervention effects on PA. Other PA outcomes were summarised in a narrative synthesis.

Results From 8024 studies, 17 met the inclusion criteria. Of these, 11 studies provided data suitable for inclusion in a meta-analysis. Significant increases were found for metabolic equivalent (SMD 0.38 [0.07, 0.70], $Z=2.40$ $P=0.02$) and physical fitness (VO_2 max) (SMD 0.55 [0.34, 0.75], $Z=5.20$ $P<0.001$). Six additional studies were narratively described, five of which reported an increase in PA for the intervention group versus the control. 'Self-monitoring of behaviour' was the most frequently used BCTs (70.6%), with 'social support' unique to this population.

Discussion This review revealed a slight increase in PA for pregnant women with overweight and obesity. However, these conclusions are tentative because of the poor methodological quality of the included studies. A range of BCTs clusters that could be used to help improve physical activity levels during pregnancy was identified, including: 'goals and planning', 'feedback and monitoring' and 'shaping knowledge' with 'social support' being unique to this population. Future studies should consider PA measures carefully so that studies can be meaningfully compared and intervention developers need to use recognised and standardised taxonomies so that BCTs can be accurately assessed.

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INTERPREGNANCY WEIGHT CHANGE AND PREMATURE BIRTH: FINDINGS FROM A POPULATION-BASED COHORT IN THE SOUTH OF ENGLAND

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Background Premature birth (<37 weeks gestation) is linked to maternal weight. However, the impact of maternal

interpregnancy weight change on premature birth is unclear. The objective of this study was to examine the association between maternal interpregnancy weight change and premature birth, in a population-based cohort.

Methods Data from 2003 to 2018 from one maternity centre in England was used to produce two cohorts. The primary cohort ($n=14,961$ women) consisted of first and second live-birth pregnancies. The secondary cohort ($n=5,108$ women) consisted of second and third live-birth pregnancies. Logistic regression was used to look for associations between interpregnancy weight change and premature birth, whilst adjusting for covariates at second or third pregnancy (maternal age, ethnicity, educational achievement, employment status, co-morbidities, pregnancy complications, smoking status, previous premature birth, sex of the infant, fertility treatment), BMI and gestational age at initial pregnancy booking appointment and interpregnancy interval. Subgroup analyses were performed by booking BMI group at initial pregnancy.

Results More women gained weight (>1 kg/m², primary cohort: 47.1%, secondary cohort: 46.5%) than lost weight (>1 kg/m², primary cohort: 15.8%, secondary cohort: 18.1%) between pregnancies. The median weight change was 0.8 kg/m² between pregnancies in both primary (IQR -0.4 to 2.4 kg/m²) and secondary (IQR -0.5 to 2.4 kg/m²) cohorts.

Primary cohort 3.4% ($n=514$) of second pregnancy births were premature births. Weight loss (>3 kg/m²) was associated with increased risk of premature birth (adjusted odds ratio (aOR) 3.50, 95% Confidence Interval (CI) 1.78–6.88), in women who were normal weight (BMI 18.5–25 kg/m²) at the start of their first pregnancy. Weight gain >1 kg/m² was not associated with the outcome in any of the initial BMI categories.

Secondary cohort 4.2% ($n=212$) of third pregnancy births were premature births. Losing >3 kg/m² was associated with increased risk of premature birth (aOR 2.01, 95% CI 1.05–3.87) when analysing the whole sample, but not when restricting the analysis to overweight or obese women at the start of the second pregnancy.

Conclusion Interpregnancy weight loss in women who were normal weight in their first pregnancy was associated with increased risk of premature birth. No such association was found when the analysis was restricted to women who were overweight or obese in their previous pregnancy whether it was first or second. Interpregnancy weight gain was not associated with premature birth. Current national guidelines encouraging obese women to lose weight before a pregnancy should be followed, in order to reduce other maternal and offspring adverse outcomes of maternal obesity.

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AN INTERDISCIPLINARY STUDY OF HISTORICAL AND EPIDEMIOLOGICAL TRANSITIONS IN URBAN CARIBBEAN FOODSCAPES: UNDERSTANDING THE PAST TO ENHANCE FUTURE NUTRITION STRATEGIES

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Background Healthy environments need to be created that enable easy access to healthy and nutritious food. Complex