levels of depression post-intervention (one week to 15 months, standardised mean difference, SMD [SE] = −0.47 [0.077], $p < 0.001$), which was maintained at follow-up (6–16 months, six studies, −0.528 [0.21], $p = 0.011$). However, the absolute reduction was small (−2.8 points on a scale of 0–54) and may not be clinically significant. BMI *z*-score was reduced post-intervention (11 studies, mean difference [SE] = −0.183 [0.014], $p < 0.001$) and at follow-up (four studies, −0.261 (0.022), $p < 0.001$). Interestingly, change in depression did not differ between studies using an energy prescription (SMD [SE] −0.511 [0.21], $p = 0.015$) compared to healthy eating education (−0.452 [0.068], $p < 0.001$). Interventions with structured exercise classes had the highest effect size (−0.533 [0.107], $p < 0.001$), followed by interventions providing physical activity education (−0.388 [0.092], $p < 0.001$). Interventions which did not report incorporating or encouraging physical activity did not significantly change depression symptoms (−0.137 [0.14], $p = 0.335$).

Conclusion: Engagement in weight management interventions did not worsen depressive symptoms. In fact, weight management may lead to mild improvements and disrupt the progression of depression in children and adolescents with overweight or obesity. Inclusion of physical activity within treatment appears to be important.

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Lifestyle interventions in postpartum women: a systematic review and meta-analysis of implementation characteristics

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Introduction: Postpartum weight retention is a significant contributor to obesity in women of reproductive age. While a number of randomised controlled trials (RCTs) have looked at reducing weight retention in postpartum women, the impact of implementation characteristics on effectiveness is not known.

Methods: MEDLINE, CINAHL, EMBASE, PsycInfo, and EBM databases were searched to identify lifestyle intervention RCTs in postpartum women (within 2 years post-delivery) published up to January 2018. The primary outcome was weight change. Population penetration and participation rates were calculated. Subgroup analyses were performed for intervention provider, intervention duration, number of sessions, self-monitoring, use of technology, group or individual setting, attrition, fidelity and intervention types (diet/physical activity/combined).

Results: From 4512 studies, 34 studies were included in the systematic review and meta-analysis ($n = 5000$ women, age 18–34 years). One study reported their penetration rate (2.5%) and five studies reported their participation rate (0.94% to 86%). Studies with self-monitoring had significantly greater weight loss than those without (mean difference −2.93 kg, 95% confidence interval [4.12, −1.74] vs −1.29 kg [−2.35, −0.23], $P = 0.04$ for subgroup differences). Diet and physical activity combined were significantly more effective for weight loss compared with physical activity only interventions (−3.29 kg [−4.51, −2.06] vs −0.53 kg [−1.52, 0.46], $P = 0.003$ for subgroup differences). Health professional delivered interventions were more effective for weight loss than those that were not (−4.45 kg [−7.16, −1.75] vs −0.76 kg [−1.41, −0.12], $P = 0.009$ for subgroup differences). Intervention duration, number of sessions, individual or group setting were not associated with weight loss.

Conclusion: Despite the large number of RCTs conducted in postpartum women, a lack of information on the population penetration and participation in these interventions exists. Self-monitoring, delivery by health professionals and combining diet and physical activity increases the effectiveness of lifestyle interventions on weight loss in postpartum women.

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Obesity and retinal microvasculature in mid-childhood and mid-life: The Longitudinal Study of Australian Children

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Objective: To examine whether microvasculature at age 11–12 years and in mid-adulthood is predicted by: BMI at six time points across the preceding the decade, and decade-long growth patterns.

Methods: *Participants/Design:* 1288 children (51% girls) and 1264 parents (87% mothers) in the Longitudinal Study of Australian Children (LSAC), followed biennially since 2004. *Exposures:* Child BMI *z*-score (CDC) and parent BMI (kg/m^2) at child ages 2–3, 4–5, 6–7, 8–9, 10–11 and 11–12 years. *Outcomes:* Arteriolar and venular calibre from retinal photographs at the Child Health CheckPoint, LSAC's biophysical assessment at age 11–12 years. *Analyses:* Mixed growth curve models identified *BMI* trajectories (five for children and four for adults). Adjusted linear regression models (age, sex and socioeconomic position) estimated associations of retinal vascular calibre with BMI at each time point/BMI trajectories.

Results: Higher BMI at six time points was modestly associated with adverse retinal arteriolar and venular calibre in both age groups. For children, associations strengthened with age, doubling from 2–3 (arteriolar standardised mean difference (SMD) −0.04 (95%CI −0.09 to 0.00) and venular SMD: 0.04, 95%CI −0.01 to 0.09) to 11–12 years of age (SMD: −0.14, 95%CI −0.18 to −0.09 and SMD: 0.08, 95%CI 0.03 to 0.13, respectively); yet associations were consistent over time in adults. Compared to the 'consistently average' BMI trajectory children: those in 'low to high' and 'consistently very high' trajectories had narrower arteriolar calibre (SMD −0.23 (95%CI −0.43 to −0.03) and −0.36 (95%CI −0.51 to −0.20), respectively). Compared to 'consistently healthy' BMI adults, those in the always overweight/obese/severely obese trajectories had narrower arteriolar (SMD −0.22 to −0.37) and wider venular (0.14 to 0.31) calibre.

Conclusions: Adverse microvascular markers at age 11–12 years are predicted by higher BMI from age 2–3 years. Decade-long BMI trajectories show small, but consistent associations, with adverse retinal microvasculature in both age groups.

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