

in turn suppress endogenous estrogen and progesterone. Sustained elevations of synthetic estrogen/progestin or suppression of endogenous hormones in CHC users may lead to altered dietary intake and/or patterns of physical activity (PA). Previously, we reported that CHC use was associated with higher energy intake (EI) and weight regain over 1 year after weight loss in women with overweight and obesity enrolled in a behavioral weight loss program, suggesting a potential impact of CHCs on energy balance in the weight reduced state. The aim of this secondary data analysis was to compare dietary intake and PA in weight-stable women with overweight or obesity using CHCs to non-CHC users.

Methods: Pre-menopausal women with overweight or obesity (n=269, age 18-55 years, BMI 27-45kg/m²) enrolled in 3 different interventional weight loss trials were categorized as CHC users (CHC, n=48) or non-CHC controls (CON, n=221). Fat mass (FM) and lean mass (LM) were measured with DXA. Self-reported dietary energy and macronutrient intake was obtained from either 3-day (n=178) or 7-day (n=91) written diet diaries and analyzed using Nutrition Data System for Research (NDSR) software. Healthy eating index (HEI) scores for diet quality were calculated in a subset (CHC=17, CON=84) of participants using variables available in NDSR output files. Additionally, average daily step counts were measured over 1 week in a subset (CHC=27, CON=143) of participants using the activPAL device.

Results: Age was lower in CHC users (mean±SD; CHC 35.3±9.0 vs. CON 39.4±7.6 years, p<0.01), but race and ethnicity did not differ between the two groups. After controlling for age, there were no significant differences between groups in baseline BMI (mean±SEM; CHC 34.3±0.7 vs. CON 34.8±0.3 kg/m²), weight (93.6±2.4 vs. 94.2±1.1 kg), %FM (43.3±0.6 vs. 42.7±0.3%), or %LM (54.3±0.6 vs. 54.7±0.3%). There were no significant differences between groups in EI (mean±SEM; CHC 1763.7±78.1 vs. CON 1768.8±36.7 kcal); proportions of fat (36.7±0.9 vs. 36.9±0.4%), carbohydrate (43.9±1.1 vs. 44.3±0.5%), and protein intake (17.7±0.6 vs. 17.3±0.3%); or HEI scores (58.3±2.9 vs. 56.8±1.3). There was a trend for lower daily step count in CHC users (mean±SEM; CHC 5978±460 vs. CON 6913±197 steps/day, p=0.07).

Conclusion: Daily steps tended to be lower in CHC users compared to controls, while differences in self-reported dietary intake were not observed. Future studies that are done in larger samples over a greater range of BMI and with more detailed measures of PA timed to the menstrual cycle are needed to explore the extent to which CHC use may impact energy balance in women.

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A Cross-Sectional Study Evaluating the Impact of Combined Hormonal Contraceptives on Components of Energy Balance in Pre-Menopausal Women with Overweight or Obesity

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Background: Combined estrogen and progestin hormonal contraceptives (CHCs, including combined oral contraceptives, hormonal patches, or vaginal rings) expose women to supraphysiologic levels of reproductive hormones, which