Effectiveness of Weight Loss Programs for Patients on Antipsychotic and/or Antidepressant Medication
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Background:
Antipsychotic and antidepressant medications are known to be associated with metabolic changes that promote weight gain and may impair weight loss (WL). Thus, this study examined changes in weight for patients taking antipsychotics, and/or antidepressants attending a weight management program.

Methods:
Patients from the Wharton Medical Clinic were categorized as taking: (1) antipsychotic, (2) antidepressant, (3) both or (4) neither medication. Logistic regression analysis was undertaken to examine the association of achieving > 5%, and > 10% WL with medication group adjusting for age, sex, baseline weight and treatment time.

Results:
21458 were analyzed and 2491 were categorized as taking antipsychotics and/or antidepressants. Over 21.4 ± 22.6 months, patients lost 2.9 ± 17.5 kg (P<0.05). Patients taking neither medication weighed significantly less at baseline than those taking antipsychotics, antidepressants or both (P<0.05). A greater proportion of patients taking antipsychotics lost > 5% of their bodyweight than those taking neither (P<0.05). Further, a greater proportion of patients taking antipsychotics, antidepressants or both lost > 10% of their bodyweight than those taking neither (P<0.05). However, after adjusting for age, sex, baseline weight, and treatment time, medication group was not significantly related with WL (P>0.05). Baseline weight and treatment time were independently associated with patients achieving > 5% or > 10% WL (P<0.01 for all).

Conclusions:
Taking antipsychotic, and/or antidepressants are associated with metabolic dysregulation which may inhibit WL. However, results from this study suggest that patients who are taking antipsychotic and/or antidepressant medication are not at a disadvantage to lose clinically significant amounts of weight and underscore the importance for these patients to attend clinical weight management programs to counteract the potential negative health effects of these medication(s).

An Intervention Embedded in a National Home Visiting Program to Prevent Excessive Weight Gain
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Background:
Clinical interventions to prevent excessive weight gain in young adult women can have significant impact in reducing obesity and incidence of type 2 diabetes mellitus. However, the intensity of these trials limit their scalability to real world settings. The purpose of this study was to embed a lifestyle intervention for overweight and obese mothers within the routine practice of Parents As Teachers (PAT), a home visiting organization reaching women and children nationwide

Methods:
This 24-month pragmatic trial used a stratified random design to test intervention versus PAT usual care, delivered within 25 home visits by parent educators to N=230 overweight or obese mothers of preschool children enrolled in PAT programs located across St. Louis, Missouri. Outcomes included the proportion of women that achieved 5% weight loss at 24 months, and improvements in clinical and behavioral outcomes.

Results:
Women in the intervention versus usual care group were significantly more likely to achieve 5% weight loss at 24 months (11% vs. 26%, p=0.01). At 12 months there was a 2.8 kg difference in weight between groups (p=0.0006), and by 24 months a 4.7 kg difference in weight (+3.2 [SD 7.6] kg vs. -1.5 [SD 8.3] kg, p=0.002); group differences in waist circumference were also evident by 12 months (+2.1 [SD 8.4] cm vs. -0.7 [SD 9.8] cm, p=0.04) and 24 months (+3.8 [SD 10.6] cm vs -2.5 [SD 9.1] cm, p=0.005), as were improvements in behavioral outcomes.

Conclusions:
This intervention reduced excessive weight gain and achieved clinically significant weight loss outcomes in mothers of young children.
The scalability of this embedded intervention offers the potential to prevent excessive weight gain among young mothers participating in PAT programs nationally.

T-P-LB-3633
Evaluation of a Lifestyle Change Worksite Weight Control Program Across Multiple Employers
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Background:
Worksite weight loss programs have been described for 30+ years and have varied greatly in approaches and results. We report here the outcomes across multiple employers, sites and cohorts of a consistent protocol-based weight management program focusing on dietary, exercise and behavioral change.

Methods:
This 10-week program consisted of weekly weigh-ins and 45-minute classes led by health professionals, focused on diet, exercise, and/or behavior change. Programs were conducted at individual employer sites; when necessary, employees could participate in the classes virtually via web conferencing and/or recorded sessions. One employer provided incentives to participants based on their weight loss, while two other employers incentivized based on both weight loss and class attendance.

Results:
A total of 41 cohorts participated in the program across 7 employers at 10 work sites from 2008 to 2016, with a total of 1090 participants (79.3% female). Weight loss from first to last weight obtained was M=-2.9% (SD=3.0%). Average number of classes attended was 6.87 (SD=2.9) and was significantly correlated with percent weight change (r=-0.46; p<0.001). Percent weight change varied as a function of gender (M+F) and employer (p’s<.001). Participants incentivized for attendance attended significantly more classes (M=7.5, SD=2.8) than did those not so incentivized (M=6.4, SD=2.9, p<.001), but did not lose more weight (p=.24). Participants incentivized for weight loss did not lose significantly more weight than those not so incentivized (p=.26).

Conclusions:
These data support the utility and effectiveness of this worksite weight management program in a variety of employer settings, with average weight loss of nearly 3%. Utilizing incentives to promote class attendance may be beneficial for increasing engagement in similar worksite programs; however, the more distal outcome of weight loss was not affected by incentives for either attendance or weight loss.

T-P-LB-3634
Description and Utilization of a Telehealth Weight Loss Maintenance Program
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Background:
Weight maintenance following weight loss is challenging for adults with overweight and obesity. The purpose of this study is to report pilot usage data from a remotely delivered weight maintenance program designed for use following a comprehensive lifestyle weight loss program.

Methods:
The Home Weight Monitoring program (HWM) is built around the HealthTrac platform (SetPoint Health) that includes a website and mobile app for syncing/recording relevant behavioral data by patients, and review and feedback on those data by clinicians. Patients were encouraged to upload data daily on weight, activity and intake, by syncing wireless scales and activity trackers and recording dietary intake. Weekly personalized video-recorded feedback was delivered to patients via in-app messages from registered dietitians, exercise physiologists and behavioral specialists. We report patient usage of the HWM program tracking components in the first 90 days of program participation (N=20).

Results:
Of the 90 days, step counts were logged M=55.1 days (SD=27.9), active minutes M=39.3 days (SD=25.5), weight M=37.2 days (SD=24.4), and caloric intake M=32.4 days (SD=30.5). On average patients logged at least one of those types of data on M=64.7 days (SD=25.4). Patient usage significantly declined over time; at least one type of data was logged M=25.5 days (SD=8.6) in Month 1, M=22.4 days (SD=10.2) in Month 2 and M=16.9 days (SD=13.1) in Month 3 (p<.01). Average percent weight change from first to last weight entered was -2.4% (SD=3.8%).

Conclusions:
Overall there was moderate utilization of the HWM program components, which declined from month 1 through 3. Future studies should examine ways to increase long-term usage and engagement with this type of weight maintenance intervention. On average, patients not only maintained their weight loss but increased it somewhat.
T-P.LB-3635
An Open Pilot Trial of Acceptance-Based Behavioral Weight Loss in American Indians: POWER-UP
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Background:
Randomized controlled trials (RCT) of acceptance-based behavioral treatment (ABT) for obesity indicate superior weight loss outcomes compared to standard treatments. However, the largest known RCT of ABT enrolled zero American Indians (AIs) and did not examine change in neurocognitive domains as potential treatment process variables. Thus, the POWER-UP trial (Pilot of Weight Reduction in an Under-served Population) piloted ABT for obesity and conducted pre- and post-neuropsychological evaluation in an under-represented AI population.

Methods:
48 overweight/obese AI adults (aged 43.5±10.3 years, 85% female; baseline BMI = 36.8±4.4 kg/m2) enrolled in a 6-month open ABT weight loss trial (Identifier: NCT02786238). The primary outcome was percent weight loss (%WL) at post-treatment. Neurocognitive domains were measured with the NIH Cognition Toolbox and the Automated Neuropsychological Assessment Metric (ANAM-IV), including episodic memory (EM), working memory (WM), inhibitory control (IC), cognitive flexibility (CF), processing speed (PS), reading (RE), and vocabulary (VO).

Results:
Analyses of completers (N=36) indicated that participants lost an average of 5.2±4.9% of their initial body weight (range=3.5% gain to 17.2% loss; t(35)=6.3, p<.001, d adjusted = 2.13). Intent-to-treat analyses with last weight carried forward for all participants show a mean loss of 4.1±4.7%; (t(47)=5.8 p<.001, d adjusted = 1.7. Of the cognitive domains, only indices of inhibitory control showed improvement (p<.006). These cognitive improvements were not significantly related to %WL (p≥.30), but effect sizes were meaningful and in the hypothesized direction (rs=.19-.22).

Conclusions:
ABT for weight loss resulted in a clinically significant weight loss in an AI population. Cognitive inhibitory control also improved and showed notable effects in relation to weight loss. Next steps should include a controlled trial of ABT in AIs with a larger sample to probe mediational effects of neurocognitive change in weight loss.

T-P.LB-3636
Referral to a Total Diet Replacement Programme for Weight Loss in Routine Care: A Randomised Trial
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Background:
Low and very low energy total diet replacements programmes have been used in research settings and specialist obesity centres for many years. A recent systematic review showed that at 1y they were associated with 3.9 [-6.7 - -1.1] kg greater weight loss than standard behavioural weight management programmes (Parretti et al, Obesity Reviews; 17(3):225-34). However there is an outstanding question whether this approach can be successfully delivered in routine care settings.

Methods:
The DROPLET trial (Doctor Referral of Overweight People to Low Energy Treatments) recruited 278 adults with a BMI≥30 kg/m2 from primary care registers (Jebb et al http://dx.doi.org/10.1136/bmjopen-2017-016709). Patients were randomised in a 1:1 allocation to usual care or a total diet replacement programme. Usual care consisted of weight management advice and support from a practice nurse. The low energy total diet replacement programme provided 810kcal/d for 8 weeks, with 4 weeks food reintroduction and, thereafter, 1 meal replacement product a day to 24 weeks. Behavioural support was provided weekly for 12 weeks and then monthly to 24 by a commercial provider (Cambridge Weight Plan ™).

Results:
One-year follow-up is now complete with 72% retention. The primary outcome is the difference in body weight between groups at 1 year. Secondary outcomes include: fat mass, waist circumference, blood pressure and biomarkers of cardiovascular risk. Quality of life has been assessed using self-report questionnaires and adverse events monitored according to Good Clinical Practice. Results will be ready to present at Obesity Week 2017.

Conclusions:
The findings from this trial will demonstrate whether referral to a commercial low energy total diet replacement programme is effective and acceptable for weight management, with direct implications for weight management in routine clinical practice.

T-P.LB-3637
Examining the Reporting Accuracy of a Dietary Recall Mobile Application and 24-Hour Recall Method
**Methods:**
Pregnancy is a unique time period in which women’s bodies change quickly. With these changes, brings changes in women’s perceptions of their bodies. These changing perceptions may impact levels of body dissatisfaction. Body dissatisfaction increases the risk of disordered eating and unhealthy weight loss behaviors, and is positively correlated with increased depressive symptomology during pregnancy and postpartum. Women with higher body dissatisfaction have an increased risk of excessive gestational weight gain (GWG) during the course of pregnancy. Excess GWG has been linked to pregnancy-related complications including gestational diabetes, as well as increased risk of the child developing overweight/obesity in early childhood through adolescence. Assessing body image during pregnancy may provide important information to improve the health of mother and child both pre and postpartum.

**Background:**
Mobile health technology is becoming more commonplace and may be used to collect dietary intake data; however, there is limited research on the reporting limitations. The purpose of this study was to examine the reporting accuracy of a dietary recall mobile application and 24R method to a controlled meal among a convenience sample of adults.

**Methods:**
Participants were recruited from a university and community setting as a subproject of a larger grant-funded project. Eligible participants (adults between the ages of 18 and 50 with no food allergies related to the control meal) consumed a control meal, entered dietary intake information into a mobile application and participated in a 24R executed by a trained registered dietitian. A sign test was conducted to determine differences in energy reporting among the three different methods using SPSS 18.0.

**Results:**
15 participants 19-45 years of age completed the study and were 73.3%(n=11) female, 80.0%(n=12) overweight/obese, and 60% African American. Mean(±SD) for the control meal, mobile and 24R methods were 833.42(231.73), 567.07(243.42), and 699.62(112.35), respectively. The sign test showed a significant mean energy difference between mobile and control (p=0.001) and no different between 24R and control (p=0.146) and 24R and mobile (p=0.267).

**Conclusions:**
Participants generally under-reported energy intake compared to a control meal. More research is needed to improve the reporting accuracy of mobile dietary recall methods and to examine reporting accuracy among larger and real-world samples. In the meantime, the mobile recall technique may have acceptable accuracy for the purpose of examining dietary changes over time.

**T-P-LB-3638**
**Oral Processing of Walnuts, Implication for Energy Balance**
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**Background:**
Nut consumption has minimal effects on body weight despite their high energy density. Inadequate mastication results in low lipid bioaccessibility and may, in part, explain the weak effect of nuts on body weight. This study examined masticatory parameters and the bolus particle size of walnuts under various eating conditions (alone, with water, with juice, with sweetened yogurt and with plain yogurt) as well as satiety sensations subsequent whole nut and nut butter consumption.

**Methods:**
In this randomized cross-over study, 50 participants chewed and expectorated 5g walnut portions for 15 seconds and until they felt the urge to swallow, while masticatory parameters were recorded. The particle size distribution of each nut treatment was evaluated by sieving. Participants consumed 28g of whole walnuts or walnut butter in a randomized order. Appetite was measured over the subsequent 3 hours. Blood samples were also collected and analyzed for glucose, insulin and GLP-1 over 180 min.

**Results:**
No differences in masticatory parameters were observed, however significantly larger particle sizes (>3.35 mm) were noted for walnuts paired with yogurt than the other treatments (P<0.05). There were no changes in glucose, insulin, or GLP-1 concentrations when comparing the physical form of nuts (P>0.05). Fullness sensations were higher after whole nut consumption than nut butter consumption (P<0.05).

**Conclusions:**
Eating condition modified walnut bolus particle size and this might have an impact on the absorption of energy from nuts. Fullness ratings were higher for the whole nut than nut butter.
The present study reports on body dissatisfaction gathered as an ancillary study from the Expecting Success (ES; U01DK094418) study. The ES study is a multicenter, randomized controlled trial testing the efficacy of a weight management program in pregnant women. Participants completed clinic measures and questionnaires at 6 time points, once per trimester (total = 3) and three time points postpartum. This ancillary study assessed body image, weight, and mood throughout pregnancy and postpartum.

**Results:**
Compared to baseline, participants demonstrated a significant decrease in body dissatisfaction over the second and third trimesters. Postpartum, body dissatisfaction increased significantly, occasionally reaching levels significantly higher than baseline body dissatisfaction. The present study demonstrated fluctuations in body dissatisfaction across all trimesters, and several time points postpartum. A better understanding of the influence of body dissatisfaction on gestational weight gain has important implications for designing interventions to improve maternal health during pregnancy.

**T-P.LB-3640**
**A Qualitative Evaluation of Latino Parents’ Experiences With a Multi-Faceted Obesity Intervention**
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**Background:**
Low-income Latino children experience high rates of obesity. Most published childhood obesity interventions have not included Latino children and few studies have evaluated parental perspectives on obesity treatment programs.

**Methods:**
We conducted 16 semi-structured interviews with Spanish speaking Latino parents who had participated in a Latino-tailored child obesity intervention consisting of three individual visits and 5 group education sessions. Parents also received two text messages per week to reinforce intervention content. The interviews explored parents’ experiences with the intervention as well as barriers and facilitators to implementing lifestyle changes. Interviews were analyzed using an inductive approach.

**Results:**
Parents’ statements could be categorized into the following themes. (1) Concern: Parents reported high levels of concern regarding their children’s obesity and risk of complications such as diabetes; (2) Support: Parents derived social support from other parents in the group and also found the text messages to be supportive and useful for behavior change; (3) Empowerment: Parents gained knowledge about the health effects of sugar and made significant changes to the home food environment; (4) Partial success: Parents reduced children’s consumption of soda and sweets but found increasing vegetables and whole grains to be challenging; (5) Ambivalence: Some parents struggled with reducing portions due to guilt and a desire for their child to feel loved; (6) Social Vulnerabilities: Unmet child mental health needs posed barriers to lifestyle changes; high cost of recreation programs was a barrier to physical activity.

**Conclusions:**
A multi-faceted obesity treatment intervention tailored to Latino families was acceptable to low-income Latino parents and led to environmental and behavioral changes. Enhancing psychosocial support for parents and children and facilitating referrals to free physical activity programs may increase the impact of such interventions.

**T-P.LB-3641**
**Vidas Activas y Familias Saludables (VALÉ): A Multidisciplinary Pediatric Obesity Treatment Program**
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**Background:**
Latinos children are disproportionally affected by obesity yet, evidence-based treatment guidelines are limited. High rates of attrition were common among previous programs, possibly due to lack of appropriate cultural adaptations. This pilot study used a multi-disciplinary, family-centered and culturally adapted approach to the treatment of pediatric obesity among Latino children.

**Methods:**
Latinos families with an overweight/obese child (≥85th percentile BMI-for-age) aged 4-9 years, participated in a 10-week (~90 min/week) group based program which addressed diet, exercise and behavior modification. Families were recruited through local health care clinics and schools. Children engaged in supervised exercise programming, while caregivers participated in culturally adapted nutrition and behavioral health sessions (i.e. reading labels, portion control, behavioral reinforcement, problem solving, lapse/relapse). While dinner was provided, families set weekly SMART goals. Children were measured at baseline and at 3-month follow-up for anthropometrics (BMI, body fat), blood biochemistry (lipids, glycemia, etc.), blood pressure, physical fitness and behavioral health changes (dietary intake, physical activity, parental stress and depression).

**Results:**
Families (n=16 children, 63% males) participated in the program with a retention of 70%. Mean BMI Z-score at baseline was 2.26. There was a significant decrease in mean BMI Z-score over the study period (-0.07, p<0.05). Mean values for BMI percentile for age, waist
circumference, % body fat, blood pressure-for-age, and glucose all decreased, but did not reach statistical significance.

**Conclusions:**
Preliminary findings indicated that a 10-week multidisciplinary and culturally adapted group intervention for Latino families was well-accepted and led to positive changes in children’s BMI Z-score. The program is currently being replicated to test effectiveness using a randomized trial design.

**T-P-LB-3642**
**Teen JOIN: A Community-based Behavioral Weight Control Intervention for Teens**
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**Background:**
Comprehensive behavioral weight control interventions show promise with teens, but neither their generalizability to community settings, nor their efficacy for teens with severe obesity, is well understood. This RCT compared the effectiveness of two comprehensive lifestyle interventions delivered through the YMCA of Greater Providence: JOIN FOR ME (J4M) and TEEN JOIN (TJ), an enhanced version of J4M tailored to the developmental needs of teens.

**Methods:**
Teens (n=66), ages 13 to 17 years, with BMI >85th% and absolute BMI <50 were randomly assigned to J4M or TJ. Teens in both arms attended 16 weekly, in-person group sessions led by YMCA facilitators. Meetings focused on behavioral weight control strategies (e.g., self-monitoring, goal setting) to improve diet and increase physical activity. TJ was enhanced to include weekly, group-based physical activity sessions and challenges and independent parent meetings. The primary outcome was change in percent over BMI from baseline to 16-weeks (end of treatment). A restricted maximum likelihood based repeated-measures approach was used to model the effect of treatment and time on percent over BMI.

**Results:**
Groups did not differ at baseline by age (14.6 + 1.5 years), sex (57.6% female), racial/ethnic minority status (31.8%) or weight status (56.3% with severe obesity). Retention at 16 weeks was 88%. There was no significant group by time effect (p=0.09); however, there was a significant effect of time (p<.0001), with percent over BMI decreasing by 7.5±1.0%, from baseline to end of treatment. While not significant, teens with overweight or obesity had greater reductions in percent over BMI at four months versus those with severe obesity (-9.75% vs. 5.5%; p=0.2).

**Conclusions:**
Both the J4M and TJ interventions led to significant decreases in percent over BMI in teens with overweight and obesity, suggesting that comprehensive lifestyle interventions delivered in a community setting may be effective for these teens.

**T-P-LB-3643 - WITHDRAWN**

**T-P-LB-3644**
**Influence on Children’s BMI and Cooking Self-Efficacy in Latino Families**
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**Background:**
The prevalence of childhood obesity in the US remains high with children from ethnic/racial minority groups at higher risk. Parents and a child’s home environment play important roles in a child’s weight status. This study examined factors associated with the BMI of Latino children participating in a diet and physical activity (PA) summer camp.

**Methods:**
Baseline data from a 4-month diet and PA skill development summer camp offered to families in Memphis, TN were used in the analysis. Thirty children (7-12yr) along with a parent (n=17) were enrolled. Both parents and children completed diet and PA behavior questionnaires along with having height and weight measured. Age and sex specific BMI z-scores and percentiles were calculated for children. Linear regressions were used to examine whether parental factors (BMI, fruit/vegetable intake, moderate-to-vigorous PA) and home environment (level of disorganization, food availability, PA equipment and space availability) were associated with child BMI z-scores. We also examined whether parent cooking self-efficacy and family fast food intake were associated with child cooking self-efficacy.

**Results:**
All participants self-identified as Latino. Children were on average 9.4±1.5 years old and primarily male (70%). Parents were on average 32.2±5.1 years old and female (77%). Based on BMI percentiles and BMI, respectively, 60% of children and 88% of parents were overweight or obese. No significant associations were found for the full models. However, parent BMI was positively associated with child BMI z-scores (β=.067, p=.042).
Conclusions:
In this sample of Latino families, only parent BMI was significantly associated with child BMI. Reduced sample size and variability in this study may have contributed to our lack of findings. However, given the links between parent BMI and child BMI, it is important that future studies examine other potential factors that may contribute to obesity in minority families such as culture, affect, and child motivation.

T-P-LB-3645
Multi-disciplinary Weight Management in Obese Youth: Effectivity and Acceptability
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Background:
Multi-disciplinary weight management (MDM) is effective in obese adults. We hypothesized that MDM in youth will result in improved weight management as compared to routine primary care.

Methods:
We retrospectively reviewed records of youth followed a tertiary care MDM center, between December 2014 to January 2017. We compared weight parameters following 6 months MDM to those obtained from primary provider’s office within the preceding 6 months period. The primary outcome was the BMI z-score (zBMI) changes, before and after MDM. Secondary outcomes included prevalence of obesity associated comorbidities, changes of laboratory parameters and adherence to clinic follow up at 6 months.

Results:
316 records of youth with extreme obesity (12.9 +/- 3.5 years, 49% males, 104.8 +/- 35.1 kgs) were reviewed. Over 6 months preceding MDM (PreV), zBMI increased= 0.02 +/- 0.1. Post-intervention, zBMI change was -0.03 +/- 0.1 after 1 visit (PreV vs. visit1; p= 0.02) and -0.13 +/- 0.3 after 6 visits (PreV vs. visit6; p= 0.02). Most common obesity associated comorbidities were acanthosis, indicative of insulin resistance (99.7%), hyperlipidemia (57%), prediabetes (39.5%) and transaminitis (20%). Significant metabolic improvements following 6 months MDM were noted in HbA1c (5.6+/-0.5 vs. 5.5+/-0.5%; p=0.001), serum insulin (28.7+/-12 vs. 20.9+/-12 micro-IU/ml; p= 0.02), HOMA-IR (5.9+/-2.5 vs.4.1+2.4; p= 0.004), AST (23.6 +/-7.6 vs. 21.8+/-7.6 IU/L; p=0.007) and ALT (27.8 +/-16.7 vs. 24.7 +/- 13.8 IU/L; p=0.01). Only 9% families completed 6 FU visits.

Conclusions:
We demonstrate significant decrease in zBMI, and improvements in obesity associated metabolic markers following 6 months MDM in youth who were previously gaining weight rapidly under routine care. However, high drop-out rate likely compromises overall effectiveness of MDM in youth. There is a great need for motivation strategies to improve adherence.

T-P-LB-3646
Variables Associated With Weight Status and Health in Children Referred for Weight Management
Marsha Novick, MD, FAAFP Harrisburg PA, Helen Hendy, PhD, Keith Williams, PhD

Background:
While many factors have been implicated in the development and maintenance of childhood obesity, there needs to be continued work identifying which behavioral factors should be targeted for intervention. The purpose of this study was to identify possible targets for change among children referred to a pediatric weight management clinic.

Methods:
Parents of 135 children participated by completing a survey which included questions on child demographics, child behaviors, parent feeding practices, and parent food neophobia. Associations were examined between child and parent behaviors and two clinically relevant outcomes: weight status and weight-related health problems.

Results:
Controlling for child demographic variables, hierarchical multiple regression revealed that heavier weight status was associated with child behaviors of less sleep, less physical activity, more screen time (especially cell phone use), and more fruit and vegetable (FV) consumption, suggesting that very obese children are less likely to show the pattern of selective or picking eating in which FV foods are rejected. Controlling for child demographics, more weight-related health problems were associated with more screen time. Controlling for child demographics, no parent behavior was significantly associated with child weight status, but health problems were associated with more parent food neophobia and more insistence on eating during meals.

Conclusions:
Since child behaviors (e.g. sleep, physical activity, cell phone use) are more predictive of weight status and health problems than are parent behaviors, these behaviors should be targeted for intervention to improve clinically-relevant outcomes for obese children.

T-P-LB-3647
Demographics and Anthropometrics Impact Benefits of Health Intervention: Data From the ROAD Project
Background:
Over 30% of U.S. children are overweight or obese. Ethnic/racial disparities in increasing body fatness are associated with parallel increases in co-morbidities such as type 2 diabetes mellitus (T2DM). School-based interventions (SBIs) have been proposed as a means to improve pediatric health behaviors and reduce the risk of obesity or the progression of pediatric obesity into adulthood. SBIs have been criticized for being ineffective, cumbersome, and/or too expensive. The Reduce Obesity and Diabetes (ROAD) Project examined the effects of a non-targeted portable, inexpensive SBI on adiposity and T2DM risk factors in a diverse population of middle school students.

Methods:
Anthropometrics were measured in a diverse population of 644 NYC students (mean ± SEM age 12.7 ± 0.9 years; 46% male; 38% Hispanic, 17% East Asian, 15% South Asian, 13.5% African American, 8.5% Caucasian, 8% other) during the fall and spring semesters. Regardless of adiposity, experimental subjects (n=469) received a 12-session classroom-based health and nutrition educational intervention with an optional exercise program designed to meet school physical education mandates between measures.

Results:
Control and experimental groups were demographically and anthropometrically similar. The intervention resulted in significant reductions in overall BMIz (-0.035±0.014; p=0.01), %body fat (-0.5±0.2; p<0.0001), and waist circumference (-0.73±0.30 cm; p<0.0001) especially in male (ΔBMIz(males) = -0.052±0.015; ΔBMIz(females) = -0.022±0.018; p=0.01), obese (ΔBMIz(obese) = -0.083±0.022 vs ΔBMIz(lean) = -0.010±0.020; p<0.0001) and South Asian (Δ%body fat = -1.03±0.35 vs total = -0.49±0.20; p=0.005) subjects.

Conclusions:
The ROAD Project’s relatively simple school-based health intervention is beneficial to students. However, there are numerous group-specific covariates that should be considered in designing and implementing or studying such interventions. These include initial adiposity, gender, and ethnicity/race.

T-P-LB-3648
An Intervention to Improve Self-regulation in Children Increases Knowledge and Energy Compensation
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Background:
Responding to internal satiety cues is critical for the maintenance of healthy body weight, but few interventions exist to improve self-regulation of food intake. We tested the effectiveness of an intervention to determine if self-regulation of food intake can be improved in 4-6 year-old children.

Methods:
A within-subjects design was used to test children (16 boys, 9 girls) across 10 laboratory visits to assess knowledge and eating self-regulation before and after a 4-week intervention. The intervention was designed to teach children how to better respond to satiety signals and included a virtual reality game in which the stomach filling effects of various foods were simulated. Knowledge was assessed with 10 interview questions about digestion and satiety. Energy compensation (COMPx) was assessed with a preloading protocol to measure children’s intake at ad libitum meals served 20 minutes after receiving either a high- (150 kcal) or low- (3 kcal) energy beverage. COMPx was calculated as a percentage of energy consumed at the test-meal after the high- relative to the low-calorie preloads.

Results:
All 25 children completed the study, for 100% retention. Knowledge increased from 3.7 ± 1.9 to 7.0 ± 2.0 out of 10 (p < 0.0001). There was a trend for COMPx to increase from baseline (23.5 ± 148.0) to follow-up (113.0±202.6) (p = 0.08), suggesting that on average, children were overeating at baseline, but approached perfect compensation (100%) after the intervention. However, repeated measures ANOVA showed a sex * condition interaction (p < 0.01), with boys increasing compensation from 7.6 to 190.4% and girls decreasing compensation from 51.9 to -24.7% across the intervention.

Conclusions:
A virtual reality game increased children’s knowledge and self-regulation of food intake, although results varied by sex. These results suggest that sex differences in intake regulation may emerge as early as the preschool years.

T-P-LB-3649
Real Life Study on Weight Loss Using Exenatide LAR/Dapagliflozin in Obese DM2 Patients in Mexico
Ernesto Garcia-Rubi, MD Mexico, Guadalupe Flores-Vazquez, DD México
**The Track Program** was delivered to 351 adults within a network of community health centers.

**Methods:**
We conducted an open, longitudinal study of exenatide LAR and Dapagliflozin on glycemic control and weight loss in obese type 2 diabetic patients treated for 12 months. We included 25 female and 25 male patients (between 28-60 years) who have failed to other oral treatments and did not show any relevant chronic complications or intercurrent illness. All patients followed a 1500 Kcal diet (55/30/15 nutrients ratio), 50 min brisk walking a day and were initiated with 10 mg dapagliflozin and 2 mg exenatide LAR 2 weekly for the study period. All biochemical analysis were done in a commercial lab using automated enzymatic methods. HbA1c was measured using HPLC and insulin with RIA. Body composition analysis was made with impedance test using a Seca MBCA115 analyzer. Comparisons were made with parametric tests between visits for HbA1c, glucose, lipids, HOMA modeling, BMI, weight and body fat percentage.

**Results:**
At start, mean weight was 101.4±16.8 males 83.8±6.8 females, BMI was 34±3.7 males and 34.8±3.21 females; HbA1c were 9±0.3, 8.8±0.5; glucose 214±19, 210±20 mg% males and females respectively. At 12 months a significative (p<0.0001 first vs last visit) mean weight loss of 13.4 kg/15.3 Kg; fat% 9 and 11; HbA1c reduction 2.2/2.1, and glucose levels of 106 mg%, 113 mg% (72 %, 76% attained control goals of HbA1c =<7%) and HOMAR reduction 6.7 and 9.2 for males and females respectively. Nausea was present in around a third of patients, and we recorded 12 episodes of vulvovaginitis and 2 balanitis that needed treatment.

**Conclusions:**
A combination of 2 weight lowering antidiabetic treatments are synergistic and significant weight loss with glucose control was obtained.

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**T-P-LB-3650**

Phentermine vs Phentermine/Loiotyrone in the Treatment of Obese Patients in a Mexico City Clinic

Ernesto Garcia-Rubi, MD Mexico, Guadalupe Flores Vazquez, DD Mexico City

**Background:**
Obesity in Mexico is attaining epidemic proportions. In women comorbidities can arise like hypertension, non-alcoholic steatohepatitis, metabolic syndrome and anovulation. Obesity can be accompanied by hypothyroidism which aggravates those conditions.

**Methods:**
We studied 60 obese women between 20 to 50 years old who came to the clinic for weight management. All underwent body composition analysis (BCA) using an impedance mBICA115 apparatus and analyzed results in total body fat (TBF), abdominal fat (AF), skeletal muscle content (TSM). All underwent a clinical evaluation including chemistry panel, blood cell count, TSH, tT4, and fasting insulin level. Patients with thyroid dysfunction (defined as TSH levels above 3 but below 4) were selected for this study. All were instructed to initiate physical activity with 250 minute a week of walking and 1400 Kcal diet (nutrient ratio), 50 min brisk walking a day and were initiated with 10 mg dapagliflozin and 2 mg exenatide LAR 2 weekly for the study period. All biochemical analysis were done in a commercial lab using automated enzymatic methods. HbA1c was measured using HPLC and insulin with RIA. Body composition analysis was made with impedance test using a Seca MBCA115 analyzer. Comparisons were made with parametric tests between visits for HbA1c, glucose, lipids, HOMA modeling, BMI, weight and body fat percentage.

**Results:**
Mean (±SD) weight at start was (A/B) 90.6±5.6 Kg, BMI 34.7±3.1 ± 3.4/3.1, TBF 49.5/48.6 ± 6.7/5.6%, AF 4.5/4.3 ± 1.2/1.5 L, TSM 24.3/23.9 ± 2/2.1 kg, HR 68/70 ± 5/6; at 6 months 78.2/71.5 ± 1/1.2, 38.5/37.2 ± 3.2/3 %, 2.9/2.6 ± 1 L, 22.3/21.2 ± 2.1/2 Kg, HR 88±5. All results were significantly different (p>0.001) at 6 months between and within groups A/B. Most patients complained of fast HR, distal tremor and anxiety at the beginning which subsided within 3 weeks. All the patientes with phentermine complained of dry mouth.

**Conclusions:**
Appropriate screening and treatment with 75 ug liotyroine or the combination with 15 mg phentermine resulted in an improvement in weight and metabolic abnormalities in obese women with thyroid dysfunction with transient adverse effects.

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**T-P-LB-3651**

Impact of Stress on Weight Loss Among Low-Income Patients in the Track Program

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**Background:**
Stress is pervasive in low-income communities. This population consistently demonstrates elevated risk of obesity and associated cardiometabolic outcomes. Elevated stress has been linked to suboptimal weight losses in gold standard behavioral weight control programs; weight outcomes remain poorer still in low-income populations. Associations between stress, negative life events, and weight in digitally-delivered weight loss programs has not yet been identified, particularly in low-income populations.

**Methods:**
The Track program was delivered to 351 adults within a network of community health centers in North Carolina. Participants received 1...
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts
Thursday, November 2, 2017
Late-Breaking Poster Abstracts

year of digitally-delivered weight loss treatment, including automated weekly self-monitoring text messages, daily self-weighing, and weekly-to-monthly counseling calls from registered dietitians. Stress was measured in two ways: (1) perceived global stress measured at baseline, 6- and 12-months; and (2) negative life events summed during 12 months. Anthropometric measurements were collected in clinic.

Results:
Participants were 68.1% female and 50.7 (SD = 8.9) years old, with a mean BMI of 35.9 (SD = 3.9) kg/m². Participants who received the intervention lost significantly more weight than the control group (adj. Mdif= -3.8 kg; 95% CI, -5.1 to -2.5 kg; p < .0001). Participants across both groups reported 4.3 negative life events on average (SD = 4.4, range = 0-22). Reported global stress reduced significantly from baseline to 12 months (Mdif = -.64, SD = 4.4, t(313) = 2.594, p = .01) with no difference between treatment groups. Intervention effects were not moderated by global stress or experience of negative life events.

Conclusions:
Participants experiencing mild global stress and reporting negative life events are able to lose a statistically- and clinically-significant amount of weight using a digital health approach. Future investigations should examine the utility of flexible, mobile intervention options for populations who experience high stress.

T-P-LB-3652
Identifying and Quantifying the Zone of Indifference
Phillip Jasper, PhD, Jacqueline McSorley, BA Columbia SC, Eric Muth, PhD Clemson SC

Background:
New methods of weight management must mitigate external influences that affect eating behaviors and embrace advances in technology. The Bite Counter is a wearable tool that monitors intake by counting the bites a wearer takes. The purpose of this study was to determine if the “zone of indifference,” where people can eat more or less without reporting a noticeable difference in satiety, actually exists by quantifying the boundaries of the zone. It was hypothesized that changes in eating behavior would occur at bite targets outside of the zone when participants were aware of their eating targets. No changes in eating behavior were expected at bite targets within the zone.

Methods:
Data were collected from 208 participants eating macaroni and cheese in a laboratory setting. In a 2 x 6 between-subjects design, the participants were either given a specific bite count target or told to stop eating when an alarm sounded. The bite targets ranged from 12 to 22 bites in increments of two. The alarm, if present, was set to the bite target. Bite count was measured post-meal along with grams consumed, bite size, and post-meal satiety.

Results:
Results from the study showed a positive correlation between bite count and bite target in the alarm condition (r = .765) and that bite count increased up until bite target 20 before leveling off in the bites condition. It was shown that grams consumed and bite target were moderately positively correlated in the alarm condition (r = .303) and grams consumed increased up to bite target 16, leveled off, and then decreased beyond bite target 20 in the bites condition. Bite size increased in the bites condition for bite targets 12 through 16, but no change was observed in the alarm condition. Post-meal satiety levels held constant for bite targets 18 and 20 but surpassed the “slightly full” threshold at bite target 22.

Conclusions:
Results suggest the zone of indifference is plausible and, under the experimental conditions in this study, was 18-20 bites per meal.

T-P-LB-3653
Effects of Oral and Intravenous Lipid Administration on Hormones Affecting Energy Balance
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Background:
Proglucagon-derived hormones and especially GLP-1 and glucagon are significantly affected by nutrient intake and by energy balance. Similarly, the secretion of activins and inhibins is reduced in energy deprivation states. Aim of our study was to investigate the effect of oral versus intravenous lipid administration i) on the secretion profile of oxyntomodulin, glicentin, GLP-1 and glucagon, ii) on possible correlations between all the proglucagon-derived hormones, iii) on the secretion profile of activins and follistatins.

Methods:
Oxm, Glc, Glucagon, GLP-1, Follistatin and Follistatin-like 3, Activin A and Activin B were measured in a prospective interventional study including 26 subjects randomized to receive an oral lipid load, a 10% iv lipid emulsion, a 20% iv lipid emulsion, or an iv saline infusion.

Results:
All the proglucagon-derived hormones were significantly elevated after oral lipid intake, while they remained unchanged after intravenous lipid administration. Oxm was strongly correlated with Glicentin (r=0.917, p<0.0001). Both Oxm and Glicentin were also significantly correlated with Glucagon and GLP-1 (Oxm-Glucagon r=0.681, Glc-Glucagon r=0.517, Oxm-GLP-1 r=0.538, Glc-GLP-1
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts
Thursday, November 2, 2017
Late-Breaking Poster Abstracts

T-P.LB-3654
Effect of Probiotics on Gut Microbiome and Adiposity in Children
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Background:
Studies have shown that the gut microbiome can affect adiposity and inflammation in animal models. Changing the gut microbiome has been associated with decreased fat mass and inflammation as well as improved metabolism. Probiotics may be a safe method of altering the gut microbiome and subsequent adiposity. Our goal was to examine the effect of probiotics on altering the gut microbiome, decreasing fat mass, and improve inflammatory markers in overweight/obese (OW/OB) children.

Methods:
Children between 7-16 years old were randomized to participate in a double-blind placebo-controlled trial lasting 12 weeks. Thirty-nine parent-child dyads with an OW/OB child were randomized to the “probiotic (VSL#3) + high F/V diet” arm or “placebo + high F/V diet” arm. Probiotic/placebo pill compliance was self-reported and new pills were supplied weekly. Adiposity was measured with DEXA scans. Chi-square analysis and independent sample/paired t-tests were used to determine differences between and within groups.

Results:
The sample included 56% males, mean age 12.6 years (SD 2.96), mean child BMIz 2.0 (SD 0.48). Reported adherence to pill consumption was similar in both groups: 79% probiotic group, 72% placebo group (p = 0.31). There were significant within-group changes in BMIz in both the probiotic and placebo groups (p<0.003 and 0.001, respectively). However, there was no significant between-group differences in BMIz or fat mass (Table 1). Among participants with >75% probiotic adherence, there was a greater decrease in BMIz compared to all comers (-0.08 vs. -0.11, p=NS).

Conclusions:
Probiotics did not significantly affect changes in adiposity or BMIz. This may be related to the small sample size, variability in dietary changes, and duration of intervention. Nevertheless, there were greater effects among participants with >75% probiotic adherence. Additional trials are necessary to examine the effect of probiotics on adiposity and BMI percentile in a larger sample with additional efforts to improve compliance.

T-P.LB-3655 - WITHDRAWN

T-P.LB-3656
Shape Up! Study: Utilizing 3D Optical Body Scans to Accurately Visualize Body Fat Distribution
Michaela Piel, BS CA, Markus Sommer, BS, Bennett Ng, BS, Briana Bourgeois, BS, Natasha Din, MD MAS, Bo Fan, MD, Andrea Garber, PhD RD, Nisa Kelly, MS, Suneil Koliwad, MD PhD, Matthew Lin, Yilin Nie, MS, Isaac Tian, BS Seattle WA, Brian Curless, PhD, Steven Heymsfield, MD, FTOS Baton Rouge, John Shepherd, PhD

Background:
Over 2 million adults die each year due to illnesses associated with excess adiposity. Need for non-invasive, accessible measurement of adiposity has led to reliance on waist circumference and BMI. We asked if fat mass and distribution can be accurately measured using 3D optical (3DO) scanning, which many fitness centers have. We estimated fat mass index (FMI), visceral adipose tissue mass (VAT), and created pseudo-DXA fat visualizations from 3DO scans.

Methods:
From the Shape Up! Adults cohort study, 176 participants’ (72 men) data was available, including Hologic Horizon/A whole-body DXA and Fit3D Proscanner 3DO scans. Like image types were spatially registered using 105 and 75 fiducial points for DXA and 3DO scans, respectively. Statistical appearance and shape modeling were then performed on each image type. The sex-specific population variances for shape (3D0) and appearance (DXA) were captured as principal components (PC) resulting in 4 PC models: PCDXA_men, PCDXA_women, PC3DO_men, PC3DO_women. LASSO regression was used to predict FMI and VAT from PC3DO modes. Stepwise linear regression was used to predict PCDXA modes from PC3DO modes. The predicted PCDXA values of each participant were then inverted to create a pseudo-DXA fat image.
Results:
It took 32 PCDXA_men and 38 PCDXA_women modes to describe 95% of the fat variance. Similarly, 10 PC3DOs described 95% of the shape variances. PC3DO accurately estimated FMI and VAT with R^2[RMSE] values of 0.83[1.14 kg/m^2] and 0.59[0.17 kg] for men and 0.94[0.93 kg/m^2] and 0.73[0.15 kg] for women. The pixel-by-pixel differences in fat mass between actual and predicted DXA values had no mean bias and RMSE values of 0.013 g for men and 0.015 g for women.

Conclusions:
FMI and VAT can be accurately estimated from 3DO scans in both men and women. Furthermore, DXA fat distribution can be estimated and visualized exclusively from 3DO scans. To our knowledge, this is the first time detailed fat distributions have been derived from 3DO scans.

T-P-LB-3657
Innovative Anthropometric Prediction of Total Fat Mass Without Resort to Biomedical Imaging
Hanen Samouda, PhD Strassen

Background:
Obesity definition was mainly based on body mass index (BMI) calculation, which is, yet, more a global weight assessment than a total fat mass (TFM) measurement. Previously published alternatives to assess TFM were either based on skinfolds thickness and not easily reproducible especially in children with obesity, or on simple anthropometric measurements such as waist circumference (WC), more predictive of abdominal adiposity. Conversely, dual energy x-ray absorptiometry (DXA) has been highlighted as the gold standard for TFM assessment as is most reproducible and accurate, but the method is expensive and not always available. The aim of the present work was to develop predictive models of TFM in European youth, based on the association of a limited number of simple, reproducible and easy to perform anthropometric measurements.

Methods:
Multivariable linear association of WC and hip circumference (Hip C) better predicted TFM than any other indicator usually used (single BMI, waist circumference, waist-to-hip ratio and/or skinfold thickness): Boys: TFM= 0.27 WC + 0.67 Hip C – 1.28 Tanner stage - 57.452 (R2: 91.4%. SEE: 3.26). Girls: TFM= 0.35 WC + 0.69 Hip C – 66.556 (R2: 90.8%. SEE: 4.58).

Conclusions:
Prediction of TFM by adding an anthropometric adiposity surrogate located at the level of the trunk (WC) to a 2nd one located at the level of the legs (hip circumference) may be the best choice to easily and accurately predict TFM.

T-P-LB-3658
Picturing Individualized 3D Body Shape Change From Fat Loss and Muscle Gain: The Shape Up! Study
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Background:
Over half of all participants discontinue exercise programs within one year. Value placed on personal aesthetics is a powerful predictor of compliance to weight-loss regimes. Thus, providing a realistic target for body shape may improve treatment compliance. 3D optical whole-body imaging is an accessible method of body composition assessment and shape visualization. In this study, we developed data-driven statistical models to estimate body composition from 3D scans, and we derived deformable 3D shape models representing fat and muscle changes.

Methods:
720 healthy adults are being recruited as part of the Shape Up! Adults cohort study. Participants undergo 3D whole-body surface scans on a Fit3D Proscanner and a whole-body DXA scan on a Hologic Horizon/A. For this analysis, 3D scans were spatially registered by an exercise physiologist using 75 fiducials. PCA and LASSO were used to develop models to predict fat mass (FM) and fat-free mass (FFM) from body shape. Age, height, FM, and FFM were mapped to body shape via manifold regression, enabling data-driven models deformable to specific changes in FM and FFM.

Results:
Data were collected on 176 healthy adults (72 male). Mean [SD] BMI (kg/m^2) was 27.7 [5.3] for men and 27.3 [6.6] for women. FM and FFM were accurately estimated from PC modes capturing 95% of 3D variation: R2 [RMSE (kg)] of 0.83 [3.67] and 0.90 [3.71] respectively for males, and 0.94 [2.38] and 0.91 [2.52] for females. Python and Blender were used to visualize participants at their current shape and for any combination of FM and FFM changes of up to ±20 kg each, representing BMI 16 to 40.
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts

Thursday, November 2, 2017
Late-Breaking Poster Abstracts

Conclusions:
Body composition can be estimated from 3D optical scans in adults. To our knowledge, this is the first body composition model that can anticipate shape changes from target fat and muscle mass. With more Shape Up! data, this model can extend to shapes associated with diet, blood markers, and genetics. This tool may provide powerful motivation to those seeking a healthier body shape.

T-P-LB-3659
Health System Strategies to Prevent Excessive Pregnancy Weight Gain: A Meta-analysis
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Background:
Excessive gestational weight gain (GWG) is associated with adverse maternal and child health outcomes. Health system strategies have been employed to prevent excessive GWG but with variable success. Further analysis is needed to inform which strategies are most effective compared to routine prenatal care and among women who are overweight or have obesity. This meta-analysis is to determine the relative effectiveness of three health system strategies for optimizing GWG: nutrition-only, exercise-only, nutrition-plus-exercise interventions.

Methods:
PubMed, Google Scholar, and Muktabhant et al 2015 were searched. ANOVA was used to determine if significant differences in amounts of GWG exist between strategies using the 2009 National Research Council and the Institute of Medicine guidelines for optimal GWG. We completed additional sub-analyses to determine the impact of the three strategies on women who are overweight or have obesity.

Results:
Of 66 identified studies, 31 contributed data (n=8,558 participants). Compared to routine prenatal care, nutrition-only interventions were significantly associated with reduced GWG (p=0.013). Exercise-only (p=0.069) and nutrition-plus-exercise (p=0.056) interventions trended towards reduced GWG. Supervised (p=0.61) and unsupervised (p=0.494) exercise programs were no different. Sub-analyses on studies of women who are overweight or have obesity produced similar results: nutrition-only (p=0.011), exercise-only (p=0.308), nutrition-plus-exercise (p=0.129).

Conclusions:
Preventing excessive GWG is crucial, especially for women who are overweight or have obesity. Compared to routine prenatal care, nutrition-based intervention is the only health system strategy with significant impact on preventing excessive GWG. Among women who are overweight or have obesity, nutrition-only and nutrition-plus-exercise interventions hold the most promise compared to routine prenatal care.

T-P-LB-3660
Predictors of Weight Loss Maintenance Among Participants in the DPP/DPPOS Lifestyle Intervention
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Background:
Long-term weight loss maintenance (LT-WLM) is challenging for most overweight persons, yet many are successful. Identifying the characteristics of participants who achieve LT-WLM could inform personalized weight management recommendations. We examined the characteristics of participants achieving LT-WLM in the lifestyle intervention arm (ILS) of the Diabetes Prevention Program/Outcomes Study (DPP/OS), a randomized clinical trial in non-diabetic adults at high risk of developing type 2 diabetes.

Methods:
We evaluated predictors of LT-WLM, defined as 5% weight loss by Year 1, and then maintaining at least 5% weight loss during the subsequent 14 years, in relation to baseline demographic, psychosocial, and physiological factors, and initial lifestyle intervention success, using univariate and multiple logistic regression models.

Results:
A total of 640 (62.6%) ILS participants achieved ≥5% weight loss (mean ± SD: 11.0 ± 5.2%) at DPP Year 1. Of those 640 ILS participants, the percent that maintained at least a 5% weight loss ranged from 41% to 74% over the next 14 years. Univariate models demonstrated consistently higher odds of LT-WLM in association with the following baseline factors: male (vs. female), older age, higher systolic blood pressure, blood pressure medication use, higher sex hormone-binding globulin in men only, and higher follicle-stimulating hormone level, lower Dehydroepiandrosterone (DHEA) level, and lower DHEA Sulfate level in women only. Meeting the 6-month ILS weight loss goal of 7%, and greater % weight loss at Year 1, were also predictors of WLM. In multivariate models, only older age at randomization (OR per 10 years of age ranged from 1.28 to 2.32) and greater % weight loss at Year 1 (OR per 5% weight loss ranged from 1.30 to 5.99) independently increased the odds of LT-WLM.
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts
Thursday, November 2, 2017
Late-Breaking Poster Abstracts

Conclusions:
Initiating a lifestyle intervention in older age and greater weight loss in the first year are independent predictors of weight loss maintenance.

T-P.LB-3661
Baseline Data From a Large Randomized Trial Targeting Pregnancy-related Weight Gain in Black Women
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Background:
Obesity affects Black women more than any other racial/ethnic group in the US. Pregnancy represents a critical life stage of heightened vulnerability for new or persistent obesity, yet few interventions have been effective in reducing excessive gestational weight gain among Black women. We describe the design and baseline findings of a 2-arm randomized controlled trial testing a mobile health intervention to minimize excessive gestational weight gain vs. usual care in this high risk group.

Methods:
Methods: Black women in early pregnancy were recruited from waiting rooms of 2 large obstetric practices as well as Philadelphia Women, Infants, and Children’s clinics. Participants randomized to the intervention received a pilot-tested antenatal obesity treatment that included: empirical dietary and physical activity behavior change goals; daily skills and monitoring text messages with automated feedback; individualized web-based weight gain graphs; health coach counseling calls; and a Facebook support group. Data collection includes baseline (<22 weeks’ gestation), 36-38 weeks’ gestation, and 6-month postpartum anthropometric measures and assessments of demographics, mood, contextual factors and behavioral targets.

Results:
Trial enrollment completed in early 2017. At baseline, the majority of participants (n=262) met criteria for obesity (61%), were multiparous (62%), unmarried (79%), and on average 25.6±5.4 years old with an average gestational age of 14.0±4.0 weeks. While 82% completed high school, 61% met criteria for inadequate health literacy. Nearly 20% were food insecure. Just over half of participants reported their baby’s father wanted them to “eat more during pregnancy” and 80% did not have a gestational weight gain goal at enrollment. There were no differences in baseline characteristics between study arms.

Conclusions:
Participants represent a high-risk group for excessive weight gain in pregnancy with demonstrated need for goal setting around recommended gestational weight gain targets.

T-P.LB-3662
Prebiotic Supplementation and Plasma Trimethylamine N-Oxide in Adults at Risk for Type 2 Diabetes
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Background:
Distinct gut bacteria release trimethylamine (TMA) from dietary substrates, e.g., choline and L-carnitine. TMA enters the circulation and is oxidized in the liver to produce trimethylamine N-oxide (TMAO). TMAO is associated with type 2 diabetes (T2D) and increased risk of adverse cardiovascular events. Prebiotic supplementation has been purported to reduce TMAO production, but no studies have addressed this possibility.

Methods:
Sedentary, overweight/obese adults (BMI: 25-39.9) aged 40-75 yrs at risk for T2D (n=18) participated in a 6-week controlled feeding study. Participants were randomized to consume a standardized diet (55% carbohydrate, 30% fat [8% saturated fat]) with a daily 10-gram dose of either an inulin supplement or maltodextrin placebo mixed in water. Blood samples were obtained in the fasting state and every hour during a 4-hour high fat challenge (HFC) meal (820 kcal; 25% carbohydrate, 63% fat [21% saturated fat]) before and after the diet. Plasma TMAO and TMA-moieties (choline, L-carnitine, betaine) were measured using isocratic ultraperformance liquid chromatography-tandem mass spectrometry.

Results:
There were no significant differences in fasting or postprandial plasma TMAO or TMA moieties between groups at baseline. The magnitude of increase in TMAO with the HFC at baseline (-0.22 ± 1.1 µM/L vs. -0.16 ± 1.4 µM/L, P>0.05) and following the intervention (-0.33 ± 0.98 µM/L vs. -0.30 ± 0.95 µM/L, P>0.05) was not different in the prebiotic and placebo groups, respectively. Fasting and postprandial gamma-butyrobetaine concentrations were lower (p<0.05) in the prebiotic group at baseline and following the intervention compared with placebo (P>0.05 for interaction effect).

Conclusions:
In this study, prebiotic supplementation did not reduce fasting or postprandial TMAO in individuals at risk for T2D. Future studies are needed to identify interventions that effectively target TMA-releasing bacteria and reduce TMAO.
T-P.LB-3663
Dietary Intake and Weight Control Efforts in Patients Regaining Weight After Bariatric Surgery
Lauren Bradley, PhD Chicago, Joyce Corsica, PhD, Megan Hood, PhD Chicago IL, Mackenzie Kelly, PhD, Stephanie Kerrigan, MS Philadelphia PA, Molly DePrenger, RD

Background:
Although bariatric surgery is the most effective obesity intervention to date, weight regain is common. Adherence to stringent dietary recommendations is necessary for postoperative success. Little is known about the dietary habits and weight control efforts in patients who have regained weight since surgery.

Methods:
The current study is part of a larger trial evaluating the effectiveness of a behavioral intervention for postoperative weight regain. Dietary intake was assessed via computerized ASA24 to collect three 24-hour dietary recalls during one week, including two weekdays and one weekend day. Demographics, postoperative weight control attempts, and weight regain data were obtained via self-report.

Results:
Participants (ongoing enrollment; n=32 to date) were mostly female (87.5%) and mean age was 43.6±9.5 yrs. Mean time since surgery was 43.3±16.2 mos. Participants underwent sleeve gastrectomy (62.5%) or laparoscopic adjustable gastric banding (37.5%). Average maximum excess weight loss was 56.7%± 23.1%. Average regain of maximum lost weight was 46.4%. Most participants endorsed engaging in additional weight loss attempts since surgery (90.6%). Portion control was the most commonly reported strategy (62.5%), with a small subset of participants reporting use of more structured interventions, including use of medications (12.5%) and Weight Watchers (9.4%). Sixteen participants (50%) completed all dietary recalls. Average daily macronutrient intake was 72g of protein, 71g of fat, and 187g of carbohydrates. Only 56.3% consumed the recommended minimum 60g of protein daily.

Conclusions:
In a sample of bariatric surgery patients who have regained weight, most have engaged in additional weight loss attempts since surgery. Most importantly, they report over-consumption of calories, carbohydrates, and fat and insufficient protein intake, indicating important targets for intervention.

T-P.LB-3664
Systematic Review of RCTs for Dog-walking and Pilot Study with Fitbark and Fitbit M-Health Devices
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Background:
Dog owners are more likely to meet the American Heart Association’s recommendations for daily physical activity than people who do not own dogs. Dog-walking interventions that target increases in daily steps result in improved (human) cardiovascular outcomes and reduced stress responses. Despite this there are few randomized controlled dog-walking trials. We conducted (1) a systematic review of dog-walking studies and (2) a pilot intervention study.

Methods:
(1) A search using the terms ‘randomized controlled trial’ AND ‘dog walking’ resulted in 37 hits in PubMed, including 5 randomized controlled trials examining dog walking effects on human walking. We attempted to calculate Hedges g effect sizes (similar to Cohen’s d). (2) We also conducted a feasibility study of 3 pet and owner dyads to assess correlations between pet and owner daily steps and then a pilot study to assess if the goal of increasing pet steps, increases human steps.

Results:
(1): 3/5 RCTs had a medium effect size; the smallest had a small effect, and effect size could not be calculated for 1/5. (2) Using Fitbark and human Fitbit m-health devices, we found significant correlations between pet and owner daily steps, where r ranged from .64 to .93. Pet Fitbark and human Fitbit data was gathered hourly for a baseline phase (A), intervention phase (B) and post-intervention phase (A). For the intervention phase, the owner was asked to increase their pet’s (not their) activity by initiating more walks and play. This resulted in a large effect sizes for average daily pet steps (hedges g = 2.24) and a medium effect for average daily guardian steps from baseline to the intervention phase (hedges g = 0.64).

Conclusions:
Because dog-ownership is associated with higher income and living in the suburbs, dog-walking interventions involving dog-owners are difficult to scale-up. Future research is needed to make dog-walking interventions more scalable and easily disseminated.

T-P.LB-3665
Moderate Weight Loss Improves Ectopic Fat and Insulin Sensitivity in Metabolic Unhealthy Lean Asians
T-P-LB-3666
Effects of an Antenatal Intervention in Overweight and Obese Women on 18 Month Childhood Outcomes
Jodie Dodd, MD, PhD North Adelaide, Jennie Louise, PhD, Andrea Deussen, BHSc (Hons) North Adelaide, Andrew McPhee, MD, Julie Owens, PhD Adelaide SA, Jeffrey Robinson, MD

Background:
Our objective was to evaluate the effect of an antenatal dietary intervention in overweight or obese women on infant outcomes at 18 months of age.

Methods:
We conducted a follow up study of infants born to women who participated in the LIMIT trial during pregnancy, where infants at 18 months of age, and whose mother provided consent to ongoing follow-up were eligible. The primary follow-up study endpoint was the incidence of infant BMI z-score >85th percentile for infant sex and age. Secondary study outcomes included a range of infant anthropometric measures, neurodevelopment, and infant diet and physical activity patterns. Analyses were adjusted for maternal early pregnancy BMI, parity, study centre, socioeconomic status, age, and smoking status.

Results:
A total of 1,602 infants were assessed at age 18 months (Lifestyle Advice n=816; Standard Care n=786), representing 75.0% of the eligible sample (n=2,136). Overall, more than 46% of infants at 18 months had a BMI >85th percentile for infant age and sex. Poor dietary patterns were evident, with 50% of infants consuming fewer than 2 servings of vegetables each day, 60% consuming fried potatoes or other salty snacks more than once per week, and more than 80% consuming “extra” foods more than once per week. On average, infants spent 2.3 hours per day playing outside, and engaged in 2.2 hours of screen time per day, with average sleep duration of 11 hours per night. Very few parents (2.6%) of infants with BMI >85th percentile perceived their child to be overweight.

Conclusions:
Infants born to women who are overweight or obese during pregnancy are at high risk of early childhood overweight and obesity, and demonstrate poor dietary and physical activity patterns, which are evident at 18 months of age.

T-P-LB-3667 - WITHDRAWN

T-P-LB-3668
If You Use It, You Lose It: The Moderating Role of User Engagement With a Weight Loss Mobile App
Stephanie Goldstein, MS Providence RI, Evan Forman, PhD, Gerald Martin, BA Philadelphia PA, Brittney Evans, BA Philadelphia PA, Meghan Butrym, PhD Philadelphia PA, Adrienne Juarascio, PhD Philadelphia, Stephanie Manasse, MS Philadelphia PA
Background:
Given the established relationship between dietary lapses and weight loss failure, we developed a smartphone-based just-in-time adaptive intervention (JITAI) to prevent dietary lapses (called OnTrack). OnTrack seeks to predict and prevent dietary lapses through the provision of tailored, momentary interventions when risk for lapse is high. OnTrack has been associated with meaningful weight losses and reduced dietary lapses in our recent open trial. The current study sought to further understand the effectiveness of OnTrack by examining (1) the relationship between the proximal outcome (e.g., dietary lapses) and distal outcome of weight loss, and (2) the effect of app usage on the proximal-distal relationship.

Methods:
Overweight/obese (n=43) individuals used OnTrack during an 8-week mobile weight loss program. OnTrack assessed lapses and relevant triggers via repeated sampling methods (e.g., short surveys throughout the day), delivered in-the-moment alerts to lapse risk, and contained a library of interventions. Outcomes of interest were percent weight loss (at final assessment) and total lapses reported.

Results:
When controlling for survey response rate, there was not a significant association between lapses and weight loss (β=-.10, p=.53). Additional multiple regression models revealed that the relationship between lapses and weight loss was dependent on completion of surveys (β=-.34, p=.04) and library access (β=-.50, p<.01) such that individuals with greater app use demonstrated the expected relationship between lapses and weight loss. The moderating role of percentage of risk alerts opened was non-significant (β=.26, p=.12).

Conclusions:
For those using OnTrack consistently, fewer total lapses were related to greater weight losses. However, this relationship was not present among those who engaged with the app less. Results confirm that lapses are a viable proximal outcome for weight loss JITAI and highlight important methodological issues related to app-based treatment and assessment.

T-P.LB-3669
Effects of CHO-restriction on Fat Distribution and Metabolic Health in Older Adults With Obesity
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Background:
Accumulation of visceral adipose tissue (VAT) and insulin resistance place aging adults with obesity at particularly high risk of cardiovascular disease. By reducing insulin demand, carbohydrate (CHO)-restricted diet patterns that include foods such as whole eggs may promote loss of body fat, specifically from the visceral cavity, and improve metabolic health in aging adults with obesity. The objective of this study was to determine if consumption of a lower-CHO/high-fat diet (LCD) vs a standard CHO-based/low-fat diet (STD) results in loss of total and visceral fat, preservation of lean mass, and improvements in insulin resistance and the lipid profile.

Methods:
In a randomized clinical trial, 34 men and women age 60-75yrs. with obesity (BMI 30-40kg/m2) consumed either a LCD (<25:25:50%energy from CHO:protein:fat) or STD diet (55:25:20) for 8 weeks. Participants were not asked to restrict total energy intake. The LCD group was provided eggs and the STD group was provided breakfast bars throughout the study. Body composition by DXA, fat distribution by MRI, and fasting insulin, glucose, HOMA-IR and lipids by fasting blood draw were assessed at baseline and after the 8-week intervention.

Results:
Participants lost 9.7% and 2.1% total fat following the LCD diet and STD diet, respectively (p<0.01 for difference between diets). The LCD group experienced ~3-fold greater loss in VAT compared to the STD group (~23.0% vs -5.0%, p<0.01 for difference between diets) and greater decrease in HOMA-IR (p<0.01). Among those in the LCD group, there were significant decreases in LDL-C and triglycerides and an increase in HDL-C.

Conclusions:
When compared to a standard high-CHO, low fat diet, consumption of a diet lower in CHO supplemented with 3 whole eggs per day resulted in greater loss of fat mass, specifically from the visceral cavity. This diet pattern also resulted in significant improvements in indices of metabolic health including insulin resistance and the lipid profile.

T-P.LB-3670
Improved Body Composition With Ketogenic Diet in Ovarian/Endometrial Cancer Patients
Caroline Cohen, MS, RD Birmingham AL, Kevin Fontaine, PhD Birmingham AL, Rebecca Arend, Ronald Alvarez, Charles Leath, MD, MSPH Birmingham AL, Barbara Gower, PhD Birmingham AL

Background:
The glycolytic nature of cancer cells presents a potential treatment target that may be addressed by a low-carbohydrate, high-fat (i.e., ketogenic) diet. We tested the hypothesis that a ketogenic diet would improve body composition and lower insulin and IGF-I in women with ovarian or endometrial cancer.
Methods:
45 women with ovarian or endometrial cancer were randomized to either a ketogenic diet (KD, n=25; 70:25:5% energy from fat, protein, carbohydrate) or the American Cancer Society diet (ACS, n=20; high-fiber, low-fat). Body composition (DXA), and fasting serum insulin and IGF-I, were obtained at baseline and 12 weeks. Between-groups changes were assessed with ANCOVA, controlling for baseline values and weight loss; predictors of change in body composition were determined by regression analysis.

Results:
In comparison to participants in the ACS group, those in the KD group had greater reductions in total body fat (-5.2 kg v. -2.9 kg, P < 0.05) and android fat (-8.2 g v. -3.2 g, P < 0.05) at 12 weeks. The percent change in visceral fat mass was also greater in the KD group than in the ACS group (-21.2% vs. -4.6%, P < 0.05). The change in total lean mass did not differ significantly between groups. In addition, the KD group demonstrated larger decreases in fasting concentrations of insulin (-3.88 uU/mL vs. -2.1 uU/mL, P < 0.05) and IGF-I (-28.4 ng/mL vs. +2.1 ng/mL, P < 0.05), independent of weight loss. In regression analysis, both diet group and the change in fasting insulin concentration were significant predictors of the percent change in visceral adipose tissue (P < 0.05).

Conclusions:
In women with ovarian or endometrial cancer, a ketogenic diet may reduce total and visceral fat mass, perhaps by reducing insulin concentration. A metabolic environment characterized by low insulin and IGF-I may impair the ability of cancer cells to multiply. Clinicaltrials.gov registration: NCT03171506. Funded by the American Institute for Cancer Research, DRC P30DK079626, and NORC P30 DK56336

T-P-LB-3671
Two Weeks of Exercise Reduces Metabolic Syndrome Severity in Obese Adults With Prediabetes
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Background:
Individuals with prediabetes are at risk for type 2 diabetes and cardiovascular disease. While exercise is an effective lifestyle modification that improves individual components of the metabolic syndrome (MetS), there is limited research examining the effects of short-term exercise dose on MetS disease severity in adults with prediabetes. We tested the hypothesis that short-term exercise would reduce MetS severity and incidence in prediabetic adults.

Methods:
Twenty-five obese adults with prediabetes (61.2 ± 1.5 yrs; 33.5 ± 1.1 kg/m2) were randomized to 12 supervised work-matched continuous (n = 14, 70% HRmax) or interval (n = 11, 90% HRmax for 3 min and 50% HRmax for 3 min) sessions over 2-weeks for 60 min/d. MetS severity (z-scores), ATP III criteria, and incidence were used to characterize MetS before and after training. Three-day food logs were also collected pre- and post-testing to assess ad-libitum diet.

Results:
Individuals were collapsed into a single group as exercise dose did not affect any measures. The intervention increased aerobic capacity (VO2peak, 19.7 ± 0.8 vs. 20.8 ± 1.0 ml/kg/min, P < 0.01) and decreased body weight (92.4 ± 3.0 vs. 91.7 ± 3.0 kg, P < 0.01). Short-term training reduced MetS z-scores (-0.10 ± 0.48 vs. -0.55 ± 0.54, P = 0.06) and ATP III criteria (2.4 ± 0.2 vs. 2.1 ± 0.2, P = 0.03). Further, MetS incidence decreased by 33% (12 vs. 8, P = 0.001). While there was no change in caloric intake or relationship between macronutrients and MetS severity, increased VO2peak tended to correlate with reduced MetS z-scores (r = -0.38, P = 0.10).

Conclusions:
Two weeks of exercise, independent of intensity, has a favorable effect on reducing MetS severity and incidence in adults with obesity and prediabetes prior to clinically meaningful weight loss. Additional research is warranted to determine the mechanism(s) by which fitness related adaptations contribute to MetS improvement.

T-P-LB-3672
Telemedicine-based Health Coaching Is Novel for Inducing Weight Loss and Improving Metabolic Health
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Background:
Health coaching (HC) interventions have been delivered through telephone, web-based chatting, or a combination of in-person (IP) and web-based instruction. One delivery strategy for HC is video conferencing (VC). VC may improve patient access to health professionals while offering similar benefits of in-person (IP) interaction from a convenient setting. This study assessed the ability of HC delivered via VC to favorably change physical activity (PA), body weight, and metabolic markers in adults.

Methods:
Thirty adults (BMI≥30 kg/m2) were randomly assigned to a VC, IP, or control (CG) group, 10 members each. All participants received a wireless accelerometer watch and weight scale to sync with their personal smartphones. The watch (steps/day) and scale (body weight)
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts

Thursday, November 2, 2017
Late-Breaking Poster Abstracts

data were transmitted to a secure electronic medical records database. Pre- and post-intervention assessments included body weight and fasting venous blood sampling. VC and IP members received didactically similar, individualized 0.5 hr HC sessions delivered weekly in accordance with group assignment. With agreement from the medical director, the exercise physiologist and registered dietician based their HC on data participants uploaded via smartphone apps. Weight loss and weekly average of steps/day were analyzed via ANCOVA. Within and between-group changes in weight (kg), glucose, insulin, HbA1c, and HOMA-IR were analyzed via ANOVAs.

Results:
Pre- to post-weight loss was significant for VC (-8.80±3.5kg; 7.7%; p>0.05) but not IP (-3.2±4.5kg; 3.4%) or CG (-2.9±3.9kg; 3.3%). VC took more steps/day than did IP at week 4 and CG at weeks 6, 8, 9, and 11 (p<0.05). No within- or between-group differences were found for glucose, insulin, and HbA1C. HOMA-IR decreased (p≤.05) for VC only.

Conclusions:
Weekly health coaching through video conferencing is a viable tool for increasing PA and inducing weight loss.

T-P-LB-3673
Can Daily Vinegar Ingestion Improve Insulin Resistance and Reduce Adiposity in Healthy Adults?
Carol Johnston, PhD, RD Phoenix AZ, Olivia Baker

Background:
A recent meta-analysis concluded that vinegar consumption could be considered effective adjunct therapy for improving glycemic control. Emerging research in cell culture and animal models is suggesting an additional benefit for vinegar ingestion: reductions in adiposity via activation of AMP-activated protein kinase.

Methods:
This 8-week, parallel arm, randomized controlled trial examined the efficacy of daily vinegar ingestion (2 tablespoons red wine vinegar [6% acidity] twice daily with meals; 3.6 g acetic acid) versus the control treatment (2 vinegar tablets daily with meals; 0.0225 g acetic acid; NowFoods, Bloomingdale, IL) on HOMA-IR and visceral fat levels in healthy, nonsmoking, sedentary adults (18-45 y; 22-35 kg/m2). The study was approved by the university IRB, and all participants provided written consent. Qualifying participants were stratified by gender, age, weight, and waist circumference, and randomly assigned to the treatment (VIN) or the control group (CON). Participants were unaware that the vinegar tablets represented a control treatment.

Results:
To date, eleven VIN participants have completed the trial (28.6±7.0 y; 29.3±4.4 kg/m2; daily trial compliance, 98.3%), and twelve CON participants have completed the trial (28.0±7.7 y; 28.2±5.9 kg/m2; daily trial compliance, 87.8%). HOMA-IR scores tended to fall in the VIN group after the 8-week trial in comparison to the CON group (-0.66±1.3 vs. +0.31±1.1; p=0.067). Despite a 3% reduction in visceral fat in the VIN group (as compared to a 5% rise in visceral fat in the CON group), there was not a significant difference between groups for the 8-week change in visceral fat (-18.6±6.2 vs. +8.8±48.1 cm3; p=0.256). Furthermore, the 8-week changes in body mass and body fat percentage did not differ between groups.

Conclusions:
These preliminary data suggest a possible benefit of vinegar ingestion for improving glucose control in healthy adults, but daily vinegar ingestion for reducing adiposity is not supported.

T-P-LB-3674
Angiopoietin-like Protein 3 Levels in Response to a High PUFA Diet
Sepideh Kaviani, PhD(c) Athens GA, Jada Stevenson, PhD, Assistant Professor, Chad Paton, PhD Athens GA, Jamie Cooper, PhD Athens GA

Background:
Angiopoietin-like protein 3 (ANGPTL3) is an inhibitor of lipoprotein lipase (LPL) activity and promotes triglyceride storage into adipose tissue. Purpose: Determine whether a diet rich in polyunsaturated fats (PUFAs) can alter metabolism of saturated fats (SFA) through changes in ANGPTL3.

Methods:
26 normal weight adults were randomized into either a control group, or a PUFA group. All participants completed a pre-diet visit (v1) where they were given two high-SFA meals. Blood draws were taken at fasting and every 2h postprandially for a total of 8h. After v1, participants completed a 7d diet of the same macronutrient proportions (50% carbohydrate, 35% fat, 15% protein) but with different fatty acid compositions (PUFA = 21% of total energy from PUFAs vs. Control = 7% of total energy from PUFAs). All participants then completed the post-diet visit (v2) identical to v1.

Results:
For fasting values, the PUFA treatment led to a decrease in ANGPTL3 (238.6±12.6 vs. 199.1±13.1pg/mL, p<0.05; for v1 vs. v2, respectively) with no change in the control group (247.3±26.0 vs. 243.6±17.3pg/mL, ns; for v1 vs. v2, respectively). For the time-course of SFA meal response, the PUFA group showed a significant reduction in post-meal ANGPTL3 levels (area under the curve (AUC):
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts

Thursday, November 2, 2017
Late-Breaking Poster Abstracts

195.8±9.2 vs. 169.4±10.8 pg/mL/8h, p=0.02; for v1 vs. v2, respectively) whereas the control group did not change between v1 and v2 (AUC: 181.4±19.0 vs. 203.6±13.9 pg/mL/8h, ns; for v1 vs. v2, respectively).

Conclusions:
A PUFA-rich diet resulted in decreased fasting and postprandial ANGPTL3 levels while there was no change in the control. Since ANGPTL3 has been linked to the inhibition of LPL, decreased ANGPTL3 levels from high PUFA intake could increase LPL activity and potentially reduce fat deposition in adipose tissue by promoting oxidation in heart and skeletal muscle.

T-P-LB-3675
Reducing Type 2 Diabetes Risk: Is a Diet Based on the Dietary Guidelines Effective?
Nancy Keim, PhD Davis California, Fanny Lee, MS RD Davis CA, Excel Que, BS CA, William Horn, MS Davis CA, Sridevi Krishnan, PhD Davis CA

Background:
The Dietary Guidelines for Americans (DGA) provides recommendations for health and prevention of chronic diseases. However, these dietary guidelines have yet to be tested in a controlled trial for its effect on health outcomes. The objective was to determine if risk for type 2 diabetes changes in response to a DGA diet compared to a typical American diet (TAD).

Methods:
We conducted a double-blinded, randomized, 8-wk controlled feeding, weight maintenance trial of overweight/obese women, 20-65 y, with ≥ 2 indicators of metabolic syndrome. Participants were randomized to follow either DGA or TAD diets. Oral glucose tolerance tests (OGTT) were administered at baseline and wk 8. Measures of insulin resistance were calculated including HOMA-IR and Matsuda Index. Physical activity was monitored using Actical (accelerometer) at baseline, week 5 and week 8 of the study. Results were analyzed by linear mixed effects modeling.

Results:
The participants maintained their body weight while on the study (mean change ± SD: -1.4 ± 1.4 kg). There was no difference in body weight change between DGA and TAD. In the DGA group, fasting glucose and insulin did not significantly change between baseline and wk8 (Glucose: 99.3 ± 11.6 vs. 100.3 ± 10.0 mg/dL; insulin: 15.3 ± 9.8 vs. 15.6 ± 10.9 mIU/mL), nor did 2h glucose response (mean: 136.0 ± 37.0 vs. 141.4 ± 34.5 mg/dL). Values for HOMA-IR: 3.2 ± 2.2 vs. 3.3 ± 2.5, and Matsuda index: 3.4 ± 2.1 vs. 3.5 ± 1.7, were also not different between baseline and wk 8 in the DGA group. The volunteers maintained their physical activity levels throughout the study (mean min of moderate intensity activity/d at wks 0, 5, & 8: 18.7 ± 23.6; 14.6 ± 14.4; & 17.2 ± 19.3). There were no differences between TAD and DGA diet in these parameters.

Conclusions:
Under conditions of stable body weight and without changes in physical activity, consuming a diet based on the DGA resulted in no improvements in fasting or OGTT glycemia or insulin resistance.

T-P-LB-3676
Flipping the Metabolic Switch: Understanding and Applying Health Benefits of Fasting
Stephanie Lee, BS Gainesville FL, Stephen Anton, PhD Gainesville FL, Keelin Moehl, BA Baltimore MD, William Donahoo, MD Gainesville FL, Kristetina Marosi, Arch Mainous III, Christiaan Leeuwenburgh, Mark Mattson

Background:
Intermittent fasting (IF) is a term used to describe a variety of eating patterns in which no or few calories are consumed for time periods that typically range from 16 hours to several days, on a recurring basis. Emerging findings suggest that IF can induce a metabolic switch from glucose to fatty acid-derived ketones which shifts metabolism from lipid/cholesterol synthesis and fat storage to mobilization of fat through fatty acid oxidation and fatty-acid derived ketones. The effect this eating pattern has on changes in body composition in humans, however, is not well understood.

Methods:
We reviewed the literature using PubMed to identify clinical trials in which the effects of IF regimens on changes in fat mass and/or lean tissue in overweight and obese individuals were examined. Studies were only included if the IF intervention tested was 4 weeks or longer.

Results:
In the vast majority studies reviewed, IF interventions produced significant reductions in fat mass and body weight, even without caloric restriction per se. Findings were less consistent, however, for changes in lean tissue with some studies reporting no change and other studies reporting significant reductions in lean tissue.

Conclusions:
IF regimens appear to be an effective approach for reducing body fat and body weight in overweight individuals, but the effect of IF regimens on changes in lean tissue is less clear. Future randomized controlled IF trials should use biomarkers of the metabolic switch (e.g., plasma ketone levels) as a measure of compliance and the magnitude of negative energy balance during the fasting period.
**T-P.LB-3677**  
**A Qualitative Study: How Emotions Influence Physical Activity and Diet in Metabolic Syndrome Patients**  
Rachel Millstein, PhD, MHS *Boston MA*, Anne Thorndike, MD, MPH *Boston MA*, Elyse Park, PhD, MPH, Jeff Huffman, MD *MA*

**Background:**  
Positive psychology (PP) interventions aim to increase positive emotions (e.g., optimism, positive affect) and are effective for improving health behaviors in patients with CVD and diabetes. To inform the development of a PP intervention to promote healthy lifestyle in patients at risk for obesity and related diseases, we are conducting a qualitative study of patients with metabolic syndrome (MetS) to understand the influence of emotions on physical activity and diet.

**Methods:**  
Primary care patients from a large healthcare system were eligible if they had 3 of 5 MetS criteria (abdominal obesity, elevated blood pressure, elevated triglycerides, low HDL, or elevated fasting glucose) and suboptimal physical activity (<150 minutes/week of moderate-vigorous physical activity (MVPA)). Eligible patients completed a phone interview about their emotions, motivation, and ability to be active or eat a healthy diet.

**Results:**  
We have interviewed 8 of a planned 20 participants thus far; mean age: 63.6, mean BMI: 35.0 m/kg2. Mean self-reported MVPA: 106 minutes/week. 50% report following a low fat/diabetic diet “a little,” or “some of the time.” 6 of 8 participants reported that increasing physical activity is their priority, citing social support and availability of resources as top strategies to help. All participants noted bidirectional associations between emotions and health behaviors. Feeling more positively helps them be more physically active and eat a healthier diet, and being more physically active or eating healthier helps them feel more positive and optimistic. Negative emotions (e.g., stress, depression, shame) were noted to impede healthy behaviors.

**Conclusions:**  
Participants in this qualitative study reported high motivation to increase their physical activity but identified emotional barriers. Results will provide insights needed to develop a group-based PP and motivational interviewing intervention to increase physical activity among patients at high risk for obesity and cardiometabolic disease.

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**T-P.LB-3678**  
**Prebiotic Supplementation With Inulin and Metabolic Health in Adults At-risk for Type 2 Diabetes**  
Cassie Mitchell, MS *Blacksburg VA*, Mary Baugh, MS, RD, Tanya Halliday, PhD, RD *Denver CO*, Ryan McMillan, PhD *Blacksburg VA*, Andrew Neilson, PhD *Blacksburg VA*, Monica Ponder, PhD, Matthew Hulver, PhD *Blacksburg VA*, Brenda Davy, RD *Blacksburg VA*, Kevin Davy, PhD *Blacksburg VA*

**Background:**  
Prebiotics improve metabolic function in rodents. However, the relevance to humans is not clear. We hypothesized that the prebiotic inulin would improve insulin sensitivity and skeletal muscle metabolic flexibility in adults at elevated risk for type 2 diabetes (T2D).

**Methods:**  
Twenty-two overweight/obese (BMI: 31.32 ± 2.86 kg/m2) adults (age: 54.4 ± 8.3 years) at elevated risk (ADA risk screener score ≥ 5) of T2D were randomized to 6-weeks of daily supplementation with either inulin or a placebo and consumed a standardized control diet. Intraceptaneous glucose tolerance testing (IVGTT) and fasting and postprandial (high-fat meal) skeletal muscle biopsies to assess in vitro metabolic flexibility were obtained before and following the intervention.

**Results:**  
There were no differences in age, BMI, blood glucose concentration, or hemoglobin A1c (all P>0.05) between groups at baseline. Neither insulin sensitivity (SI), nor other IVGTT-related variables were different between the inulin and placebo groups at baseline (all P>0.05). There were no differences in the magnitude of change in SI between either group (placebo: Δ 0.614 ± 3.451 vs. inulin: Δ 0.177 ± 1.471, p=0.244), or other IVGTT-related variables following the intervention (all p-values > 0.05). There was no difference in metabolic flexibility at baseline (meal effect; placebo Δ 19.04 ± 12.55, inulin Δ 12.91 ± 14.27, p=0.355). Metabolic flexibility decreased in the placebo group compared to inulin following the intervention (meal effect: placebo Δ -9.346 ± 12.36 vs. inulin Δ 9.21 ± 11.60, p=0.006). There were no changes in glucose oxidation (p=0.958) or fatty acid oxidation (p=0.973) following the intervention.

**Conclusions:**  
Our preliminary findings suggest that inulin supplementation does not improve insulin sensitivity or skeletal muscle metabolic flexibility in adults at elevated risk of T2D. Future studies will need to evaluate the efficacy of inulin to mitigate disease risk in other populations.

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**T-P.LB-3679**  
**Effects of Time-Restricted vs Unrestricted Eating on 24 h Glycemic Profiles in Humans**  
Evelyn Parr, PhD *Melbourne, Victoria*, Brooke Devlin, PhD, John Hawley, PhD
Background:
Time-restricted feeding (TRF), where energy is consumed within a defined, reduced time period (~8 h), improves metabolic profiles and reduces weight gain in rodent models. To investigate TRF in humans, we investigated the effect of TRF versus unrestricted feeding (URF) on circadian glucose and insulin profiles.

Methods:
In a randomized, cross-over design, eleven sedentary males (age 38.4 ± 5.1 y; BMI: 32.1 ± 2.1 kg/m2) completed two isoenergetic dietary protocols, consuming three main meals of a high-fat diet (50% fat, 30% carbohydrate, 20% protein) at either 1000, 1300 and 1700 h (TRF; 8 h) or 0700, 1400 and 2100 h (URF; 15 h), for five consecutive days. On the fifth day, participants attended the laboratory for 24 h for hourly blood samples from 0700 to 2300 h and 2 hours from 2300 to 0700 h to assess circadian glucose and insulin profiles.

Results:
Total 24 h area under the curve (AUC) tended to be lower for TRF compared to URF for glucose (TRF: 124 ± 7 mmol/L/h; URF: 128 ± 15 mmol/L/h; P=0.07) and insulin (TRF: 1096 ± 409 µIU/mL/h; URF: 1214 ± 507 µIU/mL/h; P=0.11). Incremental AUC (iAUC) for glucose in the 3 h postprandial meal periods showed a later breakfast and earlier dinner in the TRF condition lowered iAUC (Breakfast, TRF: 1.2 ± 0.3 mmol/L/h, URF: 2.1 ± 1.3 mmol/L/h, P=0.04; Dinner, TRF: 2.9 ± 1.0 mmol/L/h, URF: 6.0 ± 4.1 mmol/L/h, P=0.02), with no differences following lunch (P=0.54).

Conclusions:
In humans, time-restricted feeding tended to improve the regulation of 24 h blood glucose and insulin levels. Further hormonal analysis is required to ascertain the potential mechanism for a later breakfast and earlier dinner improving glycaemic control, which has important implications for preventing the development of type 2 diabetes.

T-P.LB-3680
Regulation of Proglucagon-Derived Hormones in Healthy and in Obese After Bariatric Surgery
Jagriti Upadhyay, Nikolaos Perakakis, MD, Olivia Farr, MD Boston MA, Athanasios Anastasilakis, MD, PhD, Christos Mantzoros, MD Boston MA

Background:
Glucagon and GLP-1 have been extensively investigated, while the role of the other proglucagon-derived hormones remains unclear. The aim of our study was to investigate the physiology of oxyntomodulin (Oxm) and glicentin (Glc) in healthy subjects, as well as in obese subjects after bariatric surgery.

Methods:
Oxm, Glc and glucagon were measured in a cross-sectional observational study and two prospective interventional studies in: i) 122 healthy, young individuals of both sexes and in a subset of 20 subjects undergoing a 30-minute aerobic exercise and 18 subjects undergoing a standardized mixed meal test, ii) 5 morbidly obese subjects undergoing a standardized mixed meal test before and after surgery.

Results:
Oxm and Glc are reduced after exercise (before vs after exercise: Oxm 253±112 vs 218±89, p=0.019, Glc 24.82±8.65 vs 20.82±8.65, p=0.015) and increased after mixed meal in healthy individuals (before vs after meal: Oxm 205±492 vs 317±129, p<0.001, Glc 10.8±6.27 vs 17.35±11.59, p=0.001). Glucagon levels were not affected in both conditions. Bariatric surgery improves the postprandial secretion profile of Oxm and Glc (before vs 6 months after surgery AUC: Oxm 24231±2693 vs 9269±31953, p=0.06, Glc 2133±326 vs 9677±3816, p=0.05), while it does not affect the secretion profile of glucagon. Oxm levels were strongly positively correlated with Glc and weaker with glucagon (Oxm-Glc, r=0.874, Oxm-glucagon=0.487, Glc-glucagon=0.474, all p<0.001).

Conclusions:
The proglucagon-derived hormones Oxm and Glc decrease in energy demanding processes and increase after nutrient intake. Improvement of their secretion profile after bariatric surgery indicates a potentially important supporting role for both hormones in energy balance.

T-P.LB-3681
Consumption of High Protein Meal Replacements Improves Glycemic Response in Type 2 Diabetic Adults
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Background:
Type 2 diabetes mellitus (T2DM) is related to excess weight and obesity in adults. Medically weight managed programs have shown improvements in glycemic outcomes associated with weight loss. Developing meal replacements nutritionally designed to enhance blood glucose control may further improve health outcomes. The objective of this study was to determine if high protein meal replacements (40% protein, 40% carbohydrate, 20% fat) provide better postprandial blood glucose response relative to two control products.

Methods:
This randomized, crossover clinical trial of adults with controlled T2DM assessed glycemic and insulin responses following ingestion of an isocaloric amount of six meal replacements. Subjects were randomized to consume one of four nutritionally complete meal
replacements (OPTIFAST®) or two control meal replacement products following an overnight fast on six separate days, 7 days apart. No antidiabetic medication was provided during this time. Blood glucose and insulin levels were collected at 0, 10, 20, 30, 60, 90, 120, 150, 180, 210, and 240 minutes. Area under the curve (AUC), peak concentration (Cmax) and time of peak concentration (Tmax) were calculated for each measure.

Results:
A total of 13 subjects (61.0 ± 8.3 years, 32.3 ± 5.7 kg/m2, 69.2% F) were randomized and completed the study. AUC and Cmax for glucose were significantly lower for the four meal replacements under study as compared to the control products (p<0.05). No differences were found for mean insulin AUC or Cmax between products. No adverse events were reported.

Conclusions:
This study shows that individuals with T2DM had a better glycemic response after consumption of the four nutritionally complete meal replacements as compared to the two control meal replacement products. These results suggest that use of these high protein meal replacements potentially assist with glucose management in T2DM patients enrolled in a medical weight loss program.

T-P-LB-3682
Short-term Outcomes of a Precision Medicine Weight Loss Program: Results of a Retrospective Study
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Background:
The prevalence of obesity has increased in adults significantly in the last decade. According to the Centers of Disease Control, a 5-10% weight loss has been shown to help combat problems associated with obesity. The objective of this single-arm, retrospective study was to evaluate the impact of a precision medicine weight loss program, which incorporates clinical visits, an integrated mobile application (app) platform, and tailored nutritional programming.

Methods:
Patients at a multidisciplinary clinic (i.e., Enara Health) were initially evaluated by a physician, including a full metabolic assessment; in-person follow-up was provided by a dietitian and fitness trainer. Patients self-selected between intense and rapid or gradual weight loss programs. Anti-obesity medications were selectively prescribed based on a personalized plan and clinical judgment. To enhance patient engagement and continuity of care between visits, participants also utilized app features including tailored educational content delivery and nutritional and behavioral feedback.

Results:
Data for 233 patients enrolled in this precision medicine weight loss program were analyzed. Patients at 3, 6, and 12 months lost on average 11.99% (11.6 ± 6.6 kg), 13.87% (13.2 ± 6.5 kg), and 11.16% (10.4 ± 6.0 kg) of baseline weight, respectively. Weight loss from baseline to all three points in time was significant (all p<0.0001)

Conclusions:
Our study demonstrated that all patients who participated in this hybrid digital and in-person weight loss program lost >11% of their baseline weight across multiple time points. Leveraging the real-time connectivity, tailored elements, and engagement of a mobile app may benefit weight loss programs.

T-P-LB-3683
Protein Rich Supplements Versus Acknowledged Patients Natural Protein Diet After Sleeve Gastrectomy
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Background:
Post bariatric surgery patients are at risk of protein deficiency. The main method of protection is using of protein supplements after surgery with a dose of 0.8mg/kg of lean body weight. Using of purified protein supplement although gives the opportunity to have more standard doses of protein postoperatively, can cause early inadaptability, as well as some degree of fat soluble vitamin deficiency.

Methods:
This study was conducted on 40 consecutive patient undergoing sleeve gastrectomy from January 2016 to June 2016. All the patients undergone a follow up period of one year with biochemical and electronic body content measurements on the postoperative 6th week, 3rd month, 6th month and 1st year. After being informed by a team of psychologist, dietitian and surgeon, the patients were given a diet program containing 24 and 30 grams of meat derived protein for female and males in the first 10 days. The amount of protein levels was elevated to 35 grams for both genders during the following 3 months and then were raised to 48 and 59 grams for females and males till the end of the first year.

Results:
Both plasma total protein and albumin levels maintained normal during the first postoperative year. Body weight was significantly reduced to a similar extent as patients who used protein products in previous studies (p<0.01). Electronically measured body totals protein and muscle mass reductions were comparable with the protein supplement group with no significant muscle loss at the end of the
first year.

Conclusions:
In well acknowledged patients with close supervision of the diettian, high animal based protein diet can maintain body muscle content as well as plasma protein and albumin levels during the first postoperative year.

T-P-LB-3684
CHW-Delivered Weight Management Intervention Achieves Outcomes Comparable to Healthcare Benchmarks
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Background:
Obesity rates among older adults in the last decade have increased significantly compared to younger age groups, elevating risk for mobility disability. Feasible, effective, and potentially sustainable interventions in non-clinical settings could expand reach to an aging baby boomer population with obesity and mixed risk factors. The Mobility and Vitality Lifestyle Program (MOVE UP) combined translational evidence-based weight management/healthy aging approaches to study impact on a primary endpoint of physical function. Here we report initial pre-post data for the 5-month (post 20 sessions) and 13-month (post 32 sessions) weight and moderate-vigorous physical activity (MVPA) changes hypothesized to mediate the primary outcome.

Methods:
Experts provided a minimum 15 hours of behavioral training aligned with the first 5-months of program delivery for 11 community health workers (CHW) to implement a manualized group lifestyle intervention with site-cohorts including 4 senior centers, 3 community centers, 3 YMCAs, 1 senior residence, 1 library, and 1 church. CHWs were also community-recruited.

Results:
Elder participants (baseline N = 136) comprising these cohorts were 86% female, 24.3% Black, (mean±SD) age 68.4 ± 4.1 years, BMI 34.6 ± 4.6 kg/m2, with 2-3 chronic conditions, arthritis and hypertension most common. They attended 16.5 ± 3.0 sessions in the first 5-months, losing -4.8 ± 4.0 kg or -5.2% of initial weight and increasing MVPA (CHAMPS questionnaire; N = 133) by 2.1± 6.1 hours/week. At 13-months, N = 121 (89%) attended 25.9 ± 4.9 sessions, increased weight loss to -6.4 ± 6.0 kg or -6.9% and maintained an increase in MVPA of 2.06 ± 5.36 hours/week (all paired t-tests significant at p<.0001).

Conclusions:
A 13-month, 32-session healthy weight management intervention delivered by trained and supported CHWs successfully reached, engaged, and retained older adults and achieved weight loss maintenance and activity outcomes comparable to benchmarks shown in traditional healthcare settings.

T-P-LB-3685
Effects of the FiNC-Style Weight-Loss Program on Weight Loss Among Japanese Adults
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Background:
To examine the effect of a web-based weight-loss program (the FiNC-style weight-loss program) on weight loss among Japanese adults.

Methods:
This study was conducted at the Institute of Health and Sport Sciences at the University of Tsukuba in Japan (UMIN000025340). Participants were 68 overweight men, aged 20-69 years, having at least one risk factor of metabolic syndrome (i.e., obesity, hypertension, dyslipidemia, and hyperglycemia). They were allocated to either the control group (n = 48; 45 ± 10 years) or the intervention group (n = 20; 47 ± 12 years). The intervention group participated in an 8-week web-based weight-loss intervention program using the FiNC-style weight-loss regimen through an online chat group session. Participants in the intervention group received individualized nutritionist feedback. The amount of weight loss was the primary outcome measure.

Results:
Weight decreased significantly after the 8-week intervention program for the intervention group from 81.7 ± 12.1 kg to 80.0 ± 12.0 kg (P < 0.01), while it remained essentially unchanged (82.8 ± 10.3 kg to 82.7 ± 10.2 kg) for the control group. The group x time interaction was statistically significant (P < 0.01)

Conclusions:
The FiNC-style weight-loss program contributes to significant weight loss in overweight/obese adults.

T-P-LB-3686
Effective Worksite-based Intensive Lifestyle Therapy for People With Obesity and Type 2 Diabetes
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background:
weight loss and exercise are the cornerstones of therapy for patients with obesity and type 2 diabetes (t2d). however, successful weight loss and exercise compliance are difficult to achieve. we conducted an 8-month randomized, controlled trial in persons with obesity and t2d to determine the effect of a worksite-based intensive lifestyle therapy (ilt) on body weight, cardiometabolic function, and cellular pathways involved in the pathogenesis of insulin resistance.

methods:
subjects were assigned to standard care (sc; n=8, bmi:38±5, fasting blood glucose [fbg]:161±19, hba1c:7.6±1.1%) or ilt (n=10, bmi:37±6, fbg:150±32, hba1c:7.0±1.1%), which involved weekly diet (including daily eggs and dairy)-behavior therapy sessions and 4 d/wk of supervised exercise training.

results:
weight loss was greater in the ilt than sc group (17±7% vs. 1±2%, p<0.05). all cardiometabolic outcomes improved more in ilt than sc subjects: i) insulin sensitivity (% increase in glucose disposal during a hyperinsulinemic-euglycemic clamp with glucose tracer infusion [116±78% vs. 15±9%, p<0.05]); ii) β-cell function (product of insulin secretion rate after glucose ingestion and insulin sensitivity [172±124% vs. 49±46%, p<0.05]); and iii) cardiorespiratory fitness (maximal oxygen consumption during cycling exercise [28±22% vs. -2±15%, p<0.05]). adipose tissue gene expression of markers of inflammation, oxidative stress, and extracellular matrix formation were downregulated, whereas muscle gene expression of mitochondrial oxidative pathways was upregulated after ilt but did not change after sc. fbg and hba1c decreased to 108±31 mg/dl and 6.1±0.9%, despite a 61±31% decrease in diabetes medications after ilt; these outcomes did not change after sc. two ilt, but no sc, subjects, achieved complete diabetes remission.

conclusions:
we conclude that marked weight loss with supervised exercise training has profound therapeutic effects in people with obesity and t2d, which can be achieved through ilt conducted in a worksite setting.

T-P-LB-3687
Abstinence Self-efficacy Is Associated With Changes in Lifestyle Adherence and Weight Loss
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background:
Abstinence self-efficacy (ASE) is a key construct in relapse prevention of addictive behaviors and defined as the perceived confidence to maintain abstinence. The role of ASE has not been examined in weight loss, where a relapse of weight management behaviors following intentional weight loss is commonly observed. We adapted an existing scale, the Relapse Situation Efficacy Questionnaire, to measure ASE for diet and physical activity (PA) among adults engaged in weight loss treatment. In a behavioral weight loss intervention study, we examined whether ASE changes over 12 months and if ASE was associated with changes in adherence to diet goals, PA goals, and % weight change.

methods:
Measurements were done at baseline, 6 and 12 months. Diet adherence was defined as reporting consuming 85–115% of the daily calorie goal. PA was assessed using an accelerometer and adherence to PA goal was calculated as (steps per day/7500)*100. Change of diet and PA adherence was calculated as 6- and 12-months adherence subtracted by baseline adherence. Weight was measured on a digital scale. Weight at 12-months was transformed into % change compared to baseline. Linear mixed modeling was used to examine the change in ASE over time and to examine the relationship between ASE and changes in diet and PA adherence and % weight change, controlling for confounding variables, such as sex and age.

results:
The sample (N=150) was mostly female (90.7%) and white (80.7%) with a mean body mass index of 34.08 ± 4.58 kg/m2. ASE did not change over 12 months (F=1.26, p=.28). Higher levels of baseline ASE were significantly associated with increased adherence to calorie (b=99, p<.001) and fat goals (b=0.010, p<.001), adherence to PA goal (b=99, p<.001) and % weight loss (b=0.009, p=0.042).

conclusions:
Baseline ASE was associated with changes in adherence to diet and PA goals and % weight loss over 12 months. Future work is needed to examine ASE in larger and more diverse samples.

T-P-LB-3688
Growth Prevents Metabolic Adaptation After Weight Loss in Children: Results of the CHEW Study
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Background:
In adults, it is well known that weight loss results in a disproportionate decrease in metabolic rate. However, there is little information on how weight loss affects metabolic rate in children. The aim of this study was therefore to determine the effect of weight loss on metabolic rate in school-aged children enrolled in the "Childhood Health, Education and Wellness (CHEW) study, an individualized, family-centered and culturally adapted program targeting childhood obesity among Latino children.

Methods:
Children (n=12) were recruited from local elementary schools and randomized to the CHEW intervention or waitlisted control. The intervention group immediately received the individualized, culturally tailored counseling on nutrition and activity monthly for 5 months (~1 hour/session) delivered in Spanish by a bilingual nutrition educator. Families self-monitored food intake and activity using 3-day food records and logs. Measurements were collected at baseline and at 5 month follow-up to assess changes in the following: food behaviors, nutrient and food group intake (24-hours recall), activity, blood pressure, weight, % body fat and visceral fat (dual-energy x-ray absorptiometry) and Resting Metabolic Rate (RMR; Indirect Calorimetry).

Results:
Retention was 83% at 5-month follow-up. There was a significantly larger decrease in BMI Z-score in the intervention vs. control group (-0.07 vs 0.08, p=0.03). Although not statistically significant, there were greater decreases in weight, % body fat, visceral fat, and weekend activity in the intervention vs. control group. RMR corrected for Lean Body Mass did not significantly change (-1.66±5.87 kcal/kg). Change in height was negatively correlated with the change in RMR corrected for Lean Body Mass (r=-0.56; p=0.04).

Conclusions:
In growing, school-aged children decrease in RMR adjusted for Lean Body Mass after weight loss seems to be prevented by the growth rate of the children. However, a larger intervention is needed to further explore this relationship.

T-P.LB-3689
Use of Accelerometers in an Overweight Pediatric Population Attending TEEEN®: Feasibility Study
Shirley Gonzalez, MD Natick MA, Nicholas Karlson, MS Boston MA, Caitlin Fai, BA, MS Boston MA, Lori Lyn Price, MAS Boston MA

Background:
The prevalence of pediatric obesity is 17%. Regular physical activity is an integral component in the management of obesity. However, there is scarcity of studies looking at objective means of assessing physical activity in overweight children. This study examined the feasibility of using accelerometers to track physical activity in a multiethnic pediatric overweight population attending a pediatrician-led community program, TEEEN® (Teens, Empowerment, Exercise, Education, Nutrition).

Methods:
Participants attending TEEEN® were given an accelerometer (Misfit) to wear 24 hours a day for one year. These were synced at each monthly session. Measurements of sleep, calories, activity-miles, steps and points were obtained.

Results:
• 21 participants, mean age 11 years, mean BMI z score 1.9, 62% Hispanics, 62% female, received an accelerometer. Mean number of sessions attended was 5 • Mean (SD) aggregate data was: Sleep 8.6 hrs. (0.8); Calories 2173.1 (287.3); Activity-miles 3.3 (0.9); Steps 9764.2 (2546.1); Points 1005.9 (262.9) • Accelerometers were able to be synced 63% of the time • Most common barriers to syncing were: participant not bringing accelerometer, technical difficulties due to software issues, and dead batteries. The latter two barriers were overcome after the first few months of the project • Most frequent self-reported activities were running, walking and soccer. Overall, use of accelerometer was well received

Conclusions:
This feasibility study showed that accelerometers can be used in this overweight pediatric population. Accelerometers allowed for objective, daily, prospective tracking of various physical activity parameters as well as sleep and calories burned.

T-P.LB-3690
Efficacy of Probiotics on Obesity, Liver Fat and Gut Microbiota in Obese Hispanic Teens
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Background:
Numerous studies have shown that there are links between obesity, liver fat, and the gut microbiome. However, there are mixed results on whether probiotics could impact the gut microbiome and/or help to decrease liver fat and obesity outcomes. The primary aim of this project was to determine whether a probiotic supplement (VSL#3®) intervention altered body composition, and liver fat and fibrosis. The secondary aim of this study was to determine whether VSL#3® altered gut hormones associated with appetite regulation and/or gut microbiota.

Methods:
We conducted a double-blind, randomized placebo controlled trial in 19 obese Latino adolescents. Adolescents received three packets per day of either VSL#3® or a matched placebo for 16 weeks. Pre- and post-intervention measures included anthropometrics, body
Beneficial Intervention Outcomes of US NASA Mission X Program in Preschoolers: South Korea Project

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Background:
Childhood obesity has been grown over the past three decades. The preschool years are sensitive periods to prefer foods to be integrated physical growth and early childhood development that can last throughout life. This study developed and tested an intervention program designed to promote healthy eating and physical activity for young children in South Korea by adapting the US National Aeronautics and Space Administration (NASA) Mission X (MX) Program.

Methods:
The intervention program was delivered by the expert and school teachers over 10-week. 37 school classes (N=515) from 7 schools were randomized into a control group (CG, N=243) and an intervention group (IG, N=272). Measures of parenting variables relevant to children’s characteristics and Nutrition Quotient (NQ) were surveyed at baseline and at the 10-week follow up. Child weight status was assessed using Korean body mass index (BMI) percentiles.

Results:
At baseline, 18.8% (boy: 18.9%; girl: 18.8%) of the subjects were overweight or obese (based on BMI ≥85%tile). After post intervention, boys of the IG were shown changes in their height, weight, and body mass index significantly (p=0.000). Significant increases of total NQ score were found from 63.9 to 65.7 (P =0.049) in the intervention group.

Conclusions:
The 10-week South Korean NASA MX program is feasible and shows beneficial influences in eating behaviors and healthy weight among young children.

Is Children’s Weight Status Associated With Limited Diet Variety?
Marsha Novick, MD, FAAFP Harrisburg PA, Helen Hendy, PhD, Keith Williams, PhD

Background:
Past research has shown limited diet variety is associated with demographics including younger age, male gender, and special needs status. Although children’s weight status has also been found associated with limited diet variety, most research has not controlled for these other demographics. The present study examined associations between child BMI percentile and acceptance foods from five food groups (dairy, fruits, vegetables, meats, grains) after controlling for age, gender, and special needs.

Methods:
Parents of two samples of children completed surveys to report child demographics and consumption of lists of foods from each of five food groups to calculate the percentage of foods never eaten. Sample 1 included 114 children from a hospital-based obesity clinic. Sample 2 included 1541 children in a secondary analysis of data from a state-wide school sample.

Results:
For both samples, repeated-measures ANOVA confirmed past results that more fruits and vegetables were rejected (being never eaten) than were foods from dairy, meats, or grains. Also for both samples, hierarchical multiple regression found that with other child demographics controlled (age, gender, special needs), children’s BMI percentile was not significantly associated with rejection of foods from any of the five groups. Additionally, school children divided into underweight, normal weight, overweight, or obese groups showed no differences in food rejection of any food group.

Conclusions:
This study did not find BMI to be related to diet variety in either a clinical sample of children referred for weight management or a community sample of school-children. This study, however, examined only whether particular foods were eaten, not the frequency or amount eaten. Future studies might examine the relationship between BMI and the servings consumed from various food groups.
T-P-LB-3693

Four Year Summer Vs. School Year Weight Gain Patterns in Adolescent Hispanic Youth
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Background:
During and after-school programming offer ideal opportunities for programs targeting health, wellness and weight for obese children but only operate during the school year. During summers at home, healthy meals and snacks, and activity levels may decrease, as parent/caregiver habits may not reinforce program goals.

Methods:
An afterschool health, fitness and youth empowerment program for Hispanic youth including a 6 wk summer program was provided. 29 middle school aged youth (15 female) enrolled at age 10-11 were followed and completed all 5 years. Programming occurred 2h/day x 5d/wk during the school and 4d/wk x 5d/wk for 6 wks in summer. A healthy snack and 1hr of fitness training (multimodal) were provided daily. Body weight (Tanita calibrated scale WB-110A), height (calibrated fixed stadiometer, Seca 216) and fitness (Fitnessgram®) were measured 2x/yr (start and end of school year).

Results:
Fitness significantly improved in the group (pacer, situps, pushups). Weight gain during the school year averaged 1lbs/mo. Summer weight gain (SWG) was significantly greater and averaged 2lbs/month for the group. SWG patterns differed for female vs male youth. Female SWG was highest in yr1 and decreased annually, but for males, SWG increased each year and was 4lbs/mo in the last summer. In the last summer, SWG of males averaged 16lbs.

Conclusions:
Summer vs school year increases in body weight were significantly different. In some children, the short SWG was equal to the weight gained during the entire school year. This suggests family plays a major role in weight gain of Hispanic youth and points to the need for targeted family/parent education that provides guidelines for healthy eating and sustaining activity even outside the scope of school-based programming. We concluded that school-based programming is effective at moderating weight gain, but either a full-time summer program or family program are necessary to sustain the impact on modulating weight in these youth.

T-P-LB-3694

Impact of a Novel Glucose Simulator Video Game on Dietary Behaviors Linked to Childhood Obesity
Susan Quelly, PhD, RN Orlando, Dawn Eckhoff, MSN, ARNP, PhD Student Orlando FL, Donna Breit, MSN, RN

Background:
Innovative strategies to promote healthier dietary behaviors are needed to address the childhood obesity (CO) crisis. Decreased intake of fruits/vegetables (F/V) and low-fat/skim milk, and increased soda/sugar-sweetened beverages (SSBs), are associated with CO. Serious video games to educate children show promise in improving dietary behaviors. The study purpose is to determine the impact of a novel serious video game prototype called “SNACTIVITY: Balancing Food with Physical Activity™” (played on a tablet) developed to engage children to learn about relationships between dietary sugars, physical activity (PA), and resulting simulated glucose actions in the body, to improve dietary behaviors.

Methods:
A pilot study was conducted at two afterschool programs (control/intervention groups) with 4th/5th graders (n=42). SNACTIVITY™ was accessible for the intervention group to play for three weeks. Both groups received a related health lesson. An adapted 49-item survey was administered pre- (P0) and post-intervention (P1), and 7 weeks later (P2). Dietary behavior items measured the number of days (0-7) low-fat/skim milk, soda/SSBs, fruits for snacks, and vegetables at lunch or dinner, were consumed in the previous week. Due to non-normal distribution of DVs, Mann Whitney U tests were run to determine group differences.

Results:
Thirty children (15 per group) completed the intervention and three surveys. At P2, intake of low-fat/skim milk in the intervention group (mean rank=18.77) was higher than control group (mean rank=12.23), U=63.5, z=-2.08, p=.04; consumption of SSBs in the intervention group (mean rank=11.67) was lower than control group (mean rank=19.33), U=55.0, z=-2.41, p=.02; and no significant differences in F/V intake were found.

Conclusions:
SNACTIVITY™ is a serious video game with potential to improve children's intake of more low-fat/skim milk and less soda/SSBs. Further research with SNACTIVITY™ is needed to determine possible improvements in other dietary and PA behaviors linked to CO.

T-P-LB-3695

Obesity Prevention in Head Start: Miranos! Program Study Protocol
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The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts  
Thursday, November 2, 2017  
Late-Breaking Poster Abstracts

PhD Austin TX, Traci Keck, LD, RD, Jill Jonestone, MS Boerne TX, Filiberto Leon, BS, Azeem Hussain, BS, Eric Ortiz, BS, Shiyu Li, BEd San Antonio TX, Deborah Parra-Medina, PhD

Background:  
The prevalence of obesity remains high in American children aged 2-5 while one in three Head Start children is overweight or obese.

Methods:  
Míranos! Look at Us, We Are Healthy! is designed to test the efficacy of a culturally tailored early childhood obesity prevention intervention, which promotes healthy growth in predominantly Latino children in Head Start. The Míranos! includes center-based (policy changes, staff development, gross motor program, and nutrition education) and home-based (parent engagement/education and home visits) interventions to address key enablers and barriers in obesity prevention in young children. Using a three-arm cluster randomized design, 12 Head Start centers in equal number will be randomly assigned to one of three conditions: 1) a combined center- and home-based intervention, 2) center-based intervention only, or 3) control. A total of 525 3-year-old children will be enrolled in the study and followed prospectively one year post intervention. Data collection will be conducted at baseline, immediate post-intervention, and 1-year follow-up and include height, weight, physical activity (PA) and sedentary behaviors, parent-reports of sleep duration and TV watching time, gross motor development, dietary intakes and food and activity preferences. Parental PA- and nutrition-related practices and behaviors, PA and nutrition policy and environment at center and home, intervention program costs, and treatment fidelity will also be collected.

Results:  
Finding from this study will be used: 1) to test the efficacy of the intervention on healthy weight growth in normal weight, overweight and obese children, 2) to test the impact of the intervention on children’s PA, sedentary behavior, sleep, and dietary behaviors, and 3) to evaluate cost-effectiveness of the intervention.

Conclusions:  
The study is poised to provide evidence of a policy and environmental approach to prevent early onset of obesity and its cost-effectiveness in low-income Latino preschool children.

T-P-LB-3696  
Does OSA Affect Perioperative Complications? A Retrospective Study using a Modified NSQIP Database  
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Background:  
Obstructive sleep apnea (OSA) has been linked to increased perioperative complications. The National Surgical Quality Improvement Project (NSQIP), which is the leading outcomes-based patient database, does not report OSA as a comorbidity. Therefore, we started recording the patient’s OSA status as part of Lahey Hospital and Medical Center’s (LHMC) NSQIP database in an effort to study the effect of OSA on perioperative complications.

Methods:  
Starting July 2013 we have been including patients’ OSA status in our hospital’s NSQIP database. We conducted chart review of all patients who underwent any surgical intervention at LHMC between 2013-2016 and identified those who had OSA as part of their medical history. We then compared their perioperative mortality and complications to a matched sample.

Results:  
A total of 7872 patients were examined. 739 patients had OSA bringing our prevalence to 9.4%. 631 were matched to patients without OSA after adjusting for age, gender, BMI and multiple other comorbidities. We found no statistically significant difference in 30 day mortality (0.1 vs 0%), unplanned intubation (2.6 vs 1.1%), pulmonary embolism (0.5 vs 0.2%), respiratory failure requiring mechanical ventilation (2.3 vs 1.4%), cardiac arrest (0.5 vs 0.3%), myocardial infarction (0.4 vs 0.5%), surgical site infections (4.6 vs 4.3%), sepsis (2.4 vs 1.9%) and average length of stay (3.8 vs 4.2).

Conclusions:  
Patients with OSA did not have any statistically significant difference in perioperative complications or mortality when compared to patients without OSA. This is the first study that tracked OSA status as part of the NSQIP database and studied its effect on perioperative complications. Randomized controlled studies are needed to conclude whether OSA status affects perioperative outcomes.

T-P-LB-3697  
Ramadan and Sleeve Gastrectomy: What We See, Learn and Understand From Continuous Glucose Monitoring  
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Background:  
Fasting for religious or lifestyle reasons poses a challenge to people who have undergone bariatric surgery. There is a scant data about the effect of fasting on the blood glucose profiles in people who have undergone sleeve gastrectomy. Health Care providers have been giving conflicting advice about the feasibility of fasting. This is the first study to look at glucose fluctuations using continuous glucose...
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Late-Breaking Poster Abstracts

**T-P-LB-3698**

The Problematic Obesity Paradox: A Systematic Review
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**Background:**
The obesity epidemic marked by excess adiposity increases the risk of developing heart failure (HF). However, in patients with HF, there is a survival advantage in overweight and in mildly to moderately obese patients compared to normal weight patients. This observation has been termed the obesity paradox. Evidence for the obesity paradox in HF predominantly has used the body mass index (BMI) to classify obesity. However, BMI cannot accurately distinguish body composition components (lean and fat mass) and fat distribution. Newer studies have explored the use of other, more accurate measures such as dual energy X-ray absorptiometry and waist circumference.

**Methods:**
This study systematically reviewed the evidence of the relationship between body composition or fat distribution and mortality in HF patients in articles published from 2007 to June 2017. Search of PubMed, EMBASE, and Web of Sciences databases for studies that examined the relationship between the obesity paradox and HF using measurements such as lean mass, fat mass, body fat percentage, and waist circumference identified 2209 potentially relevant papers, out of which nine met the inclusion criteria. Two additional studies were excluded due to the low reliability in the measurement of skinfold thickness. Of the remaining studies, one was a cross-sectional study and six were observational cohort studies: two prospective and four retrospective studies.

**Results:**
All studies supported the obesity paradox, albeit through different measurements. From the selected studies, there is more evidence supporting the notion that a greater proportion of fat mass especially around the abdomen, rather than lean mass, is associated with a lower mortality risk in overweight/obese HF patients.

**Conclusions:**
The findings of this review are important in informing obese HF patients and clinicians concerning weight loss. Such recommendations, however, must be based on more conclusive evidence on the specific role of fat mass in HF survival.

**T-P-LB-3699**

Plasma FGF21 Correlates With Insulin Resistance and Severity of Nonalcoholic Steatohepatitis (NASH)
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**Background:**
Fibroblast growth factor 21 (FGF21) plays a key role in the regulation of glucose and fat metabolism, promoting glucose uptake in adipose tissue and fat oxidation in the liver. In this study, we aimed to determine its role in NAFLD as assessed by severity of liver histology.

**Methods:**
To this end, 187 overweight/obese patients were recruited from the general population. Patients underwent: a) A euglycemic insulin clamp with glucose turnover measurements to assess insulin resistance (IR) (n=155); b) Liver magnetic resonance spectroscopy (MRS) for intrahepatic triglyceride (IHTG) quantification, c) A liver biopsy in those with a diagnosis of NAFLD (n=146); and d) Plasma FGF21 levels.

**Results:**
...
Patients were divided into 3 groups based on HJTG and histology (no-NAFLD by MRS [n=42]; isolated steatosis [IS; n=45] and definite NASH [n=101]). Groups were well-matched for age, gender, A1c and prevalence of T2DM. While patients without NAFLD had a lower BMI, those with NAFLD (IS and NASH) were similarly obese (32.1±3.8 vs. 34.0±4.5 vs. 34.7±4.8 kg/m², respectively, p=0.008).

Insulin sensitivity in muscle (Rd) and adipose tissue worsened progressively from no-NAFLD to NASH (both p<0.001). There was no correlation between plasma FGF21 levels and hepatic IR. Plasma FGF21 was higher in NASH patients when compared to IS or no-NAFLD (448±265 vs. 335±179 vs. 325±289 pg/ml, respectively, p=0.007). Of clinical relevance, plasma FGF21 increased with the severity of each individual histological parameter (steatosis, inflammation, and ballooning; all p<0.04), but most significantly with worse fibrosis (p=0.001).

Conclusions:
Higher plasma FGF21 levels in patients with NASH correlate with worse adipose tissue and muscle insulin resistance and the severity of NASH, particularly of fibrosis, which determines disease progression. The clinical implication is that FGF21 may play a role in the pathogenesis of NASH and become a biomarker to identify patients at the highest risk of disease progression.

T-P.LB-3700
BMI Is an Independent Determinant of Exercise Intolerance in Obese Patients With HFpEF
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Background:
Obesity is commonly associated with Heart Failure with Preserved Ejection Fraction (HFpEF) especially in middle age women, and contributes to exercise intolerance. The overall contribution of obesity to the limitation of the patients with established HFpEF is however less established. We hypothesized that body mass index (BMI) remains an independent determinant of exercise intolerance in patients with established HFpEF diagnosed based on strict criteria for diastolic dysfunction.

Methods:
We enrolled 31 subjects with HFpEF and performed maximal cardiopulmonary exercise test (CPX) to measure peak oxygen consumption (peak VO2); echocardiography to measure diastolic function parameters at rest and at peak exercise (in a subgroup) and measurement of N-terminal pro-brain natriuretic peptide (NTproBNP). Data are present as number and percentage or median an interquartile range.

Results:
Eighteen (58%) were women, 14 (45%) African-American and 17 (55%) Caucasian. Age was 54 (48-62), peak VO2 13.7 (mlO2●kg-1●min-1)(11.8-17.7), and BMI was 42.1 kg/m2 (36.4-48.5). BMI was significantly and inversely associated with peak VO2 (r=-.58, p=0.001)(Figure) calculated with Spearman’s rank test. At multivariate analysis that included echocardiDoppler derived parameters associated with peak VO2 at univariate analysis, such as mitral annular velocities E’ and transmitral velocities E to E’ ratio measured at rest and peak exercise, E wave deceleration time and NTproBNP levels, BMI remained significantly associated with peak VO2 (p=0.025). BMI showed no significant correlations with cardiac function parameters.

Conclusions:
In obese HFpEF patients, BMI is an independent determinant of exercise intolerance, suggesting that therapies targeted at reducing BMI may exert the strongest benefits in terms of improving exercise capacity independent of strategies aimed at improving cardiac function.

T-P.LB-3701
Relationship Between Cognitive Flexibility Regarding Food and Healthy Diet in Korean Women
Young In Chung, BA Seoul, Seul-Ah Lee, MA(PhD candidate), Seok-Man Kwon

Background:
Cognitive flexibility has been associated with disordered eating patterns such as binge-eating that prevent healthy diet and weight loss. This study examined the preliminary results of the Food Picture Set-shifting Task newly designed to measure difficulties in set-shifting regarding calorie related rules and food pictures.

Methods:
25 normal weight (BMI=19.6±1.5) Korean female subjects (20.5 years±3.1) participated in the study. Participants completed the Wisconsin Card Sorting Task (WCST), Food Picture Set-Shifting Task (FPST), and self-report questionnaires on eating and dieting, including the Eating Disorder Inventory (EDI-2). In the FPST, participants were shown two food pictures and were required to select the correct one without knowing the rules. The rules changed without notice, and the participant needed to demonstrate the ability to shift within and between the calorie rule (high vs. low) and the color rule (yellow vs. green). Correlations between disordered eating habits and the number of errors as well as perseveration errors in the WCST and the FPST were analyzed.

Results:
The numbers of perseveration errors in the FPST and WCST showed a positive correlation (r=.41, p<.05) suggesting that the FPST
measures general set-shifting abilities. The number of errors and perseveration errors in the FPST was positively correlated with the BMI (r=.54, p<.01; r=.45, p<.05), the overall score on the EDI-2 (r=.50, p<.05; r=.53, p<.01) and the bulimia subscale score(r=.48, p<.05; r=.42, p<.05). The EDI-2 scores nor the BMI were significantly correlated with the number of errors and perseveration errors in the WCST.

Conclusions:
Inefficient set-shifting regarding food stimuli was related to disordered eating including more binge-eating. The FPST which uses food pictures and food-related rules to measure cognitive flexibility could provide insight on the neuropsychological difficulties of maintaining a healthy diet.

T-P.LB-3702
Comparison of Resting Metabolic Rates Between Predictive Equations and Portable Indirect Calorimeter
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Background:
The aim of this research was to examine differences between measured resting metabolic rate (RMR) from a portable indirect calorimeter (IC) (Breezing®) and calculated RMR from the recommended Mifflin-St. Jeor (MSJE) predictive equation.

Methods:
Seventy-nine subjects were recruited for the study approved by Arizona State University’s IRB. Three RMR measures with the IC device were averaged and compared to RMR values calculated using the MSJE. Subjects were divided base on body fat%. Group A (n=35; body fat%: 16.9±5.7; BMI: 21.9±2.4 kg/m2; age: 27.8±4.5 years) included 19 males and 16 females. The overweight group B (n=44; body fat%: 41.7±8.7; BMI: 35.4±6.2 kg/m2; age: 52±13 years) included 13 males and 31 females.

Results:
For Group A: The mean RMR by IC was an average of +212 kcal/day higher than MSJE for Females (IC=1462±197; MSJE=1250±182; p=0.01) and slightly lower by an average of -90 kcal/day for males (IC=1660±327; MSJE=1750±157; p=0.32); r²=0.947. Considering a cut-off difference (calculated RMR - measured RMR) value of ±200 kcal/day, the RMR by IC was lower than MSJE for 28% of subjects (n=10) and higher for 43% (n=15). Differences (calc. RMR – meas. RMR) ranged from -890 to +670 kcal/day. For Group B: The mean RMR by IC was slightly lower by an average of -59 and -356 kcal/day for females and males, respectively (females IC=1468±264; MSJE=1527±229; p=0.38 and males IC=1647±383; MSJE=2003±162; p=0.05); r²=0.943. Considering a cut-off difference (calc. RMR – meas. RMR) value of ±200 kcal/day, RMR by IC was lower than MSJE for 39% of subjects (n=17) and higher for 20.5% (n=9). RMR by IC versus MSJE felt within ±200 kcal/day for 41% (n=18) of subjects. Differences (calc. RMR – meas. RMR) ranged from -660 to +950 kcal/day.

Conclusions:
Analyses indicated no significant differences between the calculated and measured RMR for the groups (p<0.01). These results support the use of the mobile IC to provide more personalized and accurate measurements of RMR.

T-P.LB-3703 - WITHDRAWN

T-P.LB-3704
Improvement in Body Satisfaction Among Patients After Participation in a Weight Management Program
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Background:
Research has consistently found that individuals with obesity are more likely to experience body image distress. Improved body satisfaction has been found to be associated with sustained healthy weight loss and maintenance. The objective of this research is to assess the impact of weight loss on body satisfaction among individuals who self-enrolled in a weight management program.

Methods:
A sample of 109 participants was analyzed to assess the improvement in body part satisfaction rating after week 13. All patients completed a modified version of the Body Part Satisfaction Scale (BPSS) at baseline and after approximately 13 (±3) weeks in the program. The BPSS gauges an individual’s level of satisfaction with various body parts, ranging from very dissatisfied to very satisfied on a five-point Likert scale. A Wilcoxon Signed Rank Test was performed to assess the changes in body part satisfaction after 13 weeks.

Results:
We found statistically significant higher scores of body part satisfaction at week 13 compared to baseline. After 13 weeks, patients lost an average of 28.27 pounds (p <0.01), and reported a mean improvement in score by 1.79 points in weight satisfaction, 1.56 in figure, 1.46 in waist, 1.37 in hip, 1.27 in leg, 1.25 in thigh, 1.2 in belly, 1.18 points in build satisfaction (p <0.01).

Conclusions:
These results suggest that patients who participate in a medically-supervised weight management program may experience improvement in body part satisfaction. These conclusions are limited by the self-selection of individuals into the program, self-reported data, and loss-to-follow up.

T-P.LB-3705
Addressing the Obesity Epidemic in a Community-based Internal Medicine Residency Clinic
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Background:
The United States Preventive Services Task Force (USPSTF) recommends screening all adults for obesity and offering multi-component weight management options to those with a BMI ≥ 30 kg/m2. Addressing obesity in a patient with multiple comorbidities can be challenging in a busy office setting. We conducted a needs assessment in a primary care clinic setting in Pennsylvania. Study objectives were to: 1) determine how often obesity was addressed, and 2) identify factors associated with obesity management.

Methods:
We performed a retrospective study of adult patients with a BMI ≥ 30 kg/m 2 seen during a routine outpatient visit in our internal medicine residency clinic between May 1, 2017 and June 30, 2017. Chart review was done to assess the total number of problems assessed and whether obesity was addressed during the visit as well as areas of discussion on obesity-related complications and their management.

Results:
During the study period, 648 patients were seen in resident clinic of which 48.1% (312) were obese. Of the obese patients, preventative care was addressed in 60% (188); however, obesity as a problem was addressed in only 17% (52) of patients with BMI ≥ 30 kg/m 2. Obesity-related discussion was centered on lifestyle/behavior modification, medical management or referral to bariatric services. An average of 4.6 problems were addressed in each office visit, 35% had diabetes, 63% hypertension, 46% hyperlipidemia, 48% depression, 20% cardiovascular disease and 13% obstructive sleep apnea. Common challenges for resident physicians included time constraints and lack of awareness of resources for weight management.

Conclusions:
Obesity affects a large proportion of patients seen in a primary care setting and is associated with higher incidence of other comorbidities. Our study highlights an imperative need to improve resident awareness on obesity-related issues and their management. A quality improvement (QI) project was thus initiated in our institution.

T-P.LB-3706
Association Between Waist Circumference and Osteoporosis in Korean Adults Men
Minhee Kim, MD Seoul

Background:
The prevalence of obesity has increased dramatically worldwide over the past decade. In particular, visceral fat is implicated in abdominal obesity as an important risk factor for cardiovascular and metabolic complications. Osteoporosis is characterized by low bone mass. WC is frequently used as a simple and inexpensive measure of abdominal obesity. This study aimed to investigate the relationship between abdominal obesity and osteoporosis in adult men in South Korea using data from the Korea National Health and Nutrition Examination Survey of 2009–2010.

Methods:
The study population (n = 6,349) was selected from the 2009-2010 Survey. Abdominal obesity in adult men was defined as a waist circumference > 90 cm. Osteoporosis was defined as having a T-score of -2.5 or lower. To investigate the association between abdominal obesity and osteoporosis, multiple logistic regression analysis was performed.

Results:
Adult men with abdominal obesity were at a higher risk for non-weight-bearing site osteoporosis than those in the control group after adjustment (odds ratio (OR): 1.608, 95% confidential interval (95% CI): 1.059-2.441, p = 0.0254). For subjects who were in their twenties or were sixty years or older, abdominal obesity was a risk factor for non-weight-bearing site osteoporosis (OR: 5.527, 95% CI: 1.269-24.065, p = 0.0223 for those in their twenties; OR: 2.189, 95% CI: 1.192-4.020, p = 0.0112 for those sixty years or older).

Conclusions:
In this study, abdominal obesity was found to be a risk factor for osteoporosis in young men and those 60 years of age and older. Therefore, abdominal obesity should be managed to prevent osteoporosis. Moreover, young men should attend to abdominal obesity owing to its age-related association. Considering this, evaluations concerning mechanisms, including the effect of abdominal obesity on BMD and other variables, should be conducted in order to further clarify the specific association between abdominal fat and bone density.
T-P.LB-3707
Low-Calorie Diet Program Improves Metabolic Parameters by Four Weeks in Non-Diabetic Obese Subjects
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Background:
Previous reports suggest that a 5% weight loss can improve dysglycemia, insulin resistance, and other cardiometabolic risk factors. However, the time frame by which these positive effects are observed and the extent of improvement is poorly understood. Moreover, the effects of acute caloric restriction on non-diabetic individuals with varying levels of obesity remain unknown. We sought to examine the effect of a recommended low-calorie diet on these parameters in non-diabetic obese individuals.

Methods:
33 subjects participated from a medically based 800-1200 calorie weight loss program (Health Management Resources). Weights, blood pressure, blood samples were measured at 0, 4, and 8 weeks into the program. Insulin resistance was measured using a homeostasis model assessment insulin resistance calculator (HOMA2-IR) (Diabetes Trial Unit UK) and reported as HOMA-IR, %B and %S.

Results:
At four weeks into the program, a significant correlation was observed between absolute weight loss and an elevated BMI, whereby subjects with a higher BMI tended to lose more weight. When weight loss was computed as a percentage of initial weight, there was no correlation observed between percentage weight loss and BMI. Similar observations were seen at eight weeks. There was also a greater decrease in insulin resistance in prediabetics (2.65 to 1.52 P=0.03) than nondiabetics (2.23 to 1.53 P=0.008) at four weeks. By eight weeks, the decrease was even greater. Overall improvement in weight and insulin resistance was associated with improved insulin sensitivity (%S) in both groups with a noted improvement in blood pressure and C-peptide.

Conclusions:
We show strong beneficial effects of a low-calorie weight loss program in non-diabetic obese adults with varying BMI and HgA1c levels. The effects of caloric restriction can be achieved as early as four weeks and include reduced body weight, improved insulin resistance, blood pressure and β-cell function. These effects were more pronounced in pre-diabetic subjects.

T-P.LB-3708
Counterweight-Plus: An Intensive Non-Surgical Option for Severe Obesity
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Background:
While rates of obesity (Body Mass Index (BM)>30kg/m2) have plateaued between 2002 and 2014, UK national data demonstrate significant increase in severe obesity (BMI>40kg/m2) where prevalence has increased from 0.6% to 1.7% in men and 2.5% to 3.5% for women over the same time frame. Consensus states target loss of >15kg (10%) for people with severe obesity. Historically men are less inclined to engage with weight management services.

Methods:
Counterweight-Plus comprises: Screening, Total Diet Replacement (nutritionally replete 825kcal/day formula diet), Food Reintroduction and Weight Loss Maintenance. At enrolment, patients are invited to provide anonymised data for service evaluation.

Results:
Data from 288 individuals enrolled in Counterweight-Plus 2013-2016 were analysed. At baseline mean(SD) age was 47.5(12.7)years, weight 128.0(32.0)kg, BMI 45.7(10.1)kg/m2; 76(26.5%) were male and 99(34.5%) diabetic. At 3, 6 and 12months, mean(SD) weight losses(kg) for complete cases were 12.7(8.0), 15.8(9.9) and 14.2(11.6), with 10.8, 29.3 and 44.2% loss to follow up. Twelve month weight loss was greater for men vs women: 18.8kg vs 12.9kg (p<0.01) and loss to follow up 21% vs 38% respectively.

Conclusions:
Target weight loss of >15kg at 12m was achieved for at least 22% of all patients enrolled while at least 28% achieved the target weight loss of 10%. Men achieved better 12month outcomes than women. These outcomes could encourage greater engagement in weight management for men and provide an effective option between lifestyle intervention and bariatric surgery for the increasing number of cases of severe obesity.

T-P.LB-3709
Preoperative Food Addiction Predicts Significant Weight Regain Following Bariatric Surgery
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Background:
Bariatric surgery is the most effective treatment for severe obesity, but postoperative weight regain can be a problem. No studies have assessed the association between preoperative food addiction (FA) and risk of postoperative regain. This study aims to examine whether
preoperative FA may predict significant weight regain following bariatric surgery.

Methods:
A prospective cohort study assessed FA via the Yale Food Addiction Scale (YFAS) prior to bariatric surgery and observed weight over a minimum of 3 years after surgery. 40 patients who underwent gastric bypass or sleeve gastrectomy were included. FA was defined as a symptom count ≥3 on a scale of 0 to 7 with clinically significant impairment or distress. Maximum percent excess weight loss (%EWL) was defined as percentage of excess body weight lost at nadir weight between 1 and 2 years after surgery. Suboptimal weight loss (SWL) was defined as <50%EWL. Significant weight regain (SigWR) was categorized as 15% regain, 25% regain, or 50% regain of lost weight between 2-4 years after surgery. SWL and SigWR was compared in patients with and without preoperative FA using Pearson’s chi-square.

Results:
13 (32.5%) patients had FA (FA), 27 (67.5%) did not (NFA). Sex, race, preoperative BMI, procedure, and nadir %EWL were not different between the groups. FA patients were younger (37.85 vs 46.78, t=2.365, p=0.023). 10 (77%) FA vs 10 (37%) NFA patients regained ≥15% of lost weight (p=0.018); 9 (69%) FA vs 8 (30%) NFA patients regained ≥25% of lost weight (p=0.018); and 4 (31%) FA vs 1 (4%) NFA patient regained ≥50% of lost weight (p=0.015). Groups did not differ in SWL.

Conclusions:
Patients with preoperative FA were significantly more likely to experience weight regain from 15-50% of lost weight. This suggests preoperative FA, as measured by the YFAS, predicts mid to long-term weight regain following bariatric surgery. More intensive perioperative weight management strategies should be developed and evaluated in bariatric surgery patients with FA.

T-P-LB-3710
Cardiovascular Comorbidities and Outcomes in Bariatric Surgery: Analysis of 14,000 Procedures
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Background:
Obesity is associated with cardiovascular risk factors and disease; however, the impact of these comorbidities on outcomes in bariatric surgery is unknown.

Methods:
Using the 2012 Nationwide Inpatient Sample dataset, we identified all adults who underwent gastric bypass surgery (open: ICD9 44.31/44.39 or laparoscopic: ICD9 4438). We studied the impact of cardiovascular risk factors (hypertension, diabetes, smoking) and cardiovascular disease (coronary artery disease, heart failure, and atrial fibrillation) on in-hospital death and prolonged (>7 days) length of stay.

Results:
A total of 14,585 procedures were included (86% laparoscopic). Mean age 47±14 years, 76% female, and 65% white. Cardiovascular risk factors were common: hypertension (57%), diabetes (40%) and dyslipidemia (39%). Median length of stay was 2 [2-3] days. In-hospital death occurred in 113 (0.8%) patients. In a multivariable model adjusting for patient and hospital characteristics, mortality was associated with heart failure (adjusted odds ratio 1.98 [1.06-3.70], P=0.033), and atrial fibrillation (aOR 1.82 [1.03-3.21], P=0.039); while prolonged length of stay was associated with history of smoking (aOR 2.32 [1.71-3.16], P<.001), heart failure (aOR 2.20 [1.44-3.34], P<.001), and atrial fibrillation (aOR 1.94 [1.33-2.83], P=.001).

Conclusions:
Cardiovascular risk factors and comorbidities are common in patients undergoing bariatric surgery. Atrial fibrillation and heart failure are associated with increased length of stay and in-hospital mortality.

T-P-LB-3711
Endoscopic Sleeve Gastropasty for Obesity: The Role of Leptin in Predicting Response
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Background:
Endoscopic sleeve gastropasty (ESG) is a minimally invasive, safe and effective approach at fighting obesity. The impact of ESG on Leptin, Insulin, HOMA-IR is unknown. The aim of this study is to assess these changes after ESG.

Methods:
We collected data from 122 consecutive patients undergoing ESG from 8/2013 through 7/2017. All patients had a body mass index (BMI) > 30 kg/m2 and failed noninvasive weight-loss measures or a BMI > 40 kg/m2 and were not considered as surgical candidates or refused surgery. All procedures were performed with a cap-based flexible endoscopic suturing system to imbricate the greater curvature of the stomach. Patients were evaluated after 6, 12 and 24 months for anthropometric features, HOMA-IR (Homeostatic Model Assessment of Insulin Resistance) and leptin levels. Serious Adverse events (SAE) were also recorded. The primary outcomes were total body weight loss (TBWL) at 6, 12, and 24 months as well as predictors for weight loss.

Results:
A total of 122 patients female (58.9%), mean age of 44.1 ± 12.6 years (range of 17-73) and mean BMI of 39.5 ± 7.8 (range of 30.00–68.6) were included. Patients had lost 14% of their TBWL at 6 months (60% follow-up rate), 15.5% at 12 months 40% follow-up rate), and 15.1% at 24 months (16% follow-up rate) after ESG (p value<0.001 for all). At 12 months after ESG, patients had statistically significant reductions in mean leptin levels compared to baseline (23.16 to 13.13, p value=0.001)). However, there was no significant change in HOMA-IR levels before vs immediately after ESG 7.4 vs 3.6 (P = .056). 1 (0.8%) SAE occurred. On multivariable linear regression analysis, baseline leptin strongly predicted %TBWL at 12 months (adjusted for insulin and baseline weight, β = 0.005, p=0.04).

Conclusions:
ESG is a safe and effective modality that is associated with significant TBWL. EGS is also associated with statistically significant decrease in leptin and baseline leptin is predictor for sustained weight loss at 12 months.

T-P-LB-3712
Effect of Food Order on Satiety and Gut Hormone Excursions
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Background:
Data suggest that food order during a meal has a significant impact on postprandial glucose and insulin excursions in type 2 diabetes while the effects on satiety and gut hormone excursions have not been reported.

Methods:
Using a crossover design, 16 subjects with overweight/obesity and metformin-treated type 2 diabetes were assigned to consume the same meal on 3 days in random order: • Carbohydrate-first meal order: carbohydrate (bread), followed 10 minutes later by protein (chicken) and vegetables, • Carbohydrate-last meal order: protein and vegetables, followed 10 minutes later by carbohydrate, or • All meal components together as a sandwich Blood was sampled for glucose, insulin, GLP-1, and total ghrelin measurements at baseline (just before meal ingestion) and at 30 min intervals up to 180 min. Participants rated their hunger and fullness levels using a visual analog scale (VAS) at the same time points.

Results:
The carbohydrate-last meal order resulted in a stable glucose profile with minimal variability whereas the carbohydrate-first meal pattern showed marked fluctuation in glucose levels; higher glucose peak at 60 min and lower nadir at 180 min compared to other meal conditions. Incremental areas under the curve for insulin were lower(iAUC0-180:354.1± 897.3 vs 975.7±1002.1 microU/ml x min; p=0.003) and GLP-1 higher(iAUC0-180 : 3487.56±327.7 vs 2519.11±494.8 pg/ml x min; p=0.019) for the carbohydrate-last meal condition compared to carbohydrate-first. Incremental area under the curve(dAUC0-180 )for ghrelin was not significantly different between meal conditions; however, the carbohydrate-last meal order lead to greater ghrelin suppression at 180 min compared to carbohydrate-first. There was no significant effect of food order on subjective VAS appetite measures.

Conclusions:
Food order has a significant impact on glucose, insulin and gut hormone excursions; further study is needed to assess its clinical implications for satiety and weight management.

T-P-LB-3713
Effect of Food Order on Postprandial Glucose Excursions in Prediabetes

Background:
It has been demonstrated that food order during a meal has significant impact on postprandial glucose excursions in type 2 diabetes; consuming vegetables and protein before carbohydrate attenuates post-meal glucose spikes compared to eating the same meal components in the reverse order. In this study, we sought to assess the generalizability of these findings to individuals with prediabetes using a meal with a different macronutrient ratio, and explored the glycemic impact of a third meal order of vegetables first followed by protein and carbohydrate.

Methods:
Using a crossover design, 10 subjects with overweight/obesity and prediabetes were assigned to consume the same meal on 3 days in random order: • Carbohydrate (bread) first, followed 10 minutes later by protein (chicken) and vegetables • Protein and vegetables first, followed 10 minutes later by carbohydrate • Vegetables first, followed 10 mins later by protein and carbohydrate Glucose was measured at baseline (just before meal ingestion) and at 30 min intervals up to 180 min.

Results:
Incremental area under the curve for glucose (iAUC 0-180) was significantly lower when protein and vegetables were consumed first compared to carbohydrate consumed first (2035.1± 576.7 vs 3669.9 ± 811.8 mg/dl; p=0.017) and showed a lower trend for the
vegetables-first meal compared to carbohydrate-first (2475.0±809.90 vs 3669.9 ± 811.8 mg/dl, p=0.08). Incremental glucose peaks were lower by 48% and 46% in the protein plus vegetables-first and vegetables-first meals respectively compared to carbohydrate-first (26.5±6.2 vs 51.3±8.3mg/dl; p=0.001, 27.8±7.6 vs 51.3±8.3mg/dl; p<0.001). The carbohydrate-first meal order demonstrated marked glycemic variability with peak at 60 min and nadir at 180 min; glucose levels were stable in other meal patterns.

Conclusions:
Food order has a significant impact on postprandial glucose excursions in prediabetes and may be a novel behavioral strategy for prevention of diabetes.

T-P.LB-3714
Prenatal Social Support and Early Childhood Obesity in Low-Income, Hispanic Families
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Background:
Exposure to prenatal stressors has been linked to childhood obesity, particularly among minority and low-income groups in the US. Factors that may mitigate the effect of those stressors have not been explored extensively. Social support (SS) has been shown to protect against obesity in cross-sectional studies, but there has been minimal longitudinal study of the effect of prenatal SS on later child growth.

Methods:
We performed a longitudinal cohort analysis using data from “Starting Early,” an obesity prevention trial for low-income, Hispanic mother-child dyads to study the impact of prenatal SS on child weight status at age 18 months. Prenatal SS was measured in the 3rd trimester of pregnancy by items from the Maternal Social Support Index (MSSI). Healthy weight (HW) was defined as weight-for-length 3rd-97th percentile for age and sex, obesity as weight-for-length ≥97th percentile, according to WHO guidelines. Using multivariable logistic regression, we tested for an independent effect of prenatal SS on child weight status, adjusting for potential confounders (intervention status, maternal prepregnancy BMI, education, nativity, age and child birth weight and sex).

Results:
Analyses included 380 mother-child dyads. Mothers had a mean age of 28 (SD 5.7), mean BMI of 28 (SD 5.4). 66% had completed high school and 81% were born outside the US. 83% of children were classified as HW at 18 months of age. Infants whose mothers had high prenatal social support were more than twice as likely to have HW status at age 18 months than those whose mothers had low SS in bivariate analysis (OR 2.2, p=0.01) and in multivariable analysis (aOR 2.05, p=0.02).

Conclusions:
Among low-income, Hispanic families, prenatal SS may protect against early child obesity. Further study into how prenatal social support serves as a protective factor against obesity is warranted, particularly among high-risk groups. Interventions to enhance social support during pregnancy may be effective in mitigating early obesity risk.

T-P.LB-3715
Childhood Obesity Treatment in Iowa: Primary Care Providers’ and Residents’ Practices and Attitudes
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Background:
Primary care providers (PCPs) have an important role in the assessment and treatment of children with obesity. The development of a clinician’s guide for childhood obesity treatment and its distribution throughout Iowa prompted a need to determine further resources to assist PCPs and residents in providing obesity treatment using the 2007 Expert Committee’s staged treatment approach. The purpose of this study was to assess Iowa PCPs’ and residents’ current practices, barriers, and needed improvements for childhood obesity treatment.

Methods:
PCPs and residents in Iowa were invited to complete a survey adapted from the National Survey of Energy Balance-Related Care among Primary Care Physicians developed by the National Cancer Institute. Surveys were distributed in Iowa to a pediatric conference, educational lectures, medical associations, and practice groups. Data was analyzed using a modified jackknife process that compared population subgroups to the population at large.

Results:
Complete surveys were received from 47 PCPs and 14 residents. PCPs were more likely to always provide general counseling to patients on weight-related behaviors (p < 0.005), however when residents counsel patients, they were more likely to utilize motivational interviewing and/or brief action planning (p < 0.001). Compared to PCPs, residents were less likely to provide specific guidance on nutrition (p < 0.001) or physical activity (p < 0.0005) and they also had less confidence in counseling about these key behaviors (p <0.025). PCP’s were more likely to refer patients to a care coordinator and to community-based services or programs (p < 0.001). Residents were more confident than PCPs that Registered Dietitians can help improve patient outcomes for pediatric weight management (p < 0.001).

Conclusions:
While PCPs in Iowa provide guidance on weight-related behaviors for children, residents appear to be struggling to provide similar guidance in their own practice.

**T-P.LB-3716**

**Associations Between Depressive Symptoms and Disordered Eating in Youth Who Are Obese**

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**Background:**

Children who are obese are at increased risk for psychological comorbidities. Depressive symptoms and disordered eating have been linked to poor outcomes, such as increased weight gain. The purpose of this project was to examine associations between child depressive symptoms and disordered eating in a sample of treatment-seeking youth who were obese.

**Methods:**

Participants included 139 youth 8 to 18 years of age (Mage = 12.69 years) who were obese (MBMIz-score = 2.60) and completed a psychological evaluation in a multidisciplinary outpatient pediatric obesity clinic. Youth completed the Children’s Depression Inventory 2nd Edition (CDI-2) and the Children’s Eating Attitudes Test (ChEAT).

**Results:**

Results revealed that 32.2% of the sample endorsed symptoms of depression in the clinically significant range and 31.2% of youth endorsed clinically significant disordered eating. Children who reported clinically significant depressive symptoms endorsed significantly higher food preoccupation (M = 2.43) compared to children who reported depressive symptoms in the normal range (M = .67), t (70) = -3.26, p < .01. No other group differences between those with clinically significant depressive symptoms and those without clinically elevated depressive symptoms were significant.

**Conclusions:**

Some children receiving treatment in pediatric obesity clinics experience clinically elevated symptoms of depression and disordered eating; thus, assessment of these constructs in routine clinical care is warranted. Given our results regarding associations between depressive symptoms and disordered eating in youth who are obese, the identification of shared mechanisms, such as emotion regulation, would be important to inform future research and clinical care. In addition, interventions that target depressive symptoms and disordered eating in behavioral family-based pediatric obesity treatments may be warranted.

**T-P.LB-3717**

**Parent Adverse Childhood Experiences in Pediatric Weight Management**

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**Background:**

Parental involvement is a key component of pediatric weight management (PWM) programs. As such, parental adverse childhood experiences (ACEs), which impact parental mental health and weight status, may in turn impact PWM compliance and outcomes. This study aimed to describe ACE scores among parents bringing a child to a PWM program.

**Methods:**

This cross-sectional study anonymously surveyed parents bringing a child for care at two Midwest academic PWM programs, to assess Felitti et al.’s conventional ACEs (10), expanded ACEs (7), depression diagnosis, and demographics. Total ACE score was calculated by summing total ACEs (range 0-17), with a high ACE score defined as > 4. Standard descriptive statistics were conducted. Exploratory chi-square analyses examined associations between demographic characteristics (i.e., sex, race/ethnicity, immigration status, education), depression diagnosis, and ACE scores.

**Results:**

The majority of caregivers (N = 70, mean age = 42±8 years) were female (87%), White (56%), and Hispanic (53%). Nearly half (49%) were immigrants. A minority (24%) reported a lifetime depression diagnosis or had a college/professional degree (37%). Total ACE score distribution was: 31% endorsed ≥ 4 ACE, 49% endorsed 1-3 ACE, and 20% endorsed no ACE. Depression was reported in 0 caregivers with ACE score of 0, 30% with ACE score 1-3, and 42% with ACE score > 4 (p=0.02). We found no associations between demographic factors and ACE score.

**Conclusions:**

Our findings suggest that a significant proportion of parents (almost 1 in 3) in PWM settings may have a high ACE score. As expected, higher ACE scores were associated with lifetime depression diagnosis. Further study of how parent ACEs, potentially mediated by factors such as depression, impact PWM compliance and outcomes may ultimately enable development of more effective treatment and retention strategies and improved weight outcomes.

**T-P.LB-3718**
A National Survey of Providers’ Involvement of Blended Families in Youth Weight Management Programs
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Background:
Family-based interventions are the standard for pediatric weight management programs (PWMPs), yet the details of how to involve additional family members, when youth are part of blended families (i.e., step-families) or reside in multiple households is not defined. The objective of this study is to describe how providers involve blended families and multiple households in PWMPs. The long-term goal of this inquiry is to increase provider assessment and involvement of blended families and the extension of dietary and physical activity interventions to multiple homes.

Methods:
A cross-sectional survey was conducted of PWMP providers in the US and Canada. Analyses included descriptive statistics and cross tabulations.

Results:
71 providers participated, representing 47 centers/clinics. The majority (96%) reported assessing multiple households where the child resides, most often during the medical history. Providers reported including the primary caretakers at all known residences (59%) in treatment, but not immediate family members beyond the primary caretaker at multiple residences. Providers reported adapting dietary (88%) and physical activity (77%) recommendations to accommodate multiple households. The most frequent adaptations included goals made for each family/household, adjustments on a per patient/family basis or based on family resources, and making materials available to all family members. The most frequent challenges in extending the patients’ treatment plan to multiple households included one caregiver/household not willing to participate or being present at visits, and consistency between households. Despite providers reporting that they assess multiple households when a child is part of a blended family, they did not have a formal interview template or form to use in their assessment (27%).

Conclusions:
Providers recognize the challenges that blended families present for obesity treatment, and attempt to include all caregivers in the process.

T-P-1.1B-3719
Associations Between Asthma Medications, Health Indices, and Behaviors in a Pediatric Obesity Clinic
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Background:
Obese children are at increased risk of medical co-morbidities, such as asthma. Little is known regarding the impact of asthma medications on health outcomes and health behaviors in obese children. The purpose of this project was to examine associations between asthma medications, health outcomes, eating, and physical activity.

Methods:
Participants included 416 children 2 to 18 years of age (Mage=12.13 years) who received treatment in a multidisciplinary pediatric obesity clinic (MBMIz=2.62). Information about asthma medications and health outcomes (e.g., weight status, blood pressure, heart rate, hemoglobin A1c) were obtained from records of the patient’s initial visit in the clinic. Parents completed a questionnaire assessment of meals/snacks eaten by the child each day and physical activity schedules.

Results:
Overall, 38.7% of pediatric obesity patients were prescribed an asthma medication. ANOVAs were utilized to compare health values and lifestyle behaviors in children prescribed inhaled steroid asthma medications, other types of asthma medications, and those not prescribed asthma medications. Results revealed a significant group difference in heart rate (F(2,406)=5.05, p=.007), where children with obesity prescribed inhaled asthma medications (M=91.54) had a significantly higher heart rate compared to those not prescribed asthma medications (M=86.47) and those prescribed other types of asthma medications (M=87.23). Group differences examining A1c were approaching significance (F(2,315)=2.31, p=.10). Other group differences examined not significant.

Conclusions:
Almost 40% of children attending a pediatric obesity clinic are prescribed asthma medications; thus, examining associations between asthma medications, obesity-specific health outcomes, and lifestyle behaviors are important. Our results suggest associations with some health outcomes in obese children, therefore, further examining these factors and their potential impacts on weight management interventions are important.

T-P-1.1B-3720
Waitlist Management in a Pediatric Obesity Treatment Program: Implementation of an Orientation Visit
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Background:
While primary care providers (PCPs) are encouraged to refer severe cases of pediatric obesity for multidisciplinary weight management, it may be difficult for such clinics to manage the volume of referrals, resulting in waitlists. Unmanaged obesity during childhood predicts greater morbidity and longer waits lead to decreased motivation and nonattendance. This study evaluates the implementation of an orientation session to address a waitlist of more than 2000 patients at the Healthy Lifestyle Clinic (HLC), a pediatric weight management program in the Mid-South U.S.

Methods:
An orientation session was implemented in November 2016. This hour-long group-based overview of the HLC accommodates up to 50 families per session and provides information about the structure and expectations of the clinic as well as education on healthy lifestyle recommendations (e.g., physical activity, fruit and vegetable intake, sugary beverage intake). Families are contacted from the waitlist by phone and invited to attend. Attendance is required before an initial HLC appointment is scheduled.

Results:
Since October 2014, PCPs have referred 2874 patients to the HLC with ~30 new referrals per month. Since November 2016, 1674 patients from the waitlist have been contacted with 580 scheduling an orientation session. Of the 532 scheduled for an orientation that has occurred, 188 (35%) attended and demonstrated improved knowledge of healthy lifestyle recommendations (p<0.001). Of the 188 orientation participants, 174 (93%) scheduled an HLC appointment. For the 117 whose appointments have occurred, 93 (79.5%) completed the visit. Currently, only 444 patients (15% of the waitlist) still need first contact, and 588 patients have been called but not reached.

Conclusions:
An orientation session has been an effective and efficient way to triage patient referrals while maximizing attendance in the limited clinic slots for patients and families demonstrating interest and motivation.

T-P-LB-3721
The Risk Factors of Parents’ Misperception for Preschool Children’s Weight Status
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Background:
There has been overwhelming epidemiological evidence that childhood obesity is increasing over the past several decades. This is becoming a key public health issue in both industrialized and developing countries. The children are cared by parents in China and the caregiver’s attitude affected eating styles, food preferences and choices. The parents’ misperception of children’s weight status contributed to childhood obesity. In order to prevent the childhood obesity, it is necessary to investigate the parents' misperception weight status and exploring the risk factors of misperception.

Methods:
A cross-sectional survey of 350 parents of preschool-aged children from one kindergarten in Changsha was conducted. Children’s height and weight were measured, and BMI was calculated.

Results:
There was no consistency between the children’s actual weight and their parents’ perceived weight status. (Kappa = 0.193), among the overweight and obese preschool children, 73.47% of parents underestimate their child’s weight status. Single factor analysis showed that the class of the child (P < 0.01), the mother's actual weight (P < 0.01) and parents' perception of their own weight status (P < 0.01) were influencing factors for parents' underestimate of their child’s weight status. Multivariable logistic regression analysis showed that relative to bottom class children, the parents of middle class (OR = 2.703, 95% CI: 1.328 ~ 5.504) and top class (OR = 3.442, 95% CI: 1.463 ~ 8.097) were more likely to underestimate their child’s weight status; Parents who thought they were overweight were more likely to underestimate their child’s weight status (OR = 2.588, 95% CI: 1.428 ~ 4.692)

Conclusions:
Preschool children's parents have a tendency to underestimate their child's weight status, the class of the child, parents' perception of their own body weight status were the risk factors of underestimate.

T-P-LB-3722
Phentermine/Topiramate Extended Release as an Adjunct to Sleeve Gastrectomy in BMI ≥ 50 kg/m2
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Background:
Surgical treatment of individuals with BMI ≥ 50 kg/m2 can be complicated and high risk. A 2-stage process is often recommended including sleeve gastrectomy (SG) followed by a malabsorptive procedure. We studied whether the pre- and post-operative use of phentermine/topiramate (P/T) combined with SG in patients with a BMI ≥ 50 kg/m2 could be an alternative to 2-stage treatment.

Methods:
We recruited patients with a BMI≥50 kg/m² who elected to have SG at the Weight Management Center at Wake Forest Baptist Health from 2015-2016 (n=15) to participate in this open label clinical trial. Participants took P/T (7.5/46-15/92 mg daily) for 3 to 6 months preoperatively. They discontinued P/T perioperatively then resumed 1-month post-operative; otherwise, they received the same care as other SG patients. We compared their percent change of initial weight to historical controls that included all SG patients in 2015 at WFBH (n=110). We used univariate analysis of variance to compare treatment groups (P/T+SG vs. SG) over time adjusted for age, sex, and initial BMI. Data are presented as means ± standard deviation or 95% confidence interval.

**Results:**
On average, P/T+SG patients (44±7 years) had an initial BMI=61.2±7.1 kg/m² compared to SG alone patients’ (48±11 years) initial BMI=48.5±7.7 kg/m²; 6.4% of SG alone had a BMI≥60 kg/m² compared to 53.3% of P/T+SG. At 6 months, post-operative weight change was -32.7% of initial weight for P/T+SG compared to -26.9% for SG alone (mean difference=-5.7%[95% CI, -2.6 to -8.9]). By 12 months, weight change was -39.1% for P/T+SG (n=10) compared to -31.2% for SG alone (n=77) (-7.9%[-4.2 to -11.5]). Adjusted mean BMI at 12 months was 37.6 kg/m² for P/T+SG compared to 35.5 kg/m² for SG alone (2.1[-2.1 to 6.3]).

**Conclusions:**
Patients with a BMI≥50 kg/m² treated with P/T+SG had greater percent weight loss through 12 months, even after adjustment for higher initial BMI. Additional follow up is needed to assess longer term effects of this pharmacologic and surgical co-intervention.

**T-P-LB-3723**

**Efficacy of Pregabalin and Ketamine as a Bariatric Surgery Multimodal Pain Management Strategy**

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**Background:**
Guidelines on the management of postoperative pain recommend the use of multimodal pain management given superior pain relief and decreased opioid consumption. Use of a preoperative pregabalin and ketamine is recommended as adjunctive therapy to reduce opioid requirements and lower postoperative pain scores after minor or major surgical procedures. Guidelines specific to bariatric surgical procedures do not exist.

**Methods:**
A retrospective, single-center cohort study was conducted. This study was exempt from the institutional research review board. Fifty primary bariatric surgical patients whom did not receive pregabalin and ketamine prior to the institutions change in pain management protocol were compared to fifty patients that received preoperative pregabalin 150 mg orally and ketamine 40 mg intravenously (IV). Chronic pain patients and secondary revision surgeries were excluded. Data collected included demographics, length of stay, morphine equivalents (MED), and pain scores. The primary objective was to determine if pregabalin and ketamine reduced opioid consumption. Secondary outcomes included reduction of pain scores and medication safety. Assuming a Cohen-d effect size of 0.8 between groups with 80% power and 5% alpha would require at least 26 patients in each group. Microsoft Excel© was used to calculate a two-tailed, student t-test for the primary objective, and p<0.05 was considered statistically significant.

**Results:**
Pregabalin and ketamine reduced the total median MED by 58.5 mg (p < 0.018) and IV by 52 mg (p < 0.012). There was no difference in total median oral MED (p < 0.912). Average pain scores were lower on the day of surgery in post-intervention group and similar on postoperative day one. No adverse drug reactions occurred.

**Conclusions:**
Preoperative pregabalin and ketamine reduced opioid consumption and pain scores in patients undergoing primary bariatric surgery.

**T-P-LB-3724**

**Pharmacological Treatment of Obesity In Patients With Down Syndrome: A Case Series**

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**Background:**
The prevalence of pre-obesity and obesity is substantially higher in individuals with intellectual and developmental disability, especially Down syndrome (DS), compared to neurotypical individuals. However, most weight loss strategies have focused on behavioral modification, with little to no data describing pharmacological or surgical interventions.

**Methods:**
14 patients with DS were started on a behavioral weight loss intervention at the Massachusetts General Hospital (MGH) DS Program and then referred to the MGH Weight Center. Anti-obesity medications (AOM) were initiated in combination with behavioral modification after a comprehensive evaluation by an interdisciplinary team at the MGH Weight Center.

**Results:**
The mean age was 29 years. 60% were female, the majority were Caucasian. Most patients (67%) had severe obesity (BMI>40mg/m²), and 20% had a BMI>50mg/m²; 93% had obstructive sleep apnea, 29% with diabetes and 21% with fatty liver disease. All had previously attempted self-directed and commercial programs for weight loss, and 86% had previously met with a dietitian. The most commonly
prescribed AOMs were phentermine (n=8) and metformin (n=3). Half of those started on phentermine initially lost an average 17% of their total body weight (TBW); one experienced side effects and one did not lose weight. Two individuals started on metformin lost more than 10% TBW; one had been on topiramate. 20% of patients were on a combination of medications. One patient underwent bariatric surgery.

Conclusions:
Severe obesity in selected individuals with DS can be effectively treated with a combination of behavioral and pharmacological interventions. Weight loss responses to AOM in patients with DS are similar to neurotypical individuals. Both AOM and bariatric surgery should be considered as treatment options in individuals with obesity who do not respond to behavioral modification. It is imperative that appropriate, sustained intervention strategies are developed to treat obesity in this population.

T-P.LB-3725
Persistent Weight Loss Maintenance With Metformin Therapy Among DPP/DPPOS Participants
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Background:
In the Diabetes Prevention Program (DPP), overweight/obese patients at high risk for diabetes, randomized to metformin, had a mean weight loss of 2.7 kg (±4.7 kg) at 1-year, with 29% (n=289) achieving ≥5% weight loss at 1-year. During the DPP Outcomes Study (DPPOS), participants continued on open-label metformin. We examined sustained weight loss over the next 14 years among metformin participants who lost at least 5% at 1-year.

Methods:
Using univariate and multiple logistic regression models, we evaluated the demographic, psychosocial, and physiological predictors of long-term weight loss maintenance (WLM), defined as maintaining at least 5% weight loss, at each annual visit through 15 years of follow-up.

Results:
The mean % weight loss among the 289 participants in the metformin group who achieved ≥5% weight loss was 8.9% (±3.5%) at DPP Year-1. Over the next 14 years, the percent of those participants who maintained a 5% weight loss at each annual visit ranged from 51-64% at each annual visit, with an average weight loss ranging from 5.8% to 8.2%. Univariate models demonstrated consistently higher odds of long-term WLM (≥5%) in persons with older baseline age, higher levels of both baseline systolic blood pressure and 2-hr glucose, greater % weight loss at year 1, and active use of with study-provided metformin. In multivariate models, older age at randomization to metformin, higher initial % weight loss, and active use of study-provided metformin independently increased the odds of successful WLM.

Conclusions:
Patients who lose ≥5% in the first year of metformin therapy have clinically meaningful long-term weight loss maintenance. Older age, greater initial weight loss, and active use of metformin independently predicted successful long term WLM. These findings may be important in identifying patients who will likely achieve weight loss maintenance with long-term metformin therapy.

T-P.LB-3726
A Prospective Observational Study Assessing the Effect of Appetite Suppressants on Weight Loss
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Background:
There is literature demonstrating a relationship between the use of appetite suppressants and weight loss, but limited research has been done to compare the likelihood of clinically significant weight loss with appetite suppressants. The objective of this study is to compare the effect of appetite suppressants on the probability of losing clinically significant weight in patients enrolled in a non-surgical medically-supervised weight management program. Clinically significant weight loss is defined as a loss of ≥ 5% of initial body weight.

Methods:
A sample of 418 patients was analyzed (phentermine=204, phendimetrazine=98, no medication or comparison group =116). Cox proportional hazard model was used to assess the event of interest (5% loss of starting body weight) over 24 weeks.

Results:
We found that participants in the phentermine (1 tablet,15-37.5 mg q.d.) group had 58% higher probability of losing clinically significant weight compared to those who were in the ‘no medication’ group, after adjusting for sex, starting BMI, and age (HR =1.58, p =0.001). Participants in the phendimetrazine (1-2 tablets, 35 mg t.i.d.) group had 27% higher probability of losing clinically significant weight compared to those who were in the ‘no medication’ group, after adjusting for sex, starting BMI, and age (HR =1.27, p =0.12).
Conclusions:
Our results show that the probability of achieving clinically significant weight loss is greater with phentermine compared to phendimetrazine; however, these results have some limitations due to unadjusted factors, such as medication dose and dosage schedule that may impact patient medication regimen compliance.

T-P-LB-3727
Obesity and Hyperphagia Therapy in Bardet-Biedl Syndrome With a Melanocortin-4 Receptor Agonist
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Background:
Bardet-Biedl syndrome (BBS) is a genetic obesity syndrome characterized by early onset obesity and hyperphagia. Proteins encoded by BBS genes facilitate leptin-melanocortin (LEP-MC) signaling critical to anorexigenic regulation. Effective drug therapies for obesity in BBS have not been reported. Setmelanotide, a melanocortin-4 receptor (MC4R) peptide agonist, has induced weight loss in patients with monogenic defects in LEP-MC signaling pathways. We report preliminary data in an ongoing proof-of-concept trial using setmelanotide in BBS.

Methods:
Five subjects (age 12-61 years, 4 females) diagnosed as BBS with 4 distinct genotypes were enrolled in a 52-week trial. Setmelanotide was administered daily by SQ injection with dose titration every 2 weeks to a maximum of 3 mg/day based on weight and hunger responses. The primary endpoint is percent body weight change; secondary end-points include metabolic & biometric parameters, hunger/hyperphagia scores, and safety & tolerability assessments.

Results:
Subjects exhibited morbid obesity and hyperphagia at initiation (44.8 +/- 2.5 kg/m²). Mean BMI, weight and waist circumference decreased 6.9%, 7.1% and 6%, respectively, in 4 subjects within 6 to 19 weeks of starting treatment (including the multi-week titration); 1 subject showed no weight loss. Hunger/hyperphagia scores markedly improved in all subjects. Improvement in lipids, hsCRP, liver transaminases, and glycemic indices were generally observed in all subjects. Therapeutic responses were observed in each genotype. Therapy was not associated with adverse changes in BP or HR. Adverse effects included mild injection site reactions and increased skin pigmentation; otherwise MC4R agonist therapy was well tolerated.

Conclusions:
Favorable anorexigenic effects and good tolerability achieved with the MC4R agonist setmelanotide in this ongoing proof-of-concept study supports the importance of continued evaluation of MC4R agonist therapy in BBS and other monogenic disorders of the LEP-MC signaling pathway.

T-P-LB-3728
Psychiatric-related Safety of Naltrexone/Bupropion in a Large Randomized Double-blind Trial
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Background:
Extended-release naltrexone 32 mg/bupropion 360 mg (NB) is approved for chronic weight management as an adjunct to diet and physical activity. Trial assessed the effect of NB on cardiovascular (CV) events in participants with overweight/obesity at elevated CV risk. Randomized participants (NB or placebo [PBO]) were required to lose ≥2% body weight at 16 wks, without a sustained increase in blood pressure, to continue study drug. Serious adverse events (SAE) and AEs leading to discontinuation of study drug (AELDSD) were collected.

Methods:
Trial was terminated early after second interim analysis, corresponding to collection of 50% of the primary endpoint data. The current analyses focused on treatment-emergent (TE) AEs that are psychiatric in nature.

Results:
The intent-to-treat population (NB N=4455, PBO N=4450) was 54.5% female, 83.5% white, mean age of 61 yrs, mean BMI 37 kg/m², 22.8% with a history of depression, 23.1% on antidepressant medication at baseline, and 121 wks median follow-up. Incidence of psychiatric-related TE SAEs was very low (0.2% NB, <0.1% PBO), and no reported suicide attempts or completed suicides. Reported events included major depression (0.1% NB); bipolar disorder, delirium, hallucination (each <0.1% NB); and depression, suicidal ideation (each <0.1% PBO). Incidence of psychiatric-related AELDSDs was also very low, but slightly higher in NB group. Most frequently reported events were insomnia (0.8% NB, 0.4% PBO), anxiety (0.6% NB, 0.2% PBO), depression (0.1% NB, 0.2% PBO), and hallucination (0.2% NB). Depression, anxiety, and sleep disorder-related AEs generally mild/moderate. Anxiety and sleep-related AEs tended to occur early, while depression-related occurred later.

Conclusions:
Data from this large trial, which includes participants using antidepressants, provides reassurance that psychiatric SAEs with NB are
T-P.L.B-3729
Liraglutide Effects on Gallbladder Emptying: A Randomized Trial in Adults With Overweight or Obesity
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Background:
In previous trials, liraglutide 3.0 mg was associated with more gallbladder-related events vs placebo. The primary objective of this single-center, double-blind trial was to compare the effect of a 0.6 mg dose of liraglutide and steady-state liraglutide 3.0 mg after 12 weeks of treatment with placebo on postprandial gallbladder emptying in adults with overweight or obesity and without diabetes.

Methods:
Participants were randomized to once-daily subcutaneous liraglutide, starting at 0.6 mg with 0.6 mg weekly increments to 3.0 mg (n=26), or placebo (n=26), with nutritional and physical activity counselling and a target ≥5% weight loss. A liquid meal test (600 kcal; fat load 24 g) was done at baseline, after the first 0.6 mg dose and after 12 weeks. The primary endpoint was the maximum postprandial gallbladder ejection fraction (GBEFmax) after 12 weeks, measured from 0 to 240 min after the start of the meal. ClinicalTrials.gov ID NCT02717858. Sponsor: Novo Nordisk.

Results:
Baseline characteristics were similar between groups (in total 50% male, age 47.6±10.0 years, body weight 99.0±15.7 kg, BMI 32.6±3.4 kg/m2, mean±SD). At steady state after 12 weeks, the mean GBEFmax (treatment difference [95% confidence interval (CI)] -3.7 [-13.1, 5.7] %) and area under the GBEF curve in the first 60 min (-390 [-919, 140] %min) did not differ for liraglutide 3.0 mg vs placebo. Time to GBEFmax was 151 [11–240] min (median [range]) with liraglutide 3.0 mg and 77 [22–212] min with placebo. Gastric emptying (4 h acetoniphen) slowed after a single 0.6 mg dose vs placebo but no treatment effect was seen at steady state. Mean weight loss after 12 weeks was 8.2±1.8% vs 5.5±3.6% for liraglutide vs placebo. There were no unexpected safety findings. As in other liraglutide trials, gastrointestinal side-effects, notably nausea, were most common.

Conclusions:
Treatment with liraglutide did not affect GBEFmax, but appears to have prolonged the time to GBEFmax. No unexpected safety concerns were identified with this trial.

T-P.L.B-3730
Incident Hypertension and Cardiovascular Disease With Phentermine Monotherapy
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Background:
Phentermine is the most widely prescribed weight loss drug, but a lack of data around blood pressure (BP), longterm cardiovascular (CV) effects, and efficacy may shorten or deter use. This study aimed to examine the effect of phentermine monotherapy on BP, incident CV disease and BMI in patients with overweight/obesity.

Methods:
The Patient-Centered Outcomes Research Institute database was utilized to identify patients ages 20-79 with body mass index (BMI) ≥ 25 kg/m2 from 01/01/2010 through 01/31/2017. Cohort A included patients with 2 visits in which phentermine was prescribed. Cohort B included unexposed control patients. Patients with exposure to other pharmacologic or surgical weight loss interventions were excluded. Both cohorts were stratified for BP and CV comorbidities 6 months prior to phentermine exposure, during exposure, and 6 months after phentermine discontinuation (cohort A); and at baseline and 6 and 12 months later (cohort B).

Results:
The analysis included 903,421 patients (5,186 in cohort A and 892,334 in cohort B). In cohort A, phentermine treatment resulted in a non-significant trend toward decreased BMI but no change in BP. 30% were free of CV comorbidities at baseline and prevalence was unaffected by phentermine exposure. Cohort B experienced a non-significant increase in BMI and systolic BP and decrease in diastolic BP. 18% were free of CV disease at baseline and incident increased during the study.

Conclusions:
Phentermine treatment did not result in satisfactory BMI decline. This could indicate inadequate treatment duration, lack of diet and lifestyle support, or another factor. Patients selected for phentermine use had a lower baseline CV disease burden. No significant changes were observed for BMI or BP in either cohort. This suggests patients treated with phentermine may not experience weight changes or increases in BP and related CV risk. Further research will be performed to understand the CV effect of phentermine in the context of expected decline in BMI.
The 35th Annual Scientific Meeting of The Obesity Society 2017 Abstracts
Thursday, November 2, 2017
Late-Breaking Poster Abstracts

T-P-LB-3731
The Effect of Beta Blockers on Phentermine's Weight Loss Properties
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Background:
Phentermine (PHEN) is an adrenergic agonist that promotes weight loss primarily by increasing norepinephrine levels in the hypothalamus leading to appetite suppression. In addition, the increase in norepinephrine also promotes lipolysis contributing to weight loss. The purpose of this study is to evaluate the impact of oral beta-blockers drugs (BB) on phentermine’s action in a retrospective cohort of patients who achieved at least 5% weight loss (AL5%WL) in 90 days at Boston Medical Center. Our hypothesis is that BB blockers will decrease the weight loss effect of PHEN and this effect will be greatest with lipophilic BB (LBB) due to their central and peripheral action.

Methods:
The 2002-2015 electronic medical records were reviewed for patients prescribed PHEN and BB drugs. The BB were categorized as LBB vs. non-lipophilic BB (NLBB) and vasodilator (VBB) vs. non-vasodilator (NVBB). Patients were categorized by percent weight loss during 90 days (<5% or ≥5%). Patients were excluded if: BMI <27 kg/m2, ages <18 years, used additional weight loss medications aside from PHEN, and/or lacked follow-up appointment at end of time period studied.

Results:
5260 patients met inclusion criteria and those prescribed a BB achieved less weight loss than their counterparts (30.1% vs. 41.9%, OR 0.5955, 95% CI 0.4812-0.7391, p<0.0001). Specifically, there was no significant difference in AL5%WL results between LBB vs. NLBB and VBB vs NVBB (28.0, 31.3, 31.3 and 29.9 % respectively).

Conclusions:
Patients prescribed PHEN and a BB were less likely to achieve at least 5% weight loss in comparison to those on phentermine alone. This may be explained partially by the effect of BB drugs on lipolysis and thermogenesis. However our findings did not demonstrate a significant difference between LBB and NLBB. Further research is warranted with a larger cohort of patients and more detailed analysis of BB, including the impact of their dosing.

T-P-LB-3732
The Utility of Metformin as Anti-obesity Pharmacotherapy
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Background:
Metformin is often used off-label for weight management, however, there are limited data on weight loss outcomes in clinical practice with metformin as first-line anti-obesity pharmacotherapy in combination with a low glycemic diet.

Methods:
In a retrospective study, 999 consecutive new patients with overweight/obesity seen at the Weill Cornell Comprehensive Weight Control Center for the first visit during 4/1/14-4/1/15 were identified through an EPIC search. 359 patients with documented 6-12 month follow up were included in the analysis. Demographics, medications prescribed, and weight changes after initiation of pharmacotherapy were recorded by reviewing electronic medical records. Patients were categorized to one of three groups based on the weight loss medications taken. Group 1: metformin only Group 2: metformin plus other weight loss medications Group 3: weight loss medications excluding metformin.

Results:
All patients received both pharmacotherapy and counseling on a low glycemic diet. Mean age and BMI at baseline were 49.1±14.5 years and 36.1±7kg/m2 respectively, 68.5% were female. Mean weight loss at 6 months was 7% in Group 1(n=98), 6.5% in Group 2 (n=176) and 5.7% in Group 3 (n=40). In groups 1, 2, and 3 respectively, 55%, 59%, and 50% of patients achieved ≥5%, and 32%, 25%, and 17 % achieved ≥10% weight loss. At 12 months, mean weight loss was 7.8% in Group 1(n=84), 9.4% in Group 2(n=161) and 7.5% in Group 3(n=39). 60%, 74% and 62% of patients achieved ≥5%, and 38%, 43% and 33% achieved ≥10% weight loss in Groups 1, 2 and 3 respectively. The most commonly prescribed pharmacotherapies were metformin (77.5%), phentermine-topiramate ER (23.6%), lorcaserin (16.6%), topiramate (9.2%), phentermine (7.8%) and liraglutide(7%).

Conclusions:
Metformin induces clinically meaningful weight loss in combination with a low glycemic diet and warrants consideration for inclusion as standard pharmacotherapy for obesity.

T-P-LB-3733
Ethnic Variability of Response to Naltrexone Plus Bupropion: Enhanced Response Observed in Asians
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Background:
The combined use of sustained-release naltrexone and bupropion has been approved for treatment of obesity in both the United States (US) and Europe. Its efficacy is estimated to be 4.8% of weight loss above diet and lifestyle in the US population. Through a named patient program, naltrexone plus bupropion was made available to patients residing in Hong Kong. We report the findings of a retrospective analysis.

Methods:
Data at baseline, 3, 6 and 12 months from subjects prescribed with naltrexone plus bupropion were analyzed. The primary endpoint was % weight reduction. The secondary endpoints were changes in % body fat (%BF), glycemic status, blood pressure (BP) and tolerability.

Results:
Thirty-two patients (19 men, 13 women; mean age 42.5+/−9.1 years, range 27-61 years; mean body mass index 37.4+/−4.7, all ethnically Chinese) who were prescribed with naltrexone plus bupropion were included in this analysis. Three-month data was available for 25 patients, 6-month data was available for 20 patients, and 9-month data was available for 16 patients. The median weight reduction from baseline at 3, 6 and 12 months were 5.5%, 8.6% and 11.8% respectively. Patients who achieved more than 5% weight reduction from treatment with naltrexone plus bupropion all had improvements in their %BF, glycemic status and BP after 12 months of treatment. The drug combination was stopped in 4 patients due to a lack of efficacy at ≥ 3-month treatment (i.e. weight reduction of 5% or less) and in 4 patients due to poor tolerance to side effects. One patient switched over to alternative treatment by choice and one patient defaulted follow-up.

Conclusions:
The effect of naltrexone plus bupropion on weight loss appeared to be enhanced in Asians compared with that reported for the US population. Further pharmacokinetic studies may shed insight on the underlying mechanism for this ethnic variability.

T-P-LB-3734
Clinical and Psycho-social Determinants of Quality of Life 9-years After Gastric Bypass
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Background:
We investigated clinical and psycho-social determinants of quality of life(QoL) in the long-term after gastric bypass (GB) in a public obesity clinic in Brazil.

Methods:
We included individuals with ≥5 years after GB in the retrospective cohort study. SF-36 physical (PCS) and mental (MCS) component scores were used to assess QoL, % excess BMI loss (%EBL), hypertension (HT), diabetes mellitus (DM), gastroesophageal reflux (GERD), physical activity (PA), alcohol consumption and depression were evaluated before and after surgery by clinical history, use of medications and laboratorial data. Means and proportions before and after surgery were compared by paired t Student and McNemar tests. The association between PCS and MCS with age, sex, marital status, family income, %EBL and comorbidities was tested by ordinal logistic regression models.

Results:
Female sex (86%), married status (57.4%) and low income (68.7%) were predominant among the 115 participants. Mean age and follow-up time were 40.2 (13.2) and 8.7 (2.9) years, respectively. PCS and MCS were 48.5 (9.8) and 48.7 (15.9), respectively, after surgery. BMI decreased from 51.9 (8.3) to 36.1(6.7) kg/m2 (p<0.001) with 58% (22.1) mean %EBL. Changes in HT (78.4% vs 54.1%, p<0.001),DM (36.9% vs 9%, p<0.001), GERD (35.0 vs 65.0%; p<0.001) and PA (22.3 vs 37.5%; p=0.01) were significant, but not in alcohol consumption (40.2 vs 32.1%; p=0.11) and depression (59.8% vs 53.6%; p=0.25). PCS was associated with age (OR 0.95; 95%CI 0.91-0.99),%EBL (OR1.03; 95%CI 1.01-1.06),not being married (OR 3.04; 95%CI 1.08-8.61) and improvement of metabolic comorbidities (OR7.88; 95%CI 1.08-57.3). None of the characteristics investigated was associated with MCS.

Conclusions:
GB-induced weight loss and control of metabolic comorbidities impact on physical issues of QoL in the long-term. Mental well-being after surgery might be related to more complex psycho-social issues that warrant further investigation. Acknowledgement: Capes,Fapemig and CNPq funded this research.

T-P-LB-3735
Effect of Demographic and Psychological Factors on 12 Month Outcomes in Adolescent Bariatric Surgery
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Background:
Weight loss surgery is an increasingly utilized treatment for adolescents with severe obesity. This study aims to investigate the effect of demographic variables (age, gender and ethnicity) and pre-surgical mental health on the change in BMI (% excess BMI loss) after Laparoscopic Sleeve Gastrectomy (LSG) in adolescents with obesity.
Methods:
Retrospective chart review of a prospective LSG patient database (N=196, 75% female, 75% minority) was performed. Change in BMI at 3, 6 and 12 months after surgery was assessed. Mental health diagnoses evaluated using a structured interview (KSADS) were obtained at the pre-surgical evaluation. A non-linear Latent Variable Growth Model (LGM) was estimated, including demographic variables and presence/absence of diagnoses in the classes of anxiety, depression, attentional disorders, and eating disorders.

Results:
The presence of a diagnosis of anxiety, depression, or ADHD was not associated with change in BMI at any time point. The presence of a diagnosed eating disorder was associated with less excess BMI loss at 3 months, but not thereafter. Change in BMI at 3 months was significantly associated with change in BMI at 12 months (r=0.892, P<0.001). 6 month outcomes (I=0.650) had a larger effect on 12 month outcomes than those at 3 months (I=0.516). Age, gender, and ethnicity were not associated with 12 month change in BMI.

Conclusions:
Our data indicate that there is no association of demographic variables or mental health diagnoses with 12 month change in BMI following LSG in adolescents. Thus neither age nor presence of a mental health diagnosis should be contraindications to LSG; but assessment and treatment of disordered eating should remain a key part of preparation for surgery. Also, the larger effect of the 6 month change in BMI on the 12 month outcome suggests there may be a window in which patients exhibiting suboptimal BMI change at 3 months can be identified and an intervention provided to optimize the 12 month outcome.

T-P-LB-3736
Bariatric Surgery Improves NAFLD: A Contemporary Systematic Review and Meta-Analysis
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Background:
Non-Alcoholic Fatty Liver Disease (NAFLD) is prevalent in bariatric patients. We sought to assess the impact of bariatric surgery on NAFLD via a comprehensive systematic review and meta-analysis.

Methods:
We searched PubMed, EMBASE, Web of Science, and CENTRAL to identify publications from 1999-2016 on bariatric surgery, NAFLD, liver histology, steatosis, steatohepatitis, and fibrosis. Improvement in NAFLD was assessed using liver biochemistry and histology. Malabsorptive procedures were excluded. The primary outcome measures were improvement and/or resolution of steatosis, steatohepatitis or fibrosis. A pooled proportion of patients using a random effects model. Heterogeneity was assessed using the I2 (inconsistency) statistic.

Results:
A total of 21 studies enrolling 2374 patients were included; heterogeneity was significant. Twelve studies investigated the impact of RYGB, 3 studies included Adjustable Gastric Banding, 2 studies assessed Sleeve Gastrectomy, 1 study included vertical banded gastroplasty and 3 studies reported a mix of procedures. The pooled proportion of patients who underwent bariatric surgery and had improvement or resolution of steatosis was 88% (95% CI: 0.80-0.94). Steatohepatitis improved or resolved in 59% (95% CI: 0.38-0.78) and fibrosis improved or resolved in 30% of patients (95% CI: 0.21-0.41). After RYGB, 91% (95% CI: 0.82-0.97) of pooled patients who had improvement or resolution of steatosis; 60% (95% CI: 0.34-0.84) had improvement or resolution of steatohepatitis and 31% (95% CI: 0.17-0.46) had improvement or resolution of fibrosis.

Conclusions:
Bariatric surgery improves or resolves liver fibrosis in 30% of patients and improves or resolves steatosis or steatohepatitis in the majority of patients. RYGB has greater impact on NAFLD compared to gastric banding and gastric sleeve. This contemporary meta-analysis strongly suggests that bariatric surgery should be considered as a treatment of NAFLD.

T-P-LB-3737
Intragastric Balloons Affect Hepatic Portal Pressures: Results of an Animal Study
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Background:
Intragastic balloons (IGBs) are a weight loss option that is less invasive than bariatric surgery and more effective than lifestyle therapy. IGBs may provide a treatment option for obesity-related liver disease. However, fluid-filled IGBs weigh roughly 1.5 pounds and have limited mobility within the stomach. Our aim was to assess the effect of IGB on portal pressure in a porcine model.

Methods:
A 40 kg Yorkshire pig was used under an IACUC approved protocol. We performed conventional transjugular catheterization to the right internal jugular vein. Via 8F introducer sheath, a saline-flushed balloon occlusion catheter with transducer wire was advanced to the level of the inferior vena cava (IVC) and the hepatic vein (HV). A commercially available IGB was placed in the fundus of the stomach and inflated with 600 ml of saline. Measurements of the IVC and the free HV pressures were recorded over 30 to 60 seconds before and
10 minutes after implant, after explant, and after air insufflation of the stomach without IGB. Comparisons were performed with the Student t-test, significant p <0.05.

**Results:**
Transjugular catheterization, balloon implant and removal were successful. Since our animal model did not have portal hypertension, measurements of the IVC and free HV pressure would correspond to portal pressures. The baseline pressure within the IVC was 1 mmHg higher than the pressure in the HV. After placement of the IGB, pressures within the IVC and HV increased significantly by 31% on average, P<0.005. After explant, pressures returned to baseline. Elevation by 1 mm Hg (14%), was also noted with maximal gastric distension via air insufflation.

**Conclusions:**
IGB placement significantly increased pressures within the portal system in a porcine model. This may lead to serious events in patients with baseline portal hypertension. Further studies in animals and humans are needed to better understand these findings.

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**T-P-LB-3738**
**Nissen Fundoplication-preserving Laparoscopic Sleeve Gastrectomy: A Case Series**
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**Background:**
Gastroesophageal reflux disease (GERD) is significantly more prevalent in obese patients. Nissen fundoplication alleviates symptoms in those refractory to dietary changes and optimal medical management. The need for concomitant treatment of GERD and obesity is becoming more prevalent. In those with existing Nissen fundoplication requiring weight loss surgery, standard of care is reversal of fundoplication and subsequent Roux-en-y gastric bypass. We report our experience with Nissen-preserving laparoscopic sleeve gastrectomy in patients requiring bariatric surgery.

**Methods:**
We retrospectively reviewed 5 patients who underwent laparoscopic Nissen-preserving sleeve gastrectomy between 2011-2016. All patients had well-controlled GERD and pre-operative work-up confirming intact fundoplication without hiatal hernia. We compared pre- and post-operative subjective GERD symptoms, occurrence of any immediate post-operative complications from the procedure, and excess weight reduction.

**Results:**
Of the 5 patients, 4 were female and 1 was male. Mean age was 50.6 years. Mean preoperative BMI was 44.8. Mean BMI reduction at one month and six months was 3.6 and 7.42, respectively, with mean excess weight reduction at six months of 28.25%. There were no immediate postoperative complications. Subjective GERD symptoms were unchanged in two patients and improved in the other three patients.

**Conclusions:**
We demonstrate the early feasibility of Nissen-preserving laparoscopic sleeve gastrectomy for surgical weight reduction in patients with existing Nissen fundoplication. We had no complications to report. Although our results are early, we feel encouraged by mean excess weight loss to date and control of GERD. Long-term follow up is needed to determine if our data is congruent with excess weight loss reported in the literature for LSG alone.