were no statistically significant differences in the IRR of prescriptions by race/ethnicity at 1 and 3 years; however, although not statistically significant point estimates suggest Hispanic/Latino youth being prescribed medication less often at 1 (IRR 0.71; p=0.08) and 3 (IRR 0.75; p=0.13) years compared to NHW. Among non-primary English speakers, rates of prescriptions were higher at 1 (IRR 5.7; p<0.01) and 3 (IRR 3.5; p<0.01) years in those using an interpreter versus those not.
Conclusions: We found no significant race/ethnic differences in anti-obesity medication prescriptions; however, Hispanic/Latino youth received fewer prescriptions, albeit not statistically significant. Among non-primary English speakers, use of an interpreter was associated with increased prescriptions. Our results suggest that addressing healthcare disparities and language barriers may improve care delivery for youth with obesity.

Adipose Tissue, Appetite, and Obesity
INTEGRATED PHYSIOLOGY OF OBESITY AND METABOLIC DISEASE

Are Obese Patients Evaluated for Non-Alcoholic Fatty Liver Disease in an Endocrinology Outpatient Clinic?

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Background: Obesity is an increasing global health problem worldwide and Uruguay mirrors these trends. It leads to various complications that include non-alcoholic fatty liver disease (NAFLD). NAFLD is one of the most common liver disorders in industrialized countries with an estimated global prevalence of 25–30%. It is one of the main causes of liver transplant, for which is considered a global public health problem. It includes simple steatosis, and nonalcoholic steatohepatitis, that can progress to cirrhosis and hepatocellular carcinoma. Several studies have shown a close relationship between NAFLD and obesity, with a reported prevalence of up to 80% in these patients. The diagnosis of NAFLD requires demonstration of hepatic steatosis by imaging and exclusion of other causes (absence of significant alcohol consumption, hepatitis infection, autoimmune hepatitis and hemochromatosis). We aimed to determine whether obese patients are evaluated for NAFLD in our endocrinology outpatient clinic. **Methods:** We conducted a cross-sectional study among 130 obese adults attending our clinic from December 2019 to March 2020. **Results:** The mean age was 53.8 years (range 19–80) and 80% were women. The mean BMI was 35.9 kg/m^2 ± 5.3. Obesity class I, II and III was present in 55%, 25% and 20% of patients, respectively. Type 2 diabetes (DM2), hypertension and dyslipidemia were found in 46.2%, 61.5% and 76.2% of patients, respectively. Abdominal ultrasound was not performed in 62% of patients. Abdominal ultrasound was performed significantly more often in diabetics compared to non-diabetics (48.3% vs. 38%, p=0.046). There was no significant association between obesity class and presence of ultrasound (p=0.20), or liver steatosis (LS) (p=0.58). Seventy-eight percent showed LS (56% mild, 31% moderate and 13% severe). The majority (87.7%) had liver enzymes measured. Patients with and without LS showed similar proportion of elevated enzymes (36% and 36.4%, respectively). The most frequent raised enzyme was gamma-glutamyl transferase, present in 82.9% of patients, and in similar proportion between patients with and without LS (30.8% and 36.4%, respectively). Elevated liver enzymes were found in 22.7%, 46.6% and 80% of mild, moderate and severe LS, respectively. There was significant association between LS grade and liver enzymes elevation (p<0.01). Secondary causes of LS were evaluated in 35.9% of patients, in all cases except one by the gastroenterology service. Half of the individuals had other causes of liver disease (alcoholism (28.6%), hepatitis B virus (28.6%) and methotrexate (28.6%) and prednisone (14.2%)treatment). Conclusion: NAFLD is a scantily evaluated disorder in our obese patients. In those evaluated we found a high frequency of LS, with almost 50% having moderate or severe disease. Further research is warranted to determine its prevalence and associated complications in our population.

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Association of Urbanization and Lower Light Exposure With Increased Body Mass Index

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Introduction: Light/dark cycles are the main synchronizing signal (*zeitgeber)* that entrain human's internal clock to the 24h-days. Some aspects of urban environments, including irregular light exposure and weak *zeitgebers*, influence the circadian organization and thereby may have an impact on metabolism. Comparing communities at different levels of urbanization and with different histories of access to electricity might provide evidence to support associations previously found between disrupted patterns of light exposure and increased populational rates of overweight and obesity. The present study aimed to investigate whether living at a higher level of urbanization would be associated with higher body mass index (BMI). It was hypothesized that BMI is higher in urbanized communities, since their inhabitants have weaker *zeitgebers*, often associated with disrupted circadian rhythms. **Methods:** We conducted a cross-sectional study in Quilombolas communities, located in the south of Brazil. Subjects were categorized into 5 groups based on their communities' stage of urbanization and history of access to electricity: from rural with no access to electricity to highly urbanized communities that have access to the grid. We used data from 134 participants aged 16 - 92 years old (63% women), who had 7 days of light exposure recordings collected using wrist-worn actimeters. We also collected anthropometric data to calculate BMI, which was then categorized as follows: ≥18.5 kg/m² to <25 kg/m² = normal weight; ≥25 kg/m² to < 30 kg-m² = overweight; ≥ 30 kg/m² = obesity. We used Shapiro-Wilk to test for normality, Kruskal-Wallis followed by Dunn to compare BMI between groups and Spearman to assess whether there was an association between patterns of light exposure and BMI.

Results: Kruskal-Wallis/Dunn test showed a significant difference in BMI between the urban group and the rural ones (KW: $X^2 = 11.987$, $p < 0.001$). Lower average light exposure between 7 am and 5 pm was significantly correlated with higher BMI (Spearman, $r = -0.296$, $p < 0.001$). Also, higher average light exposure at night (from 1 am to 6 am) was significantly correlated with higher BMI (Spearman, $r = 0.256$, $p = 0.002$). **Conclusions:** Our results support the hypothesis that low amplitudes of light exposure may be a risk factor contributing to the high prevalence of obesity worldwide. Studies have previously shown associations between BMI and social jetlag, suggesting the correlations found in our study may be related to higher levels of circadian misalignment, more often present where zeitgeber strength is lower, as in urban environments. Future research is needed to address causal relationships between light exposure and excessive body mass in humans. Provided light exposure is a risk factor for obesity, these results point to potential new targets for intervention and prevention strategies.

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INTEGRATED PHYSIOLOGY OF OBESITY AND METABOLIC DISEASE

Baseline Metabolomic Profile as Potential Biomarker for Weight Change After Roux-en-Y Gastric Bypass Surgery

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Introduction: Weight loss surgery (WLS) has emerged as an effective treatment for severe obesity (BMI ≥ 40 kg/m2 in adults) and Type 2 diabetes (T2D). There is a wide spectrum of long-term response, both in weight change and resolution of T2D after WLS. Younger age at surgery, white race and the extent of weight loss prior to surgery are the known traits associated with favorable outcomes. The aim of this study was to investigate untargeted metabolite profile prior to surgery as a potential biomarker for long-term weight change response to WLS.

Methods: Latent class growth mixture modeling (LCGMM) was used to classify the longitudinal weight change trajectories in a cohort of individuals who underwent Roux-en-Y gastric bypass (RYGB). Untargeted metabolite profile was done on a 4-module Liquid Chromatography/ Mass Spectroscopy (LC-MS) platform on the pre-surgery fasting plasma samples from subjects with weight regain or sustained weight loss. Metabolite wide association studies followed by pathway analysis was undertaken using Mummichog and GSEA algorithms. Partial least-square discriminant analysis (PLS-DA), a supervised classification framework used for datasets with thousands of correlated variables and a small number of samples that performs variable selection and classification as a one-step procedure, was used to identify the informative features that defined the two groups.

Results: LCGMM identified 3-classes of weight change in a cohort of 1589 subjects who had undergone RYGB – a) typical trajectory with significant weight loss by 12 months with plateau at ~80% weight loss (n= 1357, 85.4%), b) sustained weight loss without plateau (SWL, n=116, 7.3%) c) weight regain (RGN, 116, 7.3%). Samples from 80 subjects each with RGN or SWL (age 42.5 ± 10 years, 55% F, Excess body weight 221 ± 40 lbs) were used for untargeted profiling of 37,570 metabolite features (564 known). After QC and adjusting for age, sex, race and fasting time, 1920 features (37 known) were associated with the weight category at nominal significance ($p < 0.05$). Amongst the known metabolites, the pathways represented in RGN were amino acid metabolism, branched chain and other essential amino acids that have been previously identified as markers of insulin resistance and T2D, while those with SWL were from sphingolipid metabolism. Dimethylguanidino valeric acid, a marker of liver fat and predictor of T2D was higher in individuals with SWL. Pathway analysis of the known and unknown metabolites together revealed pathways in urea cycle, pyrimidine, glutamate, essential amino acids, and butyrate metabolism. Features identified by PLS-DA overlapped with these pathways.

Conclusions: Untargeted baseline metabolites may serve as predictive biomarkers for weight change after RYGB. Future work will focus on developing a metabolite risk score and replication in other cohorts.

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BIO89-100 Demonstrated Robust Reductions in Liver Fat and Liver Fat Volume (LFV) by MRI-PDFF, Favorable Tolerability and Potential for Weekly (QW) or Every 2 Weeks (Q2W) Dosing in a Phase 1b/2a Placebo-Controlled, Double-Blind, Multiple Ascending Dose Study in NASH

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Background: FGF21 is an endogenous hormone that regulates carbohydrate, lipid and energy metabolism. FGF21 analogs improve liver and metabolic abnormalities in non-alcoholic steatohepatitis (NASH). BIO89-100 is a long-acting glycoPEGylated FGF21, with promising tolerability and pharmacodynamic effects and potential for QW or Q2W dosing. **Methods:** This Phase 1b/2a trial enrolled 81 subjects with liver fat ≥10% by MRI-PDFF and either biopsy-confirmed NASH (BC-NASH) or phenotypic NASH (PNASH: central obesity with either type 2 diabetes mellitus or with evidence of liver injury by ALT or FibroScan