information on reference values for amino acids (AAs) and fatty acids (FAs), which determine the quality of foods in detail.

Methods: We evaluated AAs and FAs using the Food Exchange Lists—Dietary Guidance for Persons with Diabetes (in Japanese) Utilization, Second Edition Sample Menus and Practice (FELD) as an ideal Japanese diet. Based on FELD, 15 different daily meal patterns were employed with combinations of three levels of carbohydrates %energy (high carbohydrate [HC], 60%; middle carbohydrate [MC], 55%; and low carbohydrate [LC], 50%) and five levels of energy (1,200—35 2,000 kcal). Using the Japanese Food Composition Table 2020 adjusted for 1,000 kcal, 18 AAs, 49 FAs, and calorie densities (CDs, kcal/g) were calculated and compared among the three groups.

Results: Dietary AA was rich in glutamic acid, aspartic acid, and leucine; in order, no significant differences were observed among HC, MC, and LC for 18 AAs. Dietary FA was higher for 18:1 total, 16:0, and 18:2 n-6. Moreover, 16:0, 20:0, and 18:1 total in LC and 22:0 and 18:3 n-3 in MC were significantly higher than those in HC. The HC, MC, and LC CD was low at 0.82, 0.84, and 0.93 kcal/g, respectively. No significant differences in 18 AAs and CD were noted among HC, MC, and LC in FELD; however, significant differences were observed in the FA profiles.

Conclusion: This study suggests the importance of evaluating diet using AA and FA units.

References: J Nutr Sci Vitaminol,70, 25-35,2024

Disclosure of Interest: None declared

P362

MULTI-TRAJECTORIES OF BODY MASS INDEX, WAIST CIRCUMFERENCE, GUT MICROBIOTA, AND INCIDENT DYSLIPIDEMIA: A 27-YEAR PROSPECTIVE STUDY

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Rationale: Dyslipidemia is a major risk factor for cardiovascular disease and a leading cause of death globally. Our study aimed to explore the association between multi-trajectories of BMI and WC and incident dyslipidemia and identify microbiota and metabolite signatures of these trajectories.

Methods: We used a group-based trajectory modeling approach to identify distinct multi-trajectories of BMI and WC among 10,678 participants from the China Health and Nutrition Survey over a 24-year period. We examined the associations between these multi-trajectories (1991-2015) and the onset dyslipidemia (2018) using multivariable logistic regression by gender. We characterized the gut microbial composition and performed LASSO and logistic regression to identify gut microbial signatures.

Results: We identified four multi-trajectories among both males and females: Normal (Group 1), BMI&WC normal increasing (Group 2), BMI&WC overweight increasing (Group 3), and BMI&WC obesity increasing (Group 4). Among males, Group 2 (OR: 2.10, 95% CI: 1.28—3.46), Group 3 (OR: 2.69, 95% CI: 1.56—4.63) and Group 4 (OR: 3.56, 95% CI: 1.85—6.83) had higher odds of developing dyslipidemia. However, among females, only those in Group 2 (OR: 1.54, 95% CI: 1.03—2.30) were more likely to develop dyslipidemia. We identified 3, 8, and 4 characteristic bacterial genera in male Groups 2, 3 and 4, and 2 genera in female Group 2. A total of 23, 25 and 10 differential metabolites were significantly associated with the above genera, except for Group 2 in males.

Conclusion: The ascending combined trajectories of BMI and WC are associated with a higher risk of dyslipidemia. Shared and unique gut microbial and metabolic signatures among these high-risk trajectories could enhance our understanding of the mechanisms connecting obesity to dyslipidemia.

Disclosure of Interest: None declared

P363

DETERMINANTS OF FOOD ADDICTION IN PATIENTS WITH SEVERE OBESITY: FOCUS ON THE MICROBIOTA-GUT-BRAIN AXIS

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Rationale: Food addiction (FA), diagnosed by the Yale Food Addiction Scale 2.0, concerns about 40% of obese patients, which can affect therapeutic success. Functional magnetic resonance imaging (fMRI) data presented at ESPEN 2023 showed an association between FA severity and impaired cortico-striatal functional connectivity. Now we aim at correlating biological and metabolomics data to the neurocognitive profiles in obese patients with FA.

Methods: Forty severe obese women with (n = 23) or without FA (n = 17) were included (age: 36.6 ± 8.6 years, BMI: 39.2 ± 2.9 kg/m^2). Clinical-biological measurements, behavioural questionnaires assessments, neuroimaging (fMRI), ultra high-performance liquid chromatography/tandem accurate mass spectrometry on plasma samples and 16S DNA sequencing on feces samples were performed.

Results: First analyses provided results about plasma metabolomics and gut microbiota according to FA presence/absence and FA intensity. In terms of metabolomics, FA was associated with higher levels of circulating saturated fatty acids and glycerol, and lower levels of tyrosine and food xenobiotics (p < 0.05). Bacterial composition and α-diversity of gut microbiota did not differ according to FA nor its intensity (p > 0.05).

Conclusion: Patients with FA showed a particular plasma metabolomic profile, especially higher levels of circulating lipids and lower levels of tyrosine (*i.e.* amino acid precursor of neurotransmitters) that may respectively reflect a higher-in-fat diet and an altered neurotransmission. However, FA does not seem to be associated with a specific gut microbiota. Further analyses, that we could in part present at ESPEN 2024, will explore potential links between neuroimaging, metabolomics and gut microbiota data *via* a Weighted Correlation Network Analysis model. Observed brain abnormalities are expected to correlate with specific metabolomics biomarkers.

Disclosure of Interest: None declared

P364

RE-EVALUATING CUT-OFF VALUES FOR MALNUTRITION-RELATED WEIGHT LOSS IN OBESITY.

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Rationale: Within GLIM, cut-off values for weight loss (WL) are not specifically tailored to the population with obesity. We assessed if the impact of weight loss differed between people with a normal BMI (18.50-24.99 kg/m^2) and those with overweight/obesity (≥25 kg/m^2).

Methods: We used two datasets: one comprising patients with colorectal carcinoma (COLON, n=2.100) and one representing a general population (Lifelines, n=160.000). Generalized Additive Models were used to generate dose-response curves, with %WL (Lifelines: 'WL last year' for hospitalization, 'WL indefinite of time' for mortality, COLON: 'WL last 2 years') as an independent variable (adjusted for age and gender), all-cause mortality (both cohorts) and hospitalization (Lifelines) as dependent variables.

Datasets were analyzed stratified by BMI-group (normal vs. overweight/obesity) and we assessed the impact of losing 5, resp.10% of weight.

Results: The impact of losing weight differed between both BMI-groups: losing 5%, respectively 10% of weight for an individual with a normal weight had the same HR for hospitalization (Lifelines) as losing 5.0% respectively 21.8% of weight in the overweight/obesity group. In Lifelines the impact of WL with regard to mortality was similar for both BMI-groups. In COLON, however, losing 5%, respectively 10% of weight for an individual with a normal weight had the same HR for mortality as losing 11.0% respectively 22.0% for an individual with overweight/obesity.

Conclusion: Traditional cut-off values for WL may not be applicable for patients with overweight/obesity. This research indicates that the risk of poor outcomes when applying these cut-off points may double in individuals with normal weight compared to those with overweight/obesity, especially in those with underlying disease.

Disclosure of Interest: None declared

P365

CALF CIRCUMFERENCE (CC) ADJUSTED FOR BODY MASS INDEX (BMI) IDENTIFIES A HIGHER FREQUENCY OF LOW MUSCLE MASS (MM) IN PATIENTS WITH OVERWEIGHT/OBESITY AND IS AN INDEPENDENT PREDICTOR OF PROLONGED HOSPITALIZATION

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Rationale: Assessing CC provides a practical and cost-effective method for evaluating MM. However, its diagnostic accuracy is often compromised by obesity. Therefore, this study aims to determine the prevalence of reduced MM and its association with length of hospital stay (LOS) among hospitalized patients with overweight/obesity, utilizing CC adjusted for BMI.

Methods: This prospective study included adults and older adults with a BMI $\geq$25 or $\geq$27 kg/m^2, respectively, admitted to a hospital in Porto Alegre, Brazil. Approval was obtained from the hospital's Ethical Committee. CC measurements were taken within 72 hours of admission using an inelastic tape at the maximal circumference. Adjustments were made by subtracting 3, 7, or 12cm (for BMI ranges of 25—29, 30—39, and $\geq$40 kg/m^2, respectively) from the measurement. Low MM was defined as CC $\leq$ 34cm for men and $\leq$ 33cm for women, and prolonged LOS was defined as longer than seven days. Logistic Regression was performed to evaluate association between BMI-adjusted CC and prolonged LOS.

Results: The study comprised 225 patients (55.0$\pm$14.5 years; 56% females) with a BMI equal to 31.7$\pm$4.7kg/m^2. Most patients were surgical (82.7%) and 27.1% had cancer diagnosis. The prevalence of low MM was 49.8% when BMI-adjusted CC was adopted and 3.0% when unadjusted CC was considered. In multivariate analysis, low BMI-adjusted CC increased the odds of prolonged hospitalization by 2.0 times (95%CI 1.1-3.9) after adjusting for age and cancer diagnosis.

Conclusion: Among inpatients with overweight/obesity, a higher prevalence of low MM utilizing CC adjusted for BMI was observed in comparison to crude CC values and it was associated with prolonged LOS. Further studies are warranted to assess the prognostic value of this measure in this patient group considering different outcomes.

Disclosure of Interest: None declared

P366

OBESITY IS ONE OF MOST EXPENSIVE DISEASE OF BRAZILIAN'S PUBLIC HEALTHCARE

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Rationale: Obesity is a pandemic chronic disease but stills undertreated and may contribute for incremental of may other diseases (diabetes mellitus, myocardial infarction, cancer, arterial hypertension and others)

Methods: Our aim was to analyze data from Brazilian Public Health System (DATA-SUS) from september 2018 to october 2023. We analyzed number of hospitalization, total and mean cost by disease-specific: obesity, undernutrition, fracture of femur, myocardial infacrtation, stroke and cancer. We chose thes clinical conditions because they may agravated by sendentary behavior or poor mobilization.

Results: These clincial condintion were responsible for a total of 7.741.477 hospitalizations. Most of hospitalizations were due cancer (4.501.119), followed miyocardial infactation, MI, (1.454.936), stroke (995.861) and fracture of femur (601.889).Total expenses in Brazilian Reais were R$ 20.060.491.454,85. Cancer's costs were R$ 10.009.755.777,97, but when analized the mean cost, obesity had the highest one, R$ 5.124,64, followed by MI R$ 4.630,90 and fracture of femur, R$ 2.545,62. The highst mortaly rate was due stroke (15.14), followed by undernnutrition (13.89) and cancer (8.19). Obesity had the lowest mortality rate (0.23). table 1

Image:

Table 01 Causes of Hospitalization and Costs				
Main Cause of Hospitalization	Number on Hospitalization	Total Cost (R$)	Mean Cost (R$)	Mortality rate
Obesity	47.453	243.179,81	5.124,64	0.23
Undernutrition	140.219	129.871.613,45	926,21	13.89
Fracture of Femur	601.889	1.532.205.447,48	2.545,62	3.25
Cancer	4.501.119	10.009.755.777,97	2.223,84	8.19
Myocardial Infarction	1.454.936	6.737.666.246,45	4.630,90	6.06
Stroke	995.861	1.650.749.189,69	1.657,61	15.14

Conclusion: Obesity is a pandemic uncontrolled and may increase Healthcare system cost. We should implement healthcare programs for its prevention and treatment. Making it more accessible for our population.

Disclosure of Interest: None declared

P367

THE LONG TERM EFFECT OF A COMBINED LIFESTYLE INTERVENTION ON WEIGHT, DIETARY INTAKE AND ULTRA-PROCESSED FOOD

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Rationale: High consumption of Ultra processed Foods (UPF) is associated with an increased risk of obesity and high waist circumference. However, prospective studies on the effect of lifestyle interventions on UPF intake are still scarce. The objective of the current study is to investigate the effect of a 1,5-year combined lifestyle intervention (CLI) on UPF intake and the associations with dietary parameters, weight and waistcircumference.

Methods: Data of 64 adults living with obesity undergoing a CLI at the Obesity Centre CGG, Rotterdam, The Netherlands was collected at start, 10 weeks and 1.5 years. Food intake was obtained by 24h food records, and classified into four categories of the NOVA classification. Then, the percentage of energy consumed from the NOVA categories compared to the total energy consumed was calculated. Linear regression models were performed to explore associations between changes in UPF intake and weight and waist circumference, corrected for age and gender.

Results: Participants lost a significant amount of weight (6.6kg, p<0.001) during the CLI. UPF intake changed significantly from 59.6% at baseline to 53.2% at the end of the program (p=0.001), mainly caused by a decrease in ready-to-use products. Also an increase of non-processed food was observed from 29.9 % to 37.0% (p<0.001). This change was namely caused by an increase in vegetable and fruit intake. The decrease in UPF was not associated with changes in weight or waist circumference (β = 0.24, 95% CI = -0.02 to 0.21 and β = 0.06, 95% CI = -0.12 to 0.17, respectively).

Conclusion: We found that a CLI led to significant weight loss, which was accompanied by, but not explained by a reduction in the intake of UPF.

Disclosure of Interest: None declared