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## EXPLORING THE RELATIONSHIP BETWEEN CHRONOTYPE AND METABOLIC SYNDROME AMONG INDIAN ADULTS AGED 20-50 YEARS

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**Rationale:** Chronotype is an individual's inclination to sleep at a particular time during a 24-hour period & is known to affect the process of digestion & thereby influence health. The current study aimed to study the prevalence of Metabolic Syndrome and identify its association with chronotype of an individual.

**Methods:** Cross-sectional study was conducted in 448 adults (161 males) aged 35±9 years. Weight and waist circumference were measured & body mass index (BMI) was calculated. Fasting & post-prandial blood sugar, lipid profile and blood pressure were measured. Prevalence of metabolic syndrome was determined. Chronotype was assessed using Morningness-Eveningness Questionnaire (MEQ)<sup>1</sup>.

**Results:** Overall, 13.4% were evening type, 58.9% were neither type, 27.7% were morning type. Significant gender differences were observed in metabolic parameter ( $p<0.05$ ) (Table 1). No such differences were observed when classified according to chronotype ( $p>0.05$ ). A significant association of gender with chronotype was observed with higher percentage of females being neither type and higher percentage of males being morning type ( $\chi^2=6.867$ ,  $p=0.032$ ). Higher prevalence of metabolic disorder was observed in males (8.7%) as compared to females (4.2%) ( $p=0.042$ ). Significant association of metabolic syndrome was also observed with chronotype [evening type (13.3%), morning type (4%), neither type (4.9%)] ( $p=0.026$ ).

**Image:**

Table 1: Metabolic parameters

	Males	Females
Waist circumference (cm)	101.1±11.7	88.3±12.9*
Fasting blood glucose (mg/dl)	106.4±32.5	95.2±21.1*
HDL cholesterol (mg/dl)	39.9±9.7	49.3±10.8*
Systolic BP (mmHg)	117±11	110±12*
Diastolic BP (mmHg)	78±8	71±9*

Data presented as Mean±SD. \*significant gender-difference

**Conclusion:** Chronotype and gender has a significant impact on prevalence of metabolic syndrome in Indian adults. Preventive intervention programs are needed to reduce the prevalence of metabolic syndrome in Indians.

**References:** Horne, J. A., & Östberg, O. (1976). A self-assessment questionnaire to determine morningness-eveningness in human circadian rhythms. *International Journal of Chronobiology*, 4, 97–110

**Disclosure of Interest:** None declared

## P335

## EFFECTS OF A COMBINED NUTRITION AND GRADED EXERCISE PROGRAM ON METABOLIC HEALTH AND DIET QUALITY

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**Rationale:** Lifestyle changes play a critical role in treating metabolic syndrome (MetS). However, little is known regarding the effectiveness of implementing these interventions in primary care. We evaluated the effect of a collaborative intervention—led by family doctors, dietitians, and kinesiologists on health outcomes.

**Methods:** Secondary data from the 12-month Canadian Health Advanced by Nutrition and Graded Exercise (CHANGE) Cancer Alberta RCT (for cancer prevention), which included adults with MetS recruited from primary care networks. Participants were randomized to control and intervention groups, with the intervention group receiving the CHANGE protocol, which is described elsewhere [NCT02893163]. Diet quality was assessed using a 14-item Mediterranean diet (MediDiet) questionnaire. Anthropometrics and lab works were collected at baseline and 12 months. Group differences were evaluated using t-tests or Mann-Whitney Wilcoxon tests, with post hoc Bonferroni correction.

**Results:** 330 participants were included. The intervention group displayed improvements in triglyceride by 0.1 mmol/L, a reduction in waist circumference by 4 cm, and a weight loss of 3 kg ( $p<0.001$ ). Additionally, they showed improvements in dietary patterns by decreasing consumption of sweetened beverages and red meat while increasing vegetables, fruits, and legumes ( $p<0.001$ ). Conversely, no differences in these parameters and lower MediDiet scores ( $\Delta -0.5$ ,  $p=0.005$ ) at month 12 were seen in the control group.

**Conclusion:** The CHANGE program was associated with improvements in MediDiet factors, anthropometrics, and metabolic parameters in the intervention group. This highlights the program's potential to support patients with MetS to enhance their overall health.

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## P337

## RECOMMENDED CUT-OFF VALUES FOR LOW MUSCLE MASS ARE TOO LOW FOR OVERWEIGHT/OBESE INDIVIDUALS: RESULTS FROM THE MULTI-ETHNIC HELIUS COHORT

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**Rationale:** When assessing muscle mass for the diagnosis of malnutrition or sarcopenia, gender specific cut-off values for low fat free mass index (FFMI) and low Appendicular Skeletal Muscle Mass Index (ASMI) are used. However, it is unclear whether these values are applicable in overweight/obese individuals.

**Methods:** To assess cut-off values for FFMI and ASMI, a multi-ethnic cohort (HELIUS,  $n=22142$ , median age 46 (IQR 34-54), 58% female, 80% non-

Western background) was used. FFMI and ASMI were determined by BIA (Kyle equation). Generalized additive models were used to generate dose-effect curves, with FFMI and ASMI as independent variable (adjusted for age (model 1); model 1 + ethnicity (model 2)) and 5-year all-cause mortality as dependent variable. The cohort was stratified by BMI (18.5–24.9 kg/m<sup>2</sup> and ≥25 kg/m<sup>2</sup>) and gender. Cut-off values for low muscle mass were determined at the point at which the Hazard Ratio (HR) for mortality exceeds 1. Results were compared to reference values as suggested by GLIM criteria.

**Results:** Cut-off values for FFMI and SMI were higher in overweight/obese than in normal-weight individuals and higher than recommended reference values. Although the cut-off values are lower, the difference between normal-weight and overweight/obese individuals remained after adjusting for ethnicity (Table 1).

**Table.1**

	BMI 18.5-24.9 (n=8611)		BMI ≥25 (n=13551)		Reference values (GLIM)
	M1	M2	M1	M2	
<b>FFMI</b>					
Female	15.6	14.0	18.6	16.0	15.0
Male	17.3	15.0	21.0	18.0	17.0
<b>ASMI</b>					
Female	6.2	5.0	7.5	6.0	6.0
Male	7.2	6.0	8.9	7.0	7.0

M1: adjusted for age; M2: M1+ethnicity

**Conclusion:** The analyses of the HELIUS cohort indicate that currently recommended cut-off values for low muscle mass are too low for overweight/obese individuals which could lead to the underdiagnosis of low muscle mass; and thus malnutrition and sarcopenia.

**Disclosure of Interest:** None declared

### P338

#### PREVALENCE OF METABOLIC SYNDROME IN HIV-POSITIVE TRANSPLANT CANDIDATES AND RECIPIENTS FROM HIV-POSITIVE DONORS

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**Rationale:** Metabolic syndrome (MetS) encompasses a cluster of conditions associated with increased risk for renal disease. There is an increased prevalence of MetS in renal transplant patients with the syndrome being a known risk factor for graft failure. The study therefore aimed to assess the prevalence of metabolic syndrome in HIV-positive transplant candidates and recipients.

**Methods:** A cross-sectional study of HIV-positive kidney transplant candidates (n=54) awaiting kidney transplantation from HIV-positive donors, along with HIV-positive kidney transplant recipients (n=22) were observed at 2 time points, 6 months apart. Definition of MetS adhered to the consensus criteria established by the American Association/National Heart, Lung, and Blood Institute. Standardized protocols were used to measure waist circumference (WC), fasting glucose, triglycerides (TG), high density lipoprotein (HDL) and low-density lipoprotein cholesterol.

**Results:** **Transplant candidates:** Mean baseline HDL of 1.2±0.3 and 1.2±0.4mmol/L at 6 months. Mean WC decreased from baseline to 6 months. Fasting glucose at baseline 5.5±2.4 decreased to 5.23 ±1.9mmol/L at 6 months. Baseline TG levels were 1.57 ±1.08 and 6 months 1.47±0.96mmol/L. MetS was present in 47.5% and 51% of transplant candidates at baseline and 6 months respectively. **Transplant recipients:** Mean baseline HDL of 1.3±0.3 and 1.3±0.5mmol/L at 6 months. Mean increase in WC were statistically significant (t (14) = -2.861, p0.013). Fasting glucose at baseline 5.4±1.1 decreased to 5.0±0.7mmol/L at 6 months. Baseline TG levels were

2.09 ±1.85 at baseline and 1.86±1.34mmol/L at 6 months. MetS was present in 35.3% of transplant recipients at baseline and 35.0% at 6 months. **Conclusion:** MetS was less prevalent among transplant recipients than candidates. However, MetS remains a significant concern in this population, with consistent prevalence over the time period.

**Disclosure of Interest:** None declared

### P339

#### CLINICAL PROFILE OF OBESE PATIENTS TREATED IN ORAN, A CITY IN WESTERN ALGERIA.

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**Rationale:** In Algeria, obesity is increasing among adults, children and adolescents. The aim of this study is to determine the clinical, anthropometric, dietary and psychological characteristics in adult patients with obesity.

**Methods:** A descriptive study carried out on 90 patients treated in Oran over a period from December 2022 to April 2024.

**Results:** The 90 patients making up our sample have an average age of 47.01 ± 11.8 years, with a predominance of females (81.1%), and an average BMI of 42.2 ± 6.4 kg/m<sup>2</sup>. Nearly 55% of the patients have class III obesity, 32.2% class II obesity, 12.2% class I obesity. More than half of our patients (55.6%) gained weight in adulthood, 27.8% in childhood and 16.7% in adolescence, in a context of sedentary lifestyle (83.3%), life events (67.8%), reduction in physical activity (60%), yo-yo dieting (58.9%), during pregnancy (54.4%), iatrogenic obesity (20%), family food traditions (16.7%). In terms of eating disorders, 50% of our patients present tachyphagia, 40% hyperphagia, 37.8% snacking, 36.7% restrictive behaviors, 11.1% simple compulsive overeating, 10% binge eating disorder, 3.3% bulimia nervosa, 3.3% nighteating syndrome, 2.2% severe compulsive overeating, these in a dietary context of excess hidden fats (55.6%), excess sugary products (46.7%) and excess added fats (44.4%). In their psychological and psychiatric history: 14.4% have had supervision previously, 12.2% mood disorders, 4.4% a suicide attempt. Only 13.3% of our patients seek bariatric surgery.

**Conclusion:** The management of obesity in Oran is multidisciplinary, based on therapeutic education. Bariatric surgery is of interest to only a few patients.

**References:** WHO/Algeria STEPwise study 2016-2017

**Disclosure of Interest:** None declared

### P340

#### CIRCULATING IRISIN AND VISCERAL ADIPOSITY INDEX AS PREDICTORS OF CARDIOMETABOLIC SYNDROME IN NORMAL WEIGHT, OBESE, AND OBESE WITH TYPE 2 DIABETES MELLITUS JORDANIAN ADULTS

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**Rationale:** Irisin affects obesity and other cardiometabolic syndrome (CMS) risk factors, but the exact mechanism is uncertain and the connection between irisin and visceral adiposity index (VAI) has not been evaluated.

**Methods:** We studied 300 Jordanian adults, including 100 obese with type 2 diabetes mellitus (T2DM), 100 obese without T2DM, and 100 normal-weight, non-diabetic individuals with 1:1 sex ratio. A standard protocol was followed: (1) To measure obesity indices including weight, height, waist circumference (WC), and hip circumference (HC), as well as systolic (SBP) and diastolic (DBP) blood pressure, (2) To determine circulating irisin, fasting glucose (FBG), and lipid profile, (3) To calculate body mass index (BMI), visceral adiposity index (VAI), waist-hip ratio (WHpR), and waist-height ratio (WHtR). CMS factors were evaluated statistically using the Rock curve test (AUC).