Introduction: The increase in the incidence of chronic degenerative diseases highlights the necessity to reorganize the network of health services. Technological innovation could reduce inequalities in access to health care by providing "tailor-made models" for citizens. The nutritional outpatient of the S. C. Hygiene of Food and Nutrition of the ASLTO5 has experimented a decentralized monitoring system thanks to the Internet of Things technology.
Methods: We had recruited 200 healthy subjects, subdivided into: "CG Control Group" (Traditional Nutritional Counselling) and "EG Experimental Group" (Nutritional Counselling in outpatient and decentralized life-style monitoring through the device kit in real time connection with the Inter Health system). Using mobile devices, a measure defined as subjective can be made objective and the preventive action can be extended to a wider user base.
Results: Using health indicators and wellbeing indicators, it is possible to establish an evaluation system on the feasibility and sustainability of the experimentation. Hundred subjects were recruited for CG, with an average age of 47 (80% females and 20% males), 32% overweight and 53% obese; the subjects with a high risk of developing chronic-degenerative diseases are 61% male and 72% female. Hundred subjects were recruited for EG with an average age of 46 (67% females and 33% males) 28% overweight and 31% obese; the subjects with high risk of developing chronic-degenerative diseases were 11% male and 21% female.
Conclusions: Provide new standards to assist the citizen to maintain his/her health status (efficiency), extending the preventive action, with the same resources, to a larger population group (effectiveness).

A23
APPLICATION OF RECURSIVE PARTITIONING METHOD (RPM) TO SELECT THE MULTI-FREQUENCY BIOIMPEDANCE ANALYSIS (MF-BIA) RAW PARAMETERS PREDICTING APPENDICULAR SKELETAL MUSCLE MASS INDEX (SMI)

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Introduction: Anthropometric and BIA parameters are used as covariates in linear regression equation to estimate total body water and fat free mass. More recently, the research is focused on understanding the capacity of bioelectrical raw variables by itself to detect nutritional status. Objective of the study is to identify, among the multi-frequency BIA (MF-BIA) parameters, the best predictors of SMI (kg/m2) estimated by dual-energy X-ray absorptiometry (DXA).
Methods: 148 women (age 45.6 ± 14.8 years; BMI 37.3 ± 6.7 kg/m2) have been enrolled at CASCO. Z, AP, Rx and Xc at 5, 10, 50, 100, 250 kHz frequencies (Human im Touch, DSMedica) and SMI (Hologic 4500 RDR) were measured according to the standardized procedures. A set of MF-BIA covariates was selected a priori (PA50, Z5, Z50, Z250) and the recursive partitioning method (RPM) was applied to identify the best predictors of SMI. The RPM was performed using the party package of the free statistical software R which provides significance level for multiple test procedure (p-value <0.05 was assumed as significant).
Results: RPM selected at the first decision step Z250 as the covariate having the greatest association with SMI identifying a split at 446Ohm. In the subsequent decisions step the covariates selected were Z250 (373Ohm) and then PA50 (5.3°) in one branch of the decision tree and Z250 (499Ohm) in the other branch. The value Z250≤373 together with PA50>5.3° and Z250>499 Ohm identify respectively the subjects with higher and lower SMI values (p-value < 0.001).
Conclusion: The study shows that multi-frequency raw data combined with each other can be used to predict SMI measured by DXA. We believe that this approach will allow to identify the cut-offs of the MF-BIA specific raw data useful to screening sarcopenia in various categories of subjects.

A24
SALT INTAKE AND ASTHMA IN CHILDREN AND ADOLESCENTS

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Introduction: Asthma is one of the most common diseases in the world, in the last decades its prevalence has increased. Many studies have shown that excessive body weight and a high sodium intake increase the risk of asthma symptoms in children. Although the importance of diet on respiratory sensitivity is evident, the eating habits of patients with asthma are not commonly investigated in clinical practice.
Objectives: In a population of 438 children (age range: 3–18 yrs; M ± SD: 9.1 ± 3.0 yrs) enrolled at the Research Unit of Pediatric Pneumology and Allergy, CNR-IBIM of Palermo, we wanted to evaluate the association between sodium intake, estimated with FFQ, and asthma and to identify the foods responsible for this intake and/or a dietary pattern characteristic of asthmatic subjects. The diagnosis of asthma was performed according to GINA guidelines.
Results: The asthmatic subjects had a richer diet in sodium (asthma yes/no: 1081 ± 15/1011 ± 20 mg, M ± ES; $p = 0.006$) compared to healthy subjects, after correction for total Kcal, z-score BMI, sex, age, physical activity, breastfeeding and the presence of asthmatic parents. The analysis of FFQ also showed that the asthmatic subjects had a diet characterized by a greater consumption of convenience foods, such as ready-to-eat products and fast food, than non-asthmatic (asthma yes/no: 149 ± 102/126 ± 78 g daily, M ± SD; $p = 0.006$). In particular, among foods rich in sodium, consumption of pizza and cold cuts was higher in asthmatic children ($p < 0.05$).
Conclusions: Our data confirm the association between sodium intake and asthma in children and show a dietary pattern in asthmatic subjects characterized by convenience foods. These results suggest the need to create strategies aimed to increase food awareness of the population and to encourage a healthy diet adaptable to different nutritional and lifestyle needs.

A25
TIME RESTRICTED FEEDING IN HIGH-LEVEL ATHLETES: A PILOT STUDY

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Introduction: Time Restricted Feeding (TRF) is an intermittent fasting model. Moro (J. Transl. Med. 2016; 14:290) and Tinsley (Nutr. Rev. 2015; 73:661) studied the effect of TRF in strength athletes and demonstrated a significant variation in body composition. Data on the effect of TRF on endurance are lacking even if preliminary data seem to suggest an improvement in muscle efficiency and a reduction in inflammation indexes.
Methods: Randomized controlled clinical trial (HEC-DSB04/17). The aim is to verify compliance with a TRF protocol and effects on anthropometric parameters, body composition, blood tests and endurance performance in endurance athletes. Eighteen professional cyclists underwent anthropometry, body composition, blood tests, VO2max and Peak Power Output, basal metabolic rate before and after 30 days of TRF performed with the 16/8 method. At baseline habitual eating habits have been investigated and personalized isocaloric diets have been elaborated for each participant with different temporal distribution of the meals in the study group (TRFG) and in the control group (CG).
Results: One athlete per group left the study. After 30 days of TRF there were no differences from baseline in the performance variables, while

a significant decrease in leukocytes number (6.08 ± 1.55mil/mm3 vs 4.68 ± 1.09mil/mm3; p = 0.029) was observed in CG and a significant decrease in IGF1 (344.03 ± 90.83ng/ml vs. 291.60 ± 58.29ng/ml; p = 0.049) resulted in TRFG. A significant decrease in body fat percentage (14.03 ± 1.54% vs. 8.53 ± 1.21% p =<0.0001) was also evidenced in the TRFG
Conclusions: The TRF followed for 30 days had no effect on endurance performance in high-level cyclists, but resulted in a significant decrease in body fat and some changes in blood parameters of potential interest.

A26
SARCOPENIA IN RENAL CRONIC DISEASE IN CONSERVATIVE THERAPY

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Introduction: Sarcopenia is a risk factor associated with chronic kidney disease (CDK). The aim of the following study was to evaluate muscle mass and its function in patients with MRC in conservative therapy.
Methods: 94 patients (F = 32, M = 62) were enrolled. The nutritional status has been evaluated through anthropometric measurements, biochemical analysis and bioimpedance exam. The glomerular filtrate (eGFR) was estimated according to the MDRD (Modification Diet Renal Disease) equation. The contractile force of the hand was evaluated using the Lafayette dynamometer (HG). Presarcopenia and sarcopenia were defined according to the EWGSOP criteria.
Results: The prevalence of presarcopenia was observed in 4.7% (M = 7.3%, F = 0) with an increase in advanced stages of MRC (1.2%, 1.2% and 2.4% in stages 1,3,4, respectively); while, sarcopenia was observed in 10.6% (M = 7.3%, F = 16.7%) without significant differences between the CDK stages. In addition, diabetic patients showed reduced muscle strength compared to non-diabetic patients (HGdx: 24.9 ± 8.8Kg vs 28.1 ± 10Kg, p < 0.05). The HG values are directly related to the eGFR (p < 0.05).
Conclusions: Our data suggest that presarcopenia is more common in men, while sarcopenia in women. The presence of presarcopenia in early stages of CDK and the reduction of muscle function associated with the decline of glomerular filtrate, indicate that during this pathology there is a rapid change of the body composition with progressive loss of muscle strength.

A27
CORRECTION OF A PATIENT'S MICRONUTRIENT STATUS PRIOR TO SLEEVE GASTRECTOMY COULD BE USEFUL IN PREVENTING EARLY POSTOPERATIVE MICRONUTRIENT DEFICIENCIES: A RETROSPECTIVE COMPARATIVE STUDY

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Introduction: Micronutrient deficiencies (MD) after sleeve gastrectomy (SG) are frequent. Obese patients often show MD before SG. Aim of this study was to assess whether the correction of MD prior to SG plays a role in preventing early postoperative MD.
Methods: Eighty patients (58 females, 22 males) who underwent SG were retrospectively evaluated. Patients were divided according to whether (Group A, n = 42, 30 females, 12 males) or not (Group B, n = 38, 28 females, 10 males) they received preoperative MD correction. Micronutrient status were assessed preoperatively and at 3- and 12-months post-SG in both groups. After SG, all patients followed the same postoperative diet and micronutrient supplementation, and their nutrient intake was evaluated.
Results: Before SG, patients without micronutrient correction were mostly deficient in vitamin B12 (10,5%, 3 females, 1 male), folic acid (15,8%, 5 females, 1 male), vitamin D (39,5%, 10 females, 5 males), iron (26,3%, 8 females, 2 males), and zinc (7,9%, 2 females, 1 male). Patients who had preoperative micronutrient correction had no deficiencies. At 3- and 12-months post-SG, no patient from the preoperative micronutrient correction group developed new deficiencies, whereas all patients who had MD in one or more micronutrients continued to be deficient, despite the supplementation. No differences in estimated nutrient intake were observed in both groups, demonstrating that MD seen in the early post-SG period are mostly due to preexisting deficiencies and not caused by the surgery.
Conclusion: Pre-SG identification and correction of MD could be helpful in preventing early postoperative MD.

A28
RAW BIOELECTRICAL IMPEDANCE (BIA) VARIABLES AND PHYSICAL FITNESS IN YOUNG ADULTS

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Background: Body composition and physical fitness (PhF) are components of nutritional status closely related to each other, which can be assessed respectively using PF tests and bioelectrical impedance analysis (BIA). In particular, raw BIA variables should be evaluated because of their potential relationships with muscle strength. Of note, bioimpedance (BI) index is related to fat-free mass (FFM), while impedance ratios (IR) and phase angle (PhA) are indexes of body cell mass and extracellular/intracellular water ratio. The objective of the study was to evaluate the relationships between PhF and raw BIA variables in healthy young adults.
Methods: Ninety-seven subjects participated in the study: 48 males (età 23.2 ± 24 yrs, body mass index-BMI 25.3 ± 3,1 kg/m^2) and 49 females (age 24,5 ± 2,4 yrs, BMI 23.2 ± 3,4 kg/m^2) . With respect to BIA, impedance (Z) and PhA were measured every 25 kHz in the range 5−300 kHz (HUMAN IM-TOUCH, DS Medica, Milano). BI indexes were calculated as stature^2/Z at 5−300 kHz, while IRs as ratios between Z at 50−300 kHz, and Z at 5 kHz. The PhF tests performed were hangrip strength (HGS), long jump (LJ) and gait speed (GS).
Results: HGS, SJ and LJ were more strictly correlated with BI index, IR and PhA than with age, stature, weight and BMI. Higher correlation coefficients were observed when BI index was calculated at ≥100 kHz. The association with PhF was similar for different IRs and reached a maximum among PhAs for that measured at 50 kHz. GS was associated with IR and PhA, but not with BI indexes, age, stature, weight and BMI. Multiple regression analysis showed that BI indexes plus IR or PhA were significant predictors of PhF (often with high R^2).
Conclusions: The results of the study show that in young adults physical fitness is consistently related to raw BIA varia-bles. These relationships vary depending on the measurement frequency selected.

A29
NUTRITIONAL CARE IN THE REHABILITATION PROCESS OF SEVERE BRAIN INJURIES: PRELIMINARY RESULTS

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Introduction: The latest ESPEN Neurological Guidelines recommend the presence in the Severe Brain Injuries (SBI) multidisciplinary rehabilitation team of a nutrition specialist who can elaborate a personalized nutritional plan and monitor it over time. The aim of this study is to evaluate the effects that an experienced Nutrition Team can have on the rehabilitation process of the patient with SBI.
Methods: We enrolled 50 patients admitted to the SBI ward of our hospital. Data regarding Malnutrition Universal Screening Tool (MUST) and Disability Rating Scale (DRS) scores, number and grade (EDUAP Guidelines) of pressure sores (PS), and biochemical markers of malnutrition were collected at admission and discharge.
Results: Compared to admission, at discharge patients (mean age 59 years, 34% women) had lower MUST and DRS scores (MUST: 2.1 ± 1.0 vs. 1.3 ± 1.2, p < 0.001; DRS: 20.9 ± 4.9 vs. 16.3 ± 7.8, p = 0.003),