



# **IUNS**

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### **Abstracts**

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participants' (45.3%) nutrition knowledge was below average and generally had poor dietary habits with majority (90%) consuming sweets and high fat food source thrice (3×) daily, indicating poor nutritional status.

**Conclusions:** Below average nutrition knowledge was associated with poor dietary habits. Type-2 diabetic subjects therefore must be encouraged to take part in nutrition education programs in order to effectively manage their disease condition.

**Keywords:** Dietary habit, Nutrition knowledge, Type-2 diabetes, Ghana

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144/743

### PERCEPTION OF CHANGES IN HEALTH CONDITIONS AND LIFESTYLE AFTER PERSONALIZED NUTRITIONAL INTERVENTION: PROCARDIO-UFV STUDY

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**Background and objectives:** Many nutrition care programs have been performed to treatment of obesity and other cardiometabolic conditions, but the evaluation of related-stages has not been reported. Thus, this study evaluated the perception of the suitability of nutritional treatment activities and lifestyle changes in users of the Cardiovascular Health Care Program, Universidade Federal de Viçosa, Minas Gerais, Brazil (PROCARDIO-UFV).

**Methods:** The PROCARDIO-UFV is a nutritional intervention program for individuals with cardiometabolic risk who have some connection with the UFV (ReBEC - Id:RBR-5n4y2g). The study included 53 users of the program (31 women/ 22 men, 43.5-15.9 years), all of them with cardiometabolic risk. The subjects answered an evaluation questionnaire based in the Likert Scale regarding to: Process (diet meal plan, orientations and educational actions for health promotion) and Results (information comprehension, lifestyle changes and clinical and metabolic improvement) of the program, according to with the method proposed by Donabedian.

**Results:** Among the users, 96.2% (n=51) reported having received and understood the diet meal plan passed on during the nutritional treatment; 81.1% (n=43) said that the diet meal plan was adapted to their reality and disease and 94.3% (n=50) said they received some kind of educational material to encourage the adoption of healthy food. In addition, 96.2% (n=51) considered the nutritional treatment to be effective and satisfactory. Finally, the users reported having acquired knowledge about food and healthy lifestyle (94.3%, n=50) as well as having presented clinical-metabolic improvement (88.7%, n=47) and changes in lifestyle (84.9%, n=45), after the nutritional intervention offered by PRO-

CARDIO-UFV. Interestingly, there was a negative correlation between the perception of clinical-metabolic improvement by users and reductions of body weight ( $r=-0,333$ ;  $p=0,036$ ), waist circumference ( $r=-0,458$ ;  $p=0,003$ ) and BMI ( $r=-0,333$ ;  $p=0,036$ ) after three months of intervention.

**Conclusions:** The users have evaluated as satisfactory the methods using by PROCARDIO-UFV in nutritional treatment and health education, at the same time they presented a perception of improvement in clinical-metabolic conditions and lifestyle, with emphasis on a healthier diet. Altogether, our results indicate the importance of personalized nutrition in the treatment of individuals with cardiometabolic risk. Financial support: FAPEMIG, CAPeSe CNPq.

**Keywords:** Cardiovascular Disease, Diet, Health Service, Health Assessment.

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144/744

### VITAMIN D INSUFFICIENCY AFFECTS CALCIUM ABSORPTION EFFECTIVENESS OF PREBIOTICS

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**Background and objectives:** Low Ca intake (CaI) is related to osteoporosis among others pathologies. Passive and active intestinal Ca absorption (Abs) is regulated by vitamin D within limits, which compensate for the lesser CaI. Prebiotics also positively affect Ca Abs by selectively increasing acid lactic bacteria's which releases short-chain fatty acids which improve Ca salts solubility by lowering intestinal pH, and favor colonic epithelial cell proliferation. The aim of the present report was to evaluate the effectiveness of prebiotic to absorb Ca in adult rats feeding a low Ca diet and vitamin D insufficiency. Objectives: The effectiveness of Galacto-oligosaccharides/Fructo-oligosaccharides (GOS/FOS®) mixture to increase CaAbs was evaluated in a model of VD insufficiency (-VD) and established osteopenia.

**Methods:** Female adult Wistar rats were ovariectomized and fed a commercial diet during 15 days postsurgery. Then, rats were divided: 32 fed a diet VD-free (0 IU%) during 45 days to become VD insufficient (-VD) and 16 fed a normal VD diet (100 IU%) (+VD). At day-60, +VD were subdivided in 2 groups and received during 45 days: AIN'93 (control diet)(+VD Ca0.5%); AIN'93 containing 0.3%Ca and 2.5% GOS/FOS® (9:1) (+VD Ca0.3%Prebiotics); -VD were subdivided in 4 groups and received during 45 days: VD free-AIN'93 (-VD Ca0.5%); VD free-AIN'93 contain-

ing 0.3%Ca (-VD Ca0.3%); VD free-AIN'93 containing 0.3%Ca and 2.5% prebiotics (-VDCa0.3% Prebiotics) or VD free-AIN'93 containing 0.3%Ca and prebiotics 5% (-VDCa0.3%:Prebioticsx2). Food intake and faeces (F) were collected to determine Ca intake (CaI) and Ca en feces (CaF).  $Ca\ Abs\% = CaI - CaF / CaI \times 100$ .

**Results:** Ca Abs % as mean±SD: -VDCa0.5%: 32.71±1.74; -VDCa0.3%: 38.33±2.33;

-VD0.3%Prebiotics: 44.71±1.84; -VD0.3%x2Prebiotics: 56.40±1.39; +VD0.3%Prebiotics: 87.45±1.82; +VD0.5%: 67.80±2.21. As expected, VD insufficiency reduced Ca Abs%

(-VDCa0.5% and -D0.3% vs. +VDCa0.5%;  $p < 0.001$ ). Moreover, GOS/FOS® effectiveness was negatively affected (-VD0.3% Prebiotics vs. +VD0.3% Prebiotics;  $p < 0.001$ ). Ca Abs% of free-VD diets containing GOS/FOS® mixture was improved by increasing prebiotic % in the diet (-VD0.3% Prebiotics vs. -VD0.3:2xP;  $p < 0.01$ ).

**Conclusions:** Under our experimental conditions VD nutritional status affected the effectiveness of prebiotics on Ca Abs.

**Keywords:** Prebiotics, low calcium intake, vitamin D insufficiency, rats

**Further collaborators:**

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**144/776**

**CARDIOMETABOLIC PREDISPOSITION AT ESCUELA AGRÍCOLA PANAMERICANA ZAMORANO 2016**

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**Background and objectives:** In the bodily composition, fatty components show a tight bond with obesity and the development of non-transmissible chronic diseases. The posed objectives were:

- Assess blood glucose level, cholesterol and blood pressure
- Determined the BMI, % visceral fat, muscle mass and body water
- Link levels of income and physical activity

**Methods:** It is a descriptive study with a sample of 30-years-old and older 80 voluntary employees (56% female) with three years or more of seniority in Zamorano. An equipment of bioelectric impedance mBCA SECA 514 was used. The sample was estimated with a reliability of 99%, precision of 3% for a bilateral hypothesis adjusted to 5% lost.

**Results:** Age and seniority averaged 43±9.92 y 15.6±2, respectively. 67% of the women and 63% of the men showed prediabetes. 9% of females and 15% of males presented high levels of CT. 16%

of women and 9% of the men showed diabetes and hypertension. Higher physical activity was linked with higher levels of TAS ( $r = 0.273$ ,  $p = 0.016$ ). 82% of females and 89% of males presented android obesity, males reported visceral fat percentages of 4.05% in comparison to females (2.69%) ( $p = 0.0022$ ). The muscle media was 25.38Kg in women and 33.5 Kg in men inducing to a Sarcopenic obesity. 77% of the population registered optimum levels of hydration as compared to high levels of hydration in physically active employees. Higher levels of income correlated to a higher T.E.E  $r = 0.8472$   $p < 0.001$  and  $r = 0.453$   $p = 0.001$  and a low physical activity. Lower incomes reported higher P.A.E.E.

**Conclusions:** The BMI glucose, cholesterol, visceral fat and P.A.E.E revealed that employees are at a high risk of cardio metabolic disease not only affecting their quality of life but also their work performance.

**Keywords:** diabetes, hypertension, bioelectric impedance, metabolic syndrome

**Further collaborators:**

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**144/780**

**HOST TRANSCRIPTIONAL RESPONSES FOLLOWING EX VIVO RE-CHALLENGE WITH MYCOBACTERIUM TUBERCULOSIS AMONG A MALNOURISHED POPULATION**

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**Background and objectives:** The identification of immune correlates that are predictive of disease outcome for tuberculosis remains an ongoing challenge. To address this issue, we evaluated gene expression profiles from peripheral blood cells following ex vivo challenge with Mycobacterium tuberculosis (M. tb), among participants with active TB disease (ATBD), latent TB infection (LTBI), and previous active TB disease (after successful treatment; PTBD), relative to controls.

**Methods:** Study participants with TB were recruited at a rural hospital in India, which has a clinical population with a high prevalence of malnutrition (median body mass index 18.7 kg/m<sup>2</sup> [interquartile range 16.8, 22.1]). Peripheral blood mononuclear cells from participants with ATBD (n=10), LTBI (n=10), and PTBD (n=10), and controls (n=10) were infected with live M. tb. Differential gene expression profiles were assessed by suppression-subtractive hybridization, dot blot, real-time polymerase chain reaction, and the comparative cycle threshold methods.

**Results:** Comparing ATBD to control samples, greater fold-increases of gene expression were observed for a number of chemotactic factors (CXCL1, CXCL3, IL8, MCP1, MIP). ATBD was also