

# Clinical Nutrition: Association between lifestyle, dietary factors and body composition among Notre Dame University students: A cross-sectional study- Jessy El Hayek Fares- Notre Dame University

Jessy El hayek Fares

*Notre Dame University, Lebanon*

## Abstract

The prevalence of low vitamin D ranked to increasing globally and Lebanon is not spared. The objectives of this study are to be determining the prevalence and associates at low vitamin D status, and to assess to the association between percent body fat and vitamin D status independently of obesity.

**Methods:** A cross sectional study was performed on NDU employees. Data on dietary intake, lifestyle, physical activity, health status, and demographic variables were collected during a face to face interview. Anthropometric measures (weight, height and waist circumference) were measured and body arrangement was assessed using the bioelectrical impedance analysis (BIA) machine In Body 720 (Biospace, Seoul, Korea). The Nutritionist Pro diet analysis software version 31.0 was used to estimate the dietary intake of vitamin D.

**Study design and recruitment method:** It Starts in October 2016, an e-invite was sent to all staff and faculty members of NDU to invite them to participate in the study. Following the e-invite, 4 nutritionists visited all faculty and staff members in their workplaces to inspire participation. Of the 600 contacted employees in the 3 NDU campuses, 360 accepted to participate and were separated for eligibility. Exclusion criteria included pregnancy, failure to complete the questionnaires, lactation and presence of a pacemaker or metallic pieces in the participant's body. Those who were found to be the eligible (n = 344) were asked to sign an informed agreement form and then contacted by the study detectives to arrange for a 30-min face of face interview. An ID number was assigned to each participant. All questionnaires were labelled by using codes. These investigators maintained the list associating names with the codes and were in charge of keeping it confidential.

**Data collection procedures:** During the 30min face to face meeting, trained nutritionists filled out 3 questionnaires (background questionnaire, short-form of the International Physical Activity Questionnaire [IPAQ-short form] and food frequency questionnaire .All questionnaires were pre-tested

using an example of 30 NDU employees in the three campuses. For each food item, participants were asked to mark their incidence of intake of a designated serving/portion size per day/week/month or rarely/never during the past year. The FFQ included full-fat/low-fat dairy products, eggs and egg-based dishes, fish, margarine, cheeses, and ice cream. Nutritional intake of vitamin D was assessed using an adapted version of an existing prototype food frequency questionnaire specific for assessment of vitamin D intake that was developed by the study investigators

The Nutritionist was Pro diet analysis software, version 31.0 was used to generate and estimates of dietary intake of vitamin D. Lebanese dishes and recipes were composed and entered using this software according to the middle-East Food Composition Tables and the Canadian Nutrient File. At the end of the interview the study participants were invited to the nutrition research laboratory to collect the anthropometric (height, WC, weight and body composition) and biochemical measurements after the overnight fast. Height was measured to the nearest 0.1 cm according to the following protocol: no shoes, heels together and head touching the stadiometer's ruler associated in horizontally.

**Discussion:** Low vitamin D status has become a major problem for the worldwide, even in sunny countries like Lebanon. The occurrence of low vitamin D status reported in our study (60%) was in line with the prevalence rates reported in bordering countries ranging from 57.6% in Tehran to up to 91% in Morocco. The range of occurrence rates varied among the studies due to the different study populations, education levels, season, age, BMI, body composition, gender, and cut offs for vitamin D status.

The association between alcohol vitamin D and intake status was observed in women only this has been before reported in the literature. In our sample women who drank alcohol had a higher occurrence of sufficient vitamin D status compared to the non-drinkers. The relationship between liquor intake and vitamin D status is not well understood and results are the still

inconclusive. It is likely that this relationship is affected by the confounders especially that alcohol intake was not associated with the vitamin D status in multivariable analyses. The present study has some limits that need to be acknowledged. First the study was design cross sectional, which does not allow drawing causal relationships between vitamin D status and measures of adiposity. To our knowledge, it is the first study in Lebanon to assess the association between body composition and vitamin D status mean while controlling for BMI and other important confounders.

**Conclusion:** Our results support our hypothesis confirming that PBF is positively associated with low vitamin D status independent of BMI in our sample of university staffs. Accordingly education about the importance of consuming high bases of vitamin D is primordial, particularly since living in sunlight country might undermine to the need to focus on diet, as Lebanese might believe that sun exposure is sufficient to maintain healthy vitamin D status. further, this study was reinforces to the need for regular screening for low vitamin D status in the Lebanese adults mainly among individuals at risk, including those with high risk WC, high PBF, who work indoors, and have low vitamin D intake and recommending vitamin D supplementation if needed. As low vitamin D status has been recently associated the with many chronic diseases, a nationwide assessment of vitamin D status is required among the different age and gender groups across different seasons to identify the whether the government needs to consider the protection of milk at the national level.

Furthermore cohort studies examining the association between body fat and vitamin D are needed to the address the temporal relationship with the vitamin D status.\

**Note:** This work is partly presented 14<sup>th</sup> International Congress on Clinical Nutrition in Rome. Italy