were analysed by using spearman correlation test and univariate general linear model.

Results: A significant negative correlations were observed between serum magnesium level and body fat percentage ($r = -0.288; p = 0.002$) and body fat mass ($r = -0.215; p = 0.019$). Dietary magnesium intake was positively correlated with lean body mass in overall sample ($r = 0.268; p = 0.003$) and this correlation was more strong for patients who have at least one chronic complication of diabetes ($n=62$, $r = 0.378; p = 0.002$).

Body fat mass was significantly higher in patients with hypomagnesemia ($<0.75$ mmol/l) as compared to patients with normomagnesemia ($\geq 0.75$ mmol/l) after adjusting for a large range of dietary and non-dietary confounders (respectively $35.4\pm9.4$ kg, $34.6\pm10.2$ kg; $p = 0.034$).

Conclusions: Our results suggest that clinical care should therefore focus on screening serum magnesium levels and providing adequate intake of dietary magnesium to control adiposity in type 2 diabetes.

Disclosure of interest: None declared.

MON-P388
DETERMINANTS OF SERUM 25-HYDOXYVITAMIN D LEVELS IN HEALTHY YOUNG ADULTS LIVING IN THE WESTERN CAPE, SOUTH AFRICA

J. Visser 1, K. Knight 1, L. Philips 1, W. Visser 2, M. Wallace 3, R. Blaauw 1
1Human Nutrition, Stellenbosch University, Tygerberg, South Africa; 2Dermatology, Stellenbosch University, Tygerberg, South Africa; 3Cancer Association of South Africa, Cape Town, South Africa

* Corresponding author.

Rationale: The prevalence of vitamin D deficiency is fast emerging as a global pandemic. In South Africa few studies have been conducted to determine the vitamin D status of the healthy population.

Methods: This cross-sectional phase of a larger study investigated vitamin D status of healthy, undergraduate students ($20.41\pm2.29$ years old) at Stellenbosch University. Data collected included serum 25(OH)D (Institute of Medicine interpretation), anthropometry, dietary vitamin D intake (food-frequency questionnaire), skin tone ( Fitzpatrick Skin Type Classification) and skin reflectometry (to measure dermal melanin content).

Summary statistics, analysis of variance and non-parametric methods were used.

Results: Results of the 242 students indicated a mean serum 25(OH)D of $41.35$ ng/ml and a high prevalence of vitamin D sufficiency ($\geq 30$ ng/ml) in almost all the students ($96.3\%$). The relationship between dietary vitamin D intake and serum 25(OH)D was significant (Spearman $r = 0.288; p = 0.002$). Dietary magnesium intake was positively correlated with lean body mass in overall sample ($r = 0.268; p = 0.003$) and this correlation was more strong for patients who have at least one chronic complication of diabetes ($n=62$, $r = 0.378; p = 0.002$).

Body fat mass was significantly higher in patients with hypomagnesemia ($<0.75$ mmol/l) as compared to patients with normomagnesemia ($\geq 0.75$ mmol/l) after adjusting for a large range of dietary and non-dietary confounders (respectively $35.4\pm9.4$ kg, $34.6\pm10.2$ kg; $p = 0.034$).

Conclusions: Our results suggest that clinical care should therefore focus on screening serum magnesium levels and providing adequate intake of dietary magnesium to control adiposity in type 2 diabetes.

Disclosure of interest: None declared.

MON-P390
METHYLMALONIC ACID DETERMINATION TO STUDY VITAMIN B12 STATUS IN SPANISH VEGETARIANS

A. Gallego-Narbón, B. Zapatera, M.P. Vaquero. Department of Metabolism and Nutrition, ICTAN-CSIC, Madrid, Spain

* Corresponding author.

Rationale: Methylmalonic acid (MMA), an intermediate of the vitamin B12 pathway, is an early indicator of cobalamin deficiency. In this study, for the first time we determined MMA in Spanish vegetarians to detect vitamin B12 deficiency.

Methods: Healthy adult lacto-ovo vegetarians and vegans were recruited ($n=104$). Intake of vitamin B12 supplements was assessed by a questionnaire. Serum vitamin B12 levels were measured by chemiluminescence and serum MMA by an optimized liquid chromatography tandem mass spectrometry (LC-MS/MS) method preceded by solid phase extraction. Accuracy of the used calibrators and intra-assay and inter-assay variability of the quality controls were calculated to provide reliability to the obtained results. Differences in vitamin B12 and MMA levels regarding supplementation were assessed by ANOVA tests.

Results: The accuracy of the calibrators was 86–106%, and quality controls were within the expected range for every reading. The inter-assay and inter-assay coefficients of variation were always below a 10%. While vitamin B12 levels were under the cut-off for deficiency in only two subjects, MMA was high in eleven individuals. Furthermore, vegetarians consuming cobalamin supplements presented higher vitamin B12 ($p < 0.012$) levels.

Conclusions: The LC-MS/MS method for MMA measurement proved its applicability to detect subclinical vitamin B12 deficiency. The status of vitamin B12, linked to supplementation, was generally adequate in the studied population, which emphasizes the need for supplementation to maintain suitable levels of this vitamin in vegetarians.