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**A STUDY ON HAEMOGLOBIN, SERUM PROTEIN
CONCENTRATIONS AND SERUM TOTAL ANTIOXIDANT
CAPACITY IN FIRST YEAR FEMALE UNDERGRADUATES OF
THE UNIVERSITY OF PERADENIYA**

PROJECT REPORT SUBMITTED BY

Jude Mathura Santhampillai

To the Board of study in Biochemistry and Molecular Biology

POSTGRADUATE INSTITUTE OF SCIENCE

in partial fulfillment of the requirement

for the award of the degree of

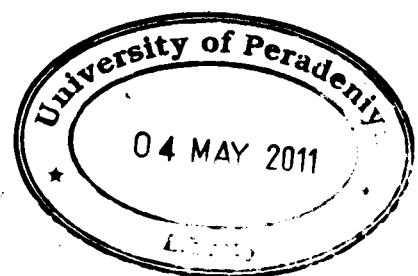
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A study was undertaken to assess the nutritional status of the 1st year female undergraduates of the University of Peradeniya using serum analytes and anthropometric measurements. A total of 142 students from the faculties of Medicine, Engineering and Arts were randomly selected and included in the study after obtaining their consent.

Standard laboratory techniques were used and the validity of the methods were checked with quality control serum during analysis. The data were entered into Microsoft Excel programme and subjected to statistical analysis.

Majority of the students involved in the study were from the Kandy district (21.1%) and around Kandy like Kegalle (10.6%) and Kurunegala (11.3%) districts. Undernutrition was noticeably high in the subjects with 44.37% being underweight, 49.30% were with normal BMI and 5.63% overweight; one student was obese. The lowest incidence of underweight (37.50 %) was observed among the students of the faculty of Engineering and they are slightly better than the students of the other faculties in their nutritional status.

The haemoglobin (Hb) concentration of the study population ranged from 8.33 - 15.44 g/dL. The mean Hb concentration of the students of the faculty of Arts was significantly lower compared to students of the faculties of Medicine and Engineering. The incidence of anemia (Hb < 12 g/dl) was 20.4% among the entire study group and highest incidence was noticed in students of the faculty of Arts (13.1%) and the lowest in students of the faculty of Engineering (1.5%). The incidence of anemia based on PCV < 36% was 22.6% among the entire study group, which was slightly higher than that obtained by using the Hb cut off value. The highest incidence was noticed in students of the faculty of Arts (14.6%) and the lowest in students of the faculty of Medicine (2.9%).

The serum total protein concentration of the study population ranged from 5.7 to 8.9 g/dL. Students of the faculty Engineering had a higher concentration than the students of the faculty of Arts and Medicine. Total protein concentration lower than 6 g/dL indicating a deficient state in serum protein was 2.6 %. The serum albumin concentration of the study population ranged from 3.7 to 5.5 g/dL. Students of the faculty Engineering had a significantly lower concentration than the students of the faculty of Arts and Medicine. None of the subjects had serum albumin concentration lower than 3.7 g/dL suggesting that the albumin status is adequate. The serum globulin concentration of the study population ranged from 1.3 to 4.7 g/dL and the students of the faculty Engineering had a higher concentration than the students of the faculty of Arts and Medicine. A significant number of the subjects had serum globulin concentration lower than 2.65 g/dL and the percentage of subjects deficient in globulin amounted to 28.8%.

The total antioxidant capacity of the study population ranged from 262.2 - 865.6 $\mu\text{mol/L}$ and it is being reported for the first time for Sri Lankan subjects.