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Profiling of Physical Activity, Health Fitness (VO_{2max}), Body Composition, and Dietary Intake among Malaysian University Students: A Case Study

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Abstract The balance of physical activity, fitness and nutrition is important to people's daily lives. The main purpose of this study was to establish profile of physical activity, health fitness (VO_{2max}), body composition, and dietary intake among college students in Malaysia. This cross-sectional study was carried out at the Faculty of Education, Universiti Kebangsaan Malaysia (UKM), whereby a total of 330 respondents of 1500 undergraduate and postgraduate students. Energy expenditure exercise levels (EEEL) was assessed by using physical activity lifestyle questionnaire (PALQ), health fitness (VO_{2max}) and body composition were examined through Queen's College step test, Heath & Carter method, and skinfold technique, whereas dietary intake was assessed via the administration of Food Frequency Questionnaire (FFQ). According to somatotype anthropometric rating (low = 0.5 - 2.5, moderate = 3 - 5 and high = 5.5 - 7), in Endomorphy 5.17 and 4.83, Mesomorphy 5.12 and 3.15 and Ectomorphy 1.72 and 2.09. BMI for male and female were 24.8 and 22.0 in Malay 24.9 and 22.2, Chinese 23.1 and 20.8, Indian 27.4 and 23.2. Overweight prevalence was 46.5% men, 17.4% women. %BF in below and above 30 years in male were respectively 17.1±8.2 and 28.9±5.9 and in female 20.89±4.5 and 28.18±6.7. Estimated $\dot{V}O_2max$ was 44.5ml.kg^{-1}.min^{-1} in male and 34.34ml.kg^{-1}.min^{-1} in female. Thus, male respondents were more susceptible to diseases and complications in comparison to females. Therefore, physical activity may need to emphasize the amount, intensity, and activity types for promoting overall public health, not merely exercise time.

Keywords Body Composition, Dietary Intake, Physical Activity, VO_{2max}, Fitness, Malaysia

1. Introduction

Health is a state of physical well-being or physical fitness that is defined by how well the body is functioning in accordance with its natural design and how well this natural design affords individuals the ability to achieve essential functional objectives of humans on a biological and personal level [1]. Diet and lifestyle often play a significant role in the pathogenesis of major chronic diseases in the studies and modifying these risk factors namely, diet and lifestyle can substantially decrease disease risk [2].

The human health is associated with motion and physical activity. Physical fitness and activity had inverse association with inabilities, mortality and morbidity. A study found not only does exercise lengthen life, but it also lengthens the time until a person has a stroke, heart attack, or other forms of cardiovascular disease [3, 4].

The global variation and technological progresses influence human life and in addition the studies should

continually search the problems in the community. Lifestyle changes related to unhealthy eating habits, socio-economic pressure, smoking and decreased physical activity are risk factors of chronic diseases [5]. One billion adults and 10% of children are now classified as overweight or obese in the world [6].

Physical activity and dietary intake are modifiable determinants which will influence size and body compositions. However, studies in body composition, aerobic fitness and energy expenditure which are intermediate determinants will help community to plan a better wellness program in the future. Regular physical activity is associated with enhancing health and reducing risk of all-cause mortality [7, 8]. Beyond the effects on mortality, physical activity has many health benefits, including reduced risk ischemic cardiovascular disease [9], diabetes Type II [10], ischemic stroke [11], colon cancers [12], osteoporosis [13], and depression [14].

However, there are many factors that influence the size and body compositions such as heredity [15], race [16], culture and society [17] economy, physical activity and dietary intake [18], and job [19]. While the culture of body health, select and food intake and physical activity can help people to have suitable size and body compositions.

The main purpose of this study is to study the physical activity, health fitness (VO_{2max}), body composition, and dietary intake among students at the Faculty of Education, UKM. This initial case study can help raise the awareness of higher education students about the importance of these components. It can also assist the faculty or the university in developing programs that help students to improve their health and encourage students' involvement in physical activity.

2. Materials and Methods

The case study uses stratified sampling method, whereby 20% (n=330) of undergraduate and postgraduate students of the faculty (N=1500) were selected as respondents. It was designed to profile the physical activity, health fitness (VO_{2max}), body composition, and dietary intake among respondents, via administration of questionnaires and physical evaluative assessments.

Every respondent filled out the consent form and answered two set of questionnaires, the Food Frequency Questionnaire (FFQ) [20] and the Physical Activity Lifestyle Questionnaire (PALQ) [21]. In addition, the study used submaximal Queen's College step test (QCT) protocol method to measure cardiovascular endurance [22]. The resting heart rate recorded after three minutes of relaxation. Anthropometrical assessment started by measuring weight and stature respectively by digital scale and body meter. The other anthropometrical measurement includes arm and calf girth was being assessed by tape measure, diameter biepicondylar femur and humerus, measured by small bone caliper. Skinfold technique used to measure triceps, subscapular, supraspinale and medial calf for somatotype and abdomen, suprailium.

3. Results

The summary of respondents' demographic data was described in Table 1.

Table 1. Summary statistics of demography in the male and female subjects between races

Characteristics	Malay		Chinese		Indian	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
Marital Status (% Single)	55 (66.3)	101 (84.9)	27 (96.4)	45 (88.2)	4 (22.2)	19 (61.3)
Fulltime Students	70 (84.3)	113 (95)	27 (96.4)	50 (98)	11 (61.1)	31 (100)
Educational Level						
Undergraduate	68 (81.9)	105 (88.2)	28 (100)	45 (88.2)	12 (66.7)	28 (90.3)
Master	15 (18.1)	14 (11.8)	0 (0)	6 (11.8)	6 (33.3)	3 (9.7)
Undergraduate Discipline						
Sport	11 (13.3)	12 (10.1)	3 (10.7)	10 (19.6)	1 (5.6)	3 (9.7)
TESL	13 (15.6)	22 (18.5)	16 (57.1)	28 (54.8)	2 (11.1)	18 (58.0)
Islamic Study	14 (16.8)	8 (6.7)	0 (0)	0 (0)	0 (0)	0 (0)
Science Education	8 (9.6)	35 (29.4)	6 (21.4)	0 (0)	0 (0)	3 (9.7)
Special Education	11 (13.3)	23 (19.3)	2 (7.1)	6 (11.8)	2 (11.1)	1 (3.2)
Management Education	11 (13.3)	5 (4.2)	1 (3.7)	1 (2.0)	7 (38.9)	3 (9.7)
Total Number Subjects	83	119	28	51	18	31
Mean of Age	27.7 ± 9.1	24.9 ± 6.7	22.6 ± 5.2	23.14 ± 5.9	37.3 ± 9.1	29.5 ± 9.4

{ TC "4.8 Summary statistics of demography in the male subjects for race" \f T \l "3" **}**

Table 2. Number and percentage cases of physical activity exercise levels in male subjects between races

		Hours / Week						
Race	Activity	No.	0-1	1-2	2-4	4-8	8-12	> 12
Malay	Total Moderate Exercise	9 10.8%	27 32.5%	33 39.8%	14 16.9%	14 16.9%	14 16.9%	8 9.6%
	Strenuous Exercise Time	33 39.8%	16 19.3%	20 24.1%	14 16.9%	28 33.7%	8 9.6%	
	Competitive Exercise Time	8 9.6%	14 16.9%	11 13.3%	1 1.2%	18 21.7%	32 38.6%	32 38.6%
	Vigorous Exercise Time							
	Total Exercise Time							
Chinese	Total Moderate Exercise	2 7.1%	15 53.6%	9 21.9%	16 55.7%	2 17.4%	1 5.0%	0 0%
	Strenuous Exercise Time	13 46.4%	11 38.3%	7 25.0%	4 14.3%	3 10.7%	2 7.1%	4 14.3%
	Competitive Exercise Time	2 7.1%	7 25.0%	2 7.1%	2 7.1%	19 67.9%	4 14.3%	
	Vigorous Exercise Time			8 28.6%	6 21.4%			
	Total Exercise Time				1 3.6%			
Indian	Total Moderate Exercise	8 44.4%	7 38.9%	1 5.6%	14 77.8%	1 5.6%	2 11.1%	0 0%
	Strenuous Exercise Time	11 61.1%	5 27.8%	1 5.6%	2 11.1%	1 5.6%	1 5.6%	4 22.2%
	Competitive Exercise Time	8 44.4%	3 16.7%	4 22.2%	1 5.6%	12 66.7%	2 11.1%	
	Vigorous Exercise Time				0 0%			
	Total Exercise Time							

From the results, in moderate exercise, 42 Malay participants engaged in this activity between 2 to 4 hours/week, and 32 reported more than 4 hours/week. Only 9 of participant reported less than 2 hours/week. In Chinese, 16 spent time between 2 to 4 h0urs/week and only 3 reported admitting more than 4 hours/week. In Indian, 14 engaged in moderate exercise between 2 to 4 hours/week, and only 3 of these reported more than 4 hours/week. In spending time for strenuous exercise, 9 of Malay subjects admitted no time at all in these activities such as jogging, swimming; 60 between 1 to 2 hours/week and 14 reported more than 2 hours/week. For Chinese, 2 reported no time at all in strenuous exercise, 22 between 1 to 2 hours/week, and 4 more than 4 hours/week. For Indian, 8 admitted no time at all in strenuous exercise, 8 between 1 to 2 hours/week and 2 engaged in more than 2 hours/week in strenuous exercise. In spending time for competitive exercise, 33 Malay admitted no time at all in competitive exercise; 16 and 20 engaged in less than 1 and 2 hours/week in these activities respectively and only 14 reported more than 2 hours/week. Number and percentage cases of physical activity exercise levels in male subjects for race are presented in Table 2.

The coefficient Pearson correlation of anthropometry, physical activity levels and dietary food intake with aerobic fitness (VO_{2max}) in male subjects for race are presented in Table 1.3. For Malay, those who had greater VO_{2max} had less body fat, less BMI, lower in endomorphy, and lower in mesomorphy and had higher in ectomorphy components. Significant correlation with predicted VO_{2max} in Malay male subjects found for following variables: BMI, r (83) = -.41, P < .001; %body fat, r (83) = -.50, P < .001; endomorphy, r (83) = -.54, P < .001; mesomorphy, r (83) = -.26, P = .02; ectomorphy, r (83) = .35, P = .001. In aerobic fitness, VO_{2max} did not reach statistical significance correlation with following variables in Malay male subjects: estimated energy expenditure in moderate exercise, r (83) = -.16, P = .15; energy expenditure in strenuous exercise, r (83) = .05, P = .66; energy expenditure in competitive exercise, r (83) = .14, P = .21; energy expenditure in vigorous exercise, r (83) = .07, P = .53; energy expenditure in total exercise, r (83) = -.01, P = .92; total energy food intake, r (83) = .06, p = .61; protein food intake, r (83) = .08, p = .47; total fat intake, r (83) = .08, p = .47; carbohydrate intake, r (83) = .02, p = .81; and age, r (83) = -.01, p = .91.

In body composition percent body fat and age accounted as predictors for VO_{2max} in Malay male subjects. In a stepwise multiple regression model for Malay males, the dependent variable was VO_{2max}, and independent variables, age, %body fat, and BMI were calculated, the following emerged: %body fat, β = -.63, t= -6.06, p < .001;

age, β = .28, t = 2.71, p =.008 as independent predictors. %body fat entered first and accounted for 25.2% (R^2 = .252) of the variance in VO_{2max}, and with age for an additional 6.3% of variance in VO_{2max}. The full model was accounted for 31.5% (R^2 = .315) of the variance in VO_{2max}.

Significant correlation with predicted VO_{2max} for male in Chinese cohort found for following variables: endomorphy, r (28) = -.59, P = .001; ectomorphy, r (28) = .41, P = .03; energy expenditure in moderate exercise, r (28) = .41, P = .03; energy expenditure in competitive exercise, r (28) = .49, P = .01; energy expenditure in vigorous exercise, r (28) = .47, P = .01; estimated energy expenditure overall in total exercise, r (28) = .51, P = .01. In Chinese male participants those who had greater $\dot{V}O_2$max were lower in endomorphy component, and spent more energy in moderate exercise, more energy in competitive exercise, more energy in vigorous exercise, more energy total exercise, and were higher in ectomorphy component.

In aerobic fitness, $\dot{V}O_{2max}$ did not reach statistical significance correlation with following variables in Chinese male subjects: estimated energy expenditure in strenuous exercise, r (28) = .35, P = .07; total energy food intake, r (28) = .14, p = .48; protein food intake, r (28) = .25, p = .20; total fat intake, r (28) = .32, p = .09; carbohydrate intake, r (28) = .04, p = .84; and age, r (28) = .12, p = .54; BMI, r (28) = -.30, p = .12; %body fat, r (28) = -.30, p = .12; mesomorphy, r (28) = -.05, p = .79.

Energy expenditure in total exercise was accounted for 25.6% (R^2 = .256) of the variance in VO_{2max}. In a step wise multiple regression model for Chinese males; the independent variables were energy expenditure in moderate exercise, energy expenditure in strenuous exercise, energy expenditure in competitive exercise, energy expenditure in vigorous exercise, and energy expenditure in total exercise. The major univariate association of dependent variable was VO_{2max}, the energy expenditure in total exercise, β = .506, t= 2.99, p = .006 appeared as independent predictor.

The endomorphy in Chinese males was accounted in a step wise multiple regression model for Chinese males, the major univariate association of dependent variable $\dot{V}O_2$max, and independent variables endomorphy, mesomorphy, and ectomorphy were entered, the endomorphy, β = -.590, t= -3.73, p = .001 emerged as independent predictors.

Table 3. Coefficient correlation of anthropometry, physical activity levels and dietary food intake with aerobic fitness in male subjects between races

	Malay		Chinese	
	Pearson's coefficient (r)	P	Pearson's coefficient (r)	P
Age (yrs)	-.01	.91	.12	.54
BMI (kg/m^2)	-.41**	.00	-.30	.12
Percent Body Fat	-.50**	.00	-.30	.12
Endomorphy	-.54**	.00	-.59**	.00
Mesomorphy	-.26*	.02	-.05	.79
Ectomorphy	.35**	.00	.41*	.03
Energy expenditure level in moderate exercise (hours/week)	-.16	.15	.42*	.03
Energy expenditure level in strenuous exercise (hours/week)	-.05	.66	.35	.07
Energy expenditure level in competitive sport (hours/week)	.14	.21	.49**	.01
Energy expenditure level in vigorous exercise (hours/week)	.07	.53	.47*	.01
Total weekly energy expenditure (hours/week)	-.01	.92	.51**	.01
energy of food intake (kcal)	.06	.61	.14	.48
protein food intake (g/day)	.08	.46	.25	.20
Total fat food intake (g/day)	.08	.47	.32	.09
carbohydrate food intake (g/day)	.02	.81	.04	.84
Total number cases	83		28	

* Significant 0.05 level (2-tailed); ** Significant 0.01 level (2-tailed)

{ TC "4.14 Coefficient correlation of anthropometry, physical activity levels and dietary food intake with aerobic fitness in male subjects for race" \f T \l "3" **}**

For moderate exercise activity for female; 66 Malays engaged in this activity between 2 to 4 hours/week, and 34 reported more than 4 hours/week, 19 less than 2 hours per week. For Chinese, 30 (58.8%) engaged in 2 to 4 hours/week and 7 reported more than 4 hours/week, 14 less than 2 hours per week. For Indian, 16 engaged in moderate exercise 2 to 4 hours/week, and only 4 of these reported more than 4 hours, 11 less than 2 hours per week. In spending time for strenuous exercise among females, 34 admitted no time at all in these activities; 74 between 1 to 2 hours/week and 11 reported more than 2 hours/week. For Chinese, 20 reported no time at all in strenuous exercise, 28 between 1 to 2 hours/week, and 3 more than 2 hours/week. For Indian, 18 admitted no time at all in strenuous exercise, 11 between 1 to 2 hours/week and 2 engaged in more than 2 hours/week in the strenuous exercise. In spending time for competitive exercise among females, 74 of Malay subjects admitted no time at all in competitive exercise; 27 and 10 engaged less than 1 and 2 hours/week in these activities respectively and only 8 engaged in competitive activity more than 2 hours/week. For Chinese, 33 reported no time at all in competitive exercise, 9 and 7 engaged less than 1 and 2 hours/week, and 2 more than 2 hours/week respectively. For Indian, 22 reported no time at all, 7 less than 1 hour and 1 more than 1 hours, only 1 engaged in competitive exercise more than 2 hours.**{** TC "4.45 Number and percentage cases of physical activity in female subjects" \f T \l "3" **}**

Significant correlation with predicted VO_{2max} for females in Malay group found for following variables: endomorphy, r (119) = -.20, P = .03; energy expenditure in competitive exercise, r (119) = .27, P = .003; energy expenditure in vigorous exercise, r (119) = .23, P = .01. In Malay female subjects those who had greater VO_{2max} were lower in endomorphy component, spent more energy in competitive exercise and more energy in vigorous exercise. In aerobic fitness, VO_{2max} did not reach statistical significant correlation with following variables in Malay female subjects: energy expenditure in moderate exercise, r (119) = -.05, P = .58; energy expenditure in strenuous exercise, r (119) = .12, P = .18; energy expenditure overall in total exercise, r (119) = .15, P = .11; total energy food intake, r (119) = .04, p = .68; protein food intake, r (119) = .04, p = .64; total fat food intake, r (119) = .06, p = .53; carbohydrate intake, r (119) = .01, p = .90; and age, r (119) = .07, p = .49; BMI, r (119) = -.07, P = .46; %body fat, r (119) = -.15, P = .10; mesomorphy, r (119) = .06 P = .50; ectomorphy, r (119) = .09, P = .33.

There was not significant correlations with VO_{2max} in Chinese females for estimated energy expenditure in strenuous exercise, r (51) = -.20, P = .16; energy expenditure in moderate exercise, r (51) = -.22, P = .12; energy expenditure in competitive exercise, r (51) = -.03, P = .83; energy expenditure in vigorous exercise, r (51) = -.12, P = .40; energy expenditure in total time exercise, r (51) = -.19, P = .18; total energy food intake, r (51) = .19, p = .18; protein food intake, r (51) = .21, p = .13; total fat intake, r (51) = .01, p = .96; carbohydrate intake, r (51) = .27, p = .05; and age, r (51) = .11, p = .47; BMI, r (51) = -.16, p = .26; %body fat, r (51) = -.22, p = .13; mesomorphy, r (51) = -.12, p = .39; endomorphy, r (51) = -.21, P = .13; ectomorphy, r (51) = .08, P = .57. In Indian female those who had greater VO_{2max} were higher in endomorphy component. Significant correlation with predicted VO_{2max} for Indian females was in endomorphy, r (31) = .37, p = .04.

In aerobic fitness, VO_{2max} did not reach statistically significance correlation with following variables in Indian female subjects: energy expenditure in strenuous exercise, r (31) = -.04, P = .82; energy expenditure in moderate exercise, r (31) = -.07, P = .72; energy expenditure in competitive exercise, r (31) = .04, P = .85; energy expenditure in vigorous exercise, r (31) = -.01, P = .97; estimated energy expenditure in total exercise, r (31) = -.03, P = .88; protein food intake, r (31) = .21, p = .26; total fat intake, r (31) = .24, p = .19; age, r (31) = .14, p = .46; BMI, r (31) = .20, p = .28; %body fat, r (31) = .32, p = .08; mesomorphy, r (31) = .08, p = .68; ectomorphy, r (31) = -.26, p = .15; energy food intake, r (31) = .26, P = .15; carbohydrate food intake, r (31) = .24, P = .20.

In anthropometric somatotype, endomorphy is accounted as predictor for VO_{2max} in Indian female subjects among somatotype indices. In a step wise multiple regression model for Indian females, in which the major univariate association of dependent variable $\dot{V}O_2max$, and independent variables endomorphy, mesomorphy, and ectomorphy were entered, the endomorphy, β = .37, t= 2.17, p = .04 emerged as independent predictors. Endomorphy accounted for 14% (R2 = .14) of the variance in $\dot{V}O_2max$. Table 4 showed coefficient correlation of anthropometry, physical activity level and dietary food intake with aerobic fitness in female subjects between races.

Table 4. Coefficient correlation of anthropometry, physical activity levels and dietary food intake with aerobic fitness in female subjects between races

	Malay		Chinese		Indian	
	Pearson's coefficient (r)	P	Pearson's coefficient (r)	P	Pearson's coefficient (r)	P
Age (Yrs)	.07	.49	.11	.47	.14	.46
BMI (Kg/M^2)	-.07	.46	-.16	.26	.20	.28
Percent Body Fat	-.15	.10	-.22	.13	.32	.08
Endomorphy	-.20*	.03	-.21	.13	.37*	.04
Mesomorphy	.06	.50	-.12	.39	.08	.68
Ectomorphy	.09	.33	.08	.57	-.26	.15
Energy of Food Intake (Kcal)	.04	.68	.19	.18	.26	.15
Protein Food Intake (G/Day)	.04	.64	.21	.13	.21	.26
Total Fat Food Intake (G/Day)	.06	.53	.01	.96	.24	.19
Carbohydrate Food Intake (G/Day)	.01	.90	.27	.05	.24	.20
Energy Expenditure Level in Moderate Exercise (Hours/Week)	-.05	.58	-.22	.12	-.07	.72
Energy Expenditure Level in Strenuous Exercise (Hours/Week)	.12	.18	-.20	.16	-.04	.82
Energy Expenditure Level in Competitive Sport (Hours/Week)	.27**	.003	-.03	.83	.03	.85
Energy Expenditure Level in Vigorous Exercise (Hours/Week)	.23*	.01	-.12	.40	-.01	.97
Total Weekly Energy Expenditure (Hours/Week)	.15	.11	-.19	.18	-.03	.88
Total Number Cases	119		51		31	

* Significant 0.05 level (2-tailed); ** Significant 0.01 level (2-tailed)

.**{** TC "4.49 Coefficient correlation of anthropometry, physical activity levels and dietary food intake with aerobic fitness in female subjects for race" \f T \l "3" **}**

4. Discussions

The ACSM's recommended at least 20 minutes of vigorous exercise be undertaken at least 3 times per week [23, 24]. More recently, new broader recommendations have emerged from center for disease control and prevention / American College Sport Medicine and the Surgeon General's Report on physical activity and health that, for overall health benefits and weight loss, individuals should have engaged in regular sustained physical activity of moderate intensity lasting 30 minutes on at 5 days per week [25, 26].

It remains possible that reductions in risk for coronary heart disease requires reasonably vigorous exercise. Quantity and intensity of physical activity with CHD studied by [27], total physical activities and vigorous activities showed the strongest reduction in CHD risk. Moderate and light activities, which may be less precisely measured, showed non-significant inverse associations. The association between physical activity and a reduced risk of CHD also extends to men with multiple coronary risk factors. The related level of physical activity and CVD have been reported [28], men and women who reported having physical activity in the highest category (i.e., walking 1 h/day or doing sports 5 hours/week) had a 20% to 60% lower age-adjusted risk of mortality from CVD, in comparison with those in the second lowest physical activity category (i.e., walking 0.5 hours/day, or sports participation for 1 to 2 hours/week).

Recommended nutrition intake (RNI) for Malaysia was released [29]. Energy requirements of adults aged 19-29 years in population's three levels of habitual physical activity for males with 70 kg weight in light, moderate, and heavy physical activity respectively reported 2190 kcal/day, 2650 kcal/day, and 3100 kcal/day and in general with moderate physical activity lifestyle on average body height 1.75 m for adult's males and body weight of Malaysian reported 2440 kcal/day. Studied in two estates in Kedah and Johor to characterize the anthropometry and dietary patterns of 334 (169 females, 165 males) Malaysian estate workers. The mean energy intake was 2032 kcal/day in males and 1538 kcal/day in females [30].

According to somatotype rating in males the mean endomorph component was almost high, in mesomorph was high and in ectomorph was low. In female subject's endomorph and mesomorph were moderate and ectomorph was low. In dietary food intake the male and female subjects in energy requirements, protein, total fat, and carbohydrate food intake have consumed above recommendation nutrition intake (RNI) for Malaysia when we compared them with the same mean age and physical activity lifestyle. But this study revealed that energy expenditure of weekly did not prove to be a protective factor against the risk of decline in perceived health.

Physical activity interventions may need to emphasize the amount, intensity, and type physical activity and change in eating habits for promoting overall public health. These results indicate that some form of intervention is needed to address these problems. In particular, a change of lifestyle to a more active one is warranted in order to improve their health status. This should increase energy expenditure and simultaneously induce loss weight and improve and change the healthy eating habit. Teenagers are the ones that grow up and this makes them incapable of controlling their nutrition. Intake of a balanced diet could make them healthier and reduce health problems.

5. Conclusion

Increased awareness of the health benefits of physical activity, body awareness and good eating habits have led to increased recognition of the need for initiatives to reduce sedentary lifestyles and improve health status. Some intervention and changes are needed to address the health problems in student teachers of UKM's Faculty of Education. In particular, for improving their health status, the study recommends that it is necessary to present a course study in field of general physical education. In this course, students would be accustomed with physical activity and exercise, preliminary of nutrition and body composition. If a person is accustomed to a sport, this will promote him and will help him retain physical fitness and health status in the future, thus a person needed to be accustomed to a sport. However, the study also recommend to education faculty to present a course to teach a sport. The study recommends to the changes in the students' lifestyle in order to improve health eating habits and plan a program to improve physical activity and exercise especially in time and intensity of exercise to achieve health status.

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