

## Relationship between Strength and Life Style on Pharmaceutical University Students in Japan and Thailand

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### Abstract

Various health-promoting programs have been implemented in Japan in recent years in order to prevent diseases related to life style. In the meantime, life style including eating and exercising habits is undergoing major changes in countries, besides Japan, which are in the process of economic development. In the present study, the authors used a questionnaire to survey the physical strength and life style of Japanese and Thai university students majoring in pharmacy and examined how the physical strength and life style were associated.

Male university students in Thailand showed a significantly higher body fat percentage and a significantly lower mean grip than did male university students in Japan. Litter differences were found in either body fat percentage or mean grip between female university students of the two countries. In contrast, Thai university students had a significantly smaller pulmonary capacity than did Japanese university students. University students who exercise longer in a week tended to have a larger pulmonary capacity and a stronger mean grip. “Good for the body” scored the highest as the perceived image of exercising habit and “improving athletic skills” scored the highest as a motivation for exercising for the last one month. Especially, male university students in Thailand had a higher body fat percentage, a weaker mean grip, and a smaller pulmonary capacity than did male university students in Japan. It is believed necessary to enlighten Thai university students on the importance of exercising in order to promote health and prevent diseases related to life style in Thailand in the future. A significantly higher ratio of Japanese university students smoked cigarette and consumed alcohol than did Thai university students. The authors found that Japanese university students need to be enlightened about how smoking and alcohol consumption are related to disease prevention.

**Key words :** life style, university students, eating habit, exercise habit

Surveys have been conducted on how many diseases are related to the amounts of physical activities and exercise. For example, the amount of physical activities is known to be negatively correlated with the numbers of coronary artery disease onset and death due to the disease. People having a large amount of physical exercise are known to have a clearly lower risk of developing coronary artery disease and death

caused by the disease<sup>1</sup>). These people are low in total mortality<sup>2</sup>), and in the morbidity of ischemic heart disease<sup>3</sup>), hypertension<sup>4</sup>), diabetes mellitus<sup>5</sup>), obesity, osteoporosis, and colonic cancer<sup>6</sup>). The preventive effect of life style increases with the increasing amount of physical exercise<sup>7</sup>). It does not take very hard exercise. Groups with frequent walking clearly have a significantly lower relative risk of coronary artery disease than

do those who do not exercise regularly<sup>8)</sup>.

In the recent years, increasingly more attention has been paid to so-called metabolic syndrome, which is a disease state involving combinations of risk factors for the onset and development of arteriosclerosis, such as hypertension (neutral fat hyperlipidemia, low-HDL cholesterinemia), upper body obesity, and glucose tolerance anomaly<sup>9)</sup>. Metabolic syndrome involves visceral fat accumulation, which has been pointed out to be an important factor. Physical activity and exercise are considered one of the most effective means to arrest visceral fat accumulation. Moreover, physical activities are known to activate and newly generate neurons in the brain. For example, animal experiments have shown exercise does the following: the stimulation of the hippocampus for the development of new neurons from neural stem cells<sup>10)</sup> and the augmentation of a brain-derived growth factor leading to synapse growth<sup>11)</sup>. In humans, regular exercise, such as walking, has been reported to improve cognition and learning functions of the brain in the aged and patients with depression and Parkinson's disease<sup>12,13)</sup>.

On the other hand, Sasaki et al.<sup>14)</sup> reported that middle-aged and elderly people with a strong grip had low mortality and all data averaged showed a 5-kg increase in grip decreased male mortality 11 percent and female mortality 13%. Gale<sup>15)</sup> also reported that men with a weak grip died of cancer and heart diseases more often. From the results, grip measurement over time course is considered very important. However, although grip measurements are taken up to high school, they are seldom taken at university at present. In addition, much fewer survey reports are available on body strength in Thailand than in Japan and the few reports only deal with the effects of exercise on laborers' pulmonary capacity<sup>16,17)</sup>, child obesity<sup>18)</sup>, and the prevention of heart diseases by ordinary exercise<sup>19)</sup>.

Human health is supported by three elements: nutrition, exercise, and recuperation. However, issues of health management have changed over time. The rapid economic growth prompted Japanese people to change their life style substantially, leading to westernized eating habits, decreased exercise, and increased stress to increase the incidence of such life style-related diseases as hyperlipidemia, diabetes mellitus, and hypertension. Diseases relate to life style are commonly considered diseases of middle-aged and elderly people. Recently, however, younger people also contract the diseases and it is pointed out that the younger group is on a waiting list. In the meantime, western culture has flown into Thailand, a newly industrializing economy, which is predicted to face the same situation as Japan has. Pharmacy graduates in particular, who, as future health care takers, are believed to be engaged in the prevention and treatment of diseases in the nation. It is important for them to begin to acquire proper life style while

they are still at university.

In the present study, measurements were taken for the body stature, body weight, body fat percentage, grip, and pulmonary capacity of Japanese and Thai university students majoring in pharmacy and a questionnaire survey was conducted on their eating and exercising habits to examine how they were related to each other.

## II. Methods

### 1. Survey subjects

The survey subjects comprised 51 male university students and 94 female university students in Japan and 44 male university students and 92 female university students in Thailand. A questionnaire form entitled "Survey on Living Conditions and Life Style" was distributed to the university students and recovered during laboratory training sessions and breaks. The university students were juniors majoring in pharmacy and their ages were  $22.0 \pm 0.3$  and  $21.0 \pm 0.1$  for male and female university students, respectively, in Japan and  $20.9 \pm 0.8$  and  $20.9 \pm 0.7$  for male and female university students, respectively, in Thailand. "Epidemiological Research only Using Unlinkable, Anonymized Data as Information Materials" ordained in "Ethical Guidelines for Epidemiological Research", which was implemented in July, 2002, was applied to the present study. The survey was conducted with due consideration to informed consent and privacy protection, which are not subject the guideline. Moreover, the survey data were anonymized for ethical consideration to privacy protection.

Body fat percentage was measured with Body Composition Monitor HBF-300 (OMRON Corporation). Body mass index (BMI) was calculated and presented in body weight kilogram/square of body stature meter. The questionnaire form, which was especially prepared for the purposes, contained the following attribute items: gender, age, body stature, body weight, body fat percentage, exercising time in a week, exercising habit, and eating habit. Body strength indicator was grip measured with Hand Grip Meter 6103, a hand dynamometer, (Tanita Co., Ltd.) and pulmonary capacity was measured with pocketable Spirometer KC (Hata Sporting Goods Industries, Ltd.). A scale of "1: disagreement to 10: agreement" was adopted for "good for the body", "releasing stress", and "making friends" concerning the perception of exercise and a scale of "1: dissatisfaction to 10: satisfaction" was used for "improving athletic skills", "exercising habit", and "exercising time" concerning exercising for the last one month. The questions about eating habit comprised mean uptakes of "eggs" and "milk", which are major sources of

**Table 1 Physical characteristics of university students**

	Mean $\pm$ S.D.	Range	Mean $\pm$ S.D.	Range
Japanese students	Male	n = 51	Female	n = 94
Height (cm)	172.1 $\pm$ 5.2	164 - 185	158.8 $\pm$ 5.7	145 - 168
Weight (kg)	63.3 $\pm$ 9.1	50 - 83	49.0 $\pm$ 5.4	38 - 63
Body fat percentage (%)	16.4 $\pm$ 4.2	8.0 - 27.1	23.3 $\pm$ 3.1	15.6 - 32.3
Right grip strength (kg)	42.5 $\pm$ 8.1	18 - 60	25.5 $\pm$ 5.1	15 - 38
Left grip strength (kg)	39.0 $\pm$ 7.9	14 - 55	22.8 $\pm$ 4.7	14 - 33.5
Average grip strength (kg)	40.8 $\pm$ 7.6	16 - 56	24.2 $\pm$ 4.6	15 - 35.5
Lung capacity (mL)	3418 $\pm$ 721	1800 - 4900	2214 $\pm$ 458	1000 - 3500
BMI (kg/m <sup>2</sup> )	21.3 $\pm$ 1.9	17.6 - 27.6	19.5 $\pm$ 1.6	16.2 - 24.2
Thai students	Male	n = 44	Female	n = 92
Height (cm)	171.9 $\pm$ 4.7	155 - 183	160.7 $\pm$ 5.0	150 - 174
Weight (kg)	60.7 $\pm$ 8.4	50 - 82	48.2 $\pm$ 6.4	20 - 76
Body fat percentage (%)	18.8 $\pm$ 5.9	8.3 - 30.4	23.3 $\pm$ 4.1	12.0 - 33.0
Right grip strength (kg)	38.5 $\pm$ 7.1	21 - 52	26.2 $\pm$ 4.6	12 - 40
Left grip strength (kg)	34.6 $\pm$ 6.5	21 - 47	23.0 $\pm$ 4.8	10 - 40
Average grip strength (kg)	36.5 $\pm$ 6.5	21 - 49	24.6 $\pm$ 4.4	11.5 - 40
Lung capacity (mL)	2897 $\pm$ 747	1400 - 4800	1922 $\pm$ 450	900 - 3100
BMI (kg/m <sup>2</sup> )	20.5 $\pm$ 2.6	16.8 - 27.0	18.7 $\pm$ 2.1	8.0 - 25.1

protein; and a scale of "1: dissatisfaction to 10: satisfaction" was used for the consumption of carbohydrate, protein, fat, fruit, and vegetable. Other questions included whether the university students took "supplements", "between-meal snacks", "alcohol", and "cigarette."

## 2. Relationship between body strength and eating and exercising habits

The relationship between body strength and life style was evaluated by logistic regression. Significance in body habitus differences was evaluated by the student T test or the  $\chi^2$  test. Windows JMP ver. 6.0 (SAS Institute, Inc.) was used for the statistical treatment and significance test of the data.

## III. Results

### 1. Body habitus and body strength of university students in Japan and Thailand.

Table 1 shows the body stature, body weight, body fat percentage, BMI, grip, and pulmonary capacity of university students in Japan and Thailand. Male university students in Japan were somewhat taller on average than those in Thailand but no significant difference was found. On the other hand, female university students in Japan were a little heavier on average than those in Thailand but no significant difference was found. In contrast, the former were significantly shorter on average than the latter. Male university students in Thailand showed a significantly higher body fat percentage than did

those in Japan but female university students in both countries showed nearly equal values. The mean grip of male university students in Thailand was significantly lower than that of those in Japan but it did not differ much between female university students of the two countries. Japanese university students, both male and female, had greater pulmonary capacities than did those in Thailand.

### 2. Supplements, between-meal snacks, alcohol, and cigarette taken by Japanese and Thai university students

Table 2 presents supplements, between-meal snacks, alcohol, and cigarette taken by university students. A higher ratio of Thai university students took supplements and between-meal snacks than did Japanese university students. In contrast, a smaller ratio of Thai university students consumed alcohol and smoked cigarette than did Japanese university students.  $\chi^2$  tests revealed that supplement intake was significantly correlated with the consumption of between-meal snack ( $p < 0.001$ ) and alcohol ( $p < 0.01$ ) in male university students and with the consumption of alcohol ( $p < 0.001$ ) and between-meal snacks ( $p < 0.05$ ) in female university students. However, smokers were too few to allow significance tests.

### 3. Body habitus and eating and exercising habits of university students in Japan and Thailand

Eating habit of university students in Japan and Thailand was surveyed for the mean weekly intake of eggs and milk and

**Table 2 Food supplement, snack, alcohol and smoking habits of university students**

	No		Yes	
	male(%)	female(%)	male(%)	female(%)
Japanese students				
Food supplement	70.6	50.0	29.4	50.0
Snack	41.1	13.8	58.9	86.2
Alcohol	19.6	30.9	80.4	69.1
Smoking	74.5	98.9	25.5	1.1
Thai students				
Food supplement	36.4	22.8	63.6	77.2
Snack	18.1	7.6	81.9	92.4
Alcohol	43.2	82.6	56.8	17.4
Smoking	88.6	100.0	11.4	0.0

**Table 3 Egg and milk consumption food of university students**

	Mean ± S.D.	Range	Mean ± S.D.	Range
	Male	n = 51	Female	n = 94
Japanese students				
Egg (number/week)	2.9 ± 2.3	0 – 8	3.8 ± 2.5	0 – 10
Milk (mL/week)	819 ± 936	0 – 4000	632 ± 820	0 – 4000
Major food (carbohydrate, meat, fat)	22.8 ± 4.8	15 – 30	22.2 ± 5.3	7 – 30
Minor food (vegetable, fruit)	9.9 ± 4.8	2 – 20	10.9 ± 4.6	2 – 20
Thai students				
Egg (number/week)	5.7 ± 3.4	1 – 17.5	3.4 ± 1.9	1 – 15
Milk (mL/week)	1034 ± 619	0 – 3125	922 ± 586	0 – 2750
Major food (carbohydrate, meat, fat)	24.2 ± 3.6	13 – 30	23.3 ± 4.3	12 – 30
Minor food (vegetable, fruit)	13.0 ± 3.7	6 – 20	15.1 ± 3.4	2 – 20

evaluated by the scale of 1 to 10 for the intake of carbohydrate, protein, fat, fruit, and vegetable. Table 3 gives the results, which show male university students in Thailand consumed the largest amounts of eggs and milk. The amount of milk taken by Japanese university students was smaller than that taken by Thai university students. The amount of egg consumption by male university students and that of milk consumption by female university students were found to differ significantly between the two countries. No large differences were found in the consumption of carbohydrate, protein, and fat between the two genders and countries. In contrast, fruit and vegetable consumption differed significantly between the two countries.

Exercising habit of Japanese and Thai university students was evaluated for mean weekly exercising time and the perception of exercise by a scale of “1: disagreement to 10: agreement” for the three items: “good for the body”, “releasing stress”, and “making friends”; and exercising for the last one month was evaluated by a scale of “1: dissatisfaction to 10: satisfaction” for the three items: “improving athletic skills”, “exercising habit”, and “exercising time”. Table 4 shows the results. Male university students in Japan spent longer mean

weekly time on exercise than did those in Thailand and female university students in Thailand spent longer time on exercise than those in Japan. However, the differences were not found significant. Japanese university students were less satisfied than Thai university students in each item. “Good for the body” scored the highest among the items of the perception of exercise and “improving athletic skills” was scored the highest among the items of exercising for the last one month.

Logistic regression was used to analyze the relationship between mean weekly exercising time and body fat percentage, pulmonary capacity, mean grip, and mean weekly consumption of eggs and milk of Japanese and Thai university students. Table 5 shows the results. Significant correlations were found between mean weekly exercising time and pulmonary capacity in female university students in Japan and between mean weekly exercising time and mean grip in male university students in Thailand.

Logistic regression was used to analyze the relationship between exercising time and the following: the perception of exercise; exercising for the last one month; the consumption of carbohydrate, protein, fat, fruit, and vegetable; body fat

**Table 4 Exercise habit of university students**

	Mean $\pm$ S.D.	Range	Mean $\pm$ S.D.	Range
Japanese students	Male	n = 51	Female	n = 94
Hour spending in exercise (min)	64.6 $\pm$ 78.4	0 – 360	28.8 $\pm$ 51.0	0 – 240
Attitude status	21.1 $\pm$ 6.4	3 – 30	22.4 $\pm$ 5.0	10 – 30
To be strong	7.7 $\pm$ 2.4	1 – 10	8.5 $\pm$ 1.9	1 – 10
To release stress	7.5 $\pm$ 2.3	1 – 10	7.5 $\pm$ 2.3	1 – 10
To make friends	5.9 $\pm$ 3.0	1 – 10	6.4 $\pm$ 2.4	1 – 10
Performance status	14.0 $\pm$ 6.6	3 – 30	10.4 $\pm$ 6.6	3 – 30
Ability	5.2 $\pm$ 2.5	1 – 10	3.9 $\pm$ 2.5	1 – 10
Regularity	4.6 $\pm$ 2.3	1 – 10	3.3 $\pm$ 2.4	1 – 10
Time spending	4.2 $\pm$ 2.5	1 – 10	3.1 $\pm$ 2.2	1 – 10
Thai students	Male	n = 44	Female	n = 92
Hour spending in exercise (min)	51.2 $\pm$ 27.1	0 – 90	39.4 $\pm$ 23.7	0 – 90
Attitude status	26.4 $\pm$ 3.6	15 – 30	26.5 $\pm$ 3.1	15 – 30
To be strong	9.2 $\pm$ 1.1	6 – 10	9.4 $\pm$ 1.0	5 – 10
To release stress	9.0 $\pm$ 1.3	5 – 10	8.9 $\pm$ 1.2	5 – 10
To make friends	8.1 $\pm$ 1.8	3 – 10	8.2 $\pm$ 1.5	4 – 10
Performance status	19.7 $\pm$ 5.1	7 – 29	18.0 $\pm$ 4.8	3 – 30
Ability	7.5 $\pm$ 1.6	4 – 10	7.0 $\pm$ 1.5	1 – 10
Regularity	5.9 $\pm$ 2.1	1 – 10	5.2 $\pm$ 2.1	1 – 10
Time spending	6.3 $\pm$ 2.1	1 – 10	5.8 $\pm$ 2.1	1 – 10

**Table 5 Relationship between hour spending in exercise and physical characteristics or egg and milk consumption food of university students**

	Japanese students		Thai students	
	Male	Female	Male	Female
Hour spending in exercise (min) – Body fat percentage (%)	0.1860	0.1223	0.2940	0.4170
– Lung capacity (mL)	0.6315	0.0113*	0.0919	0.5102
– Average grip strength (kg)	0.8495	0.0892	0.0126*	0.7101
– Egg (number/week)	0.5314	0.1196	0.6383	0.2389
– Milk (mL/week)	0.0507	0.7606	0.4923	0.7065

percentage; pulmonary capacity; mean grip; and the mean weekly consumption of eggs and milk. Table 6 presents the results, which revealed a significant correlation between exercising time and exercising for the last one month. In addition, male and female university students in Japan showed a significant correlation between mean grip and exercising for the last one month and between mean grip and motivation for exercising, respectively.

#### IV. Discussion

Japanese and Thai university students had nearly the same body stature, body weight, body fat percentage, and BMI as the past measurements of university students majoring in non-pharmacy fields<sup>20)</sup>. The BMI of Thai university students was particularly higher than that of Japanese university students.

Mean calorie intake per person was reported to be 2,761 kcal for Japanese university students and 2,467 kcal for Thai university students<sup>21)</sup>. Japanese university students showed a lower BMI than that of Thai university students in spite of the higher calorie intake. In other words, Japanese university students seemed to consume more calories in life activities. On the other hand, grip was reported to be associated with the onset of diseases related to life style. Grip increases in proportion to the amount of muscle. It also increases in people with increased levels of basic metabolism. Thai university students have a weaker grip than that of Japanese university students. The onset of life style-related diseases in old ages may make a difference in mean life longevity: 69 in Thailand and 82 in Japan.

With respect to eating habit, a higher ratio of university students in Thailand replied they “took” between-meal snacks

**Table 6 Association of measures of physical characteristics, egg and milk consumption food, exercise habit of university students**

	p value			
	Attitude status	Performance status	Major food	Minor food
Japanese male students				
Body fat percentage (%)	0.9848	0.0743	0.1910	0.0683
Lung capacity (mL)	0.7064	0.7242	0.8936	0.0686
Average grip strength (kg)	0.5334	0.0444*	0.0955	0.3958
Egg (number/week)	0.7097	0.9047	0.0892	0.1703
Milk (mL/week)	0.0425*	0.1533	0.5807	0.1154
Hour spending in exercise (min)	0.0072*	0.0298*	0.5190	0.0234*
Thai male students				
Body fat percentage (%)	0.1030	0.0892	0.8951	0.2196
Lung capacity (mL)	0.1029	0.3652	0.4994	0.3185
Average grip strength (kg)	0.8678	0.5149	0.9456	0.1270
Egg (number/week)	0.8855	0.2200	0.1301	0.9760
Milk (mL/week)	0.7702	0.7546	0.8402	0.3355
Hour spending in exercise (min)	0.1350	0.0001*	0.6874	0.8933
Japanese female students				
Body fat percentage (%)	0.7843	0.0190*	0.9734	0.3621
Lung capacity (mL)	0.6671	0.0541	0.2159	0.4419
Average grip strength (kg)	0.0064*	0.2558	0.5009	0.2184
Egg (number/week)	0.9061	0.6320	0.1166	0.2577
Milk (mL/week)	0.7488	0.6640	0.1943	0.4629
Hour spending in exercise (min)	0.1599	0.0001*	0.8054	0.4523
Thai female students				
Body fat percentage (%)	0.7217	0.9371	0.5306	0.4785
Lung capacity (mL)	0.2297	0.6098	0.5091	0.9274
Average grip strength (kg)	0.1590	0.1170	0.7684	0.4188
Egg (number/week)	0.0729	0.0196	0.0775	0.9771
Milk (mL/week)	0.9090	0.0508	0.8631	0.2744
Hour spending in exercise (min)	0.1509	0.0001*	0.9362	0.6968

than did those in Japan and a higher ratio of female university students in Thailand replied they “took” between-meal snacks than did male university students there. Thai university students were reported to take between-meal snacks often in lieu of breakfast. The present study showed a similar tendency. On the other hand, many Thai university students took supplements and seemed to pay close attention to the self-management of health and disease prevention. Unlike in Japan, the concept of self-medication is prevalent in Thailand, where a higher ratio of university students was reported to take OTC drugs than in Japan<sup>18)</sup>. They may associate self-medication with supplements. A higher ratio of university students in Japan consumed alcohol and smoked cigarette than did university students in Thailand. Considering that the subjects of the present study were university students majoring in pharmacy and were going to be engaged in disease prevention and

treatment in the future, they would need to be enlightened about the effects of alcohol and tobacco on health.

Protein intake is important to maintain hormone balance. In addition, calcium intake is closely associated with osteoporosis development and, especially, life style after adulthood<sup>22)</sup>. Mean weekly milk consumption by Thai university students was significantly larger than that by Japanese university students. On average, male university students in Thailand consumed nearly twice as many eggs in a week than did male university students in Japan. Female university students in Japan ate somewhat more eggs than did those in Thailand. The data showed that university students in Thailand took more protein than did those in Japan. Protein utilization in the body requires its decomposition into amino acids and also exercising. Hence, a survey was conducted on mean weekly exercising time to find that male university

students in Japan and female university students in Thailand tended to exercise for longer time. With regard to exercising habit, Thai university students were satisfied in every item (>5.0), whereas Japanese university students were dissatisfied in two items (<5.0): “exercising habit” and “exercising time”. A 2004 study by the present authors showed that Japanese university students majoring in pharmacy exercised for an average of about 90 minutes in a week regardless of gender<sup>20</sup>, whereas the present questionnaire showed markedly shorter exercising time: 54.6 minutes for male university students and 28.8 minutes for female university students. The finding seems to indicate that university students are experiencing major changes in life style. Mean weekly exercising time was 67.3 minutes for male university students and 41.2 minutes for female university students in Thailand in 2004. The present study showed a little shorter time, 51.2 minutes for male university students and 39.4 minutes for female university students, but the differences were not large. As for the perception of exercise, the highest ratio of university students replied “good for the body,” showing that university students recognized exercise is important for maintaining health.

Significant correlations were found between exercising time and mean grip in male university students in Thailand and between exercising time and pulmonary capacity in female university students in Japan. University students who exercised longer seemed to have more muscle and stamina. It was reported that people possessing a strong grip faced a lower risk of diseases relate to life style<sup>14</sup>) and people with larger pulmonary capacities had a lower total mortality<sup>2</sup>) and lower morbidities of ischemic heart disease<sup>3</sup>), hypertension<sup>4</sup>), diabetes mellitus<sup>5</sup>), obesity, osteoporosis, and colonic cancer<sup>6</sup>). It seems necessary to enlighten university students about exercise. On the other hand, exercising time was not found correlated with the consumption of eggs and milk. It can be predicted that exercising habit and eating habit are not correlated in university students majoring in pharmacy.

A significant correlation was found between mean exercising time and exercising for the last one month; university students seemed to exercise not for health but because they habitually exercised. No significant correlation was found between eating habit and grip, mean weekly intake of eggs and milk, or exercising time.

## V. Conclusion

Male university students in Thailand had a higher body fat percentage and a smaller pulmonary capacity than those of male university students in Japan; they need to be enlightened about the necessity of exercising. Compared with survey

results found a few years ago, mean time Japanese university students spend on exercise in a week has been markedly shortened and many of the university students replied they were dissatisfied about exercising habit and time, indicating appropriate measures are required. Furthermore, university students who exercised longer in terms of mean exercising time tended to have a stronger grip and a larger pulmonary capacity; a significant correlation was found between exercising and mean weekly exercising time. On the other hand, a higher ratio of Japanese university students consumed alcohol and smoked cigarette than did Thai university students; they need to be enlightened about the effects of alcohol and cigarette on health. Also, male university students in Thailand consumed the largest amounts of eggs and milk in a week on average but the consumption was not found correlated with exercising habit. University students majoring in pharmacy are going to be engaged in disease prevention for the nations in the future. That prospect suggests that they need to grasp their own body strength and maintain more appropriate exercising and eating habits.

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