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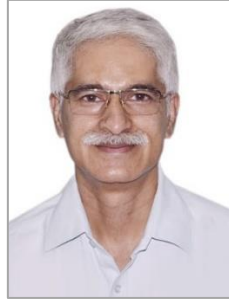
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**Editorial**

व्यायामात् लभते स्वास्थ्यं दीर्घायुष्यं बलं सुखं । आरोग्यं परमं भाग्यं स्वास्थ्यं सर्वार्थसाधनम् ॥  
व्यायाम से स्वास्थ्य, लम्बी आयु, बल और सुख की प्राप्ति होती है। निरोगी होना परम भाग्य है और स्वास्थ्य से अन्य सभी कार्य सिद्ध होते हैं।

*India is ranked number two in terms of population and we have the highest number of youth of all the nations of the world. This is an advantage if recognized and en-cashed sooner the better for if we wish to become "Vishwa Guru" in the true sense of its meaning. We are proud of our culture and contribution to the pool of worldly knowledge and wisdom through or Vedas, Bhadwad Geeta and Upanishands. Our country won highest number of medals in the recently concluded Para-Olympic games 2020 at Tokyo is a reflection of our strength and unity in the times of adversity like COVID-19, economic meltdown, so on and so forth. It is equally pertinent to utilize our time during lockdowns in the useful pursuits because research and development work can never stop. Despite difficult times, THE ENTIRE RESEARCH JOURNAL has always endeared and endeavored to share multidisciplinary knowledge with its readers. Being one of the editorial members of this esteemed journal, I have seen that the team has always tried its best to maintain a strong impact factor, as we humbly request our members and authors to cite relevant journal articles of this journal in their peer-reviewed publications whenever appropriate.*

*Each article, the journal publishes must establish a rationale for a novel hypothesis that is illustrated in a conceptual figure. To accomplish this goal, authors must synthesize the contemporary literature on a topic, including several of their own peer-reviewed publications, and then extrapolate this knowledge to an emergent idea that represents opportunities for future research. Besides that, the articles must be lucid in language for a wider outreach by a broad audience. The intent should be to engage upcoming researchers in the field, especially those who are early in their careers and have a wide range of interests in the fields of yoga and naturopathy, meditation and neuroscience, naturopathy and Ayurvedic principles for spreading environmental awareness to name a few.*

*On behalf of the Journal, I thank the Chief Editor, all the authors and the entire journal team for giving me this opportunity to write the editorial.*

**Best wishes,**

**Dr. Vikram Singh**  
JNU, New Delhi.

## **Actual Situation of the Effectiveness of Physical Education for Students at the University of Economics – Technology for Industries**

**Pham Quang Duc:** MPhEd. University of Economics - Technology for Industries

### **Summary:**

Using routine scientific research methods, we have identified three criteria for evaluating the effectiveness of physical education (PE) at the University of Economics - Technology for Industries, and on that basis, the effectiveness of the PE work at the University has been assessed. The results show that the effectiveness in physical education at the university is not high. It is necessary to have appropriate solutions to improve the effectiveness of physical education at the University of Economics - Technology for Industries.

**Keywords:** Physical Education, Physical Fitness, Extra-curricular Sports, University of Economics - Technology for Industries.

### **Question:**

Teaching physical education and organizing sports activities at the University of Economics - Technology for Industries (UNETI) is a pedagogical activity aimed at perfecting and developing students' physical and personality, contributing to fulfill the task of "raising people's knowledge, training human resources, fostering talents" to build a new class of people, the owners of the future society, to meet the economic development needs of the country. To achieve the above purpose, the Department of Physical Education of the University has applied the physical education program according to the regulations of the Ministry of Education and Training. However, due to many reasons, the work of physical education for students at the University of Economics - Technology for Industries has not yet been developed in accordance with the available potential.

Accurately assessing the effectiveness of PE is a basic and important condition for having appropriate solutions to improve the effectiveness of PE. However, this issue, in reality at the University of Economics - Technology for Industries, has not received adequate attention. Therefore, assessing the actual situation of the effectiveness of physical education at the University of Economics - Technology for Industries is necessary and an important basis for having solutions to improve the effectiveness of physical education at the University.

### **Research Method:**

The research process uses the following research methods: Reference method; Method of pedagogical observation; Interview method; Mathematical statistics method.

The research was conducted on 1600 students at the University of Economics - Technology for Industries (including 928 male students and 672 female students). The survey was conducted using questionnaires, through collaborators who are PE teachers at the University.

Survey time: Academic year 2018-2019.

### Research Results and Discussion:

#### 1. Identifying the criteria for evaluating the effectiveness of physical education for students at the University of Economics - Technology for Industries

In order to select the criteria for evaluating the effectiveness of the PE work at the University of Economics - Technology for Industries, we first analyzed and synthesized relevant documents, directly interviewed PE experts... As a result, 4 groups of criteria to evaluate the effectiveness of physical education for research subjects were selected.

To determine the most appropriate criteria in evaluating the effectiveness of the physical education work for students at the University of Economics - Technology for Industries, we conducted interviews with 31 PE experts and lecturers using questionnaires. The results are presented in Table 1.

**Table 1. Selecting criteria for evaluating the effectiveness of physical education for students at the University of Economics - Technology for Industries (n=31)**

No.	Criteria	Very necessary		Necessary		Less necessary	
		mi	%	mi	%	mi	%
1	Evaluate through academic results in physical education	28	90.32	2	6.45	1	3.23
2	Evaluate through morphometric indicators of the students	16	51.61	7	22.58	8	25.81
3	Evaluate the physical fitness development of the students (according to the regulations of the Ministry of Education and Training)	27	87.10	2	6.45	2	6.45
4	Evaluate the results of the students' extracurricular sports activities	30	96.77	1	3.23	0	0.00

Table 1 shows that there are 3 criteria that were evaluated as very necessary by more than 80% of experts and lecturers, and were selected to evaluate the effectiveness of PE for students at the University of Economics - Technology for Industries. including: Evaluate through academic results in physical education; Evaluate the physical fitness development of the students and Evaluate the results of the students' extracurricular sports activities. As for evaluating through morphometric indicators of the students, because there were less than 80% of the opinions evaluated it as very necessary, it was removed. Through direct discussion with experts, it was shown that: The morphometric indicators of students depend heavily on physical education factors, especially at the university student age, the growth in height has decreased sharply, the weight is also almost stable, etc. Therefore, the work of assessing the morphometric indicators of students to evaluate the effectiveness of physical education would become more and more difficult. It is appropriate to evaluate the effectiveness of physical education work based on the three selected criteria groups above.

## 2. Evaluating the effectiveness of the physical education work at the University of Economics - Technology for Industries

### 2.1. The actual situation of the academic results in physical education of students at the University of Economics - Technology for Industries

We evaluated the actual situation of the academic results in physical education of 1200 students at the University of Economics - Technology for Industries through analyzing the students' score records stored in the Physical Education department of the University. The results are presented in Table 2.

**Table 2. Actual situation of the academic results in physical education of students at the University of Economics - Technology for Industries (n=1200)**

No.	Academic year (n=400)	Academic results									
		Excellent		Good		Average		Weak		Poor	
		mi	%	mi	%	mi	%	mi	%	mi	%
1	First year	43	10.75	80	20.00	153	38.25	105	26.25	19	4.75
2	Second year	44	11.00	84	21.00	128	32.00	124	31.00	20	5.00
3	Third year	42	10.50	75	18.75	138	34.50	123	30.75	22	5.50
	Total:	129	10.75	239	19.92	419	34.92	352	29.33	61	5.08

Table 2 shows that:

The academic results in physical education of students at the University of Economics - Technology for Industries had a very high rate of failing (weak and poor), accounting for more than 30% by academic years. The percentages of students achieving weak and poor results did not have a big difference, the highest was more than 5% (according to the rate between each school year). The percentages of students who did not pass the first time in PE ranged from 31.00% to 36.25%. The percentages of students who did not pass the first time were highest in the third year and lowest in the first year.

The percentages of students with excellent and good academic results in physical education accounted for about 30% of the number of students. The percentages of students achieving excellent and good grades in different academic years were not much different.

The percentages of students with average academic results in PE accounted for the highest percentage of all categories and accounted for approximately 35% of the total number of students. The percentages of students with average academic results were lowest in the second year and highest in the first year. The percentages of students who achieved average results were from 32.00 to 38.25%.

Thus, it can be commented in general: The academic results of students at the University of Economics - Technology for Industries in Physical Education were still at a low level. The percentage of students achieving excellent and good grades was low, and the percentage of students failing to pass the subject was still high. Facing the above situation, it is necessary to have appropriate solutions to improve the academic results of elective PE subjects for students.

### 2.2. Actual situation of the physical fitness levels of students at the University of Economics - Technology for Industries

We conducted the assessment of students' physical fitness levels through 6 tests regulated by Decision No. 53/2008/QD-BGDDT dated September 18, 2008 on promulgating

regulations on the assessment and classification of students' physical fitness. The assessment was conducted on 1600 students from first to the fourth year. The number of students from each academic year was 400, including 200 male students and 200 female students. The students' physical fitness survey was conducted under the support of lecturers of physical education at the University of Economics - Technology for Industries. The detailed survey results are presented in Table 3.

**Table 3. Actual situation of the physical fitness levels of students at the University of Economics - Technology for Industries by each academic year (n=1600)**

No.	Test	Male (n=928)		Cv	Female (n=672)		Cv
		$\bar{x}$	$\delta$		$\bar{x}$	$\delta$	
<b>First year students (n<sub>male</sub> = 236, n<sub>female</sub> = 164)</b>							
1	Dominant hand grip strength (kG)	40.68	3.60	8.85	27.03	2.46	9.09
2	Crunches (times/30s)	18.10	1.67	9.24	16.25	1.76	10.81
3	Standing long jump (cm)	204.11	15.54	7.61	152.86	11.43	7.48
4	30m standing start running (s)	5.51	0.33	5.92	6.53	0.35	5.29
5	4 × 10m shuttle run (s)	12.18	0.68	5.61	12.52	0.61	4.89
6	5 minutes free running (m)	953.70	48.30	5.06	858.91	63.94	7.44
<b>Second year students (n<sub>male</sub> = 231, n<sub>female</sub> = 169)</b>							
1	Dominant hand grip strength (kG)	41.31	3.56	8.62	27.17	2.49	9.15
2	Crunches (times/30s)	18.85	1.22	6.46	16.91	1.08	6.36
3	Standing long jump (cm)	207.37	14.85	7.16	153.16	11.43	7.46
4	30m standing start running (s)	5.38	0.32	5.89	6.49	0.36	5.48
5	4 × 10m shuttle run (s)	12.03	0.72	6.00	12.28	0.70	5.71
6	5 minutes free running (m)	978.41	67.62	6.91	864.14	62.12	7.19
<b>Third year students (n<sub>male</sub> = 233, n<sub>female</sub> = 167)</b>							
1	Dominant hand grip strength (kG)	42.40	3.57	8.42	27.63	2.55	9.22
2	Crunches (times/30s)	19.84	1.26	6.33	17.67	1.04	5.87
3	Standing long jump (cm)	211.07	15.52	7.35	154.84	11.43	7.38
4	30m standing start running (s)	5.14	0.29	5.58	6.16	0.36	5.77
5	4 × 10m shuttle run (s)	11.88	0.68	5.75	12.13	0.70	5.78
6	5 minutes free running (m)	989.43	68.32	6.90	883.51	61.44	6.95
<b>Fourth year students (n<sub>male</sub> = 228, n<sub>female</sub> = 172)</b>							
1	Dominant hand grip strength (kG)	43.75	1.26	2.87	27.93	3.24	11.59
2	Crunches (times/30s)	20.82	1.23	5.89	18.29	1.14	6.26
3	Standing long jump (cm)	214.75	9.89	4.60	155.75	9.24	5.93
4	30m standing start running (s)	5.02	0.18	3.55	6.03	0.38	6.22
5	4 × 10m shuttle run (s)	11.83	0.64	5.43	11.80	0.66	5.60
6	5 minutes free running (m)	995.24	35.09	3.53	905.14	58.65	6.48

Table 3 shows that:

The physical fitness levels of students at the University of Economics - Technology for Industries from the first to the fourth year and in both male and female subjects, in all tests, were higher than the average according to the physical fitness classification standards of



the Ministry of Education and Training [1], higher than the results of the 2001 citizens' physical fitness survey conducted by Duong Nghiep Chi and his colleagues, and were almost similar to the research results of some authors on students in different regions.

When comparing the difference in physical fitness of students in different school years, it shows that: In consecutive school years such as the first and second years, the second and third years, and the third and fourth years, although there was a difference, the difference was very small, which means that the resolution of students' physical fitness development goals in the PE program has not been highly effective.

The results of the physical fitness tests on the research subjects in all the tests were  $C_v < 10\%$ . Thus, it can be seen that the research ensures representativeness.

In order to have a more general view of the physical fitness levels of the students at the University of Economics - Technology for Industries by academic years, we classified the physical fitness levels of the students according to the standards of the Ministry of Education and Training. The classification process used 04 criteria: dominant hand grip strength (kG), standing long jump (cm), 30m standing start running (s) and 5 minutes free running (m). At the same time, we compared the difference between the percentages of students meeting the standards of physical fitness training of students from first year to fourth year. The classification results are presented in Table 4.

**Table 4. Comparison of physical fitness classification results of students at the University of Economics - Technology for Industries by each academic year (n=1600)**

Classification	Total		Male		Female	
	mi	%	mi	%	mi	%
<b>First year students (n<sub>male</sub> = 236, n<sub>female</sub> = 164)</b>						
Good	152	38.00	93	39.41	60	36.59
Pass	201	50.25	120	50.85	82	50.00
Fail	48	12.00	24	10.17	23	14.02
<b>Second year students (n<sub>male</sub> = 231, n<sub>female</sub> = 169)</b>						
Good	147	36.75	89	38.53	59	34.91
Pass	204	51.00	120	51.95	85	50.30
Fail	49	12.25	22	9.52	26	15.38
<b>Third year students (n<sub>male</sub> = 233, n<sub>female</sub> = 167)</b>						
Good	145	36.25	104	44.64	47	28.14
Pass	205	51.25	120	51.50	86	51.50
Fail	49	12.25	25	10.73	23	13.77
<b>Fourth year students (n<sub>male</sub> = 228, n<sub>female</sub> = 172)</b>						
Good	139	34.75	79	34.65	60	34.88
Pass	207	51.75	120	52.63	87	50.58
Fail	55	13.75	29	12.72	25	14.53
Comparing physical fitness results from first year to fourth year: $\chi^2 = 0.056$ (P>0.05)						

Table 4 shows that: When classifying the physical fitness levels of students at the University of Economics - Technology for Industries according to the regulations of the Ministry of Education and Training, it shows that the majority of students tested had a physical fitness level of pass (over 50% of the total number of students). The percentage of students with good results on physical fitness test accounted for 34.75 to 38.00%. However, there were still 12.00-13.75% of the total surveyed students who have not met the regulated standards of physical fitness assessment. This rate was highest among fourth-year students and lowest among first-year students. However, the differences between academic years were not big (less than 2% of the total number of students). When comparing the percentage of students meeting physical fitness training standards by gender, the percentages of students meeting physical fitness standards by each level in male and female subjects were not significantly different. The general trend was that the percentages of students who were good and passed were higher among males than females (the difference is <3%), the percentage of students who did not meet the physical fitness standards in females tended to be higher than that of males (the difference is from 3-6% depending on the academic year and was highest in the second year; the first, third and fourth year students had lower differences).

When comparing the difference in physical fitness of the first, second, third and fourth year students, there was no statistically significant difference ( $P>0.05$ ).

### 2.3. Actual situation of the results of extracurricular sports activities of students at the University of Economics – Technology for Industries

We conducted a survey on the development of extra-curricular sports activities of students at the University of Economics - Technology for Industries through the following criteria: Number of students who practice extra-curricular sports regularly, number of sports tournaments participated and organized annually, sports achievements and number of extra-curricular sports clubs. The results are presented in Table 5.

**Table 5. Actual situation of the results of extracurricular sports activities of students at the University of Economics – Technology for Industries (n=1600)**

No.	Content	Total		Gender			
				Male students		Female students	
		mi	%	mi	%	mi	%
1	<b>Percentage of students practicing extra-curricular sports</b>	<b>n=1600</b>		<b>n=923</b>		<b>n=672</b>	
	Practice extra-curricular sports frequently	425	26.56	261	28.28	164	24.40
	Practice extra-curricular sports infrequently	378	23.63	204	22.10	174	25.89
	Do not practice extra-curricular sports	797	49.81	458	49.62	339	50.45

2	Number of sports tournaments participated, organized and achievements (academic year 2018-2019)					
	Level	Number		Achievement		
		mi	%	1st place	2nd place	3rd place
	School level	3	42.86	-	-	-
	Inter-school level	2	28.57	1	2	4
	Local tournament	1	20.00	2	2	3
	National tournament	1	25.00	0	1	2
3	Number of extra-curricular sports clubs	3	-	-	-	-

Table 5 shows that:

The percentage of students who frequently practiced extra-curricular sports at the University reached 26.56%, of which the percentage of male students who practiced frequently was nearly 4% higher. The percentage of students who did not practice extra-curricular sports accounted for nearly 50% on average, of which the proportions of male and female students were similar. This was a high rate compared to related research papers [4], [5].

Regarding the number of sports tournaments participated and organized and achievements: In the academic year 2018-2019, the school organized 03 sports tournaments at the school level and participated in 04 sports tournaments at all levels, winning a total of 17 prizes (medals) of different types. Compared to the number of students in the whole school, this number was still very small.

It can be said that the extra-curricular sports activities of students at the University of Economics - Technology for Industries have not really been developed.

### Conclusion:

1. We selected 03 criteria to evaluate the effectiveness of physical education for students at the University of Economics - Technology for Industries, including: Evaluate through academic results in physical education; Evaluate the physical fitness development of the students and Evaluate the results of the students' extracurricular sports activities.
2. We evaluated the actual situation of the effectiveness of physical education for students at the University of Economics - Technology for Industries. The results show that: There were still nearly 20% of students whose results in physical education were at fail level (at the first time); The physical fitness levels of students were mainly at an average level, while more than 23% of students had a physical fitness that did not meet the standards of the Ministry of Education and Training; The extra-curricular sports activities have not really been developed yet... This poses a need to have solutions to improve the effectiveness of the physical education work for the research subjects.

### References:

1. Ministry of Education and Training (2008), Decision No. 72/2008/QĐ-BGDĐT dated December 23, 2008 of the Minister of Education and Training on regulations on the organization of extra-curricular sports activities for students.

2. Duong Nghiep Chi (2007), "School sports in Vietnam and some countries around the world", Journal of Sports Science, No.1, p.52 – 56, Vietnam Sport Science Institute, Hanoi.
3. Novikov A. D, Matveep L. P (1976), Theory and methods in physical education, (Translated by Pham Trong Thanh and Le Van Lam), Sports Publishing House, Hanoi.
4. Nguyen Duc Thanh (2010), "The role of extra-curricular sports activities", Journal of Sports Science, No. 4, Vietnam Sport Science Institute, Hanoi, p. 42 - 48.
5. Nguyen Duc Thanh (2012), "Developing the content and forms of extra-curricular sports activities of students at some universities in Ho Chi Minh City", Doctoral thesis in educational science, Vietnam Sport Science Institute, Hanoi.

**Article source:** The article is extracted from the results of the thesis research: Research on solutions to improve the effectiveness of physical education for students at the University of Economics - Technology for Industries.

\*\*\*

## **The Situation of Training Assignment Endurance for Athletes of the Applied Martial Arts Team of People's Security Academy**

**Trinh Minh Hien:** Faculty of Military, Martial Arts and Physical training and Sports - People's Security Academy

### **Abstract:**

The results of the situation of training assignment endurance for athletes of the applied martial arts team of People's Security Academy show that: endurance training habits of athletes; Current status of application of exercises to develop endurance; Status of endurance qualities. Research results have shown the need to add more specialized exercises in training to develop endurance for athletes of the applied martial arts team of the People's Security Academy.

**Keywords:** Evolution, Aerobic Endurance, Athletes, Applied Martial Arts, People's Security Academy.

### **Question:**

In athlete training, sports performance is the combined result of many factors such as: physiological characteristics, psychological - willpower, technical - tactical and physical characteristics. In which, assessing the current situation of endurance training for athletes is both the basis and at the same time has a great influence on the training of high performance in many sports, including applied martial arts of the People's Security Academy.

In 2013, the Ministry of Public Security regulated the standards of physical training in the People's Public Security force in Circular 24/2013/TT-BCA dated April 11th, 2013, which clearly stated: "Academics, Public Security School incorporates standard physical training content into the curriculum of physical education and sports for pupils and students. At the same time, the Regulations on martial arts competition applied in the people's police force were also issued. In particular, a match consists of 3 rounds, each round is played for 2 minutes, with a 1-minute break in between. The competition weight categories include 22 weight classes, 12 men's weight classes, 10 women's weight classes.

The training strategy for martial arts application in the people's public security force shall be developed and disseminated from October 2017. In fact, in the teaching and training at the people's security academy, the performance of the applied martial arts team is limited. One of the most influential causes is the resilience of applied martial arts. Therefore, the study of the status of the training force for applied martial arts is significant in improving the efficiency of training. Through which the gaps exist, limitations are needed. Therefore, the assessment of the status of the training of the training force for the academy of people's security applied to the academy of people's security.

### **Research Method:**

The research process uses methods: analytical methods and synthesis of documents, methods of interview, professional methods and statistical methods.

**Research and Discussion Results:****1. Physical training practices:**

To find out the status of the training in the training of the academy of people at the academy of People's Security Academy, the subject of interviews with training habits and rehabilitation has been involved in training. Results obtained through table 1.

**Table 1. Status of endurance training habits for athletes of the applied martial arts team of the People's Security Academy (n = 29)**

No	Content	$\bar{x} \pm \delta$	Classification Likert
1	Exercise too hard	4.69 ± 0.54	①②③④⑤
2	Exercise too often in the week	4.66 ± 0.61	①②③④⑤
3	Weekly exercise	3.24 ± 0.83	①②③④⑤
4	Monthly hard work	2.48 ± 0.78	①②③④⑤
5	Recovering from nutrition and sleeping priorities	3.17 ± 0.71	①②③④⑤
6	Practice repeating the same habit	4.03 ± 0.78	①②③④⑤
7	Concentrated training combines specific contents of strength training	3.21 ± 0.68	①②③④⑤

From the results of the table 1 show:

- Training is too hard, too often: one of the most common problems in the exercise of athletes is that they exercise too hard and try to make each episode a practice. Another common problem is that people take their time too difficult. In both cases, it seems to be fueled by the more psychological the better... People try to achieve the highest power they can manage for their strength exercises or the highest strength they can do in their time. Higher numbers aren't always better. Normally, what you want is a specific pressure that they're trying to create, maybe that means power, but sometimes it means more time at the desired intensity and does not do the best. And, you want to keep your overall stress balance, keeping their training in the boundaries that human bodies can reasonably adapt to in a reasonable period of time.

- Training hard every day because the athletes feels pretty good just to make sure they're always serious, always recovering, and never doing good. Athletes' ll never exercise as hard as they can or recover entirely. If they've only spent all the harder efforts that are doing and just pushing them into two or three sessions, then make the easy ones on other days, the training process will automatically become better. Athletes will have considerable training and more specific and effective rehabilitation. Better yet, put all the intensity in one or two days and keep each day focused on one or two things. A common mistake many people have had to do is make some random effort on each exercise or almost even cycles. They will make a few sprints to the street, overcome several obstacles at their maximum level and implement one or two longer efforts at the low threshold, and end with a high level of stress on the threshold. Each day they do enough to feel tired, but they never create a big stress, which is particularly motivated by one or two systems of the body to make them better.

Larger training is not always better. Instead, it is often good to achieve the desired intensity. If the athletes are able to do more and to recover later, then they can and often do it with a lot more intensity, but they can't increase the intensity. Sometimes they want to exercise as hard as they can, usually when they're trying to build the highest force in the middle of the season, but not weeks throughout the year.

People often do more than what they should do by following assumptions that more and more. More often than, as long as it's within a certain limit. A lot more cars will be better, as long as you can do it and be better and feel fresh this week. Hard practice is good for the building of high power, but only if you can recover well. It's almost always a problem to ensure that athletes' training works and recovery, at least equal to athlete stress.

- The training is easy: there are two common ways, one on which people don't practice hard or they don't work hard in those exercises: they do 3 times, instead of 4 or 5).

How long should athletes take and how hard it will be to be specific and specific to their sports goals, and training. And it's not all training exercises that motivate people to try to maximize effort. Athletes try to create a significant strain to develop the desired physical form after exercise. Choose one or two to focus and try to make it difficult for the exercise, then recover.

When athletes are ready to practice hard, you'll need to practice and practice hard. Normally, the problem is not hard enough in this exercise because there is not enough recovery between sessions, so this is about the first mistake that is often too often. Ironically, many athletes can't practice hard enough, because they are trying too hard, practicing hard every other day and never recover good enough to do hard exercises properly.

On the other hand, exercise is too easy in the process of training in many athletes. Any smart training program will begin with many slow distances in winter and then gradually increase with higher intensity in spring and summer? No, this certainly isn't, and for many athletes, it's going to take a lot of time to waste a lot of time and will be able to get their force back during the winter if it's most or all they do.

Not enough training: in the long time, no matter how much athletes take in a given week, if the exercise is a four or five days a week, it's sure that by the time, the athlete's strength is much better than the training for six days, the other weeks, you train 3 days, and you don't train at all.

No good recovery, especially when it comes to meals. A lot of people missed some of the benefits that training could bring through a meal that wasn't delicious. The inability to eat appetite for many days will not restore maximum and minimize the major change in levels of hormones and energy. Many people do not prioritize sleep by sleeping enough or ensuring that they have good sleep quality. At the end of the day, our bodies become healthier and healthier when we reach a significant stress and then they have a chance to recover.

At random, without focusing or repeating the same habit without changing. Good practices will have different intensities, but generally, they will balance and progress in a few months when they build a specific kind of force. Do random or non-specific exercises for the goal of the athlete who won't give you results as expected if the exercise is more intentional. Likewise, if an athlete's training is always the same, then how much progress does it make. You need to keep growing and to do that, your training needs to develop.

No special training, or in all. Many untrained athletes with enough expertise. It is important to include various training intensity in the training plan and focus on one rare thing as a good idea.

Depending on what type of event is working or what sports goals are, most athletes will do their training to focus on a specific combination of training types. Typically, the person who wants to have ideas about what needs will be for their target events and then build your body to meet those requirements. The problem is often classified by durability, fitness, aerobic, atmosphere/vo2 events that they will require to perform well.

Similarly, if there are certain attributes as an athlete, it is best to consider those characteristics and make the exercise specific to the body and history as much as possible. Before making any conclusions about your ability and how to practice, it's best not to focus on your development as an athlete. It is better to find a way to make adjustments to the training key to achieve more efficiency from year to year. For example, at first four group of three minutes can be a great exercise, but then maybe four groups of five minutes or seven group of three minute. However, athletes have to make sure that their focus targets are targeted, not just because others do or because it fits their old training goals over the years.

## 2. The situation of application of the insurance development exercise:

To clarify the situation of training assignment endurance for athletes of the application martial arts team of People's Security Academy, the proposal for assessment of the actual use of the power development exercises and compare with the training facilities, through the reference to the training plan and the results presented in the table 2.

**Table 2. The actual use of strength development exercises at some training facilities**

No	Unit Exercise		People's security Academy	University of Technology - Logistics CAND	University of Fire Prevention	People's Police College 1
	N	%				
1	Common insurance development	N	8	8	6	10
		%	28.6	20.0	14.3	25.0
2	Professional insurance development	N	14	28	28	26
		%	50.0	70.0	66.7	65.0
3	Complementary	N	6	4	8	4
		%	21.4	10.0	19.0	10.0
<b>Total</b>		<b>Σ</b>	<b>28</b>	<b>40</b>	<b>42</b>	<b>40</b>
			$\chi^2 = 5.697$ with $P = 0.458 > 0.005$			

The results obtained in Table 2 show the ratio of general development exercises, the development of technical strength, and support exercises to develop the strength of the people's martial arts team among the units with similar similarities. The utilization rate of joint strength development exercises accounted for 14.3 – 28.6%; the technical strength development exercise accounted for a ratio of 50.0 – 70.0%; while additional exercises accounted for 10.0% to 21.4%. The comparison between the teams on the number of assignments when the squared is shown that there is no difference,  $\chi^2 = 5, 697$  with  $p > 0.005$ . However, the number and ratio of at least to the development of the technical strength training exercise for the academy of people' s security applied to the academy of people' s security.

## 3. Current status of endurance qualities:

In order to find out the situation of the strength of the academy's applied martial arts team, the subjects used the selected tests to assess the strength of strength, contrasting with the combined evaluation standards of the subjects. The results are presented in table 3.



**Table 3. Endurance ranking results for athletes of the applied martial arts team of the People's Security Academy (n = 30)**

No	Rating	Total	Percentage%
1	Pretty	6	20.0
2	Goog	24	80.0
Estimated good rating	0.2		
Good rating test	$\chi^2 = 2.500$ với $P = 0.114 > 0.005$ Confidence interval 95%: 0.035 - 0.558		

In the results in table 3, the ratio is 0. 2, and the reliability of 95% is 0.035 to 0.558. The value when squared is 2,500, with  $p = 0.114 > 0.005$ . Thus, the study has a good rate of strength at the good level for the people's security academy is lower than 50%.

From the situation of training assignment endurance for athletes of the application martial arts team of people's security academy as shown above, it needs to be added and added to the training exercises in the training of the academy' s applied martial arts team.

### Conclusion:

Research results have shown: the practice habits of athletes have not yet worked positively on the development of their strength; the rate and ratio of the technical development exercise in the training capacity of athletes of the application martial arts team of people's security academy are low, the rate and the quality of the people's energy - training exercise are low. Analysis and assessment have confirmed the need to add additional training exercises in the training of the academy's applied martial arts team.

### References:

1. Kuk Hyun Chung, Kyung Myung Lee (1996), Taekwondo advanced training, Translation: Vu Xuan Thanh, Vu Xuan Long, Sports Publishing House, Hanoi.
2. V. Heyward (2006), The Physical Fitness Specialist Certification Manual, The Cooper Institute for Aerobics Research, Dallas TX, revised 2005.
3. V. Heywood (2006), Advance Fitness Assessment and Exercise Prescription, Fifth Edition, Champaign, IL: Human Kinetics.
4. Nguyen Van Tuan (2000), Data analysis with R, General Publishing House, City. Ho Chi Minh.

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## **A Comprehensive Study of Powerlifting and Weightlifting Techniques and Injuries to Athletes**

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### **Abstract:**

To achieve the highest results in the Sport of Powerlifting and Weightlifting it is necessary for an athlete to undergo specific training. While in training or during the actual event, injury can be occurred to an athlete. Injuries can be joint pain, Sprains and strains, tearing of ligaments etc. To avoid these injuries, the trainer or coach must plan out periodization and training programme which must include training types, training intensity, aggression, Convenience, nutrition, change in the exercise pattern and rest are the factors to be considered. The purpose of this research was to study the powerlifting & weightlifting techniques and injuries of athletes from Pune District using Survey method. The population of this study is Powerlifting and weightlifting players and coaches from Pune District. 50 Weightlifting & powerlifting athletes both boys & girls and were selected as sample using convenience sampling technique. For the present research, Questionnaire was constructed and circulated to the selected athletes and coaches for data collection. Statistical tool used was SPSS to calculate percentage and frequency for this research. A questionnaire was constructed for data collection. The Questionnaire was proved valid using Content validity method and reliable using test-retest method. The questionnaire was circulated to players before their training session. Factors which were considered for the research were Duration of training, rest between two sets, rest between two training sessions, injury, training type, training intensity, training load. The researcher noted the frequency of participants for each option and converted it into percentage form. The results concluded that the average duration of a training session for powerlifting is 1 to 2 hours and 2 to 3 hours for weightlifting. The average rest between two sets for powerlifting is 1 to 3 mins and 30 sec to 1 min for weightlifting. The average duration between 2 training sessions for powerlifting & weightlifting is 6 to 18 hours. The most injured part in powerlifting & weightlifting is the knee and back. The event that is more prone to injury in powerlifting is Squats & for weightlifting its clean and jerk. The type of injury that occurs in powerlifting and weightlifting is acute injury. The most commonly occurring injury in powerlifting and weightlifting is Muscle strain.

**Keywords:** Powerlifting, Weightlifting, Injury, Training, Exercise Pattern.

### **Introduction:**

To be physically, mentally and socially fit, happy and away from problems one must involve themselves in sports. Physical fitness comprises of Health-related fitness factor and skill related fitness factor. Similarly, power lifting consists more of strength whereas weightlifting consists of explosive strength. None of the skill or sports can be gained without training and experience. Team sport, rhythmic sports, seminars and competitions develop personality and character. To increase physical ability equipment, players, coaches etc are the responsible factors. (Paul, 2014). Power lifting and weightlifting are the sports which are played using heavy weights. Players can get injured during their competitions these injuries

may keep players away from sports so to avoid this, players need to take proper treatment at proper time. The power lifters and weightlifter face injuries in wrist, ankle, knees and back/spine. To achieve excellence and good sports skills players should have good physical ability, potential and to improve sports skills the physical training according to body needs is important. When training, coaches or athletes need to understand that players shouldn't be injured by training type or training program. Quickness is the factor responsible for power lifting and weightlifting. Power lifting has been originated in 20th century in America and weightlifting in 1800 AD. Power lifting is a game in which a player shows aggression and strength of his/her own to others. Power lifting has been categorized in 3 parts i.e., Squat, dead lift and bench press. In each lift a player has to lift maximum weight, in each of 3 lifts. Power lifting is a game under IPF. It has been included in Paralympics since 1984 and is also played at local, national and international levels. In 1896, London Olympics weightlifting was organized for 1st time. In, 1896, Athens Olympics permitted this game. Karnam Malleshwari in 2000 represented India at Sydney Olympics and got bronze medal which was 1st medal by women. In 1995, IWF was founded in India. Powerlifting event includes Squats, Deadlift and Bench press & Weightlifting event includes events like Clean and jerk & Snatch. Movements involved in these events are Quick and explosive and are more prone to injury. Hence this interests the research to study about techniques and Injuries in powerlifting and weightlifting.

### Methodology:

The population for this research were Powerlifting & Weightlifting athletes from Pune district. Non- Probable sampling method i.e., convenience sampling technique was used to select 50 powerlifting & weightlifting athletes. A questionnaire was constructed for data collection. The Questionnaire was proved valid using Content validity method and reliable using test-retest method. The questionnaire was circulated to players before their training session. Factors which were considered for the research were Duration of training, rest between two sets, rest between two training sessions, injury, training type, training intensity, training load. The researcher noted the frequency of participants for each option and converted it into percentage form.

### Data Analysis:

#### Question 1 – What is the duration of your training session?

**Table 1**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	10 mins to 1 hour	0	0%
	1 hour to 2 hours	13	69.6%
	2 hours to 3 hours	7	30.4%
	3 hours and more	0	0%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	10 mins to 1 hour	0	0%
	1 hour to 2 hours	1	4.8%
	2 hours to 3 hours	18	85.7%
	3 hours and more	2	9.5%
	<b>Total</b>	<b>21</b>	<b>100%</b>

<b>Powerlifting and Weightlifting</b>	10 mins to 1 hour	0	0%
	1 hour to 2 hours	2	33.3%
	2 hours to 3 hours	4	66.7%
	3 hours and more	0	0%
<b>Total</b>		<b>6</b>	<b>100%</b>

Powerlifting – For the above Question 0% have chosen the option ‘10 mins to 1 hour’. 69.6% have chosen the option ‘1 hour to 2 hours.’ 30.4% have chosen the option ‘2 hours to 3 hours.’ 0% have chosen the option ‘3 hours and more.’ Weightlifting – For the above Question 0% have chosen the option ‘10 mins to 1 hour’. 4.8% have chosen the option ‘1 hour to 2 hours.’ 85.7% have chosen the option ‘2 hours to 3 hours.’ 9.5% have chosen the option ‘3 hours and more.’ Powerlifting & Weightlifting – For the above Question 0% have chosen the option ‘10 mins to 1 hour’. 33.3% have chosen the option ‘1 hour to 2 hours.’ 66.7% have chosen the option ‘2 hours to 3 hours.’ 0% have chosen the option ‘3 hours and more.’

### Question 2 – What is the duration of rest between two set of exercises?

**Table 2**

		Frequency	Percentage
<b>Powerlifting</b>	Depends of different training types	6	23.1%
	30 secs to 1 min	7	30.4%
	1 min to 3 mins	9	39.1%
	3 mins to 5 mins	1	4.3%
	No rest	0	0%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	Depends of different training types	2	9.5%
	30 secs to 1 min	9	42.1%
	1 min to 3 mins	7	33.3%
	3 mins to 5 mins	3	14.3%
	No rest	0	0%
	<b>Total</b>	<b>21</b>	<b>100%</b>
<b>Powerlifting and Weightlifting</b>	Depends of different training types	1	16.7%
	30 secs to 1 min	1	13.7%
	1 min to 3 mins	2	33.3%
	3 mins to 5 mins	2	33.3%
	No rest	0	0%
	<b>Total</b>	<b>6</b>	<b>100%</b>

Powerlifting – For the above Question 0% have chosen the option ‘10 mins to 1 hour’. 69.6% have chosen the option ‘1 hour to 2 hours.’ 30.4% have chosen the option ‘2 hours to 3 hours.’ 0% have chosen the option ‘3 hours and more.’ Weightlifting – For the above Question 0% have chosen the option ‘10 mins to 1 hour’. 4.8% have chosen the option ‘1 hour to 2 hours.’ 85.7% have chosen the option ‘2 hours to 3 hours.’ 9.5% have chosen the option ‘3 hours and more.’ Powerlifting & Weightlifting – For the above Question 0% have chosen the option ‘10 mins to 1 hour’. 33.3% have chosen the option ‘1 hour to 2 hours.’ 66.7% have chosen the option ‘2 hours to 3 hours.’ 0% have chosen the option ‘3 hours and more.’

**Question 3 – What is the duration between two training sessions?****Table 3**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	6 to 18 hours	15	65.2%
	18 to 30 hours	7	30.4%
	30 to 42 hours	0	0%
	42 to 50 hours	1	4.3%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	6 to 18 hours	19	90.5%
	18 to 30 hours	2	9.5%
	30 to 42 hours	0	0%
	42 to 50 hours	0	0%
	<b>Total</b>	<b>21</b>	<b>100%</b>
<b>Powerlifting and Weightlifting</b>	6 to 18 hours	2	33.3%
	18 to 30 hours	3	50%
	30 to 42 hours	0	0%
	42 to 50 hours	1	13.7%
	<b>Total</b>	<b>6</b>	<b>100</b>

Powerlifting – For the above Question 65.2% have chosen the option ‘6 to 18 hours.’ 30.4% have chosen the option ‘18 to 30 hours.’ 0% have chosen the option ‘30 to 42 hours.’ 4.3% have chosen the option ‘42 to 50 hours.’ Weightlifting – For the above Question 90.5% have chosen the option ‘6 to 18 hours.’ 9.5% have chosen the option ‘18 to 30 hours.’ 0% have chosen the option ‘30 to 42 hours.’ 0% have chosen the option ‘42 to 50 hours.’ Powerlifting & Weightlifting – For the above Question 33.3% have chosen the option ‘6 to 18 hours.’ 50% have chosen the option ‘18 to 30 hours.’ 0% have chosen the option ‘30 to 42 hours.’ 13.7% have chosen the option ‘42 to 50 hours.’

**Question 4 – Which body part is mostly injured in powerlifting/ weightlifting?****Table 4**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	Knee	20	33.3%
	Back	19	31.7%
	Shoulder	6	10%
	Waist	10	16.7%
	Wrist	5	8.3%
	Ankle	0	0%
	<b>Total</b>	<b>60</b>	<b>100%</b>
<b>Weightlifting</b>	Knee	15	25%
	Back	18	30%
	Shoulder	10	16.7%
	Waist	6	10%
	Wrist	11	18.3%
	Ankle	0	0%
	<b>Total</b>	<b>60</b>	<b>100%</b>

<b>Powerlifting and Weightlifting</b>	Knee	4	6.75
	Back	5	8.3%
	Shoulder	4	6.7%
	Waist	3	5%
	Wrist	4	6.7%
	Ankle	0	0%
	<b>Total</b>	<b>60</b>	<b>100%</b>

Powerlifting – For the above Question 33.3% have chosen the option ‘Knee.’ 31.7% have chosen the option ‘Back.’ 10% have chosen the option ‘Shoulder.’ 16.7% have chosen the option ‘Waist.’ 8.3% have chosen the option ‘Wrist’. 0% have chosen the option ‘Ankle’  
 Weightlifting – For the above Question 25% have chosen the option ‘Knee.’ 30% have chosen the option ‘Back.’ 16.7% have chosen the option ‘Shoulder.’ 10% have chosen the option ‘Waist.’ 18% have chosen the option ‘Wrist’. 0% have chosen the option ‘Ankle’.  
 Powerlifting & Weightlifting – For the above Question 6.5% have chosen the option ‘Knee.’ 8.3% have chosen the option ‘Back.’ 6.7% have chosen the option ‘Shoulder.’ 5% have chosen the option ‘Waist.’ 6.7% have chosen the option ‘Wrist’. 0% have chosen the option ‘Ankle’.

**Question 5 – Which event in Powerlifting is more prone to injury?**

**Question 6 – Which event in Weightlifting is more prone to injury?**

**Table 5**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	Squat	14	60.9%
	Deadlift	6	26.1%
	Bench press	3	13%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	Clean and Jerk	15	71.4%
	Snatch	6	28.6%
	<b>Total</b>	<b>21</b>	<b>100%</b>
<b>Powerlifting and Weightlifting</b>	Squat	3	50%
	Deadlift	3	50%
	Bench press	0	0%
	<b>Total</b>	<b>6</b>	<b>100%</b>
	Clean and Jerk	3	50%
	Snatch	3	50%
<b>Total</b>	<b>6</b>	<b>100%</b>	

Powerlifting – For the above Question 60.9% have chosen the option ‘Squat.’ 26.1% have chosen the option ‘Deadlift.’ 13% have chosen the option ‘Bench press.’  
 Weightlifting – For the above Question 25% have chosen the option ‘Clean & jerk.’ 30% have chosen the option ‘Snatch.’  
 Powerlifting & Weightlifting – For the above Question 50% have chosen the option ‘Squat.’ 50% have chosen the option ‘Deadlift.’ 0% have chosen the option ‘Bench press.’ 50% have chosen the option ‘Clean & jerk.’ 50% have chosen the option ‘Snatch.’

**Question 7 – Which type of injury is commonly occurred in Powerlifting/ weightlifting?****Table 6**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	Chronic	8	34.8%
	Acute	15	65.2%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	Chronic	8	38.1%
	Acute	13	61.9%
	<b>Total</b>	<b>21</b>	<b>100%</b>
<b>Powerlifting and Weightlifting</b>	Chronic	1	16.7%
	Acute	5	83.3%
	<b>Total</b>	<b>6</b>	<b>100%</b>

Powerlifting – For the above Question 34.8% have chosen the option ‘Chronic.’ 65.2% have chosen the option ‘Acute.’ Weightlifting – For the above Question 38.1% have chosen the option ‘Chronic.’ 61.9% have chosen the option ‘Acute.’ Powerlifting & Weightlifting – For the above Question 16.7% have chosen the option ‘Chronic.’ 83.3% have chosen the option ‘Acute.’

**Question 8 – Which is the most occurring injury in Powerlifting / Weightlifting?****Table 7**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	Joint dislocation	0	0%
	Muscle Strains	19	47.8%
	Muscle rupture	10	43.5%
	Muscle fibre rupture	2	8.7%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	Joint dislocation	0	0%
	Muscle Strains	16	86.2%
	Muscle rupture	5	23.8%
	Muscle fibre rupture	0	0%
	<b>Total</b>	<b>21</b>	<b>100%</b>
<b>Powerlifting and Weightlifting</b>	Joint dislocation	1	16.7%
	Muscle Strains	3	50%
	Muscle rupture	1	16.7%
	Muscle fibre rupture	1	16.7%
	<b>Total</b>	<b>6</b>	<b>100%</b>

Powerlifting – For the above Question 0% have chosen the option ‘Joint Dislocations.’ 47.8% have chosen the option ‘Muscle Strains.’ 43.5% have chosen the option ‘Muscle rupture.’ 8.7% have chosen the option ‘Muscle fibre rupture.’ Weightlifting – For the above Question 0% have chosen the option ‘Joint Dislocations.’ 86.2% have chosen the option ‘Muscle Strains.’ 23.8% have chosen the option ‘Muscle rupture.’ 0% have chosen the option ‘Muscle fibre rupture.’ Powerlifting & Weightlifting – For the above Question 16.7% have chosen the option ‘Joint Dislocations.’ 50% have chosen the option ‘Muscle Strains.’ 16.7% have chosen the option ‘Muscle rupture.’ 16.7% have chosen the option ‘Muscle fibre rupture.’

**Question 9 – What is the duration of rest between two training sessions?****Table 8**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	1 to 2 hours	4	17.4%
	2 to 4 hours	3	13%
	4 to 6 hours	3	13%
	6 hours and more	13	56.5%
	<b>Total</b>	<b>23</b>	<b>100%</b>
<b>Weightlifting</b>	1 to 2 hours	11	52.4%
	2 to 4 hours	2	9.5%
	4 to 6 hours	0	0%
	6 hours and more	8	38.1%
	<b>Total</b>	<b>21</b>	<b>100%</b>
<b>Powerlifting and Weightlifting</b>	1 to 2 hours	2	33.3%
	2 to 4 hours	1	16.7%
	4 to 6 hours	0	0%
	6 hours and more	3	50%
	<b>Total</b>	<b>6</b>	<b>100%</b>

Powerlifting – For the above Question 17.4% have chosen the option ‘1 to 2 hours.’ 13% have chosen the option ‘2 to 4 hours.’ 13% have chosen the option ‘4 to 6 hours.’ 56.5% have chosen the option ‘6 hours and more.’ Weightlifting – For the above Question 52.4% have chosen the option ‘1 to 2 hours.’ 9.5% have chosen the option ‘2 to 4 hours.’ 0% have chosen the option ‘4 to 6 hours.’ 38.1% have chosen the option ‘6 hours and more.’ Powerlifting & Weightlifting – For the above Question 33.3% have chosen the option ‘1 to 2 hours.’ 16.7% have chosen the option ‘2 to 4 hours.’ 0% have chosen the option ‘4 to 6 hours.’ 50% have chosen the option ‘6 hours and more.’

**Question 10 – What is the duration of Stretching or cooling down after training?****Table 9**

		<b>Frequency</b>	<b>Percentage</b>
<b>Powerlifting</b>	5 mins	2	8.7%
	10 mins	9	39.1%
	15 mins	5	21.7%
	20 mins	7	30.4%
	No stretching	0	0%
<b>Total</b>	<b>23</b>	<b>100%</b>	
<b>Weightlifting</b>	5 mins	3	14.3%
	10 mins	2	9.5%
	15 mins	8	38.1%
	20 mins	8	38.1%
	No stretching	0	0%
<b>Total</b>	<b>21</b>	<b>100%</b>	



<b>Powerlifting &amp; Weightlifting</b>	5 mins	1	16.7%
	10 mins	3	50%
	15 mins	1	13.7%
	20 mins	1	13.7%
	No stretching	0	0%
<b>Total</b>	<b>6</b>	<b>100%</b>	

Powerlifting – For the above Question 8.7% have chosen the option ‘5 mins.’ 39.1% have chosen the option ‘10 mins.’ 21.7% have chosen the option ‘15 mins.’ 30.4% have chosen the option ‘20 mins.’ 0% have chosen the option ‘No stretching.’ Weightlifting – For the above Question 14.3% have chosen the option ‘5 mins.’ 9.5% have chosen the option ‘10 mins.’ 38.1% have chosen the option ‘15 mins.’ 38.1% have chosen the option ‘20 mins.’ 0% have chosen the option ‘No stretching.’ Powerlifting & Weightlifting – For the above Question 16.5% have chosen the option ‘5 mins.’ 50% have chosen the option ‘10 mins.’ 13.7% have chosen the option ‘15 mins.’ 13.7% have chosen the option ‘20 mins.’ 0% have chosen the option ‘No stretching.’

### **Conclusion:**

The Study was conducted to check the training type, intensity, load and most common injuries that occur in Powerlifting and weightlifting. The results concluded that the average duration of a training session for powerlifting is 1 to 2 hours and 2 to 3 hours for weightlifting. The average rest between two sets for powerlifting is 1 to 3 mins and 30 sec to 1 min for weightlifting. The average duration between 2 training sessions for powerlifting & weightlifting is 6 to 18 hours. The most injured part in powerlifting & weightlifting is the knee and back. The event that is more prone to injury in powerlifting is Squats & for weightlifting its clean and jerk. The type of injury that occurs in powerlifting and weightlifting is acute injury. The most commonly occurring injury in powerlifting and weightlifting is Muscle strain.

### **References:**

1. Blahnik, J. (2004). Full-body flexibility. IL: Human Kinetics.
2. Newton, H. (2010). Explosive lifting for sports. United States, IL: Human Kinetics.
3. Stoppani, J. (2006). Enclopedia of muscle and strength. United States, IL: Human Kinetics.
4. Fleck, S. & karemer, W. (2004). Desining resistance training programs. (3rd ed.). United States, IL: Human Kinetics.
5. Best, K. & kahn, J. (2003). Research in education. (9th ed.). United States, NJ: Prentice-Hall.  
<http://en.wikipedia.org/wiki/powerlifing>  
<http://www.sportsmed.com.au/newsevents/latestnews/articles/archeive/preenting/injures-in-powerlifting/weightlifting>  
<http://breakingmuscle.com/>  
<https://www.t-nation.com>

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## A Survey of Nutrition and Wellness of Powerlifting and Weightlifting Athletes

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**Mr. Hemant Kapile:** Research Scholar, S.R.T.M.U. Nanded.

### Abstract:

What you eat on a day-to-day basis is extremely important for your training. Your diet will affect how fast and how well you progress and how soon you reach standards. Considering powerlifting and weightlifting events, athletes need to build muscular strength and muscular endurance to lift heavy weights. The Purpose of this study was to study about the Nutrition and wellness of powerlifting and weightlifting athletes. The population for this research were Powerlifting & Weightlifting athletes from Pune district. Non- Probable sampling method i.e., convenience sampling technique was used to select 224 powerlifting & weightlifting athletes. A questionnaire was constructed for data collection. The Questionnaire was proved valid using Content validity method and reliable using test-retest method. The questionnaire was circulated to players before their training session. Factors which were considered for the research were pre-during-post workout nutrition, Sleep, Frequency of consumption of Fast food, sweets and oil, butter and ghee products. The researcher noted the frequency of participants for each option and converted it into percentage form. The survey shows that, Banana is the food item mostly preferred for pre-workout, Protein shake is consumed during workout, Anything cooked at home is mostly preferred post workout, ½ litre water is consumed during workout, 5 litres and more water is consumed throughout the day, duration of sleep is 6 to 8 hours, Fast food is consumed sometimes in a month, Plant protein is the supplement consumed, Sweet food is consumed sometimes in a month, Frequency of oil, butter and ghee products is sometimes in a month.

**Keywords:** Nutrition, Weightlifting, Powerlifting, Training, Diet.

### Introduction:

Enjoyment of food is one of life's pleasure. For those who have an adequate food supply, eating is far more than just survival. Eating together is an important part of our daily family life, social events, celebration and festival. Obtaining nutrients, the body needs depend on the amount and variety of food locally available. This varies widely in different parts of the world. In addition, people have their individual food tastes and eating habits.

Nutrition is the science that deals with food and its usage by the body. Food also provides materials that our body needs to build up and repair its tissues and to regulate the functions of its organs and systems. What we eat directly affects our health. A proper diet helps in prevention of certain illness and also helps in recovery from disease/ injuries. An adequate or improper diet increases the risk of different diseases. Our body need quality carbs, lean protein, heart-healthy fats, and fluids. Our muscles rely on carbohydrate foods like breads, cereals, pasta, rice, fruits, and vegetables for quick energy. You need protein for your muscles and for your blood cells, which bring nutrients and oxygen to your muscles. Water is a nutrient that makes up almost 70 per cent of our body weight. Water plays an in important role in digestion to break down complex food molecules. It transports food, wastes, chemicals

and gases throughout the body. The body is cooled by the evaporation water in the form of sweat from the skin.

What you eat on a day-to-day basis is extremely important for your training. Your diet will affect how fast and how well you progress and how soon you reach standards. Considering powerlifting and weightlifting events, athletes need to build muscular strength and muscular endurance to lift heavy weights. Hence, it interests the researcher to study about the nutrition and wellness of powerlifting and weightlifting athletes.

### Methodology:

The population for this research were Powerlifting & Weightlifting athletes from Pune district. Non-Probable sampling method i.e., convenience sampling technique was used to select 224 powerlifting & weightlifting athletes. A questionnaire was constructed for data collection. The Questionnaire was proved valid using Content validity method and reliable using test-retest method. The questionnaire was circulated to players before their training session. Factors which were considered for the research were pre-during-post workout nutrition, Sleep, Frequency of consumption of Fast food, sweets and oil, butter and ghee products. The researcher noted the frequency of participants for each option and converted it into percentage form.

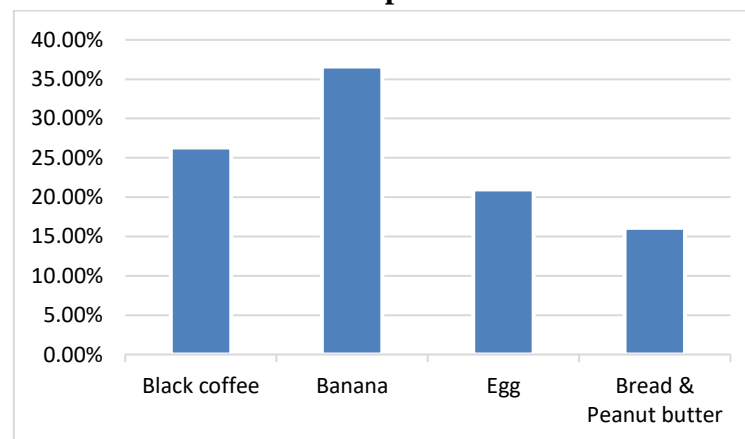
### Data Analysis:

#### Question 1 – Which is the food item you consume Pre workout?

**Table 1**

	Frequency	Percentage
Black coffee		26.6%
Banana		36.6%
Egg		21%
Bread & peanut butter		26.6%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 1**



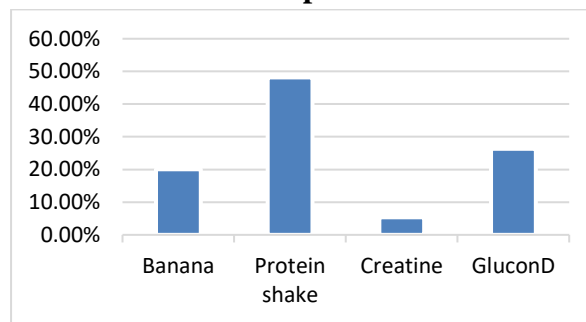
From the above Table 1 & Graph 1 it is seen that for pre workout 26.3% athletes consume Black coffee, 36.6 % athletes consume banana, 21% athletes consume Egg & 26.3% athletes consume Bread and peanut butter.

**Question 2 – Which is the food item you consume during workout?**

**Table 2**

	<b>Frequency</b>	<b>Percentage</b>
Banana	45	20.1%
Protein shake	108	48.2%
Creatine	12	4.5%
GluconD	59	26.3%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 2**



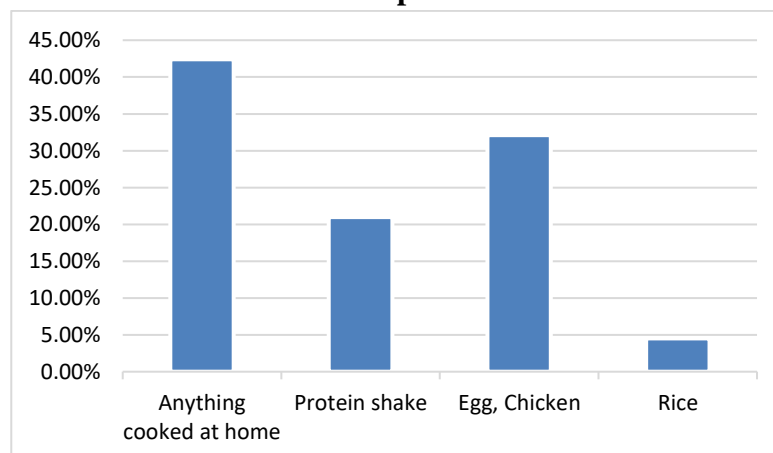
From the above Table 2 & Graph 2 it is seen that for during workout 20.1% athletes consume Banana, 48.2% athletes consume Protein shake, 5.4% athletes consume creatine & 26.3% athletes consume GluconD.

**Question 3 – Which is the food item you consume Post workout?**

**Table 3**

	<b>Frequency</b>	<b>Percentage</b>
Anything cooked at home	95	42.4%
Protein shake	47	21%
Egg, chicken	72	32.1%
Rice	10	4.5%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 3**



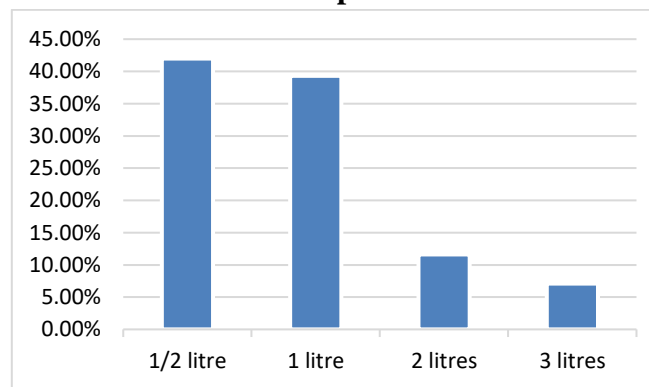
From the above Table 3 & Graph 3 it is seen that for post workout 42.4% athletes consume Anything cooked at home, 21% athletes consume Protein shake, 32.1% athletes consume Egg, chicken & 4.5% athletes consume Rice.

**Question 4 – The amount of water you consume during workout?**

**Table 4**

	<b>Frequency</b>	<b>Percentage</b>
½ litre	94	42%
1 litre	88	39.3%
2 litres	26	11.1%
3 litres	16	7.1%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 4**



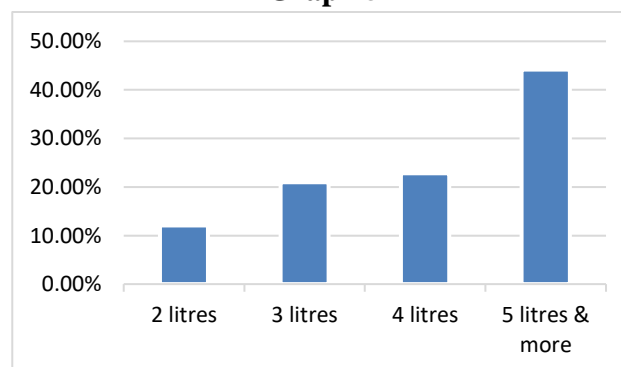
From the above Table 4 & Graph 4 the consumption of water during workout states that 42% athletes consume ½ litre, 39.3% athletes consume 1 litre, 11.6% athletes consume 2 litres & 7.1% athletes consume 3 litres.

**Question 5 – The amount of water you consume throughout the day?**

**Table 5**

	<b>Frequency</b>	<b>Percentage</b>
2 litres	27	12.1%
3 litres	47	21%
4 litres	51	22.8%
GluconD	99	44.2%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 5**



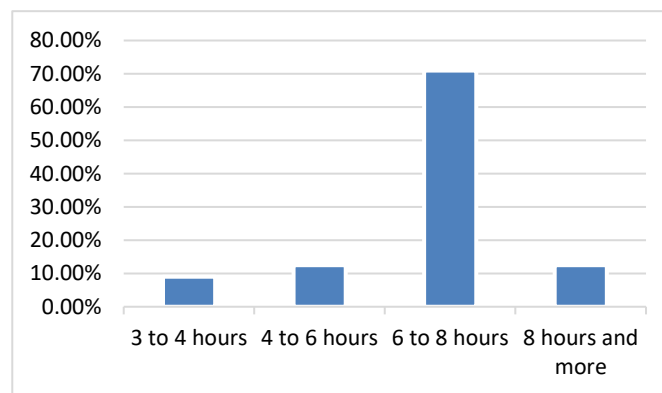
From the above Table 5 & Graph 5 the consumption of water throughout the day states that 12.1% athletes consume 2 litres, 21% athletes consume 3 litres, 22.8% athletes consume 4 litres & 44.2% athletes consume 5 litres and more.

**Question 6 – What is the duration of your sleep?**

**Table 6**

	<b>Frequency</b>	<b>Percentage</b>
3 to 4 hours	9	4%
4 to 6 hours	28	12.5%
6 to 8 hours	159	71%
8 hours & more	28	12.5%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 6**



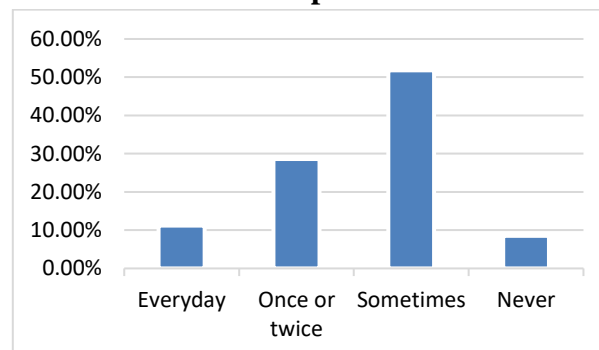
From the above Table 6 & Graph 6 the Duration of sleep states that 4% athletes sleep for 3 to 4 hours, 12.5% athletes sleep for 4 to 6 hours, 71% athletes sleep for 6 to 8 hours & 12.5% athletes sleep for 8 hours and more.

**Question 7 – How many days in a month do you consume fast food?**

**Table 7**

	<b>Frequency</b>	<b>Percentage</b>
Everyday	25	11.2%
Once or twice	64	28.6%
Sometimes	116	51.8%
8 hours & more	19	8.5%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 7**



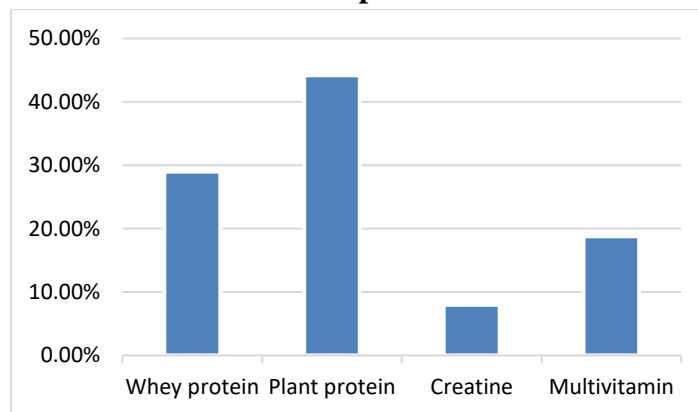
From the above Table 7 & Graph 7 the consumption of fast-food states that 11.2% athletes consume fast-food every day, 28.6% athletes consume fast-food once or twice, 51.8% athletes consume fast-food Sometimes & 8.5% athletes Never consume fast-food.

**Question 8 – What are the supplements you intake?**

**Table 8**

	<b>Frequency</b>	<b>Percentage</b>
Whey protein	65	29%
Plant protein	99	44.2%
Creatine	18	8%
Multivitamin tablets	42	18.8%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 8**



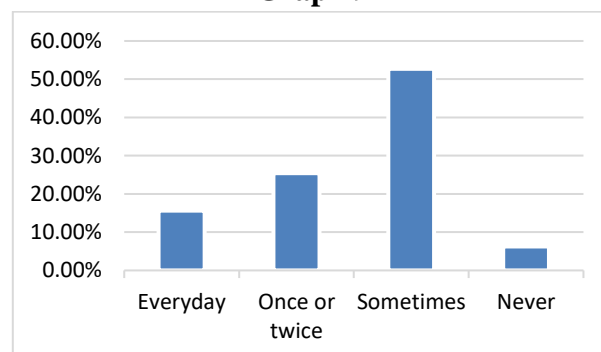
From the above Table 8 & Graph 8 for the intake of supplement states that 29% athletes intake Whey protein, 44.2% athletes intake plant protein, 8% athletes intake creatine & 18.8% athletes intake Multivitamin tablets.

**Question 9 – How many days in a month do you consume sweets?**

**Table 9**

	<b>Frequency</b>	<b>Percentage</b>
Everyday	35	15.6%
Once or twice	57	25.4%
Sometimes	118	52.7%
Never	14	6.3%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 9**



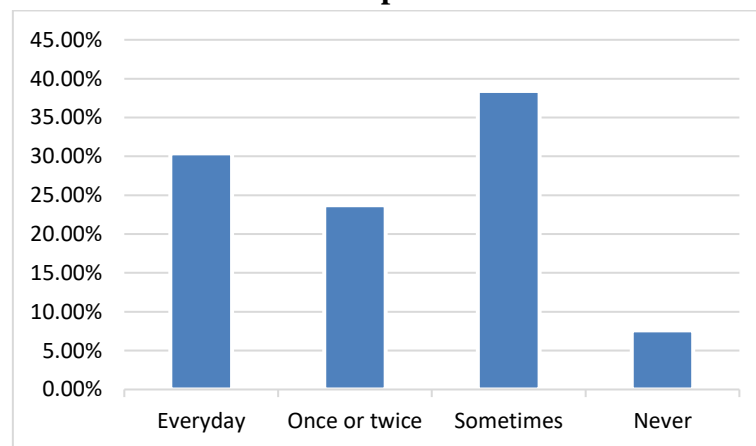
From the above Table 9 & Graph 9 the consumption of sweets states that 15.6% athletes consume sweets every day, 25.4% athletes consume sweets once or twice, 52.7% athletes consume sweets Sometimes & 6.3% athletes Never consume sweets.

**Question 10 – What is the Frequency of oil, butter and ghee products you consume in a week?**

**Table 10**

	Frequency	Percentage
Everyday	68	30.4%
Once or twice	53	23.7%
Sometimes	86	38.4%
Never	17	7.6%
<b>Total</b>	<b>224</b>	<b>100</b>

**Graph 10**



From the above Table 10 & Graph 10 the consumption of oil, butter and ghee products states that 30.4% athletes consume it every day, 23.7% athletes consume it once or twice, 38.4% athletes consume it Sometimes & 7.6% athletes Never consume oil, butter and ghee products.

### **Conclusion:**

Banana is the food item mostly preferred for pre-workout, Protein shake is consumed during workout, Anything cooked at home is mostly preferred post workout, ½ litre water is consumed during workout, 5 litres and more water is consumed throughout the day, duration of sleep is 6 to 8 hours, Fast food is consumed sometimes in a month, Plant protein is the supplement consumed, Sweet food is consumed sometimes in a month, Frequency of oil, butter and ghee products is sometimes in a month.

### **References:**

1. Biolo, G. e. (1997). An abundant supply of amino acids enhances the metabolic effect of exercise on muscle protein. Am J Physiol.
2. Dumitru1, P. (2015). MACRONUTRIENTS AND THEIR IMPORTANCE IN SPORTS TRAINING OF STUDENTS PRACTICING POWERLIFTING. State University of Physical Education and Sport, Chisinau, Republic of Moldova.



3. Late Prof. Ajmer Singh, D. J. (2019). Essentials of Physical Education. Kalyani Publishers.
4. Lemon, P. D. (1997). Moderate physical activity can increase dietary protein needs. Can J Appl Physiol.
5. Oliver, J. M. (2010). Macronutrient intake in Collegiate powerlifters participating in off season training. Journal of the International Society of Sports Nutrition.
6. Phillips, G. S. (2011). Nutrition guidelines for strength sports: Sprinting, weightlifting, throwing events, and bodybuilding. Journal of Sports Sciences.
7. Viorel DORGAN1, D. P. (2019). FOOD PRINCIPLES PROVIDING MUSCULAR ACTIVITY ENERGY IN THE SPORTS TRAINING OF STUDENTS PRACTICING POWERLIFTING. Physical Education, Sport and Kinetotherapy Journal.

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## **Current Status of Fitness of First-year Students at Thai Nguyen University**

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### **Introduction:**

This article is the result of the study on the physical fitness of 1,400 first-year students at educational institutions affiliated with Thai Nguyen University including the following issues: Current status of students' physical fitness; classification of students' physical fitness; comparison the fitness level between the group of students who do not participate in the sports movement and the group of students who participate in the sports movement. The research findings show that: Regarding the general situation, students' fitness level is mainly at the average level, the percentage of students who get good grades is very low, especially the percentage of students who do not pass is relatively large; The group of students who did not participate in the sports movement had a lower level of physical fitness than the group of students who participated in the sports movement.

**Keywords:** Student, First-year, Physical education, Physical fitness, Thai Nguyen University Affiliated Institutions.

### **1. Statement of the Problem:**

Thai Nguyen University includes a system of affiliated institutions with a variety of specialized fields. Each training specialty has its own peculiarities. Among them, physical education is identified as one of the important tasks in order to perfect physical activity skills and intellectual development for school children and university students, helping them stay healthy, better adapt to the profession and contribute to the society. Beside practicing sports according to regulations, the sports movement for students is also a factor contributing to the development and perfecting of students' personality. Therefore, it is necessary to search for solutions to develop sports movement for students at Thai Nguyen University.

This study aims to evaluate the current state of physical fitness of first-year students at 07 institutions affiliated to Thai Nguyen University, and at the same time classify the group of students who do not participate in sports movements and the group of students who participate in sports activities to compare the fitness level between these two groups, use that as a scientific basis to find solutions to develop sports movement for students.

The research process used the following methods: document analysis and synthesis; Interview; pedagogical observation; pedagogical examination; Statistical Mathematics.

Evaluation criteria: applying criteria to evaluate the fitness level of school children and university students according to the regulations of the Ministry of Education and Training, including 06 tests: Test 1. Hand squeeze force (kg); Test 2. Abdominal crunch (times/30s); Test 3. Displacement in place (cm); Test 4. Run 30m XPC(s); Test 5. Shuttle run 4 x 10m(s); Test 6. Run according to the strength 5 minutes (m).

The survey was conducted at 07 institutions affiliated to Thai Nguyen University, which are: University of Education; University of Information and Communication Technology; University of Agriculture and Forestry; University of Medicine and Pharmacy; University of Economics and Business Administration; University of Technology; University of Sciences.

Survey time: Second semester of the academic year 2018-2019.

Number of survey samples: 1400 students in the first year, aged 18, 700 were female and 700 were male. Students were classified as participating in the sports movement when they participated  $\geq 1$  time/week, the others went to the other group. Data were collected through collaborators and physical education lecturers at institutions affiliated to Thai Nguyen University.

Classification	First-year students, aged 18				$\Sigma$ (n=1400)	
	Female (n=700)		Male (n=700)			
	$m_i$	%	$m_i$	%	$m_i$	%
Not participating in sports movement	537	76.71	548	78.29	1085	77.5
Participating in sports movement	163	23.28	152	21.71	315	22.5
$\Sigma$	700	100	700	100	1400	100

## 2. Findings and Discussion:

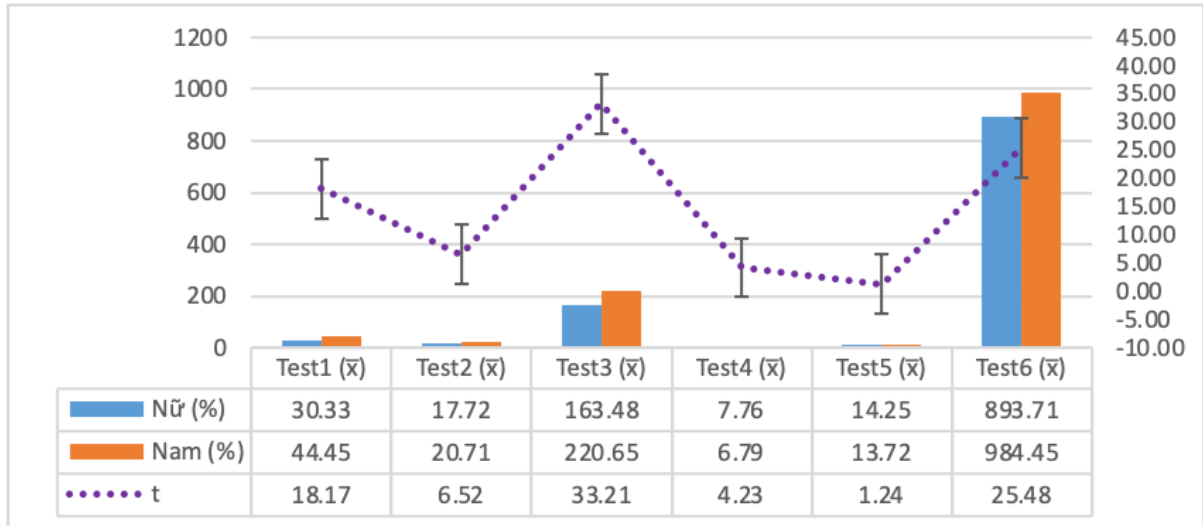
### 2.1. General physical fitness of first-year students at 07 educational institutions affiliated with Thai Nguyen University

Evaluating students' fitness level through 6 tests prescribed by Decision No. 53/2008/QĐ-BGDĐT dated September 18, 2008 on promulgating regulations on assessment and grading of physical fitness of school students, university students. The results are presented in table 1.

**Table 1. Current situation of physical fitness of first-year students at 07 educational institutions affiliated with Thai Nguyen University (n=1400)**

Test	Female (n= 700)		Cv	Male (n=700)		Cv
	$\bar{x}$	$\delta$		$\bar{x}$	$\delta$	
Test 1	30.33	2.64	0.09	44.45	3.73	0.08
Test 2	17.72	1.04	0.06	20.71	1.14	0.06
Test 3	163.48	14.87	0.09	220.65	15.73	0.07
Test 4	7.76	0.27	0.03	6.79	0.27	0.04
Test 5	14.25	1.02	0.07	13.72	0.83	0.06
Test 6	893.71	66.32	0.07	984.45	63.71	0.06
$\bar{x}$	187.88	14.36	0.07	215.13	14.24	0.06

Table 1 shows that: The physical fitness level of the students in the tests was higher than the average according to the results of the 2001 population survey [2]. Students had a general tendency to be weak in endurance and motor coordination. The attributes of agility and speed showed a better performance but remained average. Male students had a higher physical fitness level than female students. To see more clearly the difference of physical fitness between men and women, the results are presented in Figure 1.



**Figure 1. Comparing fitness level between male and female first-year affiliated institutions with Thai Nguyen University**

Figure 1 shows that the biggest difference was in Test 3 (dominant hand squeeze force) with  $t=33.21$  (kg), in test 5 (shuttle run) between men and women there was no difference.

The above were the results of the survey on the current physical fitness level of female and male students who were studying and practicing for the first year at 07 institutions affiliated to Thai Nguyen University.

**2.2. Ranking the fitness level of female and male first-year students studying at 07 schools under Thai Nguyen University**

To determine the general physical fitness condition of female and male students studying in the first year at 07 institutions affiliated to Thai Nguyen University. We classified students' fitness level according to the standards by the Ministry of Education and Training. The classification process used the following criteria: Hand squeeze force (kG), Run 30m XPC (s), Shuttle Run 4x10m (s) and run according to strength 5 minutes (m), and compared the difference in meeting physical training standards in ratio between male and female students in each academic year. The classification results were presented in Table 2.

**Table 2. Classification of physical fitness level of first-year students of 07 institutions affiliated to Thai Nguyen University**

Classification	Female (n=700)		Male (n=700)		$\Sigma$ (n=1400)	
	$m_i$	%	$m_i$	%	$m_i$	%
Good	162	23.14	170	24.28	332	23.71
Pass	405	57.85	394	56.28	799	57.07
Under pass	133	19.00	136	19.42	269	19.21

Table 2 shows that the majority of students had a pass level of physical fitness (57.07%). The percentage of students with good was 23.71%. Those with under pass score was 19.21%. This situation reflected that the quality of physical education in educational institutions was not good.

### 2.3. Compare the difference in physical fitness of students in two groups, group 1 (not participating in sports movement) and group 2 (participating in sports movement)

Through interviews and classification, we found that there were students who did not participate in sports movements and students who participated in sports movement. Therefore, in parallel with assessing the status of students' physical fitness according to the standards of the Ministry of Education and Training, this study also conducted a survey on the fitness level of the group of students who did not participate in sports movement and the group that participated in sports movement. The findings are presented in Table 3.

**Table 3. Situation of fitness level of the group who did not participate in sports movement and the group that participated in sports movement**

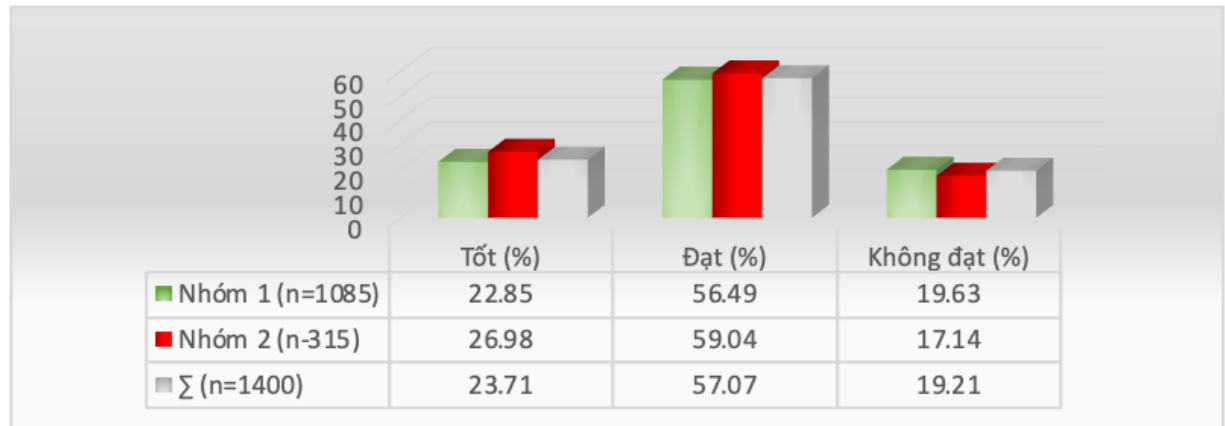
Test	Female students (n=700)						Male students (n=700)					
	Female in group 1 (n=537)		Cv	Female in group 2 (n=163)		Cv	Male in group 1 (n=548)		Cv	Male in group 2 (n=152)		Cv
	$\bar{x}$	$\delta$		$\bar{x}$	$\delta$		$\bar{x}$	$\delta$		$\bar{x}$	$\delta$	
Test 1	28.73	2.49	0.09	31.93	2.79	0.09	42.85	3.63	0.08	46.05	3.83	0.08
Test 2	16.12	0.89	0.06	19.32	1.19	0.06	19.11	1.04	0.05	22.31	1.24	0.06
Test 3	161.88	14.72	0.09	165.08	15.02	0.09	219.05	15.63	0.07	222.25	15.83	0.07
Test 4	6.16	0.12	0.02	9.36	0.42	0.04	5.19	0.17	0.03	8.39	0.37	0.04
Test 5	12.65	0.87	0.07	15.85	1.17	0.07	12.12	0.73	0.06	15.32	0.93	0.06
Test 6	892.11	66.17	0.07	895.31	66.47	0.07	982.85	3.63	0.08	986.05	3.83	0.00

Table 3 shows that students in group 2 had a better physical fitness level than students in group 1. To see more clearly the difference in fitness level of students in group 1 and students in group 2, take a look at the ranking table of students' physical fitness in each group in Table 4.

**Table 4. Comparison of physical fitness level of students who only practiced intra-curricular sports with students who participate in sports movement**

Rank	Students in group 1 (n=1085)		Students in group 2 (n=315)		$\Sigma$ (n=1400)		Comparison	
	$m_i$	%	$m_i$	%	$m_i$	%	$X^2$	P
Good	248	22.85	85	26.98	333	23.71	2.64	>0.05
Pass	613	56.49	186	59.04	799	57.07		
Under pass	213	19.63	54	17.14	268	19.21		

Table 5 shows that the level of physical fitness of students in group 2 (who participated in sports movement) was better than students in group 1 (who did not participate in sports movement). To see this difference more clearly, the results are presented in Figure 2.



**Figure 2. Comparison of fitness level between group 1 and group 2**

The results of comparing the physical fitness level between students in group 1 and students in group 2 show that, at the "good" and "pass" level, there was a larger proportion of group 2 compared to group 1. This difference is statistically significant ( $P > 0.05$ ). This result also shows that sports practice can help students improve their fitness level.

### 3. Conclusion:

Grading the fitness level of 700 female and 700 male first-year students, aged 18 studying at 07 institutions affiliated to Thai Nguyen University according to the regulations issued by the Ministry of Education and Training, we can see students' fitness was mainly at the average level, good rating was uncommon, especially the percentage of students who did not pass the physical exam was relatively high.

The comparison of the physical fitness level between students in group 1 (not participating in sports movement) and students in group 2 (participating in sports movement) shows that the fitness level of students in group 2 was higher than students in group 1. This result also shows that sports practice can help students improve their physical fitness.

### References:

1. Ministry of Education and Training (2008), Decision No. 53/2008/QĐ-BGDĐT dated September 18, 2008 on promulgating regulations on assessment and grading of students' physical fitness.
2. General Department of Physical Education and Sports, Vietnam Sports Science Institute, 2013, Vietnamese people's physical fitness from 6 to 60 years old at the beginning of the 21st century, Sports Publishing House, Hanoi.
3. Luu Quang Hiep, Le Duc Chuong, Vu Chung Thuy, Le Huu Hung (2000), Physical Education and Sports Medicine, Sports Publishing House, Hanoi.
4. Tran Kim Cuong (2009), "Study on solutions to develop local sports clubs in the context of socio-economic development in Ninh Binh province", Doctoral thesis of educational science, Vietnam Sports Science Institute.
5. G Endruweit and G Trom Msdorff (2002), Sociological dictionary, Translated by Nguyen Huu Tan, Nguyen Hoai Bao, World Publishing House.

6. Ivanop.V.X (1996), The foundations of mathematical statistics, translated by Tran Duc Dung, edited by Do Cong Huynh, Sports Publishing House, Hanoi, pp.152 - 159, 201 – 209.
7. Kimiko Fujita (2005), Effects of extracurricular activities on academic achievement of high school students, Scientific research thesis.

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## **Nutritional Knowledge and Eating Attitude Concerning the Health Status of Working Mothers**

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### **Introduction:**

The dictum of everyone to live longer is to live a healthy lifestyle, they want good health, yet, many people do not have the good practices that contribute to a healthy status and realize the significance of proper nutrition. The practices of eating healthy food are one of the most important healthy habits if only every individual follow proper nutrition and knowledgeable in nutrition, this would help them to attain a healthy status. Good nutritional knowledge is essential to well-being and also in the prevention of diseases. The mothers have come with the responsibility of having great nutritional knowledge, along with the multiple roles they have in the family such as bearing, lactating, serving, feeding, among others.

According to Hundera, Fecado, and Wertu (2015), nutritional knowledge is understanding the different types of food, and how it nourishes the body and influences health. It is a fundamental pillar of human life. If mothers had good nutritional knowledge, they would understand the effects of food on health. Understanding the total processes involved in the composition of food substances by a living organism, including ingestion and metabolism of nutrients found in the food. This knowledge is appropriate when a consumer learns how to benefit from nutrients. The knowledge being described according to psychologists is declarative and procedural. Declarative knowledge is an understanding of things and processes. An individual may know if there are essential vitamins in the food and may know that vitamins are essential in one's diet compared to that many fats are not good in one's diet. On the other hand, procedural knowledge is concerning how to do something. This is the application of declarative knowledge. Knowing how to cook well is an example of procedural knowledge (Shakkour, 2007). In line with this, studies illustrate that nutritional knowledge affects healthy food choices, as well as the quality of food consumption. Improvement of an individual's nutritional knowledge provides new information, which may stimulate changes in their attitudes and enhance their dietary practices. (Mirsanjari et al., 2012).

Bargoita, Delizona, Tsitouras, and Kuokoulis (2013) mentioned that this 21st century impacts lifelong eating habits contribute to the development of the risk factor of diseases in adulthood dietary intake and nutrition behaviors. Therefore, proper education and awareness can help improve the nutritional status of large populations since a balanced diet is needed for regular activities in everyday life by identifying of the reasons behind food choices could help reduce the burden and risk of several diseases Illness and disabilities can be prevented through good nutrition and proper feeding habits (Khattak et al., 2007).

Furthermore, due to the increase of energy-dense foods and the reduced levels of physical activity in densely populated areas, both in developed and developing countries, the rates of obesity are on the rise. These behaviors must be changed to stop the increase in obesity. Supporting people to make educated choices, and taking effective action, are some of the strategies for behavior modification. (Development of a nutrition knowledge questionnaire



for obese adults, 2011).

According to The Philippine Health System Review (2012), the Philippines' health status indicators showed that the country stays behind most South-Eastern and North Asian countries in terms of health results. *Habits that Promotes Wellness* (n.d.) states that human beings develop habits throughout their lifetime. While the typical person's habits are healthy, most of them cultivate unhealthy practices over time. Adapting new—or, changing unhealthy habits—into a more beneficial one, is necessary, and requires effort.

Villard, Rosario, and de Los Santos (2012) emphasized that health is one of the most important concerns among Filipinos, as each of us strongly values our well-being. However, many of us have paid no attention to the various choices confronting us about the way we live, work, and play, that can potentially damage our bodies and our minds, or even cost our lives. According to Girma and Genebo (2002), the proportion of women suffering from chronic energy deficiency (CED) malnutrition was significantly higher in rural areas than in urban areas. The prevalence of malnutrition was significantly higher among the unemployed than women who were employed. In the book, *Foundation and Clinical Application of Nutrition*, Groder and De Young (2005) declared that women are most at risk of osteoporosis, coronary artery disease, hypertension, certain cancers, diabetes, and potential weight-related disorders.

Hence, the researcher looked at this study on the effects of nutritional knowledge and eating attitude on the health status of working and non-working mothers from Oroquieta City, Misamis Occidental, Philippines.

The study is anchored to the theories to support findings. The theories are the Classical Theory of Balanced Diet, The Theory of Planned Behavior, The Social Cognitive Theory, and the Protection Motivation Theory. The Classical Theory of Balanced Diet was used to assess the proper nutrition or balanced diet that mothers must know about healthy and unhealthy foods. The Theory of Planned Behavior interpreted the eating attitudes of mothers about their health about behavior towards healthy eating. The Social Cognitive Theory was used to assess the increase in the mothers' understanding of food choices as they obtained nutritional education. Lastly, the Protection Motivation Theory was used to assess the respondent's motivation in keeping their body healthy to prevent diseases.

**Keywords:** Nutrition, Eating attitude, Health status.

**Statement of the Problem:**

The study aimed to significantly determine the answer the following:

1. What is the demographic profile of the respondents in terms of age, civil status, educational attainment, family income, number of children, across respondents' classification, nutritional knowledge, eating attitudes, and health status?
2. Is there a significant relationship between the respondent's profile as moderating variable to their nutritional knowledge and eating attitude as independent variables?
3. Is there a significant relationship between the moderating variables, and the respondents' health status as the dependent variable?
4. Is there a significant relationship between the respondents' nutritional knowledge, eating attitude, and health status?
5. Is there a significant difference in nutritional knowledge, eating attitude, and health status between working and non-working mothers?

**Methodology:**

This study utilized a descriptive-correlational and comparative type of research to determine the relationship between nutritional knowledge, eating attitude, and their effects on health status. The study was conducted among selected 69 working mothers from Central Elementary School and 72 non-working mothers from three identified barangays in Oroquieta City, Misamis Occidental, Philippines. The research used three instruments to assess all the variables. One was a modified and adapted questionnaire of the "Nutrition Knowledge" developed by Klieman, Wardle, Johnson, and Croker (2016),. Another tool used to assess the eating attitude is the "Eating Attitude Questionnaire", developed by Hunot, Croker, Llwyn, Wardle, and Beeken (2016), and "Health Status Questionnaire", developed by Kath Roberts (2007), all data gathered passed through the proper protocols. Data were statistically treated with descriptive statistics for their profile, 1-Way Analysis of Variance (ANOVA), and Person Product Moment for Correlation Coefficient (Pearson  $r$ ) for the relationship and difference.

**Results:**

Based on the analyses and interpretation of the gathered data, the following findings were realized.

The majority of the respondents (52 or 45.2%) were in the age range of 29-39 years old; a high percentage (73.9%) were married; the majority (69 or 60.0%) have attended college; 33 or 28.7% had a family income range of PHP 9,000 - PHP 12,000; and a huge majority (98 or 85.2%) had 1-3 children. The majority of the respondents (66 or 57.4%) had a "Good" Nutritional Knowledge; 92 (80.0%) had an "Average" Eating Attitude, and many of the respondents (61 or 53.0%) had a "Fair" Health Status. All the moderating variables tested showed no significant relationships ( $p > 0.05$ ) to the independent variables, except for the correlation between the respondents' Number of Children and their Eating Attitudes. The first null hypothesis  $H_01$  was accepted for insignificant relationships but was rejected for significantly related variables. The number of Children confirmed a weak inverse relationship [ $r = -0.235$ ] to Eating Attitudes. This finding shows that as the number of children increased, eating attitude scores decreased; thus, respondents with more children tend to have poor eating attitudes. All the tested moderating variables signified no correlations [ $p > 0.05$ ] to the dependent variables, except for the correlations of the respondents' Gross Family Income [ $p = 0.000$ ] and Educational Attainment [ $p = 0.002$ ] to their Health Status. The second null hypothesis  $H_02$  was accepted for not significantly related compared variables but was rejected for significantly related ones. Gross Family Income showed a weak linear relationship [ $r = 0.375$ ] to Health Status. This signified that as the family's gross income increases, health status also increased or got better, thus families, or respondents who had higher gross family incomes tend to show better health status. Educational Attainment showed a weak linear relationship [ $r = 0.288$ ] to Health Status. This meant that as the educational attainment increased, health status also increased or got better. Between the independent and dependent variables, only Eating Attitudes displayed a significant relationship [ $p = 0.042$ ] to Health Status. The third null hypothesis  $H_03$  was accepted in comparing Nutritional Knowledge to Health Status but was rejected in comparing Eating Attitudes to Health Status. Eating Attitudes showed a very weak inverse relationship [ $r = 0.190$ ] to Health Status. This finding signified that as Eating Attitudes increased, Health Status decreased. Therefore, respondents with "Poor" Eating Attitudes displayed good Health Status. Between the independent and

dependent variables, only Health Status showed a significant difference [ $p=0.042$ ] between the classifications of working and non-working mothers. The fourth null hypothesis Ho4 was accepted when Nutritional Knowledge and Eating Attitudes were tested but was rejected for Health Status. Health Status showed a significant difference [ $F=27.375$ ] between working and non-working mothers, which meant working mothers have better Health Status, and non-working mothers have poor Health Status.

### **Discussions:**

This signifies that the majority of the respondents, regardless of their working status, were in their early thirties to late forties. This age range implies that as they approach their late 20's, more women are allowed to find work to support their families, and can do so well into their late 40's. The results coincide with the study of Akram and Khuwaja (2017), in which the respondents' average age for working women was 33 years old, and 28 years old for non-working women. The frequency for non-working women who are 18-28 years old tends to be higher, which reflects the study conducted by Delina and Raya (2013), which stated that women are exposed to the pressures created by the multiple role demands and conflicting expectations of being a mother, and a woman who has a career. Due to the more traditional cultures of the Philippines, as a family starts, the husband is expected to be the main source of income for the family, while the mother tends to the welfare of the children and the home. By the time the household no longer has infants or toddlers that need 24/7 care, the mother tends to have more free time which allows her to revisit career choices or even higher education. This knowledge era gives women greater access to changes in marital patterns, occupational opportunities, and mobility.

The high frequency of married working mothers, as per the results, reflects the study of Abosede and Akintola (2016), in which they posited that the current knowledge economy has given women greater access to changes in marital patterns and the choice to have smaller families, which has led to the increase in the number of working women, and consequently, working mothers. No longer are women forced to be confined to the kitchens or forced to be under the mercy of their fathers or their husbands' attitude towards women and work (Delina and Raya, 2013).

The high frequency of the respondents who were able to get education from at least the elementary and secondary level, up to college level, between the working and non-working mothers, reflect the study of Delina and Raya (2013), which found out that more women younger than 35 years old have more educational attainment. The fast-developing knowledge economy has given place for more women to be enlightened by higher education. Furthermore, 92.6% of the working women respondents were all able to reach or finish college level of education. This reflects the study of Abosede and Akintola (2016), which stated that the knowledge economy has created greater access for women in occupational opportunities and mobility. Modern professions now require higher levels of educational attainment, in contrast to the more skills-based occupations from the past centuries. This then has led more and more women to pursue higher education.

The wide range of gross family incomes across the respondents reflects the study of Akram and Khuwaja (2014), wherein they stated that working women utilize their abilities and skills, not only for them but for their family and the society as well. They have their income which offers independence, security, and freedom. Family structures now have the option for both parents to have their occupation that provides for the family's needs, which

used to be solely the husband's responsibility. This knowledge economy has given women the ability to meet their family's financial needs in case of husbands' death or marriage failure.

The results reflect the study of Shettigar, et al. (2013), which stated that mothers' nutritional knowledge plays an important role in the maintenance of the nutritional needs and status of their children. Hundera et al. (2015) also stated that it is important that mothers have a piece of good nutritional knowledge, and must be aware of the recommended intakes of core foods since they are the major providers of food for their families, as well as a substantial source of nutritional information for their children. Nutritionally educated mothers can bring up their children in a healthier way (Khattak et al., 2007) since studies show that the nutritional status of children is related to maternal education (Kaur, Grover, Kaur, 2015).

The Classical Theory of Balance Diet by Holydiver (n.d.) is closely interconnected to the common belief about the ideal food and optimally balanced diet. This theory is based on the balanced approach for the assessment of diet and still preserves its value up to now. In its simplest form, this approach focuses on the part that the body should have a supply composed of such molecular structure that would compensate for their expense and loss from the metabolism, work, and growth.

Protection Motivation Theory by Sutton (2002) proposed that a person will be more motivated to protect himself or herself, to the extent that the threat is likely if the current course of action is continued, and that the consequences will be serious if the threat occurs. This theory proposes that people protect themselves based on three factors: vulnerability, the efficacy of the recommended preventive behaviors, and perceived self-efficacy. This also explains why people engage in unhealthy practices, offers suggestions for changing those behaviors, and is mainly used when discussing health issues and how people react when diagnosed with health-related illnesses.

The established relationship between the variables is set at a significance level of ( $p \leq 0.05$ ), whilst  $p$  values that are at ( $p > 0.05$ ) are not significant. The relationships are linearly related when the  $r$ -value is positive, and inversely related when the  $r$ -value is negative. In addition, the strength of the existing relationship between the variables is shown. The number of Children confirmed a weak inverse relationship [ $r = -0.235$ ] to Eating Attitudes. This finding shows that as the number of children increases, eating attitude scores decrease; thus, respondents with more children tend to have poor eating attitudes. According to Working Mothers and Their Perceived Work-Life Balance (2012), the burden of child care occurs when children are very young, and women with children aged three to five reported slightly lower levels of perceived work-life balance. This could include eating attitudes among women, thus confirming the inverse relationship of several children and eating attitudes.

Gross Family Income showed a weak linear relationship [ $r = 0.375$ ] to Health Status. This finding signifies that as the family's gross income increases, health status also increases or gets better, thus families, or respondents who had higher gross family incomes tend to show better health status. This can be affirmed by the study of Sultana (2012), wherein it was stated that women have started to involve themselves in various professional activities outside their homes. This enables them to contribute to the family income and achieve economic independence and contribute to the quality of child care. This relative financial freedom gives them more opportunities to care for their families and themselves and consequently improves their health status.

Educational Attainment showed a weak linear relationship [ $r = 0.288$ ] to Health Status. This means that as educational attainment increases, health status also increases or gets better.

This reflects the study of Abosede and Akintola (2016), which stated that the knowledge economy has created greater access for women in occupational opportunities and mobility. Modern professions require higher levels of educational attainment, thus, this can also be related to the weak linear relationship of Gross Family Income, since higher levels of education would provide women with better-paying jobs, which could, in turn, provide more financial stability for their families, and ultimately lead to better health status.

Eating Attitudes showed a very weak inverse relationship [ $r=0.190$ ] to Health Status. This finding signifies that Eating Attitudes increase as status decreases. Therefore, respondents with "Poor" Eating Attitudes displayed good Health Status. This is in contrast with the book *Fitness and Health: Your Complete Guide to Aerobic Fitness, Nutrition, and Weight Control* by Sharkey and Gashkil (2007), which proposed healthy eating associated with daily exercise and weight control, attributes that are associated with good eating attitudes, could lead to fitness and better health status.

Health Status showed a significant difference [ $F=27.375$ ] between working and non-working mothers, which means working mothers have better Health Status, and non-working mothers have poor Health Status. According to *Healthy Habits That Promote Wellness* (n.d.), a person's or a group's state of health is normally measured with concerning activities or daily living, which include a variety of activities, such as being in a work environment. Being a non-working mother restricts a woman to the house setting, which could mean lesser opportunities to explore and utilize their skills and knowledge. Moreover, according to Akram and Khuwaja (2014), working women who can utilize their abilities for society and family get rich experiences out of the home. These experiences may consist of intellectual stimulation, problem-solving, and handling challenges, which can enhance their self-esteem, self-confidence, and sense of satisfaction. In addition to this, full-time housewives may experience a lack of satisfaction, boredom, and feelings of worthlessness, which may impact their health status.

### **Conclusions:**

The demographics of the respondents displayed no significant relationship to the independent variables; however, their number of children confirmed a weak inverse relationship to their eating attitudes. This implied that as the number of children increased, their eating attitudes decreased, it also displayed that there is no significant relationship between age, civil status, family income, educational attainment, and the number of children as moderating variables to nutritional knowledge and eating attitude as the independent variable, was accepted for insignificant relationships but was rejected for significantly related variables. Among the moderating variables only gross family income and educational attainment had a linear significant relationship to health status, the implication of this relationship is when the gross family income increases, the health status also increased. Moreover, Educational Attainment also displayed a weak linear relationship to Health Status, which translates to those with higher educational attainment also having a better health status. Furthermore, only the eating attitudes displayed a significant relationship to the Health Status among the independent variables. It showed a very weak inverse relationship to the dependent variable, which means the better the eating attitudes of the respondents, the poorer their health status.

Finally, there was no significant difference found among the classification of working and non-working mothers concerning their nutritional knowledge and eating attitudes;

however, across the classification, there was a significant difference in the health status of the working and non-working mothers. The findings revealed that non-working mothers have a poorer health status than working mothers.

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**References:**

1. Abosede, S. C. & Akintola, O. A. (2016). Mothers' Employment, Marital Status and Educational Level on Students' Academic Achievement in Business Studies. Retrieved from <http://www.apjmr.com/wp-content/uploads/2016/05/APJMR-2016.4.2.21.pdf>
2. Akram, B. & Khuwaja, F. (2014). A study on depression among working and non-working mothers. Retrieved from <http://euacademic.org/UploadArticle/217.pdf>
3. Bargiota, A., Delizona, M., Tsitouras, A., & Koukoulis, G. N. (2013). Eating habits and factors affecting food choice of adolescents living in rural areas. Retrieved from <http://www.hormones.gr/pdf/HORMONES%202013-246.pdf>
4. Civil status. (n.d.). Retrieved from the Google: <http://www.google.com.ph/search?q=civil+status>
5. Compact Oxford English dictionary. (2005). New York: Oxford University Press.
6. Delina, G. & Raya, P. (2013). A study on Work-Life Balance in Working Women. Retrieved from <http://www.ircast.org/ijcbm/papers/vol2no52013/9vol2no5.pfd>
7. Development of a nutrition knowledge questionnaire for obese adults. (2011). Retrieved from [https://www.researchgate.net/publication/51721558\\_Development\\_of\\_a\\_nutrition\\_knowledge\\_questionnaire\\_for\\_obese\\_adult.pdf](https://www.researchgate.net/publication/51721558_Development_of_a_nutrition_knowledge_questionnaire_for_obese_adult.pdf)
8. Eating attitude. (n.d.). Retrieved from the Wikipedia: <http://www.google.com.ph/search?q=eating+attitude>
9. Educational attainment. (n.d.). Retrieved from Google: <http://www.google.com.ph/search?q=educational+attainment>
10. Family income. (n.d.). In Business Dictionary Online. Retrieved from <http://www.businessdictionary.com/definition/family-income.html>
11. Girma, W. & Genebo, T. (2002). Determinants of the nutritional status of mothers and children in Ethiopia. (2002). Retrieved from <https://dhsprogram.com/pubs/pdf/FA39/02-nutrition.pdf>
12. Grodner, M., Long, S., & De Young, S. (2005). Foundations and clinical applications of nutrition: a nursing approach (3rd ed.) Philippines: Mosby. Gronhoj, A. (2012). Using the theory of planned behavior to predict healthy eating among Danish adolescents. Retrieve from <https://repository.hkbu.edu.hk/cgi/viewcontent.cgi?article=1056&context=comsja>
13. Gronhoj, A. (2012). Using the theory of planned behavior to predict healthy eating among Danish adolescents. Retrieve from <https://repository.hkbu.edu.hk/cgi/viewcontent.cgi?article=1056&context=comsja>
14. Health status. (n.d.). Retrieved from Google: <http://www.google.com.ph/search?q=health+status>

15. Healthy habits that promote wellness. (n.d.). Retrieved from <http://www.littleworksheets.com/worksheets/science/grade3/wellness.pdf>
16. Health status questionnaire. (n.d.). Retrieved from [http://www.healthyairways.com%2Fhealth\\_status\\_questionnaire.pdf&rct](http://www.healthyairways.com%2Fhealth_status_questionnaire.pdf&rct)
17. Holy diver. (n.d.). Theory of nutrition. Retrieved from <http://www.blog.dlhn.com/theory-of-nutrition>
18. Hornstrom, G. R., Friessen, C. A., Ellergy, J. A. & Pier, K. (2010). Nutrition Knowledge, Practices, Attitudes, and Information Sources of Mid-American Conference College Softball Players. Retrieved from <http://file.scirp.org/pdf/FNS2011020000992661435.pdf>
19. Hundera, E.D., Gemede, H. F., &Wirtu, D. (2015). Nutritional knowledge and determinant factors among lactating mothers in Nekemte referral hospital and health. Retrieved from <https://www.bing.com/search?pq=nutritional/knowledge/study/about/mothers/pdf&sc=0-45>
20. Hunot, C., Fildes, A., Croker, H., Llewellyn, C., Wardle, J., &Beeken, R. (2016).
21. Appetitive traits and relationships with BMI in adults: development of the adult eating behavior. Retrieve from [http://www.ucl.ac.uk.iehc/research/behavioral-science-health/resource/questionnaire/pdf/aebq\\_vso41017](http://www.ucl.ac.uk.iehc/research/behavioral-science-health/resource/questionnaire/pdf/aebq_vso41017)
22. Kaur, K., Grover, K., & Kaur, N. (2015). Assessment of Nutrition Knowledge of Rural Mothers and Its Effectiveness in Improving Nutritional Status of Their Children. Retrieved from <https://seea.org.in/irjee/upload/v15417.pdf>
23. Klieman, N., Wardle, J., Jonhson, F., & Croker, H. (2016). European Journal of clinical nutrition: Reliability and validity of a revised version of the general knowledge questionnaire. Retrieved from <http://www.ucl.ac.uk./iehc/research/behavioral-science-health/resource/questionnaire/pdf/gnkqrscoreing>
24. Kuźbicka, K. & Rachoń, D. (2013). Bad eating habits as the main cause of obesity among children. Retrieved from [https://www.researchgate.net/13E3\\_02\\_z\\_poprawkami%20\(3\).pdf](https://www.researchgate.net/13E3_02_z_poprawkami%20(3).pdf)
25. Khattak, A. M., Gul, S., Muntaha, S.T., &Jamaluddin (2007). Evaluation of nutritional knowledge of mothers about their children. Retrieved from [http://www.gjms.com.pk/files/GJMS%20Vol-5-1\(4\).pdf](http://www.gjms.com.pk/files/GJMS%20Vol-5-1(4).pdf)
26. Lombardi, K. (2013). Self-efficacy and nutrition knowledge of parents in Western Australia. Retrieved from [http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1106&context=theses\\_hons](http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1106&context=theses_hons)
27. Mirsanjari, M., Wan Wan Muda, A. M., Ahmad, A., Othman, M. S., Maryam, M., Mosavat, &Mirsanjari, M. M. (2012). Relationship between nutritional knowledge and healthy attitude and practice during pregnancy. Retrieved from <https://www.RELATIONSHIP-BETWEEN-NUTRITIONAL-KNOWLEDGE-AND-HEALTHY-ATTITUDE-AND-PRACTICE-DURING-PREGNANCY.pdf>
28. Several children. (n.d.). In Dictionary Reverso Online. Retrieved from <http://dictionary.reverso.net/englishdefinition/number%of%children>
29. Nutritional knowledge. (n.d.). Retrieved from the Google:<http://www.google.com.ph/search?q=nutritional+knowledge>
30. Roberts, K. (2007). Health status questionnaire. Retrieved from [http://www.healthyairways.com%2Fhealth\\_status\\_questionnaire.pdf&rct](http://www.healthyairways.com%2Fhealth_status_questionnaire.pdf&rct)

31. Romualdez, A. G., dela Rosa, J. E., Flavier, J. A., Quimbo, S. A., Hartigan-Go, K.Y., Lagrada, L. P., & David, L. C. (2011). The Philippines Health System Review. Retrieved from [http://www.wpro.who.int/philippines/areas/health\\_systems/financing/philippines\\_health\\_system\\_review.pdf](http://www.wpro.who.int/philippines/areas/health_systems/financing/philippines_health_system_review.pdf)
32. Sharkey, B. J. & Gashkill, S. E. (2007). Fitness and health: Your complete guide too aerobic fitness, muscular fitness, nutrition, and weight control (6th ed.). China: Human Kinetics.
33. Shakkour, E. (2007). The relationship between nutritional knowledge and application. Retrieved from <http://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=1011&context=honors>
34. Shettigar, D., Ansila, George, M., Chacko, J., Thomas, R., & Shukoor, S. (2013). Assessment of knowledge of mothers of under-five children on nutritional problems: a rural community-based study. Retrieved from [http://njcmindia.org/uploads/4-1\\_141-144.pdf](http://njcmindia.org/uploads/4-1_141-144.pdf)
35. Sultana, A. M. (2012). Mothers' perception on the impact of employment on their children: Working and non-working mothers. Retrieved from <https://www.researchgate.net/publication/272715369/Mothers/Perception/on/the/Impact/of/Employment/on/their/Children/Working/and/Non-working/Mothers.Pdf>
36. Sutton, S. (2002). Health behavior: Psychosocial theories. Retrieved from <https://pdfs.semanticscholar.org/7b64/a1b2346cf73bd9df620ccbe3a12850371a2e.pdf>
37. The Philippines health system review. (2011). Retrieved from [http://www.wpro.who.int/philippines/areas/health\\_systems/financing/philippines\\_health\\_system\\_review.pdf](http://www.wpro.who.int/philippines/areas/health_systems/financing/philippines_health_system_review.pdf)
38. Villaverde, M.C., Rosario, M., & de los Santos, V.S. (2012). Health promotion and non communicable diseases in the Philippines. Retrieved from <http://www.ateneo.edu/sites/ASoG-HJ/Health%20pdf>
39. Working mothers and their perceived work-life balance. (2012). Retrieved from <https://wageindicator.org/documents/publicationslist/publications-2012/1203-LEVY-Working/mothers%20and/their/perceived/work/life/balance.pdf>

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