

DIETARY HABITS, BODY MASS INDEX, AND PHYSICAL FITNESS OF ATHLETES: A BASIS FOR PROPOSED TRACK AND FIELD PROGRAM

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Abstract

This study was conducted to determine the possible relationship among dietary habits, body mass index, and physical fitness of athletes. To achieve the purpose of the study, the descriptive-correlational research design was used. Fifty-four athletes from the Province of Pampanga who competed in the Central Luzon Regional Athletic Association (CLRAA) in the School Year 2019-2020 served as respondents of the study. Results revealed that dietary and body mass index have significant relationship to the physical fitness of the athletes. Based on the findings, it is suggested that a continuous dietary awareness program should be implemented, unfit athletes should be closely monitored, and coaches and trainers should design and implement effective health and skills related programs for the athletes' welfare.

Keywords: Body Mass Index; Correlation; Dietary Habits; Physical Fitness; Student Athletes

Introduction

The government, through the Philippine Sports Commission (PSC), has adapted since 1992, Sports-for-all as a national policy and program. Sports-for-all is a sports program that allows the involvement of all Filipinos regardless of sex, religion, age and capacity. This guideline attracts non-government and government organizations to take on sports (Castro 2012). Moreover, the 1987 Philippine Constitution Article XIV Section 9 states that (1) The State shall promote physical education and encourage sports programs, league competitions, and amateur sports, including training for international competitions, to foster self-discipline, teamwork, and excellence for the development of a healthy and alert citizenry; and (2) All educational institutions shall undertake regular sports activities throughout the country in cooperation with athletic clubs and other sectors. In the education sector, sports are part of the BEC and K-12 curricula support the mandates suggests a continuous monitoring of students in their physical development from elementary level to tertiary. Sports should not stop after schooling but should be promoted in higher level such as intramural; division meet, regional meet, and Palarong Pambansa in order to carry out students' active participation in sports. The abovementioned directive can only be realized if well-built program for sports had been voted for by the academe. Potential athletes in sports should be monitored and given proper training to be totally developed. Developing athletes entails a lot of perseverance, hard work and proper guidance. Another consideration is monitoring the athletes' dietary habits, body mass index, and physical fitness. Moreover, the importance of dietary intake to athletes most especially during training

has been stressed over the years. Taking of adequate nutrients from foods, both in quantity and in quality and the body's capability to utilize them appropriately to meet its metabolic needs of health and fitness describes the concept of nutritional status. Body mass index is a measurement of general health and is based on height for weight ratio. The ideal body weight of an athlete depends on a number of different factors, which mainly revolve around the type of sports one plays. In many sporting activities, for instance, being lighter and leaner is beneficial, whereas in other sports, the higher the body mass index and the more muscle an athlete's carries the better. Assessing the demands body mass index of sports helps improve performance. Athletes' competitors in endurance sports are typically light, carry little body fat and have lower levels of muscle fat. The less weight on athletes have to carry, the easier it is for his muscles and cardiovascular system to sustain the energy needed for you to maintain speed over a longer distance. There is a direct link between body mass index height to weight ratio and speed in distance runners. The lighter the athlete, the better they perform. The same applies in any endurance sport, such as doing a triathlon, cycling and long-distance swimming. Being heavier has its advantages, particularly in strength and power on contact sports. Being heavier and carrying more muscle increases power to weight ratio. This can improve power and strength. When it comes to strength sports, such as power lifting, Olympic lifting or strongman competitions, as get heavier; there are natural increases in strength (Samuels, 2016). Finally, physical fitness is one of the main factors for an athlete's success. It has been notice that a high level of the elements of physical fitness such as body composition, cardiovascular endurance, muscular endurance, flexibility, agility, balance, coordination, reaction time, and speed is useful and effective in achieving success in different sports. To assist the Division of Pampanga Sports Development to plan sports and health program in order to mend the dietary habits, nutritional status and physical fitness of student athletes. Hence, this study was conducted to establish the correlation of dietary habits, nutritional status, and physical fitness of athletes.

Objectives

This study focused on the correlation of the dietary habits, body mass index, and physical fitness among athletes in the Province of Pampanga. Specifically it sought to answer the following question.

1. How may the dietary habits of the athletes be described in terms of consumption of liquids, vitamin and mineral supplement, food intake, dieting, and skipping meals?
2. How may the body mass index of the athletes be described in terms of underweight, normal, overweight, and obese?
3. How may the physical fitness of the athletes be described in terms of health-related fitness and skill-related fitness?
4. Is there a significant relationship among the dietary habits, body mass index, and physical fitness of the athletes?
5. What activities may be proposed to enhance the track and field program of the athletes?

Literature Review

1. Dietary Habits

Samuelson (2000) stated that food lifestyles are categorized by irregular meal pattern. Skipping breakfast and school lunch were practiced by numerous adolescents. Taking light snacks and meal are very frequent, contributing 25-35% of daily energy intake. Two factors are linked to the dietary habit of the adolescent. Smoking is associated to their dietary habits as well as socio - economic status. Dietary expenditure of vitamins and minerals are sufficient for normal health growth. In addition, Daniels (2004) cited in his work that adequate and quality diet provides increase amount of energy which could sustain longer physical activity among individuals. Meanwhile, Bull (1992) stated that adolescents and young adults adopt eating patterns which may well form the basis of their dietary habits for much of their lives. At the same time, this section of the population can come under considerable pressure from the world at large, to conform to the current trends in fashion, language, behavior, or foods. Moreover, Paugh (2005) specified that the dietary practices of athletes can hurt their performance in the long run. By not getting the right foods athletes will not be able to reach top performance. Some of the common sources of intake that athletes are encountering are: fast food restaurants, quality of food, eating on the run, and the service of the food. Likewise, Nogueira, and Da Costa, (2005) quoted that endurance athletes have negative energy balance, low intake of carbohydrate, adequate to high intake of protein, and high intake of fat. In addition, Rodriquez, Di Marco, and Langley, (2009) Stated that carbohydrate and protein intake must be met during times of high bodily movement to sustain body weight. Physical activity can be affected by body weight and body composition. Meanwhile, Student athletes are left with very little time to meet their nutrition needs. These athletes tend to grab the easiest on the go food for their meal. Little do they know that this lack of nutritious food affect their performance. Student athletes need regular well balanced meals and snacks to maintain the high energy demands of training for competition Reid (2003).

2. Body Mass Index

The nutritional status of children in the Philippines is caused by a host of interrelated factors-health, physical, social, economic and others. Food supply and how it is distributed and consumed have an impact on nutritional status. In addition, Whitehead, (2012) states that a Filipino nutrition research institute (FNRI) surveyed the nutritional status of selected Filipinos, the survey found out that the prevalence of underweight children less than five years old stands at just 20%, while the total of overweight children is 4.3%. A total of 35% of adolescents between 10 to 19 years are stunted, while seven in every hundred were found to be obese. Moreover, Assistant Secretary of Health Flores (2015) noted that more Filipinos, especially adults are becoming fat. Among adults 20 years old and above, the prevalence of overweight and obesity increased from 16.6% in 1993 to 31.1% in 2013. Women tend to be fatter than men with the prevalence at 34.4% for females and 27.5% for males. Use of weight for height as a measurement of obesity, the waist and circumference and height waist hip ration among adults has also been increasing. The same trend noted among preschooler

and school age children. Overweight and obesity prevalence among children is at 5% while among teenagers it is at 8.3%. Analysis of the 2013 nutritional status survey result showed that children who belong to wealthier families tend to be more overweight and obese than those coming from poorer household.

3. Physical Fitness

Physical fitness is the measurement of the lungs, heart and muscles both during exercise and while at rest. Typically, fit individuals have endurance and lower stress when compared to unfit individual. Basic factors that influence potential include the age, genetic inheritance, sex, eating patterns and level of exercise. Moreover, Caspersen, Powell, Christenson, (1985) stated that physical fitness is the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies. A number of measurable components contribute to physical fitness the most frequently cited components fall into two groups: one related to health and the other related to skills that pertain more to athletic ability. The health related fitness is (a) Body composition, (b) Cardiovascular endurance, (c) Muscular endurance, (d) Flexibility, (e) Muscular strength. And the skill related fitness is (a) Agility, (b) Balance, (c) coordination (d) power, (e) Reaction time, (f) Speed. The health and skill related components of physical fitness are important to athletic ability.

Research Methodology

This study, made use of descriptive correlational design to determine if the respondents' dietary habits, body mass index, and physical fitness are associated with each other. Purposive sampling was adopted to determine the sample size of the respondents. This sampling technique was used since the researcher only included athletes of the track and field team. The questionnaire was organized into three parts. Part I included body mass index and the formula in solving the body mass index (BMI) or the Quetelet index and its classifications adapted from International Reference Standard (IRS). Part II of the survey focused on the dietary habits of the athletes. This part adopted from Marino (2001). Part III of the survey contained the physical fitness test categorized into health –related and skill-related fitness. This portion was adopted from the Department of Education physical fitness manual introduced by Dr. Aparicio H. Mequi, former Chair, Philippine Sports Commission (PSC) and Director, Bureau of Physical Education and School Sports (BPSS).

Results and Discussions

1. The Dietary Habits of the Athletes

The athletes' dietary habits are described in terms of their consumption of liquids, vitamin and mineral supplement, food intake, regularity of meals.

1.1 Consumption of liquids

The highest computed mean of 3.74 was recorded by the athletes' frequency of drinking water; a mean of 2.31 was posted by the respondents' frequency of drinking carbonated beverages. Adequate and regular water consumption of the athletes has numerous health benefits. Water helps the body well hydrated, which is essential because almost of the cells in the body need water to function properly during training (Baheer, 2014).

1.2 Vitamin and mineral supplement

The athletes indicated that they take vitamin and minerals often. Adequate amounts of vitamins and minerals aid in the normal healthy growth of an individual.

1.3 Food intake

The food intake of the athletes in all categories in the food pyramid had means of 3.30 (eating three base meal daily); a mean of 3.22, bread, cereals, pasta, potatoes, or rice; 3.04, fruits; 2.80, vegetables; 2.76, dairy products; 2.81, berry jams, cookies, candies, or other sweets; 2.52, snacks like potato chips, cakes, candies, donuts or soda; 2.59, snacks like yogurt, popcorn or fruits; and 2.59, fast food.

1.4 Dieting

The respondents reported that they sometimes recorded what they eat, with a mean of 2.20; likewise, they go on diet (2.20) and sometimes seek out nutritional information (2.20).

1.5 Skipping meals

Eating breakfast and skipping meals each obtained means of 3.30 and 2.39, both with the descriptive equivalent of sometimes, this implies that athletes miss eating breakfast; at other times they miss eating lunch or dinner.

Table 1: Dietary habits of the athletes

| Statement | Mean | Std. Deviation | Interpretation |
|---|------|-------------------|----------------|
| A. CONSUMPTION OF BEVERAGES | | | |
| How many times do you drink water? | 3.74 | 0.52 | Always |
| How many times do you drink carbonated beverages? | 2.31 | 0.99 | Often |
| B. VITAMIN AND MINERAL SUPPLEMENTS | | | |
| How many times do you take vitamin supplements? | 3.09 | 0.87 | Often |
| How many times do you take mineral supplements? | 3.30 | 0.88 | Often |
| C. FOOD INTAKE | | | |
| How many times do you eat three base meals per day? | 3.30 | 0.82 | Often |
| How many times do you eat breads, cereals, pasta, potatoes, or rice? | 3.22 | 0.88 | Often |
| How many times do you eat fruits, such as apples, bananas, or oranges? | 3.04 | 0.97 | Often |
| How many times do you eat vegetables, such as broccoli, tomatoes, carrots, or salad? | 2.80 | 1.00 | Often |
| How many times do you eat dairy products such as milk, yogurt, or cheese? | 2.76 | 0.75 | Often |
| How many times do you eat berry jams, cookies, candies, or other sweets? | 2.81 | 0.93 | Often |
| How many times do you snacks on foods like potato chips, cakes, candies, donuts, or soda? | 2.52 | 0.91 | Often |
| How many times do you snack on foods like yogurt, popcorn or fruits? | 2.87 | 0.73 | Often |
| How many times do you eat fast food? | 2.59 | 0.77 | Often |
| D. DIETING | | | |
| How many times do you record what you eat? | 2.20 | 0.89 | Sometimes |
| How many times are you on a diet? | 2.20 | 1.05 | Sometimes |
| How many times do you seek out nutrition information? | 2.20 | 0.90 | Sometimes |
| E. SKIPPING MEALS | | | |
| How many times do you eat breakfast | 3.30 | 0.88 | Sometimes |
| Based on three meals per day, how many times do you skip at least one meal per day? | 2.39 | 1.09 | Sometimes |

Legend:

| | | |
|-----------------------|-----------------------|------------------------------|
| 3.50 – 4.00 Always | 5-7 times a week | 8 and above glasses of water |
| 2.50 – 3.49 Often | 3-4 times a week | 6-7 glasses of water |
| 1.50 – 2.49 Sometimes | 1-2 times a week | 4-5 glasses of water |
| 1.00 – 1.49 Never | Does not occur at all | 3 below |

2. The Body Mass Index of the Athletes

The athletes' nutritional status by differences of body mass index classification based on height for weight is shown in Table 1. They are classified as underweight, normal, overweight, and obese. The highest mean height of the athletes was 1.70 meters, while the lowest mean was 1.54 meters; minimum height was 1.40 meters, and maximum was 1.79 meters. In weight, highest mean was 86kg, while the lowest was 39.26kg; minimum weight was 30.00kg, and maximum was 88kg.

The mean body mass index of the athletes is described in the following:

2.1 Underweight

The lowest mean of the athletes' body mass index was 16.35; this means 23 athletes were classified as underweight.

2.2 Normal

A mean of 19.56 or 27 athletes was described to be normal.

2.3 Overweight

The mean body mass indexes of 30.66 means 2 athletes were overweight.

2.4 Obese

The body mass index (BMI) mean of 29.06 means 2 athletes were classified as obese. Overweight and obese athletes were those that play, throwing events that require higher body mass in order to execute muscular performances. A specific requirement is needed in specific sports and to the position that the player has in a particular sport. Throwing event competitors cannot afford to be underweight like sprinters, jumpers, and middle and long distance runners.

Table 2: Body mass index of the athletes

| Classification | | Height(meters) | Weight(kg) | BMI |
|----------------|---------|----------------|------------|-------|
| UNDERWEIGHT | N | 23.00 | 23.00 | 23.00 |
| | Mean | 1.54 | 39.26 | 16.35 |
| | SD | 0.09 | 5.57 | 1.24 |
| | Minimum | 1.40 | 30.00 | 12.82 |
| | Maximum | 1.78 | 52.00 | 17.98 |
| NORMAL | N | 27.00 | 27.00 | 27.00 |
| | Mean | 1.60 | 50.22 | 19.56 |
| | SD | 0.09 | 6.66 | 1.17 |
| | Minimum | 1.47 | 40.00 | 18.03 |
| | Maximum | 1.79 | 63.00 | 23.12 |
| OVERWEIGHT | N | 2.00 | 2.00 | 2.00 |
| | Mean | 1.69 | 83.00 | 29.06 |
| | SD | 0.06 | 4.24 | 0.46 |
| | Minimum | 1.65 | 80.00 | 28.73 |
| | Maximum | 1.73 | 86.00 | 29.38 |
| OBESE | N | 2.00 | 2.00 | 2.00 |
| | Mean | 1.70 | 86.00 | 30.66 |
| | SD | 0.02 | 2.83 | 0.81 |
| | Minimum | 1.68 | 84.00 | 30.09 |
| | Maximum | 1.71 | 88.00 | 31.23 |
| Total | N | 54.00 | 54.00 | 54.00 |
| | Mean | 1.58 | 48.09 | 18.96 |
| | SD | 0.10 | 13.10 | 3.67 |
| | Minimum | 1.40 | 30.00 | 12.82 |
| | Maximum | 1.79 | 88.00 | 31.23 |

The Physical Fitness of the Athletes

A. Health - Related Fitness

Table 3 reveals the test results on cardiovascular endurance of the athletes. Data shows the highest computed mean of 118.33 or 15 athletes whose physical fitness was described as **above normal**. In addition, 79.73 or 15 athletes were found to be in the **needs improvement** category, On the other hand, athletes' minimum heart rate was 60.00 beats per minutes while the maximum was 132.00 beats per minute. Fit athletes can persist in physical activities for relatively long periods without undue stress. Cardiovascular endurance is the most important aspect of fitness.

Table 3: Cardiovascular endurance of the athletes (Heart rate, Minute)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|-------------------|-----------|---------------|---------------|-------------|---------------|
| Needs Improvement | 15 | 60.00 | 91.00 | 79.73 | 9.48 |
| Below Normal | 9 | 72.00 | 96.00 | 89.33 | 8.86 |
| Normal | 15 | 91.00 | 110.00 | 100.67 | 5.07 |
| Above Normal | 15 | 107.00 | 132.00 | 118.33 | 8.62 |
| Total | 54 | 114.54 | 139.67 | 1.01 | 110.00 |

As per the results of athletes' muscular endurance tests, Table 4 this shows that the highest computed mean was 24.89. This means that 18 respondents had an excellent performance; 15 athletes with high performance (.00); 14 athletes described to have very high performance (13.29); and 7 athletes had very low performance, with a mean of 15.14. On the other hand, athletes' minimum muscular endurance was 5 push-ups, maximum was 40 push-ups. Athletes with excellent performance, high performance, and very high performance possess strength and endurance of the upper body muscles which they need to perform activities continuously for long periods without becoming tired. Apparently, athletes with very low performance cannot sustain the long-continued contraction of the muscles, resulting to fatigue.

Table 4: Muscular endurance of the athletes (Number of push-up made)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|-----------------------|-----------|-------------|--------------|--------------|-------------|
| Low Performance | 7 | 10.00 | 23.00 | 15.14 | 3.93 |
| High Performance | 15 | 10.00 | 20.00 | .00 | 4.22 |
| Very High Performance | 14 | 5.00 | 23.00 | 13.29 | 4.08 |
| Excellent Performance | 18 | 16.00 | 40.00 | 24.89 | 6.79 |
| Total | 54 | 5.00 | 40.00 | 18.46 | 6.96 |

Table 5 shows that the highest mean flexibility of the athletes was 66.50, which means that two (2) athletes had advanced flexibility, 51.29 or 14 athletes were proficient, and the lowest was 29.11 or 9 athletes were classified as beginner. In addition, the minimum flexibility of the athletes was 9.00 centimeters and a maximum of 72.00 centimeters. To achieve peak performance, athletes must utilize the full length of muscles to exhibit power and strength. If muscles are too tight, they may not be able to provide the explosiveness necessary for a particular movement.

Table 5: Flexibility of the athletes (Sit-and-reach, centimeter)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|---------------------------|-----------|-------------|--------------|--------------|--------------|
| Beginner | 9 | 9.00 | 36.00 | 29.11 | 8.07 |
| Developing | 14 | 33.00 | 42.00 | 37.64 | 2.50 |
| Approaching Proficient | 15 | 39.00 | 57.00 | 45.73 | 5.15 |
| Proficient | 14 | 40.00 | 58.00 | 51.29 | 5.46 |
| Advanced | 2 | 61.00 | 72.00 | 66.50 | 7.78 |
| Total | 54 | 9.00 | 72.00 | 43.07 | 10.40 |

Table 6 reveals that the highest mean of the athletes' muscular strength was 46.20. This means 25 of the athletes were found to have excellent performance. In addition, 17.25 or 8 athletes were found to have very low performance. Whereas, the minimum muscular strength was 4.00 curl-ups and the maximum was 90 curl-ups. Athletes with excellent abdominal strength and endurance can exert against resistance. It can help to push, lift, pull, jump, twist, turn, and bend. Having muscular strength and endurance can keep a person from getting tired easily.

Table 6: Muscular strength of the athletes (Number of curl – ups made)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|--------------------------|-----------|-------------|--------------|--------------|--------------|
| Very Low Performance | 8 | 4.00 | 22.00 | 17.25 | 6.14 |
| Low Performance | 5 | 17.00 | 27.00 | 20.60 | 4.62 |
| Normal | 13 | 20.00 | 32.00 | 25.69 | 5.36 |
| High Performance | 3 | 35.00 | 35.00 | 35.00 | 0.00 |
| Excellent Performance | 25 | 20.00 | 90.00 | 46.20 | 15.68 |
| Total | 54 | 4.00 | 90.00 | 33.98 | 16.46 |

B. Skill – Related Fitness

The skill – related fitness of the athletes is determined by their agility, balance, coordination, power, reaction time, and speed.

As shown in Table 7, the shuttle run tests were used to assess the agility of the athletes. The highest mean score of the test was 19.16; meaning 2 athletes had a developing agility. In addition, 17.80 or 24 athletes, 17.48 or 28 athletes whose agility are described as approaching proficient and proficient, respectively. Moreover, the minimum agility of the athletes was 16.00 seconds and the maximum was 19.40

seconds. An athlete with better agility has the ability to change position in space with quickness of movement, which is a relevant skill in the success of the athletes.

Table 7: Agility of the athletes (Shuttle run, seconds)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|---------------------------|----|---------|---------|-------|-----------|
| Developing | 2 | 19.11 | 19.20 | 19.16 | 0.06 |
| Approaching Proficient | 24 | 17.06 | 18.78 | 17.80 | 0.52 |
| Proficient | 28 | 16.00 | 19.40 | 17.48 | 1.22 |
| Total | 54 | 16.00 | 19.40 | 17.69 | 0.99 |

The balance of the athletes was assessed through the stork balance stance test. A table 8 show that the mean score of 30.00 implies that one (1) athlete was described to be proficient. Moreover, 4.34 or 53 athletes were classified as needing improvement. The minimum balance of the athletes was 1.03 seconds and the maximum was 30.00 seconds. Movement is essential to perform any daily task. Our ability to move efficiently requires control of the body's postural alignment. In order to move efficiently strong balance is needed. Lack of balance, such as walking, jumping, running, and throwing would be extremely challenging to perform. Balance and stability are key drivers of athletic performance. They increase the athlete's center body gravity, allowing body to produce force and strength and make more precise movements. Having both balance and stability ensures an optimal level of performance (Harper, 2016).

Table 8: Balance of the athletes (Stork balance stand test, seconds)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|----------------------|----|---------|---------|-------|-----------|
| Needs Improvement | 53 | 1.03 | 12.44 | 4.34 | 2.49 |
| Proficient | 1 | 30.00 | 30.00 | 30.00 | . |
| Total | 54 | 1.03 | 30.00 | 4.82 | 4.28 |

Table 9 shows that the paper juggling coordination test obtained the highest mean score 21.55, indicating that 47 athletes were described as **excellent**. In addition, 2.00 or 2 athletes were described as **poor**. Furthermore, athletes' minimum coordination was 2.00 times hit the paper and the maximum was 56.00 times hit the paper. Well-coordinated athletes also display good timing. Zetou, et al. (2012) proves in their study that coordination abilities are the most important skills for athletes.

Table 9: Coordination of the athletes (Paper juggling, number of times athlete hit the paper)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|---------------|-----------|-------------|--------------|--------------|--------------|
| Poor | 2 | 2.00 | 2.00 | 2.00 | 0.00 |
| Below Average | 2 | 3.00 | 4.00 | 3.50 | 0.71 |
| Above Average | 3 | 5.00 | 5.00 | 5.00 | 0.00 |
| Excellent | 47 | 5.00 | 56.00 | 21.55 | 12.79 |
| Total | 54 | 2.00 | 56.00 | 19.24 | 13.37 |

As shown in Table 10, the highest mean score of athletes' power was 5.75. This suggests that 22 athletes were described as needing improvement. The lowest mean score was 1.56 or equivalent to 8 athletes described to be approaching proficient, and 2.00 or 12 athletes classified as advance. Moreover, the minimum power of the athletes was 1.10 meters while the maximum was 2.77 meters. The better the power of the athletes, the better their physical performance. According to Gariatr (2012), power is an important factor influencing physical performance; an attribute may have extra greater influence on physical performance.

Table 10: Power of the athletes (Standing long jump, meters)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|------------------------|-----------|-------------|--------------|-------------|--------------|
| Needs Improvement | 22 | 1.10 | 96.00 | 5.75 | 20.16 |
| Beginner | 4 | 1.62 | 1.83 | 1.75 | 0.10 |
| Developing | 3 | 1.27 | 1.89 | 1.60 | 0.31 |
| Approaching Proficient | 8 | 1.31 | 1.96 | 1.56 | 0.25 |
| Proficient | 5 | 1.41 | 1.95 | 1.59 | 0.25 |
| Advanced | 12 | 1.51 | 2.77 | 2.00 | 0.35 |
| Total | 54 | 1.10 | 96.00 | 3.38 | 12.84 |

Reflected in Table 11 are the mean scores of the athletes' reaction time. The highest mean was 18.24 or 14 athletes described to need improvement, and the lowest was 2.50 or 4 athletes described as advanced. On the other hand, the minimum reaction time of the athletes was 2.00 inches and the maximum was 22.00 inches. Reaction time is an inherent ability, but overall response can be improved by practice. Coaches need to analyze the type of skills and requirements of specific sports. Young, et al. (1999) stated that reaction time had a significant influence on the success of Taekwondo athletes. Moreover, Heler, et al. (1998) found a connection between reaction time and the competitive performance of each competitor. Cho (1988) believed that exercise could contribute to an improvement in reaction time.

Table 11: Reaction time of the athletes

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|------------------------|-----------|-------------|--------------|--------------|-------------|
| Needs Improvement | 14 | 2.30 | 22.00 | 18.24 | 5.19 |
| Beginner | 12 | 13.00 | 15.00 | 13.67 | 0.89 |
| Developing | 11 | 10.00 | 13.00 | 11.45 | 0.93 |
| Approaching Proficient | 8 | 7.00 | 9.00 | 8.50 | 0.76 |
| Proficient | 5 | 4.00 | 6.00 | 4.60 | 0.89 |
| Advanced | 4 | 2.00 | 3.00 | 2.50 | 0.58 |
| Total | 54 | 2.00 | 22.00 | 11.97 | 5.65 |

The speed of the athletes was assessed through the 50-meter sprint. Table 12 shows the highest mean score was 8.77 or 6 athletes were described to need improvement, followed by 8.14 or 8 athletes described to be developing, and the lowest was 6.99 or 6 athletes described to be advanced. Moreover, the minimum athletes speed was 6.74 seconds and the maximum was 9.11 seconds. Speed is the ability to perform a motor skill as rapidly as possible. It is the ability of the athletes to move quickly, which is an essential quality in track and field sports. Young (1999) stated that speed has a significant influence on the success of athletes.

Table 12: Speed of the athletes (50 Meter Sprint, seconds)

| Scale | N | Minimum | Maximum | Mean | Std. Dev. |
|------------------------|-----------|-------------|-------------|-------------|-------------|
| Needs Improvement | 6 | 7.31 | 9.11 | 8.77 | 0.72 |
| Beginner | 1 | 7.85 | 7.85 | 7.85 | . |
| Developing | 8 | 6.90 | 8.80 | 8.14 | 0.74 |
| Approaching Proficient | 16 | 6.79 | 8.16 | 7.58 | 0.50 |
| Proficient | 17 | 7.28 | 7.76 | 7.50 | 0.16 |
| Advanced | 6 | 6.74 | 7.40 | 6.99 | 0.31 |
| Total | 54 | 6.74 | 9.11 | 7.71 | 0.66 |

The relationship among the Dietary Habits, Body Mass Index, and Physical Fitness of the Athletes

As reflected in Table 13, the computed p-value of .019 for flexibility shows that there is a significant relationship between body mass index and dietary habits.

In addition, with a computed p-value of .010 for muscular strength, .009 for agility, and .002 for coordination all mean that there is a significant relationship between body mass index and flexibility. Furthermore, as computed p-value of .010 for flexibility, and .034 for coordination show that there is a significant relationship between body mass index, and muscular strength. Meanwhile, as computed p-value of .009 for flexibility, .000 for speed shows significant relationship between body mass index, and flexibility. Moreover, as computed p-value of .002 for flexibility and .034 for muscular endurance show significant relationship between body mass index and coordination. Finally, a computed p-value of .000 for agility suggests a significant relationship between body mass index, and speed.

Table 13. Relationship among the dietary habits, body mass index, and physical fitness of the athletes

| Control Variables | | Flexibility | Muscular Strength | Agility | Coordination | Speed |
|-------------------|-------------------|--------------------|-------------------|---------|--------------|--------|
| BMI | Dietary Habits | Sig. (2-tailed) | .019* | | | |
| | Flexibility | Sig. (2-tailed) | | 0.10* | .009* | .002** |
| | Muscular Strength | Sig. (2-tailed) | .010* | | .034** | |
| | Agility | Sig. (2-tailed) | .009* | | | .000** |
| | Coordination | Sig. (2-tailed) | .002** | .034* | | |
| | Speed | Sig. (2-tailed) | | | .000** | |

The proposed program

Results of the study revealed that there is a relationship among the dietary habits, body mass index, and physical fitness of the athletes.

The following programs are:

1. One month meal plan to improve the body mass index of the athletes
2. Track and field programs to improve the flexibility, muscular strength, muscular endurance, agility, coordination, and speed of the athletes.

Conclusions

1. The dietary habits of the athletes indicate that some are amiss in taking vitamin supplements; food intake; and have a tendency to skip meals.
2. The body mass indexes of the athletes manifest a case of overweight, obese, and underweight.
3. Results of the athletes' physical fitness test show above normal muscular strength, high flexibility, and proficient muscular strength. However, some are unfit in terms of reaction time, power, and speed.
4. Body mass index and dietary habits are significantly related to flexibility, muscular strength, agility, coordination, muscular endurance, and agility.
5. A program for track and field was developed to enhance the athletes' performance.

Recommendations

1. There is a need to continuously promote the importance of having proper dietary habits among athletes because what they eat and how they eat are the sources of their strength and energy needed to perform their daily tasks and responsibilities as athletes. Since the primary sources of nutrition information of athletes are their parents, coaches, and trainers, it is important that these people are knowledgeable enough to give reliable and concrete information regarding nutrition.
2. The schools in the Division of Pampanga, which commonly administer body mass index tests, are prime sites for identifying high-risk student athletes. This study calls for development of effective preventive strategies for all unfit athletes who are at high risk for being underweight, obese, and overweight.
3. Coaches and trainers should design and implement training programs for improving health and skills-related fitness of the athletes' and perform their assessment according to the situation of athletes' fitness level.
4. The coaches and trainer should design programs that will enhance the training of athlete's health and skill-related fitness.
5. The proposed activities to enhanced track and field program of the athletes

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