The Effect Of Healthy Heart Gymnastics On The Physical Freshness Of Athletes
Weightlifters Padang City

Hilmainur Syampurma (1), Arie Asnaldi (1), Rika Sepriani(1), Roma Irawan (2), ArfinDeriListiandi (3),
DidikRilastiyo Budi (3), RifqiFestiawan (3)

1 Departement of Physical Education,Health and Recreation, Faculty of Sports sciences, Universitas Negeri Padang, Indonesia
2 Department of Coaching, Faculty of Sports sciences Universitas Negeri Padang, Indonesia
3 Department Physical Education, Faculty of Health Sciences JenderalSoedirman University
Corresponding author: HilmainurSyampurma, e-mail: hilmainursyam@fik.unp.ac.id

ABSTRACT

Introduction: Judging by the phenomenon and the weightlifting exercise program reported by coaches, weightlifters are more to perform exercises for increased muscle strength in the form of weight training exercises. Exercises in the form of physical conditions or fitness exercises for invisible athletes are implemented in the training program. As a result, the weight lifting athlete has a physical freshness in a less good category (less good S/d enough).

Objective: The goal of the study was to see the positive impact of healthy heart gymnastics on physical fitness athletes of the city of Padang.

Method: Types of a quasi research experiment. The population will be immediately sampled in this study, namely the weightlifters of Padang city which amounted to 18 people. Instruments using the TKJI test before and after given healthy heart gymnastics treatment. Data were analyzed using parametric statistics through test “t” formula at a significance of 0.05 α.

Results: Based on the results of the research analysis was concluded that there is a significant increase in physical fitness, Mean difference (difference in calculating average) = 4.78, T count = 13,719 > this = 2,120. Meaning healthy Heart Gymnastics provides meaningful influence on the improvement of the physical fitness of the Padang city weightlifters.

Keywords: healthy heart gymnastics, physical fitness


INTRODUCTION

Men's Sana in CorporeSano “in a healthy mind is in a healthy body”. This famous term is no longer familiar in our lives as an invitation to always live a healthy life. A healthy person will be shot from physical fitness. A person with high physical fitness will have a better physical ability to engage in various activities without experiencing any fatigue that means. To obtain high physical fitness, one must have good health (1). A person who works as an athlete needs a high degree of physical fitness. This also applies to the iron-lifting athletes of Padang city. Weightlifting sports begin with junior and senior and youth regional championships each year in order to regenerate athletes to develop to a higher level of competition. Therefore, it is necessary for healthy and fit athletes to be able to carry out training programs properly (2).

Weightlifting is a sports branch that relies on the power to lift weights that the majority of its equipment is made of iron and its arms are enveloped by rubber (3). In the branch of weightlifting known 2 technique Force, namely Snatch
and Clean & Jerk. A lifter is a call for any weightlifters, given the opportunity 3 times the iron lifting according to its ability. The addition of generations to the next generation is a multiple of 1Kg (4). Become an accomplished weightlifting lifter, not to be separated from the training programs provided by the Trainer. The purpose of this training program is to achieve achievement as well as to maintain the physical fitness of the lifter. As explained (5) by having good physical fitness athletes will be easier to follow the training program and will eventually drive an increase in their achievements. On the contrary, the low quality of physical fitness will affect the activities and long periods will influence the level of life quality, work ethic, and creative power in people's lives. However, from the existing phenomenon, the weightlifting exercise program reported by the city weightlifter of Padang, more weightlifters to do exercises for increased muscle strength in the form of weight training (of Padang City PABBSI documentation).

Exercises in the form of physical conditions or fitness exercises for invisible athletes are implemented in the training program. As a result, weightlifting athletes tend to have physical fitness in a less good category. Besides if the athlete focused only on weight training will also cause stress on his organs. Also, based on the incident that has occurred, the heavy lifting athletes of West Sumatra died because of his heart failing to work properly during heavy training focused on strength alone. This research can be utilized as a reference and solution for the trainer in making and implementing training programs for Weightlifters in Padang city is by adding a light exercise activity so that athletes are not saturated and physical fitness athletes can increase. Because with exercise, the muscles become strong, the heart becomes healthy, blood pressure becomes normal, sugar levels can be controlled and weight loss becomes normal, sugar levels can be controlled and the western body becomes balanced which all of these will make the body healthy and comfortable (6)

Gymnastics is a movement that combines tumbling and acrobatic aspects that get the artistic effect of movements performed on floor gymnastics, jumping tables, balance beams, multi-storey bars, parallel bars, single bars, rings, and saddle horses. The tumbling aspect is fast and explosive movement and is a motion that is generally strung together in a straight line (7). Healthy Heart Gymnastics is one option to improve fitness and lose body fat. Because Healthy Heart Gymnastics is aerobic, it inhales a lot of oxygen and aims to facilitate blood flow throughout the body (8).

The purpose of this research was to see the positive impact of healthy heart gymnastics on physical fitness athletes of the city of Padang. Also, with this heart gymnastics activity in the training program of Weightlifters Padang City, can make the brain and muscles more relaxed. Healthy Heart Gymnastics has a distinctive characteristic of regular movements and slow rhythm and a relatively mild and moderate intensity of exercise that can be done by anyone. Healthy Heart gymnastics that is performed can prevent and rehabilitate people with heart disease and blood vessels. Healthy Heart Gymnastics is an aerobic exercise with moderate intensity and its implementation lasts for 30 minutes (9). Healthy Heart Gymnastics uses all muscles – large muscles, breathing, and the heart. Variations in many movements especially the basic movements in the legs and roads can meet the CRIP principle criterion (continuous, rhythmical, interval, progressive, and endurance) to the stage of activities to be undertaken. Besides that, the group's cardiac gymnastics will give the members a sense of pleasure and can also motivate other members to continue to exercise continuously and regularly (10)

**METHODS**

This type of research is comparative with the draft research of quasi-experiments. The study took place in January to March 2020 which is housed in the training camps of the PABBSI PENGACAB in Padang Jl. Mangga 1 No. 159 Belimbing Padang. The target of the study was the weightlifter Padang which amounted to 18 people. The research procedure is done directly to the sample by first completing the administrative affairs. To obtain physical fitness data, 2 tests are given in the first Test to obtain preliminary data on the physical fitness level. Next was given the
Experimental treatment for 16 times with the exercise frequency 2 times a week at the time of the schedule off exercise (Thursday and Sunday). After treatment is given to the sample is then given a second test (post-test) to obtain data to know the progress of the exercises performed. The instrument used is a series of TKJI tests consisting of 5 rounds of Test 1). Run fast 40 meters, 2). Hanging up elbow (pull up), 3). Baring sit (sit up), 4). Jump Upright (vertical jump) 5). Run 800 and 1000 meters.

Tests must be carried out sequentially, continuously, and unbroken concerning the transfer speed of the test grain to the next test item in 3 minutes. In conducting the research, the tools used are already taking feasibility tests and the data assistants already have skills in using research tools. Data were analyzed using parametric statistics through a $t$ formula at a significance level of 0.05 $\alpha$ by first conducting analysis requirement tests.

**RESULTS**

1. **Description of physical fitness Data (Pree Test)**

Based on the results of a physical fitness test before being given a healthy heart gymnastics treatment conducted against 18 person samples, the mean achieved is 11.5 standard deviation is 2.25, the highest score is 17.00 and the lowest score is 8.00. Furthermore, the distribution of physical fitness category for weightlifters Padang City can be seen in the table below:

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
<th>Absolute Frequency</th>
<th>Relative Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 – 25</td>
<td>Excellent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18 – 21</td>
<td>Good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14 – 17</td>
<td>Middle</td>
<td>3</td>
<td>16.67</td>
</tr>
<tr>
<td>10 – 13</td>
<td>Poor</td>
<td>11</td>
<td>61.11</td>
</tr>
<tr>
<td>5 – 9</td>
<td>Very Poor</td>
<td>4</td>
<td>22.22</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the data in table 1, it can be concluded that of 18 people weightlifters Padang City, there is not one person who has a physical fitness category very well, and good. While the athlete with physical fitness medium category is 3 people (16.67%) And that has a physical fitness of the category of fewer than 11 people (61.11%), and who have physical fitness the category of fewer than 4 people (22.22%). Based on the results of the data that has been submitted above, it can be concluded that the Padang city weightlifters who have physical fitness with a score above the average group are as much as 3 people (16.67%) Athletes and scores in the average group of 11 people (61.11%). As for the score below the group averages 4 people (22.22%). The results showed that the physical fitness of weightlifters Padang city was not good. For more details of the physical fitness of the weightlifters, Padang City can be seen on the histogram image below.

![Physical Fitness Histogram (Pree Test)](image-url)
2. Description of physical fitness Data (Post Test)

From the physical fitness test results conducted to 18 people weightlifters, Padang City after given healthy heart gymnastics treatment, obtained average count (mean) is 16,277, the standard deviation is 1.52, the highest score is 19.00 and the lowest score is 14.00. Furthermore, the distribution of physical fitness category of Padang weightlifter City, after given healthy heart gymnastics treatment can be seen in table 2 following:

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
<th>Absolute frequency</th>
<th>Relative frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 – 25</td>
<td>Excellent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18 – 21</td>
<td>Good</td>
<td>8</td>
<td>44.44</td>
</tr>
<tr>
<td>14 – 17</td>
<td>Middle</td>
<td>10</td>
<td>55.56</td>
</tr>
<tr>
<td>10 – 13</td>
<td>Poor</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5 - 9</td>
<td>Very poor</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 2, it can be concluded that from 18 people weightlifters Padang City There is not one person who has the physical fitness category very well. For good physical fitness, a category is 8 people (44.44%) And the medium category is as much as 10 people (55.56%). While athletes who have a category of physical fitness are lacking categories and lack of no. Based on the results of the data that has been submitted above, it can be concluded that it has a physical fitness with a score above the average group of 8 people (44.44%) Athletes and scores in the average group of 10 people (55.56%). As for the score below the average group does not exist. The results showed that the physical fitness of the Padang nudge city is better because the athlete's physical fitness level does not exist in the category of a medium, less and less. For more details of physical fitness the weightlifter city of Padang can be seen on the image histogram in the following;

![Figure 2. Physical Fitness Histogram (Post Test)](image)

3. Test normality

Variable normality test using the Kolmogorov-Smirnov Test, indicating that the data is not significantly different p > 0.05, meaning that the data is distributed normally. More about the Kolmogorov-Smirnov Test can be seen in the following table:

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>D*hit</th>
<th>D*tab</th>
<th>P</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical fitness level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Test</td>
<td>18</td>
<td>0.812</td>
<td>9</td>
<td>0.525</td>
<td>Normal</td>
</tr>
<tr>
<td>Post Test</td>
<td>18</td>
<td>0.608</td>
<td>9</td>
<td>0.854</td>
<td>Normal</td>
</tr>
</tbody>
</table>

4. Test homogeneity
The results of variable homogeneity test through variance test, indicating that the data has a distinct no distinct variation $p > 0.05$. The full results of testing can be seen in the following table:

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>df</th>
<th>$F_{w}$</th>
<th>$F_{tab}$</th>
<th>$P$</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Data</td>
<td>5</td>
<td>10</td>
<td>0.886</td>
<td>3.59</td>
<td>0.525</td>
<td>Homogeneous</td>
</tr>
</tbody>
</table>

Processing and analysis carried out against physical fitness data for weightlifters Padang City has fulfilled the requirements. The next step performs the hypothesized test of the proposed T-tes analysis (Paired T-Test) of the influence of individual variable pre-posttest) using a healthy heart gymnastics exercise, indicating the probability ($P$) = 0.000 < 0.05 $\alpha$, stated that the variable measurement average is very strong (significant). This means there is a real difference from the first treat (pretest) to the next treatment (posttest). Further paired samples of T-Test analysis acquired mean Differences (difference in calculating average) of $d = 4.777$. The result of the analysis of the coefficient obtained $t_{hitung} = 13.719 > t_{tabel} = 2.120$, it proves that there is a real improvement of physical fitness from athletes after being administered 16 x treatment using a healthy heart gymnastics exercise. Thus the hypotheses of work (Ha) submitted can be proved. It means healthy heart gymnastics affects the increase in physical fitness of the weightlifter city of Padang. The results of the analysis can be seen in the table below.

<table>
<thead>
<tr>
<th>Data</th>
<th>Paired Differences</th>
<th>$t_{hitung}$</th>
<th>$t_{tabel}$</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. Mean</td>
<td>Std. Error</td>
<td>95% Confidence Interval of the Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First - Last</td>
<td>4.777</td>
<td>1.47750</td>
<td>.34825</td>
<td>4.04303</td>
<td>5.51252</td>
</tr>
</tbody>
</table>

Based on these results it can be concluded that healthy heart gymnastics can improve the physical fitness of the weightlifter Kota Padang. Healthy Heart Gymnastics is essentially an activity that aims to maintain body balance and can improve physical fitness performed 2 times a week. Gymnastics is a sport that aims to increase the strength of the joints and beauty of the body so that the sport is in the interest of one of the healthy heart gymnastics. Healthy Heart Gymnastics is a part of the Penjasorkes subject that has a beautiful movement that can form a healthy human being. Thus it can be said that one way to achieve physical freshness is to do healthy heart gymnastics. To be able to achieve physical freshness through gymnastics must be done routinely, seriously, and done with the correct movements, not with the movement of random. Besides, the motivation from participants to do gymnastics is very influential plus the facilities and infrastructure supporting and support from various parties.

DISCUSSION

After the analysis of data on the results of the research using the test t-test of the hypothesis proposed that healthy heart gymnastics can increase the physical freshness of the weightlifters Padang city the test result of the hypothesis was received empirically because it was found $t_{hitung} = 13.719 > t_{tabel} = 2.120$. It means healthy heart gymnastics can influence the increase in the physical freshness of the weightlifters Padang. Physical fitness is an important aspect of the psychomotor domain, which rests on the development of the biological ability of the body’s organs. It concentrates more on the issue of increasing the efficiency of the body’s Faal function in all its aspects as a system.
A healthy heart gymnastics exercise triggers metabolic changes in oxidative muscle fibers, increased muscle fibers, mitochondria, and the number of capillaries that transmit blood to muscle fibers. The muscles that have adapted to use the O2 are more efficient and this results in the general endurance of the heart that can be better and does not quickly experience fatigue during a relatively long physical activity. Also, heart training can improve the formation of antioxidants, endogenous, and the ability of trained elderly muscles to eliminate lactic acid in the muscles. Gymnastics exercises in addition to maintaining physical fitness can also lose weight and can facilitate blood circulation.

If conducting the regular and continuous exercise, the decrease in blood pressure will last longer and the blood vessels will be more elastic. The decrease in blood pressure mechanism after exercise is because the sport can relax the blood vessels. Therefore, the blood vessel will decrease in blood pressure. Healthy Heart Gymnastics is a series of movements that can prevent and cure diseases. Because this gymnastics trains the muscles of the body optimally so that more the breakdown of sugar. Healthy Heart Gymnastics is an aerobic gymnastics. Regular aerobic exercises with the frequency, intensity, and length of measured and well-programmatic workouts can improve lung heart endurance. Aerobic exercise will cause physiological adaptation of lung function, heart, blood vessels, and muscles. Frequency of the heart by bradycardia, increased tone of sympathist, or a combination of these two, also the frequency of production of impulses from the heart. This results in a larger stroke volume, so that the HRR increases, then the cardiac output will be higher. Increased oxygen becomes higher if there is an increase in the number of capillaries that transmit oxygen in the more active muscles. The body's ability to consume maximum oxygen (VO2max) has an impact on the decrease in resting pulse that can be measured per minute, and pulse can be used as a parameter of physical fitness state.

Based on the results of analysis and research conducted, providing a healthy heart gymnastics exercise is one of the alternatives to improve the physical fitness of athletes in Padang city. But equally, we know that physical fitness is a complete component of one's body condition. Physical fitness components that include (1) cardiovascular-respiratory endurance, (2) strength (muscle strength), (3) Muscular endurance (Muscle explosive Power), (4) Kelentukan (flexibility), (5) speed (speed), (6) Agility, (7) Balance, (8) coordination (coordination) and (9) thickness (accuracy) must be in good condition. For the weightlifters of Padang City, to develop and keep all components of physical fitness to be in good condition, then in addition to healthy heart gymnastics exercises, having good motor skills and nutritional status is also very necessary for athletes.

Motor capability is a cornerstone of success in performing skills in sports. Athletes who have a lot and good motion experience will have good motor skills and most will also have good physical freshness too. Measuring the motor capability measured by motion skills resulted in a relatively greater correlation and contributed to physical freshness. Then the status of nutrition will also give influence and contribution to physical freshness. Regular and regular physical activity can have a good effect on fitness including improving cardiorespiratory endurance, muscle strength and body metabolism. For athletes exercise routinely, continue and supported by good nutritional intake can support the performance. The estuary of regular exercise and good nutritional intake will be shot from the athlete's physical fitness. Healthy not necessarily fit, fit is healthy. Many other factors affect physical fitness. Levels of knowledge, education, comastia, and cultural differences can also affect physical fitness. Therefore, to achieve good fitness, it is necessary and takes many factors. Healthy Heart Gymnastics is the solution for the weightlifter Kota Padang to fill the training program to obtain physical fitness as an effort to achieve optimal achievement.

ACKNOWLEDGMENTS

Thank you for the untrue and sincere gratitude to the Dean of the Faculty of Sports Science, Padang State University, Chairman and Secretary of the Sports Education Department of the Padang State University of
sportsmanship who always provide support and encouragement to me so that the research can be done well and smoothly. I also want to thank the entire team of researchers and writers who have been willing to take the time and the mind in collaborating to complete this research. Thanks to the caretaker, the coach of the Padang City PENCAB PABBSI who has allowed me to do research. The most privileged to all the weightlifters of Padang City who have prepared to be sampled in research. And for all who have helped me in this study that I cannot mention one by one. Hopefully, this research can be useful and become a solution for the sport of the special people who have a branch of weightlifting including.

REFERENCES


