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THERAPEUTIC DOSES OF HONEY WITH VARIOUS DOSES AND BODY WEIGHT IN AN EFFORT TO INCREASE ENDURANCE

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Abstrak

The main problem during observation is that Padang City has a lot of confirmed cases of Covid-19. This study aims at the effectiveness of honey dose therapy on increasing endurance in various types of body weight in the Covid-19 pandemic era and revealing the physical activities of the sample during honey dose therapy the subjects in this study were the people of the West Air Tawar village totaling 20 people. The instrument to measure endurance is the Harvard test. The data analysis technique used was ANOVA (one way) with SPSS V 25. Increased endurance by doing honey therapy doses I, II, and III, proven the difference in endurance values before and after honey therapy. Honey therapy dose III proved to be better in increasing the endurance of the community. The physical activities carried out by the subjects include working in government offices, doing housewife work, teachers, exercising once a week and trading. We recommend that honey be used in individuals to reduce oxidative stress and boost endurance for intense physical activity and exercise.

Keywords: Honey; Body Weight; Endurance.

INTRODUCTION

On March 12, 2020, WHO announced the widespread spread of Covid-19 (Bordo & Duca, 2023). Genuine cases of Covid-19 can progress to serious pneumonia, ARDS, and multiple organ damage leading to death(Dubey et al., 2020; Ji et al., 2022; Singh & Singh, 2022; X.-B. Zhu et al., 2021). Event though the case is not serious, it appears as a normal side effect of respiratory tract contamination.(Gentil et al., 2020; Ma et al., 2022). Based on the report of the Indonesian Ministry of Health, on February 27, 2021, there were 1,329,074 confirmed cases. All provinces in Indonesia have been confirmed with Covid-19, including West Sumatra province.(Bestari et al., 2023; Novianto et al., 2022; Surendra et al., 2023). In order to break the chain of Covid-19 transmission, the government socializes ways to prevent Covid-19, namely washing hands, using masks, maintaining endurance by eating nutritious food and exercising, implementing physical distancing, staying away from crowds. Padang City has very many confirmed cases of Covid-19. Very serious problems related to Covid-19 include

a) Very rapid transmission of Covid19, such as through droplets, air, contaminated surfaces, fecal-oral or human waste,
b) Able to attack anyone, depending on the body's resistance.
c) There is no cure for sufferers of Covid-19.
d) In severe cases, corona virus infection can cause several complications,

Including: B. Pneumonia (lung infection), secondary infection of other organs, kidney failure, acute heart injury, acute respiratory distress syndrome, and death.

Physical fitness is the ability to do work and activities and increase work ability without feeling excessive fatigue.(Foucher et al., 2021; Ottersbach et al., 2023; Song et al., 2023; Watterson et al., 2023). The components of physical fitness include endurance (cardiorespiratory and muscular). Cardiopulmonary endurance is the ability or ability of the heart, blood vessels, lungs, bones, and muscles (Alves et al., 2020; Padera & Schoen, 2020; Zentner et al., 2020) Factors that affect endurance include exercise, physical activity, smoking habits, body mass index (BMI), proper rest time, and proper diet. Exercise for the general public can improve fitness and endurance optimally.(Angulo et al., 2020; Gatt et al., 2024)

Irregular or unprogrammed physical activity leads to a greater increase in oxidants than antioxidants known as free radicals, leading to increased oxidative stress and risk factors for atherosclerosis (Daiber et al., 2020; Marín et al., 2020; Menon & Shanmugam, 2020; Wang et al., 2020). There have been many studies of honey as an increase in endurance, but they are limited to certain ages. Honey has a significant effect on the health of toddlers on indicators of appetite, body weight, hemoglobin levels and sleep quality (B. Liu et al., 2024; Wood & Kay, 2023) Honey is very influential on the health of toddlers on indicators of appetite, weight, hemoglobin levels and sleep quality (Indika et al., 2023; Sari, Bafirman, et al., 2023). The provision of honey can increase physical endurance aged 19-23 years. The limitations of the research conducted by 2 researchers are samples based on a certain age, no dose of honey, no control of nutritional intake, without reviewing physical activity.

One must have a strong immune system to prevent Covid-19 (Odak et al., 2024; Ren et al., 2024; Troisi et al., 2023; X. Zhu et al., 2024). The solution offered to increase endurance is to consume honey according to the dose and body weight so that the nutritional needs in the body are met. Each person's nutritional needs are different based on body weight and type of physical activity (Sari, Kurniawan, et al., 2023). Using the wrong dose of honey will cause problems such as weight gain and increased blood glucose. Of course, if something like this happens, it will threaten the health of the body (Selviani et al., 2024). Based on the description above, this research is limited to honey dosage therapy in various types of body weight in an effort to strengthen endurance during the Covid-19 pandemic era in Padang City. That way, endurance can be increased; a person will avoid disease, especially in the pandemic Covid-19 era.

This study aims to prove how effective honey dose therapy is on increasing endurance in various types of weight in the Covid-19 pandemic era and reveal the physical activities carried out by the sample during the honey dose therapy. The results of this study will help the community and the government to increase endurance by consuming honey according to the dose in various types of body weight and one of the efforts to gain health and will have a positive impact on the government to improve the health status of the community.

The definition of Honey according to the World Health Organization (WHO) is a natural sweetener extracted from plants by Apis mallifera bees, collected, stored, and dried in beehives. Honey is a syrup-like liquid made by bees. Honey has a sweet flavor derived from its honey content(Damto et al., 2023, 2024; Masoomi et al., 2024; Zhang et al., 2023). According to Codex (2001), honey is a sweet substance produced by bees and

comes from the nectar of flowers or plant secretions collected by bees. Honey is usually found in hexagonal beehives. Farmers usually use condensers to extract honey from beehives. Honey can also be obtained by pressing to obtain clear and pure honey (Chabanol et al., 2024; T. Liu et al., 2021; Shaw et al., 2023).

Honey serves as a health drink because it can supply energy for the body, Harmiyati (2019), honey has 181200 different substances, 7580% monosaccharides (38.2% fructose, 31.3% glucose), 1.31% disaccharides, sucrose, 7.11% lactose, 7.31% maltose, 1523% water. Honey also contains vitamins (B1, B2, B5, B6, C), minerals (Ca, Na, P, Fe, Mg, Mn), enzymes that convert glycogen into monosaccharides, and enzymes that convert sucrose by the enzyme invertase. Included in fructose. Hydrogen Peroxide and Glucose Glucose and Glucose Peroxide enzyme to produce gluconic acid. According to Rista (2014), it contains 75% glucose, 8% organic acids, proteins, enzymes, 18% mineral salts, vitamins, small seeds, oils, colorants, high iron content that can treat diseases, and antibiotics. Glucose is a mid-core sugar that is easily absorbed and stored in the body. After absorption, it goes straight to the liver, where it is transformed into the required glucose(Irizarry Rovira et al., 2024; Shafqat et al., 2024). When the body uses it, it returns to its origin (in the form of glucose) flowing as blood, which is used as the driving force of muscles. The caloric value of honey is very high due to its glucose content.

The main nutritional content of honey is carbohydrates with glucose and fructose monosaccharides. Honey contains natural carbohydrates that act as a source of energy. The sugar content of honey is 40% fructose, 2% sucrose, and 34% glucose(González-Montemayor et al., 2019; Joseph et al., 2024; Stribling & Ibrahim, 2023; Terzo et al., 2020). So the glucose contained in honey serves as a source of energy in the body, so that a person does not need to consume other foods that contain high glucose because their needs have been met from honey.

Antioxidants are substances that can delay, prevent, or eliminate free radicals(Finotti et al., 2024; Pinheiro et al., 2024; Wu et al., 2024; Yan et al., 2023) Honey has benefits such as antibacterial, anti-inflammatory and antioxidant(Ilia et al., 2021; Khataybeh et al., 2023; Mduda et al., 2024; Shahid et al., 2023). Honey components, especially flavonoids and phenolic acids, have been shown to contribute significantly to antioxidant capacity (Escriche et al., 2014; Tanleque-Alberto et al., 2020; Warinhomhoun et al., 2023). Nutritional status is a condition caused by the balance between food intake and the amount needed by the body for various biological functions, such as growth, development, activity, and maintenance of body health,(Avraham et al., 2024; C. Kim et al., 2024; Piccoli et al., 2023; Zeidan et al., 2024). Weight is a highly unstable anthropometric parameter. Body weight is sensitive to change, allows objective measurement, and is used as the best indicator to determine nutritional status and repeatable growth. Body weight changes with age to balance health, consumption and nutritional needs under normal circumstances(Lee et al., 2022; Mattes et al., 2022)

Honey is not important to increase HB in white rats. This honey dose is divided into three doses, namely rats weighing 0.25 ml/200 g. 0.5 ml/200 g body weight in rats, 0.75 ml/200 g body weight in rats. Each dose studied was honey diluted in a minimum volume of 1 ml, 2 ml and 3 ml. Honey dose I was administered once daily for 7 consecutive days in treatment group I. In-group II, dose II honey was given once daily for 7 consecutive days, and dose III honey was given once daily.

In addition, found that honey improved the nutritional status of the 1535-year-old caretaker of the Bandung Islamic University. The dose was 20 ml/day for 28 days. According to research conducted, honey affects hemoglobin levels in class X adolescent girls suffering from anemia at SMKN 01 Mempawah Hilir.

Study on the endurance-enhancing effects of honey and eggs found that feeding honey and eggs one hour before training activities gave badminton athletes maximum endurance performance by feeding them honey rather than eggs. Febriyanto's (2020) study on the effect of sugar water, honey water, and exercise on increasing vo2max showed that Group I's VO2Max (honey feeding and exercise) was better than Group II's VO2Max (sugar water and exercise)(Bouyahya et al., 2021).

Departing from the results of the above research, the research that will be carried out is by giving a dose of honey based on body weight. Research conducted by Rista and Yuziani on white rats has used a dose based on the body weight of the rats (Bouyahya et al., 2021; Gul et al., 2024). Research on cleaning staff only used a dose of 20 ml / day to all samples (Brągoszewska & Mainka, 2024; Hyland et al., 2021; Øverbø et al., 2023). From several studies, what researchers will do is the use of honey doses according to body weight and will analyze physical activity during the study.

METODE

The survey method used in this research is the experimental method (experimental survey) which investigates the influence and relationship between the independent variable (X) called the processing coefficient and the dependent variable (Y) called the observation coefficient. The independent variable in this study is the dose of honey and the dependent variable is endurance.

The approach in this study used pre-test and post-test to investigate how honey dosage affects endurance at different body weight types during the Covid-19 pandemic era. The data obtained were analyzed using ANOVA. Samples aged 21-35 years who meet the inclusion and exclusion criteria will be used as sample criteria. The number of samples of this study is 20 people. The research stages carried out are:

a. Sample collection and explanation to the sample regarding the research to be carried out. If the sample is willing, the sample will fill in the inform consent.
b. Measure the body weight of the sample using a weight scale, to obtain a dose of honey according to body weight.
c. Pretest by measuring cardiorespiratory endurance through the Harvard Test.
d. The sample was given the first dose of honey for 7 days and then conducted a posttest by measuring cardiorespiratory endurance through the Harvard Test.
e. Then the second dose of honey was given for 7 days and the cardiorespiratory endurance test was conducted again through the Harvard Test.
f. After that, the third dose of honey was given for 7 days and the cardiorespiratory endurance test was conducted again through the Harvard Test.

After the data is obtained, the data is analyzed through anova. Calculation of honey dosage can be seen in the description below:

a. Dose I

Total amount of honey to be consumed for 1 day (N) = BW/2kg x 0.25ml. Number of honey consumed over 7 days = N x 7

b. Dose II

Total amount of honey to be consumed for 1 day (N) = BW/2kg x 0.5ml Total amount of honey consumed for 7 days = N x 7

c. Dose III

Total amount of honey to be consumed for 1 day (N) = BW/2kg x 0.75ml Amount of honey to be consumed for 7 days = N x 7

RESULTS AND DISCUSSION

A. Description of Research Results

In the chapter of research, results and discussion will be presented in sequence, among others:

(1) Research data,

(2) Pre-requisite test analysis, and

(3) Hypothesis testing.

For Hypothesis, testing will be presented sequentially, among others:

(1) The effect of honey dose therapy I on the endurance of the people of West Freshwater village,

(2) The effect of honey dose therapy II on the endurance of the people of West Freshwater village,

(3) The effect of honey dose therapy III on the endurance of the people of West Freshwater village,

(4) The difference in the effect of honey dose therapy I, masu dose II, and honey dose III on the endurance of the people of West Freshwater village.

In full, it will be presented as follows.

1. Description of Research Data

Descriptive statistics of pretest and post-test data on the endurance of the people of the West Freshwater village after the first dose of honey therapy are presented in the table.1

Table 1: Descriptive Statistics of Pretest and Posttest Endurance

Honey dose	Statistic	Pretest Results	Posttest Results
Honey Dose I	amount	469.86	540.32
	average	23.49	27.02
	SD	9.73	12.52
Honey Dose I	Amount	540.32	915.99
	Average	27.02	45.80
	SD	12.52	15.95
Honey Dose I	amount	915.99	1279.17
	Average	45.80	63.96
	SD	15.95	13.65

Table 1 above shows the difference between the pre-test and post-test scores. Good results are seen when the pre-test and post-test results are significantly different. The higher the posttest result, the better the value of increasing endurance after consuming honey with a predetermined dose according to the sample's body weight.

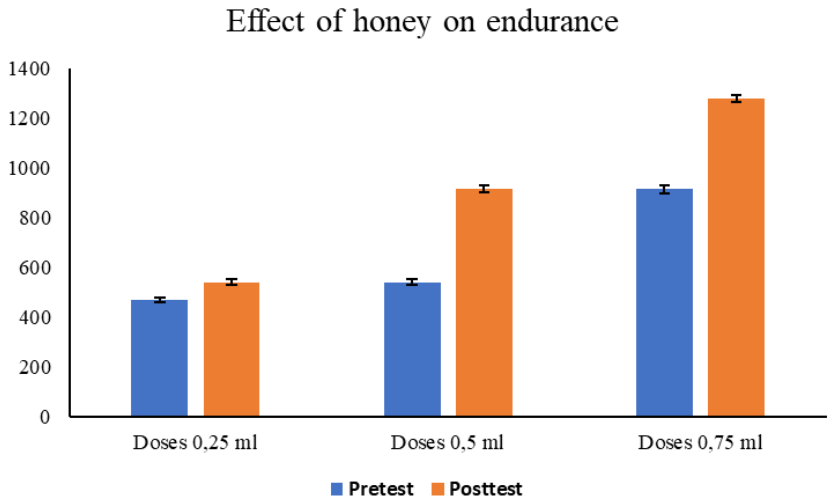

Table 1: Explains the Number of doses of Honey given and the Effect on Endurance

2. Prerequisite Test Results

a. Normality Test

The Kolmogorov-Smirnov method was used in the data normality test in this study. The results of the data normality test conducted on each group were analyzed using the SPSS software program version 20.0 for Windows with a significance level of 5% or 0.05.

Based on the statistical analysis of the normality test conducted using the Kolmogorov-Smirnov Z-test, all pre and post-test data were taken from the results of the data normality test. The significance value of $p>0.05$ which means the data is normally distributed.

b. Hypothesis Test Results

Hypothesis testing. Research is carried out based on the results of data analysis and interpretation of t test analysis and one-way ANOVA (one-way ANOVA) the sequence of hypothesis testing results is as follows.

1. Effect of Honey Dose Therapy at Various Body Weight Types on Endurance of the People of Air Tawar Barat Village

a) Effect of therapeutic dose of honey I n various body weight types on Endurance.

This test is used to test the hypothesis that "I dose of honey therapy with different weights affects the immune system of people in the Airtawarbalat region" based on the pre and post results. If the analysis results show a significant difference, I have found that honey treatment affects the immune system If tcount > ttable and sig value is smaller than 0.05 (Sig).

Therefore, t count = 9.073 and t table = 2.045, significance 0.000 & lt; 0.05), the result is important. Therefore, these results are accepted by the alternative hypothesis (Ha) that "therapeutic doses of different types of honey heavily affect the immune system of people in the western freshwater region". The mean data is 23.4930 and the mean after testing is 27.0160. The therapeutic dose of Honey I for endurance is 0.03%.

b) Effect of honey dose therapy II in various body weight types on endurance

From the t-test results, we can see that t-count = 4.968 and t-table = 2.045 (df 19), with a p-value of 0.000. t-count 4.968 > t-table = 2.045 and a significance value of 0.000 & lt; 0.05.

Which indicates that there is a significant difference. Therefore, the alternative hypothesis (Ha) is accepted which states that "the endurance of the community in the West Freshwater area is influenced by the therapeutic dose of Honey II at different body weights". The average pre-test data is 27.0160 and the average post-test data is 45.7995. The magnitude of the effect of dose II therapy on endurance is 0.18%.

c) Effect of honey dose therapy III on endurance

From the t-test results, it can be seen that t-count = 3.654 and t-table = 2.045 (df 19), with a p-value of 0.000. t-count 3.654 > t-table = 2.045 with a significance value of 0.002 & lt; 0.05 which results show a significant difference. This is the alternative hypothesis (Ha) "There is an effect of honey dose therapy III in various types of body weight on the endurance of the people of Air Tawar Barat village", accepted. From the pretest data has an average of 45.7995, then at the time of the posttest the average reached 63.9585. The magnitude of the effect of honey III dose therapy on endurance is 0.18%.

2. Differences in the Effect of Honey Dose I, Honey Dose II, and Honey Dose III Therapy Different Types of Body Weight on the Endurance of the People of Air Tawar Barat Village

The second hypothesis is "There is a difference in the effect of honey dose therapy I, dose II, and dose III in various types of body weight on the endurance of the people of West Freshwater Village".

Table 2: Differences in the Effect of Honey Dose Therapy

Group	Mean	Fhitung	Ftabel	Sig
			(df 2;59)	
Doses I	27.0160			
Doses II	45.7995	34.264	3.15	0.000
Doses III	63.9585			

From the ANOVA test results in the table above, it can be seen that Fhitung = 34.264 and F.table. (df 2;59)=.3.15, while. The significance.p value is 0.000. Because the value of Fhitung = 1.625 < F table (df 2; 59) = 3.15 and the.significance.p value of 0.000 > 0.05,.it.means.there.is.a.difference.... Thus, Ha is accepted. Based on the results of the analysis it turns out that honey dose therapy III in various types of body weight is better for endurance with an average value of 63.9585 compared to honey therapy dose I and dose II. This means that the research hypothesis which states that there is a difference in the influence between honey dose therapy I, dose II, and dose III in various types of body weight on the endurance of the people of the Air Tawar Barat village has been proven.

3. Physical Activities Performed by the Community of Air Tawar Barat Village during Honey Therapy.

From the results of interviews conducted by researchers to samples, it can be revealed the physiic activities carried out by respondents during honey therapy. The physical activities carried out by respondents include working in government offices, doing housewife work, teaching at school (teachers), doing sports at least once a week (cycling, jogging, fitness, walking) and trading.

DISCUSSION

With the research data obtained and analyzed using the one-way anova approach, it appears that the results of the analysis show that honey dose therapy III in various types of body weight is better for endurance with an average value of 63.9585 compared to honey dose therapy I and dose II. This means that the research hypothesis. Which. States. That. there is a difference in the effect between honey dose therapy I, dose II, and dose II in various types of body weight on the endurance of the people of Air Tawar Barat village has been proven.

Honey has the potential to inhibit the entry of viruses into host cells and their replication which modulates the inflammatory cascade (Ayoub et al., 2023; Ghosh, 2023; P.B. et al., 2023). In their research, it is explained that the antiviral properties of honey are similar to other natural products such as resveratrol, calebin A or curcumin in turmeric, which are antioxidant, anti-inflammatory, and anti-apoptotic. One of the mechanisms underlying the antiviral properties of honey in this study is to disrupt the structure of the spike protein in the virus, which plays a role for the virus to attach and enter the host cell.

The benefits of honey as stated in the study by Dilokthornsakul, et al (2020) are that honey contains galangin, an active compound that has anti-inflammatory properties and has been shown to.(Ayoub et al., 2023; P.B. et al., 2023; Safitri et al., 2024). to inhibit Tumor Necrosis Factor (TNF)-α and interleukin (IL)-8, both of which are associated with tissue inflammation and clinical symptoms (Chen et al., 2020; Negeem et al., 2024) (Pahlavani, 2020). associated with tissue inflammation and clinical symptoms (Iwamoto et al., 2024; B. Kim et al., 2024; Zhilyaeva et al., 2023) (Pahlavani et al, 2020). Galangin also has an affinity for cyclooxygenase-2 (COX-2) and attenuates mast cell mast cell function, including reducing the release of histamine and cytokines in inflammation and pain (Kim et al. and pain (Kim et al., 2013).

Cardiopulmonary endurance is the ability of the body's muscles to move dynamically over a long period of time with moderate to intense intensity and is related to the response of the heart, blood vessels, and lungs that transport oxygen to the muscles

during exercise (Hryvniak et al., 2021; Pedersen, 2019; Ranek et al., 2022; Velleca et al., 2023)., cardiopulmonary endurance means the ability of the heart to withstand heavy loads within a certain period of time. Cardiopulmonary endurance is the ability of the heart and lungs to supply oxygen for muscle work over a long period of time. Factors that affect cardiopulmonary endurance are physical activity, diet, age, gender, nutritional status, health, and smoking habits(Bartels & Prince, 2021; Johnson et al., 2021; Y. Liu et al., 2024; Tulchinsky et al., 2023). Explains that muscular endurance is the ability of muscles to maintain repetitive movements by fighting resistance within a certain period of time. on the other hand, is a person's ability to use a group of muscles to contract continuously under a certain load in a relatively long period of time(Bartels & Prince, 2021; Y. Liu et al., 2024). Therefore, muscular endurance is the ability of a muscle to work for a long time(Barodia et al., 2022; Karaağaç et al., 2023; Lv et al., 2023; Nawir, 2020). Increased oxygen consumption, especially due to muscle contraction, causes increased electron leakage from the mitochondria, leading to reactive oxygen species (ROS). Therefore, this endurance decreases as the content of reactive oxygen species (ROS) increases (De Mario et al., 2021; Yadav & Dabur, 2024).

From the results of the research and the results of data analysis that has been carried out, we conclude that the importance of honey dose therapy I, dose II, and dose III in various types of body weight on the endurance of the people of the West Freshwater village. There are differences in the effect of honey dose therapy I, dose II, and dose III in various types of body weight on the endurance of the people of the West Freshwater village. Honey dose III is better than honey dose I and honey dose II. The physical activities carried out by respondents include working in government offices, doing housewife work, teaching at school (teachers) and doing sports.

CONCLUSIONS

This study concludes that there is an effect of honey dose therapy I, dose II, and dose III in various types of body weight on the endurance of the people of the West Freshwater village. There are differences in the effect of honey dose therapy I, dose II, and dose III in various types of body weight on the endurance of the people of the West Freshwater village. Honey dose III is better for endurance with an average value of 63.9585 than honey dose I with “The initial average data is 23.4930 and the average after testing is 27.0160. And honey dose II with an average the average pre-test data is 27.0160 and the average post-test data is 45.7995. The magnitude of the effect of dose II therapy on endurance is 0.18%. The physical activities carried out by respondents include working in government offices, doing housewife work, teaching at school (teachers) and doing sports.

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