

Efficacy Of Apples As A Supplement In Boosting The Lung Capacity Of
Aerobic Athletes

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Abstract
<p>Objective. Researchers raised the theme "Effectiveness of Apples as Supplements in Increasing Lung Capacity in Aerobic Athletes" for several reasons. First, apples are rich in antioxidants and vitamins that can improve lung function, which is very important for aerobic athletes. In addition, apples as a natural supplement are a safe and effective alternative to artificial supplements. Optimal lung capacity is a critical factor in aerobic exercise because it affects the efficiency of oxygen absorption. Although the health benefits of apples have been widely studied, there is still limited research that specifically examines the effectiveness of apples in increasing lung capacity in athletes. Finally, apples are easy to obtain and consume, making them a practical choice for athletes. For these reasons, this study aims to provide more comprehensive scientific evidence regarding the benefits of apples as a supplement for athletes.Apples nutrients should be able to be used for athletes and athletes who are required to always have excellent physical condition and in short recovery periods, the main physical component for athletes is their cardiovascular and muscular endurance, by knowing how the benefits of apples are nutritious as supplemental supplements, and is also claimed to improve lung function, therefore researchers are interested to observe how the effectiveness of apples as an additional supplement in improving lung capability in athletes aerobic exercise that would require good lung breathing resistance</p> <p>Material and Methods. In this study there is one independent variable and one dependent variable. This research is a descriptive research using Quasi Eksperimen research design. This design begins with an initial test (Pretest) then treated (Treatment) and ends with a final test (Posttest). The population used is all rowing athletes in the city of Makassar. The samples taken were 16 people. The data collection technique uses the Spirometer test.From the calculation result known that the value of Sig.</p> <p>Results. The results of this study (2-tailed) of $0.000 < 0.05$ it can be concluded that there is effectiveness of apples as a supplement so as to increase lung capacity for aerobic exercise.To find out how much effectiveness of apples as a supplement in increasing lung capacity it can be seen that the correlation is $0.883 > 0.05$ correlation value is greater than the sig value. this indicates that there is effectiveness of apples as a supplement in increasing lung capacity for aerobic exercise of 88.3%.</p> <p>Conclusion. The lung capacity test of aerobic athletes, specifically rowing athletes from Makassar City, was conducted using a Spirometer. The results indicated that apples were effective as a supplement in enhancing lung capacity for aerobic sports by 88.3%. Apples could be incorporated into training as a safe and practicable natural supplement, thereby enhancing the long-term health of athletes and promoting additional research into the advantages of other natural supplements in sports. These findings could also be implemented</p>

in school health programs to enhance the health and performance of student-athletes.
Keywords : <i>Apples, Capacity of lung, Aerobic</i>

Introduction

Strong aspiration To achieve victory in a sporting event, it is advantageous to The athlete, coach, or the elderly man athlete are all justified in their actions due to pride in oneself, their family, or their country. The method frequently employed is to consume a specific substance or regular medication in order to increase the size and strength of the body's muscles. However, the side effects are far more detrimental. (Maksum , 2007) . Supplementary information No forever carries a negative connotation; however, if it is derived from food, it does not have any inherent adverse effects. For instance, honey, eggs, coconut water, or apples. (BS et al., 2020) . Apple is in error. One produce that is enjoyed by each individual. A single fruit apple contains 58 kcal of energy, 0.3 g of protein, 0.4 g of fat, and 14.9 g of carbohydrates. (Wijaya & Ridwan , 2019) . (Ulumiyah , 2018) . Only only , In comparison to other fruits, apples contain the highest concentration of flavonoids, according to the National Cancer Institute of the American Union. This substance, according to the report, has the potential to reduce the risk of lung cancer by up to 50%. Additionally, there is news that is beneficial for individuals of color. (Hidayah et al., 2023) .

Outcomes In 2001, research conducted by the Mayo Clinic in the United States demonstrated that quacertin, a flavonoid found in apples, can aid in the prevention of prostate growth cell cancer. The phytochemicals in apples will function as antioxidants that combat the bad cholesterol (LDL, Low Density Lipoprotein), which has the potential to obstruct blood vessels. Antioxidants will prevent the injury of cells or blood vessels. At the same time, antioxidants will elevate the level of high-density lipoprotein (HDL), a type of cholesterol that is advantageous for the prevention of heart and blood vessel diseases. (Wiendarlina & Sukaesih , 2019) . Not only that, the content of pectin (fiber) in fruits and vegetables has been investigated and proved to lower cholesterol levels in the blood. In an early study, it was demonstrated that apples contain beneficial D-glucaric acid, which regulates cholesterol levels. (Syamsul Hidayat , 2015) .

It is As stated in the study, the variety of sour This device is capable of reducing cholesterol by up to 35%. The body will be safeguarded from heart and stroke attacks by the antioxidant substance and the maintenance of cholesterol levels.. (Kusumowati , 2012) . This was demonstrated in a 1996 study conducted in Finland, which demonstrated that individuals who consume it contain phytochemicals, which are associated with a reduced risk of

suffering from cardiac disease. The British Medical Journal, as cited, revealed that apple Additionally, prevent the development of strokes. Compounds According to a study conducted at Cornell University in the United States, the phytochemicals present on the skin of apples are effective in inhibiting the development of cancerous cells in the intestines by 43%.

Additionally, the combined use of phytochemicals and flavonoids has been reported to reduce the incidence of lung cancer. (Oktavia & Sutoyo , 2021) . In the interim, a separate study conducted in Wales, United Kingdom, demonstrated that the consistent ingestion of apples can improve the function of the lungs. The researchers determined that the specific function of respiration will be more beneficial due to the fact that the phytochemicals in apples have the ability to mitigate the negative effects of oxidants that can damage body organs. Nutrients Apple should apply its expertise to athletes who are in high demand due to their exceptional physical condition and the brief recovery time. (Magfiroh et al., 2020) . (Hidayah et al., 2023) The primary physical component of an athlete is their ability to stand and maintain their cardiovascular and muscular functions. The researcher was interested in observing the effectiveness of apple nutrient supplementation in enhancing lung function in the athlete branch of sport aerobics, which requires good lung function and resilience.. (Andika et al., 2024) .

Materials and Methods

Study Participants.

(Sugiyono , 2017) The population of Makassar city is predominantly comprised of athletes who paddle. Samples were collected from as many as 16 athletes who paddled through Makassar City.

Study organization.

(Sugiyono , 2012) In this investigation, there is one independent variable and one dependent variable. Research This is a descriptive type study with a use design. Semi-experimental research. (Arikunto , 2010) . Design This commenced with the commencement of a test (Pretest), followed by the administration of treatment, and concluded with the conclusion of a test (Posttest). Approaches implemented during the investigation This is a survey examination that is designed to assess the vital lung capacity using a spirometer tool. (Kuswoyo & Betaubun , 2019)

Statistical analysis.

Utilize the Shapiro-Wilk formula in the SPSS 20 computer program. During the examination This will evaluate the hypothesis: The sample is drawn from a population that is normally distributed. To either approve or reject the hypothesis, compare the price with a

significance level of 0.05. The hypothesis is accepted if the number of significant differences exceeds 0.05. The pretest data obtained a KS-Z value of 0.817 ($P = 0.817 > 0.05$). Consequently, it can be inferred that the pretest data capacity of the lungs follows a normal distribution or distributed normal. The posttest data capacity of the lungs was found to be normal or normally distributed, as evidenced by the KS-Z value of 0.878 ($P = 0.817 > 0.05$).

Results

A descriptive data analysis is implemented to obtain an overview of the data contained in a study. The results of lung capacity exams are subjected to descriptive analysis using a spirometer. The purpose of this is to provide context for the findings of the analysis that has been conducted. Results of descriptive data analysis are illustrated as follows:

The pretest data descriptive analysis yielded a total value of 55.90, an average value of 3.49, the smallest value of 2.40, the largest value of 4.10, and a standard deviation value of 0.537. The descriptive analysis of the posttest data yielded a total value of 64.54, an average value of 4.03, the smallest value of 3.16, the largest value of 4.55, and a standard deviation value of 0.509.

Discussion

The objective of this investigation is to conduct a comprehensive examination of the efficacy of pears as a natural supplement in enhancing the lung capacity of aerobic athletes. In the context of aerobic sports, the efficacy of oxygen uptake and the physical endurance of athletes are significantly influenced by optimal lung capacity. The consumption of apples, which are abundant in antioxidants such as quercetin and flavonoids, has been demonstrated to offer substantial advantages in the prevention of oxidative stress, which can cause injury to lung cells. Furthermore, apples contain pectin fiber, which enhances the health of the gut microbiota, thereby enhancing lung function and the immune system.

Additionally, vitamin C in apples functions as a cofactor in the synthesis of collagen, a substance that is crucial for the preservation of the elasticity and integrity of lung tissue. The study also observed enhancements in spirometry parameters, including vital capacity (VC) and forced expiratory volume in one second (FEV1), which implies that athletes' respiratory performance can be considerably enhanced by apple supplementation. Apple supplementation provides a practicable and natural solution to enhance lung function, reduce the risk of respiratory diseases, and enhance the physical endurance of aerobic athletes by utilizing an integrated nutritional approach.

This study not only offers empirical evidence for the advantages of apples, but also proposes a physiological mechanism that underpins an increase in lung capacity, thereby opening the door to additional research on natural supplements in athletics.

Conclusions

The results of the research conducted indicate that the consistent consumption of apples as a supplement has a substantial impact on the capacity of the lungs of athletes who engage in sports aerobics. Supplementation with apples provides a positive contribution to respiratory and lung health by containing antioxidants, vitamins, and supportive fibers. Consequently, apples can be a reliable and effective nutrition intervention for the improvement of respiratory and power performance in athletes who engage in aerobics.

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Conflict of interest

We affirm that this research is free of any potential conflicts of interest. All authors have independently contributed their scientific work and have no financial or personal relationships with organizations or individuals that could potentially influence the results of this research. The funding and support for this research were exclusively provided by sources that have no direct interest in the study's outcomes.

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