



# Difference Between Recovery After Meals With A Direct Time Gap And 15 Minutes After High-Intensity Exercise

Received : September 05, 2024

Revised : January 15, 2025

Accepted: May 12, 2025

Publish : May 12, 2025

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## Abstract:

This study aims to determine the difference in the pulse rate of recovery after meals with a time gap between directly and 15 minutes after high-intensity exercise by knowing the break after. This study was in the form of an experiment using a research sample of 16 people, which was divided into 2 groups. In group 1 there were 9 people playing futsal, immediately after finishing eating. Group 2 consists of 7 people, playing 15 minutes after eating. Everyone eats together in the same portion. Pulse rate is measured before playing, after sports (futsal) and 5 times every count for 10 seconds. The data was analyzed descriptively with the help of IBM SPSS Statistic 22 software. Based on the results of the direct group and 15 minutes, the average mean results of the direct group were 126.13 per minute and the 15 minutes group was 128. So doing strenuous activities immediately after eating is not recommended because of the risk of injury.

**Keywords:** Eating, Recovery, Sports

## 1. INTRODUCTION

Exercise is one of the physical and psychological activities of humans that is useful for maintaining and improving the quality of one's health after exercise (Ma'mun, 2018). Sport is an activity that is carried out to train a person's body, both physically and spiritually (Ramadhan & Bulqini, 2018). Exercise is also a physical activity that is done regularly to improve health, fitness and body strength (Festiawan, 2020). Exercise can be done alone or together with friends, and can be done indoors or outdoors (Septayasa et al., 2022).

Fitness is a condition of the body that is physically and mentally healthy (Sherif et al., 2024). Physical fitness includes the body's ability to perform physical activities without feeling too tired or sick, and having relative strength and endurance (Wijayanto, 2023). Fitness is needed to maintain good health and quality of life, and can help prevent various diseases and serious health conditions (Adipurwanto et al., 2022).

The pulse is a vibration that arises on the wall when blood is pumped by the heart (Nashrulloh et al., 2021). Pulse rate can be measured by placing fingers at specific places on the body and pulse rate is usually calculated in the number of beats per minute and can provide information on the speed of a person's heart rate (Maulina et al., 2020).

Eating is an activity carried out by humans to take nutrients from food (Yunianto et al., 2023). Food provides the energy and nutrients needed by the body to produce strength or maintain healthy body functions (Parinduri, 2022). Food contains energy that the body uses to function and carry out daily activities (Puspitasari et al., 2018). Energy produced from food is used for all body functions (Husain, 2021).

High-intensity sports are a type of physical exercise such as fast and intense movements. Futsal is a form of football that is played on a small field or indoors (Nasrullah et al., 2019). High-intensity exercise has many benefits, but because of its high intensity, it is important to make sure a person is in good physical condition before doing sports and always pay attention to signs of fatigue and injury (Widiastuti, 2020).

Recovery is the process of restoring or improving a person's health so that they can live an independent and fulfilling life to the fullest. Recovery techniques basically aim to improve the athlete's adaptation to physical and mental stress during the competition and training phases (Amar et al., 2023).

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Based on the explanation above, it is important to conduct research related to the time after eating and exercise. In this explanation, it is still lacking and limited to encouragement. The results of this study are expected to provide information to the people concerned with this research

2. MATERIAL AND METHOD

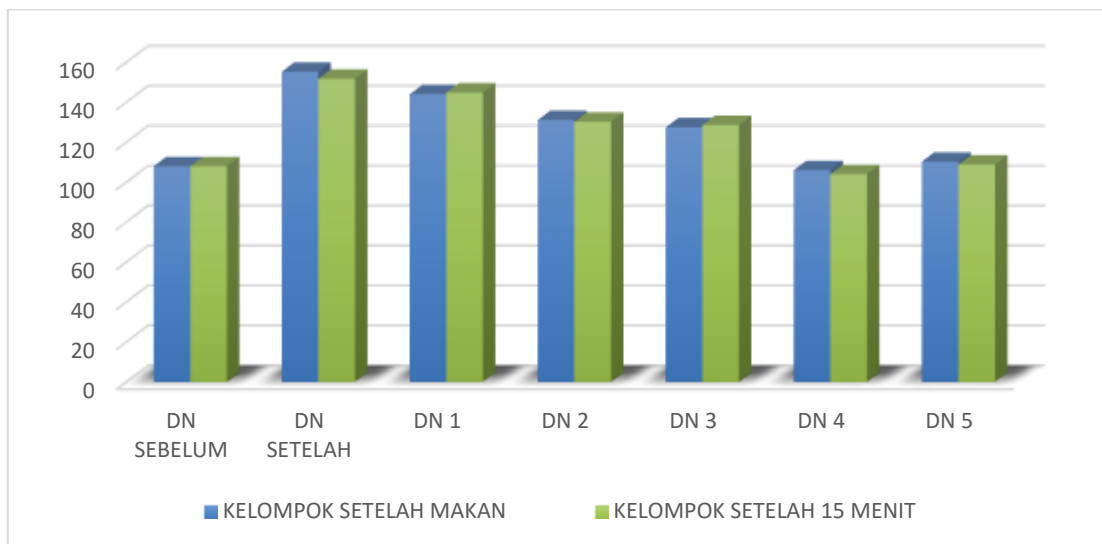
This research is in the form of an experiment. The population in this study is 16 sports coaching students of the Class of 2021. The research sample is 17 people divided into 2 groups. The instrument used in this study is a test and measurement of pulse. The data collection technique, from the 2 groups made, the group (directly) totaled 9 people playing futsal, immediately after finishing eating. Groups (15

minutes) of 7 people, playing 15 minutes after eating. Everyone eats together in the same portion. Pulse rate is measured before playing, after playing and 5 times each count for 10 seconds. The data were analyzed descriptively and differently tested with the help of IBM SPSS Statistic 22 software.

3. RESULT AND DISCUSSION

3.1 Result

The data from the research results were analyzed using descriptive statistics. The data used was pulse rate after doing high-intensity exercise. The data from the research results were analyzed using descriptive statistics.



Graph 1. Group pulse after meals and group after 15 weeks

Based on graph 1 above after doing a high-intensity exercise test by calculating 7 pulse times, the results are as shown in the graph above and there are some mean differences in the graph between groups 1 and 2. In group 2, it is seen in the graph lower compared

to group 1. These two groups use different recovery times. In group 1 after eating, do high-intensity exercise. While in group 2 the recovery time is 15 minutes and after that also do high-intensity exercise.

Table 1. Results of the average measurement of pulse rate before arriving at pulse rate 5

	Pulse						
			Every 1 minute measurement				
	DN Before	DN After	DN1	DN2	DN3	DN4	DN5
Group After Meal	108.00	164.67	136.67	131.33	122.00	116.67	116.67
Groups After 15 Minutes	108.00	151.71	144.86	130.29	128.57	104.00	108.86

Table 1 above explains that at first the pulse rate before exercise experienced tachycardia or it can be called a rapid heart rate where the pulse rate was all 108 per minute in each group. Likewise, the pulse rate after exercise in the direct group of 9 people turned

out to be still high, which was 164.67 per minute. While the group after 15 minutes was lower where the pulse was 151.71 per minute. When measurements are taken consecutively every 1 minute to 5 times, it can be seen that there is a tendency to



decrease. With the average at the 5th measurement in the group after eating, the pulse rate was still high. So it can be concluded that the mean results of the direct group and 15 minutes have been obtained from the direct group of 126.13 per minute and the 15 minutes group of 128. So it can be concluded that the time difference between eating and activity affects the pulse.

### 3.1 Discussion

Increased pulse rate can be caused by food, so it's best to avoid foods that are high in fat or difficult to digest, such as heavy foods, and spicy foods (Raziansyah & Ridha Amalia, 2022). We should choose foods that are easy to digest and provide enough energy, such as complex carbohydrates such as whole wheat bread or pasta, and proteins such as chicken or fish (Afriani, 2021). Especially after exercise, the pulse rate will increase where the heart will pump more blood throughout the body (Samodra, 2021). So it is recommended to do exercise after the stable pulse, because the pulse rate is very important because it can evaluate health quickly (Turnip et al., 2019).

It's a good idea if after eating don't immediately do sports activities, it's better to give a break of 1-3 hours. The content of food before exercise is thought to enhance body performance. But eating has a break (Utoro & Dieny, 2016). So nutritional knowledge is very closely related to the influence of a person's eating behavior, because the more knowledge about nutrition is obtained, the better a person's diet (Berliandita & Hakim, 2021). If a person does not know about nutrition then it is likely that the diet will be bad (Rustam & Hendra Gunawan, 2022).

Humans need adequate nutritional intake to maintain their optimal health and physical performance. Some factors that affect the nutritional needs of athletes include the type of exercise performed, the intensity and duration of the exercise, as well as the gender and age of the person (Putra et al., 2021). Food intake before training or matches is thought to improve body performance (Utoro & Dieny, 2016). Balanced nutrition that is in accordance with human needs is very important to support their performance and health (Wijaya et al., 2021).

If one forces oneself to compete immediately after eating, it can lead to several health problems (Yulia et al., 2017). Therefore, exercising immediately after eating can cause the stomach to feel bloated, nauseous, vomiting, or even stomach cramps, because the body cannot digest food properly. In addition, food that has not been fully digested can

interfere with the performance of athletes during the game (Festiawan, 2020). Therefore athletes should give a break between eating and exercising, so that the body has time to digest food properly and get enough energy to exercise (Yuliyatika et al., 2024).

It's actually okay to eat before exercising, especially if you feel hungry or need extra energy (Listianasari, 2020). However, it's important to choose the right type of food and give the right time gap and give enough time between eating and competing. Choose foods that are easy to digest and provide enough energy, such as complex carbohydrates such as whole-wheat bread or pasta and proteins such as chicken or fish (Afriani, 2021). The digestive process also requires sufficient blood flow to the digestive tract, which can reduce blood flow to muscles and other organs needed in physical activity (Eso & Iswara, 2024). After eating, the normal pulse rate will increase slightly during the process of digesting food. This is because the body needs enough blood flow to the digestive tract to digest food and absorb the necessary nutrients. This increase in pulse rate is usually temporary for healthy humans (Coppola et al., 2015). However, if the pulse rate increases after eating, this can indicate a health problem.

## 4. CONCLUSION

Pulse rate between direct recovery and 15 minutes. Then exercising is recommended after a steady pulse depending on the purpose and type of exercise being done and the type of food consumed. Both the immediate recovery time and after eating 15 minutes take the same time. So doing strenuous activities immediately after eating and exercising is not recommended because of the risk of injury.


## 5. ACKNOWLEDGEMENT

We would like to express our deepest gratitude to all participants who have contributed to this study. The support and cooperation from the participants was very helpful in the smooth and successful conduct of this research. We are also grateful to those who have provided the necessary support and facilities during the research. Hopefully the results of this research can provide real benefits for the development of science and health.

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