



## Innovation lowfat EBELABON from chicken egg for weight loss diet overweight students

*Inovasi EBELABON rendah lemak dari telur ayam untuk diet penurunan berat badan mahasiswa gizi lebih*

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## Abstract

Overweight is the initial cause of degenerative diseases in the future. The purpose of this study was to determine the effect of a low-fat chicken egg-shredded innovation intervention (EBELABON) on changes in the body weight of overweight students at the Faculty of Health Sciences UMS Surakarta on weight loss. Pre-post group sampling using an experimental research approach. For 14 days, 37 FIK UMS students who met the restriction criteria were included as research participants. They were fed low-fat shredded chicken eggs (EBELABON) twice a day, in the morning (06.00-09.00) and at night (17.00-19.00). Anthropometric measurements using (BIA) and SQ-FFQ were used to obtain data. The results of data analysis using the Paired T-Test showed that the provision of low-fat EBELABON decreased body weight by 2,39 kg, body fat by 2,45%, and nutritional status by 0,94, which was significant ( $p < 0,05$ ) along with nutritional consultation, and there was no difference in the average difference between each treatment group and the provision of low-fat BELABON ( $p > 0,05$ ) using the *one-way ANOVA* test. In conclusion, the consumption of low-fat BELABON has an effect on weight loss, body fat, and nutritional status in overweight students for 14 days.

**Keywords:** Chicken egg, EBELABON, low fat food, weight loss

## Abstrak

Mahasiswa yang mengalami kelebihan berat badan adalah penyebab awal terjadinya penyakit degeneratif di masa depan. Tujuan penelitian untuk mengetahui pengaruh intervensi inovasi abon telur ayam rendah lemak (EBELABON) terhadap perubahan berat badan mahasiswa kelebihan berat badan di Fakultas Ilmu Kesehatan UMS Surakarta terhadap penurunan berat badan. Pengambilan sampel pre-post group design dalam pendekatan penelitian eksperimental. Selama 14 hari, sebanyak 37 mahasiswa FIK UMS yang memenuhi kriteria restriksi digunakan sebagai partisipan penelitian. Mereka diberi makan abon telur ayam rendah lemak (EBELABON) dua kali sehari, pada pagi dan malam hari. Pengukuran antropometri menggunakan (BIA) dan SQ-FFQ digunakan untuk memperoleh data Hasil analisis data menggunakan uji Paired T-Test menunjukkan bahwa pemberian EBELABON rendah lemak mengalami penurunan berat badan sebesar 2,39 kg, penurunan lemak tubuh sebesar 2,45%, dan status gizi sebesar 0,94 yang signifikan ( $p < 0,05$ ) bersamaan dengan konsultasi gizi, dan tidak terdapat perbedaan selisih rata-rata pada setiap kelompok perlakuan dan pemberian BELABON rendah lemak ( $p > 0,05$ ) dengan menggunakan uji *Oneway Anova*. Kesimpulannya, konsumsi BELABON rendah lemak berpengaruh terhadap penurunan berat badan, lemak tubuh, dan status gizi pada mahasiswa yang mengalami kelebihan berat badan selama 14 hari.

**Kata Kunci:** EBELABON, penurunan berat badan, makanan rendah lemak, telur ayam

## Introduction

Excess weight is an early trigger for non-communicable diseases such as hypertension, diabetes mellitus, heart disease, and stroke, and uncontrolled eating habits lead to overweight and obesity. Huntari & Murti (2018) reported that in Indonesia, the prevalence of overweight is 13,5% in adults aged  $\geq 18$  years, with 28,7% being obese and increasing every year. In fact, good nutritional status using the body mass index (BMI) is a measurement indicator that determines the ideal weight category with a range of 18,5 – 25,0, while overweight  $\geq 25$  and obesity (BMI  $\geq 27$ ).

One approach to recognizing an obesity problem is to examine an individual's nutritional status in the government. By calculating BMI, one can determine an individual's nutritional state, which serves as a basic indicator of whether the body has nutritional issues (Reber et al., 2019). According to (Kemenkes, 2019) people with mildly overweight nutritional status fall into the 25,1–27,0 Body Mass Index (BMI) range, whereas the heavyweight category falls between 18,5–25,0. If unhealthy eating habits and excessive nutritional intake persist over time, they may lead to obesity because they will not be counterbalanced by a decrease in the amount of energy used in daily activities (Bautista, 2019).

Harahap et al. (2018) suggested that environmental factors can potentially affect obesity. Balanced nutritional intake is an important factor for achieving ideal body weight. A balanced diet is part of the daily diet and contains nutrients in types and amounts that are adjusted to the body's nutritional needs. The principle of balanced nutrition considers the safety and diversity of food, importance of daily activity patterns, and exercise on mental health. In fact, in a study by Assyifa & Riyadi (2023), body image was found to be related to the body image that affects depressive symptoms, which are dominated by girls. In addition, nutritional intake is obtained from macronutrients, such as carbohydrates, fat, protein, and micronutrients in the form of vitamins and minerals (Diniyyah & Nindya, 2017). Students are students in Higher Education, and their condition is in the initial stage of adulthood after the adolescent phase. The average age range was 19-29 years old. The influence of students' eating habits plays the most important role in determining nutritional status, considering changes in daily eating patterns regardless of the

role of parents and ideal families who pay attention to their children's habits. During the college phase, students experience changes in their physical conditions (Tang et al., 2020). One of which is the lifestyle and food consumption needs, students enter early adulthood where the average daily consumption needs reach 2100 (two thousand one hundred) kcal per individual. The average daily protein intake for Indonesians is 57 (fifty-seven) grams per individual (Alta et al., 2023).

Eggs are among the most popular foods in the community because they are highly nutritious, easily digestible, and meet daily requirements for animal protein (Puglisi & Fernandez, 2022). Furthermore, many Indonesians can purchase eggs readily and affordably. In general, Indonesian eating habits support the needs of people in dietary programs for adolescents, adults, the elderly, and those undergoing medical treatment or the healing process by requiring daily protein intake in the form of eggs for children, adults, and pregnant women (Rachmi et al., 2021).

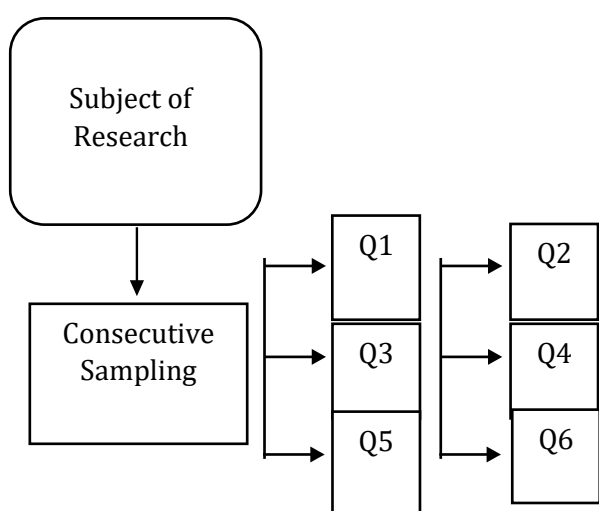
Egg whites contain half the nutrients from protein and riboflavin, whereas yolk contains fat, calcium, phosphorus, iron, zinc, and vitamins B6, B12, A, and thiamine. According to a previous study (Bulkaini et al., 2020). Every 100 g of eggs contained 150 kcal and more than 85% protein. The weight of chicken eggs indicates that the yolk contains 30–32% albumin, 58–60% albumin, and 10–12% eggshells. The highest protein content was found in the egg whites and albumin. Although albumin offers many health advantages, it can cause allergies in humans (Dona and Suphioglu, 2020).

A dry dish with a unique aroma, abon, is typically created by boiling beef that has been sliced thinly to speed up the cooking process, seasoned, fried, and pressed to extract any leftover oil for a long shelf life (Bulkaini et al., 2020). However, over time, the demand for beef declined as its price rose, making it unaffordable for students to meet their recommended daily protein intake. To obtain balanced protein intake and a nutritious diet, it is vital to develop affordable and practical food innovations, such as abon eggs. Previously shredded eggs have been researched by Hijriah & Artawan (2016) in relation to technological preservation innovations in chicken eggs, but have not been explained in detail regarding processing for human intervention, especially in losing weight. Thus, in light of the

foregoing explanation, the researcher plans to conduct studies to assess the impact of low-fat abon chicken egg (EBELABON) intervention on weight loss among overweight students. This research was conducted in Surakarta because, according to data from Dinkes Kota Surakarta (2022), 6,829 adolescents were examined for obesity, and 2,861 adolescents (41,89%) were obese. The highest prevalence is in Banjarsari District, which is 68,57 percent of adolescents who are obese and overweight and continues to increase every year. In addition, in a study conducted by STIKES PKU Muhammadiyah Surakarta in 2014, 20,8 number of students were overweight and obese. This could have an impact on future health.

### Methods

The selected research study was a 14-day quantitative experimental study that used a *pre-post-test design group* and intervention. This study was conducted in November, 2023. Thirty-seven (37) individuals over the age of 18 years, who were students at the Universitas Muhammadiyah Surakarta, Faculty of Health Sciences, signed an informed consent form. consists of inclusion and exclusion criteria as well as limitation criteria.



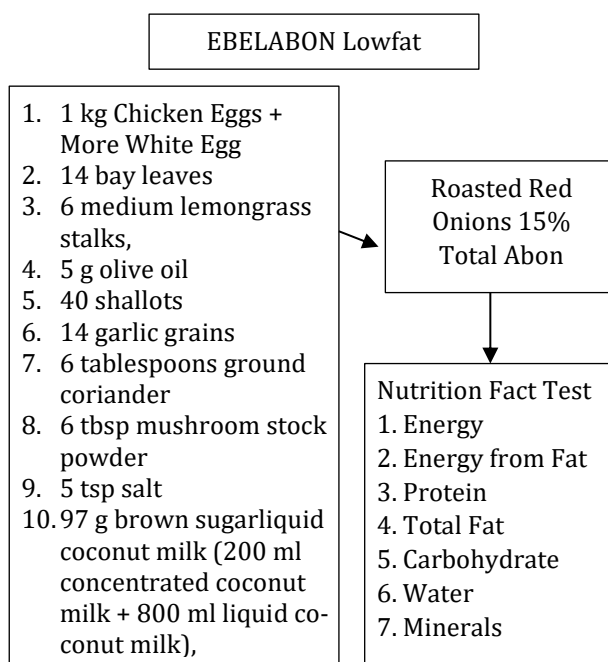
**Figure 1.** Part of the research design

Description:

- Q1 = Initial observation of the control group.
- Q2 = Final observation of the EBELABON Control group after 14 Days
- Q3 = Initial observation of the Commercial EBELABON treatment group,

- Q4 = Final observation of the Commercial EBELABON group.
- Q5 = Final observation of the Low Fat EBELABON group.
- Q6 = Final observation of the Low Fat EBELABON group.

The exclusion criteria were children from boarding houses who enjoyed and/or frequent snacking, did not have allergies to unhealthy eating habits, and were currently enrolled in college. The inclusion criteria were as follows: overweight students with a nutritional status of body mass index 25,0-26,9, in good health and irregular eating patterns, the diet was given orally non-smoking, and the research subject could communicate well.



**Figure 2.** Formula for Producing EBELABON Ingredients.

The Semi Quantitative Food-Frequency Questionnaire (SQ-FFQ) is used to analyze eating behaviors, estimate daily food intake using 3x24 hour recall, and assess anthropometric measurements using *Bioelectrical Impedance Analysis* (BIA). The Shapiro-Wilk test was used to analyze the data because there were fewer than 50 participants. The Paired T-test was used to determine whether there were any significant differences or whether there had been a change in body weight, and *one-way ANOVA* was used to determine the average difference in weight

change. This study was approved by the Research Ethics Committee of the University of Muhammadiyah Surakarta (ethical number 062/KEPK-FIK/XI/2023). EBELABON Halal certification was obtained with the MUI number ID33110011798510823 for EBELABON products. EBELABON typically comprises the following components.

In general, EBELABON is prepared by mixing the necessary ingredients in a pan, stirring with medium heat until evenly distributed, and then evenly mixing with EBELABON. The preparation process was shredded for 5 h, and then served by adding roasted shallots 15% to the total EBELABON.

## Result and Discussion

EBELABON, which consists mostly of egg whites as a source of anti-obesity agents, contains 15 quercetin compounds from roasted onions. According to (Dhurandhar, 2022) overweight is the beginning of obesity, which can increase the risk of degenerative diseases, such as insulin resistance, type 2 diabetes mellitus, and coronary heart disease (Fajarini & Sartika, 2019). Conversely, overweight causes chronic inflammation in adipose tissue in the liver, vascular system, and adipose tissue (Zorena et al., 2020). Quercetin is a flavonoid found in green tea, vegetables, and onions (Sato & Mukai, 2020). on the process of quercetin as an anti-obesity substance in research conducted (Aghababaei & Hadidi, 2023) stated that the

metabolism of quercetin helps in weight management by increasing fat burning and basal metabolism (Sandoval et al., 2020).



**Figure 3.** EBELABON with the addition of roasted onions.

EBELABON with the addition of 15% roasted onions that have been tested for nutritional value and acceptability involved 25 moderately trained panelists consisting of nutritional science students of the Faculty of Health Sciences as animal side dish support for overweight student intervention. EBELABON was produced by PT. The Cureaja Indonesia Sehat is made of chicken eggs.

In contrast to EBELABON Low Fat, which primarily consists of egg whites as a source of protein and low fat for intervention, the commercial formula uses palm oil to cook abon spices. In contrast, EBELABON Low Fat uses olive oil, which functions as an essential fatty acid and immune system response to regulate metabolic balance. Additional advantages include skin moisturization and heart disease prevention owing to the presence of omega-3 and omega-6 fatty acids, particularly in overweight individuals (Xia et al., 2022).

**Table 1.** The following is a comparison of the two products' nutritional fact

	EBELABON Commercial		EBELABON Lowfat		$\Delta$	p-value*
Weight	55	gr	55	gr	0	
Energy	251,05	kcal	188,83	kcal	62,22	
Energy from Fat	119,297	kcal	23,23	kcal	96,06	
Protein	5,68	gr	16,09	gr	-10,41	
Total Fat	13,33	gr	2,58	gr	10,78	0,194
KH	27,09	gr	25,31	gr	1,78	
Water	8,15	%wb	12,11	%wb	-3,98	
Minerals	8,13	%wb	7,92	%wb	0,21	

\*Paired T-Test

Based on Table 1, shows that the nutritional values of both commercial and low-fat EBELABON were not significantly different. This is evidenced by the statistical test, namely

the paired t-test on the animal side dish, with a result of  $p > 0,005$ . As shown in table above, the protein and fat contents of the two EBELABON groups were significantly different. Significant

difference in low-fat EBELABON is superior in protein compared to the commercial formula which is 16,09 grams > 5,68 in commercial EBELABON, while fat is less in Low Fat EBELABON which is 2,58 grams < 13,33.

Therefore, if you look at (Nasion & Standardi, 2013) related to abon in general, it is still in the normal threshold category, namely a maximum fat of 30% w/b and a minimum protein of 15% w/b, both commercial (P = 10,33% w/b, L = 24,33% w/b) and low-fat (P = 29,26% w/b, L = 4,69% w/b). In addition, the Nutritional Adequacy Rate for men and women aged 19-29 years as still needing additional protein sources showed that consumption 2x a day as an additional side dish from commercial EBELABON has met the percentage of the Nutritional Adequacy Rate of protein and fat by 22% and 48% of the daily needs of overweight students, while low-fat EBELABON as an

additional animal side dish for the intervention effect has met the daily protein and fat by 64% and 10% of daily needs, respectively.

EBELABON uses browning techniques, or the process of browning and solidification of water through the cooking process for 5 h of stirring, so that the level of water activity evaporates and the shredded material becomes durable for consumption. The thing that is of concern is that during the cooking process, it must always be monitored so that the surface of the pan does not burn with the fire of the gas stove that continues to burn and fire. In addition, the use of spices such as bay leaves, lemongrass stems, shallots, and garlic has antibacterial properties that can improve the food preservation process.

The participants' characteristics are shown in Table 2. Description of Student Subject Characteristics.

**Table 2.** Description of student subject characteristics

Subject Characteristics	Control		EBELABON Commercial		EBELABON Lowfat		p-value
	n	%	n	%	n	%	
<b>Sex</b>							
Male	5	29,4	6	35,3	6	35,3	0,919
Female	7	35,0	6	30,0	7	35,3	
<b>Age Range of Students</b>							
18 Years	1	50,0	1	50,0	0	0,0	0,301
19 Years	2	100,0	0	0,0	0	0,0	
20 Years	4	57,1	2	28,6	1	14,3	
21 Years	1	7,7	5	38,5	7	53,8	
22 Years	3	33,3	3	33,3	3	33,3	
23 Years	1	25,0	1	25,0	2	50,0	
<b>Major</b>							
Physiotherapy	3	37,5	1	12,5	4	50,0	0,485
Nutrition Science	5	38,5	6	46,2	2	15,4	
Nursing	1	14,3	3	42,9	3	42,9	
Public Health	3	33,3	2	22,2	4	44,4	
<b>Semester</b>							
Semester 1	1	50,0	1	50,0	0	0,0	0,230
Semester 3	5	100,0	0	0,0	0	0,0	
Semester 5	3	16,7	8	44,4	7	38,9	
Semester 7	3	27,3	2	18,2	6	54,5	
Semester 9	0	0,0	1	100,0	0	0,0	

Based on Table 1. above shows that the results of the nutritional value of both commercial and low-fat EBELABON are not much different. This is evidenced by the statistical test, namely the paired t-test on the animal side dish with the result of  $p > 0,005$ . When viewed in the table above, the protein and

fat of the two EBELABON are significantly different. Significant difference in low-fat EBELABON is superior in protein compared to the commercial formula which is 16,09 grams > 5,68 in commercial EBELABON, while fat is less in Low Fat EBELABON which is 2,58 grams < 13,33. So that if you look at the Indonesian

National Standards related to abon in general, it is still in the normal threshold category, namely a maximum fat of 30% w/b and a minimum protein of 15% w/b, both commercial (P = 10,33% w/b, L = 24,33% w/b) and low-fat (P = 29,26% w/b, L = 4,69% w/b). In addition, the Nutritional Adequacy Rate for men and women aged 19-29 years as still needing additional protein sources because according to the results of the data, consumption 2x a day as an additional side dish from commercial EBELABON has met the percentage of the Nutritional Adequacy Rate of protein and fat by 22% and 48% of the daily needs of overweight students while low-fat EBELABON as an additional animal side dish for the intervention effect has met the daily protein and fat by 64% and 10% of daily needs. making EBELABON using browning techniques or the process of browning and solidification of water through the cooking process for 5 hours of stirring so that the level of water activity evaporates so that the shredded becomes durable and durable for consumption. The thing that is of concern is that in the cooking process, it must always be monitored so that the surface of the pan does not burn with the fire of the gas stove that continues to burn and medium fire. besides that, the process of using spices such as bay leaves, lemongrass stems, shallots, garlic has antibacterial properties that can improve the preservation process in food.

In the table above related to Determining characteristics in this study include gender, age

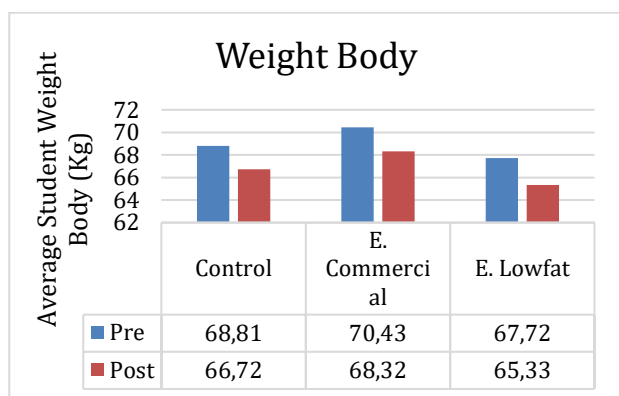
range of students, majors, and semesters. In the presentation of table 2 shows that the number of student respondents who are more female than male, because of their interest in the process of losing weight and body image, and the survey results in students of the Faculty of Health Sciences, Muhammadiyah University of Surakarta are dominated by women, the highest age range of students in the three groups is 21 years old, and the most majors who are research subjects are nursing, and the most semesters are semester 5.

In the explanation above, the  $p > 0,05$  value in each subject characteristic also shows that the gender, age range of students and majors of the three groups are homogeneous, which means there is no significant difference, while the characteristics of the subjects in each semester in the Faculty of Health Sciences students are not homogeneous, which means there is a significant difference between semester 1, semester 3 and semester 4. homogeneous which means there is no significant difference, while the characteristics of the subjects in each semester in students of the Faculty of Health Sciences are not homogeneous which means there is a significant difference between semester 1, semester 3, semester 5, semester 7, to semester 9 with a value of  $p < 0,05$ . In addition, table 3 shows that the average age of students at most is 20 years old for the low-fat EBELABON intervention after randomization of 53,8% because the age of students is ideal to be respondents with productive activities.

**Table 3.** Effect and Low Fat EBELABON Interventions on Changes in Body Weight, and Total Fat

Group	n	Before Mean $\pm$ SD	After Mean $\pm$ SD	$\Delta$ Mean	P
<b>Body Weight</b>					
Control	12	68,81 $\pm$ 9,06	66,72 $\pm$ 66,72	-2,09	0,000 <sup>(*)b</sup>
E. Commercial	12	70,43 $\pm$ 4,88	68,32 $\pm$ 68,32	-2,11	0,000 <sup>(*)b</sup>
E. Lowfat	13	67,72 $\pm$ 5,27	65,33 $\pm$ 65,33	-2,39	0,000 <sup>(*)b</sup>
$p^a$		0,597	0,531	0,493	
<b>Body Fat</b>					
Control	12	30,25 $\pm$ 30,25	26,20 $\pm$ 26,20	-4,05	0,000 <sup>(*)b</sup>
E. Commercial	12	26,85 $\pm$ 26,85	24,30 $\pm$ 24,30	-2,55	0,000 <sup>(*)b</sup>
E. Lowfat	13	27,56 $\pm$ 27,56	25,11 $\pm$ 25,11	-2,45	0,000 <sup>(*)b</sup>
$p^a$		0,260	0,659	0,051	
<b>Visceral Fat</b>					
Control	12	8,0 $\pm$ 2,57	7,59 $\pm$ 7,59	-0,44	0,006 <sup>(*)b</sup>
E. Commercial	12	6,9 $\pm$ 2,57	6,61 $\pm$ 6,61	-0,29	0,145 <sup>(*)</sup>
E. Lowfat	13	7,6 $\pm$ 2,19	7,43 $\pm$ 7,43	-0,17	0,264 <sup>(*)</sup>
$p^a$		0,538	0,487	0,887	

Body Mass Index					
Control	12	26,23 ± 0,65	25,53 ± 0,78	-0,7	0,000(*)b
E. Commercial	12	26,30 ± 0,66	25,56 ± 0,75	-0,74	0,000(*)b
E. Lowfat	13	25,98 ± 0,69	25,04 ± 0,71	-0,94	0,000(*)b
p <sup>a</sup>		0,474	0,166	0,256	
Subcutan Fat					
Control	12	26,56 ± 6,01	25,88 ± 6,14	-0,68	0,011(*)b
E. Commercial	12	26,19 ± 4,06	25,40 ± 3,88	-0,79	0,002(*)b
E. Lowfat	13	24,36 ± 4,52	23,90 ± 4,59	-0,46	0,012(*)b
p <sup>a</sup>		0,492	0,582	0,471	
Skeletal Fat					
Control	12	25,11 ± 3,53	24,73 ± 3,55	-0,38	0,360(*)
E. Commercial	12	28,00 ± 4,03	27,98 ± 4,05	-0,02	0,658(*)
E. Lowfat	13	27,10 ± 4,58	25,85 ± 3,38	-1,25	0,211(*)
		0,223	0,103	0,356	

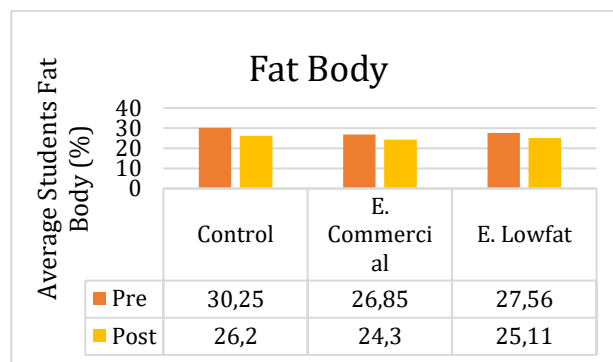


Description: Data are presented as the mean body weight of the students. Significant difference in weight change before and after intervention in each group; the letter code above indicates significant difference  $p < 0,05^*$

**Figure 4.** Difference in Weight Change between Groups

Figure 4, shows the average body weights of the students in each group. The average weight change in the Low Fat EBELABON group looks much different compared to other groups such as Based on the picture above, weight change in overweight students is due to several factors apart from the group treatment intervention which is directly addressed by competent nutritionists who focus on weight loss as well, genetic factors, physical activity factors such as regular exercise can increase the success of group treatment. In addition, the provision of nutrition consultation can reduce weight so that the effectiveness and effect of the overweight student weight loss diet is improving (Kim, 2021); on the other hand, eating unhealthy snacks such as high-fat foods such as fried foods, fried meatballs, and foods high in coconut milk. Evening activities, such as organizations sometimes providing low-nutrient snacks and

dinners, such as fried rice and fried noodles, are a favorite of health science faculty students, which goes hand in hand with research conducted by El-mani et al. (2021), which states that the factors that influence weight gain are associated with binge eating, eating events, genetics, and a lot of pressure on student learning tasks that cause anxiety so that they turn to unhealthy foods. This creates bad eating habits and leads to obesity, while eating while watching and chewing hastily are factors in weight gain.

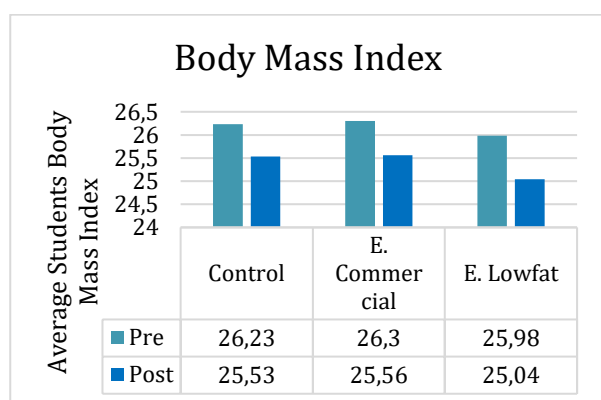


**Figure 5.** Differences in Body Fat Changes of Overweight Students between Groups

The average changes in body fat and total fat in each group are shown in Figure 5. There was a change in body fat before the intervention and after the intervention and there was a significant decrease through the paired t-test or paired t-test with the results of  $p = 0,000 < (p = 0,05)$ , in the presentation of the figure above the average change in body fat in the control treatment was more significantly decreased than the commercial treatment and the low-fat

EBELABON treatment. This is because there are two factors that influence the percentage of body fat: low-calorie food consumption and energy expenditure. In this case, food consumption decreases every day, which is balanced with high expenditure of energy such as student physical activity (studying, walking to the library, climbing stairs between classes, and gathering organizations every week) and can be a determining factor in reducing body fat.

In addition, during the intervention process, nutritionists encouraged students to exercise, such as aerobics, because research conducted by Afriani et al. (2021) showed that there was an effect on body fat percentage of 2,6% with an intensity of 3x a week within 1 month in a row. Students of the Faculty of Health Sciences, University of Muhammadiyah Surakarta, obeyed the treatment group process and were required to consume low-fat EBELABON for 14 consecutive days in 1 day/2x consumption, namely at breakfast 06.00 WIB-09.00WIB and dinner 17.00 WIB-19.00 WIB. Administration of Commercial EBELABON (-2,55%) or Low Fat EBELABON (-2,45%) resulted in a total of -4,05% body fat. In addition, body fat plays an important role in infectious diseases such as lung diseases. According to Fatimah et al. (2017), the higher the percentage of body fat, the lower the predicted percent value of forced expiratory volume (FEV1) or lung air capacity that can be exhaled in 1 s, and vice versa.



**Figure 6.** Differences in Changes in Nutritional Status between Groups

Based on Figure 6. The paired t-test showed a significant decrease ( $p=0,000 < p=0,05$  Low Fat EBELABON for 2 weeks by 0,94 compared to the control group and the Commercial EBELABON group. Based on the *one-way ANOVA test*, the difference in body mass

index of overweight students of the Faculty of Health Sciences, Muhammadiyah University of Surakarta, showed no significant difference between the groups ( $p>0,05$ ). The decrease in the treatment of control groups, commercial, and low-fat EBELABON formulas is due to several factors, such as regular monitoring of height and weight; therefore, the impact on nutritional status can be controlled and used to eat food, and healthy living habits is an important factor (Kaparang et al., 2022).

In addition, genetic or hereditary factors play an important role in reducing the weight or nutritional status of overweight children. Research conducted by Harsono et al. (2022) states that there is a relationship between overweight parents and the nutritional status of overweight children (OR 5,882,  $P=0,000$ ) in both parents of children, and this research is also supported by previous research showing the risk ratio of obese parents being passed down to their (Munawaroh, 2021) children by 2,5x and the risk increases by about 80%, according to Syarif's research also shows that if one of the two parents does not show more nutritional status or even obesity, the risk of overweight incidence can decrease by 14%. Additionally, according to Emrani et al. (2023), there is an overall influence. Egg consumption can benefit individuals who want to lose weight and can affect the body mass index of healthy people during the weight loss diet process. In addition, the cause of weight loss for 14 days is because nutritionists monitor and students obey to do a lot of physical activity because, according to Kinansi et al. (2023) states that physical activity can influence, body condition, be better, and affect nutritional status and weight by 2x, so better. However, increasing the consumption of instant food negates the effect of 3x on the obese body; therefore, this intervention focuses on and limits instant noodle consumption during process intervention. However, increased consumption of instant food has a 3x negative effect on the obese body; therefore, this intervention focuses on and limits the consumption of instant noodles during the intervention process. In contrast, high noodle intake affects the weight loss diet process, as it causes hypertension, dyslipidemia, hyperglycemia, hypertriglyceridemia, and obesity ( $p < 0,05$ ) (Park & Liu, 2023). As for the limitations of this study, the control of intake



and physical activity during the intervention carried out during initial education is still limited to knowledge, and the process of implementing what is given by nutritionists has not been implemented optimally related to students in weight loss, so that many other factors can influence. The monitoring and interactive role of nutritionists at the time of the intervention can play an important role in the compliance of respondents.

## Conclusion

Based on the above research, consuming nutritional support in the form of low-fat chicken egg EBELABON animal-side dishes can reduce the body weight, body fat, and nutritional status of overweight students for 2 weeks, along with monitoring good eating habits by nutritionists and physical activity every day.

Advice: Development in science and technology (science and technology) needs to be further researched on the potential of low-fat EBELABON-based weight loss diet modifications for individuals who lose weight as a low-fat and high-protein additional animal side dish. In addition, the health and food industry can collaborate in dealing with future non-communicable diseases, especially obese individuals, by using EBELABON low-fat animal side dishes made from chicken eggs as nutritional support for economical daily consumption, so that it can be commercialized on a large scale.

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