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**The effectiveness of nutrition therapy on weight loss and work effectiveness  
in obese vocational teachers****Ahmad Ridwan, Galih Dewanti, Faza Annasai**<sup>1</sup> Universitas Negeri Yogyakarta, Indonesia.\* Corresponding Author. E-mail: [ahmadridwan@uny.ac.id](mailto:ahmadridwan@uny.ac.id)

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**Abstract:** Obesity is a global health problem that impacts cardiovascular and musculoskeletal health, and work efficiency. This study aims to determine the effectiveness of nutrition therapy on weight loss and work effectiveness in obese vocational teachers. The research method used an experimental design with a one group pretest-posttest design. A total of 20 respondents participated in this study through a selection process using a purposive sampling method, and a pretest served as a control. The intervention in this study was conducted in 24 sessions, four times per week, with a calorie calculation of minus 25% of the total daily calories each day. The results showed that nutrition therapy intervention can reduce weight and improve work efficiency ( $p < 0.05$ ). The nutrition therapy group showed an average weight loss of 4.05 kg. In conclusion, nutrition therapy is an optimal strategy for improving teaching effectiveness.

**Keywords:** Nutrition, Obesity, Work Effectiveness

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## INTRODUCTION

Obesity and overweight are conditions associated with a body weight greater than normal, typically indicated by a high percentage of body fat. Obesity and overweight are similar conditions, but they have significant differences. Obesity is characterized by the accumulation of fat tissue beyond normal limits in the body, while overweight refers to excess weight that can be caused by factors such as excess body fat, greater muscle mass, higher bone density, or fluid retention. Both obesity and overweight can impact health and increase the risk of metabolic disease (Yang et al., 2022). Obesity has become a global problem with increasing incidence. In Indonesia, in 2018, it was recorded that 21.8% of the adult population over 18 years of age were obese (Sakir et al., 2024). This figure represents a significant increase of 14.8% compared to 2013, when the obesity prevalence was still at 15.4% (Pengpid & Peltzer, 2017).

Obesity is a major factor in the development of degenerative diseases, one of which is coronary heart disease. This disease occurs when the coronary arteries become blocked or narrowed due to the gradual accumulation of fat that adheres to the artery walls. The condition of fatty deposits on the artery walls causes blood flow to slow down because the cavities within the arteries become narrower. This narrowing of the cavities makes the heart work harder. The reduced blood supply caused by narrowed arteries causes chest pain known as angina. This heart disease commonly occurs during physical activity (Peate, 2022). Obesity can contribute to hypertension through various mechanisms, both directly and indirectly (Jia & Sowers, 2021). Adopting a healthy lifestyle with a balanced diet must be incorporated into everyone's daily life, especially for workers whose workload is particularly demanding.

Vocational administration employees is a sedentary profession. Sedentary work, in this case, means many workers spend approximately eight hours in front of a computer (González et al., 2017; Lavie et al., 2019; Ramadi & Haennel, 2019). Sedentary work habits, coupled with a "meaningless" nutritional intake, can lead to a teaching staff being at risk of obesity (Ariningsih, 2021; Gaesser & Angadi, 2021). Obesity has detrimental effects on human health, both metabolically and in relation to

various other diseases. From a metabolic perspective, obesity can lead to increased triglyceride levels, decreased HDL cholesterol levels, and an increased risk of high blood pressure. Furthermore, obesity can exacerbate other health conditions such as asthma, osteoarthritis of the knees and hips, gallstone formation, sleep apnea, and back pain (Nedunchezhiyan et al., 2022; Olszanecka-Glinianowicz et al., 2023; Uçar et al., 2021). A sedentary work schedule with little physical activity and a limited nutritional intake will undoubtedly contribute to these degenerative diseases, which in turn will reduce work productivity.

The risk of degenerative diseases can certainly be addressed through several measures, one of which is weight loss. Nutritional therapy, which focuses on calorie intake, is crucial in this case. Proper nutritional therapy for weight loss involves a calorie deficit. A healthy calorie deficit program should be high in protein, fiber, and healthy fats, aiming to increase the Thermic Effect of Food (TEF) by 15-30%. This program is expected to help burn calories more optimally (Saxena, 2024). The aim of this study was to examine the effects of nutritional therapy on weight loss and the effectiveness of vocational teaching staff.

## METHODS

This study used a quasi-experimental method with a one group pretest-posttest design. The population consisted of vocational teaching staff at a university in Yogyakarta who had a Body Mass Index (BMI) above normal (overweight or obese). The sample consisted of 20 obese teaching staff. Inclusion criteria included vocational teaching staff from higher education institutions in Yogyakarta aged 30-50 years, with a BMI above normal, and no history of chronic illness that could affect the study results. Exclusion criteria included individuals with medical conditions that prevented participation in nutrition therapy and those taking medications that could affect metabolism.

This study was conducted in three stages: preparation, intervention, and evaluation. During the preparation phase, participant recruitment, baseline measurements of body weight and work effectiveness were conducted, and random group assignment was conducted. The intervention phase then lasted for three months. During this phase, the nutrition therapy group followed a customized diet program tailored to individual needs, consumed nutritional supplements if necessary, and underwent periodic dietary evaluations, including diet modifications, supplementation, and parenteral nutrition, if necessary. A key feature of this study was that each teacher calculated their total calorie intake, consisting of basal calories plus daily physical activity calories, and then subtracted 25% from this total. The following is the formula for calculating daily calorie intake.

**Table 1.** Calorie Formula

A	Basal Calories
B.	Physical Activity Calories
C	(A + B) Total Calories
$D = C - (25\% \times C)$	Total Calories after Deficit

After each teacher identified their maximum daily calorie intake, they monitored their food intake using an app that calculates the calories in each meal. Each participant was required to eat according to the predetermined calorie count and then report to the researchers daily. After the intervention was completed, an evaluation phase was conducted by re-measuring body weight, maximum heart rate, and work efficiency, and analyzing the data to determine differences between the two groups. The instruments used in this study regarding body weight included anthropometric measurements using a measuring tape and digital scale in kilograms, as well as a questionnaire. A work effectiveness questionnaire was used to assess educator productivity based on levels of productivity and work efficiency.

Data analysis techniques used in this study included a normality test using the Shapiro-Wilk test to ensure normal data distribution, a paired t-test to analyze differences before and after the intervention in one group, and an unpaired t-test to compare results between nutritional therapy groups. Additionally, regression analysis was conducted to measure the impact of each intervention on the work effectiveness of vocational teaching staff.

## RESULT AND DISCUSSION

This study recruited 20 respondents from teaching staff at a university in Yogyakarta, selected based on inclusion and exclusion criteria. The results were based on the number of respondents by gender. The nutrition therapy group consisted of 13 males and 7 females.

**Table 2.** Anthropometric Measurements

Componen t	Mean Pretest	Mean Posttest	Median Pretest	Median Posttest
BB	63,60	59,55	61,00	57,00
TB	163,28	163,28	162,50	162,50
IMT	23,66	22,09	23,75	22,05
LLA	29,50	27,75	29,50	27,00
LD	89,25	86,55	88,00	85,00
LPI	84,10	80,08	88,00	85,00
LPA	97,20	94,85	96,00	94,00
LPH	52,70	50,53	52,00	50,00
LB	36,85	35,70	37,00	36,00

\*BB: Body Weight, TB: Body Height, BMI: Body Mass Index, LLA: Upper Arm Circumference, LD: Chest Circumference, LPI: Waist Circumference, LPA: Hip Circumference, LPH: Thigh Circumference, LB: Body Circumference.

Based on Table 2. the mean and median values for almost all variables—BW, BMI, LLA, LD, LPI, LPA, LPH, and LB—showed a decrease in posttest results compared to the pretest. This indicates a positive change following the intervention. The following presents data from the Work Effectiveness Aspects Questionnaire collected from respondents. The table below summarizes the distribution of responses, the average (mean) score, and the level of achievement of respondents for each work effectiveness indicator. This data serves as the basis for evaluating the extent to which the measured variables contribute to overall organizational performance.

**Table 3.** Work Effectiveness Aspects Questionnaire

Question	Mean Pretest	Mean Posttest	Median Pretest	Median Posttest
1	6,50	6,15	7,00	6,00
2	5,05	5,85	5,00	6,00
3	4,67	6,15	4,50	6,00
4	4,10	6,15	4,00	6,00
5	4,25	6,15	4,00	6,00
6	4,10	6,20	4,00	6,00
7	4,05	6,40	4,00	6,00
8	3,95	6,30	4,00	6,00
9	3,70	5,90	4,00	6,00

Based on Table 3, the questionnaire results show an increase in the mean and median scores for all questionnaire questions from the pretest to the posttest. This increase indicates increased work effectiveness after the intervention. Specifically, the average pretest score ranged from 3.70 to 6.50, then increased significantly in the posttest to 5.85 to 6.40. Similarly, the median pretest score ranged from 4.00 to 7.00, increasing to 6.00 in the posttest.

The results of this study indicate that nutritional therapy is effective in reducing weight and improving the work effectiveness of vocational teachers with a BMI above normal. Nutrition therapy creates an immediate energy deficit by reducing daily calorie intake, allowing the body to use energy

reserves (fat) to meet metabolic needs (Benton & Young, 2017). A high-protein, high-fiber, and low-carbohydrate diet has been shown to help teachers lose weight more quickly (Zadgaonkar, 2025).

These findings are consistent with the literature suggesting that a healthy diet provides optimal results in weight management (Lundgren et al., 2021). The results of this study align with previous research that has emphasized that a 5-10% weight loss is sufficient to reduce systolic/diastolic blood pressure and resting heart rate (Arciero et al., 2022). Body composition is a component of physical fitness, a component of health. The results of this study demonstrate improved performance, with each worker becoming more agile and fitter with the resulting fat loss. Nutritional therapy focuses on dietary adjustments, supplementation, and dietary modifications tailored to individual needs to reduce weight and improve metabolism. Meanwhile, weight training therapy can increase muscle strength, burn calories, and improve cardiovascular function. This study compared the effects of these two intervention programs on weight loss, maximum heart rate, and work effectiveness of Vocational Studies lecturers. The final results are expected to answer which intervention is more effective in improving health indicators and work productivity.

Nutritional therapy is an intervention carried out to meet a patient's nutritional needs that cannot be met through regular food intake. The main goals of nutritional therapy include improving nutritional status, maintaining nutritional and metabolic balance, enhancing immune function, accelerating the healing process, and minimizing disease complications (Pranoto & Susetyowati, 2022). Nutritional therapy has several types, such as dietary modifications carried out to adjust nutritional intake according to medical conditions, such as a low-salt diet for people with hypertension, a low-purine diet for gout, or a high-fiber diet to treat constipation (Nortajulu et al., 2023). Dietary supplements are used to supplement nutritional needs not met from daily food, while parenteral nutrition is administered directly into the bloodstream when the gastrointestinal tract is dysfunctional or oral intake is insufficient.

In relation to heart health, nutrition therapy plays a crucial role in reducing the risk of cardiovascular disease (CVD) through weight management, blood pressure regulation with the DASH diet rich in fruits, vegetables, and whole grains, and cholesterol and blood sugar control by limiting saturated fat and consuming foods high in fiber and omega-3s (Filippou et al., 2020). Weight loss also benefits heart health by lowering resting heart rate, increasing cardiac efficiency, and improving cardiovascular fitness. Although it does not directly affect maximum heart rate (MRR) because MRR is more determined by age and genetics, weight loss can improve exercise capacity and enable a person to achieve a higher MRR in physical activity (Basiran, 2020). A healthy diet has been shown to support cognitive function, focus, and concentration, enabling teachers to work more efficiently. Increased work effectiveness is primarily influenced by daily energy stability, improved sleep quality, and reduced blood sugar fluctuations. A healthy diet has been shown to support cognitive function, focus, and concentration, enabling teachers to work more efficiently (Puri et al., 2023; Sørensen et al., 2015). Thus, nutrition contributes to both cognitive and energy aspects. Calorie calculation, taking into account physical activity and the quality of food consumed, significantly impacts weight loss and improved performance in teachers. A balanced nutritional diet plays a crucial role in performance.

A balanced diet and physical activity play a crucial role in improving a person's fitness, which is expected to improve concentration, reduce stress, and improve sleep quality. This significantly contributes to the increased performance effectiveness of teachers, especially vocational teachers (Corbett et al., 2022; López et al., 2022). Therefore, integrating nutritional therapy and weight training is an optimal strategy for addressing obesity. Nutritional therapy has been shown to produce greater weight loss through mechanisms of energy deficit, increased thermic effect of food (TEF), and regulation of appetite hormones. Work effectiveness increased in the nutrition therapy group. Improved diet resulted in more stable energy throughout the day, improved focus and concentration, and reduced blood sugar fluctuations that often trigger fatigue. A healthy diet also improved sleep quality and reduced stress, two important factors in supporting teaching productivity. Numerous studies support the link between nutritional status and work performance. Adequate and balanced nutrition plays a role in cognitive performance, memory, and academic productivity. Therefore, the findings of this study are consistent with the theory that good nutritional status supports optimal work performance.

## CONCLUSION

Nutrition therapy intervention can reduce weight and improve work efficiency ( $p < 0.05$ ). The nutrition therapy group showed an average weight loss of 4.05 kg. In conclusion, nutrition therapy is an optimal strategy for improving teaching effectiveness.

## REFERENCE

- Arciero, P. J., Ives, S. J., Mohr, A. E., Robinson, N., Escudero, D., Robinson, J., Rose, K., Minicucci, O., O'Brien, G., & Curran, K. (2022). Morning exercise reduces abdominal fat and blood pressure in women; evening exercise increases muscular performance in women and lowers blood pressure in men. *Frontiers in Physiology*, *13*, 893783. Doi: [10.3389/fphys.2022.893783](https://doi.org/10.3389/fphys.2022.893783)
- Ariningsih, D. M. W. (2021). The Effectiveness Of High Intensity Interval Training On Heart Rate Variability In Overweight And Obesity. *Sport and Fitness Journal*, *9*(2). <https://doi.org/10.24843/spj.2021.v09.i02.p01>
- Basiran, B. (2020). Efektivitas Masase dan Terapi Latihan Fleksibilitas Terhadap Pemulihan Rasa Nyeri dan Kelentukan Ekstremitas Bawah Pada Atlet Bulutangkis. *Jurnal Terapan Ilmu Keolahragaan*, *5*(2). <https://doi.org/10.17509/jtikor.v5i2.31255>
- Benton, D., & Young, H. A. (2017). Reducing calorie intake may not help you lose body weight. *Perspectives on Psychological Science*, *12*(5), 703–714. doi: [10.1177/1745691617690878](https://doi.org/10.1177/1745691617690878)
- Corbett, L., Bauman, A., Peralta, L. R., Okely, A. D., & Phongsavan, P. (2022). Characteristics and effectiveness of physical activity, nutrition and/or sleep interventions to improve the mental well-being of teachers: A scoping review. *Health Education Journal*, *81*(2), 196–210. <https://doi.org/10.1177/00178969211062701>
- Filippou, C. D., Tsioufis, C. P., Thomopoulos, C. G., Mihas, C. C., Dimitriadis, K. S., Sotiropoulou, L. I., Chrysochoou, C., Nihoyannopoulos, P. I., & Tousoulis, D. M. (2020). *Dietary Approaches to Stop Hypertension (DASH) Diet and Blood Pressure Reduction in Adults with and without Hypertension: A Systematic Review and Meta-Analysis of Randomized Controlled Trials* Christina. 1150–1160. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7490167/>
- Gaesser, G. A., & Angadi, S. S. (2021). Obesity treatment: Weight loss versus increasing fitness and physical activity for reducing health risks. *IScience*, *24*(10), 102995. <https://doi.org/10.1016/j.isci.2021.102995>
- González, K., Fuentes, J., & Márquez, J. L. (2017). Physical inactivity, sedentary behavior and chronic diseases. In *Korean Journal of Family Medicine* (Vol. 38, Number 3). <https://doi.org/10.4082/kjfm.2017.38.3.111>
- Jia, G., & Sowers, J. R. (2021). Hypertension in diabetes: an update of basic mechanisms and clinical disease. *Hypertension*, *78*(5), 1197–1205.
- Lavie, C. J., Ozemek, C., Carbone, S., Katzmarzyk, P. T., & Blair, S. N. (2019). Sedentary Behavior, Exercise, and Cardiovascular Health. *Circulation Research*, *124*(5), 799–815. <https://doi.org/10.1161/CIRCRESAHA.118.312669>
- López, A. M., Padilla, E. L., Amaya, H. M., Ortega, D. R., Aguilar, A. J. B., Navarro, P. E., & de la Rosa, F. J. B. (2022). Effect of post-training and post-match antioxidants on oxidative stress and inflammation in professional soccer players (Efecto de los antioxidantes post-entrenamiento y

post-partido sobre el estrés oxidativo y la inflamación en jugadores profesionales d. *Retos*, 43, 996–1004. [DOI:10.47197/retos.v43i0.90276](https://doi.org/10.47197/retos.v43i0.90276)

Lundgren, J. R., Janus, C., Jensen, S. B. K., Juhl, C. R., Olsen, L. M., Christensen, R. M., Svane, M. S., Bandholm, T., Bojsen-Møller, K. N., & Blond, M. B. (2021). Healthy weight loss maintenance with exercise, liraglutide, or both combined. *New England Journal of Medicine*, 384(18), 1719–1730. [DOI: 10.1056/NEJMoa2028198](https://doi.org/10.1056/NEJMoa2028198)

Nedunchezhiyan, U., Varughese, I., Sun, A. R., Wu, X., Crawford, R., & Prasadam, I. (2022). Obesity, inflammation, and immune system in osteoarthritis. *Frontiers in Immunology*, 13, 907750. <https://doi.org/10.3389/fimmu.2022.907750>

Nortajulu, B., Zainaro, M. A., & Trismiyana, E. (2023). Penerapan Anjuran Dietary Approaches to Stop Hypertension (DASH) terhadap Penurunan Tekanan Darah pada Pasien Hipertensi di Puskesmas Karang Anyar. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, 6(7), 2659–2668. <https://doi.org/10.33024/jkpm.v6i7.9974>

Olszanecka-Glinianowicz, M., Mazur, A., Chudek, J., Kos-Kudła, B., Markuszewski, L., Dudek, D., Major, P., Małczak, P., Tarnowski, W., & Jaworski, P. (2023). Obesity in adults: position statement of polish Association for the Study on obesity, polish Association of Endocrinology, polish Association of Cardiometabolism, polish psychiatric association, section of metabolic and bariatric surgery of the Association of Polish Surgeons, and the College of Family Physicians in Poland. *Nutrients*, 15(7), 1641. [DOI: 10.3390/nu15071641](https://doi.org/10.3390/nu15071641)

Peate, I. (2022). Angina—management of chest pain. *British Journal of Healthcare Assistants*, 16(3), 110–115. [doi: 10.33546/bnj.1247](https://doi.org/10.33546/bnj.1247)

Pengpid, S., & Peltzer, K. (2017). The prevalence of underweight, overweight/obesity and their related lifestyle factors in Indonesia, 2014–2015. *AIMS Public Health*, 4(6), 633. doi: [10.3934/publichealth.2017.6.633](https://doi.org/10.3934/publichealth.2017.6.633)

Pranoto, A., Ramadhan, R. N., Rejeki, P. S., Miftahussurur, M., Yosika, G. F., Nindya, T. S., Lestari, B., & Halim, S. (2024). The role of long-term combination training in reducing and maintaining of body fat in obese young adult women. *Retos: Nuevas Tendencias En Educación Física, Deporte y Recreación*, 53, 139–146. [doi: 10.47197/retos.v53.102460](https://doi.org/10.47197/retos.v53.102460)

Puri, S., Shaheen, M., & Grover, B. (2023). Nutrition and cognitive health: A life course approach. *Frontiers in Public Health*, 11, 1023907. <https://doi.org/10.3389/fpubh.2023.1023907>

Ramadi, A., & Haennel, R. G. (2019). Sedentary behavior and physical activity in cardiac rehabilitation participants. *Heart and Lung*, 48(1), 8–12. <https://doi.org/10.1016/j.hrtlng.2018.09.008>

Sakir, N. A. I., Hwang, S. Bin, Park, H. J., & Lee, B.-H. (2024). Associations between food consumption/dietary habits and the risks of obesity, type 2 diabetes, and hypertension: a cross-sectional study in Jakarta, Indonesia. *Nutrition Research and Practice*, 18(1), 132–148. [doi: 10.4162/nrp.2024.18.1.132](https://doi.org/10.4162/nrp.2024.18.1.132)

Saxena, D. (2024). Eating Plans to Cut Body Fat, Gain Muscle, and Prepare for Competition. *Examining Physiology, Nutrition, and Body Composition in Sports Science*, 155. [DOI:10.4018/979-8-3693-6317-1.ch005](https://doi.org/10.4018/979-8-3693-6317-1.ch005)

Sørensen, L. B., Dyssegaard, C. B., Damsgaard, C. T., Petersen, R. A., Dalskov, S.-M., Hjorth, M. F., Andersen, R., Tetens, I., Ritz, C., & Astrup, A. (2015). The effects of Nordic school meals on

concentration and school performance in 8-to 11-year-old children in the OPUS School Meal Study: a cluster-randomised, controlled, cross-over trial. *British Journal of Nutrition*, 113(8), 1280–1291. DOI: <https://doi.org/10.1017/S0007114515000033>

Uçar, İ., Karartı, C., Cüce, İ., Veziroğlu, E., Özüdoğru, A., Koçak, F. A., & Dadalı, Y. (2021). The relationship between muscle size, obesity, body fat ratio, pain and disability in individuals with and without nonspecific low back pain. *Clinical Anatomy*, 34(8), 1201–1207. DOI: [10.1002/ca.23776](https://doi.org/10.1002/ca.23776)

Wu, A., Roemer, E. C., Kent, K. B., Ballard, D. W., & Goetzel, R. Z. (2021). Organizational best practices supporting mental health in the workplace. *Journal of Occupational and Environmental Medicine*, 63(12), e925–e931. DOI: [10.1097/JOM.0000000000002407](https://doi.org/10.1097/JOM.0000000000002407)

Yang, M., Liu, S., & Zhang, C. (2022). The related metabolic diseases and treatments of obesity. *Healthcare*, 10(9), 1616. <https://doi.org/10.3390/healthcare10091616>

Zadgaonkar, U. (2025). The Role of High-Protein Diets and Physical Activity in Fat Loss and Metabolic Health: Implications for Sustainable Food Systems. *Retos: Nuevas Tendencias En Educación Física, Deporte y Recreación*, 66, 1145–1153. DOI: [10.47197/retos.v66.114171](https://doi.org/10.47197/retos.v66.114171)