

Research Article

Literature Review: Effect of Brisk Walking on Blood Sugar Levels in Patients with Type 2 Diabetes Mellitus

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ABSTRACT

Diabetes is a chronic disease when the pancreas cannot produce enough insulin. Therefore, it takes a good way for sufferers to go through the entire process of diabetes treatment and care. Physical activity, such as brisk walking, has benefited people with diabetes and pre-diabetes. This activity has been shown to increase insulin sensitivity and reduce belly fat. Literature review aims to analyze the application of brisk walking to blood sugar levels in patients with type II diabetes mellitus over the past five years. Methods analysis of articles related to brisk walking in lowering blood sugar levels in patients with type II diabetes mellitus through data obtained from Google Scholar, EBSCO, and PubMed empirical studies in the last five years, as many as eight journals under the inclusion criteria set by the author. An analysis showed that brisk walking could reduce blood sugar levels in patients with type II diabetes mellitus. Based on the results of these eight journals, almost all journals have significant impacts that brisk walking affects blood sugar levels in patients with type II diabetes mellitus.

Keywords: Brisk Walking, Blood Sugar Levels, Diabetes Mellitus

Introduction

According to WHO (World Health Organization), diabetes is a chronic disease that occurs when the pancreas cannot produce enough insulin or the body cannot effectively use its insulin. Insulin is a hormone that regulates blood sugar. Hyperglycemia, or increased blood sugar, is a common effect of uncontrolled diabetes. Over time, can cause serious damage to many body systems, especially the nervous and blood vessels[1]. Diabetes is generally a chronic metabolic disorder characterized by high blood sugar content and disorders of

carbohydrate, protein, and lipid metabolism disorders, and insulin task insufficiency[2].

According to the IDF (International Diabetes Federation), in 2021, around 537 million adults (20–79 years) will be living with diabetes. The total number of people living with diabetes is predicted to be 643 million in 2030 and 783 million in 2045. Diabetes affected approximately 240 million adults, resulting in 6.7 million deaths and USD 966 billion in health expenditures, accounting for less than 9% of total adult expenditure[3]. More than 1.2 million children and young people (0–19 years) live

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with type 2 diabetes, 1.21 million people develop diabetes during birth, and 241 adults are on the rise due to type 2 diabetes mellitus [4]. Meanwhile, DM prevalence for all ages compare with DM below 15 years old in Indonesia was slightly lower at 1.5%. Meanwhile, the province with the highest prevalence of diabetes for all ages according to a doctor's diagnosis is DKI Jakarta, and the lowest is NTT [5]

According to (IDF, 2020), diabetes mellitus is generally characterized by insulin resistance. The body does not fully respond to insulin due to insulin not working correctly, so the glucose content increases and releases a lot of insulin. The conclusion is it can deplete the pancreas, resulting in the body producing less insulin, causing higher glucose levels. According to the IDF (International Diabetes Federation), diabetes is most commonly diagnosed in older adults but is becoming increasingly apparent in children, young people, and young adults due to rising rates of obesity, physical activity, and poor diet [6,7]

According to Diabetes Care 2019, physical activities, including walking fast and brisk walking, benefits those with diabetes and pre-diabetes. These activities have been proven to increase insulin sensitivity and reduce belly fat. Therefore, the authors are interested in carrying out this review because there are still a few patients interested in practicing fast walking to lower blood sugar levels in people with type II diabetes mellitus[8].

Methods

Literature Search

A narrative review was employed for this study [9]. This research method is a summary of several research studies based on specific themes. The data used in this study is secondary data obtained not from direct observation but from the results of research

conducted previously with a total of 8 journals. The journals were obtained from several databases, namely *PubMed*, *Google Scholar*, and *EBSCO*. The title of the literature review that I analyzed is the effect of brisk walking on blood sugar levels in people with diabetes mellitus type II.

Inclusion and Exclusion Criteria

This study's inclusion criteria were any research methods (review, quantitative and qualitative), published and unpublished articles, theses and dissertations, written in English or Indonesian, with full-text access and published in the last 5 years. All of the article against inclusion were excluded

Screening

The study was conducted on humans, written in English and Indonesian. A total of 6,502 were identified from three filtered database searches in the last five years. After screening 6,502 articles, we obtained 4,957 articles that match the title of this research. 4,947 of 4,957 articles were excluded because they did not meet the inclusion criteria. Of the ten articles, two articles did not meet the requirements for brisk walking. Eight articles met the criteria.

Data Extraction and Analyzes

The literature was drawn from a wide range of genres. The usefulness and adaptability of thematic analysis led to its selection[10]. To investigate, we took a deductive route[9]. From those papers, we were able to compile data that shed light on the definition brisk walking, managements, and its effect[11]. Information was culled from those studies to shed light on the definition and management of brisk walking based on the evidence and the effects of brisk walking on blood sugar levels[12].

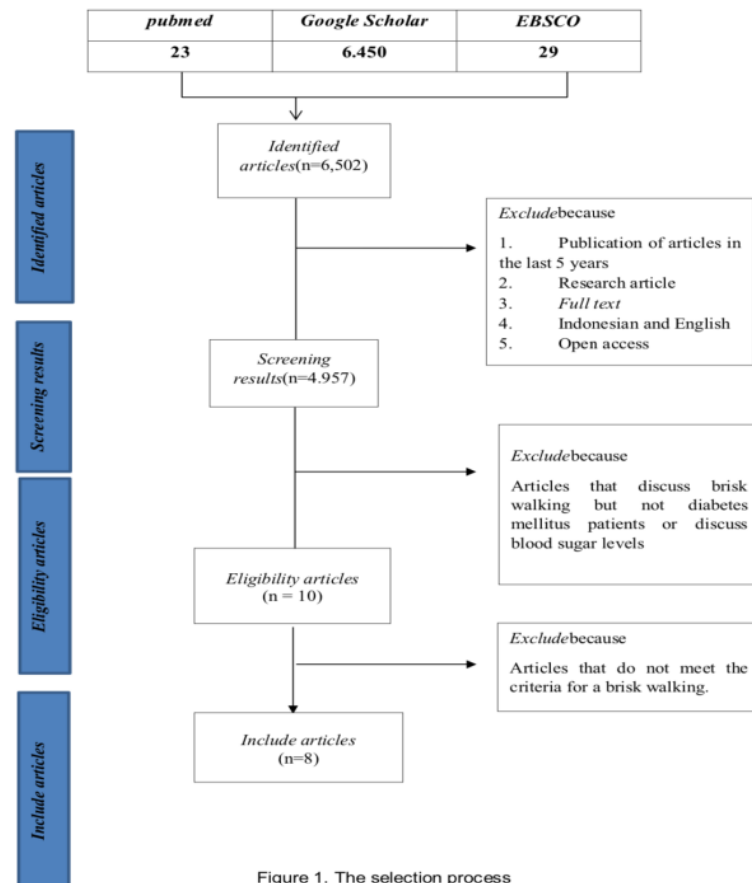


Figure 1. The selection process

Figure 1. The selection process

Result and Discussion

Several studies have been conducted to analyze the effects of brisk walking on people with diabetes mellitus. Of the eight articles,

there were four quasi-experimental research designs, three cross-sectional and one cross-over. (Table 1.)

Table 1. table summary

No	Title, Author	Volume, Number	Method	Research result
1	Effectiveness of Brisk Walking Exercise on Glycemic Control and Cardio Vascular Risk Factor in Patients with Type 2 Diabetes [13]	Vol.10 No.4	D: Cross-sectional S: Fifty T2D patients (28 women and 22 men) V: Brisk walking, blood sugar levels and diabetes mellitus I: Physical activity consisting of brisk walking sessions for seven months. The instruments in this study were electronic balances, sphygmomanometers and heparin tubes	Fifty-three (22 male and 31 female) type 2 diabetes patients were involved in the study. The mean age of all participants was 50.86 ± 11.07 years. No differences between the sexes were observed with respect to age, anthropometrics, systolic blood pressure, maximal oxygen consumption (VO ₂ max) and all biochemical parameters and lipid ratios. Gradual reductions in most anthropometric, clinical, biochemical parameters, and blood pressure

No	Title, Author	Volume, Number	Method	Research result
			A: Anthropometric, biochemical parameters, physical performance and cardiovascular risk index were evaluated and compared between the sexes.	levels were revealed after seven months (28 weeks) of brisk walking follow-up. Significantly higher ($p < 0.001$) reductions in fasting, post-effort and postprandial blood glycemia were observed in both sexes during all stages of our study. No significant difference was shown in the lipid ratio; In addition, most of the lipid ratio values were within normal limits. Overall recorded values of VO ₂ max, body mass index (BMI) and heart rate were slightly higher in women compared to men with both levels of glycated hemoglobin.
2	Physiological effects of brisk walking, yoga and nonwalking on metabolic parameters and anthropometry among type 2 diabetic patients [14]	Vol 2 No.1	D: <i>Cross-sectional</i> S: 120 patients, 45 agreed to brisk walking, 40 agreed not to walk, and 35 agreed to practice yoga. V: Brisk walking, blood sugar levels and diabetes mellitus I: Metabolic parameters such as FBS, PPBS, HbA1c, Serum Lipid profile and anthropometric measurements such as body weight, waist-to-hip ratio, waist circumference, BMI were recorded before & after 3 months Research instruments, electronic scales, stop-watches, measuring instruments A: Analyzed using statistical software Smiths version 2.8 with t-test & ANOVA.	It was found that brisk walking and yoga practice had significant beneficial effects in improving metabolic parameters such as FBS, PPBS, HbA1c, TC, Triglycerides, HDL, LDL with $p < 0.05$. The non-walking group experienced no improvement in either metabolic or anthropometric parameters.
3	Effectiveness Between Brisk Walk Exercise and Progressive Muscle Relaxation on Reducing Blood	Vol.5 No. 1	D: Quasy Experimental with Pre-test and Post-Test Group Design with consecutive sampling S: 30 respondents,	The results of the Paired T-test for the Brisk Walk Exercise group obtained a P value = 0.000 $< \alpha = 0.05$, this means that there is a significant difference. Meanwhile, in the Progressive Muscle Relaxation group, the P value = 0.000 $< = 0.05$ means

No	Title, Author	Volume, Number	Method	Research result
	Sugar Levels in Type 2 Diabetes Mellitus Patients [15]		<p>V: Brisk walking, blood sugar levels and diabetes mellitus</p> <p>I: The sampling technique used consecutive sampling according to the following inclusion criteria: type 2 diabetes mellitus patient with blood sugar level 200 mg/dL; patients who do not have diabetic ulcers; aged 30 to 60 years; and want to do brisk walk exercise therapy and progressive muscle relaxation</p> <p>The instrument in this study used a stopwatch and a glucometer</p> <p>A: Statistical analysis used includes frequency distribution for demographic data analysis. Shapiro Wilk normality test to determine the distribution of normal/not normal data. Paired T-Test to determine the effect between the independent and dependent variables.</p>	<p>that there is a significant difference. In the Paired T-test, it was found that the P-value $e = 0.000 \leq 0.05$, which means that there is a significant difference between Brisk Walk Exercise and Progressive Muscle Relaxation. As nurses are expected to be able to apply non-pharmacological therapies such as: <i>Brisk Walk Exercise</i> and Progressive Muscle Relaxation as an easy alternative therapy of choice for patients to do to lower blood sugar levels.</p>
4	The Effect of Brisk Walking Exercise on Reducing Blood Sugar Levels in Type II DM Patients at Grandmed Lubuk Pakam Hospital [16]	Vol. 3 No. 2	<p>D: Quasy experimental</p> <p>S: 30 people. The research sample size is 21 respondents</p> <p>V: Brisk walking, blood sugar levels and diabetes mellitus</p> <p>I: KGD scores were collected at the beginning and end of the exercise in one month using the research instrument, namely the observation sheet.</p> <p>A: Analysis of the data obtained through observation using a statistical test Paired sample T-test using the significance of $= 0.05$, with the help of SPSS.</p>	<p>Based on the results of the study, the average between the measurements before and after was 0.667 with a standard deviation of 0.483. It states that there is a positive difference between before (pre test) and after (post test) the Brisk Walking Exercise is performed. Based on the results of statistical tests, the p value = 0.00 where the p value is smaller than the value = 0.05, it can be concluded that the hypothesis is accepted, namely there is an influence before and after Brisk Walking Exercise on Blood Sugar Levels in Diabetes Mellitus patients.</p>

No	Title, Author	Volume, Number	Method	Research result
5	The Effect of Brisk Walking on the Decrease of Blood Glucose in Type II Diabetes Mellitus Patients Treating Walking At Imelda General Hospital, Indonesian Workers, Medan [17]	Vol.5 No. 2	D: Quasy experimental with a research design of "one group pretest and post test". S: The population in this study was 109 people, thus the number of samples was 19 people V: Brisk walking, blood sugar levels and diabetes mellitus I: This research instrument uses a stopwatch, glucometer, and writing instruments A: Statistical analysis used the Wilcoxon test.	The results showed that the majority of DM patients experienced a decrease in blood sugar levels. The results of data analysis using the Wilcoxon test obtained a p value of $0.002 < 0.05$. It is suggested to respondents to maintain blood sugar levels by doing physical exercise such as brisk walking.
6	Effect of Walking Exercise on Blood Parameters in Patients with Type 2 Diabetes Mellitus [18]	Vol.22 No.4	D: Quasy experimental S: Forty patients (17 men and 23 women) were randomly assigned to the intervention group (n=20; 13 men and 7 women) and control (n=20; 4 men and 16 women). V: Brisk walking, blood sugar levels and diabetes mellitus I: This research instrument uses a questionnaire A: Statistical analysis used the Wilcoxon test	HbA1c levels decreased significantly in the intervention group ($p=0.020$). No statistically significant differences were observed within and between groups in terms of plasma glucose and lipid levels ($p>0.05$). IPAQ SF walking and total physical activity scores improved in the intervention group ($p<0.001$) and had better outcomes in diabetes-related cognitive and social factors and quality of life ($p<0.001$)
7	Association between Walking Pace and Diabetes: Findings from the Chilean National Health Survey 2016–2017 [19]	Vol.17 No. 15	D: Cross-sectional S: Consisting of 6233 participants Of the 6,233 participants who took part in the CNHS only 5520 participants underwent blood glucose and glycosylated hemoglobin tests. V: Brisk walking, blood sugar levels and diabetes mellitus I: This research instrument is a glucometer A: Analyzes were performed with STATA 15	In the unadjusted model, and compared with people reporting slow walking speeds, those with both average and fast walking speeds had lower blood glucose levels ($7.74 \text{ mg} = / \text{dL}$ (95% CI: 11.08 to 4.40) and $11.05 = / \text{dL}$ (95% CI: 14.36 to 7.75, respectively) and lower HbA1c ($0.34 = (95\% \text{ CI: } 0.57 \text{ to } 0.11 \text{ respectively}) =)$ and $\%0.72$ (95% CI: 0.94 to $)$), respectively. After adjusting for sociodemography, Body Mass Index and lifestyle factors, the association between glycemia and HbA1c remained only for fast walkers. Mean pedestrian category mean

No	Title, Author	Volume, Number	Method	Research result
			software (Statacorp; College Station, TX, USA)	and fast had lower T2D odds (OR: 0.59 (95% CI: to 0.84) and (OR 0.48 (95% CI: 0.30 to 0.79), respectively). 0.41. In addition, the average to fast walking speed also shows for lower T2D
8	The effects of 2 weeks of interval vs continuous walking training on glycemic control and whole-body oxidative stress in individuals with type 2 diabetes: a controlled, randomized, crossover trial [20]	Vol. 60 No. 3	D: Cross-over S: Participant Method 14 V: Brisk walking, blood sugar levels and diabetes mellitus I: This research instrument uses a questionnaire A: All statistical analyzes were two-sided and performed using Prism v6.03 (GraphPad Software, San Diego, CA, USA) or Stata v13.1 (Stata Corporation, College Station, TX, USA).	Results No intervention-induced changes were seen in physical fitness or body composition. Compared with baseline, IWT reduced mean glucose levels not significantly (-0.7 ± 0.3 mmol/l, $p = 0.08$) and significantly reduced maximum glucose levels (-1.8 ± 0.5 mmol/l, $p = 0.04$) and mean glycemic excursion amplitude (MAGE; 1.7 ± 0.4 mmol/l, $p = 0.02$), whereas no significant change in the group was seen with CON or CWT. Although 8-iso PGF 2α was associated with minimum glucose levels at baseline, no change in 8-iso PGF 2 was seen with any intervention, nor was there an association between changes in 8-iso PGF 2 and changes in glycemic control ($p.P > 0.05$ for all). No side effects were observed with any of the interventions. Conclusion/interpretation of short term IWT,

Definition and Management of Brisk Walking

Brisk walking is an aerobic exercise that can keep blood sugar levels within normal ranges. Besides being useful for maintaining blood sugar levels, aerobic exercise can also be helpful for reducing the risk of type 2 diabetes, heart disease, and stroke [21].

According to Alza et al. 2020, physical activity is the movements carried out by the muscles in the body during diabetes mellitus. One of the physical activities that people with diabetes can do is brisk walking for 30 minutes [22].

When a person does physical activity, blood flow will increase, which can cause the capillary nets to open so that more insulin receptors are available. The receptors become more active [23]. Brisk walking exercises at least three

mph (4.83km/h) and is classified as moderate-intensity physical activity. Brisk walking will trigger the emergence of endorphins that affect pleasure and happiness. It can release stress and tension. Brisk walking will cause glucose uptake in active muscles to increase but is not accompanied by an increase in insulin. This is caused by the increased sensitivity of insulin receptors to insulin in the muscles and the increase in insulin receptors during exercise [24]

The main problem in people with diabetes mellitus is the lack of response to insulin so that blood sugar cannot enter the cells. At that time, the membrane on blood sugar increases when the muscles contract because muscle contractions have insulin-like properties from that physical activity such as brisk walking is

helpful as a controller of blood sugar in the body. Fast walking measures blood glucose levels before and after brisk walking, do brisk walking if the results of blood glucose levels when the patient is > 200mg/dl. Brisk walking is carried out three times, 20-30 minutes per week. The recommended exercise for patients with type 2 Diabetes Mellitus is regular and continuous exercise [25]. Patients in this study were patients with diabetes mellitus.

The Effect of Brisk Walking on Blood Sugar Levels

Brisk walking was scientifically proven effective and easily promoted physical activity. Several studies showed that brisk walking has various health benefits, include effective in controlling blood sugar levels, improving and controlling the risk of being overweight or obese, and increasing muscle strength [26]. Physical activity could help people with diabetes improve fitness and strength, improve glycemic control, decrease insulin resistance, maintain weight loss, and reduce blood pressure. Besides, brisk walking could make us avoid disease and can control blood sugar in diabetics [27].

Exercise in people with diabetes mellitus is important in regulating blood glucose. Various articles found that the intervention given to the majority of articles was carried out by checking blood sugar twice, namely before and after brisk walking. Patients with diabetes mellitus can lower blood sugar levels by doing a brisk walk.

Conclusion

Based on the results of these eight journals, almost all journals have significant impacts that brisk walking affects blood sugar levels in patients with type II diabetes mellitus. The advantage of several articles is to write several related journals, articles, and researchers to strengthen their research results. While shortcomings of some articles do not provide advice, there are several journals with few respondents..

References

1. WHO. (2021). *Diabetes*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/diabetes>
2. Kemenkes. (2021). *Penyakit Diabetes Mellitus*. Kementerian Kesehatan Republik Indonesia. <http://p2ptm.kemkes.go.id/informasi-p2ptm/penyakit-diabetes-mellitus>
3. Erasta, J., & Sulastri, D. (2020). 25-Hydroxyvitamin D Serum Levels Unrelated to Fasting Blood Glucose Levels of Premenopausal Women in Padang. *Basic and Applied Nursing Research Journal*, 1(2), 46–53.
4. International Diabetes Federation. (2021). *Diabetes facts & figures*. IDF. <https://www.idf.org/aboutdiabetes/what-is-diabetes/facts-figures.html>
5. Tim Riskesdas. (2019). *Laporan Nasional Riskesdas 2018*. Badan Peneliatian Dan Pengembangan Kesehatan.
6. IDF. (n.d.). *Type 2 diabetes*. International Diabetes Federation. <https://www.idf.org/aboutdiabetes/type-2-diabetes.html>
7. Juanamasta, I. G., Aunguroch, Y., Gunawan, J., Suniyadewi, N. W., & Nopita Wati, N. M. (2021). Holistic Care Management of Diabetes Mellitus: An Integrative Review. *International Journal of Preventive Medicine*, 12, 69. https://doi.org/10.4103/ijpvm.IJPVM_402_20
8. Diabetes Care. (2019). *Prevention or Delay of Type 2 Diabetes: Standards of Medical Care in Diabetes 2019*. 42.
9. Juanamasta, I. G., Iblasi, A. S., Aunguroch, Y., & Yunibhand, J. (2021). Nursing Development in Indonesia: Colonialism, After Independence and Nursing act. *SAGE Open Nursing*, 7, 237796082110514. <https://doi.org/10.1177/23779608211051467>
10. Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological*. (pp. 57–71). American Psychological Association. <https://doi.org/10.1037/13620-004>
11. Juanamasta, I. G., Kusnanto, & Yuwono, S. R. (2019). Improving Nurse Productivity Through Professionalism Self-Concept. *Proceedings of the 9th International Nursing Conference*, 116–120. <https://doi.org/10.5220/0008321401160120>
12. Ferrari, R. (2015). Writing narrative style literature reviews. *Medical Writing*, 24(4), 230–235. <https://doi.org/10.1179/2047480615Z.000000000329>

13. Lakhdar, D., Diaf, M., & Khaled, M. B. (2020). Effectiveness of Brisk Walking Exercise on Glycaemic Control and Cardio- Vascular Risk Factors in Patients with Type 2 Diabetes. *Journal of Drug Delivery and Therapeutics*, 10(4), 53–62.
14. Pa, B., & Varne, S. R. (2017). Physiological effects of brisk walking, yoga and non- walking on metabolic parameters and anthropometry among type 2 diabetic patients. *International Journal of Physiology, Nutrition and Physical Education*, 2(1), 99–102.
15. Yunita, W., Jannah, M., Hidayah, N., & Utomo, A. S. (2019). Efektivitas Antara Brisk Walk Exercise Dan Relaksasi Otot Progresif Terhadap Penurunan Kadar Gula Darah Pada Pasien Diabetes Mellitus Tipe 2. *JURNAL KEPERAWATAN TERAPAN*, 5(1), 65–75.
16. Hayati, K., Cahya, N., Manalu, T. A., Agustina, D., Sembiring, N. E., Keperawatan, A., Husada, W., Kesehatan, F., Universitas, M., & Sumatera, I. (2021). Pengaruh Brisk Walking Exercise Terhadap Penurunan Kadar Gula Darah Pasien DM Tipe II Di Rumah Sakit Grandmed Lubuk Pakam. *Jurnal Penelitian Keperawatan Medik*, 3(2).
17. Hamonangan Damanik, P. R. S. (2019). Pengaruh jalan cepat (Brisk Walking) Terhadap Penurunan Glukosa Darah Pada Pasien Diabetes Mellitus Tipe II Yang Berobat Jalan Di Rumah Sakit Umum IMELDA Pekerja Indonesia Medan. *Jurnal Ilmiah Keperawatan IMELDA*, 5(2).
18. Raziye, Bükür, N., Bayrak, G., & Oğuz, G. (2021). Effect of Walking Exercise on Blood Parameters in Patients with Type 2 Diabetes Mellitus. *Stanbul Med J*, 22(4), 313–319.
19. Cigarroa, I., Lasserre-laso, N., Diaz-martinez, X., Garrido-mendez, A., & Matus-castillo, C. (2020). Association between Walking Pace and Diabetes : Findings from the Chilean National Health Survey 2016 – 2017. *International Journal of Environmental Research and Public Health*, 17(5341), 1–11.
20. Kristian Karstoft Margaret A. Clark, Ida Jakobsen, Ida A. Müller, Bente K. Pedersen, Thomas P. J. Solomon, M. R.-L. (2017). The effects of 2 weeks of interval vs continuous walking training on glycaemic control and whole-body oxidative stress in individuals with type 2 diabetes : a controlled , randomised , crossover trial. *Diabetologia*, 60, 508–517. <https://doi.org/10.1007/s00125-016-4170-6>
21. Akbar, S. K. (2020). Inovasi Brisk Walking Exercise Untuk Menstabilkan kadar Glukosa Darah Pada Pasien Diabetes Mellitus. *Universitas Muhammadiyah Magelang*, 1–59.
22. Alza, Y., Arsil, Y., Marlina, Y., Novita, L., & Agustin, N. D. (2020). Aktivitas Fisik, Durasi Penyakit Dan Kadar Gula Darah Pada Penderita Diabetes Mellitus (DM) Tipe 2. *Jurusan Gizi Poltekkes Kemenkes Riau, Indonesia*, 12(1), 18–26.
23. Wanjaya, I. K. O., Yasa, I. P., Endang, V. M., Rahayu, S. P., & Ari, I. G. A. (2020). Aktifitas Fisik Dengan Diabetik Neuropati Perifer Pada Pasien DM Tipe 2. *Jurusan Keperawatan Poltekkes Kemenkes Denpasar*, 13, 1–9.
24. Kusumo, M. P. (2021). *Buku pemantauan aktivitas fisik* (Issue April).
25. Setiyani, O. S. (2020). Aplikasi Brisk Wakling Mengontrol Kadar Glukosa Darah Pada Penderita Luka Diabetes Mellitus Tipe 2. *Universitas Muhammadiyah Magelang*, 1–56.
26. Mahmuda, L. N., Erika, K. A., Masyitha, A., & Email, I. (2020). Efektivitas Intervensi Brisk Walking. *Jurnal Kesehatan*, 13(2), 137–143. <https://doi.org/10.24252/kesehatan.v13i2>.
27. Dewi Novitasari, Anisa Cindy Nurul Afni, I. K. (2021). *The Effect Of Brisk Walking Exercise On Blood Sugar Levels In Type 2 Diabetes Mellitus Patients In The Work Are of Boyolali Puskesmas II. 001*, 1–13.