

The effect of swedish massage using ginger oil on chronic low back pain

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ABSTRACT

Background: Chronic low back pain is one of the musculoskeletal health problems that is common in society, including athletes. Chronic low back pain occurs in people in various countries, including Indonesia, with estimates that they experience pain that lasts approximately 24 hours for 3 months or more and often occurs at the age of 20-40 years. Disorders found in chronic low back pain sufferers usually experience pain in the lower back area. By using Swedish massage, which is a massage method to relax muscles, reduce pain and improve blood circulation, plus the use of ginger oil, which is a formulation commonly used to relieve pain and also as aromatherapy, can reduce the problem of chronic lower back pain. Objective: The aim of this study was to test the effect of Swedish massage using ginger oil on chronic low back pain. Methods: The research method uses experiments with a one-group pretest-posttest design. There were 7 participants taken using incidental sampling. The research instrument used the Visual Analogue Scale. The data analysis technique uses descriptive statistics and paired samples t test. Results: The research results obtained tcount = 6.33 with Sig. 0.00 < 0.05 which means there is an influence of SM using ginger oil on CLBP. Conclusion: This research concluded that there was an effect of Swedish massage using ginger oil on chronic low back pain. Further research with more participants is needed. Thus, the research results can be generalized, especially to women who have not been able to reveal anything in this research.

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Introduction

Chronic low back pain (CLBP) is one of the musculoskeletal problems that commonly occurs in society related to health problems, this is experienced in various countries and is estimated to reach 70% to 85% of adults (Furlan, Giraldo, Baskwill, Irvin, & Imamura, 2015; Nieminen, Pyyalo, & Kankaanpää, 2021; Patrick, Emanski, & Knaub, 2016). Meanwhile in Indonesia it is estimated to reach 7.6% to 37% (Benynda, 2016). From 1 to 4 adults experience CLBP lasting approximately 24 hours for 3 months or more. Complaints of CLBP often occur at the age of 20-40 years (Parfenov & Golovacheva, 2019).

Disorders that have been found in CLBP sufferers include pain in the lumbar area, stiffness in the back muscles, decreased Range of Motion (RoM), and reduced strength of the moving muscles in the back (Delano, Kushartanti, Arovah, Shafi, Nugroho, Sabillah, 2023). CLBP usually experiences pain in the lower back area (Massimo et al., 2016). CLBP occurs due to repetitive trauma or overuse of the spine, intervertebral discs, and surrounding tissue which can lead to disc herniation, vertebral compression fractures, lumbar spondylosis, spondylolisthesis, and lumbosacral muscle strain (Peck et al., 2021). Muscle tension can be influenced by lactic acid in the blood due to the body's process of releasing

energy. Thus, health problems can result in depression, stress and anxiety (Geiling, Rosen, & Edwards, 2012). Pathologically, CLBP can paralyze and disrupt the functioning of individuals suffering from CLBP. CLBP can also attack young adults (Bellido-Fernández et al., 2018). Apart from that, CLBP also occurs in athletes due to excessive training loads (Miller & Siegel, 2017; Petering & Webb, 2011).

Related research on CLBP sufferers in Kaplongan Lor Village, Karampel District, Indramayu Regency. From the survey results, CLBP occurs among the people of Indramayu, especially in the Kaploangan Lor village area, Karampel sub-district, experiencing lower back pain in adults and older people due to work activities and too long traveling. Handling and treating CLBP injuries can be done using non-pharmacological methods. Non-pharmacological treatment that can be done with therapy (Delano, Kushartanti, Arovah, Shafi, Nugroho, Sabillah, 2023).

Simply put, therapy methods can relieve pain, reduce muscle tension, and in general the aim of therapy is to obtain or maintain health, through this method for physical and mental relaxation which is very effective, with massage it can increase feelings of well-being and feelings of getting good care (Sritoomma, Moyle, Cooke, & O'Dwyer, 2014).

Based on research that has been conducted, massage can reduce short-term pain compared to non-massage in people with shoulder pain and knee osteoarthritis, but there is no evidence for those suffering from lower back pain or neck pain (Bervoets, Luijsterburg, Alessie, Buijs, & Verhagen, 2015). Additionally, low to moderate levels using massage can improve function in the short term compared with no massage in people with low back pain, knee arthritis, or shoulder pain. Basically traditional massage therapy consists of; Swedish massage (SM), deep tissue massage, and gua sha (Chen, Wei, Huang, Chang, & Lin, 2022).

SM is a massage method performed with hand touch which aims to relax muscles, reduce pain and improve blood circulation (Purnomo, 2016). SM is mainly to stimulate blood circulation through the soft tissues of the body, SM is classified as a superficial massage which consists of five stroking actions (Sritoomma et al., 2014). SM Therapy is well known for its therapeutic relaxing effects for treating problems with stress and improving endothelial inflammatory markers (Supa'At, Zakaria, Maskon, Aminuddin, & Nordin, 2013). SM manipulation includes effleurage, petrisage, friction, tapotement and vibration (Sritoomma et al., 2014). Research results state that SM can be given to sufferers of CLBP (Bellido-Fernández et al., 2018; Chen et al., 2022; Delano, Kushartanti, Arovah, Shafi, Nugroho, Sabillah, 2023; Peck et al., 2021; Sritoomma et al., 2014) and also in athletes (Bayrakdaro et al., 2024).

Oil or liniment is a means of massage, its use is to reduce friction between the therapist and the patient's skin. Ginger oil is a common formulation used to relieve pain, colds, and warm the body (Gunawan, 2019). Thus, this research will use SM using ginger oil in providing treatment with the research aim of testing the effect of SM using ginger oil on CLBP.

Method

The research method uses experiments with a one-group pretest-posttest design. Participants were 7 people who experienced CLBP and aged between 20-40 years who were taken using incidental sampling in the community of Kaplongan Lor Village, Karampel District, Indramayu Regency. Incidental sampling in sampling comes from chance or spontaneity, so anyone who coincidentally meets a researcher who matches the characteristics can be used as a sample (Ginanjar, 2019). Participants were informed about the study protocol, their rights, and the associated risks of participation before providing written informed consent. Ethical approval was obtained from the Ethics Committee before starting the study Approval Date: Yogyakarta State University, No. B/8.18/UN34.16/PK.03/2024. After obtaining ethical approval, we obtained institutional permission. The entire study was carried out in a determined adherence to the principles contained in the Declaration of Helsinki. Additional precautions were taken by the investigators to protect the volunteers in this study. Treatment was given for 30

minutes according to the opinion of [Chen et al., \(2022\)](#); [Majchrzycki, Kocur, & Kotwicki, \(2014\)](#); [Sritoomma et al., \(2014\)](#), and each participant is given intervention by the same, trained therapist. The research instrument used the Visual Analogue Scale (VAS) ([Alghadir, Anwer, Iqbal, & Iqbal, 2018](#); [Begum & Hossain, 2019](#); [Nahler, 2009](#)) and has validity = 0.94 and reliability = 0.97 (Alghadir et al., 2018). VAS uses a scale ranging from 0-100. The score is recorded by looking at the mark on a 10 cm line representing the continuum between "no pain" and "worst pain". The patient is asked to hold the VAS then the patient moves the marker on the tool according to the pain he feels. The more severe the pain felt, the patient will move the button towards a larger scale. The data analysis technique uses descriptive statistics to find the mean and standard deviation, while hypothesis testing uses paired samples t test with the help of SPSS following the calculation procedure according to [Ginanjar \(2021\)](#).

Results and Discussion

Result

From the results of the data analysis that has been carried out, the mean in the pre-test = 6.64, the standard deviation in the pre-test = 2.66, the mean in the post-test = 3.03, and the standard deviation in the post-test = 1.58. For more clarity, see [Table 1](#).

Table 1. Description statistics

| Variable | Mean | Standard Deviation |
|-----------|------|--------------------|
| Pre-test | 6.64 | 2.66 |
| Post-test | 3.03 | 1.58 |

To find out the aim of the research, we wanted to test the effect of SM using ginger oil on CLBP, t count = 6.33 with Sig. 0.00 < 0.05 which means there is an effect of SM using ginger oil on CLBP. For more clarity, see [Table 2](#).

Table 2. Paired samples t test

| Variable | t | Sig. |
|----------------------|------|-------------|
| Pre-test >< Pos-test | 6.33 | 0.00 < 0.05 |

Discussion

The results of this study provide a new reference related to SM using ginger oil. Using a SM combined with ginger oil not only speeds up the reduction of pain in low back pain, but can also provide a feeling of relaxation by inhaling the aroma of ginger oil during the treatment. Thus, this research supports the results of previous research related to SM ([Purnomo, 2016](#); [Supa'At et al., 2013](#)) and also SM for CLBP ([Bellido-Fernández et al., 2018](#); [Chen et al., 2022](#); [Delano, Kushartanti, Arovah, Shafi, Nugroho, Sabillah, 2023](#); [Peck et al., 2021](#); [Sritoomma et al., 2014](#)). Apart from that, using ginger oil can also be used as an aromatic ([Siswantito et al., 2023](#)). By using ginger as healing aromatherapy you can feel relaxed ([Syaputri, Selaras, & Farma, 2021](#)). Ginger oil has a function as aromatherapy ([Kurniasari, Hartati, Ratnani, & Sumantri, 2008](#)).

The results during the treatment that have been carried out are that SM uses ginger oil that has been rubbed on the body area during the massage. The aroma of the ginger oil can make the patient relax and the characteristic feeling is warm, not hot, both during the massage and after the massage. The results of interviews during the massage process with patients undergoing therapy showed that aromatic ginger oil can provide relaxation and also a different sensation compared to other oils that

they usually find. Even though all oils can provide benefits during massage, the effect of using aromatic ginger oil is very different.

This research has limitations in that the number of participants is only 7 males, which means that the results of this research cannot be generalized. Thus, this research suggests adding both male and female participants. Especially women who are still not at all revealed in this research. Apart from that, there was no control class in this study. This is not without reason because it is very difficult to find people who experience CLBP who can become participants.

Conclusions

This research concluded that there was an effect of SM using ginger oil on CLBP. SM using ginger oil can have an accelerated effect on reducing pain and relaxing in sufferers of CLBP. Further research is needed regarding the lack of samples in this study. Thus, it can be generalized, both male and female. Especially women who have not been able to reveal anything in this research.

Authors' contributions

SB: data collection, manuscript preparation, and funds collection. SN, S, RM, TP, & TDP: manuscript preparation. AG: study design, statistical analysis, and manuscript preparation.

Competing interests

The authors declare no competing interests.

References

- Alghadir, A. H., Anwer, S., Iqbal, A., & Iqbal, Z. A. (2018). Test-retest reliability, validity, and minimum detectable change of visual analog, numerical rating, and verbal rating scales for measurement of osteoarthritic knee pain. *Journal of Pain Research*, *11*, 851–856. [[Crossref](#)]
- Bayrakdar, S., Eken, Ö., Bayer, R., Yagin, F. H., Kizilet, T., Kayhan, R. F., & Ardigò, L. P. (2024). Effects of Swedish Massage at Different Times of the Day on Dynamic and Static Balance in Taekwondo Athletes. *Healthcare*, *12*(2), 1–12. [[Crossref](#)]
- Begum, M. R., & Hossain, M. A. (2019). Validity and Reliability of Visual Analogue Scale (VAS) for Pain Measurement. *Journal of Medical Case Reports and Reviews*, *2*(11), 394–402. [[Crossref](#)]
- Bellido-Fernández, L., Jiménez-Rejano, J. J., Chillón-Martínez, R., Gómez-Benítez, M. A., De-La-Casa-Almeida, M., & Rebollo-Salas, M. (2018). Effectiveness of Massage Therapy and Abdominal Hypopressive Gymnastics in Nonspecific Chronic Low Back Pain: A Randomized Controlled Pilot Study. *Evidence-Based Complementary and Alternative Medicine*, *2018*, 1–9. [[Crossref](#)]
- Benynda, T. (2016). Hubungan Cara Kerja Angkat Angkut dengan Keluhan Low Back Pain Pada Porter di Pasar Tanah Abang Blok A. *Jurnal Kesehatan Masyarakat*, (Jakarta), Fakultas Kesehatan Masyarakat, Universitas Esa Ung. [[Crossref](#)]
- Bervoets, D. C., Luijsterburg, P. A. J., Alessie, J. J. N., Buijs, M. J., & Verhagen, A. P. (2015). Massage therapy has short-term benefits for people with common musculoskeletal disorders compared to no treatment: A systematic review. *Journal of Physiotherapy*, *61*(3), 106–116. [[Crossref](#)]
- Chen, P. C., Wei, L., Huang, C. Y., Chang, F. H., & Lin, Y. N. (2022). The Effect of Massage Force on Relieving Nonspecific Low Back Pain: A Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, *19*(13191), 1–11. [[Crossref](#)]
- Delano, Kushartanti, Arovah, Shafi, Nugroho, Sabillah, N. (2023). *Comparison of the effectiveness Tepurak therapy with deep tissue massage and stretching in treating non-specific low back pain injuries* (pp. 222–227). pp. 222–227. [[Crossref](#)]

- Furlan, A. D., Giraldo, M., Baskwill, A., Irvin, E., & Imamura, M. (2015). Massage for low-back pain. *Cochrane Database of Systematic Reviews*, 2017(12). [Crossref]
- Geiling, J., Rosen, J. M., & Edwards, R. D. (2012). Medical costs of war in 2035: Long-term care challenges for veterans of Iraq and Afghanistan. *Military Medicine*, 177(11), 1235–1244. [Crossref]
- Ginanjari, A. (2019). *Metode Penelitian Kuantitatif dalam Pendidikan Jasmani dan Olahraga*. Indramayu: Program Studi Pendidikan Jasmani Kesehatan dan Rekreasi STKIP Nahdlatul Ulama Indramayu. [Crossref]
- Ginanjari, A. (2021). *Statistika Terapan Dalam Pendidikan Jasmani & Olahraga: Aplikasi Microsoft Excel & SPSS*. Yogyakarta: Deepublish. [Crossref]
- Gunawan, I. (2019). Formulasi dan Pembuatan Obat Gosok (Linimentum) Minyak Jahe (Oleum Zingiberis) dan Minyak Sereh (Oleum Citronellae). *Jurnal Analisis Farmasi*, 4(1), 43–49. [Crossref]
- Kurniasari, L., Hartati, I., Ratnani, R. D., & Sumantri, I. (2008). Kajian Ekstraksi Minyak Jahe Menggunakan Microwave Assisted Extraction (MAE). *Momentum*, 4(2), 47–52. [Crossref]
- Majchrzycki, M., Kocur, P., & Kotwicki, T. (2014). Deep tissue massage and nonsteroidal anti-inflammatory drugs for low back pain: A prospective randomized trial. *The Scientific World Journal*, 1–7. [Crossref]
- Massimo, A., Silvana, M., Fabiana, S., Valente, A., Maurizio, M., Compagnone, C., Baciarello, M., Manferdini, M. E., & Guido, F. (2016). Mechanisms of low back pain: a guide for diagnosis and therapy. *F1000Research*, 5, 1–11. [Crossref]
- Miller, S. M., & Siegel, J. T. (2017). Youth sports and physical activity: The relationship between perceptions of childhood sport experience and adult exercise behavior. *Psychology of Sport and Exercise*, 33, 85–92. [Crossref]
- Nahler, G. (2009). Visual Analogue Scale (VAS). In *Dictionary of Pharmaceutical Medicine*. Vienna: Springer. [Crossref]
- Nieminen, L. K., Pyysalo, L. M., & Kankaanpää, M. J. (2021). Prognostic factors for pain chronicity in low back pain: A systematic review. *Pain Reports*, 6(1), 1–17. [Crossref]
- Parfenov, V. A., & Golovacheva, V. A. (2019). Diagnosis and treatment of acute low back pain. *Terapevticheskii Arkhiv*, 91(8), 155–159. [Crossref]
- Patrick, N., Emanski, E., & Knaub, M. A. (2016). Acute and Chronic Low Back Pain. *Medical Clinics of North America*, 100(1), 169–181. [Crossref]
- Peck, J., Urits, I., Peoples, S., Foster, L., Malla, A., Berger, A. A., Cornett, E. M., Kassem, H., Herman, J. Kaye, A. D., & Viswanath, O. (2021). A Comprehensive Review of Over the Counter Treatment for Chronic Low Back Pain. *Pain and Therapy*, 10(1), 69–80. [Crossref]
- Petering, R. C., & Webb, C. (2011). Treatment options for low back pain in athletes. *Sports Health*, 3(6), 550–555. [Crossref]
- Purnomo, A. M. I. (2016). Manfaat Swedish Massage Untuk Pemulihan Kelelahan Pada Atlet. *Efektor*, 3(1), 1–11. [Crossref]
- Siswantito, F., Nugroho, A. N. R., Iskandar, R. L., Sitanggang, C. O., Al-Qordhiyah, Z., Rosidah, C., Nurhayati, S., & Sari, D. A. (2023). Produksi Minyak Atsiri Melalui Ragam Metode Ekstraksi dengan Berbahan Baku Jahe. *Inovasi Teknik Kimia*, 8(3), 178–184. [Crossref]
- Sritoomma, N., Moyle, W., Cooke, M., & O'Dwyer, S. (2014). The effectiveness of Swedish massage with aromatic ginger oil in treating chronic low back pain in older adults: A randomized controlled trial. *Complementary Therapies in Medicine*, 22(1), 26–33. [Crossref]
- Supa'At, I., Zakaria, Z., Maskon, O., Aminuddin, A., & Nordin, N. A. M. M. (2013). Effects of swedish massage therapy on blood pressure, heart rate, and inflammatory markers in hypertensive women. *Evidence-Based Complementary and Alternative Medicine*, 2013, 1–9. [Crossref]
- Syaputri, E. R., Selaras, G. H., & Farma, S. A. (2021). Manfaat Tanaman Jahe (*Zingiber officinale*) Sebagai

Obat-obatan Tradisional (Traditional Medicine). *Prosiding SEMNAS BIO 2021*, 1, 579–586. [[Crossref](#)]