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## EFFECTIVENESS OF PROVISION OF TRANSCUTANEUS ELECTRICAL NERVE STIMULATION (TENS) AND INFRA RED (IR) MODALITY IN CASE OF OSTEOARTHRITIS KNEE

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Yoel Kristian Adi Candra <sup>(1)</sup> Daniel Saka Pratama <sup>(1)</sup> Sima Asmara Dewa Marya Mahardika Putri <sup>(2)</sup>

- 1) *Physiotherapy Study Program, STIKES Telogorejo Semarang, Indonesia*  
2) *Department of Physiotherapy, STIKES Telogorejo Semarang, Indonesia*

\* Correspondence to : [720022@stikestelogorejo.ac.id](mailto:720022@stikestelogorejo.ac.id)

### Abstract:

**Background** : Osteoarthritis of the knee is joint disorders knee that causes happening erosion marked joints with existence symptom painful as well as increase functional disability. Functional disability of knee OA patients here is subtraction against activity physique daily caused by pain. Because of that, from a number of research obtained gift modality therapy in the form of TENS and Infra Red effective in reduce knee osteoarthritis pain.

**Research objective** : For knowing influence gift modality TENS and Infrared therapy to knee osteoarthritis condition.

**Methodology** : Overview systematic from three related articles with administration of TENS and Infra Red in the condition of knee osteoarthritis.

**Results** : Modality TENS and Infra Red (IR) therapy can give significant influence for lower pain in knee osteoarthritis.

**Conclusion** : Giving modality TENS and Infrared therapy capable give influence decreased pain.

**Research contribution** : Yoel Kristian Adi Candra is researcher main choose topic, write papers, and collect data. Daniel Saka Pratama looking for, studying document study, and collect data. Deasy Virka Sari review document study.

**Keywords** : Knee Osteoarthritis, TENS, Infra Red (IR).

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## INTRODUCTION

According to Tri Sudaryanto, Mudigdo, and Soemanto (2018) knee osteoarthritis is joint disorders knee that causes happening erosion marked joints with existence symptom painful as well as increase functional disability. Functional disability of knee OA patients here is subtraction against activity physique daily caused by pain. Osteoarthritis of the knee is a disease degenerative causes weakness muscle as well as tendons, causing existence limitations in motion and cause pain. Disease this make surface joints Becomes rude, no regular Thing that causes pain and swelling in the knee (Anwer et al. 2018).

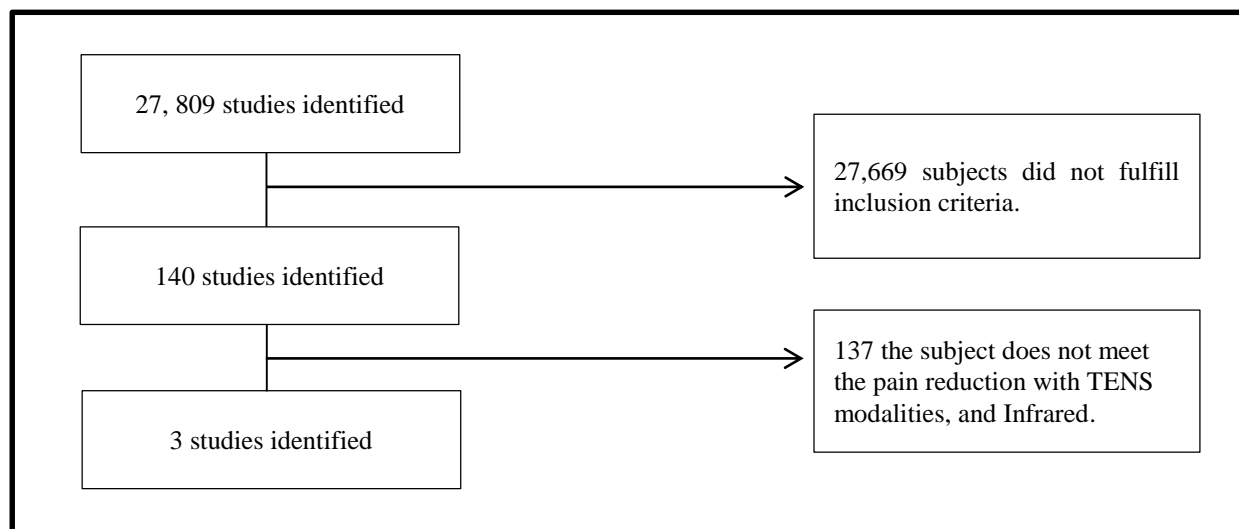
Transutaneous Electrical Nerve Stimulation (TENS) works could lower painful with gate control theory method. Release endorphins dependent system by TENS frequency low with stimulate receptors sensory fiber A-delta and C nerves so that could inhibits pain in the posterior horn of the spinal cord. With less pain, then OA sufferers will could To do activity more effective and efficient ( Isik et al. 2017).

Infrared (IR) has effect warm that can increase temperature local network that causes vasodilation vessels blood about, so that supply oxygen and nutrients will increase in the illuminated area. With vasodilation vessels blood can also speed up disposal a number of substance chemical stimulant painful include : bradykinin, serotonin, histamine, and enzymes proteolytic. As well as prostaglandins and substance P which increase sensitivity ends fiber pain, so that in the end infrared can reduce intensity pain in patients with knee osteoarthritis (Ojoawo, 2015).



## METHODS

Method study this using a systematic review journal literature review. Study this determine is there is drop significant pain in osteoarthritis patients with modality TENS and Infrared therapy. A review thorough performed on 3 topics : (1) knee osteoarthritis (2) reduction painful with TENS modalities in osteoarthritis patients (3) reduction of osteoarthritis pain with modality Infrared. Effective search on purpose restricted to language English, with studies attractive to the patient geriatrics and published in 10 years last. Study literature carried out in the electronic database of google scholar, Science Therapy Physical and pubmed, for period Among January 2012 and January 2022.



The inclusion criteria in the study were that the respondent had a case of osteoarthritis, the pain felt by the respondent when examined using the VAS was at number 7, the respondent had no history of diabetes mellitus, and was aged 60 years.

As for the exclusion criteria in this study, the respondent did not have a case of osteoarthritis, the respondent experienced numbness, the respondent's pain level was above 8, the respondent had a history of fracture (Shamsi et al., 2020).

## RESULT AND DISCUSSION

Pain caused by inflammation network around could influence drop activity functional daily in patients with knee OA. Knee OA sufferers usually have complaint pain, stiffness joints, decrease proprioceptive and presence drop in strength associated quadriceps muscle with painful knee and ability functional (Takagi et al. 2018). Pain in knee OA is also supported by the presence of too much movement excessive and decreasing when rest. Complaint painful as well as limitations in movement for activity daily patient like sitting position to stand up and up and down stairs. Studies showing that effectiveness intervention therapy physique with use TENS and Infrared modalities can reduce pain, improve level functional and improve quality live in patients with knee OA. TENS intervention, with or without practice therapeutic effective in reduce pain and improve function in knee OA patients. Review proven useful and effective in manage pain moment rest as well as moment To do activity functional miss from frequency used. However, when TENS is applied together with sport, after practice proven more effective in increase function and reduce disability in knee OA patients (Shamsi et al., 2020)..





First author/ year	Type of study	Sample	Assessment and intervention	Clinical outcome	Significance
Shamsi et al., (2020)	Systematic Reviews and Meta-Analyses	130 patients	Assessment: examination painful with VAS, KOOS questionnaire for check the functional status . Intervention: TENS, IR, US, and some modalities practice isometric and isotonic gain .	There was significant to reduce pain for OA knee.	P > 0.02
VARbarao et al., (2022)	Case Study	1 patient	Assessment : Examination painful with VDS and muscle tone with MMT. Intervention: Quadriceps setting exercise, TENS, Ultrasound.	There was significant change in-group and between- group analyses	p>0.01
Usman et al., 2019)	Prospective randomized controlled clinical trial was used.	60 patients	Assessment : Pain with VAS and WOMAC was used to evaluate the patient's functional ability. Intervention: Ultrasound, Infrared therapy, isometric exercise.	Significant to improve patient's after two series of physiotherapy.	P > 0.05

Studies show combination practice mutual gain and IR radiation with analgesic more superior than analgesic just in reduce pain, improve power and function muscles in knee OA patients. Giving intervention electrotherapy such as TENS, IR, US, some big use protocol practice including a number of type practice like practice strengthening isometric and isotonic for thigh front and thigh back, pilates, stretching, balance and proprioception exercises, span movement and exercise resistance (Usman et al., 2019). Part big article quality tall involve merging electrotherapy and therapy sport with results consistently positive.



## CONCLUSION

Of all results that, can concluded that gift modality TENS and infrared (IR) therapy can give effect drop significant pain along with treatment others, such as stretching and other exercises on the patient with knee osteoarthritis condition .

## AUTHOR'S CONTRIBUTION

Yoel Kristian Adi Candra is researcher main choose topic, write papers, and collect data. Daniel Saka Pratama looking for, studying document study, and collect data. Deasy Virka Sari review document study.

## CONFLICT OF INTEREST

Writer state no there is conflict interest in writing this .

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