

**STUDI KASUS: PENERAPAN TERAPI *ELECTRICAL MUSCLE STIMULATION (EMS) BUTTERFLY* TERHADAP KEKUATAN OTOT PADA ATLET PASCA CEDERA AKUT**

**KARYA TULIS ILMIAH**

Diajukan untuk memenuhi sebagai syarat memperoleh gelar  
Ahli Madya Keperawatan



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**PROGRAM STUDI DIII KEPERAWATAN  
FAKULTAS PENDIDIKAN OLAHRAGA DAN KESEHATAN  
UNIVERSITAS PENDIDIKAN INDONESIA**

**2024**

## **LEMBAR HAK CIPTA**

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sebuah karya tulis ilmiah yang diajukan untuk memenuhi sebagai syarat untuk memperoleh gelar Ahli Madya Keperawatan Fakultas Pendidikan Olahraga dan Kesehatan

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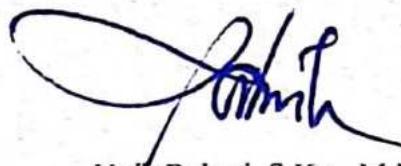
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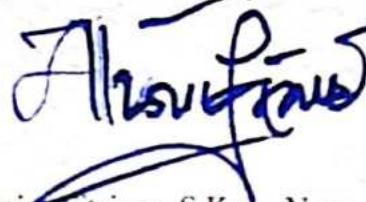
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## **PERNYATAAN TENTANG KEASLIAN KARYA TULIS ILMIAH**

Saya menyatakan bahwa Karya Tulis Ilmiah dengan judul “Studi Kasus: Penerapan Terapi *Electrical Muscle Stimulation (EMS) Butterfly* terhadap Kekuatan Otot pada Atlet Pasca Cedera Akut” ini beserta isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan.

Atas pernyataan ini, saya siap menanggung resiko/sanksi apabila dikemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap karya saya ini.

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## **UCAPAN TERIMA KASIH**

Puji dan syukur saya panjatkan kehadirat Allah SWT, berkat rahmat dan bimbingan-Nya saya dapat menyelesaikan karya tulis ilmiah dengan judul “Studi Kasus: Penerapan Terapi *Electrical Muscle Stimulation (EMS) Butterfly* terhadap Kekuatan Otot Pada Atlet Pasca Cedera Akut” dengan baik.

Karya Tulis Ilmiah ini merupakan salah satu syarat untuk memperoleh gelar Ahli Madya Keperawatan (A.Md Kep) pada Program Studi DIII Keperawatan Fakultas Pendidikan Olahraga dan Kesehatan Universitas Pendidikan Indonesia.

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Bandung, Agustus 2024  
Penulis

## KATA PENGANTAR

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Puji dan syukur saya panjatkan kehadiran Allah SWT, berkat rahmat dan bimbingan-Nya saya dapat menyelesaikan Karya Tulis Ilmiah dengan judul “Studi Kasus: Penerapan Terapi *Electrical Muscle Stimulation (EMS) Butterfly* terhadap Kekuatan Otot pada Atlet Pasca Cedera Akut” dengan baik.

Adapun tujuan saya dalam menyusun Karya Tulis Ilmiah ini untuk memperoleh gelar Ahli Madya Keperawatan (A.Md Kep) pada Program Studi DIII Keperawatan Fakultas Pendidikan Olahraga dan Kesehatan Universitas Pendidikan Indonesia.

Saya sebagai penulis mengakui bahwa ada banyak kekurangan pada Karya Tulis Ilmiah ini. Oleh karena itu, kritik dan saran dari seluruh pihak senantiasa saya harapkan demi kesempurnaan karya ini. Semoga Karya Tulis Ilmiah ini dapat membawa pemahaman dan pengetahuan bagi kita semua.

Bandung, Agustus 2024  
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## ABSTRAK

### STUDI KASUS: PENERAPAN TERAPI *ELECTRICAL MUSCLE STIMULATION (EMS) BUTTERFLY* TERHADAP KEKUATAN OTOT PADA ATLET PASCA CEDERA AKUT

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**Pendahuluan:** Cedera dapat menurunnya kekuatan otot dikarenakan adanya kerusakan otot yang memerlukan waktu untuk kembali normal. Pada cedera akut yaitu cedera yang terjadi secara tiba-tiba dan perlu ditangani dengan serius agar tidak menjadi cedera kronis berulang. *Electrical Muscle Stimulation (EMS) butterfly* merupakan salah satu terapi latihan pasif yang dapat meningkatkan kekuatan otot dan mengurangi risiko cedera saat latihan fisik aktif. **Metode:** Metode yang digunakan adalah kualitatif dengan pendekatan studi kasus, dengan dua orang sampel penelitian yaitu atlet pasca cedera akut yang mengalami penurunan kekuatan otot/kekuatan otot pada kategori kurang sekali-kurang yang diukur oleh alat *back and leg dynamometer*. Intervensi EMS *butterfly* dilakukan selama 30 hari dengan intensitas dua kali seminggu selama 20 menit. **Hasil:** Terdapat peningkatan kekuatan otot tungkai pada kedua klien yang diukur dengan *back and leg dynamometer*, pada klien 1 yaitu 94 kg (kategori kurang) menjadi 102 kg (kategori kurang), sedangkan pada klien 2 yaitu 85 kg (kategori kurang) menjadi 95 kg (kategori kurang). Maka rata-rata peningkatan kekuatan otot sebanyak 9 kg selama 30 hari. **Diskusi:** Kontraksi untuk stimulus selama terus menerus sebelum latihan fisik aktif dapat meningkatkan kekuatan otot dan mengurangi risiko cedera saat latihan fisik aktif. **Kesimpulan:** Hasil penelitian didapatkan bahwa adanya peningkatan kekuatan otot pada kedua klien setelah dilakukan intervensi terapi EMS *butterfly* selama 30 hari dengan 8 kali intervensi. **Kata Kunci:** *Electrical Muscle Stimulation (EMS) Butterfly*, Kekuatan Otot, Pasca Cedera Akut, Kekuatan Otot.

## **ABSTRACT**

### **CASE STUDY: APPLICATION OF BUTTERFLY ELECTRICAL MUSCLE STIMULATION (EMS) THERAPY ON MUSCLE STRENGTH IN ATHLETES POST ACUTE INJURY**

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**Introduction:** Injuries can decrease muscle strength due to muscle damage that takes time to return to normal. Acute injuries are injuries that occur suddenly and need to be taken seriously so that they do not become chronic repetitive injuries. Electrical Muscle Stimulation (EMS) butterfly is one of the passive exercise therapies that can increase muscle strength and reduce the risk of injury during active physical exercise. **Methods:** The method used was qualitative with a case study approach, with two research samples, namely post-acute injury athletes who experienced a decrease in muscle strength / muscle strength in the very-lack category as measured by the back and leg dynamometer. EMS butterfly intervention was carried out for 30 days with intensity twice a week for 20 minutes. **Results:** There was an increase in leg muscle strength in both clients measured by a back and leg dynamometer, in client 1, 94 kg (category less) to 102 kg (category less), while in client 2, 85 kg (category less) to 95 kg (category less). So the average increase in muscle strength was 9 kg over 30 days. **Discussion:** Contraction to a continuous stimulus before active physical exercise can increase muscle strength and reduce the risk of injury during active physical exercise. **Conclusion:** The results showed that there was an increase in muscle strength in both clients after the EMS butterfly therapy intervention for 30 days with 8 interventions.

**Keywords:** Electrical Muscle Stimulation (EMS) Butterfly, Muscle Strength, Post Acute Injury, Muscle Strength.

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