

**PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP
PENINGKATAN DAYA TAHAN OTOT TUNGKAI**

SKRIPSI

Diajukan untuk memenuhi sebagian dari syarat untuk memperoleh gelar Sarjana
Sains



Disusun Oleh:

Muhammad Farhan Ramadhan

1500035

ILMU KEOLAHRAGAAN
DEPARTEMEN PENDIDIKKAN KESEHATAN DAN REKREASI
FAKULTAS PENDIDIKAN OLAHRAGA DAN KESEHATAN
UNIVERSITAS PENDIDIKAN INDONESIA
2019

**PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP
PENINGKATAN DAYA TAHAN OTOT TUNGKAI**

oleh

MUHAMMAD FARHAN RAMADHAN

NIM 1500035

diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar
Sarjana Sains

© Muhammad Farhan Ramadhan

Universitas Pendidikan Indonesia

2019

Hak Cipta dilindungi undang-undang.

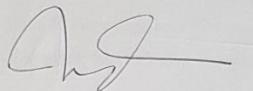
Skripsi ini tidak boleh diperbanyak seluruhnya atau sebagian,
Dengan dicetak ulang, difoto copy, atau cara lainnya tanpa ijin dari penulis.

LEMBAR PENGESAHAN

MUHAMMAD FARHAN RAMADHAN
PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP
PENINGKATAN DAYA TAHAN OTOT TUNGKAI

Disetujui dan disahkan oleh pembimbing :

Pembimbing I



Iman Imanudin, S.Pd, M.Pd

NIP. 197508102001121001

Pembimbing II

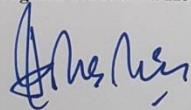


Dr. Surdiniaty Ugelta, M.Kes., AIFO

NIP. 195912201987032001

Mengetahui

Ketua Program Studi Ilmu Keolahragaan



Mustika Fitri, M.Pd., Ph.D

NIP. 196812201998022001

ABSTRAK
**PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP
PENINGKATAN DAYA TAHAN OTOT TUNGKAI**

**Pembimbing : Iman Imanudin S.Pd., M.Pd¹, Dr. Surdiniaty Ugelta, M.Kes.,
AIFO²**

**Muhammad Farhan Ramadhan
1500035**

Salah satu permasalahan yang terjadi di Indonesia adalah kalenderisasi kompetisi yang mendadak atau tidak tepat waktu sehingga dikhawatirkan atlet tampil tidak dalam performa terbaiknya. Metode latihan yang dapat meningkatkan komponen kondisi fisik secara singkat dan serempak yaitu *circuit training*. Tujuan penelitian ini yaitu untuk mengetahui pengaruh metode *circuit training aerobic* terhadap daya tahan otot tungkai. Metode latihan yang terdiri dari beberapa pos, yang disusun satu putaran latihan dimana setiap pos mempunyai bentuk latihan yang berbeda. Peneliti melakukan penerapan metode *circuit training aerobic* yang dimodifikasi dari *circuit training* konvensional di antara setiap pos diberikan aktivitas aerobic dengan lari sub maksimal dengan jarak 200 meter, diharapkan terjadi peningkatan kondisi fisik secara bersamaan dan signifikan dalam mengatasi permasalahan yang terjadi. Dengan bentuk desain penelitian *The Matching-Only Pretest-Posttest Control Group Design*. Sample penelitian ini berjumlah 20 orang dibagi menjadi dua kelompok, 10 orang kelompok eksperimen dan 10 orang kelompok kontrol. Hasil dari penelitian ini menunjukkan terdapat pengaruh metode *circuit training aerobic* terhadap peningkatan daya tahan otot tungkai. Dalam pengolahan data mendapat nilai signifikansi 0,000 yang berarti terdapat pengaruh *circuit training aerobic* terhadap daya tahan otot tungkai.

Kata Kunci: *circuit training*, *circuit training aerobic*, daya tahan otot tungkai

ABSTRACT

EFFECT OF AEROBIC CIRCUIT TRAINING METHODS ON INCREASED LEG MUSCLE ENDURANCE

Advisor: Iman Imanudin S.Pd., M.Pd¹, Dr. Surdiniaty Ugelta, M.Kes., AIFO²

Muhammad Farhan Ramadhan

1500035

One of the problems that occur in Indonesia is the sudden or non-timely calendar of competition so that it is feared that athletes appear not at their best. Training methods that can improve components of physical conditions briefly and simultaneously, namely circuit training. The purpose of this study is to determine the effect of aerobic circuit training methods on the endurance of leg muscles. The training method consists of several posts, which are arranged in a round of exercises where each post has a different form of training. The researcher applied the aerobic circuit training method modified from conventional circuit training between each post given aerobic activity with maximum sub run with a distance of 200 meters, expected to increase the physical condition simultaneously and significantly in dealing with the problems that occur. With the form of design research, The Matching-Only Pretest-Posttest Control Group Design. The research samples were 20 people divided into two groups, 10 experimental groups and 10 control groups. The results of this study show that there is an effect of the aerobic circuit training method on increasing the endurance of limb muscles. In processing the data gets a significance value of 0,000 which means that there is an effect of aerobic circuit training on the endurance of leg muscles.

Keywords: circuit training, aerobic circuit training, endurance of leg muscles.

DAFTAR ISI

KATA PENGANTAR	i
DAFTAR ISI.....	x
DAFTAR TABEL.....	x
DAFTAR GAMBAR.....	x
BAB I.....	1
PENDAHULUAN.....	1
1.1 Latar Belakang	1
1.2 Rumusan Masalah	3
1.3 Tujuan Penelitian	3
1.4 Manfaat Penelitian	4
1.5 Struktur Organisasi Skripsi	4
BAB II	6
KAJIAN PUSTAKA	6
2.1 Metode Latihan Untuk Meningkatkan Daya Tahan.....	6
2.2 Metode <i>Circuit Training Aerobic</i>	12
2.3 Keterkaitan <i>Circuit Training aerobic</i> Terhadap Daya Tahan Otot Tungkai.....	12
2.4 Penelitian Terdahulu Yang Relevan.....	14
2.5 Posisi Teori Penelitian.....	15
2.6 Hipotesis	15
BAB III.....	17
METODOLOGI PENELITIAN	17
3.1 Desain Penelitian.....	17
3.2 Partisipan.....	18
3.3 Populasi dan Sampel	18
3.4 Instrumen Penelitian.....	19
3.5 Prosedur Penelitian.....	20
3.6 Analisis Data	26
BAB IV	28
TEMUAN DAN PEMBAHASAN.....	28
4.1 Temuan Penelitian.....	28
4.1.1 Deskripsi Data.....	29
4.1.2 Analisis Data.....	30
4.2 Uji Hipotesis <i>Paired Sample t Test</i>	31
4.3 Diskusi Temuan Penelitian	32
BAB V.....	37
KESIMPULAN IMPLIKASI DAN REKOMENDASI	37
5.1 Kesimpulan	37

5.2 Implikasi	37
5.3 Rekomendasi.....	37
DAFTAR RUJUKAN.....	38
DAFTAR RIWAYAT HIDUP	53

LAMPIRAN-LAMPIRAN	41
Lampiran 1 Data Tes Daya Tahan Otot Tungkai	41
Lampiran 2 Hasil Output SPSS	42
Lampiran 2 (Lanjutan)	43
Lampiran 3 Grafik Daya Tahan Otot Tungkai	44
Lampiran 4 Dokumentasi.....	45
Lampiran 4 (Lanjutan)	46
Lampiran 5 Surat Keputusan Judul dan Dosen Pembimbing.....	47
Lampiran 5 (Lanjutan)	48
Lampiran 5 (Lanjutan)	49
Lampiran 6 Surat Izin Penelitian.....	50
Lampiran 7 Kartu Bimbingan Skripsi	51
Lampiran 7 (Lanjutan)	52
Lampiran 7 (Lanjutan)	53

DAFTAR TABEL

Tabel 3.1 Desain Penelitian.....	17
Tabel 3.2 Data normatif tes <i>wall sit</i>	19
Tabel 3.3 Prosedur Penelitian	20
Tabel 3.4 Program Latihan Harian Minggu Ke 1-2	25
Tabel 3.5 Program Latihan Harian Minggu Ke 3-4	25
Tabel 3.6 Program Latihan Mingguan	26
Tabel 4.1 Data <i>Pre Test</i> dan <i>Post Test</i> Kelompok Eksperimen dan Kelompok Kontrol.	28
.....	28
Tabel 4.2 Nilai Maksimum, Minimum <i>Circuit Training Aerobic</i>	29
Tabel 4.3 Nilai Maksimum, Minimum <i>Circuit Training</i>	29
Tabel 4.4 Uji Normalitas Kelompok Eksperimen.....	30
Tabel 4.5 Uji Normalitas Kelompok Kontrol	31
Tabel 4.6 Hasil Uji Pengaruh Kelompok Eksperimen	32
Tabel 4.7 Hasil Uji pengaruh kelompok Kontrol	33

DAFTAR GAMBAR

Gambar 1.1 Klasemen Akhir Perolehan Medali Sea Games 2017	1
Gambar 2.1 Pos-pos <i>Circuit Training</i>	11
Gambar 2.2 Interdependence among the biomotor abilities	14
Gambar 2.3 <i>Exercise protocol for the whole-body aerobic resistance training circuit group (CIRCUIT)</i>	15
Gambar 3.1 Push Up	21
Gambar 3.2 Sit Up.....	22
Gambar 3.3 Squat Jump	22
Gambar 3.4 Bens Dips	22
Gambar 3.5 Back Up.....	23
Gambar 3.6 Hurdle Jump	23
Gambar 3.7 Double Crunch	23
Gambar 3.8 Squat.....	24
Gambar 3.9 Flank.....	24
Gambar 3.10 Denah Circuit Training Aerobic.....	24
Gambar 4.1 Gambar Hasil Tes Rata-Rata Kelompok Eksperimen.....	33
Gambar 4.2 Gambar Hasil Tes Rata-Rata Kelompok Kontrol	34

DAFTAR LAMPIRAN

Lampiran 1 Data Tes Daya Tahan Otot Tungkai	43
Lampiran 2 Hasil Output SPSS	44
Lampiran 2 (Lanjutan)	45
Lampiran 3 Grafik Daya Tahan Otot Tungkai.....	46
Lampiran 4 Dokumentasi	47
Lampiran 4 (Lanjutan)	48
Lampiran 5 Surat Keputusan Judul dan Dosen Pembimbing.....	49
Lampiran 5 (Lanjutan)	50
Lampiran 5 (Lanjutan)	51
Lampiran 6 Surat Izin Penelitian.....	52
Lampiran 7 Kartu Bimbingan Skripsi	53
Lampiran 7 (Lanjutan)	54
Lampiran 7 (Lanjutan)	55

DAFTAR RUJUKAN

Jurnal & Buku

- Al-Haliq, M. (2015). Using the Circuit Training Method to Promote the Physical Fitness Components of the Hashemite University Students. *Advances in Physical Education*, 05(03), 170–175.
<https://doi.org/10.4236/ape.2015.53021>
- Allung, J. R., Wira, D., Kusuma, Y., Kristen, U., Wacana, A., & Timur, N. T. (2019). *Evaluating Coaching Achievement Taekwondo Sports Branch of Students Development Center and Sport Training NTT*. 8(147), 116–120.
- Arnason, A., Sigurdsson, S. B., Gudmundsson, A., Holme, I., Engebretsen, L., & Bahr, R. (2004). Physical Fitness, Injuries, and Team Performance in Soccer. *Medicine and Science in Sports and Exercise*, 36(2), 278–285.
<https://doi.org/10.1249/01.MSS.0000113478.92945.CA>
- Bashir, S., & Hajam, B. A. (2017). The effect of fartlek training on speed and endurance of physical education students of Annamalai University. *International Journal of Academic Research and Development*, 2(5), 142–145.
- Belegišanin, B. (2018). Effects of high-intensity interval training on aerobic fitness in elite Serbian soccer players. *Exercise and Quality of Life*, 9(2), 13–17. <https://doi.org/10.31382/eqol.171202>
- Bhat, A. R. (2018). Effect of Circuit Training on Agility of College Male Students. *Forensic Science & Addiction Research*, 1(1), 20–21.
<https://doi.org/10.31031/fsar.2017.01.000503>
- Bompa, T. O. (1999). Periodization: theory and methodology of training. 4th ed. In *Champaign, Ill. : Human Kinetics*;
- Bompa, T. O., & Haff, G. G. (2009). Periodization: Theory and Methodology of Training. 5th ed. In *Champaign, Ill. : Human Kinetics*;
- Brad A. Roy. (2013). Fitness Focus High-Intensity Interval Training : Efficient , *Health & Fitness Journal*, 17(3), 3.
- Brett, K., & Chris, J. (2013). CIRCUIT TRAINING USING BODY WEIGHT : Maximum resultswith minimalinvestment. *ACSM's HEALTH & FITNESS JOURNAL*, 17(3), 8–13.
- Care, P. H., Amtmann, J., & Hegg, S. (2016). *Primary Health Care : Open Access*. 6(1), 1–3. <https://doi.org/10.4172/2167-1079.1000220>
- Comyns, T. (n.d.). CIRCUIT TRAINING. *EMPOWERING IRISH SPORT CIRCUIT TRAINING DEVELOPMENT OF STRENGTH & CONDITIONING COACHING IRELAND THE LUCOZADE SPORT EDUCATION PROGRAMME*.
- Creswell, J. W. (2014). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.; V. Knight, Ed.). Los Angeles | London | New Delhi | Singapore.
- Dahl, K. D. (2013). *Running head: FACTORS AND PERFORMANCE 1 External Factors and Athletic Performance*. 1–35.
- Dick, B. F. W., & Britain, G. (1989). *DEVELOPMENT OF MAXIMUM SPRINTING SPEED*. 3475–3480.

- Dr NS Deol, D. J. S. (2013). Effect of Continuous Running and Interval Training METHODS ON ENDURANCE ABILITY OF FOOTBALL PLAYERS. *INTERNATIONAL JOURNAL OF BEHAVIORAL SOCIAL AND MOVEMENT SCIENCES (ISSN: 2277-7547, 02(01), 333–339.*
- Fajrin, F., Kusnanik, N. W., & Wijono. (2018). Effects of High Intensity Interval Training on Increasing Explosive Power, Speed, and Agility. *Journal of Physics: Conference Series, 947(1)*. <https://doi.org/10.1088/1742-6596/947/1/012045>
- Fraenkel; J. R.; Wallen; N.; & Hyun; H. (2011). Summary for Policymakers. In *Climate Change 2013 - The Physical Science Basis.* <https://doi.org/10.1017/CBO9781107415324.004>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2013). How to Design Research in Education and Evaluate. In *McGraw-Hill, a business unit of The McGraw-Hill Companies, Inc., 1221 Avenue of the Americas, New York, NY 10020.* (Vol. 6).
- Hakim, A. A., & Hanif, S. (2017). *THE EFFECT OF BIOMECHANICAL KNOWLEDGE, PHYSICAL CONDITION, AND LANDING TECHNIQUE ON ACL INJURY RISK OF SEPAK TAKRAW ATHLETES.* 3(2), 151–161.
- Hermassi, S., Wollny, R., Schwesig, R., & Roy J. Shephard, and M. S. C. (2017). Effects of In-Season Circuit Training on Physical Abilities in Male Handball Players. *Journal of Strength and Conditioning Research, 33(4)*, 944–957. <https://doi.org/10.1519/JSC.0000000000002270>
- Karlita, N. (2017). Soal Penurunan Prestasi Indonesia di SEA Games 2017.
- Karlsson, Ø., Gilgien, M., Gløersen, Ø. N., & Rud, B. (2018). *Exercise Intensity During Cross-Country Skiing Described by Oxygen Demands in Flat and Uphill Terrain.* 9(July), 1–12. <https://doi.org/10.3389/fphys.2018.00846>
- Lambert, I. M., Viljoen, Wayne, Bosch, Andrew, ... Mark. (2005). *General Principles of Training.*
- Lyakh, V., Mikołajec, K., Bujas, P., Witkowski, Z., Zajac, T., Litkowycz, R., & Banyś, D. (2016). Periodization in team sport games - A review of current knowledge and modern trends in competitive sports. *Journal of Human Kinetics, 54(1)*, 173–180. <https://doi.org/10.1515/hukin-2016-0053>
- Mackenzie, B. (2005). *101 Tests D'Évaluations.*
- Mawardi, C. (2018). Porda Diundur, Tim Sepakbola Luwu Utara Tetap Latihan.
- Miro, J. (2014). “*DEVELOPING PHYSICAL CAPACITIES II .*” 12–17.
- Myers, T. R., Schneider, M. G., Schmale, M. S., & Hazell, T. J. (2015). WHOLE-BODY AEROBIC RESISTANCE TRAINING CIRCUIT IMPROVES AEROBIC FITNESS AND MUSCLE STRENGTH IN SEDENTARY YOUNG FEMALES. *Department OfKinesiology and Physical Education, Faculty OfArts and Science, University OfLethbridge, Lethbridge, Alberta, Canada,* 1592–1600.
- Nayeem Showkat, H. P. (2017). *Communications Research : Experimental Method.* (July), 0–12.
- Nourollahnajafabadi, Sedighi, Mahnaz, Zahra, Sargolzaee, Farnaz, ... Seiedehkhadijeh. (2013). Description of the status of strength muscle, endurance muscle, balance and flexibility in elderly people. *Scholars Research Library Annals of Biological Research, 4(2)*, 257–260.

- Nuttgen, H. O. G. K. (2007). *STRENGTH TRAINING AND AEROBIC EXERCISE: COMPARISON AND CONTRAST*. 21(3), 973–978.
- Parker, K., Czech, D., Burdette, T., Stewart, J., Biber, D., Easton, L., ... Sarah Carson, and T. M. (2012). Journal of Coaching Education. *Journal of Coaching Education*, 5(1), 83–113.
- Patel, H., Alkhawam, H., Madanieh, R., Shah, N., Kosmas, C. E., & Vittorio, T. J. (2017). Aerobic vs anaerobic exercise training effects on the cardiovascular system . *World Journal of Cardiology*, 9(2), 134. <https://doi.org/10.4330/wjc.v9.i2.134>
- Patricia E. Mosher, Steven A. Underwood, Michael A. Ferguson, and R. O. A. (1994). *Effects of 12 Weeks of Aerobic Circuit Training on Aerobic Capacity, Muscular Strength, and Body Composition in College-Age Women*.
- Schmolinsky, G. (n.d.). *Track and Field: The East German Textbook of Athletics*. Sport Books Publisher (1 April 2001).
- Sholih, M. (2016). Pelaksanaan Popda di Jember Mundur.
- Syed Kamaruzaman Syed Ali, Arumugam, Malathyie, Ranjbar Zahra, Daud Megat Kamaluddin Ahmad, M., Samad, & Ab, R. S. (2015). The effectiveness of circuit training in enhancing muscle endurance among standard five boys in a primary school. *International Journal of Physical Education, Sport and Health*, 2(1), 11–16.
- Taskin, H. (2009). EFFECT OF CIRCUIT TRAINING ON THE SPRINT-AGILITY AND ANAEROBIC ENDURANCE. *Journal OfStrength and Conditioning Research*, 23(6), 1803–1810.
- Vaara, J. P., Inen, Heikki Kyro" LA" Nemi, J., Mmen, O. O., Kkinen, A. H., And, S. K., Keijo HA" Kkinen, & 2. (2012). ASSOCIATIONS OF MAXIMAL STRENGTH AND MUSCULAR ENDURANCE TEST SCORES WITH CARDIORESPIRATORY FITNESS AND BODY COMPOSITION. *Journal of Strength and Conditioning Research*, 2078–2086.
- Viana, R. B., Naves, J. P. A., Coswig, V. S., De Lira, C. A. B., Steele, J., Fisher, J. P., & Gentil, P. (2019). Is interval training the magic bullet for fat loss? A systematic review and meta-analysis comparing moderate-intensity continuous training with high-intensity interval training (HIIT). *British Journal of Sports Medicine*, 655–664. <https://doi.org/10.1136/bjsports-2018-099928>
- Walliman, N. (2010). Research Methods: The Basics. In *Research Methods: The Basics*. <https://doi.org/10.4324/9780203836071>
- Yuniarni, U., Lukmayani, Y., & Fitriyani, A. (2010). *Pendahuluan Metode Penelitian Hasil dan Pembahasan. II*(1), 111–116.

Sumber Internet

- Karlita, N. (2017). Soal Penurunan Prestasi Indonesia di SEA Games 2017. Diakses dari <https://sports.okezone.com/read/2017/08/31/43/1766770/soal-penurunan-prestasi-indonesia-di-sea-games-2017-menpora-siap-bertanggung-jawab-penuh>
- (Pur, 2017). Cara Melakukan Push up, Sit up, dan Shoulder Press. Diakses dari

- <http://www.freedomssiana.com/2017/06/cara-melakukan-push-up-sit-up-dan.html>
- (Heze, 2017). Otot yang dilatih saat squat jump. Diakses dari <https://programlatihanfisik.blogspot.com/2017/11/otot-yang-dilatih-saat-squat-jump.html>
- (Dewi, 2016). 5 Olahraga ringan yang dapat dilakukan di kantor. Diakses dari <https://jurnal.maskulin.com/jurnal/gaya-hidup/lifehack/5-olahraga-ringan-yang-dapat-dilakukan-di-kantor/>
- Sholih, M. (2016). Pelaksanaan Popda di Jember Mundur. <https://www.timesindonesia.co.id/read/129260/20160725/120004/pelaksanaan-popda-di-jember-mundur/>
- Mawardi, C. (2018). Porda Diundur, Tim Sepakbola Luwu Utara Tetap Latihan <https://makassar.tribunnews.com/2018/08/15/porda-diundur-tim-sepakbola-luwu-utara-tetap-latihan>.