

PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP  
PENINGKATAN KAPASITAS AEROBIK ( $VO_2MAX$ )

SKRIPSI

Diajukan sebagai bagian dari persyaratan untuk mendapatkan gelar Sarjana Sains  
Program Studi Ilmu Keolahragaan



Oleh  
Ibnu Syina Nirwana  
1501680

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

**PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP  
PENINGKATAN KAPASITAS AEROBIK ( $VO_2MAX$ )**

Oleh  
Ibnu Syina Nirwana  
NIM : 1501680

Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar  
Sarjana Sains pada Fakultas Pendidikan Olahraga dan Kesehatan Program Studi  
Ilmu Keolahragaan

© Ibnu Syina Nirwana 2019  
Universitas Pendidikan Indonesia  
Juni 2019

Hak Cipta dilindungi undang – undang.

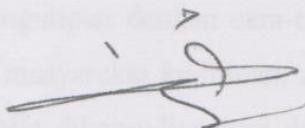
Skripsi ini tidak boleh diperbanyak seluruhnya atau sebagian,  
dengan dicetak ulang, difoto copy, atau cara lainnya tanpa izin dari penulis.

IBNU SYINA NIRWANA

PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP  
PENINGKATAN KAPASITAS AEROBIK ( $VO_2 MAX$ )

Disetujui dan disahkan oleh pembimbing :

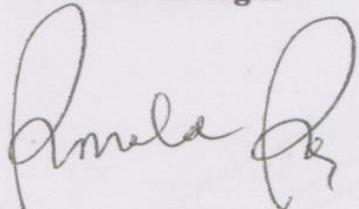
Pembimbing I



Dr. Surdiniaty Ugelta, M.Kes., AIFO

NIP. 195912201987032001

Pembimbing II

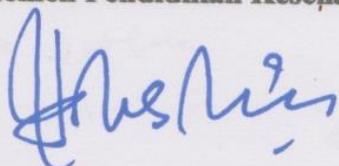


dr. Hamidie Ronald D, M.Pd., Ph.D

NIP. 197011022000121001

Mengetahui,

Ketua Departemen Pendidikan Kesehatan dan Rekreasi



Mustika Fitri, M.Pd., Ph.D.

NIP. 196812201998022001

## **ABSTRAK**

### **PENGARUH METODE *CIRCUIT TRAINING AEROBIC* TERHADAP PENINGKATAN KAPASITAS AEROBIK ( $VO_2Max$ )**

**Ibnu Syina Nirwana  
1501680**

**Pembimbing : Dr. Surdiniaty Ugelta, M.Kes., AIFO<sup>1</sup>., dr. Hamidie Ronald.,  
D. M.Pd., Ph.D<sup>2</sup>**

Permasalahan olahraga prestasi yang saat ini dihadapi di Indonesia yaitu belum tepatnya kalenderisasi kejuaraan, seringkali kejuaraan diadakan secara mendadak sehingga dapat mengganggu program latihan atau periodisasi yang telah dibuat sehingga dikhawatirkan atlet tidak bertanding dalam performa terbaiknya. Penelitian ini bertujuan untuk mengetahui pengaruh metode *circuit training aerobic* terhadap peningkatan kapasitas aerobik ( $VO_2max$ ). Metode penelitian ini adalah eksperimental yang bersifat kuantitatif dengan menggunakan desain The One-Group Pretest- Posttest Design dengan perlakuan atau treatment berupa pemberian latihan sirkuit yang kemudian ditambah dengan aktivitas aerobik yaitu 200 meter lari submaksimal dengan durasi latihan 45-60 menit dan 9 pos, perlakuan atau treatment diberikan kepada subjek sebanyak tiga hari dalam seminggu selama 4 minggu latihan. Populasi dalam penelitian ini adalah seluruh mahasiswa laki-laki ilmu keolahragaan 2018 sebanyak 91 orang dengan pengambilan sampel menggunakan teknik *simple random sampling*. Jumlah sampel yang digunakan sebanyak 10 orang, *Balke Test* digunakan sebagai instrumen dalam penelitian ini yang bertujuan untuk mengetahui kapasitas aerobik ( $VO_2max$ ). Data yang diperoleh diolah menggunakan software IBM SPSS v.20. Hasil dalam penelitian ini menyatakan nilai  $Sig\ 0,000 < 0,05$  yaitu terdapat pengaruh yang signifikan metode *circuit training aerobic* terhadap peningkatan kapasitas aerobik ( $VO_2Max$ ).

**Kata Kunci:** *Circuit Training Aerobic*, Kapasitas Aerobik ( $VO_2Max$ )

## **ABSTRACT**

### **THE EFFECT OF AEROBIC CIRCUIT TRAINING ON AEROBIC CAPACITY (VO<sub>2max</sub>)**

**Ibnu Syina Nirwana  
1501680**

**Advisor : Dr. Surdiniaty Ugelta, M.Kes., AIFO<sup>1</sup>., dr. Hamidie Ronald., D. M.Pd., Ph.D<sup>2</sup>**

The problem of achievement sports currently faced in Indonesia is not precisely the calendarization of the championship, often the championship is held suddenly so that it can interfere with the training program or periodization that has been made so that athletes are not worried about competing in their best performance. This study aims to determine the effect of *aerobic circuit training* methods on increasing aerobic capacity ( $VO_{2\text{max}}$ ). This research method is quantitative in nature using the One-Group Pretest design- Posttest Design with treatment or treatment in the form of circuit training which is then added with aerobic activity that is 200 meters submaximal running with duration of exercise 45-60 minutes and 9 posts, treatment or treatment is given to subjects as much as three days a week for 4 weeks of training. The population in this study were all male students of sports science 2018 as many as 91 people by sampling using *simple random sampling techniques*. The number of samples used was 10 people, *Balke Test* is used as an instrument in this study which aims to determine the aerobic capacity ( $VO_{2\text{max}}$ ). The data obtained were processed using IBM SPSS v.20 software. The results in this study stated the value of Sig 0,000 <0.05 ie there is a significant influence on the *aerobic circuit training* method to increase aerobic capacity ( $VO_{2\text{Max}}$ ).

**Keywords:** Circuit Training Aerobic, Aerobic capacity ( $VO_{2\text{max}}$ )

## DAFTAR ISI

<b>KATA PENGANTAR .....</b>	<b>iv</b>
<b>DAFTAR ISI.....</b>	<b>ix</b>
<b>DAFTAR TABEL .....</b>	<b>x</b>
<b>DAFTAR GAMBAR.....</b>	<b>x</b>
<b>DAFTAR LAMPIRAN .....</b>	<b>x</b>
 <b>BAB 1</b>	
<b>PENDAHULUAN.....</b>	<b>1</b>
1.1 Latar Belakang Masalah.....	1
1.2 Rumusan Masalah .....	4
1.3 Tujuan Penelitian .....	4
1.4 Manfaat Penelitian .....	4
1.5 Struktur Organisasi .....	5
 <b>BAB II</b>	
<b>KAJIAN PUSTAKA DAN LANDASAN TEORI.....</b>	<b>7</b>
2.1 Metode Latihan Untuk Meningkatkan Kemampuan Kapasitas Aerobik .....	7
2.2 Circuit Training.....	9
2.3 Aerobik Circuit Training.....	10
2.4 Keterkaitan Aerobik Circuit Training dengan Kapasitas Aerobik .....	11
2.5 Penelitian Terdahulu Yang Relevan .....	13
2.6 Posisi Teori Peneliti .....	14
2.7 Hipotesis .....	14
 <b>BAB III</b>	
<b>METODE PENELITIAN .....</b>	<b>15</b>
3.1 Metode Penelitian .....	15
3.2 Desain Penelitian.....	15
3.3 Partisipan.....	16
3.4 Populasi dan Sampel .....	16
3.5 Instrument Penelitian .....	16
3.6 Prosedur Penelitian .....	17
 <b>BAB IV</b>	
<b>TEMUAN DAN PEMBAHASAN.....</b>	<b>25</b>
4.1 Temuan Penelitian .....	25
4.2 Pembahasan.....	28
 <b>BAB V</b>	
<b>KESIMPULAN IMPLIKASI DAN REKOMENDASI .....</b>	<b>31</b>
5.1 Kesimpulan .....	31
5.2 Implikasi .....	31
5.3 Rekomendasi.....	31

<b>DAFTAR RUJUKAN .....</b>	<b>33</b>
1. Sumber Jurnal dan Buku .....	33
2. Sumber Internet.....	35

<b>LAMPIRAN.....</b>	<b>36</b>
<b>RIWAYAT HIDUP .....</b>	<b>51</b>

## **DAFTAR TABEL**

Tabel 3.1 Prosedur Penelitian .....	19
Tabel 3.2 Program Latihan Harian Minggu ke 1-2 .....	23
Tabel 3.3 Program Latihan Harian Minggu ke 3-4 .....	23
Tabel 3.4 Program Latihan Mingguan .....	24
Tabel 4.1 Data Hasil Test Kapasitas Aerobik (VO <sub>2</sub> Max).....	25
Tabel 4.2 Deskriptif Data.....	26
Tabel 4.3 Uji Normalitas.....	27
Tabel 4.4 Paired Sampel T-Test.....	28

## **DAFTAR GAMBAR**

Gambar 2. 1 Pos Circuit Training .....	10
Gambar 3.1 Gerakan Push Up.....	19
Gambar 3.2 Gerakan Sit Up .....	19
Gambar 3.3 Gerakan Squat Jump.....	20
Gambar 3.4 Gerakan Bench Dip .....	20
Gambar 3.5 Gerakan Back Up .....	20
Gambar 3.6 Gerakan Hurdle Jump.....	21
Gambar 3.7 Gerakan Double Crunch.....	21
Gambar 3.8 Gerakan Squat .....	21
Gambar 3.9 Gerakan Flank .....	22
Gambar 4.1 Hasil Test Rata-Rata Kapasitas Aerobik (VO <sub>2</sub> Max) .....	28

## **DAFTAR LAMPIRAN**

Lampiran 1 Data Balke Test .....	36
Lampiran 2 Hasil Output SPSS.....	37
Lampiran 3 Grafik Data Kapasitas Aerobik ( <i>VO<sub>2</sub>Max</i> ) .....	39
Lampiran 4 Surat Keterangan .....	40
Lampiran 5 Surat Izin Penelitian.....	43
Lampiran 6 Kartu Bimbingan Skripsi .....	44
Lampiran 7 Dokumentasi.....	47

## DAFTAR RUJUKAN

### 1. Sumber Buku/Jurnal

- Arjunan, R. (2015). *Effect Of Circuit Training And Anaerobic Interval Training On Speed And Strength Among Men Handball Players*. 3(10), 75–80.
- 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>
- Aroelk. (2018). Pelaksanaan Porda Ke-XVI Di Pinrang Dipastikan Molor. Retrieved from Lintasterkini.com website: <http://lintasterkini.com/13/08/2018/pelaksanaan-porda-ke-xvi-di-pinrang-dipastikan-molor.html>
- Askette, K. I. M. B., Arrabi, L. I. D. A. Z., Andrakota, R. A. G., Otipalli, U. S. K., & Echrist, S. C. R. S. (2013). *E Ffect of I Ntensity of a Erobic T Raining on*. 23(6), 1803–1810.
- Bompa, T. O. (1994). *Theory and methodology of training : the key to athletic performance*.
- Bompa, T. O. (1999). Periodization: theory and methodology of training. 4th ed. In *Champaign, Ill. : Human Kinetics*;
- Bompa, T. O. (2009). Periodization: theory and methodology of training. In *Champaign, Ill. : Human Kinetics*; (5th ed.).
- Brett, K., & Chris, J. (2013). Circuit Training Using Body Weight : Maximum Resultswith Minimalinvestment. *Acsm's Health & Fitness Journal*, 17(3), 8–13.
- Campus, A. K. (2009). *E Ffect Of C Ircuit T Raining On The*. 23(6), 1803–1810.
- Darisman, R. dan S. (n.d.). No Title. *Pendidikan Kepelatihan Olahraga Fakultas Keguruan Dan Ilmu Pendidikan Universitas Riau*.
- Donnelly, J. E., Hillman, C. H., Castelli, D., Etnier, J. L., Lee, S., Tomporowski, P., ..., & Szabo-Reed, A. N. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. *Medicine and Science in Sports and Exercise*, 48(6), 1197–1222. <https://doi.org/https://doi.org/10.1249/MSS.0000000000000901>
- Edward L. Fox., Mathews, D. K. (1993). *I.T.: Interval Training for Lifetime Fitness*.
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2011). *How to Design Research in Education and Evaluate* (8th ed.). <https://doi.org/10.1017/CBO9781107415324.004>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). BİBLİYOGRAFİSİ Bulunacak. In *Climate Change 2012 - The Physical Science Basis* (Vol. 53). <https://doi.org/10.1017/CBO9781107415324.004>
- Getty, A. K., Wisdo, T. R., Chavis, L. N., Derella, C. C., McLaughlin, K. C., Perez, A. N., ... Feairheller, D. L. (2018). Effects of circuit exercise training on vascular health and blood pressure. *Preventive Medicine Reports*, 10(August 2017), 106–112. <https://doi.org/10.1016/j.pmedr.2018.02.010>
- Harsono. (1988). *Coaching dan aspek psikologi dalam coaching*. Jakarta.
- Jheri Turnley, B.S., H. (n.d.). : How Can An Endurance Athlete Use It To Obtain

- Peak Performance? By Jheri Turnley, B.S., Hfs. *Heart, I*(16).
- Kumar, P. P. S. P. (2013). *The Effect of Circuit Training on Cardivascular Endurance of HighSchool Boys.* 13(7).
- M. Babu, S., & Kumar, P. P. S. P. (2014). *Effect of Continuous Running Fartlek and Interval Training on Speed and Coordination among Male Soccer Players I . Introduction Aerobic Physical work out are done with oxygen . Use of oxygen in the body metabolic or energy generating process to perform th. I*(1), 33–41.
- Maiorana, A., O'Driscoll, G., Cheetham, C., Collis, J., Goodman, C., Rankin, S., ... Green, D. (2017). Combined aerobic and resistance exercise training improves functional capacity and strength in CHF. *Journal of Applied Physiology*, 88(5), 1565–1570. <https://doi.org/10.1152/jappl.2000.88.5.1565>
- Maniazhagu, D., Alexander, C. R., Sha, S., & Alexander, P. (2011). *Effects of aerobic training and circuit training on muscular strength and muscular endurance.* 4(2), 132–134.
- Mayorga-vega, D., Viciiana, J., & Cocca, A. (2013). *Effects of a Circuit Training Program on Muscular and Cardiovascular Endurance and their Maintenance in Schoolchildren by.* 37(June), 153–160. <https://doi.org/10.2478/hukin-2013-0036>
- Mosher, P. E. (1994). Effects\_of\_12\_Weeks\_of\_Aerobic\_Circuit\_Training\_on.4.pdf. *Journal of Strength and Conditioning Research.*
- Muthu Eleckuvan, R. (2017). Effectiveness of Fartlek Training on Maximum Oxygen Consumption and Resting Pulse Rate. *International Journal of Physical Education, Fitness and Sports*, 3(1), 85–88. <https://doi.org/10.26524/14115>
- Officer, S. (2016). *A Study on the effect of circuit training on the enhancement of heart rate max among the Female students of amity university Haryana Sonika ohlyan.* 7(2), 75–79.
- 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>
- Plowman, S. A., & Meredith, M. D. (2013). *Reference Guide ( 4 th Edition ).*
- Rani, S., & Malik, A. (2017). *A study of effects of circuit training on selected physical fitness variables of sports persons.* 2(2), 10–14.
- Rushall, B. S., & Pyke, F. S. (1990). *Training for sports and fitness.* Melbourne, Australia: Macmillan Educational.
- Schmolinsky, G. (n.d.). *Track and Field: The East German Textbook of Athletics.* Sport Books Publisher (1 April 2001).
- Sharkey, B. (1997). *Fitness and health (4th ed.).* champaign, IL : Human Kinetics.
- Showkat, N., & Aligarh, H. P. (2017). *Communications Research : Experimental Method.* (July), 0–12.
- Sukmaningtyas H, Pudjonarko D, B. E. (2004). Pengaruh latihan aerobik dan anaerobik terhadap sistem kardiovaskuler dan kecepatan reaksi. *Medika Media Indonesia.*
- Takeshima, N., Rogers, A. M. E., Islam, M. M., & Yamauchi, A. T. (2004). *Effect of concurrent aerobic and resistance circuit exercise training on*

- fitness in older adults.* 173–182. <https://doi.org/10.1007/s00421-004-1193-3>
- Taskin, H. (2013). *E Ffect of I Ntensity of a Erobic T Raining on.* 23(6), 1803–1810.
- Thomas, K., & Ph, D. (2015). *Relationship Of Physical Fitness To Athletic Performance And Sports.* 162, 12.
- Walliman, N. (2014). Research Methods: The Basics. In *Research Methods: The Basics.* <https://doi.org/10.4324/9780203836071>
- Wirat Sonchan, Pratoom Moungmee, A. S. (2017). The Effects of a Circuit Training Program on Muscle Strength, Agility, Anaerobic Performance and Cardiovascular Endurance. *International Journal of Sport and Health Science,* 11(4), 176–179. Retrieved from <http://www.statista.com/statistics/275056/total-number-of-health->
2. Sumber Internet
- Islahuddin. (2017). *Galau Prestasi Olahraga Indonesia.* Retried from <https://beritagar.id/artikel/arena/galaunya-prestasi-olahraga-indonesia>
- Banyuwangi. (2017). Jadwal Mendadak, Judo Tak Berani Pasang Target. Retried from <http://sinergi.radarmalang.id/jadwal-mendadak-judo-tak-berani-pasang-target-radar-banyuwangi/>
- Aroelk. (2018). Pelaksanaan Porda Ke-XVI Di Pinrang Dipastikan Molor. Retrieved from Lintasterkini.com website: <http://lintasterkini.com/13/08/2018/pelaksanaan-porda-ke-xvi-di-pinrang-dipastikan-molor.html>
- <https://id.wikihow.com/Melakukan-Push-Up>
- <https://kiblat212.blogspot.com/2017/02/manfaat-sit-up-untuk-fisik.html>
- <http://magniphisique.weebly.com/workout-tips/6-easy-steps-to-do-plies-squat-jumps>
- <http://bearcrawlfitness.com/bench-dip/>
- <http://www.nafiun.com/2015/08/aktivitas-pengembangan-latihan-kebugaran-jasmani.html>
- <https://www.stack.com/a/5-ways-to-make-hurdle-hop-plyometrics-more-effective>
- <https://depositphotos.com/233769482/stock-illustration-double-crunches-double-crunch-sport.html>
- <https://www.weightwatchers.com/us/article/squat-challenge>
- <https://www.worldwidelifestyles.com/superman-planks/>