

**PERBANDINGAN PENGARUH LATIHAN *DRYLAND SWIMMING*  
*WORKOUT* DENGAN O7W TERHADAP KECEPATAN RENANG  
50 METER GAYA BEBAS DAN 200 METER GAYA GANTI**

**TESIS**

Diajukan untuk memenuhi salah satu syarat untuk memperoleh gelar *Magister* Pendidikan  
Olahraga Konsentrasi Pendidikan Jasmani



Oleh

**Yuniarti Sani Damayanti**

**2002427**

**KONSENTRASI PENDIDIKAN JASMANI DAN OLAHRAGA  
PROGRAM STUDI PENDIDIKAN OLAHRAGA  
SEKOLAH PASCASARJANA  
UNIVERSITAS PENDIDIKAN INDONESIA  
BANDUNG  
2022**

## LEMBAR HAK CIPTA

### **PERBANDINGAN PENGARUH LATIHAN *DRYLAND SWIMMING WORKOUT* DENGAN *O7W* TERHADAP KECEPATAN RENANG 50 METER GAYA BEBAS DAN 200 METER GAYA GANTI**

Oleh:

Yuniarti Sani Damayanti

UPI Bandung, 2022

Sebuah Tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Magister Pendidikan (M.Pd) pada Sekolah Pascasarjana UPI

© Yuniarti Sani Damayanti

Universitas Pendidikan Indonesia

Juli 2022

Hak cipta dilindungi undang-undang.

Tesis ini tidak boleh diperbanyak seluruhnya atau sebagian.

Dengan dicetak ulang, difoto copy, atau cara lainnnya tanpa ijin penulis.

Yuniarti Sani Damayanti, 2022

**PERBANDINGAN PENGARUH LATIHAN *DRYLAND SWIMMING WORKOUT* DENGAN *O7W* TERHADAP KECEPATAN RENANG 50 METER GAYA BEBAS DAN 200 METER GAYA GANTI** Universitas Pendidikan Indonesia | [repository.upi.edu](https://repository.upi.edu) | [perpustakaan.upi.edu](https://perpustakaan.upi.edu)

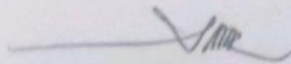
LEMBAR PENGESAHAN

YUNIARTI SANI DAMAYANTI  
2002427

PERBANDINGAN PENGARUH LATIHAN *DRYLAND SWIMMING  
WORKOUT* DENGAN *O7W* TERHADAP KECEPATAN RENANG  
50 METER GAYA BEBAS DAN 200 METER GAYA GANTI

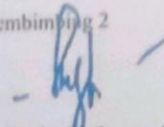
Disetujui dan disahkan oleh pembimbing:  
Bandung, Juli 2022

Pembimbing 1



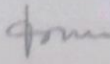
Dr. Agus Mahendra, M.A.  
NIP.196308241989031002

Pembimbing 2



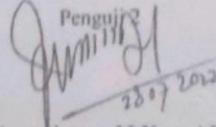
Prof. Dr. Rd. Boyke Mulyana, M.Pd.  
NIP. 196210231989031001

Penguji 1



Dr. Karljono, M.Sc.  
NIP. 196105251986011002

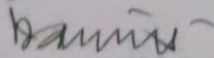
Penguji 2



Dr. Ucup Yusup, M.Kes., AIFO.  
NIP.195810211985031002

Mengetahui,

Ketua Program Studi Pendidikan Olahraga



Prof. Dr. H. Amung Ma'mun, M.Pd.  
NIP. 196001191985031002

Yuniarti Sani Damayanti, 2022

*PERBANDINGAN PENGARUH LATIHAN DRYLAND SWIMMING WORKOUT DENGAN O7W TERHADAP KECEPATAN RENANG 50 METER GAYA BEBAS DAN 200 METER GAYA GANTI* Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

## Abstrak

Yuniarti Sani Damayanti (2002427). Perbandingan pengaruh latihan *dryland swimming workout* dengan O7W terhadap kecepatan renang 50 meter gaya bebas dan 200 meter gaya ganti. Tesis (2022).

Latihan *dryland* merupakan latihan darat yang dilakukan oleh atlet renang guna menunjang performa renangnya. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh latihan renang melalui latihan *dryland swimming workout* dengan O7W terhadap kecepatan renang 50 meter gaya bebas dan 200 meter gaya ganti dan mengetahui pengaruh yang lebih baik dari latihan *dryland swimming workout* dengan O7W. Metode dalam penelitian ini menggunakan kuasi eksperimen dengan desain penelitian *two group pretest and posttest design*. Penelitian ini dilakukan pada atlet-atlet di klub renang Galunggung Aquatic Club (GAC) Tasikmalaya dengan jumlah populasi 36 orang. Dalam penelitian ini pengambilan sampel menggunakan teknik pengambilan *purposive sampling* sebanyak 10 orang, yang terbagi ke dalam 2 kelompok. Masing-masing kelompok berjumlah 5 orang. Instrumen yang digunakan dalam penelitian ini yaitu tes renang gaya bebas dengan jarak 50 meter dan tes renang gaya ganti dengan jarak 200 meter. Teknik analisis menggunakan pendekatan statistik parametrik, diperoleh hasil penelitian bahwa 1) Terdapat pengaruh yang signifikan dari latihan *dryland swimming workout* terhadap kecepatan renang 50 meter dengan nilai  $t_{hitung} = 4,347 > t_{tabel} = 2,131$  nilai Sig. (2-tailed) = 0,012 <  $\alpha = 0,05$ . 2) Tidak terdapat pengaruh yang signifikan dari O7W terhadap kecepatan renang 50 meter gaya bebas dengan nilai  $t_{hitung} = 1,706 < t_{tabel} = 2,131$  nilai Sig. (2-tailed) = 0,163 >  $\alpha = 0,05$ . 3) Terdapat perbedaan pengaruh dari latihan *dryland swimming workout* dengan O7W terhadap kecepatan renang 50 meter gaya bebas. 4) Terdapat pengaruh yang signifikan dari latihan *dryland swimming workout* terhadap kecepatan renang 200 meter gaya ganti dengan nilai  $t_{hitung} 4,803 > t_{tabel} = 2,131$ ; (df) = 4; Sig. (2-tailed) = 0,009 <  $\alpha = 0,05$ . 5) Terdapat pengaruh yang signifikan dari latihan O7W terhadap kecepatan renang 200 meter gaya ganti dengan nilai  $t_{hitung} 3,336 > t_{tabel} = 2,131$  ; Sig. (2-tailed) = 0,029 <  $\alpha = 0,05$ . 6) Terdapat perbedaan pengaruh dari latihan *dryland swimming workout* dengan O7W terhadap kecepatan renang 200 meter gaya ganti.

**Keywords** : latihan darat, O7W, kecepatan renang gaya bebas, gaya ganti

## Abstract

Yuniarti Sani Damayanti (2002427). *Effect of exercise through dryland swimming workout and O7W on swimming speed of 50 meters freestyle and 200 meters individual medley. Thesis (2022).*

*Dryland exercise is a land exercise carried out by swimming athletes to support their swimming performance. The purpose of this study was to determine the effect of swimming exercise through dryland swimming workout with O7W on swimming speed of 50 meters freestyle and 200 meter medley and determine the better effect of dryland swimming workout with O7W. The method in this study used a quasi-experimental research design with a two group pretest and posttest design. This research was conducted on athletes at the Galunggung Aquatic Club (GAC) Tasikmalaya swimming club with a population of 36 people. In this study, the sample was taken using purposive sampling technique as many as 10 people, which were divided into 2 groups. Each group consists of 5 people. The instruments used in this study were the freestyle swimming test with a distance of 50 meters and the medley swimming test with a distance of 200 meters. The analysis technique used a parametric statistical approach, the results showed that 1) There was a significant effect of the dryland swimming workout on swimming speed of 50 meters with  $t_{count} = 4,347 > t_{table} = 2,131$  Sig value. (2-tailed) =  $0.012 < = 0.05$ . 2) There is no significant effect of O7W on swimming speed of 50 meters freestyle with  $t_{count} = 1,706 < t_{table} = 2,131$  Sig value. (2-tailed) =  $0.163 > = 0.05$ . 3) There is a difference in the effect of the dryland swimming workout with O7W on the 50 meter freestyle swimming speed. 4) There is a significant effect of the dryland swimming workout on the 200 meter medley swimming speed with  $t_{count} 4.803 > t_{table} = 2.131$ ; (df) = 4; Sig. (2-tailed) =  $0.009 < = 0.05$ . 5) There is a significant effect of O7W exercise on the speed of swimming in the 200 meter medley with a value of  $t_{count} 3,336 > t_{table} = 2,131$ ; Sig. (2-tailed) =  $0.029 < = 0.05$ . 6) There is a difference in the effect of the dryland swimming workout with O7W on the 200 meter medley swimming speed.*

**Keywords:** ground training, O7W, freestyle swimming speed, individual medley

## DAFTAR ISI

<b>Bab</b>	<b>Halaman</b>
<b>LEMBAR PENGESAHAN</b> .....	i
<b>UCAPAN TERIMA KASIH</b> .....	ii
<b>Absrtak</b> .....	iv
<b>DAFTAR ISI</b> .....	vi
<b>DAFTAR GAMBAR</b> .....	v8
<b>DAFTAR TABEL</b> .....	ix
<b>BAB I PENDAHULUAN</b>	
1.1 Latar Belakang .....	1
1.2 Rumusan Masalah .....	6
1.3 Tujuan Penelitian.....	6
1.4 Manfaat Penelitian.....	7
1.4.1 Manfaat Teoretis.....	7
1.4.2 Manfaat Praktis.....	7
1.5 Struktur Organisasi .....	7
<b>BAB II KAJIAN PUSTAKA</b>	
2.1 Renang.....	9
2.2 Latihan.....	22
2.3 Kecepatan .....	25
2.4 Dryland Swimming Workout.....	26
2.5 O7W .....	32
2.6 Kerangka Pemikiran.....	37
2.7 Hipotesis Penelitian.....	39
<b>BAB III METODE PENELITIAN</b>	
3.1 Metode Penelitian.....	40
3.2 Variabel Penelitian .....	41
3.3 Desain Penelitian.....	42
3.4 Partisipan.....	42
3.5 Populasi dan Sampel .....	43
3.6 Instrumen Penelitian.....	43

3.7	Prosedur Penelitian.....	44
3.8	Waktu dan Tempat Penelitian .....	45
3.9	Analisis Data .....	45
3.9.1	Uji Normalitas Data.....	46
3.9.2	Uji Homogenitas.....	46
3.9.3	Uji Hipotesis .....	47
<b>BAB IV TEMUAN DAN PEMBAHASAN</b>		
4.1	Temuan.....	49
4.2	Pembahasan.....	56
<b>BAB V KESIMPULAN</b>		
5.1	Simpulan .....	59
5.2	Implikasi.....	59
5.3	Rekomendasi .....	60
<b>DAFTAR PUSTAKA .....</b>		<b>61</b>

## DAFTAR GAMBAR

Gambar	Halaman
Gambar 2.1 Out Sweep .....	13
Gambar 2.2 In Sweep.....	13
Gambar 2.3 Recovery .....	13
Gambar 2.4 OutswEEP.....	14
Gambar 2.5 InswEEP .....	15
Gambar 2.6 Leg Glide.....	15
Gambar 2.7 Gerakan Renang Gaya Bebas .....	18
Gambar 2.8 Putaran Renang Gaya Bebas <i>Body Rotation</i> .....	18
Gambar 2.9 Otot-otot Lengan Aktif Dalam Gaya Bebas .....	21
Gambar 2.10 <i>Muscles of Leg</i> .....	22
Gambar 2.11 <i>Body Plank</i> .....	27
Gambar 2.12 <i>Jumping Jack</i> .....	27
Gambar 2.13 <i>Freestyle</i> .....	27
Gambar 2.14 <i>Push Up High Elbow</i> .....	28
Gambar 2.15 <i>Breast Stroke Squat</i> .....	28
Gambar 2.16 <i>Breast Stroke</i> .....	28
Gambar 2.17 <i>High Knee</i> .....	28
Gambar 2.18 <i>Back Body Plank</i> .....	29
Gambar 2.19 <i>Back Stroke</i> .....	29
Gambar 2.20 <i>Dips</i> .....	29
Gambar 2.21 <i>Squat Thrust</i> .....	29
Gambar 2.22 <i>Butterfly Stroke</i> .....	29
Gambar 3.1 Prosedur Penelitian .....	45



## DAFTAR TABEL

Tabel 2.1 Analisis Gerak Dryland Swimming Workout.....	30
Tabel 2.2 Analisis Gerak O7W.....	35
Tabel 2.3 Kelebihan dan Kekurangan.....	36
Tabel 3.1 <i>Two Group Pretest and Posttest Design</i> .....	42
Tabel 4.1 Deskripsi Data Hasil Penelitian 50 Meter Gaya Bebas DSW .....	49
Tabel 4.2 Deskripsi Data Hasil Penelitian 50 Meter Gaya Bebas O7W.....	50
Tabel 4.3 Deskripsi Data Hasil Penelitian 200 Meter Gaya Ganti DSW .....	50
Tabel 4.4 Deskripsi Data Hasil Penelitian 200 Meter Gaya Ganti O7W .....	51
Tabel 4.5 Deskripsi Data Penelitian.....	52
Tabel 4.6 Uji Normalitas.....	53
Tabel 4.7 Uji Homogenitas .....	54
Tabel 4.8 Uji-t.....	55

## DAFTAR LAMPIRAN

Lampiran 1. Program Latihan <i>Dryland Swimming Workout</i> .....	65
Lampiran 2. Program Latihan O7W .....	74
Lampiran 3. Normal QQ Pretest O7W .....	81
Lampiran 4. Normal QQ Pretest <i>Dryland Swimming Workout</i> .....	82
Lampiran 5. Detrended QQ Plot Pretest O7W .....	83
Lampiran 6. Detrended QQ Plot Pretest <i>Dryland Swimming Workout</i> .....	84
Lampiran 7. Box Plot Pretest .....	85
Lampiran 8. Normal QQ Posttest O7W .....	86
Lampiran 9. Normal QQ Posttest <i>Dryland Swimming Workout</i> .....	87
Lampiran 10. Detrended QQ Plot Posttest O7W .....	88
Lampiran 11. Detrended QQ Plot Posttest <i>Dryland Swimming Workout</i> .....	89
Lampiran 12. Box Plot Posttest .....	90
Lampiran 13. SK Bimbingan .....	91
Lampiran 14. Surat Izin Penelitian .....	92

## DAFTAR PUSTAKA

- Arikunto, S. (2013). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Anatomy, H. (2001). Preface H. *Knowledge Creation Diffusion Utilization*, 293.
- Appelbaum, L. G., & Erickson, G. (2018). Sports vision training: A review of the state-of-the-art in digital training techniques. *International Review of Sport and Exercise Psychology*, 11(1), 160–189. <https://doi.org/10.1080/1750984X.2016.1266376>
- Apta Mylsidayu dan Febi Kurniawan. (2015). Development of Futsal Basic Technique Training Model. *Islamic 45 University of Bekasi, Indonesia*, 26–32.
- Ardiyanto, H., & Widiyanto. (2019). Prinsip-Prinsip Biomekanika Kualitatif: Upaya Menjembatani Teori dan Aplikasi dalam Sport Science. *Media Ilmu Keolahragaan Indonesia*, 9(2), 54–62.
- Balagué, N., Torrents, C., Hristovski, R., & Kelso, J. A. S. (2017). Sport science integration: An evolutionary synthesis. *European Journal of Sport Science*, 17(1), 51–62. <https://doi.org/10.1080/17461391.2016.1198422>
- Barden, J. M., & Kell, R. T. (2009). Relationships between stroke parameters and critical swimming speed in a sprint interval training set. *Journal of Sports Sciences*, 27(3), 227–235. <https://doi.org/10.1080/02640410802475205>
- Barroso, R., Crivoi, E., Foster, C., & Barbosa, A. C. (2021). How do swimmers pace the 400 m freestyle and what affects the pacing pattern? *Research in Sports Medicine*, 29(6), 598–604. <https://doi.org/10.1080/15438627.2020.1860051>
- Camy, J., Fargier, P., & McNamee, M. (2017). Twenty years of ECSS: A scientific balancing act? *European Journal of Sport Science*, 17(1), 1–4. <https://doi.org/10.1080/17461391.2016.1218939>
- Cancela, J. M., Varela, S., & Ayan, C. (2008). Effects of high intensity training on elderly women: A pilot study. *Physical and Occupational Therapy in Geriatrics*, 27(2), 160–169. <https://doi.org/10.1080/02703180802234241>
- Caty, V., Aujouanet, Y., Hintzy, F., Bonifazi, M., Clarys, J. P., & Rouard, A. H. (2007). Wrist stabilisation and forearm muscle coactivation during freestyle swimming. *Journal of Electromyography and Kinesiology*, 17(3), 285–291. <https://doi.org/10.1016/j.jelekin.2006.02.005>
- De Koning, J. J., Foster, C., Lucia, A., Bobbert, M. F., Hettinga, F. J., & Porcari, J. P. (2011). Using modeling to understand how athletes in different disciplines solve the same problem: Swimming versus running versus speed skating. *International Journal of Sports Physiology and Performance*, 6(2), 276–280. <https://doi.org/10.1123/ijsp.6.2.276>
- Diputra, R. (2015). Pengaruh Latihan Three Cone Drill, Four Cone Drill, Dan Five Cone Drill Terhadap Kelincahan (Agility) Dan Kecepatan (Speed). *Jurnal SPORTIF : Jurnal Penelitian Pembelajaran*, 1(1), 41. [https://doi.org/10.29407/js\\_unpgri.v1i1.574](https://doi.org/10.29407/js_unpgri.v1i1.574)

- Donie. (2013). Kepemimpinan Pelatih dalam Pembinaan Olahraga Prestasi. *Makalah Kepeatihan Olahraga*, 1–24.
- Evenetus, Y., Mulyana, R. B., & Ma'mun, A. (2019). Pengaruh Program Latihan terhadap Peningkatan Kekuatan, Power, Daya Tahan Lengan dan Performa Renang 50 Meter Gaya Bebas. *Jurnal Penelitian Pendidikan*, 19(3), 445–455. <https://doi.org/10.17509/jpp.v19i3.22337>
- Paradise Lekso, M. (2013). *Jpes 2 (1) (2013) Journal of Physical Education and Sports Pengaruh Metode Latihan Dan Power Tungkai Terhadap Kecepatan Renang Gaya Dada 50 Meter Atlet Kelompok Umur Iv Perkumpulan Renang Spectrum Semarang*. 2(1), 2. <http://journal.unnes.ac.id/sju/index.php/jpes>
- Fargier, P., Collet, C., Moran, A., & Massarelli, R. (2017). Inter-disciplinarity in sport sciences: The neuroscience example\*. *European Journal of Sport Science*, 17(1), 42–50. <https://doi.org/10.1080/17461391.2016.1207710>
- Heinlein, S. A., & Cosgarea, A. J. (2010). Biomechanical considerations in the competitive swimmer's shoulder. *Sports Health*, 2(6), 519–525. <https://doi.org/10.1177/1941738110377611>
- Hermosilla, F., Sanders, R., González-mohino, F., Yustres, I., & González-rave, J. M. (2021). Effects of dry-land training programs on swimming turn performance: a systematic review. *International Journal of Environmental Research and Public Health*, 18(17). <https://doi.org/10.3390/ijerph18179340>
- Klika, B., & Jordan, C. (2013). High-Intensity Circuit Training Using Body Weight. *ACSM'S Health & Fitness Journal*, 17(3), 8–13. <https://doi.org/10.1249/fit.0b013e31828cb1e8>
- Lazar, J. M., Khanna, N., Chesler, R., & Saliccioli, L. (2013). Swimming and the heart. *International Journal of Cardiology*, 168(1), 19–26. <https://doi.org/10.1016/j.ijcard.2013.03.063>
- Lipińska, P., Allen, S. V., & Hopkins, W. G. (2016). Modeling parameters that characterize pacing of elite female 800-m freestyle swimmers. *European Journal of Sport Science*, 16(3), 287–292. <https://doi.org/10.1080/17461391.2015.1013996>
- Loland, S., & McNamee, M. (2017). Philosophical reflections on the mission of the European College of Sport Science: Challenges and opportunities. *European Journal of Sport Science*, 17(1), 63–69. <https://doi.org/10.1080/17461391.2016.1210238>
- Lyttle, A. D., Blanksby, B. A., Elliott, B. C., & Lloyd, D. G. (2000). Net forces during tethered simulation of underwater streamlined gliding and kicking techniques of the freestyle turn. *Journal of Sports Sciences*, 18(10), 801–807. <https://doi.org/10.1080/026404100419856>
- MacInnis, M. J., & Gibala, M. J. (2017). Physiological adaptations to interval training and the role of exercise intensity. *Journal of Physiology*, 595(9), 2915–2930. <https://doi.org/10.1113/JP273196>
- Maro, N. U. N. O. M. A., & Arinho, D. A. A. M. (2017). *E d - l s c p a g s*. 31(9), 2447–2454.

- Mobility, P. P. (n.d.). *The application of dry land physical activity and weight training in the development of club swimmers.*
- Morris, C. E., Wessel, P. A., Tinius, R. A., Schafer, M. A., & Maples, J. M. (2019). Validity of Activity Trackers in Estimating Energy Expenditure During High-Intensity Functional Training. *Research Quarterly for Exercise and Sport*, 90(3), 377–384. <https://doi.org/10.1080/02701367.2019.1603989>
- Mulyana, B. (2013). the Relationships Between Self-Concept ., *Jurnal Cakrawala Pendidikan*, 3, 488–498. <https://journal.uny.ac.id/index.php/cp/article/view/1636>
- Nikolaidis, P. T., & Knechtle, B. (2017). Pacing in age-group freestyle swimmers at The XV FINA World Masters Championships in Montreal 2014. *Journal of Sports Sciences*, 35(12), 1165–1172. <https://doi.org/10.1080/02640414.2016.1213412>
- No Title 学姐单词. (n.d.).
- Payton, C. J., Bartlett, R. M., Baltzopoulos, V., & Coombs, R. (1999). Upper extremity kinematics and body roll during preferred-side breathing and breath-holding front crawl swimming. *Journal of Sports Sciences*, 17(9), 689–696. <https://doi.org/10.1080/026404199365551>
- Physical, A., & Staff, E. (1935). Equating opponents in swimming. *Research Quarterly of the American Physical Education Association*, 6(January 2015), 209–211. <https://doi.org/10.1080/23267402.1935.10761707>
- Popovici, C., & Suci, M. A. (2013). Dry land training and swimming performance in children aged 11-12 years. *Palestrica of the Third Millennium Civilization & Sport*, 14(3), 219–223.
- Pradana, V. O., & Noval, A. (2018). Hubungan Motor Educability Dan Percaya Diri Dengan Hasil Belajar Renang Gaya Bebas Pada Siswa Putra Kelas X Sma Budi Mulia Jakarta. *Journal Sport Area*, 3(1), 79–86. [https://doi.org/10.25299/sportarea.2018.vol3\(1\).1316](https://doi.org/10.25299/sportarea.2018.vol3(1).1316)
- Prayuda, A. Y., & Firmansyah, G. (2017). PENGARUH LATIHAN LARI 12 MENIT DAN LARI BOLAK BALIK TERHADAP PENINGKATAN DAYA TAHAN VO2 max. *JP.JOK (Jurnal Pendidikan Jasmani, Olahraga Dan Kesehatan)*, 1(1), 13–22. <https://doi.org/10.33503/jpjok.v1i1.247>
- Priana, A., Narlan, A., Rahmat, A. A., & Damayanti, Y. S. (n.d.). *DRYLAND SWIMMING WORKOUT DI MASA PANDEMI Dipublikasikan Oleh : UPT Publikasi dan Pengelolaan Jurnal Universitas Islam Kalimantan Muhammad Arsyad Al-Banjari Banjarmasin UPT Publikasi dan Pengelolaan Jurnal Universitas Islam Kalimantan Muhammad Arsyad Al-Ban.* 81–88.
- Prof. Dr.dr. James Tangkudung, Sportmed, M. P. (2016). Anatomi Movement. *Anatomy Movement*, 43-45,.
- Rahman, Z., & Negeri, U. (2020). *11692-32872-1-Pb.* 2(1), 78–92.
- Rasyid, H. Al, Setyakarnawijaya, Y., & Marani, I. N. (2017). Hubungan Kekuatan Otot Tungkai Dan Kekuatan Otot Lengan Dengan Hasil Renang Gaya Bebas 50 Meter Pada Atlet
- Yuniarti Sani Damayanti, 2022  
**PERBANDINGAN PENGARUH LATIHAN DRYLAND SWIMMING WORKOUT DENGAN O7W TERHADAP KECEPATAN RENANG 50 METER GAYA BEBAS DAN 200 METER GAYA GANTI Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu**

- Millennium Aquatic Swimming Club. *Jurnal Ilmiah Sport Coaching and Education*, 1(1), 71–85. <https://doi.org/10.21009/jsce.01106>
- Rezki, Jatra, R., & SM, N. R. (2019). Analisis Teknik Renang Gaya Bebas Pada Mahasiswa Mata Kuliah Renang. *Journal.Uir.Ac.Id*, 14, 258–265.
- Rizkiyansyah, A., & Mulyana, B. (2019). Pengaruh Media Papan Luncur dan Pull Buoy Pola Metode Drill terhadap Hasil Belajar Teknik Dasar Renang Gaya Bebas. *Jurnal Kepelatihan Olahraga*, 11(2), 112–123. <https://doi.org/10.17509/jko-upi.v11i2.20311>
- Seifert, L., Delignieres, D., Boulesteix, L., & Chollet, D. (2007). Effect of expertise on butterfly stroke coordination. *Journal of Sports Sciences*, 25(2), 131–141. <https://doi.org/10.1080/02640410600598471>
- Subekti, R. D., Mulyana, B., Hidayat, Y., & Novian, G. (2021). *Journal of Physical Education , Health and Sport The Effect of Dry Land Training Model on Youth Athletes Swimming Performance During Covid-19 Pandemic*. 8(1), 12–16.
- Trainingindd, S. (2016). *Sports Training 5 5.1*. 46–52.
- Weston, M., Hibbs, A. E., Thompson, K. G., & Spears, I. R. (2015). Isolated core training improves sprint performance in national-level junior swimmers. *International Journal of Sports Physiology and Performance*, 10(2), 204–210. <https://doi.org/10.1123/ijsp.2013-0488>
- Williams, S. J. (2005). *A Case Study of the Relationship between Sports Science Research Practice and Elite Coaches' Perceived Needs*.