

**PENGUKURAN KECEPATAN MENGGUNAKAN *GLOBAL POSITIONING SYSTEM* (GPS) PADA BERBAGAI POSISI
PEMAIN CABANG OLAHRAGA BOLA BASKET**

SKRIPSI

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ABSTRAK

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Tujuan dari penelitian ini adalah untuk mengkaji apakah terdapat perbedaan intensitas gerak pada kecepatan rata – rata dan kecepatan maksimum yang ditempuh setiap pemain berdasarkan posisinya. Metode yang digunakan dalam penelitian ini adalah dengan metode *deksriptif komparatif*. Sampel dalam penelitian ini yaitu unit kegiatan mahasiswa bola basket putra Universitas Pendidikan Indonesia dengan jumlah sampel sebanyak 10 orang. Teknik pengambilan sampel menggunakan *purposive sampling*. Instrumen yang digunakan dalam penelitian ini menggunakan *polar* yaitu *heart rate sensor H1* dan jam tangan *polar RC3 GPS*. Analisis data menggunakan uji *non – parametrik* untuk menguji perbedaan kecepatan rata – rata dan kecepatan maksimum yang ditempuh setiap pemain berdasarkan posisinya. Hasil uji *non – parametrik* menunjukkan tidak ada perbedaan kecepatan rata – rata ($p=0.675$) dan kecepatan maksimum ($p=0.463$) yang ditempuh pemain berdasarkan posisinya. Jadi dapat disimpulkan bahwa tidak terdapat perbedaan yang signifikan kecepatan rata – rata dan kecepatan maksimum yang ditempuh setiap pemain berdasarkan posisinya. Rekomendasi dari penelitian ini yaitu menggunakan sampel seluruh tim yang bertanding dalam sebuah kompetisi seperti *Indonesia Basketball League* (IBL) atau tim bola basket amatir yang bertanding dalam liga amatir.

Kata Kunci : *Global Positioning System* (GPS), Kecepatan rata-rata, Kecepatan Maksimum.

ABSTRACT

MEASUREMENT OF SPEED USING *GLOBAL POSITIONING SYSTEM* (GPS) IN VARIOUS POSITIONS OF BASKETBALL PLAYERS

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The purpose of this study was to examine whether there was a difference in the intensity of motion at the average speed and maximum speed that each player traveled based on his position. The method used in this research is by comparative descriptive method. The sample in this research is the student activity unit of men's basketball University of Education Indonesia with a sample number of 10 people. Sampling techniques using purposive sampling. The instruments used in this research used polar heart rate sensor H1 and POLAR RC3 GPS watch. The data analysis used non-parametric test to test the difference in average speed and maximum speed each player took based on their position. Non-parametric test results showed no difference in average speed ($p=0.675$) and maximum speed ($p=0.463$) that the player traveled by position. So it can be concluded that there is no significant difference in the average speed and maximum speed that each player travels based on his position. The recommendation of this research is to use a sample of all teams competing in a competition such as the Indonesia Basketball League (IBL) or amateur basketball teams competing in amateur leagues.

Keywords : Global Positioning System (GPS), Average Speed, Maximum Speed.

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DAFTAR PUSTAKA

- Abdelkrim, N. Ben, Chaouachi, A., Chamari, K., Chtara, M., & Castagna, C. (2010). Positional role and competitive-level differences in elite-level men's basketball players. *The Journal of Strength & Conditioning Research*, 24(5), 1346–1355.
- Altavilla, G., & Raiola, G. (2014). Global vision to understand the game situations in modern basketball. *Journal of Physical Education and Sport*, 14(4), 493–496. <https://doi.org/10.7752/jpes.2014.04075>
- Amber, V. (2016). *Petunjuk Untuk Pelatih dan Pemain Bola Basket*. Bandung: Pionir Jaya.
- Arikunto, S. (2010). *Prosedur penelitian*.
- Bompa, T. O. (1999). *Periodization Training: Theory and Methodology-4th: Theory and Methodology-4th*. Human Kinetics publishers.
- Causil Vargas, L. A., Rodríguez De La Barrera, A., & Causil Vargas, O. (2016). The Relationship Between Aerobic Fitness and Recovery From High Intensity Intermittent Exercise. *Revista de Investigaciones Veterinarias Del Perú*, 27(3), 448. <https://doi.org/10.15381/rivep.v27i3.11476>
- Dogan, I., & Ersoz, Y. (2019). The important game-related statistics for qualifying next rounds in Euroleague. *Montenegrin Journal of Sports Science and Medicine*, 8(1), 43–50. <https://doi.org/10.26773/mjssm.190307>
- Edgecomb, S. J., & Norton, K. I. (2006). *Comparison of global positioning and computer-based tracking systems for measuring player movement distance during Australian Football*. <https://doi.org/10.1016/j.jsams.2006.01.003>
- Edwards, T., Spiteri, T., Piggott, B., Bonhotal, J., Haff, G. G., & Joyce, C. (2018). Monitoring and Managing Fatigue in Basketball. *Sports*, 6(1), 19. <https://doi.org/10.3390/sports6010019>
- Erčulj, F., Blas, M., & Bračić, M. (2010). Physical demands on young elite European female basketball players with special reference to speed, agility, explosive strength, and take-off power. *Journal of Strength and Conditioning Research*, 24(11), 2970–2978. <https://doi.org/10.1519/JSC.0b013e3181e38107>
- Fox, E. L., Bowers, R. W., & Foss, M. L. (1989). *The physiological basis of physical education and athletics*. William C Brown Pub.
- Fraenkel, J. R., & Wallen, N. E. (2012). *How to Design and Evaluate* (p. 642). p. 642.
- HARRIS, G., Stone, M., O'BRYANT, H., Proulx, C., & JOHNSON, R. (2000).

- Short-Term Performance Effects of High Power, High Force, or Combined Weight-Training Methods. *The Journal of Strength & Conditioning Research*, 14. [https://doi.org/10.1519/1533-4287\(2000\)014<0014:STPEOH>2.0.CO;2](https://doi.org/10.1519/1533-4287(2000)014<0014:STPEOH>2.0.CO;2)
- Heller, M. M., Lee, E. S., & Koo, J. Y. (2011). Stress as an influencing factor in psoriasis. *Skin Therapy Letter*, 16(5), 1–4.
- Ibáñez, S. J., Sampaio, J., Sáenz-López, P., Giménez, J., & Janeira, M. A. (2003). Game statistics discriminating the final outcome of junior world basketball championship matches (Portugal 1999). *Journal of Human Movement Studies*, 45(1), 1–19.
- Indriani, H. (2016). *Perbandingan Intensitas Gerak Pemain Antar Posisi Dalam Permainan Bola Basket Berbasis Global Positioning System (GPS) Di SMAN 1 Jonggol*. Universitas Pendidikan Indonesia.
- Kempton, T., Sullivan, C., Bilsborough, J. C., Cordy, J., & Coutts, A. J. (2014). measures in professional Australian Football. *Journal of Science and Medicine in Sport*, 6–10. <https://doi.org/10.1016/j.jsams.2013.12.006>
- Kong, Z., Qi, F., & Shi, Q. (2015). The influence of basketball dribbling on repeated high-intensity intermittent runs. *Journal of Exercise Science and Fitness*, 13(2), 117–122. <https://doi.org/10.1016/j.jesf.2015.10.001>
- Mancha-Triguero, D., García-Rubio, J., Calleja-González, J., & Ibáñez, S. J. (2019). Physical fitness in basketball players: A systematic review. *Journal of Sports Medicine and Physical Fitness*, 59(9), 1513–1525. <https://doi.org/10.23736/S0022-4707.19.09180-1>
- Mick Donovan. (2010). *Youth Basketball 101 Drills E Book*. 54.
- Nasir, A. M. (2018). *Statistik Pendidikan*. <https://doi.org/10.31227/osf.io/judwx>
- Ostojic, S M, Mazic, S., & Dikic, N. (2003). Antropomorphological characteristics of elite Serbian basketball players. *Sportska Med*, 3, 83.
- Ostojic, Sergej M., Mazic, S., & Dikic, N. (2006). Profiling in basketball: Physical and physiological characteristics of elite players. *Journal of Strength and Conditioning Research*, 20(4), 740–744. <https://doi.org/10.1519/R-15944.1>
- Schelling, X., & Torres-Ronda, L. (2013). Conditioning for basketball: Quality and quantity of training. *Strength and Conditioning Journal*, 35(6), 89–94. <https://doi.org/10.1519/SSC.0000000000000018>
- Scott, B. R., Lockie, R. G., Knight, T. J., Clark, A. C., & De Jonge, X. A. K. J. (2013). A comparison of methods to quantify the in-season training load of professional soccer players. *International Journal of Sports Physiology and*

- Performance*, 8(2), 195–202. <https://doi.org/10.1123/ijsp.8.2.195>
- Sindik, J. (2011). Differences between top senior basketball players from different team positions in Big Five personality traits. *Acta Kinesiologica*, 5(2), 31–35.
- Sodikun, I. (1992). Olahraga pilihan bola basket. *DepdikbudDirjenDikti*. Jakarta.
- Stojanović, E., Stojiljković, N., Scanlan, A. T., Dalbo, V. J., Berkelmans, D. M., & Milanović, Z. (2018). The Activity Demands and Physiological Responses Encountered During Basketball Match-Play: A Systematic Review. *Sports Medicine*, 48(1), 111–135. <https://doi.org/10.1007/s40279-017-0794-z>
- Sukadiyanto & Muluk, D. (2011). Pengantar teori dan metodologi melatih fisik. *Bandung: Lubuk Agung*.
- Supian, A. (2014). Kontribusi Kecepatan Lari dan Kelincahan Terhadap Kecepatan Dribbling Bolabasket Pada Pemain Basket Putra SMKN 3 Banjarbaru. *Jurnal Multilateral*, 13(1), 37–53.
- Tirtawirya, D. (2012). Intensitas dan Volume dalam Latihan Olahraga. *Jurnal ISSA*, 1, 91–99.
- Trninić, S., Perica, A., & Dizdar, D. (1999). Set of criteria for the actual quality evaluation of the elite basketball players. *Collegium Antropologicum*, 23(2), 707–721. Retrieved from <http://europepmc.org/abstract/MED/10646248>
- Wissel, H. (2000). Bola basket: Langkah Untuk Sukses, Jakarta: PT. *Raja Grafindo Persada*.