

DAFTAR PUSTAKA

1. Khan S, Chang R. Anatomy of the vestibular system: A review. *NeuroRehabilitation*. 2013;32(3):437–43.
2. Gacek RR. Anatomy of the auditory and vestibular systems. In: P. Ashley Wackym, MD, FACS F, James B. Snow JR., MD F, editors. *Ballenger's otorhinolaryngology 18 head and neck surgery*. 18th ed. USA: People's Medical Publishing House-USA; 2016. p. 62–106.
3. Agrawal Y, Minor LB, Carey JP. Peripheral vestibular disorders. In: Johnson JT, Rosen CA, editors. *Bailey's Head and Neck Surgery Otolaryngology*. 5th ed. Philadelphia: Lippincott Williams& WJ.Ikins; 2014. p. 2701–16.
4. Grill E, Heuberger M, Strobl R, Saglam M, Holle R, Linkohr B, et al. Prevalence , determinants , and consequences of vestibular hypofunction. Result from the KORA-FF4 survey. *Front Neurol*. 2018;9(12):1–8.
5. Bayat A, Saki N. Effects of vestibular rehabilitation interventions in the elderly with chronic unilateral vestibular hypofunction. *Iran J Otorhinolaryngol*. 2017;29(4):183–8.
6. Monsanto R da C, Kasemodel ALP, Tomaz A, Paparella MM, Penido N de O. Current evidence of peripheral vestibular symptoms secondary to otitis media. *Ann Med*. 2018;50(5):391–401.
7. McCaslin DL. *Electronystagmography and videonystagmography ENG/VNG*. 2nd ed. Devin L. McCaslin P, Brad A. Stach P, editors. Plural Publishing. San Diego: Plural Publishing, Inc.; 2020. 1–290 p.
8. Waloh RW, Kerber KA. *Clinical neurophysiology of the vestibular system*. 4th ed. Robert W. Baloh, MD F, Kevin A. Kerber M, editors. New York: Oxford University Press, Inc; 2011. 121–126 p.
9. Paquet N, Jehu DA, Lajoie Y. Age-related differences in Fukuda stepping and Babinski-Weil tests, within-day variability and test-retest reliability. *Aging Clin Exp Res*. 2017 Apr 24;29(2):223–30.
10. Alan L D. *Vestibular function: evaluation and treatment*. 1st ed. Alan Desmond AD, editor. Newyork: Thieme Medical Publishers, Inc; 2004. 59 p.
11. Phillips JS, Newman JL, Cox SJ, FitzGerald J. Nystagmus during an acute Ménière's attack: from prodrome to recovery. *Int J Audiol*. 2021 Jan 2;60(1):70–4.
12. Falls C. Videonystagmography and posturography. In: Lea J PD, editor. *Vestibular Disorders*. Switzerland: S. Karger AG; 2019. p. 32–8.
13. Gupta SK, Mundra RK. Electronystagmography a very useful diagnostic tool in cases of vertigo. *Indian J Otolaryngol Head Neck Surg*. 2015;67(4):370–4.
14. Meldrum D, Herdman S, Vance R, Murray D, Malone K, Duffy D, et al. Effectiveness of conventional versus virtual reality-based balance exercises in vestibular rehabilitation for unilateral peripheral vestibular loss: results of a randomized controlled trial. *Arch Phys Med Rehabil*. 2015;96(7):1319–1328.e1.
15. Bronstein AM. Evaluation of balance. In: Watkonson JC, Clarke RW, editors. *Scott-brown's otorhinolaryngology head & neck surgery volume II*. 8th ed. United Stated: Taylor & Francis Group, LLC; 2018. p. 775–815.

16. Michael C. Schubert, PT P. Vestibular function tests. In: Steven L. Wolf, PT, PhD F, editor. *Vestibular rehabilitation*. 4th ed. Philadelphia: F. A. Davis Company Copyright; 2014. p. 178–94.
17. Al Saif AA, Alsenany S. The efficiency of the sideways stepping test in detecting unilateral vestibular hypofunction. *J Phys Ther Sci*. 2014;26(11):1719–22.
18. Hamid M, Samy H. Vestibular and balance rehabilitation. In: Hamid M, Sismanis A, editors. *Medical Otology and Neurotology*. New York: Thieme Medical Publishers, Inc; 2006. p. 94–101.
19. Ang WQW. Reliability of the fukuda stepping test to determine the side of vestibular dysfunction. *J Int Med Res*. 2011;39(4):1432–7.
20. Ertugrul S, Soylemez E. Investigation of the functionality of fukuda stepping test. *KBB Forum*. 2019;18(4):290–4.
21. Holt C, Newlands SD. Vestibular function and anatomy. In: Johnson JT, Rosen CA, editors. *Bailey's Head and Neck Surgery Otolaryngology*. 5th ed. Philadelphia: Lippincott Williams& WJ.Ikins; 2014. p. 2291–301.
22. Strupp M, Magnusson M. Acute unilateral vestibulopathy. *Neurol Clin*. 2015;33(3):669–85.
23. Hain T, Helmiski J. Anatomy and physiology of the normal vestibular system. In: Steven L. Wolf, PT, PhD F, editor. *Vestibular Rehabilitation*. 4th ed. F. A. Davis Company Copyright; 2014. p. 2–19.
24. Somisetty S, M Das J. *Neuroanatomy, Vestibulo-ocular Reflex*. Somisetty S, editor. StatPearls. Birmingham: StatPearls Publishing; 2021. 1 p.
25. Adunka OF, Buchman CA. Otology, neurotology, and lateral skull base surgery. Oliver F. Adunka M, Craig A. Buchman, MD F, editors. Georg Thieme Verlag. Germany: Georg Thieme Verlag; 2011. 39–41 p.
26. Shepard NT, Kristen L, Handelsman JA. Vestibular and balance laboratory studies. In: Johnson JT, Rosen CA, editors. *Bailey's Head and Neck Surgery Otolaryngology*. 5th ed. Philadelphia: Lippincott Williams& WJ.Ikins; 2014. p. 2302–13.
27. Schieber. Control of movement. In: *Fundamental neuroscience*. 2013. p. 631.
28. Choi KY. Vertigo: clinical practice and examination. 1st ed. Devesahayam PR, Narayanan P, editors. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd; 2013. 264–264 p.
29. Starkov D, Strupp M, Pleshkov M, Kingma H, van de Berg R. Diagnosing vestibular hypofunction: an update. *J Neurol*. 2021;268(1):377–85.
30. Lucieer F, Duijn S, Van Rompaey V V., Fornos AP, Guinand N, Guyot JP, et al. Full spectrum of reported symptoms of bilateral vestibulopathy needs further investigation-A systematic review. *Front Neurol*. 2018;9(6):1–7.
31. Eggers SDZ, Bisdorff A, Von Brevern M, Zee DS, Kim JS, Perez-Fernandez N, et al. Classification of vestibular signs and examination techniques: nystagmus and nystagmus-like movements: Consensus document of the Committee for the International Classification of Vestibular Disorders of the Bárány Society. *J Vestib Res Equilib Orientat*. 2019;29(2–3):57–87.
32. Koo J-W, Chang MY, Woo S, Kim S, Cho Y-S. Prevalence of vestibular dysfunction and associated factors in South Korea. *BMJ Open*. 2015 Oct 26;5(10):e008224.
33. Hamid M, Sismanis A. Peripheral auditory and vestibular disorders. In:

- Mohamed Hamid, M.D., Ph.D. E., Aristides Sismanis, M.D. FACS, editors. Medical Otology and Neurotology. I. New York: Thieme Medical Publishers, Inc; 2006. p. 64–84.
34. McDonnell MN, Hillier SL. Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. *Cochrane Database Syst Rev*. 2015 Jan 13;(1):1–43.
 35. Joel A. Goebel M, Judith A. White, MD P, Katherine D. Heidenreich M. Evaluation of the vestibular system. In: P. ASHLEY WACKYM, MD, FACS F, JAMES B. SNOW JR., MD F, editors. *Ballenger's otorhinolaryngology 18 head and neck surgery*. 18th ed. USA: People's Medical Publishing House-USA; 2016. p. 494–530.
 36. Cohen XHS. A review on screening tests for vestibular disorders. *J Neurophysiol* 1. 2021;122(4):81–92.
 37. Bashiruddin J, Hadjar E, Alfiandi W. Gangguan keseimbangan dan kelumpuhan nervus fasialis. In: Prof. Dr. Efiaty Arsyad Soepardi ST (K), Iskandar, Prof. Dr.Nurbaiti ST (K), Dr.dr. Jenny Bashiruddin ST (K), Dr.dr. Ratna Dwi Restuti ST (K), editors. *Buku Ajar Ilmu Kesehatan Telinga Hidung Tenggorok Kepala dan Leher*. 7th ed. Jakarta: Balai Penerbit FKUI; 2011. p. 94–101.
 38. Salah M, Van de Heyning P, De Hertogh W, Van Rompaey V, Vereeck L. Clinical balance testing to screen for patients with vestibular disorders: A retrospective case-control study. *Otol Neurotol*. 2020 Oct;41(9):1258–65.
 39. Ahmad SNABS. Determination of normative value for Gans SOP test by using bal ex foam among normal adult. *Heal Sci*. 2017;(5):1–62.
 40. Belluscio V, Bergamini E, Iosa M, Tramontano M, Morone G, Vannozzi G. The iFST: An instrumented version of the Fukuda stepping test for balance assessment. *Gait Posture*. 2018;60(11):203–8.
 41. Samaja YSS, Kamath T, Murali S. Finding the prevalence of vestibular weakness among physiotherapy students using fukuda stepping test. *Int J Heal Sci Res*. 2020;10(10):324–7.
 42. Santos-Carvalho HA, Aguiar-Oliveira MH, Salvatori R, Valença EHO, Andrade-Guimarães AL, Palanch-Repeke CE, et al. Vestibular function in severe GH deficiency due to an inactivating mutation in the GH-releasing hormone receptor gene. *Endocrine*. 2020 Mar 4;67(3):659–64.
 43. Lacour M, Vidal CHP. Vestibular compensation : the neuro-otologist ' s best friend. *J Neurol*. 2016;263(1):54–64.
 44. Spinks SE, Fauble BM, Gans RE. Balance retraining outcomes in a 74-year-old adventitiously deafened adult with bilateral vestibulopathy : a case report. *Int Phys Med Rehabil J*. 2020;5(10):198–202.
 45. Gans RE. Vestibular-cognitive integration: A concussion case study. *J Otolaryngol Res*. 2017;6(4):1–6.
 46. Panduranga Kamath M, Vijendra Shenoy S, Sreedharan S, Bhojwani K, Mammen SS, Majeed NA. Role of electronystagmography in balance disorders: A clinical study. *Indian J Otol*. 2015;21(3):201–8.
 47. Eggers SDZ. Approach to the examination and classification of nystagmus. *J Neurol Phys Ther*. 2019;43(4):S20–6.
 48. Obata S, Suzuki J, Murayama M, Shimokawa N, Ishii N, Munekata S, et al. Detection of nystagmus in the eyes-closed condition using

- electronystagmography. *Kitasato Mrd J.* 2017;47(2):105–9.
49. Awadie A, Holdstein Y, Kaminer M, Shupak A. The head impulse test as a predictor of videonystagmography caloric test lateralization according to the level of examiner experience: A prospective open-label study. *Ear, Nose Throat J.* 2018;97(1–2):16–23.
 50. Ascherfeld KR. Revisiting simultaneous irrigation for videonystagmography in the graduate college. The university of Arizona. The University of Arizona; 2020.
 51. Reem Elbeltagy, El-Hafeez MA. Efficacy of vestibular rehabilitation on quality of life of patients with unilateral vestibular dysfunction. *Indian J Otol.* 2018;24(4):231–6.
 52. Iwasaki S, Yamasoba T. Dizziness and imbalance in the elderly: Age-related decline in the vestibular system. *Aging Dis.* 2015;6(1):38–47.
 53. Whiting P, Rutjes AWS, Reitsma JB, Glas AS, Bossuyt PMM, Kleijnen J. Sources of Variation and Bias in Studies of Diagnostic Accuracy. *Ann Intern Med.* 2004 Feb 3;140(3):189.
 54. Dahlan MS. Langkah-langkah membuat proposal penelitian bidang kedokteran dan kesehatan. 2nd ed. Dahlan MS, editor. Jakarta: CV. Sagung Seto; 2018. 36–54 p.
 55. Ferrante L, Hyde CJ, McCaffery KJ, Bossuyt PMM, Deeks JJ. Assessing the value of diagnostic tests : a framework for designing and evaluating trials. *BMJ.* 2012;344(3):18–22.
 56. Mallett S, Halligan S, Thompson M, Collins GS, Altman DG. Interpreting diagnostic accuracy studies for patient care. *BMJ.* 2012 Jul 2;345(7):e3999–e3999.
 57. Leeflang MMG, Allerberger F. How to: evaluate a diagnostic test. *Clin Microbiol Infect.* 2019 Jan;25(1):54–9.
 58. Umemneku Chikere CM, Wilson K, Graziadio S, Vale L, Allen AJ. Diagnostic test evaluation methodology: A systematic review of methods employed to evaluate diagnostic tests in the absence of gold standard – An update. Virgili G, editor. *PLoS One.* 2019 Oct 11;14(10):e0223832.
 59. Sestak A, Maslovara S, Zubcic Z, Vceva A. Influence of vestibular rehabilitation on the recovery of all vestibular receptor organs in patients with unilateral vestibular hypofunction. *NeuroRehabilitation.* 2020 Sep 24;47(2):227–35.
 60. Formeister EJ, Baum RT, Sharon JD. Supervised machine learning models for classifying common causes of dizziness. *Am J Otolaryngol.* 2022 May;43(3):103402.
 61. Hall CD, Herdman SJ, Whitney SL, Cass SP, Clendaniel RA, Fife TD, et al. Treatment for Vestibular Disorders. *J Neurol Phys Ther.* 2016 Apr;40(2):156.
 62. Bergeron M, Lortie CL, Guittot MJ. Use of Virtual Reality Tools for Vestibular Disorders Rehabilitation: A Comprehensive Analysis. *Adv Med.* 2015;2015(4):1–9.
 63. Joshua AM, Pai S. Vestibular Rehabilitation. In: Joshua AM, editor. *Physiotherapy for Adult Neurological Conditions.* Singapore: Springer Nature Singapore; 2022. p. 495–538.
 64. Mutlu B, Serbetcioglu B. Discussion of the dizziness handicap inventory. *J*

- Vestib Res Equilib Orientat. 2013;23(6):271–7.
65. Casale J, Browne T, Murray I, Gupta G. Physiology, Vestibular System. Campbell University School of Osteopathic Medicine: StatPearls Publishing, Treasure Island (FL); 2021.
 66. Chau AT, Menant JC, Hübner PP, Lord SR. Prevalence of vestibular disorder in older people who experience dizziness. *Front Neurol*. 2015;6(12):1–11.
 67. Renga V. Clinical evaluation of patients with vestibular dysfunction. *Neurol Res Int*. 2019 Feb 3;2019(1):1–8.
 68. Sturnieks DL, Menant J, Lord SR. Balance and ageing. In: Rai G, Abdulla A, editors. *The biology of ageing and its clinical implication*. 1st ed. London: CRC Press; 2013. p. 221–33.
 69. Neuhauser HK. Chapter 5 - The epidemiology of dizziness and vertigo. In: Furman JM, Lempert TBT-H of CN, editors. *Neuro-Otology*. Elsevier; 2016. p. 67–82.
 70. Maihoub S, Molnár A, Tamás L, Szirmai Á. The diagnosis of central vestibular disorders based on the complementary examination of the vestibulospinal reflex. *J Otol*. 2022 Jan;17(1):1–4.
 71. Berge JE, Nordahl SHG, Aarstad HJ, Gilhus NE, Goplen FK. Evaluation of self-reported symptoms in 1,457 dizzy patients and associations with caloric testing and posturography. *Otol Neurotol*. 2020;41(7).
 72. Altissimi G, Colizza A, Cianfrone G, Vincentiis MDE, Greco A. Drugs inducing hearing loss , tinnitus , dizziness and vertigo : an updated guide. *Eur Rev Med Pharmacol Sci*. 2020;(24):7946–52.
 73. Bisht M, Bist SS. Ototoxicity: The hidden menace. *Indian J Otolaryngol Head Neck Surg*. 2011 Jul 23;63(3):255–9.
 74. Ramma L, Schellack N, Heinze B, Eci M. Prevention of treatment-induced ototoxicity : An update for clinicians. *SAMJ*. 2019;109(3):145–9.
 75. Chang CW, Cheng PW, Young YH. Inner ear deficits after chronic otitis media. *Eur Arch Oto-Rhino-Laryngology*. 2014;271(8):2165–70.
 76. Kuen-Yao H, Chien CY, Tsai SM, Chen CC, Wang HM. Clinical significance of vestibular function with caloric and vestibular evoked myogenic potential testing for patients with simple Chronic Otitis Media. *J Int Adv Otol*. 2012;8(3):447–52.
 77. Esther W. Assessment of vestibular function in patients with chronic suppurative otitis media at the kenyatta national hospital. University of Nairobi; 2021.
 78. Da Costa Monsanto R, Erdil M, Pauna HF, Kwon G, Schachern PA, Tsuprun V, et al. Pathologic changes of the peripheral vestibular system secondary to chronic otitis media. *Otolaryngol - Head Neck Surg (United States)*. 2016;155(3):494–500.
 79. Lee I, Park HJ, Shin JE, Jeong YS, Kwak HB, Lee YJ. Results of air caloric and other vestibular tests in patients with chronic otitis media. *Clin Exp Otorhinolaryngol*. 2009;2(3):145.
 80. Aarhus L, Tambs K, Hoffman HJ, Engdahl B. Childhood otitis media is associated with dizziness in adulthood: the HUNT cohort study. *Eur Arch Oto-Rhino-Laryngology*. 2016;273(8):2047–54.
 81. Alghadir AH, Iqbal ZA, Whitney SL. An update on vestibular physical therapy. *J Chinese Med Assoc*. 2013;76(1):1–8.

82. Vanspauwen R, Knoop A, Camp S, Van Dinther J, Erwin Offeciers F, Somers T, et al. Outcome evaluation of the dizziness handicap inventory in an outpatient vestibular clinic. *J Vestib Res Equilib Orientat*. 2017;26(5–6):479–86.
83. Lin CF, Chang YH, Chien SC, Lin YH, Yeh HY. Epidemiology of Dyslipidemia in the Asia Pacific Region. *Int J Gerontol*. 2018;12(1):2–6.
84. Ancona-Vadillo AE. Dislipidemia in women, a current overview based on cardiovascular risk. *Cardiovasc Metab Sci*. 2021;32(S3):204–8.
85. Li X, Chen B, Zhou X, Ye F, Wang Y, Hu W. Identification of dyslipidemia as a risk factor for sudden sensorineural hearing loss: A multicenter case-control study. *J Clin Lab Anal*. 2021;35(12):1–6.
86. Le Berre M, Guyot MA, Agnani O, Bourdeauducq I, Versyp MC, Donze C, et al. Clinical balance tests, proprioceptive system and adolescent idiopathic scoliosis. *Eur Spine J*. 2017;26(6):1638–44.
87. Hardiono, Wirya W, Anton. Uji diagnostik. In: Sastroasmoro S, editor. Dasar-dasar Metodologi Penelitian Klinis. 4th ed. Jakarta: Sagung Seto; 2011. p. 219–44.
88. Guillaud E, Faure C, Doat E, Bouyer LJ, Guehl D, Cazalets JR. Ancestral persistence of vestibulospinal reflexes in axial muscles in humans. *J Neurophysiol*. 2020;123(5):2010–23.
89. Zaleski-King AC, Lai W, Sweeney AD. Anatomy and Physiology of the Vestibular System. In: Babu S, Schutt CA, Bojrab DI, editors. Diagnosis and Treatment of Vestibular Disorders. Cham: Springer International Publishing; 2019. p. 3–16.
90. Kattah JC, Zalazar G, Martinez C, Carmona S. Truncal ataxia and the vestibulo spinal reflex. A historical review. *J Neurol Sci*. 2022 Oct;441(8):120375.
91. Teh CL, Gima E, Mamat H, Lye M, Din S, Prepageran N. Conducting Fukuda stepping test in a noisy clinic and the effects of sound. *Indian J Otol*. 2021;27(1):47.
92. McCall AA, Miller DM. Integration of vestibular and hindlimb inputs by vestibular nucleus neurons : multisensory influences on postural control. *J Neurophysiol*. 2022;2(12):1095–110.
93. Hamling KR, Harmon K, Greaney M, Dobler Z, Kimura Y, Higashijima S, et al. Synaptic encoding of vestibular sensation regulates movement timing and coordination. *bioRxiv*. 2021;7(1):1–31.
94. Hall CD, Whitney SL, Stephen P. Vestibular rehabilitation for peripheral vestibular hypofunction : An evidence-based clinical practice guideline. Vol. 40. 2016. 124–155 p.
95. Herdman SJ, Schubert MC, Das VE, Tusa RJ. Recovery of dynamic visual acuity in unilateral vestibular hypofunction. *Arch Otolaryngol Head Neck Surg*. 2015;129(8):819–24.
96. Giray M, Kirazli Y, Karapolat H, Celebisoy N, Bilgen C, Kirazli T. Short-Term Effects of Vestibular Rehabilitation in Patients With Chronic Unilateral Vestibular Dysfunction: A Randomized Controlled Study. *Arch Phys Med Rehabil*. 2009 Aug;90(8):1325–31.

LAMPIRAN

lampiran 1. Status Penelitian

STATUS PENELITIAN

UJI DIAGNOSTIK FUKUDA STEPPING TEST DALAM MENENTUKAN SISI LESI PADA HIPOFUNGSI VESTIBULAR PERIFER

Pasien dengan keluhan gangguan keseimbangan, melakukan **FST & Tes kalori ENG**

Kriteria Penolakan → Hipofungsi vestibular perifer **bilateral**

Identitas Pasien

No. Sampel :

Nama :

No Rekam Medik :

No Telepon/HP :

Jenis Kelamin : 1. Laki-laki 2. Wanita

Usia/ Kelompok Usia : th /1. 18-40 th 2. 41-60 th 3. 61th-dst

Pendidikan : 1. Tidak sekolah 2. SD 3. SMP 4. SMU 5. Perguruan tinggi/setara

Pekerjaan : 1. Tidak bekerja 2. PNS 3. Swasta 4. Buruh 5. Petani 6.....

Anamnesis

1	Keluhan Utama		
2	Onset Penyakit	<input type="radio"/> Mendadak	<input type="radio"/> Bertahap
		<input type="radio"/> < 2 minggu	<input type="radio"/> 2 minggu - 1 bulan
			<input type="radio"/> >1 bulan
3	Progresifitas	<input type="radio"/> Membaik	<input type="radio"/> Memburuk
3			<input type="radio"/> Menetap
4	Mual/ muntah	<input type="radio"/> Tidak	<input type="radio"/> Ya, saat:
5	Hearing Loss	<input type="radio"/> Tidak	<input type="radio"/> Ya, sejak:
6	Sakit Kepala	<input type="radio"/> Tidak	<input type="radio"/> Ya, Sejak:
7	Riwayat telinga berair	<input type="radio"/> Tidak	<input type="radio"/> Ya, Sejak:
8	Wajah mencong	<input type="radio"/> Tidak	<input type="radio"/> Ya, Sejak:
9	Riwayat demam tinggi	<input type="radio"/> Tidak	<input type="radio"/> Ya, saat:
10	Riwayat Konsumsi Vestibulodepresan	<input type="radio"/> Tidak	<input type="radio"/> Ya, Sejak
11	Riwayat konsumsi obat ototoksik	<input type="radio"/> Tidak	<input type="radio"/> Ya, sejak: Obat:
12	Riwayat trauma kepala	<input type="radio"/> Tidak	<input type="radio"/> ya, saat: