

## DAFTAR PUSTAKA

- Asghar, M. S. *et al.* (2022) 'Evaluation of Vitamin-D Status and Its Association with Clinical Outcomes Among COVID-19 Patients in Pakistan', *American Journal of Tropical Medicine and Hygiene*, 106(1), pp. 150–155. doi: 10.4269/ajtmh.21-0577.
- Bae, J. H. *et al.* (no date) 'Association of vitamin D status with COVID-19 and its severity Vitamin D and COVID-19: a narrative review Mitogen-activated protein kinase NF- $\kappa$ B Nuclear factor kappa-light-chain-enhancer of activated B cells OR Odds ratio RAAS Renin-angiotensin-aldosterone system', 1, p. 3. doi: 10.1007/s11154-021-09705-6.
- Bergman, P. *et al.* (2015) 'Vitamin D supplementation improves well-being in patients with frequent respiratory tract infections: a post hoc analysis of a randomized, placebo-controlled trial', *BMC Research Notes*, 8, p. 498. doi: 10.1186/s13104-015-1504-2.
- Borsche, L., Glauner, B. and Von Mendel, J. (2021) 'COVID-19 Mortality Risk Correlates Inversely with Vitamin D3 Status, and a Mortality Rate Close to Zero Could Theoretically Be Achieved at 50 ng/mL 25(OH)D3: Results of a Systematic Review and Meta-Analysis'. doi: 10.3390/nu13103596.
- Burhan, E. *et al.* (no date) *PEDOMAN TATALAKSANA COVID-19 Edisi 4 TIM EDITOR Perhimpunan Dokter Paru Indonesia (PDPI) Perhimpunan Dokter Spesialis Kardiovaskular Indonesia (PERKI) Perhimpunan Dokter Spesialis Penyakit Dalam Indonesia (PAPDI) Perhimpunan Dokter Anestesiologi dan Terapi Intensif Indonesia (PERDATIN) Ikatan Dokter Anak Indonesia (IDAI)*.
- Das, P. *et al.* (2021) 'Effect of Vitamin D Deficiency on COVID-19 Status: A Systematic Review', *COVID*, 1(1), pp. 97–104. doi: 10.3390/covid1010008.
- Demir, A. D. and Durmaz, Z. H. (2021) 'A Comparison of vitamin D deficiency with neutrophil lymphocyte ratio and CRP levels in Covid-19 patients', *Medical Science and Discovery*, 8(5), pp. 306–309. doi: 10.36472/msd.v8i5.537.
- Elviani, R. *et al.* (no date) *GAMBARAN USIA PADA KEJADIAN COVID-19*.
- Eslamijouybari, M. *et al.* (2020) 'Neutrophil-to-Lymphocyte and Platelet-to-Lymphocyte Ratios in COVID-19 Patients and Control Group and Relationship with Disease Prognosis', *Caspian J Intern Med*, 11(Suppl1), pp. 531–535. doi: 10.22088/cjim.11.0.531.
- Ferder, L. *et al.* (2020) 'Vitamin D supplementation as a rational pharmacological approach in the COVID-19 pandemic', *American Journal of Physiology - Lung Cellular and Molecular Physiology*. American Physiological Society, pp. L941–L948. doi: 10.1152/AJPLUNG.00186.2020.
- Fuad, M. *et al.* (2021) 'Neutrophil-to-Lymphocyte Ratio and Covid-19 Symptom-based Severity at Admission', *Althea Medical Journal*, 8(1). doi: 10.15850/amj.v8n1.2255.
- Gao, M. *et al.* (2021) 'Associations between body-mass index and COVID-19 severity in 6.9 million people in England: a prospective, community-based, cohort study', *The Lancet Diabetes and Endocrinology*, 9(6), pp. 350–359. doi: 10.1016/S2213-8587(21)00089-9.
- Ghelani, D., Alesi, S. and Mousa, A. (2021) 'Vitamin D and COVID-19: An overview of recent evidence', *International Journal of Molecular Sciences*. MDPI. doi: 10.3390/ijms221910559.
- Griffin, G. *et al.* (2020) 'Vitamin D and COVID-19: evidence and recommendations for supplementation', *Royal Society Open Science*, 7(12), p. 201912. doi: 10.1098/rsos.201912.
- Imran, M. M. *et al.* (2021) 'Neutrophil/lymphocyte ratio—A marker of COVID-19 pneumonia severity', *International Journal of Clinical Practice*. John Wiley and

- Sons Inc. doi: 10.1111/ijcp.13698.
- Karyono, D. R. and Wicaksana, A. L. (2020) 'Current prevalence, characteristics, and comorbidities of patients with COVID-19 in Indonesia', *Journal of Community Empowerment for Health*, 3(2), p. 77. doi: 10.22146/jcoemph.57325.
- Kaya, M. O., Pamukçu, E. and Yakar, B. (2021) 'The role of vitamin D deficiency on COVID-19: a systematic review and meta-analysis of observational studies', *Epidemiology and health*, 43, p. e2021074. doi: 10.4178/epih.e2021074.
- Lagunas-Rangel, F. A. (2020) 'Neutrophil-to-lymphocyte ratio and lymphocyte-to-C-reactive protein ratio in patients with severe coronavirus disease 2019 (COVID-19): A meta-analysis', *Journal of Medical Virology*. John Wiley and Sons Inc., pp. 1733–1734. doi: 10.1002/jmv.25819.
- Liu, J. *et al.* (2020) 'Neutrophil-to-lymphocyte ratio predicts severe illness patients with 2019 novel coronavirus in the early stage', *Journal of Translational Medicine*. doi: 10.1101/2020.02.10.20021584.
- Maghbooli, Z. *et al.* (2021) 'Treatment With 25-Hydroxyvitamin D3 (Calcifediol) Is Associated With a Reduction in the Blood Neutrophil-to-Lymphocyte Ratio Marker of Disease Severity in Hospitalized Patients With COVID-19: A Pilot Multicenter, Randomized, Placebo-Controlled, Double-Blinded Clinical Trial', *Endocrine Practice*, 27(12), pp. 1242–1251. doi: 10.1016/j.eprac.2021.09.016.
- Malaguarnera, L. (2020) 'Vitamin d3 as potential treatment adjuncts for covid-19', *Nutrients*. MDPI AG, pp. 1–19. doi: 10.3390/nu12113512.
- Malaguarnera, L. (no date) 'Vitamin D3 as Potential Treatment Adjuncts for COVID-19'. doi: 10.3390/nu12113512.
- Mardani, R. *et al.* (2020) 'Association of vitamin D with the modulation of the disease severity in COVID-19', *Virus Research*, 289. doi: 10.1016/j.virusres.2020.198148.
- Margarita, V. *et al.* (no date) 'VITAMIN D SUPPLEMENTATION AS A RATIONAL PHARMACOLOGICAL APPROACH León FERDER', *Chemical Sciences, School of Chemical and Technological Sciences*.
- McCartney, D. M. *et al.* (2021) 'Vitamin D and SARS-CoV-2 infection-evolution of evidence supporting clinical practice and policy development : A position statement from the Covit-D Consortium', *Irish journal of medical science*, 190(3), pp. 1253–1265. doi: 10.1007/S11845-020-02427-9.
- Mentella, M. C. *et al.* (2021) 'The Role of Nutrition in the COVID-19 Pandemic', pp. 1–13.
- Merzon, E. *et al.* (2020) 'Low plasma 25(OH) vitamin D level is associated with increased risk of COVID-19 infection: an Israeli population-based study', *FEBS Journal*, 287(17), pp. 3693–3702. doi: 10.1111/febs.15495.
- Murai, I. H. *et al.* (2021) 'Effect of a Single High Dose of Vitamin D3 on Hospital Length of Stay in Patients with Moderate to Severe COVID-19: A Randomized Clinical Trial', *JAMA - Journal of the American Medical Association*, 325(11), pp. 1053–1060. doi: 10.1001/jama.2020.26848.
- Nicolau, J. *et al.* (2021) 'Influence of nutritional status on clinical outcomes among hospitalized patients with COVID-19', *Clinical Nutrition ESPEN*, 43, pp. 223–229. doi: 10.1016/j.clnesp.2021.04.013.
- Orchard, L. *et al.* (no date) 'Vitamin-D levels and intensive care unit outcomes of a cohort of critically ill COVID-19 patients'. doi: 10.1515/cclm-2020-1567.
- Oristrell, J. *et al.* (2022) 'Vitamin D supplementation and COVID-19 risk: a population-based, cohort study', *Journal of Endocrinological Investigation*, 45, pp. 167–179. doi: 10.1007/s40618-021-01639-9.
- Pal, R. *et al.* (2022) 'Vitamin D supplementation and clinical outcomes in COVID-19: a systematic review and meta-analysis', *Journal of Endocrinological Investigation*, 45,

- pp. 53–68. doi: 10.1007/s40618-021-01614-4.
- Parasher, A. (2021) ‘COVID-19: Current understanding of its Pathophysiology, Clinical presentation and Treatment’, *Postgraduate Medical Journal*, 97(1147), pp. 312–320. doi: 10.1136/postgradmedj-2020-138577.
- Parra-Bracamonte, G. M., Lopez-Villalobos, N. and Parra-Bracamonte, F. E. (2020) ‘Clinical characteristics and risk factors for mortality of patients with COVID-19 in a large data set from Mexico’, *Annals of Epidemiology*, 52, pp. 93-98.e2. doi: 10.1016/j.annepidem.2020.08.005.
- Petrilli, C. M. *et al.* (no date) ‘(No Title)’. doi: 10.1136/bmj.m1966.
- Pijls, B. G. *et al.* (2021) ‘Demographic risk factors for COVID-19 infection, severity, ICU admission and death: a meta-analysis of 59 studies’, *BMJ Open*, 11, p. 44640. doi: 10.1136/bmjopen-2020-044640.
- Pimentel, G. D., Dela Vega, M. C. M. and Laviano, A. (2020) ‘High neutrophil to lymphocyte ratio as a prognostic marker in COVID-19 patients’, *Clinical Nutrition ESPEN*, 40, pp. 101–102. doi: 10.1016/j.clnesp.2020.08.004.
- Pimentel, G. D., Dela Vega, M. C. M. and Pichard, C. (2021) ‘Low vitamin D levels and increased neutrophil in patients admitted at ICU with COVID-19’, *Clinical Nutrition ESPEN*, 44, pp. 466–468. doi: 10.1016/j.clnesp.2021.05.021.
- Sabico, S. *et al.* (2021) ‘Effects of a 2-week 5000 iu versus 1000 iu vitamin d3 supplementation on recovery of symptoms in patients with mild to moderate covid-19: A randomized clinical trial’, *Nutrients*, 13(7). doi: 10.3390/nu13072170.
- Shah Alam, M. *et al.* (2021) ‘The role of vitamin D in reducing SARS-CoV-2 infection: An update’, *International Immunopharmacology*. Elsevier B.V. doi: 10.1016/j.intimp.2021.107686.
- Shah, K., Saxena, D. and Mavalankar, D. (2021) ‘Vitamin D supplementation, COVID-19 and disease severity: A meta-analysis’, *QJM*, 114(3), pp. 175–181. doi: 10.1093/qjmed/hcab009.
- Simonnet, A. *et al.* (2020) ‘High Prevalence of Obesity in Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) Requiring Invasive Mechanical Ventilation’, *Obesity*, 28, pp. 1195–1199. doi: 10.1002/oby.22831.
- Skrajnowska, D. *et al.* (2021) ‘Covid 19: Diet Composition and Health’. doi: 10.3390/nu13092980.
- Susanto, A. D. *et al.* (2021) ‘Epidemiological and clinical features of covid-19 patients at national emergency hospital wisma atlet kemayoran, jakarta, Indonesia’, *Kesmas*, 16, pp. 11–16. doi: 10.21109/kesmas.v0i0.5233.
- Thacher, T. D. (2022) ‘Evaluating the Evidence in Clinical Studies of Vitamin D in COVID-19’, *Nutrients*. MDPI. doi: 10.3390/nu14030464.
- Tuzun, S. *et al.* (2021) ‘assessment of musculoskeletal pain, fatigue and grip strength in hospitalized patients with coVid-19’, *European Journal of Physical and Rehabilitation Medicine*, 57(4), pp. 653–662. doi: 10.23736/S1973-9087.20.06563-6.
- Wang, S. *et al.* (2021) ‘Neutrophil-to-lymphocyte ratio on admission is an independent risk factor for the severity and mortality in patients with coronavirus disease 2019’, *Journal of Infection*. W.B. Saunders Ltd, pp. e16–e18. doi: 10.1016/j.jinf.2020.09.022.
- Xu, Z. *et al.* (2020) ‘Pathological findings of COVID-19 associated with acute respiratory distress syndrome’, *The Lancet Respiratory Medicine*, 8(4), pp. 420–422. doi: 10.1016/S2213-2600(20)30076-X.
- Yang, A. P. *et al.* (2020) ‘The diagnostic and predictive role of NLR, d-NLR and PLR in COVID-19 patients’, *International Immunopharmacology*, 84. doi: 10.1016/j.intimp.2020.106504.

- Yang, T. H. *et al.* (2020) 'Handgrip strength might possibly be improved by oral vitamin d3 supplementation in older people with sarcopenia: A systematic review and meta-analysis', *Aging Medicine and Healthcare*, 11(4), pp. 108–115. doi: 10.33879/AMH.114.2020.05014.
- Zeng, Z.-Y. *et al.* (no date) 'Predictive value of the neutrophil to lymphocyte ratio for disease deterioration and serious adverse outcomes in patients with COVID-19: a prospective cohort study'. doi: 10.1186/s12879-021-05796-3.
- Zhu, J. *et al.* (2020) 'Clinical characteristics of 3062 COVID-19 patients: A meta-analysis', *J Med Virol*, 92, pp. 1902–1914. doi: 10.1002/jmv.25884.

## LAMPIRAN

### Lampiran 1.1 Surat Persetujuan Komite Etik UNHAS



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN  
KOMITE ETIK PENELITIAN KESEHATAN  
RSPTN UNIVERSITAS HASANUDDIN  
RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR  
Sekretariat : Lantai 2 Gedung Laboratorium Terpadu  
Jl. PERintis KEMERDEKAAN KAMPUS TAMALANREA KM.10 MAKASSAR 90245.  
Contact Person: dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK. TELP. : 081241850858, 0411 5780103, Fax : 0411 581431



**REKOMENDASI PERSETUJUAN ETIK**  
Nomor : B26/UN4.6.4.5.31/ PP36/ 2020

Tanggal: 30 Desember 2020



Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH20110652		No Sponsor Protokol	
Peneliti Utama	dr. Amirah		Sponsor	
Judul Peneliti	Pengaruh Suplementasi Vitamin D terhadap Outcome Pasien Covid 19 di RSWS: Analisa terhadap Status Vitamin D, Neutrophil to Lymphocyte Ratio (NLR), Total Lymphocyte Count (TLC), dan Platelet to Lymphocyte Ratio (PLR)			
No Versi Protokol	2	Tanggal Versi	16 Desember 2020	
No Versi PSP	2	Tanggal Versi	16 Desember 2020	
Tempat Penelitian	RSUP Dr. Wahidin Sudirohusodo Makassar			
Jenis Review	<input type="checkbox"/> Exempted	Masa Berlaku <b>30 Desember 2020</b> sampai <b>30 Desember 2021</b>	Frekuensi review lanjutan	
	<input type="checkbox"/> Expedited			
	<input checked="" type="checkbox"/> Fullboard Tanggal 2 Desember 2020			
Ketua Komisi Etik Penelitian Kesehatan FKUH	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)		Tanda tangan 	
Sekretaris Komisi Etik Penelitian Kesehatan FKUH	Nama dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)		Tanda tangan 	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komite Etik dalam 24 jam dan dilengkapi dalam 7 hari dan Laporan SUSAR dalam 72 jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari protokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan

## Lampiran 1.2 Surat Persetujuan Penelitian RSUP Dr. Wahidin Soedirohusodo

 **KEMENTERIAN KESEHATAN REPUBLIK INDONESIA**  
**DIREKTORAT JENDERAL PELAYANAN KESEHATAN**  
RUMAH SAKIT UMUM PUSAT DR. WAHIDIN SUDIROHUSODO  
Jalan Perintis Kemerdekaan Km. 11 Tamalanrea, Makassar, Kode Pos 90245  
Telp. (0411) 584675 – 581818 (*Hunting*), Fax. (0411) 587676  
Laman : [www.rsupwahidin.com](http://www.rsupwahidin.com) Surat Elektronik : [tu@rsupwahidin.com](mailto:tu@rsupwahidin.com) 

Nomor : LB.02.01/2.212564 /2021 8 Februari 2021  
Hal : Izin Penelitian

Yth. Kepala Instalasi Rawat Inap



Dengan ini kami hadapkan peneliti :


Nama : dr. Sisca Agustia Olli  
NIM : C175181002  
Prog. Studi : Ilmu Gizi Klinik  
Institusi : Fakultas Kedokteran UNHAS  
No. HP : +62 811 411 3231

Yang bersangkutan akan melakukan penelitian dengan judul "Pengaruh Suplementasi Vitamin D Terhadap Outcome Pasien Covid 19 Di RSWS: Analisa Terhadap Status Vitamin D dan *Neutrophil to Lymphocyte Ratio* (NLR)", sesuai surat dari Ketua Program Studi Ilmu Gizi Klinik Fakultas Kedokteran UNHAS dengan Nomor 1201/UN4.6.8/PT.03.03/2021, tertanggal 20 Januari 2021. Penelitian ini berlangsung sejak tanggal 9 Februari 2021 s.d 8 April 2021, dengan catatan selama penelitian berlangsung peneliti:

1. Wajib memakai ID Card selama melakukan penelitian
2. Wajib mematuhi peraturan dan tata tertib yang berlaku
3. Tidak mengganggu proses pelayanan terhadap pasien
4. Tidak diperkenankan membawa status pasien keluar dari Ruang Rekam Medik
5. Tidak diperbolehkan mengambil gambar pasien dan identitas pasien harus dirahasiakan
6. Mematuhi protokol pencegahan Covid 19.

Demikian, untuk di pergunakan sebagaimana mestinya.

Direktur SDM: Pendidikan dan Penelitian,  
  
dr. Sriwati Palaguna, Sp. A, M. Kes.  
NIP. 196105151987032009  




**Lampiran 1.3 Surat *Informed Consent* Subyek Penelitian**

**Uji Klinis Randomisasi Pengaruh Suplementasi Vitamin D terhadap Luaran Klinis, dan *Neutrophil-to-Lymphocyte Ratio* (NLR), Pasien COVID-19 Derajat Sedang**

Saya yang bertanda tangan dibawah ini

Nama :

Jenis kelamin :

Umur :

Alamat/HP :

Setelah mendengar dan mengerti penjelasan yang diberikan mengenai tujuan, manfaat dan cara kerja penelitian, dengan ini saya menyatakan bersedia tanpa paksaan untuk ikut serta dalam penelitian ini. Saya mengerti bahwa pada proses pemberian suplementasi vitamin D, pengambilan sampel darah, dan efek samping yang muncul tetap dalam pengawasan yang seksama, beban tersebut tidak akan terasa berat. Saya mengetahui bahwa saya berhak untuk menolak atau berhenti dari penelitian ini. Semua biaya suplementasi, dan pemeriksaan darah ditanggung oleh pihak peneliti. Bila masih ada hal yang belum saya mengerti atau saya ingin mendapatkan penjelasan lebih lanjut, saya bisa mendapatkannya dari dokter peneliti.

Makassar, 2021

Dokter

Subjek Penelitian

(.....)

(.....)

**Penanggung Jawab Penelitian/Medis :**

Peneliti:  
Nama: dr. Sisca Agustia Oliy  
Alamat: Tamalanrea Indah, Mks

Penanggung jawab:  
Nama: Prof. Dr. dr.Nurpudji A. Taslim, M.PH, Sp.GK(K)

## Lampiran 1.4 Registrasi *Clinical Trial*

### COVID-19 Information


[Public health information \(CDC\)](#)

[Research information \(NIH\)](#)

[SARS-CoV-2 data \(NCBI\)](#)

[Prevention and treatment information \(HHS\)](#)

[Español](#)

 U.S. National Library of Medicine

*ClinicalTrials.gov*



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Trial record **1 of 1** for: NCT05126602 | COVID-19 | Makassar, Indonesia

[Previous Study](#) | [Return to List](#) | [Next Study](#)

### Vitamin D Supplementation and Clinical Improvement in COVID-19

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ClinicalTrials.gov Identifier: NCT05126602

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[Recruitment Status](#) ⓘ : Completed

[First Posted](#) ⓘ : November 19, 2021

[Last Update Posted](#) ⓘ : November 19, 2021

**Sponsor:**

Bumi Herman

**Information provided by (Responsible Party):**

Bumi Herman, Hasanuddin University