DAFTAR PUSTAKA

Apriza, E., Rahardjo, R. and Hasan, C.Y. (2020) 'Quality of life patients after treatment of mandibular fractures with ORIF in oral surgery departement of Dr. Sardjito general hospital', *Majalah Kedokteran Gigi Indonesia*, 6(1), p. 16. Available at: https://doi.org/10.22146/majkedgiind.41145.

Balaji, S. and Balaji, P.P. (2009) *Textbook of Oral and Maxillofacial Surgery*. 3rd edn. Missouri: Elsevier.

Bell, R.B., Thompson, L. and Amundson, M. (2022) 'Contemporary management of mandibular fractures', *Peterson's principles of oral and maxillofacial surgery*, pp. 581–647.

Buitenhuis, M.B. *et al.* (2023) 'Anatomical position of the mandibular condyle after open versus closed treatment of unilateral fractures : A three-dimensional analysis', *Journal of Cranio-Maxillo-Facial Surgery*, 51(11), pp. 682–691. Available at: https://doi.org/10.1016/j.jcms.2023.09.013.

Choi, Y., & Kim, M. (2020) 'Bite Force and Its Correlation with Masticatory Performance in Asian Populations', *Archives of Oral Biology*, 112, 10465.

Chopra, L.B., Lingappa, A. and Singh, M. (2020) 'Mandibular Fractures and their Radiographic Diagnosis', *Acta Scientific Dental Sciences*, 4(7), pp. 161–171.

Dessoky, N.Y. *et al.* (2020) 'Use of custom made peek plates for treatment of mandibular fracture', *Alexandria Dental Journal*, 45(2), pp. 125–128.

Fonseca, R. (2018) *Oral and Maxillofasial Surgery*. 3rd edn. Missouri: Elsevier.

Fret, J. (2020) 'Towards Anamnestic Art', *Performance Research*, 25(6–7), pp. 165–174.

Gu, Y., Bai, Y. and Xie, X. (2021) 'Bite force transducers and measurement devices', *Frontiers in bioengineering and biotechnology*, 9, p. 665081.

Gupta, S., Kumar, P., Verma, A. (2019) 'Assessment of mandibular movements in patients with unilateral and bilateral fractures: A prospective study', *Journal of Oral Rehabilitation*, 46(7), 634.

Hatwar, V.A., Kulkarni, C.A. and Patil, S. (2022) 'Rehabilitation and Management of Complex Multiple Para-Symphysis Mandible Fracture: A Case Report', *Cureus*, 14(11). Available at: https://doi.org/10.7759/cureus.31180.

Inchingolo, A.M. *et al.* (2023) 'Comparison of Different Types of Palatal Expanders: Scoping Review', *Children*, 10(7), pp. 1–17. Available at: https://doi.org/10.3390/children10071258.

Jayakumar, P. *et al.* (2023) 'Bite force of children and adolescents: a systematic

review and meta-analysis', *Journal of Clinical Pediatric Dentistry*, 47(3), pp. 39–53. Available at: https://doi.org/10.22514/jocpd.2023.022.

Kannari, L. *et al.* (2022) 'Mandibular fractures in aged patients - Challenges in diagnosis.', *Dental traumatology : official publication of International Association for Dental Traumatology*, 38(6), pp. 487–494. Available at: https://doi.org/10.1111/edt.12778.

Kaur, H. *et al.* (2022) 'Effect of various malocclusion on maximal bite force- a systematic review.', *Journal of oral biology and craniofacial research*, 12(5), pp. 687–693. Available at: https://doi.org/10.1016/j.jobcr.2022.08.009.

Kong, T.H., Chung, K.J. and Kim, Y.H. (2022) 'Analysis of the risk factors influencing complications in surgical treatment of mandibular fractures: A retrospective study', *Journal of Cranio-Maxillofacial Surgery*, 50(12), pp. 929–933.

Kryeziu, K. *et al.* (2023) 'Masticatory muscles activity in patients with mandibular angle fractures : A literature review on which procedure to use to reverse the best masticatory muscles functionality', *Heliyon*, 9(4), p. e15024. Available at: https://doi.org/10.1016/j.heliyon.2023.e15024.

Kumar, A.S. *et al.* (2020) 'Six - hole versus Four - hole Miniplates in Isolated , Unilateral Angle Fracture of the Mandible', pp. 16–24. Available at: https://doi.org/10.4103/ams.ams.

Liebgott, B. (2023) *The Anatomical Basis of Dentistry: The Anatomical Basis of Dentistry-E-Book*. Elsevier Health Sciences.

Liu, X., Chen, Y., Zhang, Q. (2020) 'Bilateral mandibular fractures and their impact on mandibular function: A systematic review', *Journal of Craniofacial Surgery*, 31(2), 503.

M Ghoniem, M. and A Tawfik, B.E.-D. (2019) 'Evaluation of mini-locking plate system in management of body mandibular fracture (Clinical study)', *Al-Azhar Journal of Dental Science*, 22(1), pp. 15–23.

Maruyama, M. *et al.* (2020) 'Modulation of the Inflammatory Response and Bone Healing', *Frontiers in Endocrinology*, 11(June), pp. 1–14. Available at: https://doi.org/10.3389/fendo.2020.00386.

McCormick, R.S. and Putnam, G. (2024) 'The management of facial trauma', *Surgery (Oxford)* [Preprint].

Nardi, C. *et al.* (2020) 'Imaging of mandibular fractures: a pictorial review', *Insights into imaging*, 11(1), p. 30.

Pal, P.P. *et al.* (2024) 'Comparative evaluation of incorporation of ferrule in premolars endocrown designs to check any alterations in their fracture

resistance : A pilot study', *Journal of Conservative Dentistry and Endodontics*, 27(7), pp. 730–736. Available at: https://doi.org/10.4103/JCDE.JCDE.

Panesar Srinivas M., K.S. (2021) 'Mandibular Fractures: Diagnosis and Management', *Semin Plast Surg*, 35(04), pp. 238–249. Available at: https://doi.org/10.1055/s-0041-1735818.

Passi, D. *et al.* (2017) 'Newer proposed classification of mandibular fractures: A critical review with recent updates', *Annals of Medical and Health Sciences Research*| *September-October*, 7(5).

Patel, A. *et al.* (2021) 'Comparitive assessment of bite forces in subjects treated for anterior mandibular fractures with 3-dimensional plates and standard miniplates', *Innovative Publication*, 7(1), pp. 29–36.

Patel, S. *et al.* (2022) 'Is "Bite force" a reliable parameter to compare masticatory efficiency restoration following ORIF of anterior mandibular fractures?', *Journal of Oral Biology and Craniofacial Research*, 12(6), pp. 777–781.

Patil, S.S. *et al.* (2024) 'Evaluation of bite force after microplate and miniplate osteosynthesis for the management of undisplaced or minimally displaced anterior mandibular fractures: A clinical comparative study', *Dental and Medical Problems*, 61(4), pp. 533–539. Available at: https://doi.org/10.17219/dmp/139736.

Petersen, N.E.B. *et al.* (2023) 'Normal Range of Bite Force and Its Relationship to Dental Occlusion: A Clinical Study', *ournal of Oral Rehabilitation*, 50(6), pp. 645–653.

Prakash, R. *et al.* (2022) 'Open Reduction and Internal Fixation Versus Closed Reduction and Maxillomandibular Fixation of Condylar Fractures of the Mandible : A Prospective Study', *Cureus*, 14(1), pp. 1–8. Available at: https://doi.org/10.7759/cureus.21186.

Prasad, M., Shenoy, R., Nayak, A. (2021) 'Mandibular movements and their limitations in patients with temporomandibular joint dysfunction and fractures: A comparative study', *Journal of Oral and Maxillofacial Surgery*, 79(4), 345.

Purnama, N. *et al.* (2022) 'Fraktur Mandibula Dextra pada Pasien Kecelakaan Lalu Lintas', *Jurnal Kewarganegaraan*, 6(4), pp. 7093–7099.

R. Hupp J, Ellis, E. and Tucker, M.R. (2014) *Contemporary Oral and Maksilofacial Surgery*. Missouri: Elsevier.

Rao, J.K.D. *et al.* (2021) 'A comparative evaluation of iliac crest bone graft with and without injectable and advanced platelet rich fibrin in secondary alveolar bone grafting for cleft alveolus in unilateral cleft lip and palate patients: A randomized prospective study', *Journal of Stomatology, Oral*

and Maxillofacial Surgery, 122(3), pp. 241–247.

Ravikumar, C. and Bhoj, M. (2019) 'Evaluation of postoperative complications of open reduction and internal fixation in the management of mandibular fractures: A retrospective study', *Indian Journal of Dental Research*, 30(1), pp. 94–96.

Romero, H. *et al.* (2021) 'Management Management of Mandibular Fractures : Report of Three Cases', *Edelweiss Publications*, 5(1), pp. 17–22.

Salunkhe, S.M. *et al.* (2022) 'Evaluation of Masticatory Forces in Patients Treated for Mandibular Fractures: A Case-Control Study', *Cureus*, 14(9), pp. 6–13. Available at: https://doi.org/10.7759/cureus.29295.

Sanati-Mehrizy, P. *et al.* (2019) 'Review of endoscopic repair of mandible fractures', *Journal of Craniofacial Surgery*, 30(2), pp. 489–492.

Silva, L.M., Santiago, J.G., Lemos, C.A.A. (2021) 'Assessment of maximum bite force in relation to tooth location and occlusal characteristics', *Journal of Oral Rehabilitation*, 48(5), 454.

Singh, G. *et al.* (2019) 'Comparison of bite force in patients after treatment of mandibular fractures with 3-dimensional locking miniplate and standard miniplates', *The Traumaxilla*, 1(1), pp. 7–10.

Smith, R.L. *et al.* (2023) 'Bite Force Measurements in Clinical Dentistry: A Review', *Journal of Oral Rehabilitation*, 50(6), pp. 645–653.

Só, B.B. *et al.* (2022) 'Analysis of factors that influence quality of life of individuals undergoing treatment for mandibular fractures: A systematic review and meta-analysis', *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*, 134(3), pp. 289–301. Available at: https://doi.org/https://doi.org/10.1016/j.oooo.2022.01.012.

Soh, C.L., Tan, P.G. and Mohd Nor, N. (2021) 'Oral health related quality of life after treatment in maxillofacial trauma patients', *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, 33(3), pp. 267–271. Available at: https://doi.org/10.1016/j.ajoms.2020.12.013.

Son, D.-M. *et al.* (2021) 'Automatic detection of mandibular fractures in panoramic radiographs using deep learning', *Diagnostics*, 11(6), p. 933.

Tatsumi, H. *et al.* (2015) 'Clinical features and treatment modes of mandibular fracture at the department of oral and maxillofacial surgery, Shimane University Hospital, Japan', *PLoS One*, 10(9), p. e0136278.

Thompson, E.L. *et al.* (2024) 'The Role of Electromyography in Assessing Masticatory Muscle Function', *Journal of Electromyography and Kinesiology*, 76(1), pp. 102–110.

Tükel, H.C. and Benlidayı, M.E. (2019) 'Prevalence, treatment and complications of mandibular fractures', *Cukurova Medical Journal*, 44(2), pp. 369–377. Available at: https://doi.org/10.17826/cumj.469210.

Vincent, A.G., Ducic, Y. and Kellman, R. (2019) 'Fractures of the mandibular condyle', *Facial Plastic Surgery*, 35(06), pp. 623–626.

White, T.O. and Mackenzie, S.P. (2023) *McRae's Orthopaedic Trauma and Emergency Fracture Management E-Book: McRae's Orthopaedic Trauma and Emergency Fracture Management E-Book*. Elsevier Health Sciences.

Lampiran 1. Surat izin penelitian

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI
Jalan Perintis Kemerdekaan Km. 10, Makassar 90245
Telepon (0411) 586012, Faximile (0411) 584641
Laman www.unhas.ac.id Email fdhu@unhas.ac.id

Nomor : 01779/UN4.13/PT.01.04/2024 30 Maret 2024
Hal : **Izin Penelitian**

Yth. **Direktur Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP)**
Universitas Hasanuddin
Makassar

Dengan hormat kami sampaikan bahwa mahasiswa **Program Studi Pendidikan Dokter Gigi Spesialis (PPDGS) Bedah Mulut dan Maksilofasial** Fakultas Kedokteran Gigi Universitas Hasanuddin bermaksud untuk melakukan penelitian.

Sehubungan dengan hal tersebut, mohon kiranya dapat diberikan **izin penelitian** kepada peneliti di bawah ini:

Nama / NIM	: **Muh. Tegar Jaya / J045202006**
Waktu Penelitian	: Maret s.d. September 2024
Tempat Penelitian	: Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP) Universitas Hasanuddin
Pembimbing	: 1. Andi Tajrin, drg., M.Kes., Sp.BM.M. Subsp. C.O.M. (K). 2. Muhammad Gazali, drg., MARS., Sp.BM.M. Subsp T.M.T.M.J (K).
Judul Penelitian	: Evaluasi Fungsi Otot Mastikasi pada Pasien Fraktur Mandibula dengan Tindakan *Open Reduction Internal Fixation* (ORIF)

Demikian permohonan kami, atas perhatian dan kerjasama yang baik diucapkan terima kasih.

a.n. Dekan,
Wakil Dekan Bidang Akademik dan Kemahasiswaan

Acing Habibie Mude, drg., Ph.D., Sp.Pros., Subsp.OGST(K).
NIP 198102072008121002

Tembusan:
1. Dekan FKG Unhas;
2. Kepala Bagian Tata Usaha FKG Unhas.

Lampiran 2. Etik penelitian

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI
RUMAH SAKIT GIGI DAN MULUT PENDIDIKAN
KOMITE ETIK PENELITIAN KESEHATAN
Sekretariat : JL.Kandea No. 5 Makassar Lantai 2, Gedung Lama RSGM Unhas
Contact Person: drg. Muhammad Ikbal, Sp.Pros/Nur Aedah AR TELP. 081342971011/08114919191

REKOMENDASI PERSETUJUAN ETIK
Nomor: 0096/PL.09/KEPK FKG-RSGM UNHAS/2024

Tanggal: 06 Mei 2024

Dengan ini menyatakan bahwa protokol dan dokumen yang berhubungan dengan protokol berikut ini telah mendapatkan persetujuan etik:

No. Protokol	UH 17121106	No Protokol Sponsor	
Peneliti Utama	Muh Tegar Jaya	Sponsor	Pribadi
Judul Peneliti	Evaluasi Fungsi Otot Mastikasi Pada Pasien Fraktur Mandibula Dengan Tindakan Open Reduction Internal Fixation (ORIF)		
No. Versi Protokol	1	Tanggal Versi	23 April 2024
No. Versi Protokol		Tanggal Versi	
Tempat Penelitian	Rumah Sakit Gigi dan Mulut Pendidikan UNHAS		
Dokumen Lain			
Jenis Review	[x] Exempted [ ] Expedited [ ] Fullboard	Masa Berlaku 06 Mei 2024 - 06 Mei 2025	Frekuensi Review Lanjutan
Ketua Komisi Etik Penelitian	Nama: Dr. drg. Marhamah, M.Kes	Tanda Tangan	Tanggal 06 Mei 2024
Sekretaris Komisi Etik Penelitian	Nama: drg. Muhammad Ikbal, Sp.Pros	Tanda Tangan	Tanggal 06 Mei 2024

Kewajiban peneliti utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum diimplementasikan
- Menyerahkan laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan lapor 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 aturan yang berlaku.

Lampiran 3. Inform Consent

SURAT PERNYATAAN KESEDIAAN MENJADI SUBYEK PENELITIAN

Dengan ini saya,

Nama : IGNASIUS BAKA

Umur : 19

Jenis Kelamin : Laki-laki / ~~Perempuan~~

Setelah mendapat penjelasan secukupnya mengenai manfaat dan resiko penelitian denganjudul :

"Evaluasi Fungsi Otot Mastikasi Pada Pasien Fraktur Mandibula Dengan Tindakan *Open Reduction Internal Fixation* (ORIF)"

Dengan ini menyatakan bahwa saya bersedia dengan suka rela berpartisipasi menjadi subjek penelitian tersebut.

Demikian pernyataan ini saya buat dengan sebenarnya dengan penuh kesadaran dan tanpapaksaan.

Makassar, 02/01/ 2024

Peneliti,	Yang Berpartisipasi,
(drg. Muh. Tegar Jaya)	(IGNASIUS BAKA)

Lampiran 4. Rekapitulasi data penelitian

No	Nama	Jenis Kelamin	Umur	Jenis Fraktur	Jenis Tindakan	Kontrol POD 7 hari							Kontrol POD 14 hari						
						Kekuatan Gigitan (satuan Newton)			Pergerakan Mandibula (satuan mm)				Kekuatan Gigitan (satuan Newton)			Pergerakan Mandibula (satuan mm)			
						Incisivus	Molar Kanan	Molar Kiri	Bukaan Mulut	Lateral Kanan	Lateral Kiri	Protrusi	Incisivus	Molar Kanan	Molar Kiri	Bukaan Mulut	Lateral Kanan	Lateral Kiri	Protrusi
1	Numiah	P	25 Tahun	Fraktur Oblique Parasimfisis Mandibula Sinistra	ORIF ar Parasimfisis Mandibula Sinistra	12.4	35.3	27.3	22	2	4	3	24.2	63.7	56.6	26	3	4	4
2	Nanang Maharani	L	16 Tahun	Fraktur Comminuted Parasimfisis Mandibula Dextra	ORIF ar Parasimfisis Mandibula Dextra	17.3	61.5	82.9	24	4	3	2	38.6	117.3	128.6	27	5	4	4
3	Ignasius Baka	L	19 Tahun	Neglected Fraktur Oblique Parasimfisis Mandibula Sinistra + Neglected Fraktur Ramus Mandibula	ORIF ar Parasimfisis Mandibula Sinistra dan Ramus Mandibula Dextra	27.6	95.5	36.3	20	3	4	3	52.8	125.7	109.3	24	3	4	4
4	Muh. Iqbal	L	20 Tahun	Unfavorable Fraktur Oblique Parasimfisis Sinistra + Unfavorable Fraktur Angulus Mandibula Dextra	ORIF ar Parasimfisis Mandibula Sinistra dan Angulus Mandibula Dextra	33.2	55.6	72.8	22	4	3	3	57.4	127.8	137.7	28	4	3	4
5	Mirza Muhammad Taqi	L	18 Tahun	Fraktur Parasimfisis Mandibula Dextra + Fraktur Unfavorable Angulus Mandibula Sinistra	ORIF ar Parasimfisis Mandibula Dextra dan Angulus Mandibula Sinistra	38.8	52.4	78.2	23	4	3	4	74.6	156.8	173.2	27	5	4	4
6	Arifin	L	19 Tahun	Fraktur Unfavorable Simfisis Simfisis Mandibula + Fraktur Unfavorable Angulus Mandibula Sinistra	ORIF ar Simfisis Mandibula dan Corpus Mandibula Sinistra	23.5	93.2	68.3	18	4	3	2	41.3	137.8	121.5	22	5	4	3
7	Hizkia Patinoan	L	21 Tahun	Fraktur Oblique Korpus Mandibula Dextra	ORIF ar Korpus Mandibula Dextra	36.3	58.6	87.4	26	3	4	4	63.6	115.5	153.6	28	4	4	4
8	Budi Prasetyo	L	21 Tahun	Fraktur Oblique Simfisis Mandibula Dextra	ORIF ar Simfisis Mandibula Dextra	42.7	75.8	83.2	25	4	3	3	53.9	122.3	133.5	27	4	4	3
9	Fadel Afdal	L	23 Tahun	Neglected Fraktur Comminuted Parasimfisis Mandibula Sinistra	ORIF ar Parasimfisis Mandibula Sinistra	19.4	136.7	111.3	20	5	4	3	49.3	152.8	130.3	26	6	5	4
10	Muhammad Ismail Usman	L	16 Tahun	Neglected Fraktur Oblique Simfisis Mandibula Sinistra	ORIF ar Simfisis Mandibula Sinistra	49.4	149.9	89.5	29	3	3	4	62.1	183.2	122.8	36	4	4	5

Kontrol POD 30 Hari							Kontrol POD 2 bulan							Kontrol POD 3 bulan						
Kekuatan Gigitan (satuan Newton)			Pergerakan Mandibula (satuan mm)				Kekuatan Gigitan (satuan Newton)			Pergerakan Mandibula (satuan mm)				Kekuatan Gigitan (satuan Newton)			Pergerakan Mandibula (satuan mm)			
Incisivus	Molar Kanan	Molar Kiri	Bukaan Mulut	Lateral Kanan	Lateral Kiri	Protrusi	Incisivus	Molar Kanan	Molar Kiri	Bukaan Mulut	Lateral Kanan	Lateral Kiri	Protrusi	Incisivus	Molar Kanan	Molar Kiri	Bukaan Mulut	Lateral Kanan	Lateral Kiri	Protrusi
73.8	135.6	119	30	4	5	4	93.7	223.8	202.4	33	5	5	5	120.9	315.3	278.8	35	5	5	6
112.7	187.9	208.5	32	5	5	5	125.3	229	268.2	36	5	5	6	132	327.5	379.2	42	6	5	6
106.2	273.5	218.8	29	4	5	5	128.9	294.8	253.9	39	5	6	5	142.3	383.5	328.7	44	5	6	6
114.1	185.8	236.2	34	5	4	4	116.9	236.7	272.5	34	6	4	5	138.2	421.7	444.4	38	7	5	5
124	152.4	184.5	32	5	5	5	138.6	247.9	284	36	6	5	5	152	275	289.5	40	6	6	5
93.8	187.6	163.2	27	5	5	4	108.5	232	215.3	30	5	6	5	215.6	351.7	440.7	42	6	7	6
110.5	168.8	195.6	30	5	4	5	115.3	193.6	298	32	6	4	5	122.4	261.3	329.3	35	6	5	5
85.8	184.3	219	29	5	5	4	98	216.8	231.5	33	6	5	4	120	588.1	476.8	36	7	5	5
97.4	226.5	157	28	7	5	4	120.3	273	208.5	31	7	5	5	131.5	334.3	293	35	7	6	5
66.7	251.7	242.6	40	4	5	5	98.3	275.6	258.9	41	5	5	6	122	284.7	272.3	43	6	6	7

Lampiran 5. Bukti Kalibrasi Alat

HARIOM ELECTRONICS

MANUFACTURER IN WIDE RANGE OF PRECISION LOAD CELLS

Regd. Office & Factory: 323/B/Basement 1to5, Opp. Lucky Restaurant, GIDC, Industrial Estate, Makarpura, Vadodara, Gujarat. Pin: 390010

Phone: +91 (0265) 2651731, Cell: +91 9925025852, E-mail: loadcell99@outlook.com, Web: www.hariom-loadcell.com

CALIBRATION VERIFICATION CERTIFICATE

OF FORCE MEASURING DEVICE

CAL. DATE : 01/12/2023	CAL. DUE DATE: 30/11/2024	CERTIFICATE NO: 2312F070	DATE: 15/12/2023
Customer or User Name:	Dr. Muh. Tegar Jaya, Perintis Kemerdekaan Street, Km 8, Puri Asri II Number 6, Subdisct Tamalanrea Indah, District Tamalanrea, Makassar City, South Sulawesi Province, Indonesia. PO. 90245, Phone: +62-811-4216-978		

Machine / Equipment / Sensor Identification Details

Sensor Details		Display Unit Details	
Make	HARIOM ELECTRONICS	Display read out Make	HARIOM ELECTRONICS
Model No.	HE-6210 BITE FORCE SENSOR	Model No.	WI-2010
Max. Cap/Force	700.00 NEWTONS (14 MM)	Resolution / Least Count	± 000.05 Newtons
Machine Sr. No	61538/1223	Read out Sr. No.	61540/1223
Mode of Calibration	Compression	Temperature	30° C

Instrument / Master Used for Calibration Verification

Make: Model: Sr:	Fluke, 45 Dual DMM, Sr. No. 8375005, NABL Lab. Certi. T/WO/22/0006_002	Hariom Electronics, HE 2210, Sr. 50684/0715 Max. 10 kN ±0. 1N NABL Lab. Certi. FRI/12/21/13923

CABLE CONFIGURATION

SIGNAL +	Green	353 Ω ±7 Ω	EXCITATION +	Red	403 Ω ± 9 Ω
SIGNAL -	White		EXCITATION -	Black	
Output	1.7417 mV/V @ 700 Nf		Excitation Input	10 Volt DC (5~15 VDC Allowed)	
Temperature 6°C	Okay		Temperature +45°C		Okay

Test Readings of the Force Proving Instrument : LOADPIN®

Sr.	Item Descriptions	Applied Load	Displayed Readings
1	Bite Force Sensor : 61538/1223 Process Indicator : 61540/1223	No Load	0.00
		200 Newton	199.95
		400 Newton	399.90
		700 Newton	699.85

Note: The Calibration Verification results are valid for specific force / interpolation. This certificate may not be reproduced except in full unless written permission has been obtained from M/s. Hariom Electronics. Vadodara, Gujarat.

Calibrated By : Mr. Kamlesh Rana

Authorised Signatory

HARIOM ELECTRONICS VADODARA GUJARAT

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MANUFACTURER IN WIDE RANGE OF PRECISION LOAD CELLS
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CALIBRATION VERIFICATION CERTIFICATE

OF FORCE MEASURING DEVICE

Bite Force Sensor:

This Bite Force Sensor is electro mechanical device which measures the mechanical deflections in the jaws by analog output which comes in to millivolts. Analog Output is being converted in to Digital Mathematical Values in the Display Unit. This Sensor is being used by Research Scholars in Dentistry.

Following are Information about parts of Bite Force Sensor:

1) Body Enclosure = Made of Stainless Steel

2) Sensing Area of Jaws = Made of Alloy Tool Steel
   a. Hardened and Annealed as per required Hardness
   b. Sensing Jaws are Electroless Nickle Plated

3) Connector = Two Connectors on Cable
   a. 5 Pin Female Connector on Cable's One End
   b. 4 Pin Female Connector on Cable's Another End

4) Cable = Bite Force Sensor can be connected wide Signal Cable.
   a. It is 4 Core (Green / White / Red / Black) PVC Insulated
   b. It has 0.193 / 7 Strands in Each Core
   c. It has Drain Wire for improving Signal Strength
   d. 4 Core are jacketed with Plastic Myler, then Aluminium Foil above that Shield for Improving its Signal and Strength.

5) Process Indicator = It is micro processor based Digital Display Unit.
   a. It is made of Special Grade Plastic and Metallic Steel Enclosure

6) Side Clamps = Two clamps are provided for mounting of readout in cabinet.

7) Power Supply Cord = Power Supply Cord carries 230VAC though Three Pin Top tobe connected at Power Sourse & 3 Pin Socket tobe connected in Display Instrument.

HARIOM ELECTRONICS VADODARA GUJARAT

HARIOM ELECTRONICS
MANUFACTURER IN WIDE RANGE OF PRECISION LOAD CELLS
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CALIBRATION VERIFICATION CERTIFICATE

OF FORCE MEASURING DEVICE

8) Cable Code of Bite Force Sensor : Bite Force Sensor has 4 pin Male Connector

For checking sensor working performance – Pin 1 & Pin 2 = 353 Ohms (+/-7 Ohms)

For Checking Sensor Working Performance – Pin 3 & Pin 4 = 403 Ohms (+/- 7 Ohms)

a. Pin 1 : Signal (+Ve) Green
b. Pin 2 : Signal (-Ve) White
c. Pin 3 : Excitation (+Ve) Red
d. Pin 4 : Excitation (-Ve) Black

9) Working Pattern of Bite Force Sensor along with Process Indicator Unit.

a. Switch On Instrument by Power Cord – by connecting 230 VAC
b. Instrument is being given power through regulated power transformer inside.
c. Instrument's motherboard (PCB) required 12 Volts DC as Power Input.
d. Instrument's motherboard (PCB) has preprogrammed Integrated Cirucuit – Microprocessor wired internally with Display Read Out, PCB and LEDs.
e. Instrument has facility for Sensor Input Connector : 5 Pin Male Connector
f. Instrument has Power Supply Socket Male Connector.
g. Instrument has inbuilt facility of Excitation Power Supply of 5 Volt DC to the Bite Force Sensor through signal cable provided with Connectors on both ends as specified earlier.
h. Bite Force Sensor gives output in the Millivolts after receiving Excitation Power Input.
i. Bite Force Sensor Works on Strain Gauge based Wheatstone Bridge Principle.
j. Sensor measures deflections on jaws which results into electrical values as Analog Output.
k. Analog Output goes to the Instrument wide cable provided with Connectors on both ends.

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l. Display Instrument has inbuilt facility of Analog Output from Sensor is taken as Input reference and is converted in to Digital Signals resulting into methametical engineering values.

m. Analog to Digital Converter is pre-programmed Integrated Circuit mounted on Printed Circuit Board.

n. Display read out has facility of Peak Value Hold / Erase through Peak Button.

o. Display read out has facility of ZERO / Tare of Displayed reading by Pressing TARE Key (Left Hand Side 1st) for three times.

p. Display read out has been calibrated in Newton Units as factory preset.

q. Finally, you can see the results on Display Screen of Instrument when there is deflections on the jaws of the Bite Force Sensor.

For, more details do contact us on Phone: +919978625852 or email us at Loadpin.india@gmail.com **Website:** https://www.loadpin.in

Stay Connected.

For HARIOM ELECTRONICS

Authorised Signatory

~ Kamlesh Rana

Lampiran 6. Hasil Analisis SPSS

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Kontrol POD 7 hari	10	12.4	49.4	30.060	12.0019
POD 7 hari kekuatan gigi molar kanan	10	35.3	149.9	81.450	37.5166
POD 7 hari kekuatan gigi molar kiri	10	27.3	111.3	73.720	25.0065
Kontrol POD 14 hari	10	24.2	74.6	51.780	14.3544
POD 14 hari kekuatan molar kanan	10	64	183	130.29	31.584
POD 14 hari kekuatan gigi molar kiri	10	57	173	126.71	30.421
Kontrol POD 30 Hari	10	67	124	98.50	18.573
POD 30 hari kekuatan molar kanan	10	136	274	195.41	43.078
POD 30 hari kekuatan gigi molar kiri	10	119	243	194.44	38.911
Kontrol POD 2 bulan	10	93.7	138.6	114.380	14.7122
POD 2 bulan kekuatan gigi molar kanan	10	193.6	294.8	242.320	30.7635
POD 2 bulan kekuatan gigi molar kiri	10	202.4	298.0	249.320	33.2025
Kontrol POD 3 bulan	10	120.0	215.6	139.690	28.6778
POD 3 bulan kekuatan gigi molar kanan	10	261.3	588.1	354.310	95.7343
POD 3 bulan kekuatan gigi molar kiri	10	272.3	476.8	353.270	76.6376
Valid N (listwise)	10				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
POD 7 hari pergerakan mandibula bukaan mulut	10	18.0	29.0	22.900	3.2472
POD 7 hari pergerakan mandibula lateral kanan	10	2.0	5.0	3.600	.8433
POD 7 hari pergerakan mandibula lateral kiri	10	3.0	4.0	3.400	.5164
POD 7 hari pergerakan mandibula protrusi	10	2.0	4.0	3.100	.7379
POD 14 hari pergerakan mandibula bukaan mulut	10	22	36	27.10	3.635
POD 14 hari pergerakan mandibula lateral kanan	10	3	6	4.30	.949
POD 14 hari pergerakan mandibula lateral kiri	10	3	5	4.00	.471
POD 14 hari pergerakan mandibula protrusi	10	3	5	3.90	.568
POD 30 hari pergerakan mandibula bukaan mulut	10	27	40	31.10	3.755
POD 30 hari pergerakan mandibula lateral kanan	10	4	7	4.90	.876
POD 30 hari pergerakan mandibula lateral kiri	10	4	5	4.80	.422
POD 30 hari pergerakan mandibula protrusi	10	4	5	4.50	.527
POD 2 bulan pergerakan mandibula bukaan mulut	10	30.0	41.0	34.500	3.5040
POD 2 bulan pergerakan mandibula lateral kanan	10	5.0	7.0	5.600	.6992

POD 2 bulan pergerakan mandibula lateral kiri	10	4.0	6.0	5.000	.6667
POD 2 bulan pergerakan mandibula protrusi	10	4.0	6.0	5.100	.5676
POD 3 bulan pergerakan mandibula bukaan mulut	10	35.0	44.0	39.000	3.6209
POD 3 bulan pergerakan mandibula lateral kanan	10	5.0	7.0	6.100	.7379
POD 3 bulan pergerakan mandibula lateral kiri	10	5.0	7.0	5.600	.6992
POD 3 bulan pergerakan mandibula protrusi	10	5.0	7.0	5.600	.6992
Valid N (listwise)	10				

1. Kekuatan gigi molar kanan

Normalitas

Repeated Measure Anova

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari kekuatan gigi insisivus	.203	10	.200*	.901	10	.227
Standardized Residual for POD 14 hari kekuatan gigi insisivus	.131	10	.200*	.980	10	.967
Standardized Residual for POD 30 hari kekuatan gigi insisivus	.161	10	.200*	.950	10	.666
Standardized Residual for POD 2 bulan kekuatan gigi insisivus	.163	10	.200*	.959	10	.776
Standardized Residual for POD 3 bulan kekuatan gigi insisivus	.264	10	.047	.689	10	.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Mauchly's Test of Sphericity[a]

Measure: kekuatan gigitan insisivus

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
waktu	.017	30.360	9	.001	.497	.637	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: kekuatan gigi insisivus

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
waktu	Sphericity Assumed	44132.734	4	11033.184	19.687	.000	.686
	Greenhouse-Geisser	44132.734	1.987	22205.682	19.687	.000	.686
	Huynh-Feldt	44132.734	2.549	17314.191	19.687	.000	.686
	Lower-bound	44132.734	1.000	44132.734	19.687	.002	.686
Error (waktu)	Sphericity Assumed	20175.282	36	560.424			
	Greenhouse-Geisser	20175.282	17.887	1127.925			
	Huynh-Feldt	20175.282	22.940	879.465			
	Lower-bound	20175.282	9.000	2241.698			

Mauchly's Test of Sphericity[a]

Measure: kekuatan gigitan molar kanan

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
waktu	.012	33.018	9	.000	.328	.361	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: kekuatan gigitan molar kanan

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
waktu	Sphericity Assumed	445343.555	4	111335.889	46.227	.000	.837
	Greenhouse-Geisser	445343.555	1.311	339594.862	46.227	.000	.837
	Huynh-Feldt	445343.555	1.446	308087.130	46.227	.000	.837
	Lower-bound	445343.555	1.000	445343.555	46.227	.000	.837
Error (waktu)	Sphericity Assumed	86704.893	36	2408.469			
	Greenhouse-Geisser	86704.893	11.803	7346.273			
	Huynh-Feldt	86704.893	13.010	6664.683			
	Lower-bound	86704.893	9.000	9633.877			

Normalitas

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari kekuatan gigi molar kanan	.203	10	.200*	.901	10	.227
Standardized Residual for POD 14 hari kekuatan molar kanan	.220	10	.187	.937	10	.525
Standardized Residual for POD 30 hari kekuatan molar kanan	.269	10	.038	.931	10	.453
Standardized Residual for POD 2 bulan kekuatan gigi molar kanan	.172	10	.200*	.961	10	.794
Standardized Residual for POD 3 bulan kekuatan gigi molar kanan	.211	10	.200*	.830	10	.034

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
POD 7 hari kekuatan gigi molar kanan	10	81.450	37.5166	35.3	149.9	54.800	68.650	105.800
POD 14 hari kekuatan molar kanan	10	130.29	31.584	64	183	116.85	126.75	153.80
POD 30 hari kekuatan molar kanan	10	195.41	43.078	136	274	164.70	186.70	232.80

POD 2 bulan kekuatan gigi molar kanan	10	242.320	30.7635	193.6	294.8	222.050	234.350	273.650
POD 3 bulan kekuatan gigi molar kanan	10	354.310	95.7343	261.3	588.1	282.275	330.900	393.050

Test Statistics[a]

N	10
Chi-Square	39.280
df	4
Asymp. Sig.	.000

a. Friedman Test

2. Kekuatan molar gigi kiri

Mauchly's Test of Sphericity[a]

Measure: kekuatan gigitan molar kiri

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
waktu	.041	23.655	9	.006	.417	.500	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: kekuatan gigitan molar kiri

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
waktu	Sphericity Assumed	472718.411	4	118179.603	75.216	.000	.893
	Greenhouse-Geisser	472718.411	1.667	283554.704	75.216	.000	.893
	Huynh-Feldt	472718.411	2.001	236272.456	75.216	.000	.893
	Lower-bound	472718.411	1.000	472718.411	75.216	.000	.893
Error (waktu)	Sphericity Assumed	56563.445	36	1571.207			
	Greenhouse-Geisser	56563.445	15.004	3769.881			
	Huynh-Feldt	56563.445	18.007	3141.260			
	Lower-bound	56563.445	9.000	6284.827			

Normalitas

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari kekuatan gigi molar kiri	.214	10	.200*	.902	10	.231
Standardized Residual for POD 14 hari kekuatan gigi molar kiri	.232	10	.136	.895	10	.191
Standardized Residual for POD 30 hari kekuatan gigi molar kiri	.141	10	.200*	.948	10	.644
Standardized Residual for POD 2 bulan kekuatan gigi molar kiri	.155	10	.200*	.942	10	.570
Standardized Residual for POD 3 bulan kekuatan gigi molar kiri	.223	10	.174	.873	10	.108

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

3. Pergerakan Mandibula Bukaan Mulut

Mauchly's Test of Sphericity[a]

Measure: pergerakan mandibula bukaan mulut

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
waktu	.042	23.595	9	.006	.422	.509	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: pergerakan mandibula bukaan mulut

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
waktu	Sphericity Assumed	1570.480	4	392.620	67.849	.000	.883
	Greenhouse-Geisser	1570.480	1.689	929.564	67.849	.000	.883
	Huynh-Feldt	1570.480	2.037	770.808	67.849	.000	.883
	Lower-bound	1570.480	1.000	1570.480	67.849	.000	.883
Error (waktu)	Sphericity Assumed	208.320	36	5.787			
	Greenhouse-Geisser	208.320	15.205	13.700			
	Huynh-Feldt	208.320	18.337	11.361			
	Lower-bound	208.320	9.000	23.147			

Normalitas

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari pergerakan mandibula bukaan mulut	.114	10	.200*	.980	10	.963
Standardized Residual for POD 14 hari pergerakan mandibula bukaan mulut	.302	10	.010	.824	10	.028
Standardized Residual for POD 30 hari pergerakan mandibula bukaan mulut	.215	10	.200*	.859	10	.075
Standardized Residual for POD 2 bln pergerakan mandibula bukaan mulut	.166	10	.200*	.943	10	.588
Standardized Residual for POD 3 bln pergerakan mandibula bukaan mulut	.196	10	.200*	.867	10	.091

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
POD 7 hari pergerakan mandibula bukaan mulut	10	22.900	3.2472	18.0	29.0	20.00	22.500	25.25
POD 14 hari pergerakan mandibula bukaan mulut	10	27.10	3.635	22	36	25.50	27.00	28.00
POD 30 hari pergerakan mandibula bukaan mulut	10	31.10	3.755	27	40	28.75	30.00	32.50
POD 2 bln pergerakan mandibula bukaan mulut	10	34.500	3.5040	30.0	41.0	31.75	33.500	36.75

POD 3 bln pergerakan mandibula bukaan mulut	10	39.000	3.6209	35.0	44.0	35.00	39.000	42.25

Test Statistics[a]

N	10
Chi-Square	39.819
df	4
Asymp. Sig.	.000

a. Friedman Test

4. Pergerakan Mandibula Lateral Kanan

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
waktu	Pillai's Trace	.972	51.395[b]	4.000	6.000	.000	.972
	Wilks' Lambda	.028	51.395[b]	4.000	6.000	.000	.972
	Hotelling's Trace	34.263	51.395[b]	4.000	6.000	.000	.972
	Roy's Largest Root	34.263	51.395[b]	4.000	6.000	.000	.972

a. Design: Intercept

Within Subjects Design: waktu

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: pergerakan mandibula lateral kanan

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound

waktu	.205	11.751	9	.239	.598	.830	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari pergerakan mandibula lateral kanan	.282	10	.023	.890	10	.172
Standardized Residual for POD 14 hari pergerakan mandibula lateral kanan	.224	10	.168	.911	10	.287
Standardized Residual for POD 30 hari pergerakan mandibula lateral kanan	.355	10	.001	.743	10	.003
Standardized Residual for POD 2 bln pergerakan mandibula lateral kanan	.305	10	.009	.781	10	.008
Standardized Residual for POD 3 bln pergerakan mandibula lateral kanan	.254	10	.067	.833	10	.036

a. Lilliefors Significance Correction

Descriptive Statistics

	N	Mean	Std. Deviation	Mini mum	Maxi mum	Percentiles 25th	50th (Median)	75th
POD 7 hari pergerakan mandibula lateral kanan	10	3.600	.8433	2.0	5.0	3.000	4.000	4.000

POD 14 hari pergerakan mandibula lateral kanan	10	4.30	.949	3	6	3.75	4.00	5.00
POD 30 hari pergerakan mandibula lateral kanan	10	4.90	.876	4	7	4.00	5.00	5.00
POD 2 bln pergerakan mandibula lateral kanan	10	5.600	.6992	5.0	7.0	5.000	5.500	6.000
POD 3 bln pergerakan mandibula lateral kanan	10	6.100	.7379	5.0	7.0	5.750	6.000	7.000

Test Statistics[a]

N	10
Chi-Square	35.911
df	4
Asymp. Sig.	.000

a. Friedman Test

5. POD 2 bulan pergerakan mandibula lateral kiri

Mauchly's Test of Sphericity[a]

Measure: pergerakan mandibula lateral kiri

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
waktu	.156	13.779	9	.139	.563	.761	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: pergerakan mandibula lateral kiri

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
waktu	Sphericity Assumed	29.920	4	7.480	35.063	.000	.796
	Greenhouse-Geisser	29.920	2.253	13.282	35.063	.000	.796
	Huynh-Feldt	29.920	3.042	9.835	35.063	.000	.796
	Lower-bound	29.920	1.000	29.920	35.063	.000	.796
Error (waktu)	Sphericity Assumed	7.680	36	.213			
	Greenhouse-Geisser	7.680	20.275	.379			
	Huynh-Feldt	7.680	27.381	.280			
	Lower-bound	7.680	9.000	.853			

Normalitas

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari pergerakan mandibula lateral kiri	.381	10	.000	.640	10	.000
Standardized Residual for POD 14 hari pergerakan mandibula lateral kiri	.400	10	.000	.658	10	.000
Standardized Residual for POD 30 hari pergerakan mandibula lateral kiri	.482	10	.000	.509	10	.000
Standardized Residual for POD 2 bln pergerakan mandibula lateral kiri	.300	10	.011	.815	10	.022
Standardized Residual for POD 3 bln pergerakan mandibula lateral kiri	.305	10	.009	.781	10	.008

a. Lilliefors Significance Correction

Test Statistics[a]

N	10
Chi-Square	34.467
df	4
Asymp. Sig.	.000

a. Friedman Test

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles 25th	50th (Median)	75th
POD 7 hari pergerakan mandibula lateral kiri	10	3.400	.5164	3.0	4.0	3.000	3.000	4.000
POD 14 hari pergerakan mandibula lateral kiri	10	4.00	.471	3	5	4.00	4.00	4.00
POD 30 hari pergerakan mandibula lateral kiri	10	4.80	.422	4	5	4.75	5.00	5.00
POD 2 bln pergerakan mandibula lateral kiri	10	5.000	.6667	4.0	6.0	4.750	5.000	5.250
POD 3 bln pergerakan mandibula lateral kiri	10	5.600	.6992	5.0	7.0	5.000	5.500	6.000

1. Protrusi

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
waktu	Pillai's Trace	.913	15.750[b]	4.000	6.000	.002	.913
	Wilks' Lambda	.087	15.750[b]	4.000	6.000	.002	.913

	Hotelling's Trace	10.500	15.750[b]	4.000	6.000	.002	.913
	Roy's Largest Root	10.500	15.750[b]	4.000	6.000	.002	.913

a. Design: Intercept

Within Subjects Design: waktu

b. Exact statistic

Mauchly's Test of Sphericity[a]

Measure: pergerakan mandibula protrusi

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser	Huynh-Feldt	Lower-bound
waktu	.082	18.519	9	.033	.499	.641	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: waktu

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: pergerakan mandibula protrusi

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
waktu	Sphericity Assumed	38.720	4	9.680	39.243	.000	.813
	Greenhouse-Geisser	38.720	1.997	19.393	39.243	.000	.813
	Huynh-Feldt	38.720	2.565	15.094	39.243	.000	.813
	Lower-bound	38.720	1.000	38.720	39.243	.000	.813
	Sphericity Assumed	8.880	36	.247			

Error (waktu)	Greenhouse-Geisser	8.880	17.969	.494			
	Huynh-Feldt	8.880	23.088	.385			
	Lower-bound	8.880	9.000	.987			

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for POD 7 hari pergerakan mandibula protrusi	.254	10	.067	.833	10	.036
Standardized Residual for POD 14 hari pergerakan mandibula protrusi	.370	10	.000	.752	10	.004
Standardized Residual for POD 30 hari pergerakan mandibula protrusi	.329	10	.003	.655	10	.000
Standardized Residual for POD 2 bln pergerakan mandibula protrusi	.370	10	.000	.752	10	.004
Standardized Residual for POD 3 bln pergerakan mandibula protrusi	.305	10	.009	.781	10	.008

a. Lilliefors Significance Correction

Descriptive Statistics

	N	Mean	Std. Deviation	Mini mum	Maxi mum	Percentiles 25th	50th (Median)	75th
POD 7 hari pergerakan mandibula protrusi	10	3.100	.7379	2.0	4.0	2.750	3.000	4.000
POD 14 hari pergerakan mandibula protrusi	10	3.90	.568	3	5	3.75	4.00	4.00
POD 30 hari pergerakan mandibula protrusi	10	4.50	.527	4	5	4.00	4.50	5.00

POD 2 bln pergerakan mandibula protrusi	10	5.100	.5676	4.0	6.0	5.000	5.000	5.250
POD 3 bln pergerakan mandibula protrusi	10	5.600	.6992	5.0	7.0	5.000	5.500	6.000

Test Statistics[a]

N	10
Chi-Square	36.267
df	4
Asymp. Sig.	.000

a. Friedman Test

Lampiran 7. Riwayat hidup penulis

A. Data Pribadi

1. Nama : Muh. Tegar Jaya
2. Tempat, tgl. Lahir : Palopo, 20 Juni 1995
3. Alamat : BTN Bumi Griya Cendrawasih Blok A No.25, Polewali Mandar
4. Kewarnageraan : Indonesia

B. Riwayat Pendidikan

1. SDN 066 Pekkabata 2000-2006
2. SMPN 3 Polewali 2006-2009
3. SMAN 1 Polewali 2009-2012
4. S1 (S.Kg) Fakultas Kedokteran Gigi Universitas Hasanuddin 2012-2015
5. Profesi (drg) Fakultas Kedokteran Gigi Universitas Hasanuddin 2015-2017
6. PPDGS Bedah Mulut dan Maksilofasial Universitas Hasanuddin 2020-sekarang