







General Therapeutic Approach in MG

- Variability in presentation day to day, adjust POC accordingly
 Hold therapy and contact provider for large changes in function
- Research available for rehab approach is limited

 Use clinical judgement
- Strenuous physical activity showed a significant negative association with fatigue
- Mild-moderate MG: Moderate level exercise is recommended – shown to improve quality of life and decrease comorbidities
- Strategy development & compensations for fatigue and weakness
- Assistive device and home/activity modification recommendations for energy conservation
- Consider psychological support to increase coping strategies

General Precautions in MG

- MG Crisis
 - Characterized by worsening of muscle weakness, resulting in respiratory failure that requires intubation and mechanical ventilation
- Fatigue
- Vision
- Dysphagia
- Respiratory issues
- Pain
- Depression/anxiety and stress
- Use of subjective questionnaires for fatigue and function (visual analogue fatigue scale, quantitative Myasthenia gravis score, MG quality of life 15)

(Corrado et al, 2020)

(Corrado et al, 2020)

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- Client-centered goals, occupation-based, addressing quality of life
 - PSFS, COPM, guided questioning
 - MG QOL 15
 - Role Inventory to address habits, routines



Occupational Therapy for MG - Evaluation Considerations

- Consistency in UE strength, endurance, hand function
- ADL/IADL performance, modifications and adaptive equipment
 - Barthel, Lawton, observation
- Caregiver participation and burden

- Visual performance, monocular and binocular
- Respiratory function
- Wheelchair and AE Use
- Home set-up

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Occupational Therapy for MG – ADL/IADL Performance

- Home modification recommendations
 - Safe At Home Checklist
 - Home Safety Self Assessment Tool (HSSAT)
 - In-Home Occupational Performance Evaluation (I-HOPE) Kit
 - The Safety Assessment of Function and Environment for Rehabilitation (SAFER) Tool
 - Use of video visits or photos



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Occupational Therapy for MG – Assistive Technology

- Referral to AT clinic
- Use of phone and computer modifications
- Use of EADL devices for safety in home (accessing lights, emergency services, door openers)







Occupational Therapy for MG - Vision

- Collaboration with ophthalmology/neuro-optometry
 - Comfort spot patching
 - Potential use of prisms if chronic
- Sustained gaze in each direction
- <u>https://edtech.westernu.edu/3D-eye-</u> movement-simulator/



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Occupational Therapy for MG - Vision

- Oculomotor strengthening start monocular
 - Saccades (up/down, side/side, diagonals)
 - Pursuits (HXO)
 - Gaze stability (Head moves, eyes stay still)
 - Stretches (Every direction)
 - Near far monocular exercises

Exercise	Description	Progression
Sensory Eye Stretches One eye at a time	STRETCH HARD! Tap around eyes:	Hold for 10-15 seconds. GOAL: Increased proprioception and full range of motion
Tracking Right eye Left eye Both eyes	Head is still, eyes follow target 16"-18" from nose	Progress to 2 minutes. Progress from sitting to standing and on varied surfaces, add talking or thinking exercises. GOAL: smooth, fluid movement, no head movement
Gaze Stabilization Right eye Left eye Both eyes	Eyes still, head moves $\longleftrightarrow \diamondsuit$	Progress to Iminute each direction. Progress from sitting to standing and on varied surfaces. Progress from slower to rapid pace. GOAL: smooth fluid movement, good eye-head dissociation, no dizziness or motion sensitivity
Saccades: Hart Chart Column Saccades Right eye Left eye Both eyes	Read down the outside two columns alternating between them. When you get to the bottom, go back to the top and move in one column. Repeat until entire chart is read.	Progress from sitting to standing and on varied surfaces. Progress from slower to rapid pace. GOAL: Increase speed and accuracy of targeting
C	redit: Craig Hosp	ital



Occupational Therapy for MG – Respiratory Function

- Identify breathing patterns
 - What expands most when breathing? Upper vs lower chest, abdomen
 - Do the ribs move or stay stationary?
 - .mmchestwallexcursion
 - Does respiratory rate change in different positions?
 - .mmdynamicbreathingobs
 - How is the patient's posture? What do you notice about their landmarks?
 - · .mmstaticobschart



Occupational Therapy for MG – Respiratory Function

- Simple Interventions
 - Promote appropriate posture and evaluate alignment
 - Pair breathing with movement (inhale on effort, exhale on release)
 - Promote another type of breathing if current method is not effective for a good breath (if patient is dominant chest breather, promote diaphragmatic, for example)
 - Promote chest (fast twitch)
 - shoulder flexion, abduction, ER; Open, expanded chest, APT; overhead reach
 - Higher pitched, faster cues
 - Promote diaphragmatic (slow twitch)
 - shoulder extension, adduction, IR; Rounded shoulders; flexed thoracic spine, PPT; reaching low
 - Lower pitched, calmer cues
 - · Inhibit through manual overpressure

(Massery, 2021)

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Occupational Therapy for MG – Respiratory Function

- Simple Interventions
 - Strengthen the preferred breathing strategy
 - Diaphragmatic resistance training
 - Core strengthening
 - · Pelvic floor / ENT / respiratory referrals as needed
 - Trial supports for pressure (binders)
 - Vocalizations
 - If noticing breath-holding, this typically signifies an attempt at core engagement. Try having the patient hum, sing, or count when doing an activity that involves substantial effort
 - Loop in someone who took the Massery Course!

(Massery, 2021)

General Therapeutic Approach and Precautions in MG for SLP

- Dysphagia
- Speech and Voice
- Cognitive screen/assessment (as needed)
- Screen for psychological factors
 - Social work referral as needed
 - Psych factors may lead to cognitive changes
- Fatigue is a large contributing factor to deficits listed above



Evaluation:

- Patient subjective measure (EAT-10)
- Clinical swallow evaluation:
 - Oral motor assessment and PO trials
- Consider use of IOPI for assessment
 - lingual and labial strength and endurance
- Fatigue/lack of endurance throughout meals leads to higher aspiration risk
- Refer for instrumental assessment (MBSS or FEES)
 - Aspiration is often silent in MG patients; best practice to refer for an instrumental assessment if patient is reporting difficulty swallowing

(Kumai et al, 2019)

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EAT- 10	Patient Questionnaire - EAT-10 Eating Assessment Tool (How to complete this Questionnaire:	(EAT-10)	
	This questionnain hajos to messure susilloweg difficultes These are statements many popel have used to describe efficulty swallowing / arong To what search of you apprinners the following problems! Circle the most appropriate response for each statement.	0 - 4 Rating Scale 0 = No problem 1 = Mild Problem 2 = Mild to moderate 3 = Moderate problem 4 = Severe problem	
	Situation	Severity of Problem	
	My swallowing problem has caused me to lose weight.	0 1 2 3 4	
	My swallowing problems interferes with my ability to go out for meals.	0 1 2 3 4	
	Swallowing liquids takes extra effort	0 1 2 3 4	
	Swallowing solids takes extra effort.	0 1 2 3 4	
	Swallowing pills takes extra effort.	0 1 2 3 4	
	Swallowing is painful	0 1 2 3 4	
	The pleasure of eating is affected by my swallowing.	0 1 2 3 4	If the EAT 10 sectors is 2
	When I swallow food sticks in my throat.	0 1 2 3 4	II IIIE EAT-TU SCOLE IS 3
	I cough when I eat.	0 1 2 3 4	or higher, you may have
	Swallowing is stressful	0 1 2 3 4	officiently and safely
	TOTAL 10 x 4 = 40 max		enciently and safely
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IOPI (Iowa Oral Performance Instrument)









Objectively measure and document lip and tongue strength/endurance

- Compare patient data with norms
- · Set exercise parameters using the principles of exercise science
- Provide biofeedback during oral motor exercise programs
- · Measure and document patient improvement and evaluate program effectiveness

SLP Considerations in MG- Dysphagia

Treatment:

- Education on signs/symptoms of aspiration for awareness/selfmonitoring
 - Aspiration is typically due to pharyngeal residue secondary to muscle weakness and fatigue
- Compensatory strategies, postural changes, diet modifications
 - small frequent meals, meals when strength is at its best, rest before eating and drinking, soft tender foods rather than sticky and hard, small bites, rest between bites, high protein foods, etc.
- Referral to nutritionist
- Little research regarding oral/pharyngeal exercise
 - Research indicates it can be beneficial for maintenance but should not be done directly before or after PO intake due to fatigue
 - No sufficient research thus far that indicates exercise worsens dysphagia (Kumai et al, 2019)



- Referral to ENT for VLS as needed
- Treatment:
 - pacing
 - energy conservation
 - breath support
 - voice amplification system
 - vocal hygiene

(Hsu et al, 2020)

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SLP Considerations in MG- Cognition and psych

- Anxiety, depression, stress, and other mental health concerns may be common
- Quality of life measures to aide in screening for psych needs and refer to social work as needed
- Cognitive deficits not common, however these factors can lead to cognitive changes
 - Screen and refer to SLP as needed
 - · Cognitive evaluation (subjective questions and standardized assessment)
 - Education and strategy development
 - Referral to Neuropsychology as needed

(Ruiter et al, 2021)

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Patient Resources-MG Handouts/websites: Online fact sheet. Also has a Spanish version. Myasthenia Gravis Information Page | National Institute of Neurological Disorders and Stroke (nih.gov) Online fact sheet Myasthenia gravis - Autoimmune Association Online facts with option to hear text instead of read, with Spanish version. - Myasthenia gravis | Genetic and Rare Diseases Information Center (GARD) - an NCATS Program (nih.gov) Nice MG Handout (Spanish Available) Myasthenia Gravis (MG) Fact Sheet (mda.org) Educational Materials | Muscular Dystrophy Association (mda.org) Associations: Myasthenia Gravis Foundation of America, Inc. www.myasthenia.org Myaware - Fighting Myasthenia Together - www.myaware.org Support Considerations: RareConnect Myasthenia Gravis: Updates (rareconnect.org) BELIEVE IN WE- 载集 OhioHealth

GBS and CIDP overview

- GBS 6-40 cases per million
- CIDP ~2 cases per million (Chronic Inflammatory Demyelinating Polyradiculoneuropathy)
- Immune mediated neuropathy
 - Subacute (days to weeks) weakness, paresthesias and imbalance.
 - Molecular mimicry: viral prodrome, rarely vaccine related
 - Many variants and patterns of weakness,
 - GBS usually length dependent and symmetric
 - CIDP weakness is proximal = distal, occasionally asymmetric
 - GBS usually has peak deficits at 2 weeks
 - CIDP is >8 weeks of progression.

(Plummer, L et al., 2017)

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General Therapeutic Approach and Precautions in GBS and CIDP

- · Time since onset and fatigue monitoring
- Recent infusions
- Orthostatics and other autonomic dysregulation, risk of respiratory concerns
 - Consult physician for specific parameters for autonomic dysregulation
- Contractures during hospitalization
- Fall risk



Occupational Therapy for GBS and CIDP -Evaluation Considerations

- Consistency in UE strength, endurance, hand function (FMC)
- ADL/IADL performance, modifications and adaptive equipment
 - Barthel, Lawton, observation
- Caregiver participation and burden
- Visual performance, monocular and binocular (rare)
- Respiratory function (+other autonomic dysfunction)
- Wheelchair and AE Use
- Home set-up

(Dematteis, J. A., 1996)

(Zaeem et al., 2019)

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Occupational Therapy for GBS and CIDP

- See OT/MG slides for:
 - Energy conservation
 - Assistive Technology
 - Wheelchair Use
 - Task Modification
 - Compensatory Approaches
 - Vision

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- Massery/Breath training

- See PT slides for:
 - Strengthening considerations**
- See SLP slides for:
 - Cog and Coping

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Occupational Therapy for GBS and CIDP

- Focus Areas:
 - Self-monitoring and health management
 - PROM first then >
 - · Distal function will recover slower
 - · Proximal strengthening and proprioception
 - Use of neurodevelopmental sequence for progression of movement (Orsini et al.)
 - Task-specific training
 - Energy conservation
 - For CIDP:
 - · Orthotics for UE (resting hand, wrist cock-up, thumb spica, task-specific splint)
 - · Shoulder preservation for wheelchair users

(Sawant & Ferzandi, 2015)

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Occupational Therapy for GBS and CIDP

E-Stim

- Unclear its recommendation in literature
- In study by Harbo et al., well-tolerated, not statistically significant changes, risk of overuse and fatigue
- Outcome Measures
 - Modified Fatigue Impact Scale
 - Fatigue Severity Scale
 - PSFS
 - Barthel / Lawton
 - COPM

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FATIGUE	SEVER	ITY SO	CALE ((FSS)				Be	cause of my fatigue during the past 4 weeks					
Date	N	ame												
Please circle the number between 1 and 7 efers to your usual way of life within the ndicates "strongly agree."	which last we	you fee xek. 1 in	el best fi ndicates	its the fe s "strong	ollowin ly disa	ig stati igree"	ement			Never	Rarely	Sometimes	Often	Almost Always
Read and circle a number.	Stu	ongly l	Disagree	e →	Str	ongly		1.	I have been less alert.	0	1	2	3	4
I. My motivation is lower when I am	1	ree 2	3	4	5	6	7	2.	I have had difficulty paying attention for long periods of time.	0	1	2	3	4
atigued.	- 1	2	3	4	5	6	7	3.	I have been unable to think clearly.	0	1	2	3	4
Lam easily fatigued	1	2	3	4	5	6	7	4.	I have been clumsy and uncoordinated.	0	1	2	3	4
Fatigue interferes with my physical	1	2	3	4	5	6	7	5.	I have been forgetful.	0	1	2	3	4
unctioning.								6.	I have had to pace myself in my physical activities.	0	1	2	3	4
6. Fatigue causes frequent problems for ne.	1	2	3	4	5	6	7	7.	I have been less motivated to do anything that requires physical effort.	0	1	2	3	4
 My fatigue prevents sustained physica functioning. 	1	2	3	4	5	6	7	8.	I have been less motivated to participate in social	0	1	2	3	4
Fatigue interferes with carrying out ertain duties and responsibilities.	1	2	3	4	5	6	7	9.	I have been limited in my ability to do things away from	0	1	2	3	4
 ratigue is among my most disabiling ymptoms. Fatigue interferes with my work family 	v 1	2	3	4	5	6	7	10.	I have trouble maintaining physical effort for long	0	1	2	3	4
or social life.	,,							44	penous.		-		_	
								11.	I have had difficulty making decisions.	0	1	2	3	4
								12.	I have been less motivated to do anything that requires thinking	0	1	2	3	4
VISUAL ANALO	GUE F.	ATIGU	JE SCA	LE (V	AFS)			13.	My muscles have felt weak	0	1	2	3	4
lana mada an "V" an tha much a lina a				labal fa				14.	I have been physically uncomfortable.	0	1	2	3	4
rease mark an X on the number line v	mich de	scribes	, your gi	iodal fai	igue w	ith 0 t	being	15.	I have had trouble finishing tasks that require thinking.	0	1	2	3	4
ind to being normal.								16.	I have had difficulty organizing my thoughts when doing things at home or at work.	0	1	2	3	4
1 2 3 4		5	6	7	8		9	17.	I have been less able to complete tasks that require	0	1	2	3	4

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(Harbo et al., 2019) BELIEVE IN *WE⁻⁻ 릛*壏 OhioHealth

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Strengthening Precautions in GBS and CIDP

- · Distal muscles recover the slowest
- Avoid intense eccentrics (eccentrics for task specific training/mobility tasks is appropriate with monitoring)
- Monitor for prolonged post exercise weakness, DOMS and increased paresthesia at all stages
- Exercise should be non-fatiguing until muscles return to at least 3/5 strength
- · Rest prior to the onset of fatigue
- Manual muscle test each session to assess for overwork weakness
- · Focus on functional, multi-joint and task specific training

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FITT Chart for Subacute GBS

Subacute	Frequency	Intensity	Time	Туре
Cardio	3–5 times per week	40%–60% HR maxRPE 12–13	20–30 min per session	WalkingStationary bikeArm ergometer
Strength	2–3 times per week for each major muscle group	 60%–70% of 1 rep max 	>1 set of 10– 15 repetitions at	Light weightsTherabandAquaticFunctional tasks

- Perform strengthening if muscle strength is ≥3/5, but fatigues as demonstrated by an inability to isolate motion through full ROM against gravity after several repetitions
- Monitor for signs of overwork weakness, including pain and stiffness in muscles occurring 1-5 days after exercise.

(Plummer, L et al., 2017)

(Plummer, L et al., 2017)

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Chronic	Frequency	Intensity	Time	Туре
Cardio	4–5 times per week	 Moderate to high-intensity 60%–80% HR max RPE 14–17 	> 30 min per session	TreadmillSwimming
Strength	2–3 times for major muscle groups. Recruit fast twitch fibers during training.	 60%–80% of 1 rep max 		Free weightMachinesThera-band
 Perform no comp Monitor 	strengthening followin plaints consistent with for signs of overwork	ng ACSM guidelines if muscle stro overwork weakness weakness, including pain and stif	ength is >3/5 with minir fness in muscles occur	nal to ring 1-

Orthotics in GBS and CIDP

- Utilize orthotics or splinting for ambulation, minimizing fatigue, improving function and decreasing fall risk
- Consider solid or hinged AFO, posterior leaf spring, floor reaction AFO or a foot up brace based upon patient presentation
- Utilize multipodus boots as appropriate to maintain ROM
- Use of abdominal binder and compression stockings to manage orthostatic hypotension
- Utilize loft strand crutches, walkers, rollators, canes and TM training for gait

(Plummer, L et al., 2017)

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Ambulation Prognosis & POC Considerations in GBS and CIDP

- Able to ambulate within 6 months (80%)
- Able to ambulate at 1 year (84%)
- Require external aid to walk at 6 months (20%)
- Unable to ambulate long term (up to 3%)
- Residual disability with high-level community activities (20%)
- Residual deficits at 1 year often include reduced strength, sensory changes, fatigue, and pain.
- Mean POC duration 7.5 months
- Patients can be seen up to 1-2 years and progress is still possible.



- Sneech
- Speech
 Cognition (definition)
- Cognition (deficits uncommon but may be present if patient is post ICU or due to psychological factors)
- Similar evaluation and treatment approaches to SLP involvement in care of patient with MG
- Often SLP's are more involved in care of patient with GBS in acute stages

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SLP Considerations in GBS and CIDP-Dysphagia

- Instrumental swallow assessment should be completed for patients with GBS in ICU for respiratory failure
- · Post hospitalization/subacute and chronic
 - Continued dysphagia possible; aspiration may be silent depending on cranial nerve involvement
 - Impairment is typically due to delayed transit of bolus
- Clinical swallow evaluation
- Refer for instrumental assessment as needed (MBSS, FEES)
 - $-\,$ Dysphagia in patients with GBS is often mild in subacute and chronic stages
- Treatment: diet modifications, strategies, postural changes, education regarding signs and symptoms of aspiration for self-monitoring

(Mengi et al, 2017)

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SLP Considerations in GBS and CIDP-Speech

Speech

- Speech sound evaluation: informal measures and/or use of standardized assessment (e.g., AIDS), oral motor assessment
- Treatment:
 - energy conservation
 - pacing
 - intelligibility strategies
 - alternative modes of communication as needed (SGD, picture boards, speech generating apps, etc.)
 - AAC may be especially helpful in acute stages of GBS

SLP Considerations in GBS and CIDP- psych and cognition

- Anxiety, depression, stress, and other mental health concerns may be common
- Quality of life measures for screening
- Referral to social work
- Cognitive deficits not common but can be present post ICU and/or secondary to stress/anxiety/depression and fatigue
 - Screen and refer to SLP for cognitive evaluation and treatment as needed
 - Referral to Neuropsychology as needed



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Patient resources- GBS and CIDP

Handouts/websites:

- Online fact sheet (not PDF). Also has a Spanish version.
 - <u>Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) Information Page | National Institute of Neurological Disorders</u> and Stroke (nih.gov)
- Online facts
- Chronic inflammatory demyelinating polyneuropathy (CIDP) Autoimmune Association
 - Online facts with option to hear text instead of read. Also with Spanish version.
 - <u>Chronic inflammatory demyelinating polyneuropathy</u> <u>Genetic and Rare Diseases Information Center (GARD)</u> an NCATS <u>Program (nih.gov)</u>

Associations:

- The Autoimmune Association
 - <u>Autoimmune Awareness, Advocacy, Education & Research Autoimmune Association</u> GBS/CIDP International
 - Home GBS/CIDP Foundation International (gbs-cidp.org)
 - The Foundation for Peripheral Neuropathy
 - www.foundationforpn.org

Support considerations:

- GBS/CIDP Foundation International
 - Find a Local Chapter GBS/CIDP Foundation International (gbs-cidp.org)





Questions

References

- Corrado, Bruno., Costa, Massimo., and Giardulli, Bendetto. (2020) Evidence- Based Practice in Rehabilitation of Myasthenia Gravis. A systematic Review of the Literature. Functional Morphology and Kinesiology, 5.71 2020; doi:10.3390/jfmk5040071
- O'Connr L, Westerberg E and Punga AR (2020) Myasthenia Gravis and Physical Exercise: A novel Paradigm. Fron. Neurol. 11:675. doi: 10.3389/fner.2020.00675
- Chang, C.-C.; Chen, Y.-K.;Chiu, H.-C.; Yeh, J.-H. Changes in Physical Fitness and Body Composition Associated with Physical Exercise in Patients with Myasthenia Gravis: A Longitudinal Prospective Study. J. Clin. Med. 2021, 10, 4031. <u>https://doi.org/10.3390/cm10174031</u> Tannemaat, Martijn R., and Jan J.G.M. Verschuuren. (2019) Emerging Therapies for Autoimmune Myasthenia Gravis: Towards Treatment without Corticosteroids. Elsevier; neuromuscular disorders, 30 (119-120).
- Fowler B. Susan, (2013) Care of the Patient with Myasthenia Gravis, AANN Clinical Practice Guidelines, American Association of Neuroscience Nurses, 2013 (2-23),
- Corrado, Bruno, Costa, Il 2015) Care of the Patient with Myasimena Gravis, AANN Clinical Practice Guidelines. Anterical Association of Neuroscience Nulses. 2015 (2:25), Corrado, Bruno, Costa, Massimo, and Giardull, Bendetto (2020) Evidence- Based Practice in Rehabilitation of Myasthenia Gravis. A systematic Review of the Literature. Functional Morphology and Kinesiology, 5.71 2020; doi:10.3390/fmk5040071 Ruiter Annabel M., Tannemaat, Martijn R., and Jan J.G.M. Verschuuren. (2021) Prevalence and associated factors of fatigue in autoimmune myasthenia gravis. Elsevier; neuromuscular disorders, 31 (612-621).
- Neuromuscular disorders, 31 (612-621).
 Che-Wei Hau, Hui-Chen Tsai, Yun-Ru Lai, Chih-Cheng Huang, Yu-Jih Su, Ben-Chung Cheng, Mao-Chang Su, Wei-Che Lin, Chia-Ling Chang, Wen-Neng Chang, Meng-Chih Lin, Cheng-Hsien Lu and Nai-Wen Tsai. (2020) Respiratory Muscle training Improves Functional Outcomes and Reduces Fatigue in Patients with Myasthenia Gravis: A single Center Hospital Based Prospective Study. Biomed Research International Volume 2020; https://doi.org/10.1155/2020/2923907
 Kumai Y, Miyamoto T, Matsubara K, Satoh C, Yamashita S, Orita Y, Swallowing dysfunction in myasthenia gravis patients examined with high-resolution manometry. Auris Nasus Larynx. 2021 Dec;48(6):1135-1139. doi:10.1016/j.anl.2021.06.002. Epub 2021 Jun 5. PMID: 34103207.
 Fowler B, Susan. (2013) Care of the Patient with Myasthenia Gravis, AANN Clinical Practice Guidelines. American Association of Neuroscience Nurses. 2013 (2-23).
- Yoshihiko Kumai a, Takumi Miyamoto a, Keigo Musubara c, Yasuhiro Samejima a, Satoshi Yamashita b, Yukio Ando b, and Yorihisa Orita. (2018) Assessment of oropharyngeal swallowing dysfunction in myasthenia gravis patients presenting with difficulty swallowing. Elsevie:, Auris nasus Larynx 46 (2019) 390-396.
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- International Control Line C

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References

- GBS/ CIDP Foundation International . (2012). Guillain-Barré Syndrome, CIDP and Variants Guidelines for Physical and Occupational Therapy. Retrieved February 9, 2022, from https://www.gbs-cidp.org/wp-content/uploads/2012/01/PTOTGuidelines.pdf
- 2022, from https://www.dbs-cidp.org/wp-content/uploads/2012/01/PTOTGuidelines.pdf
 2022, from https://www.dbs-cidp.org/wp-content/uploads/2012/01/PTOTGuidelines.pdf
 2022, from https://www.dbs-cidp.org/wp-content/uploads/2012/01/PTOTGuidelines.pdf
 2024, from https://www.dbs-cidp.org/wp-content

- Sulli, S. et al., 2021. The efficacy of rehabilitation in people with Guillain-Barrè Syndrome: A systematic review of randomized controlled trials. Expert Review of Neurotherapeutics, 21(4), pp.455–461.
- Neuroinerapeulus; 2 (14), pp.430–401. Prada, V. et al., 2019. Importance of intensive and prolonged rehabilitative treatment on the guillain-barrè syndrome long-term outcome: A retrospective study. Neurological Sciences, 41(2), pp.321–327. Plummar, L et al., 2017. Guillain-Barré Syndrome Clinical Summary. [online] Apta.org, Available at: /Accessed 9 February 2022].
- Zupanc, A., & Vidmar, G. (2021). Berg balance scale as a tool for choosing the walking aid for patients with Guillain-Barré syndrome or polyneuropathy. International Journal of Rehabilitation Research, 44(2), 185–188. https://doi.org/10.1097/mrr.000000000000469 Sawant, P., & Ferzandi, Z. (2015). Effect of occupational therapy on fatigue and quality of life in patients with guillain barre syndrome. Indian Journal of Physiotherapy and Occupational Therapy, 9(4), 210–215. https://doi.org/10.5958/0973-5674.2015.00174.4
- Dematteis, J. A. (1996). Guillain-barré syndrome: a team approach to diagnosis and treatment. American Family Physician, 54(1), 197-200.
- Harbo, T., Markvardsen, L. K., Hellfritzsch, M. B., Severinsen, K., Nielsen, J. F., & Andersen, H. (2019). Neuromuscular electrical stimulation in early rehabilitation of guillain-barré syndrome: a pilot study. Muscle & Nerve, 59(4), 481–484. https://doi.org/10.1002/mus.26396

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