

# Consultative, Proactive Physical Therapy in Early Multiple Sclerosis

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## BACKGROUND

- Exercise training may be the single most effective non-pharmacological symptomatic treatment for multiple sclerosis (MS).
- Physical therapy (PT) can facilitate increased physical activity and exercise through education, initiation of an individualized exercise routine, goal setting, and providing supportive resources.
- Therapy is typically utilized after mobility deficits manifest and focus on function restoration rather than proactive measures to prevent the advancement of morbidity.

## OBJECTIVE

- To present the application of a proactive physical therapy (PAPT) approach to four patients who were recently diagnosed with MS.

## METHODS

- Neurologists specialized in MS care referred patients to PT shortly after diagnosis.
- Patients completed a PT evaluation of current functional level, received education on exercise guidelines, goal setting support, and established an exercise routine at an appropriate intensity using shared decision-making.
- The patient and physical therapist communicated via telephone or electronic message at one and three months.
- Progress was tracked via physical function and fatigue self-report outcome measures and patient report of current exercise level at six months.

- Three patients were referred directly to the PAPT model of care, and one transitioned from a restorative bout of PT.
- At six months, three patients reported regular participation in aerobic, strengthening, and flexibility at levels that met or exceeded established exercise recommendations.
- The fourth patient did not complete six month follow up due to pregnancy complications but reported meeting guidelines at three months.

**Table 1: Patient background information**

ID	P1	P2	P3	P4
Sex	M	F	F	F
Age	29	35	37	21
Time since diagnosis	4 months	6 years	2 months	3 months
PMH	NA	NA	NA	Lumbar disc degeneration
Evaluation MS symptoms reported	<ul style="list-style-type: none"> <li>Lower extremity stiffness</li> <li>Bladder changes</li> </ul>	<ul style="list-style-type: none"> <li>Lower extremity tingling</li> </ul>	<ul style="list-style-type: none"> <li>Decreased walking ability</li> <li>Brain fog</li> <li>Right sided numbness</li> <li>Decreased vision in right eye</li> </ul>	<ul style="list-style-type: none"> <li>Fatigue</li> <li>Left-sided weakness</li> </ul>
Evaluation barriers reported	<ul style="list-style-type: none"> <li>Lower extremity stiffness</li> <li>Fear of overheating</li> </ul>	<ul style="list-style-type: none"> <li>Fear of exacerbating leg tingling</li> <li>Fear of falling</li> </ul>	<ul style="list-style-type: none"> <li>Fatigue</li> <li>Lightheadedness</li> <li>Lack of endurance</li> <li>Not knowing what to do</li> </ul>	<ul style="list-style-type: none"> <li>Fatigue</li> <li>Lack of motivation</li> </ul>
Follow-up MS symptoms reported	<ul style="list-style-type: none"> <li>Lower extremity tingling with high intensity walking</li> </ul>	<ul style="list-style-type: none"> <li>No symptoms noted</li> </ul>	<ul style="list-style-type: none"> <li>No symptoms noted</li> </ul>	No reassessment possible
Follow-up barriers reported	<ul style="list-style-type: none"> <li>None identified</li> </ul>	<ul style="list-style-type: none"> <li>None identified</li> </ul>	<ul style="list-style-type: none"> <li>None identified</li> </ul>	

Abbreviations: PMH, previous medical history; NA, not applicable; MS, multiple sclerosis

**Table 2: Patient outcomes**

	P1		P2		P3		P4
	Eval	6 month	Eval	6 month	Eval	6 month	
SSV Gait Speed (m/s)	1.67	1.7	1.34	1.33	1.21	1.46	
Fast Gait Speed (m/s)	2.48	2.57	1.82	1.97	2.03	2.17	
6MWT (m)	700	687	595	663	708	721	494
FGA (max 30)	30	30	30	30	30	30	20
5x sit to stand (seconds)	5.6	6.2	7.2	5.98	8.36	6.99	11.1
HIMAT (max 54)	54	51	30	45	36	46	
FSS (max 63)	21	23	26	24	52	9	

Abbreviation: Eval=Baseline Evaluation; SSV=self selected velocity; 6MWT= 6 minute walk test; FGA=functional gait assessment; HIMAT=High Level Mobility and Assessment Tool; FSS=Fatigue Severity Scale

## RESULTS

**Table 3: Patient reported exercise and exercise prescription at each contact**

Patient 1	Timepoint	Evaluation		1-month		3-month		6-month Reported
		Reported	Prescribed	Reported	Prescribed	Reported	Prescribed	
Aerobic		3 x/wk; 10 min; light	3 x/wk; 20 min; mod	<b>*2-3x/wk; 20-30 min; mod</b>	3-5 x/wk; 20-30 min; mod	<b>*5 x/wk; 30 min; mod</b>	5 x/wk, 30 min; mod	<b>*5 x/wk, 40 min; mod</b>
	Resistance	None	None	None	2x/wk, 10 min; mod	None	2x/wk, 10 min; mod	<b>*2x/wk, 20 min; mod</b>
	Balance	None	None	None	None	None	None	None
Flexibility		<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*5x/wk, 20 min; light</b>
	Resistance	None	None	None	2x/wk, 10-20 min; mod	<b>*2x/wk, 20 min; mod</b>	2x/wk, 20 min; mod	<b>*3x/wk, 20 min; mod</b>
	Balance	None	None	None	Yoga 1x/wk, 20 min	<b>*Yoga 1x/wk, 20 min</b>	Yoga 1x/wk, 20 min	<b>*Yoga 2x/wk, 10 min</b>
Flexibility		None	3x/wk, 10 min; light	<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*7x/wk, 10 min; light</b>
	Resistance	None	None	None	4x/wk, 30 min; mod	<b>*3-4x/wk, 30 min; mod</b>	5x/wk, 30 min; mod	<b>*2 x/wk; 45 min; vig.</b>
	Balance	None	None	None	Yoga 1x/wk, 20 min	<b>*Yoga 1x/wk, 20 min</b>	Yoga 1x/wk, 20 min	<b>*Yoga 2x/wk, 10 min</b>
Flexibility		None	3x/wk, 10 min; light	<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*5x/wk, 20 min; light</b>	5x/wk, 20 min; light	<b>*7x/wk, 10 min; light</b>
	Resistance	None	None	None	None(P in flare up)	<b>*3 x/wk; 45 minutes; mod</b>	5 x/wk; 30 minutes; mod	<b>*5-6x/k; 30 min; mod</b>
	Balance	None	None	None	None(P in flare up)	<b>*2 x/wk, 20 minutes; mod</b>	2x/wk, 20 minutes; mod	<b>*3x/wk, 20 minutes; mod</b>
Flexibility		None	Yoga 1x/wk, 20 min	None	None(P in flare up)	<b>*2 x/wk, 10 min</b>	2x/wk, 10 min	<b>*Yoga 5x/wk, 30 minutes</b>
	Resistance	None	None	None	None(P in flare up)	<b>*3 x/wk; 10 min; light</b>	3-5 x/wk, 10 min; light	<b>*5x/wk, 10 min; light</b>
	Balance	None	None	None	None(P in flare up)	<b>*2 x/wk, 10 min</b>	2x/wk, 10 min	<b>*Yoga 5x/wk, 30 minutes</b>

Notes: **Bold** indicates patient met the therapist's prescribed exercise. \*indicates patient met the MS-specific exercise guidelines. Abbreviations: light, light intensity; min, minutes; mod, moderate intensity; vig, vigorous intensity; x/wk, times per week

## CONCLUSIONS

- A PAPT model of care is feasible and effective for patients newly diagnosed with MS.
- With minimal PT visits, patients met established exercise guidelines and maintained or improved physical function.
- PAPT for patients newly diagnosed with MS can increase physical activity and exercise and promote health and wellness throughout the lifespan.