

“Comparing Cognitive Decline Amongst Patients with Parkinson and Multiple Sclerosis”

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Introduction

- **Parkinson’s Disease (PD) is the second most common progressive neurodegenerative disorder affecting American adults. PD is a pathophysiologic loss or degeneration of dopaminergic neurons in the substantia nigra of the mid brain (Beitz et al, 2014).**
- **Multiple sclerosis (MS) is a chronic disease of the central nervous system characterized by loss of motor and sensory function, that results from immune mediated inflammation, demyelination, and subsequent axonal damage. MS is one of the most common causes of neurological disability in young adults (Karussis et al, 2014). We hypothesize that our PD group will have greater cognitive decline as a consequence of age.**
- **Our intention with this study is to compare cognitive decline between two common neurodegenerative diseases in Southeast Louisiana with the goal of understanding how age coupled with disease factors affects cognition between patient groups.**

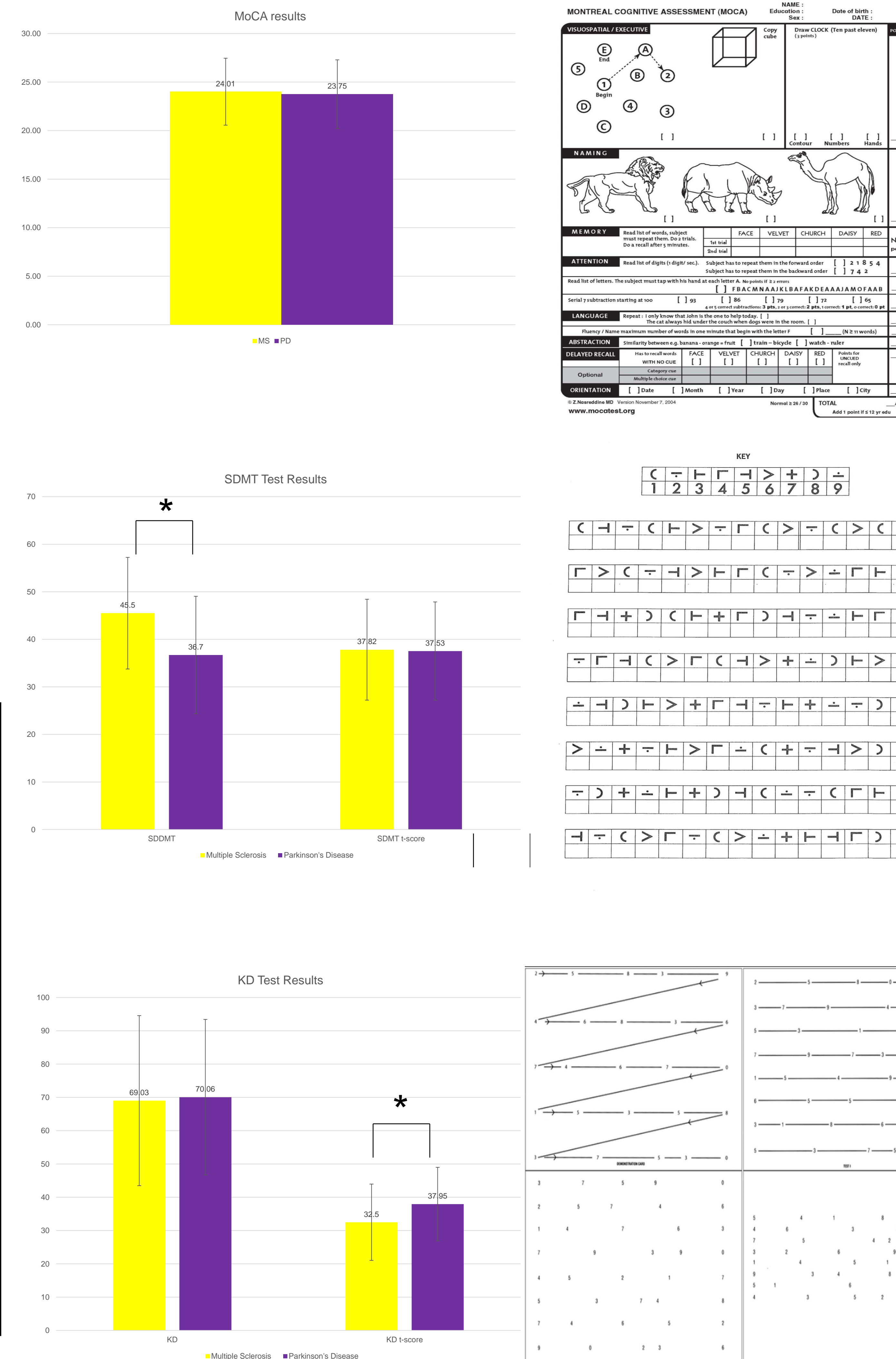
Methods

- **Our study enrolled patients with PD and MS in a six-year longitudinal study.**
- **In year one we set our baseline results using the Montreal Cognitive Assessment (MoCA), Symbol Digit Modalities Test (SDMT), and King Devick test (KD).**
- **We then conducted annual follow-up visits for five years using the aforementioned assessments.**
- **Healthy controls were also enrolled in our study and underwent the same cognitive assessments using the MoCA, KD, and SDMT.**

Demographics

	Multiple Sclerosis	Parkinson's Disease
Age	45.90 ± 12.92	66.75 ± 9.14
Education	14.4 ± 2.80	14.93 ± 2.4
Sex	Female 82.4%	Female 35.0%
	Male 17.6%	Male 65.0%
Race	Black 44.4%	Black 5.0%
	Caucasian 53.7%	Caucasian 95.0%

Results



Data Synopsis

	Multiple Sclerosis	Parkinson's Disease	
	F value	P score	
MoCA	0.163	0.687	no difference between groups
SDMT	15.951	0.000	PD is significantly worse than MS
SDMT t-score	0.024	0.878	no difference between groups
KD	0.050	0.824	no difference between groups
KD t-score	6.700	0.011	MS is significantly worse than PD

Conclusion

- **In the MoCA there was not much difference between our MS and PD group. Both groups did perform in the cognitively impaired region.**
- **In our SDMT test it showed that our PD group performed significantly worse when compared to our MS group. Our t-score results show how after accounting for age, both groups perform similarly.**
- **With the KD test both groups performed similarly on the raw score, when age was accounted for our MS group performed significantly worse.**
- **In conclusion we were able to confirm the expected impairment between these two neurodegenerative diseases. We also were able to identify that our MS group experienced more impairment in eye movement attention and language.**

Moving Forward

- **Increasing the length of our study to map any possible amount of change during totality of the diagnosis**
- **Finding preventative measures to combat the cognitive impairments experienced with MS and PD**