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Jamie L. Wynn

University of Dayton, stander@udayton.edu

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Fall Risk Assessment of Older Adults with Dementia Attending Goodwill Easter Seals Adult Day Services Programs

JAMIE WYNK

Advisor: Kurt Jackson PT, PhD, GCS

BACKGROUND AND PURPOSE

- Dementia is a neurocognitive disorder involving significantly impaired cognitive function. Alzheimer's is the most common type of dementia
- In 2015, estimated 5.3 million Americans with Alzheimer.
- In 2010, 31.7% of people 65 or older reported a fall with injury in the past year. These rates are even higher with dementia.
- Medical Cost of falls in 2013: \$34 billion
- Purpose: To test different measures affecting fall risk (lower body strength, walking speed, balance) in order to better understand the possible needs of this population to develop targeted interventions.

PARTICIPANTS

- Inclusion Criteria:
 - Participants at Goodwill Easter Seals Adult Day Care services in the Miami Valley
 - Diagnosis of Alzheimer's Disease or Dementia
 - Ability to walk at least 10 m without physical assistance
- 19 Participants; 8 Males, 11 Females
- Average Age: 72 years (Range: 64-86 years)
- 7 used an assistive walking device (Rollator or cane)

**Goodwill
Easter Seals
Miami Valley**

METHODS

- Consent obtained
- History of past falls obtained from Goodwill/Easter Seals coordinators
- Measurements taken for Montreal Cognitive Assessment (MoCA), Timed Up and Go, 4 meter Walk test, Sit to Stand, and Grip Strength

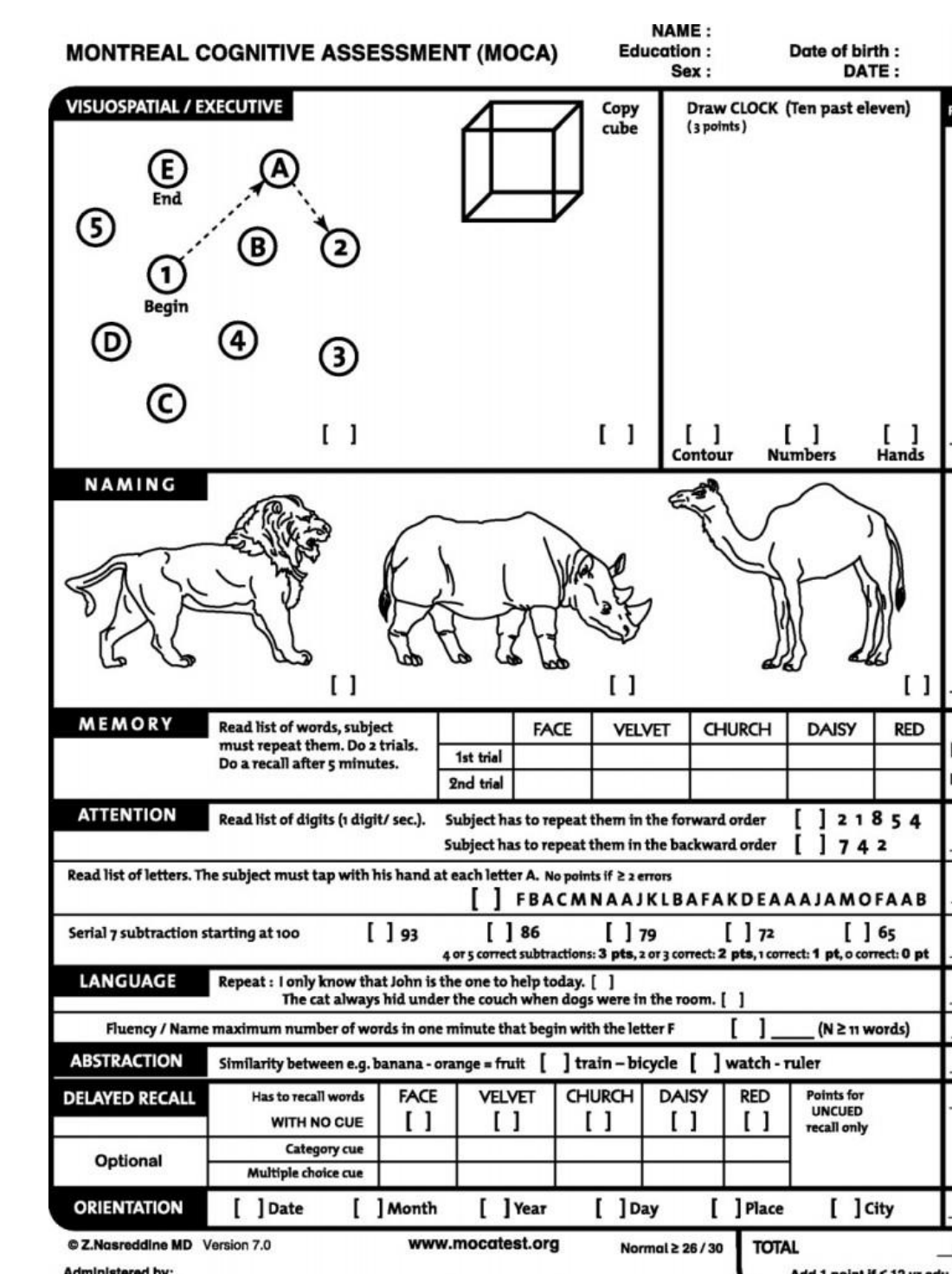
RESULTS

Table 1: Comparison of Participants Physical Functioning Scores with Aged Matched Normative Values

	Avg. Participants Scores	Age Matched Normative Values	Decreased Mobility/Function Cut Offs
Gait Speed (m/s)	0.78	1.25	< 0.8
Timed Up and Go (s)	15.67	9	> 13.5
30 s Sit to Stand (repetitions)	8.13	Males: 12-17 Females: 10-15	< 10-12
Male Grip Strength (kg)	29	42.4	< 37
Female Grip Strength (kg)	16.3	23.7	< 21

Montreal Cognitive Assessment (30 pts):

- Participants Score = 16 (Range: 0-29)
- Average Score for individuals without dementia = 27.4
- Score of < 18 is cut-off between mild cognitive impairment and Alzheimer's Disease.



Gait Speed- 6th Vital Sign

- Speed >1.0 m/s - better survival rate in community dwelling older adults
- < 0.8 m/s – associated with limited capacity for community ambulation
- < 0.4 m/s – identifies those with an inability to meet basic ADLs

Gait Speed:

- Participants = 0.78 m/s (Range: 0.18-1.48 m/s)
- Age Matched Norms = 1.25 m/s

Timed Up and Go:

- Participants = 15.67 sec (Range: 6.22- 28.9 sec)
 - One Outlier: 147.86 sec
- Age Matched Norm = 9 sec
- Score of >13.5 sec for Community Dwelling Adults signifies increased fall risk



30 Second Sit to Stand Test:

- Participants = 8.13 repetitions (Range: 1.5-18 repetitions)
- Age matched norms: Female 10-15, Male 12-17
- Below 10-12 reps indicates an increased fall risk



Grip Strength:

- Males: 29 kg (range 15.6-37.6);
 - Age Norm: 42.4 kg
 - Grip strength < 37 kg predictive of decreased mobility
- Females: 16.3 kg (range 9-22.3);
 - Age Norm: 23.7 kg
 - Grip strength < 21 kg predictive of decreased mobility



CONCLUSION

- Average MoCA scores were consistent with Alzheimer's Disease
- Gait Speed, Timed Up and Go, Sit to Stands and Grip Strength were all lower than the normative values and indicative of an increased risk for falls and further loss of mobility.
- Individuals participating in Goodwill Easter Seals Adult Day Services would benefit from evidence based exercise programs of sufficient intensity and progression.
- Simple strengthening program of large anti-gravity muscle groups likely to have greatest chance for benefit.