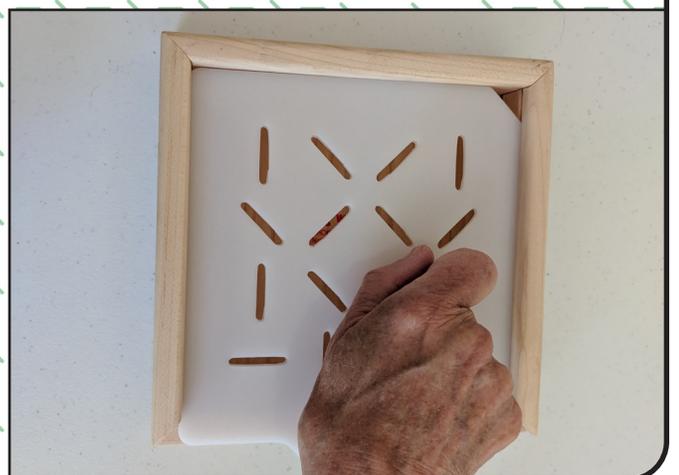
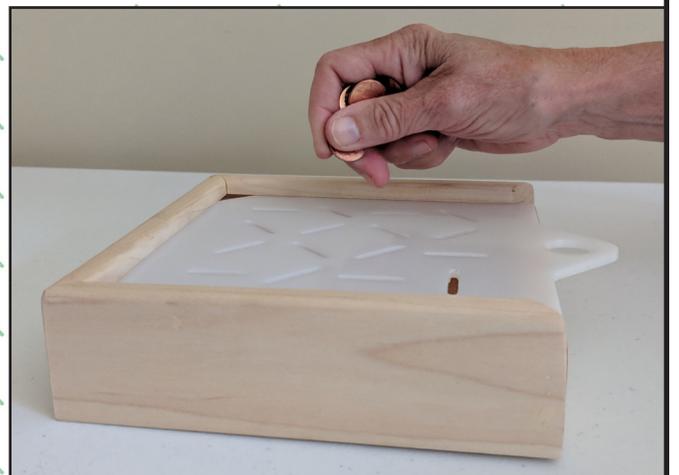
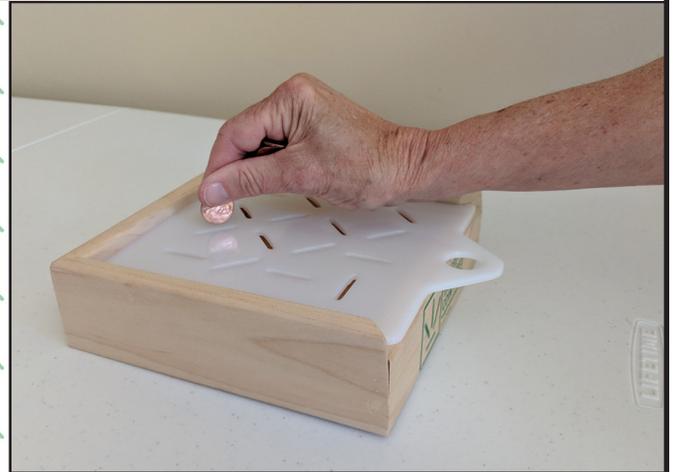




Corbett Targeted Coin Test (CTCT)

- Assess palm to finger tip **In-Hand Manipulation (IHM)**
- Assess **Fine Motor Manipulation (FMM)** with wrist **Dart Thrower's Motion (DTM)**
- Qualitative and quantitative reporting of accuracy and speed of IHM
- Observe recovery of shift, rotation and translation of IHM
- Relates to meaningful manipulatives such as coins, buttons, earrings, bingo chips, snack foods
- Consistent, convenient and easily cleanable



12-3400 Corbett Targeted Coin Test



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ABSTRACT

BACKGROUND:

- Created in 2017 by Julie Corbett, OTR.
- Includes a box with 16 multidirectional slots and 20 pennies.
- Requires in-hand manipulation, fine motor dexterity, palm to fingertip translation, and differential tendon glides.
- It has more complex visual-motor and proprioceptive demands than most dexterity tests.

PRIMARY OBJECTIVE:

Establish norms for the CTCT

PARTICIPANTS

Included a convenience sample of 114 individuals, aged 18-86 years, who met eligibility criteria.

RESULTS

Norms for the CTCT add to the body of knowledge for assessment tools in the rehabilitation of palm-to-finger translation and proprioceptive target placement. Occupational therapists can reflect on their current practice and utilize the CTCT norms to analyze dexterity.



Collecting Normative Data for the

CTCT

The Corbett Targeted Coin Test

RESULTS

The Pearson Coefficient test was used to determine whether significant correlations were present.

No significant correlations were found upon data analysis. However, we did find some trends to be indicative for future research.

Gender

- Across all age groups, females performed better than males
- (R hand: 34.05 secs /36.8 secs; L hand: 39.59 secs/41.66 secs).

Age

- Speed and accuracy were the best for middle-aged participants (40-49 years)
- Performance scores were slower with more drops for older participants (females: 60-69; males:70+)

Dominance

- Dominant hands performed better than non-dominant hands
- 35.518 secs /40.2328 secs

Handspan

- Dominant hands performed better than non-dominant hands
- (35.518 secs /40.2328 secs)

114 participants

- 50 males
- 64 females
- 18-86 years



DISCUSSION & implications

- This study supported previous trends in found regarding hand function
 - In previous studies conducted on the 9 Hole Peg Test and Purdue Pegboard Test, female adults were found to have slightly better dexterity than males across all ages.
 - Females had a better average quality of performance score by 2.75 when compared to males in our study.
 - In previous studies, it has been found that an individual's dexterity rapidly increases up until age eighteen and then steadily declines throughout adulthood.
 - In our study, there was a very small positive correlation between age and QOP ($r=.137$) (older participants were slower)
- Hand Span
 - There was a small positive correlation ($R=.141$) between R hand-span and Quality of Performance; which could be a confounding factor for the relationship between gender and CTCT performance, since men typically have larger hands than women.
- Dominance has an impact
 - In a previous study conducted by Julie Corbett (2018), there was only a 1-second difference in average hand speeds based on dominance.
 - In our study, dominant hands were 3-seconds faster (on average) than non-dominant hands.

LIMITATIONS

Small sample size

COVID-19 Pandemic

Michigan Participants only

more TAKEAWAYS

Dominant Hand Stats:

Average Speed: 26.5 secs
 Average Coins dropped: 1.825 coins
 Average QOP: 35.518

Observations:

56 participants completed bilateral shoulder abduction to drop coins into the slots.

Females

Average R hand speed: 24.9 secs
 Average R hand Accuracy: 1.83 coins dropped

Males

Average R hand Speed: 28.30 secs
 Average R Hand Accuracy: 1.7 coins dropped

Occupations:

STUDENTS (N=13)

Age range: 18-27 years
 R hand Mean QoP: 35.85
 L hand Mean QoP: 43.41

RETIRES (N=19)

Age range: 55-82 years
 R hand Mean QoP: 36.45
 L hand Mean QoP: 44.69

CONCLUSION

- The data collected in this study may help to enhance the validity of the CTCT
 - Provides norms from a larger sample size.
 - Allows a comparison of results of an individual with a hand injury or condition to those without.
 - Enables therapists to set goals and measure client progress in upper extremity rehabilitation.

REFERENCES-ACKNOWLEDGEMENTS

A full list of references can be obtained by emailing: rhodesvi@mail.gvsu.edu

Authors' Affiliation: Grand Valley State University

This research protocol was approved by the Human Research Review Committee of Grand Valley State University, Protocol # 20-292-H.

A special thanks to Dr. Beasley as well as Dr. Anderson for statistical analysis support.

METHODS

- Data was collected from four sites in Michigan
- The CTCT 'instructions for use' manual was followed.
- Demographic information of age, occupation, gender, handedness, and handspan were recorded.

READY POSITION

- Client seated at a table of approximately 30" high
- CTCT box is approximately 1" from a closed fist resting on the table
- Participants other hand rested in their lap.
- Dominant hands were tested first.

TRIALS

- Introductory script is read to the participant.
- Instructions are presented.
- The task is demonstrated by the administrator
- A trial is given
- Timed trial begins and 3 scores are recorded.

SCORES

- Speed: time required to complete test in seconds
- Accuracy: The amount of coins dropped
- Quality of Performance: summation of both speed and accuracy
- Qualitative observations were also documented

Precautions were taken, as recommended by the CDC, in order to decrease the risk of the spread of COVID-19.

Normative DATA

Table 1

Quality of Performance of All Subjects on the CTCT (in seconds)

Age Group (yr.)	Hand	Males				Females			
		Mean	Min	Max	N	Mean	Min	Max	N
18-29	R	34.94	17.89	56	15	34.51	18	61.9	29
	L	40.74	22.89	67.37		37.93	17.02	70.47	
30-39	R	38.26	22.08	70.61	12	29.07	14.83	54.84	9
	L	40.23	20.09	79.21		39.16	13.81	56.04	
40-49	R	33.6	20.6	67.48	8	31.45	27.56	38.41	4
	L	35.86	19.08	48.66		34.91	20.25	57.63	
50-59	R	35.38	23.81	43.07	6	34.87	23.91	44.68	10
	L	43.5	25.84	63.25		40.75	30.48	60.01	
60-69	R	43.8	35.03	49.08	4	37.92	23.72	48.2	7
	L	47.82	33.58	54.75		48.15	31.65	82.69	
70+	R	40.14	29.8	60.62	5	35.36	23.08	50.84	5
	L	49.97	31.01	79.42		39.41	23.08	50.67	
All	R	36.8	17.89	70.61	50	34.05	14.83	61.9	64
Subjects	L	41.66	19.08	79.42		39.59	13.81	82.69	

Inclusion Criteria

- Over 18-years old
- Non-institutionalized
- Community dwelling
- Able to complete active fist closure
- Able to perform finger to palm translation of twenty coins
- No history of hand dysfunction
- Able to follow directions

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