

Study: Fine Motor Performance with HOFOT Preschool Kit

Hands on Fun OT (HOFOT) did a comparison study over the course of two months using the HOFOT Preschool Program at The Ames Early Childhood Center in Yonkers, NY in April & May 2015. Subjects were 3 & 4 year old girls and boys that receive and don't receive occupational therapy as a related services at a full-day NY State Accredited Preschool Program. All students were given the Fine Motor Components of the PDMS-2 before and after the 2 month time period of using HOFOT Preschool Program, and all of the subjects displayed an improvement in their PDMS-2 Fine Motor Scores.

The Peabody Developmental Motor Scales (PDMS-2): This standardized test measures gross and fine motor skills of children from birth to 6 years of age. It is divided into five subtests: stationary, locomotion, object manipulation, grasping, and visual-motor integration. The subtests are organized into three quotients to diagnose strengths and weaknesses in motor development. Occupational therapy focuses on the following fine motor subtests:

- **Grasping:** Measures the child's ability to use his hands and fingers to manipulate objects. The grasp subtest measures a child's ability to use his or her hands. It begins with the ability to hold an object with one hand and progresses up to actions involving the controlled use of the fingers of both hands.
- **Visual Motor Integration:** Measures the child's ability to integrate and use his visual perception and motor control to perform complex eye-hand coordination tasks. The visual-motor subtest involves fine motor development, perceptual discrimination skills, and the ability to integrate perceptual and motor processes. Therefore, it involves both perceptual input and motor output. Poor performances on this test may be indicative of perceptual (input) difficulties, fine motor (output) difficulties and/or problems with integrating these processes.
- **Fine Motor Quotient:** Measures the child's ability to use their upper extremities, hands, and fingers. This quotient is derived from the grasping and visual motor integration subtests. The FMQ is derived by adding the subtest score and converting the sum to a quotient (i.e. a standard score having a mean of 100 and a standard deviation of 15).

Scoring:

- **Raw score** is the amount of points a child achieved on the subtests, which is then converted to the percentile and quotient.
- **Standard scores** allow for the comparison of scores across subtests.
- **Percentiles** compare the child's performance to the performance of other children of the same age. For example, a child who scores at the 30th percentile is performing at the same level or higher than 30% of the children while 70% of the children at that age scored higher.

SUBJECT 1: 3 Year Old Girl, Receives OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	46	9	37%
VM Integration	121	9	37%
Fine Motor Quotient	94	18	35%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	51	14	91%
VM Integration	134	14	91%
Fine Motor Quotient	124	28	95%

SUBJECT 2: 3 Year Old Girl, Does Not Receive OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	50	14	91%
VM Integration	124	11	63%
Fine Motor Quotient	115	25	84%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	52	15	95%
VM Integration	133	13	84%
Fine Motor Quotient	124	28	95%

SUBJECT 3: 3 Year Old Boy, Receives OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	42	5	5%
VM Integration	108	6	9%
Fine Motor Quotient	73	11	3%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	45	8	25%
VM Integration	119	9	37%
Fine Motor Quotient	91	17	27%

SUBJECT 4: 3 Year Old Boy, Does Not Receive OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	46	9	37%
VM Integration	110	7	16%
Fine Motor Quotient	88	16	21%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	47	10	50%
VM Integration	122	9	37%
Fine Motor Quotient	97	19	42%

SUBJECT 5: 4 Year Old Girl, Receives OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	45	5	5%
VM Integration	119	6	9%
Fine Motor Quotient	73	11	3%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	49	9	37%
VM Integration	127	8	25%
Fine Motor Quotient	91	17	27%

SUBJECT 6: 4 Year Old Girl, Does Not Receive OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	49	9	37%
VM Integration	139	12	75%
Fine Motor Quotient	103	21	58%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	51	11	63%
VM Integration	142	15	95%
Fine Motor Quotient	118	26	89%

SUBJECT 7: 4 Year Old Boy, Receives OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	44	4	2%
VM Integration	82	3	1%
Fine Motor Quotient	7	61	<1%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	48	8	25%
VM Integration	99	4	2%
Fine Motor Quotient	76	12	5%

SUBJECT 8: 4 Year Old Boy, Does Not Receive OT as Related Service

PDMS-2 Score Before HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	47	7	16%
VM Integration	126	8	25%
Fine Motor Quotient	15	85	16%

PDMS-2 Score After HOFOT Preschool Program

	Raw Score	Standard Score	Percentile
Grasping	49	9	50%
VM Integration	139	12	75%
Fine Motor Quotient	103	21	58%