

FINE MOTOR FUN

"Helping your child learn, grow and develop by learning to use his or her hands."

Does your child have difficulty with fine motor skills such as cutting, copying, tracing, coloring, holding pencils and markers, lacing, buttoning, zipping, picking up small items and playing with construction toys?

Occupational Therapy Can Help

Fine motor difficulties are due to many factors. These include poor upper body stability, tone and strength, posture, finger strength, grasp, hand dominance, coordination and sensory issues.

Children 3-12 years of age;
4 children per course: \$350; 12 sessions, once/week
Special needs: 3 children per course \$400; 12 sessions
Summer camp and spring break programs available

for more information and to register contact:
Mahshid Hosseini MSc OT, Occupational Therapist 778 322 1242
ot@skilledkids.com



www.skilledkids.com

Skilled Kids Occupational Therapy

Occupational Therapy and Consulting for Children

Mahshid Hosseini, MScOT
Occupational Therapist

Telephone: 778-322-1242
Fax: 604-921-4883
Email: ot@skilledkids.com
Website: www.skilledkids.com

OCCUPATIONAL THERAPY PROGRAM

TITLE: FINE MOTOR FUN

“Help your child, learn, grow and develop by learning to use his or her hands.”

PURPOSE: Fine Motor Fun helps develop and improve fine motor performance for children who have difficulties using their hands effectively. Challenges may include determining hand dominance, printing and writing, dressing (zippers, buttons and shoe laces), drawing, cutting, coloring, and using or manipulating toys and tools. The therapy for motor performance is adaptable for issues ranging from major motor performance to minor motor difficulties.

Fine Motor Fun programs are developed to meet the needs of children with a variety of fine motor difficulties who may not have access to government-funded services. Children benefit greatly from a “hands on” approach. Parents will have the benefit of an experienced occupational therapist at a reasonable cost.

Fine Motor Fun offers two program options:

Program 1: Uses fun filled activities to assist normally developing children

Program 2: Uses fun-filled activities for children with special needs who experience more extensive challenges

THEORETICAL MODEL:

Fine motor skills involve using smaller muscle groups and muscles to operate smaller parts of our body. Our fingers and hands have a large number of small muscles that perform specific movements. We also use many of these muscles to stabilize fingers or parts of hands so that other parts can then perform fine movement. Writing, drawing, cutting, buttoning, and building models are all examples of using fine motor skills.

Fine motor performance is classified under several areas of performance:

- Visual motor control: The ability to translate with one's hand what one visually perceives (e.g. copying shapes, learning how to print and write, copying from a board, typing from a written sample).
- Visual motor coordination: The ability to coordinate muscles of your hand in order to be able to make lines and shapes (e.g. the steady letters and lines required for printing).
- In-hand manipulation: The ability to manipulate objects in the hand. (E.g. operating zippers, buttons, and fasteners, tying shoelaces, using tools, and building structures).
- Bilateral Coordination: Symmetrical use of both hands. Most activities of daily living require using both hands such as dressing, building, writing, sewing, etc.
- Grasp: Proper grasp of the pencil to facilitate writing.
- Hand Dominance: The development of a dominant hand for handwriting or other tasks.
- Upper Extremity Strength: The strength of muscles of the arm, intrinsic (small) muscles of the hand and fingers.
- Kinesthesia: Ability to sense movement in our body. Without using your eyes, can you feel whether you are moving your arm or fingers up or down?
- Stereognosis: The recognition of familiar objects by the hand without use of vision. Can you know what an object is by feeling it?
- Motor planning: Ability to plan, sequence and execute actions. We need motor planning to catch an object, draw a picture and write.
- Visual perceptual skills: ability to perceive and interpret various forms. We need this skill to read and write, drive, read a map, have a sense of direction and three-dimensional awareness.

The positioning and mobility of the body can also affect fine Motor skills:

- Upper Extremity Stability: When joints of the upper extremity provide a stable base of support for control of joints distal (below) to them.
- Upper Extremity Mobility: When all joints of the upper extremity interact with each other so that the upper extremity moves freely into its mature patterns.
- Postural Control: Spontaneous body adjustments to maintain a center of gravity, keeping the head and body in alignment and stabilizing body parts.

- **Tone:** The normal state of balanced tension in the tissues of the body, especially the muscles.

Children lacking the above-mentioned skills may have difficulty with basic tasks such as sitting upright to eat a meal, working at a table, writing and other tasks.

FUNCTIONAL GOALS:

Fine Motor Fun primarily works at developing skills to establish hand dominance, manipulate objects, operate buttons, zippers and fasteners, hold writing devices correctly (i.e. pencils, markers), cutting, coloring, tracing, printing and writing, drawing, typing, building models and using tools. This takes place in a relaxed and friendly environment.

The course will be given by an experienced occupational therapist, who specializes in children with sensory-motor difficulties. Through the activities, participants will be exposed to a variety of exercises designed to improve and increase their fine motor skills.

Age group: 3-10 years

Age classification: 3-6 years of age; 7-10 years of age

Number of children per course: 5

Number of children with special needs per course: 3

Time frame: 12 sessions, once a week for a total of 12 weeks

Class length: 50 Minutes

Price: \$325.00 standard

\$400.00 special needs

*A screening test is included in the price to place children in the appropriate group.

Activities in **Fine Motor Fun** are as follows:

Session 1:

Upper extremity strength: Activities include floor and chair pushups, thera-band exercises, being pulled by a hula-hoop while on a scooter, ropes and towels for tug-of-war type games, pushing against the wall, etc. Hand strengthening activities will include use of stapler, single hole puncher, pull apart/put together toys, use of plasticine, squeezing water out of a sponge (for younger children), targeting using water pistols, etc.

Session 2 and 3:

Bilateral hand use: Activities include cutting play dough with a butter knife, then use child scissors, Practice turning a wind up toy, cutting flattened straws, cardboard or oaktag strips, ripping paper, etc.

Session 4:

Kinesthesia: Activities include asking the child to perform variety of movements such as touching left shoulder with the right hand, touching mouth from back of the neck, doing figure 8s on the board or a piece of paper, doing infinity walks (figure 8 around two chairs while reading words, calling out pictures or numbers), etc.

Stereognosis: Activities include feeling different objects from a bag with eyes closed, feeling a variety shapes from a bag with eyes closed, finding/feeling small objects hidden in rice, popcorn, etc.

Session 5, 6 and 7:

Grasp: Activities include match and screw together or take apart pairs of assorted nuts and bolts, pick up cotton balls with tweezers, play games or eat with children's training chopsticks, use clothespins to transfer, feed coins or small shapes through a slot.

Play pegboard games, pinch zip-lock bag seals together, turn over as many pennies as possible within one minute, play tug-of-war with small, narrow objects such as stir sticks, Popsicle sticks, etc.

Visual motor control: Activities include copying shapes, copying simple pictures (e.g. house, car, and person); children will be taught specific step by step instructions to improve this skill.

Session 8:

Visual perceptual skills. This is a broad area and requires a course of its own. Only sense of direction will be incorporated in the fine motor program. Activities include, Simon Says using concepts of left, right, up, down, over, under, between etc; Blindfold; jumping jacks; having children point with their whole arm, in the direction which is called out, etc.

Session 9:

Visual motor coordination: Activities include drawing lines through paths on the white board and large pieces of paper, drawing lines through paths of different colors, drawing, coloring, dot-dots, mazes, games such as operation. For the children who do not demonstrate a mature pencil grip, variety of pencil grips will be used. Appropriate pencil grip might be recommended to parents to purchase.

Sessions 10, 11:

In-hand manipulation skills: Activities include color in a series of 1/8 inch circles, beading, inching up and down a pencil, picking up small objects and moving them in hand one by one with ring and baby finger, crumbling paper into balls, opening and closing safety pin (for older children), taking lid off jar and holding it while taking out objects, separating and shuffling cards, doing large buttons and zippers, picking up paper clips and coins while holding a marble with the same hand and putting through a piggy bank slot one at a time, etc.

Session 12:

In-hand manipulation skills and outcome measure tests

More in-hand manipulation activities will be used. This will be followed up by the screening test to determine improvement in specific skills.

Activities to improve posture and tone will be performed at the beginning of the session. These might include animal walks, two children pressing their arms, legs, shoulders against each other, etc.

Motor planning techniques will be used while doing specific tasks such as buttons or zippers. Concepts of motor planning include backward and forward chaining, e.g. I will do the first 3 parts and the child will do the last part of the activity, or the child will do the first part and I will do last three parts of the activity, hand over hand and problems solving techniques will be used; the child will do increasing steps until he/she learns the task.

Handouts containing activity suggestions will be sent home with the children after each session.

***LEARNING OUTCOMES:** By the end of **Fine Motor Fun**, participants will have improved fine motor function (see course outcomes below)

REGISTRATION:

Fine Motor Fun requires prior screening; the dates or details of which would be included in the community centre brochure or write up. Parents would also be informed of the screening dates when enquiring or enrolling in the course.

The screening procedure will take place during a one-hour session held at the community centre one week prior to course commencement.

Each of the 4 groups will be allotted 20 minutes for testing and observation by the therapist.

Courses will be cancelled if there are less than five students registered in program 1, or less than three registered in program 2, and payments will be refunded. Parents are encouraged to contact the therapist with additional questions and concerns.

COURSE OUTCOMES:

By the end of the course children will improve their fine motor skills and parents will have educational handouts to continue with some of the activities at home with their children. The children's success in specific skills such as cutting or doing buttons depends on the child. However, the children will be exposed to variety of fun activities which focus on certain skills while being facilitated by the occupational therapist. They will undoubtedly make improvements in using their hands affectively.

The children's fine motor performance in significant areas will be observed and recorded at the initial screening test. Throughout the course their progress will be observed, and at the completion, their performance will be tested and recorded. Outcomes will be established and evaluations will be sent home on the last day.

About the course developer:

Fine Motor Fun was designed and developed by an experienced occupational therapist, Mahshid Hosseini. Mahshid has a Bachelors degree in Occupational Therapy and a Masters Degree in Science. She has researched and worked extensively with children with a variety of developmental and genetic disorders; and children who have sensory-motor difficulties affecting different areas of their daily lives. She has specialized in the area of pediatrics for 12 years and owns a private practice clinic in West Vancouver. Mahshid has successfully offered past courses specifically focused on printing and handwriting.

Supporting Research

CaseSmith, J. (1996). Fine motor outcomes in preschool children who receive occupational therapy services. *American Journal of Occupational Therapy*, 50(2), 5260.

CaseSmith, J., Allen, A., & Pratt, P. (1996). *Occupational therapy for children* (3rd ed.). St. Louis, MO: Mosby.

CaseSmith, J. (2002). Chapman, L. & Wedell, K. (1972). Perceptual motor abilities and reversal errors in children's handwriting. *Journal of Learning Disabilities*, 5 (6), 510.
Chu, 1997. (1997). Occupational therapy for children with handwriting difficulties: A framework for evaluation and treatment. *British Journal of Occupational Therapy*, 60 (12), 514-520.

CaseSmith, J. (1993). The relationship among sensory motor components, fine motor skills, and functional performance in preschool children. *American Journal of Occupational Therapy*, 49, 645-651.

Bonney, M. (1992) Understanding and assessing handwriting difficulties: Perspectives from the literature. *The Australian Occupational Therapy Journal*, 39, 3.
Bragdon, A and Gamon D (2000) *Brains That Work A Little Bit Differently: Recent Discoveries About Common Brain Diversities*. Allen D. Bragdon Publishers Inc, The Brain Wave Centre, MA. Authors explore ten brain phenomena including lefthandedness, dyslexia, ADHD, perfect pitch, SAD, Autism, alcoholism, déjà vu, photographic memory and synesthesia. Fascinating!

CaseSmith J (2007) Effectiveness of schoolbased occupational therapy intervention on handwriting. *American Journal of Occupational Therapy* ;56 (1):1725
OBJECTIVE: This study investigated the effects of schoolbased occupational therapy services on students' handwriting. METHOD: Students 7 to 10 years of age with poor handwriting legibility who received direct occupational therapy services (n = 29) were compared with students who did not receive services (n = 9) on handwriting legibility and speed and associated performance components. Visualmotor, visualperception, inhand manipulation, and handwriting legibility and speed were measured at the beginning and end of the academic year. The intervention group received a mean of 16.4 sessions and 528 min of direct occupational therapy services during the school year. According to the therapists, visualmotor skills and handwriting practice were emphasized most in intervention. RESULTS: Students in the intervention group showed significant increases in inhand manipulation and position in space scores. They also improved more in handwriting legibility scores than the students in the comparison group. Fifteen students in the intervention group demonstrated greater than 90% legibility at the end of the school year. On average, legibility increased by 14.2% in the students who received services and by 5.8% in the students who did not receive services. Speed increased slightly more in the students who did not receive services. CONCLUSION: Students who received occupational therapy services demonstrated improved letter legibility, but speed and numeral legibility did not

demonstrate positive intervention effects.

CaseSmith J (2007) Effects of occupational therapy services on fine motor and functional performance in preschool children. *American Journal of Occupational Therapy* ;54 (4):37280 **PURPOSE:** This study examined how performance components and variables in intervention influenced fine motor and functional outcomes in preschool children. **METHOD:** In a sample of 44 preschoolaged children with fine motor delays who received occupational therapy services, eight fine motor and functional performance assessments were administered at the beginning and end of the academic year. Data on the format and intervention activities of each occupational therapy session were recorded for 8 months. **RESULTS:** The children received a mean of 23 sessions, in both individual and group format. Most of the sessions (81%) used fine motor activities; 29% addressed peer interaction, and 16% addressed play skills. Visual motor outcomes were influenced by the number of intervention sessions and percent of sessions with play goals. Fine motor outcomes were most influenced by the therapists' emphasis on play and peer interaction goals; functional outcomes were influenced by number of sessions and percent of sessions that specifically addressed selfcare goals. **CONCLUSION:** The influence of play on therapy outcomes suggests that a focus on play in intervention activities can enhance fine motor and visual motor performance.

Cornhill, H. & CaseSmith, J. (1996). Factors that influence good and poor handwriting. *American Journal of Occupational Therapy*, 50 (9), 732738. Effectiveness of school based occupational therapy intervention on handwriting. *The American Journal of Occupational Therapy*, 56 (1), 1725.

Fairbairn, M. L. & Davidson, I. F. W. K. (1993). Teachers' perceptions of the role and effectiveness of occupational therapists in schools. *Canadian Journal of occupational therapy*, 60, 185191.

Henderson, A. & Pehoski, C. (1995). *Hand function in the child: Foundations for remediation*. St. Louise, MO: Mosby publishing.

Hosseini, M. (2000). Thesis Research. The effectiveness of occupational therapy intervention to improve the handwriting performance of individuals with sensory motor problems who demonstrate severe handwriting difficulties. Queen's University.

STUDY DESIGN: An experimental multiple base-line single subject design consisting of 5 subjects was used. The design involved the systematic collection of repeated measurements of a behavioural response (writing) over time, usually at frequent and regular intervals. In a multiple A-B design there were two phases: baseline phase (A) prior to treatment and intervention phase B during treatment. The same measurements were gathered at regular intervals over both phases. **METHOD:** Sensory Motor Performance components of handwriting and ergonomic factors were assessed. A battery of OT non-standardized and standardized tools, including sub-sections of SIPT were used to assess underlying factors leading to writing difficulties. Children's Handwriting Evaluation Scale was used to assess children's handwriting performance. Standardized

tests utilized had high reliability and validity ratios. The treatment intervention was over 8 treatment sessions once every two weeks. OT follow up programs which were carried out at children's homes and schools formed an important part of the intervention. Systematic monitoring programs were in place to ensure therapist's adherence to time frames and treatment programs and to determine whether or not the subjects were following the OT follow up programs. The intervention was based on sensory integration, sensory motor, cognitive and behavioural approaches. To determine the effectiveness of OT intervention, visual, statistical, and clinical data analysis were used. A substantial rate for inter-rater reliability was achieved. Graphic representations of children's quality and speed of writing were provided to display children's performance during baseline and intervention phases. RESULTS: The results of the research showed that occupational therapy intervention is effective to improve the quality of handwriting performance in children with handwriting difficulties. Support for findings, discussion on type of intervention, methodology, clinical implications, study limitations and implications for future research were discussed.

Lockhart, J.& Law, M, (1994). The effectiveness of multisensory writing program for improving cursive writing ability in children with sensorimotor difficulties. *Canadian Journal of Occupational Therapy*, 61 (4), 206214.

MalloyMiller, T., Platajko, H., & Anstett, B. (1995). Handwriting error patterns of children with mild motor difficulties. *Canadian Journal of Occupational Therapy*, 62 (5), 258267.

Niehues, A.N., Bundy, A.C., Mattingly, C.F., & Lawlor, M.C. (1991). Making a difference: Occupational therapy in the public schools. *The Occupational Therapy Journal of Research*, 11(4), 195212.

Oliver, C.E (1989). A sensorimotor program for improving handwriting readiness skills in elementaryage children. *American Journal of Occupational Therapy*, 44 (2), 111116.

Rogers J, CaseSmith J (2007), Relationships between handwriting and keyboarding performance of sixthgrade students. *American Journal of Occupational Therapy* ;56 (1):349 OBJECTIVES: This study examined the relationships between sixth-grade students' handwriting speed and legibility and their keyboarding speed and error rate. A second purpose was to examine how well handwriting performance discriminates

Schaaf R and McKeon Nightlinger, K (2007) Occupational Therapy Using a Sensory Integrative Approach: A Case Study of Effectiveness. *American Journal of Occupational Therapy* Vol 61 No 2, 239246

Schneck, C.M. (1991). Comparison of pencilgrip patterns in first graders with good and poor writing skills. *American Journal of Occupational Therapy*, 45, 701706

Smith, E. R. (1989). Ergonomics and the occupational therapist. In S. Hertfelder & C. Gwin (Eds.), *Work in progress: Occupational therapy in work programs* (pp. 127155). Rockville, MD: American Occupational Therapy Association.

Schilling D, Washington K, Billingsley F and Deitz J (2003) Classroom Seating for Children with Attention Deficit Hyperactivity Disorder. *Therapy Balls Versus Chairs*. *American Journal of Occupational Therapy* Vol 57 No 5, 534-541. This research found that use of therapy balls for students with ADHD facilitates in-seat behaviour and legible word productivity.

Tseng, M.H. & Cermak, S.A (1993). The influence of ergonomic factors and perceptualmotor abilities on handwriting performance. *American Journal of Occupational Therapy*, 74 (10), 919-926.

Weil, M.J., & Cunningham, S.J. (1994). Relationship between visual motor and handwriting skills of children in kindergarten. *American Journal of Occupational therapy* 48, 982-988.