

Fine Motor Tremor Traffic Light

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OT KB Meeting

PICO

- Among school aged students with CP, does resistance and strength training decrease tremor and improve fine motor skills?

Searching for Evidence

Search Database Sources

- Trip Database
- MEDLINE
- Rehabilitation Reference Center
- Google Scholar

Search Terms

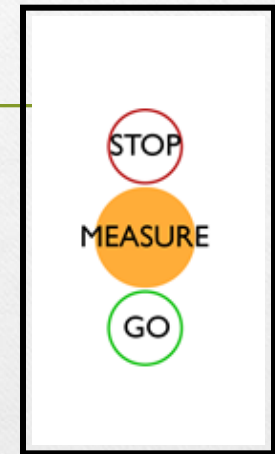
- tremor
- hand
- fine motor
- child*

Searching for Evidence

- Search was replicated by:
 - Andrea Ryce, SHH clinical librarian
 - Susan Harris, through TL vetting process

Best Evidence Identified

- No applicable article(s) found
- Yellow – No evidence found



- Traffic Lighting Database:
- http://10.2.50.68/fmi/iwp/res/iwp_home.html

Broader Evidence

- 5 broader, more general summaries – not specific to tremor - used as broader supporting evidence

Summary of Broader Evidence

Chung & Callanen, 2016

- Chung, A. & Callanen, A. (2016). Clinical Review, Cerebral Palsy: Occupational Therapy, CINAHL Information Systems, Rehabilitation Reference Center
- Clinical review article (“Summary”)

Recommendations:

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- Strengthening exercises for muscle weakness
 - General therapeutic activities to improve upper extremity function (not specific to tremor), e.g., CIMT, video gaming for task-oriented training etc.
 - Progression and adaptation of fine motor activities (again, not specific to tremor)

Snook, 2016

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- Snook, A. G. (2016). Clinical Review, Ataxia in Children, CINAHL Information Systems, Rehabilitation Reference Center
 - Clinical review article (“Summary”)

Recommendations:

- Treatment should focus on strategies and compensatory techniques for maintaining or improving a child's ability to continue to participate
- Strength training

Novak, 2014

- Novak, I. (2014). Evidence-based diagnosis, health care, and rehabilitation for children with cerebral palsy. *Journal of Child Neurology*, 29(8), 1141-1156.
- This article included: Systematic review data about the most effective interventions for children with cerebral palsy

Recommendations:

- Management of child-active rehabilitation wherein the child actively practices real life tasks in a real-life environment
 - Examples:
 - Goal-directed motor training
 - Home programs
- Compensatory and environmental interventions
 - Example:
 - Context-focused therapy

Boston Children's Hospital

- Treatments and care for movement disorders in children. (n.d.). Retrieved from <http://www.childrenshospital.org/conditions-and-treatments/conditions/m/movement-disorders/treatments>
- Conditions and Treatments website - Treatments for Movement Disorders

Recommendations:

- There is no cure for most movement disorders
- Treatment can focus on symptom relief, which can include therapy (to strengthen and/or stretch limbs) as well as adaptations to help minimize limitations

National Institute of Neurological Disorders and Stroke

- Tremor Fact Sheet. (July, 2012). Retrieved from https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Tremor-Fact-Sheet#3243_6
- Patient and Caregiver Information website – Tremor Fact Sheet

Recommendations:

- Therapy intervention may help to decrease tremor and improve muscle control for some adult individuals, including:
 - Therapy focusing on strengthening and control of muscles, as well as functional skills
 - Positioning adaptations for tremor such as bracing the affected limb close to the body
 - Use of weights, splints, other adaptive equipment

Clinical Impressions and Recommendation for Practice:

- Due to the lack of specific evidence for treatment of tremor, the following suggestions & recommendations are based on general evidence-based findings and clinical expertise for improving fine motor skills for school-aged children with hand tremor:

Clinical Impressions and Recommendation for Practice:

1. Supportive Seating:

- to ensure the child is well supported in chair/wheelchair with desk/tray
- Feet resting flat on footplates/floor

2. Resistive Activities:

- Trial strengthening and resistive activities to improve fine motor function and possibly temporarily decrease fine motor tremor during motor tasks

Clinical Impressions and Recommendation for Practice:

3. Weighted Equipment:

- Trial use of weighted pens, pencils and wrist weights

4. Stabilization:

- Bracing or fixing the dominant arm against body when doing fine motor activities
- Grasping onto a desk or surface with non-dominant hand or use a positioning dowel or stabilizer

Clinical Impressions and Recommendation for Practice:

5. Adapted Equipment: Trial use of adaptations in function tasks

- Food class- rocker knife, bowl with suction
- Eating and mealtime- scoop plate, non-slip mat, weighted utensils

Key Messages & Clinical Bottom Line

- There's a lack of specific research evidence for treatment and management of hand tremor in children
- All treatment interventions need to be monitored for effectiveness
- A GREAT need for more research

Knowledge Product



FINE MOTOR



MANAGEMENT OF HAND TREMOR IN SCHOOL-AGED CHILDREN

Did you know?

There is a lack of specific research evidence for treatment and management of hand tremor in children with motor impairments. Therefore, all recommendations should be monitored for effectiveness.

What are the best strategies for management of hand tremor?

The following suggestions, for school-aged children with motor impairments, are based on general evidence-based findings as well as clinical expertise. These suggestions aim to assist in management of hand tremor, to help improve fine motor skills in children with motor impairments.

- **Supportive Seating:** Provide seating to ensure the child is well supported in chair/wheelchair with a desk/tray. A desk with a cut out may be useful. Feet should rest flat on the footplates/ floor.
- **Resistive Activities:** Trial strengthening and resistive activities to both improve fine motor function and possibly temporarily decrease fine motor tremor during motor tasks.
- **Weighted Equipment:** As appropriate, trial use of weighted pens, pencils and wrist weights.
- **Stabilization:** Trial:
 - Bracing or fixing the dominant arm against body when doing fine motor activities.
 - Grasping onto a desk or other surface with non-dominant hand for added stabilization or use a positioning dowel or similar stabilizer.
- **Adapted Equipment:** Trial use of adaptations in functional tasks at school:
 - Foods Class – rocker knife, suction bottom bowls, etc.
 - Eating and mealtimes – scoop plate, nonslip matting, weighted utensils, etc.

References

- Chung, A. & Callanen, A. (2016). Clinical Review, Cerebral Palsy: Occupational Therapy, CINAHL Information Systems, Rehabilitation Reference Center
- Novak, I. (2014). Evidence-based diagnosis, health care, and rehabilitation for children with cerebral palsy. *Journal of Child Neurology*, 29(8), 1141-1156.
- Snook, A. G. (2016). Clinical Review, Ataxia in Children, CINAHL Information Systems, Rehabilitation Reference Center

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- Tremor Fact Sheet. (July 2012). Retrieved from https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Tremor-Fact-Sheet#3243_6