PT and OT Interventions to Improve Sensory and Motor Outcomes for Young Children with Central Hypotonia: A Systematic Review

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Conclusions:

Green light evidence supports treadmill training (to promote ambulation and gait characteristics) and massage (to positively affect muscle tone, motor development and use of vision) for infants with Down syndrome. These interventions are considered Yellow (possibly effective) for other populations. Green light evidence supports impact of orthoses on foot alignment for ambulatory children with hypotonia, while impact on gait characteristics is Yellow light and motor development may be negatively impacted (Red light) in pre-ambulatory children. All other interventions rated Yellow (possibly effective) and therapists should monitor using sensitive outcome measures.

When the child is not sitting by 9 months of age, Purple level evidence (expert opinion) supports use of gait trainers, power mobility, standers and supported seating.

Recommendations: More research is needed to define and measure hypotonia in order to better study the effects of interventions.

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OBJECTIVE: To evaluate evidence supporting interventions used to improve sensory and motor outcomes for children 0-6 years with central hypotonia.

METHODS: Four electronic databases were searched from 1996 to March 2017. Level of evidence and study conduct was evaluated using American Academy of Cerebral Palsy and Developmental Medicine criteria. Traffic lighting classification identified interventions that were green (proven effective), yellow (possibly effective), red (proven ineffective or contraindicated) or purple (expert opinion).

RESULTS: Thirty-nine articles were included. One systematic review and nine studies measured orthotic interventions while the other systematic review and four studies measured treadmill interventions. Remaining studies measured impact of compression garments, massage, motor and sensori-motor interventions, positioning and mobility interventions.

Recommendations: Green Light “GO!”

Treadmill*1  Massage  Orthotics*2