

## Treatment Intervention Advisory Committee Review and Determination

**Date:** October 31, 2014

**To:** DHS/DLTC

**From:** Wisconsin Department of Health Services Autism and other Developmental Disabilities  
Treatment Intervention Advisory Committee: Lana Collet-Klingenberg, Ph.D. (chairperson) AC

**RE:** Determination of Massage Therapy as a proven and effective treatment for individuals with autism spectrum disorder and/or other developmental disabilities

This is an initial review

This is a re-review. The initial review was Date of initial review

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### Section One: Overview and Determination

Please find below a statement of our determination as to whether or not the committee views Massage Therapy as a proven and effective treatment for children with autism spectrum disorder and/or other developmental disabilities. In subsequent sections you will find documentation of our review process including a description of the proposed treatment, a synopsis of review findings, the treatment review evidence checklist, and a listing of the literature considered. In reviewing treatments presented to us by DHS/DLTC, we implement a review process that carefully and fully considers all available information regarding a proposed treatment. Our determination is limited to a statement regarding how established a practice is in regard to quality research. We do not make funding decisions.

#### Description of proposed treatment

The National Standards Project (National Autism Center, 2009) defines massage therapy as interventions involving the provision of deep tissue stimulation. From <http://www.massageqigong.com> (retrieved 9/25/14) "The Massage Qigong bridges the Eastern traditional approach and the Western pragmatic and research oriented approach as they were both used in the creation of that specific technique. The Massage Qigong, also called Qigong Sensory Therapy, is a set of 12 movements improving the overall blood and energy circulation of the child with Autism or sensory processing difficulties. The massage is directed at acupressure points and channels on the body. This Massage is also a dual therapy. The therapist and the parent(s) work together in giving the massage to the child. The therapist trains the parent(s) in giving a fun and simple form of the massage (15 minutes). This massage anchors the progress made in the therapy sessions and strengthens the parent-child bond."

#### Synopsis of review

In the case of Massage Therapy, please refer to the attached reference listing that details the reviewed research. The committee's conclusions regarding Massage Therapy include the following findings:

1. There is no common definition of massage therapy as an intervention in the scant research available. Three of the four studies that met criteria for inclusion utilized Qigong massage (the definition provided above), the fourth study did not specify a particular massage method, but

what was described was similar to the Qigong method description in that it was full body and deep pressure. Other studies included aromatherapy and/or brushing or light touch.

2. The dependent variables or target behaviors in the studies ranged greatly and included stereotypical behaviors, sleep, bowel movements, social behaviors, motor skills, communication skills, and sensory tolerance.
3. Outcomes often included parent and teacher observations and perceptions and study authors acknowledged that these presented confounding variables into the study and ability to make conclusions about treatment effects.
4. Several studies met criteria (i.e., article inclusion checklist) and were reviewed. This information is attached to this memo.

In sum, it is the decision of the committee that Massage Therapy does have an emerging body of evidence with recognition by at least one authoritative body and at least one high quality study demonstrating promising results, thus warranting a Level 3 - Emerging Evidence (Promising as Proven & Effective Treatment) recommendation. *It is with reservation that we make this recommendation as there were limitations in all of the studies and the studies showing evidence were specific to one form of massage therapy, Qigong massage.* Even the authors of the studies acknowledged that much more work needs to be done to provide evidence to support this practice. For example, Silva et. al., (2008) wrote, "Research on the intervention itself is still preliminary and requires replication and extension via randomized controlled design, with larger samples of children with autism."

## Section Two: Rationale for Focus on Research Specific to Comprehensive Treatment Packages (CTP) or Models

In the professional literature, there are two classifications of interventions for individuals with Autism Spectrum Disorder (National Research Council, 2001; Odom et al., 2003; Rogers & Vismara, 2008):

- (a) **Focused intervention techniques** are individual practices or strategies (such as positive reinforcement) designed to produce a specific behavioral or developmental outcome, and
- (b) **Comprehensive treatment models** are “packages” or programs that consist of a set of practices or multiple techniques designed to achieve a broader learning or developmental impact.

To determine whether a treatment package is proven and effective, the Treatment Intervention Advisory Committee (TIAC) will adopt the following perspective as recommended by Odom et al. (2010):

The individual, focused intervention techniques that make up a comprehensive treatment model may be evidence-based. The research supporting the effectiveness of separate, individual components, however, does *not* constitute an evaluation of the comprehensive treatment model or “package.” The TIAC will consider and review only research that has evaluated the efficacy of implementing the comprehensive treatment *as a package*. Such packages are most often identifiable in the literature by a consistently used name or label.

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

Odom, S. L., Brown, W. H., Frey, T., Karusu, N., Smith-Carter, L., & Strain, P. (2003) Evidence-based practices for young children with autism: Evidence from single-subject research design. *Focus on Autism and Other Developmental Disabilities, 18*, 176-181.

Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 40*, 425-436.

Rogers, S., & Vismara, L. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*, 8-38.

### Section Three: DLTC-TIAC Treatment Review Evidence Checklist

Name of Treatment: Massage Therapy

#### Level 1- Well Established or Strong Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, National Professional Development Center) have approved of or rated the treatment package as having a strong evidence base; authorities are in agreement about the level of evidence.
- There exist ample high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - Minimum of two group studies or five single subject studies or a combination of the two.
  - Studies were conducted across at least two independent research groups.
  - Studies were published in peer reviewed journals.
- There is a published procedures manual for the treatment, or treatment implementation is clearly defined (i.e., replicable) within the studies.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* At this level, include ages of participants and disabilities identified in body of research

#### Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have approved of or rated the treatment package as having at least a minimal evidence base; authorities may not be in agreement about the level of evidence.
- There exist at least two high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - Minimum of one group study or two single subject studies or a combination of the two.
  - Studies were conducted by someone other than the creator/provider of the treatment.
  - Studies were published in peer reviewed journals.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* At this level, include ages of participants and disabilities identified in body of research

Level 3 – Emerging Evidence (DHS 107 – Promising as a Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have recognized the treatment package as having an emerging evidence base; authorities may not be in agreement about the level of evidence.
- There exists at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - May be one group study or single subject study.
  - Study was conducted by someone other than the creator/provider of the treatment.
  - Study was published in peer reviewed journal.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* The National Standards Project identifies massage therapy as an emergent therapy. Some preliminary work in this area, most of it by Silva and colleagues has shown positive treatment effects for qigong massage on self-regulation, tactile responsiveness, stereotypical behavior, on-task behavior, bowel patterns and sleep for participants with autism, and for improvement of parental stress. Participants had an autism diagnosis prior to the study and were receiving early childhood services.

Level 4 – Insufficient Evidence (Experimental Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - Study was conducted by the creator/provider of the treatment.
  - Study was not published in a peer reviewed journal.
- Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:*

Level 5 – Untested (Experimental Treatment) &/or Potentially Harmful

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There are no published studies supporting the proposed treatment package.
- There exists evidence that the treatment package is potentially harmful.**
  - Authoritative bodies have expressed concern regarding safety/outcomes.
  - Professional bodies (i.e., organizations or certifying bodies) have created statements regarding safety/outcomes.

*Notes:* At this level, please specify if the treatment is reported to be potentially harmful, providing documentation

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Date: October 31, 2014

Committee Members Completing Initial Review of Research Base: Shannon Stuart, Lana Collet-Klingenberg

Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective: Level 3 - Emerging Evidence (Promising as a Proven & Effective Treatment)

**References Supporting Identification of Evidence Levels:**

- Chambless, D.L., Hollon, S.D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology*, 66(1) 7-18.
- Chorpita, B.F. (2003). The frontier of evidence-based practice. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidence-based psychotherapies for children and adolescents* (pp. 42---59). New York: The Guilford Press.
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure*, 54(4), 275-282.

## **Section Four: Literature Review**

- Escalone, A., Field, T., Singer-Strunck, R. Cullen, C., and Hartshorn, K. (2001). Brief Report: Improvements in the behavior of children with autism following massage therapy. *Journal of Autism and Developmental Disorders*, 31(5), 513-516.
- Silva, L.M.T., and Schalock, M. Treatment of tactile impairment in young children with autism: Results with Qigong massage (2013). *International Journal of Therapeutic Massage and Bodywork*, 6(4), 12-20.
- Silva, L.M.T., Schalock, M., Ayres, R., Bunse, C., and Budden, S. (2009) Qigong massage treatment for sensory and self-regulation problems in young children with autism: A randomized controlled trial. *American Journal of Occupational Therapy*, 63(4), 423–432.
- Silva, L.M.T., Ayres, R., and Schalock, M. (2008). Outcomes of a pilot training program in a Qigong massage intervention for young children with autism. *The American Journal of Occupational Therapy*, 62(5), 538-546.
- Silva, L.M.T., Cignolini, A., Warren, R., Budden, S., and Kowron-Gooch, A. (2007) Improvement in sensory impairment and social interaction in young children with autism following treatment with an original Qijong massage methodology. *The American Journal of Chinese Medicine*, 35(3), 393-406.

TIAC EBP Literature Review  
Article Inclusion Checklist Answers and Rationale

Article Reference:	Escalone, A., Field, T., Singer-Strunck, R. Cullen, C., and Hartshorn, K. (2001). Brief Report: Improvements in the behavior of children with autism following massage therapy. <i>Journal of Autism and Developmental Disorders</i> , 31(5), 513-516.
IV Description	Massage (“firm massage with moderate pressure five regions of the child’s body – arms, hands, legs, front and back”). Control group were read Dr. Seuss stories. Both IV for 15 minutes every night for one month.
DV	Hyperactivity, stereotypical and off-task behavior, sleep problems (measured by teacher/parent scales, classroom and playground observations, an ADHD scale and sleep diaries)
# in study	20
Age ranges	3 – 6 years
Diagnoses	Autism
Design	RCT
Study Results	Measures indicated that children in the IV group had less stereotypic behavior, more on-task behavior; fewer sleep problems
Reviewer Comments	Parents not blind to IV vs. control; teacher and parent measures were applied with teachers blinded; observations blind to group assignments; inter-observer reliability .7; MANOVA/ANOVA applied to scales, play behavior, ADHD scale and sleep diary scores showed significant. Sleep ratings potentially biased.

### Group Design EBP Inclusion Criteria Checklist

Instructions: Read each item and check the appropriate box. If you check “NO” at any time, the article can be discarded as it will not be included as evidence for a practice.

Item	YES	NO	Rationale
Does the study have experimental and control/comparative groups?	X		
Were appropriate procedures used to increase the likelihood that relevant characteristic of participants in the sample were comparable across conditions?	X		
Was their evidence for adequate reliability for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?	X		
Were outcomes for capturing the intervention’s effect measured at appropriate times (at least pre- and post-test)?	X		
Was the intervention described and specified clearly enough that critical aspects could be understood?	X		
Was the control/comparison condition(s) described?	X		
Were data analysis techniques appropriately linked to key research questions and hypotheses?	X		
Was attrition NOT a significant threat to internal validity?	X		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?	X		
Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)	X		Caveat of parent involvement, particularly in sleep measure

TIAC EBP Literature Review  
Article Inclusion Checklist Answers and Rationale

Article Reference:	Silva, L.M.T., Cignolini, A., Warren, R., Budden, S., and Kowron-Gooch, A. (2007) Improvement in sensory impairment and social interaction in young children with autism following treatment with an original Qijong massage methodology. <i>The American Journal of Chinese Medicine</i> , 35(3), 393-406.
IV Description	Qijong massage “11 different massage movements . . . from head to foot along acupuncture channels, requires about 15 min to administer” by a trained practitioner 2X weekly, and by parent at least once daily for 5 months
DV	Scores on sensory impairment, scores on social skills measure, scores on basic living skills, bowel and sleep behavior
# in study	15 (8 received initial treatment; 5 from control group received treatment later)
Age ranges	Between 3 and 6 years
Diagnoses	Autism
Design	RCT with matched samples by cognitive function
Study Results	IV group showed improvement in sensory and social skills, as well as basic living skills. Both groups showed decrease in autistic behaviors, both improved in language skills. IV group showed improvement in bowel function and sleep.
Reviewer Comments	Standardized measures included Battelle Developmental Inventory: Cognitive Domain Screening Test, Sensory Profile parent survey, Vineland ABS, Autism Behavior Checklist; parent questionnaire re bowel and sleep, also gathered data on child’s response to massage using a scoring tool designed specifically for the type of massage. Both groups participated in an early childhood program. Potential for parent bias with some of the measures.

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Item	YES	NO	Rationale
Does the study have experimental and control/comparative groups?	X		
Were appropriate procedures used to increase the likelihood that relevant characteristic of participants in the sample were comparable across conditions?	X		
Was their evidence for adequate reliability for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?	X		
Were outcomes for capturing the intervention’s effect measured at appropriate times (at least pre- and post-test)?	X		
Was the intervention described and specified clearly enough that critical aspects could be understood?	X		
Was the control/comparison condition(s) described?	X		
Were data analysis techniques appropriately linked to key research questions and hypotheses?	X		
Was attrition NOT a significant threat to internal validity?	X		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?	X		
Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)	X		Authors noted involvement of all children in EC program.

TIAC EBP Literature Review  
Article Inclusion Checklist Answers and Rationale

Article Reference:	Silva, L.M.T., Ayres, R., and charlock, M. (2008). Outcomes of a pilot training program in a Qigong massage intervention for young children with autism. <i>The American Journal of Occupational Therapy</i> , 62(5), 538-546.
IV Description	Qijong massage “11 different massage movements . . . from head to foot along acupuncture channels, requires about 15 min to administer” by a trained practitioner.
DV	For trained practitioners – proficiency of provision of therapy; for children with ASD changes in adaptive behavior, sensory impairment level.
# in study	15 adult trainers; 26 children.
Age ranges	Children between 31 (21/2 years) and 84 months (7 years)
Diagnoses	Autism
Design	Pre/post test single group design; pre/post comparison group design (using data from an earlier study for comparison)
Study Results	Short term gains in adaptive functioning and decrease in sensory impairment on standardized tests. No difference between groups comparing practitioner of Chinese medicine versus individuals trained in this study.
Reviewer Comments	Limitations include small sample size, large variances, lack of true control/comparison condition. Small sample sizes, no long-term follow up. Authors write, “Research on the intervention itself is still preliminary and requires replication and extension via randomized controlled design, with larger samples of children with autism. For this to happen, a larger number of therapists need training to a standards of proficiency.”

### Group Design EBP Inclusion Criteria Checklist

Instructions: Read each item and check the appropriate box. If you check “NO” at any time, the article can be discarded as it will not be included as evidence for a practice.

Item	YES	NO	Rationale
Does the study have experimental and control/comparative groups?	X	X	Yes and no – they use previous data to make comparisons
Were appropriate procedures used to increase the likelihood that relevant characteristic of participants in the sample were comparable across conditions?	X	X	See above
Was their evidence for adequate reliability for the key outcome measures? And/or when relevant, was inter-observer reliability assessed and reported to be at an acceptable level?	X		
Were outcomes for capturing the intervention’s effect measured at appropriate times (at least pre- and post-test)?	X		
Was the intervention described and specified clearly enough that critical aspects could be understood?	X		
Was the control/comparison condition(s) described?	X		
Were data analysis techniques appropriately linked to key research questions and hypotheses?	X		
Was attrition NOT a significant threat to internal validity?	X		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?		X	
Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)	X		Many limitations - questionable

TIAC EBP Literature Review  
Article Inclusion Checklist Answers and Rationale

Article Reference:	Silva, L.M.T., Schalock, M., Ayres, R., Bunse, C., and Budden, S. (2009) Qigong massage treatment for sensory and self-regulation problem sin young children with autism: A randomized controlled trial
IV Description	Qijong massage “11 different massage movements . . . from head to foot along acupuncture channels, requires about 15 min to administer” by a trained practitioner as well as by parent in the home setting.
DV	For trained practitioners – proficiency of provision of therapy; for children with ASD changes in adaptive behavior, sensory impairment level. Measured by Pervasive developmental Disorders Behavior Inventory (teacher and parent versions) that considers social and language behavior and behavior and sensory; the Autism Behavior Checklist (for teachers); and a parent questionnaire developed for the Qigong method, the Self-regulation Checklists.
# in study	46
Age ranges	Children under the age of 6
Diagnoses	Autism
Design	Multi-site, Randomized controlled trial. Outcomes evaluated in home and preschool settings. Teachers blind to groups.
Study Results	Improvement seen in social and language skills, though no stat sig change in behavior (both groups improved), as compared to wait-listed control group children. Parent data supported findings suggesting generalization between home and school. Correlations between parent measures (SSC and PDDBI) were significant for sensory and self-regulation improvement and with measures of Autism. Treatment effects maintained 5 months after study ended.
Reviewer Comments	Most of the children were enrolled in early education programs. Fidelity of implementation measured and monitored via video observation.

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Was the intervention described and specified clearly enough that critical aspects could be understood?	X		
Was the control/comparison condition(s) described?	X		
Were data analysis techniques appropriately linked to key research questions and hypotheses?	X		
Was attrition NOT a significant threat to internal validity?	X		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?	X		
Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)	X		Many limitations - questionable

TIAC EBP Literature Review  
Article Inclusion Checklist Answers and Rationale

Article Reference:	Silva, L.M.T., and Schalock, M. Treatment of tactile impairment in young children with autism: Results with Qigong massage (2013). <i>International Journal of Therapeutic Massage and Bodywork</i> , 6(4), 12-20.
IV Description	Qijong massage “11 different massage movements . . . from head to foot along acupuncture channels, requires about 15 min to administer” by a trained practitioner as well as by parent in the home setting.
DV	Tactile impairment, sensory regulation, parenting stress
# in study	129 (97 treated, 32 wait-list control)
Age ranges	Children between 3 & 6
Diagnoses	Autism
Design	Retrospective analysis of parent-reported pre-post treatment results on tactile response and effect of massage on sensory, self-regulatory and parenting stress variables. Studies used repeated measure and RCT. Also comparisons of parent report to therapist report.
Study Results	Treatment resulted in significant decreases of tactile impairment, self-regulatory delay and parenting stress.
Reviewer Comments	Retrospective analysis of database from previous studies. Authors note that a large, long term prospective RCT is underway to replicate these findings in a well-designed study.

### Group Design EBP Inclusion Criteria Checklist

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Were outcomes for capturing the intervention’s effect measured at appropriate times (at least pre- and post-test)?	X		
Was the intervention described and specified clearly enough that critical aspects could be understood?	X		
Was the control/comparison condition(s) described?	X		
Were data analysis techniques appropriately linked to key research questions and hypotheses?	X		
Was attrition NOT a significant threat to internal validity?	X		
Does the research report statistically significant effects of the practice for individuals with ASD for at least one outcome variable?	X		
Were the measures of effect attributed to the intervention? (no obvious unaccounted confounding factors)	X		