Bodywork for Sensory Integration: Use of Craniosacral, Visceral, & Lymphatic Therapies

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Abstract

The science of sensory integration expanded into theoretical constructs (modulation and processing). Missing from these decades of our behavioral analysis are the osteopathic and biologic perspectives, discovered through applying bodywork methods clinically. Measurable outcomes should now encourage more curiosity and rigorous study of these methods for the treatment of sensory processing difficulties.
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Introduction

The science of sensory integration expanded into theoretical constructs (modulation and processing). Missing from these decades of our behavioral analysis is the biologic and osteopathic perspectives, discovered through applying bodywork methods clinically. Measurable results and outcomes should now encourage more curiosity and rigorous study of these methods for sensory processing difficulties.

Over fifty years ago, sensory integration theory and practice was introduced to the occupational therapy profession. As neurobehavioral science evolved, refinements more eloquently described behaviors of sensory modulation, sensory processing, and learning styles. Assessing "processing" is behavioral analysis from a neurological framework, offering explanations for aberrant behaviors or performance dysfunction. All the while, experts were promoting the highest caliber of research to justify treatments.

This presentation offers a revolutionary concept of analyzing sensory-driven behaviors from a complimentary osteopathic and biologic frame of reference. ***Bodywork for sensory integration*** assesses and treats the continuum of autonomic nervous system tone and tension through whole-body palpation of anatomical structures, organs, and vasculature regions. The human body "knows" what is going on internally and patiently waits for helpers to discover its other forms of communication. Bodyworkers receive the tactile messages of the tone-continuum of the effect of the ANS at each area of the body. Examples of areas include, but not limited to:

- Head and spine (craniosacral system)
- Cranial nerve pathways and innervation sites (plus foramen exiting skull)
- Periphery (C-fibers in skin and their role at the neuro-vascular bundle; to lymphatic fluid movement around somatosensory nerve pathways)
- Enteric nervous system surrounding the visceral organs and mesentery vasculature (effecting self-regulation, emotional stability, and parasympathetic resiliency).

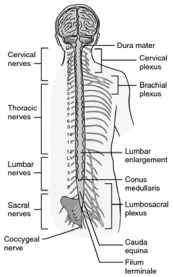
Conclusion

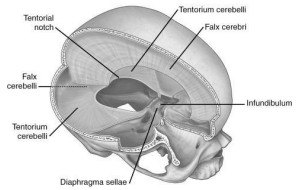
The responses of applying various manual therapy methods to infants, children and adult with a variety of sensory processing challenges has created a revolutionary way to approach health and wellness with this population. Inducing the parasympathetic state (and tone) to body structures not only enhances flexibility of organs, but also improves behavioral parallels (to the PNS state). Resiliency in behavioral homeostasis is a consistent observation. Global affects are generalized to all nervous systems (central peripheral, vagal, and enteric), resulting in measurable improvements to modulation and regulation. Observations of physical effects include improved postural and balance reactions, coordination and timing, and reflex integration.

Methodology

Head and spine – craniosacral system

Meninges, the central axis of the singular organ known as fascia, surrounds and suspends the central nervous system. Forming the core space for cerebral spinal fluid that bathe and facilitate the electrophysiological action of sensory processing is accomplished through a yet-to-be thoroughly defined hydraulic system. The meninges also form a reciprocal tension system of the intracranial membranes which further suspend and support the brain's hemispheres and lobes. Tension and structural compressions, twists, or torsions of the meninges can create neurological stress (raising palpable sympathetic tone) and interfere with optimal physiology (leading to sympathetic reactivity to sensory input). Practice-based evidence of modulation of sensory channels after an individualized course of craniosacral therapy and other manual therapies



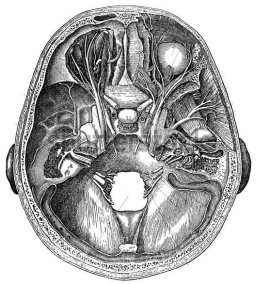


Cranial nerve outlets, paths, and innervations

The twelve paired cranial nerves play a major role in efferent information that leads to sensory processing. Structural medicine methods offer revolutionary concepts that compromised structure at the input level can create impaired or less than optimal signaling. Sympathetic tone in the body can create tightness which can cause protective retraction anywhere in the body. At local sites, this can create raise focal or global protopathic reactions to input, not unlike hyperreactivity to nerve testing. Birthing and in utero confinement can cause compression into soft bones of a baby's cranium, which may be retained through infancy and into childhood.

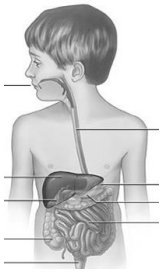
A sampling of evidence from individualized yet commonly occurring findings include, not limited to:

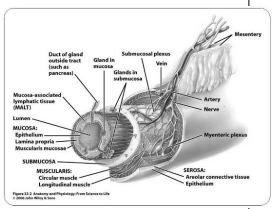
Vision and ocular-motor (eye teaming), hyper-responsive olfaction, sound sensitivity, vestibular (as seen as underlying dizziness and even vertigo), Eustachian tubes (to keep inner ear free of inflammation), oral function related to facial structures innervated by facial and trigeminal nerves (lip, cheek, & tongue tensions and movements), and the entire vagal nerve system (key system to support parasympathetic activation).

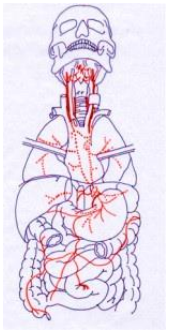


Enteric and vagal nervous system

Modified visceral manipulation techniques give bodyworkers a roadmap to assess and treat the ANS directly. Facilitating core vasodilation and peristalsis along the lines of central visceral nerve plexus, the branching of the vagal system at various innervation sites, and the nerve mesh of the enteric system (within the peritoneum surrounding organs). It is common to observe a relatively quick (even immediate) change in mood, sensory modulation and self-regulation, and emotional stability.

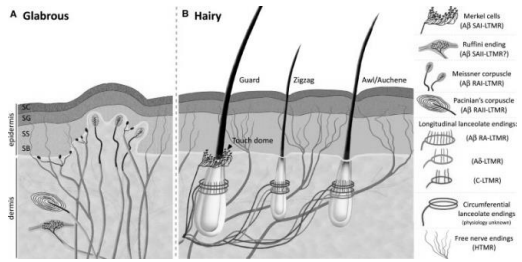




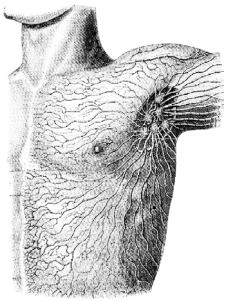


Periphery and somatosensory regions

Revolutionary thoughts about underpinnings of tactile defensiveness have emerged over the years of applying therapies such as fascia mobilization and lymphatic drainage. Systemic inflammation and perhaps injury to C-fibers (most distal efferent cells of the ANS) may create tight and constricted structures (micro-vasoconstriction) within the (epi)dermis layers. Chronic constriction can increase lymphatic stagnation and reduce tissue flexibility, setting the stage for habitual protective retraction of skin and protopathic default reactions. Alternative to therapeutic brushing, lymphatic drainage is less invasive and "threatening" to these tight cellular striata, and touch defensiveness behaviors appear to reduce for many. Also, the behaviors of seeking deep pressure input also have been observed to reduce.



Efferent cells of autonomic nervous system



Sappy's mercurial injection of the human superficial lymphatic system; late 1800's

Results

Self-regulation and sensory modulation Sleep performance	Tight mesentery/peritoneum of visceral organs Any or all of the above can contribute to less-than-optimal sleep duration
Eating performance	Deep front line fascia restrictions (effecting organs and vasculature); digestive sphincter flexibility, taut nerve plexuses of the vagal nerve system at various points along midline, over-reactive sympathetic nerve ganglion in anterior chest cavity Occiput condyle compression into foramen for hypoglossal and vagal nerves – interferes with swallowing and peristalsis Compressed mandible, and cranial nerve outlets to lips, cheeks and tongue can interfere with smooth movements of oral motor structures and tongue Frontal bone compression at cribriform plate & olfactory nerve Generalized taut organs, peritoneum, and mesentery of GI organs and vasculature. GI tract tension seems to correlate to aversions to sensations of foods and smells.
Attention and concentration	Compressed cranial base, taut spinal dural
Mood: anxiety and depression	Mesentery and extensive vascular weave tension and increased tone, taut walls of small & large intestines, digestive sphincter tension interfering with flexibility in peristalsis Compressed maxilla superiorly (projecting strains into limbic system)
Touch processing	Taut skin, often in individualized dermatomes Lymphatic tightness and fluid stagnation Compressed occiput-cervical based
Head control, core stability, posture	Compression into dorsal columns of spinal cord with dural mater tensions
Retained primitive reflexes (effecting posture and balance)	Compression at occiput-cervical base extending inferiorly into spinal column or superiorly into brain stem and cerebellum
Ocular motor movements and coordination	Frontal bone compression, sphenoid bone compression Anterior compression of occiput into anterior cranium structures Compromising cranial nerve flexibility and equal tensegrity balance in fascia web – leading to imbalanced tone of oculomotor muscles Compression into temporal bones and Eustachian tubes

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Applying Craniosacral, Visceral, and Lymphatic Therapies

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- Head and spine (craniosacral system)
  Related to Postural – Ocular Dysfunction, Retained primitive reflexes,
  Bilateral Coordination

- Cranial nerve pathways and innervation sites (plus foramen exiting skull)
  Related to Sensory processing and modulation of special senses

- Periphery (C-fibers in skin and their role at the neuro-vascular bundle; to lymphatic fluid movement around somatosensory nerve pathways)
  Related to Tactile Defensiveness and other Sensory Modulation dysfunction

- Enteric nervous system surrounding the visceral organs and mesentery vasculature
  Related to self-regulation, emotional stability, and parasympathetic resiliency

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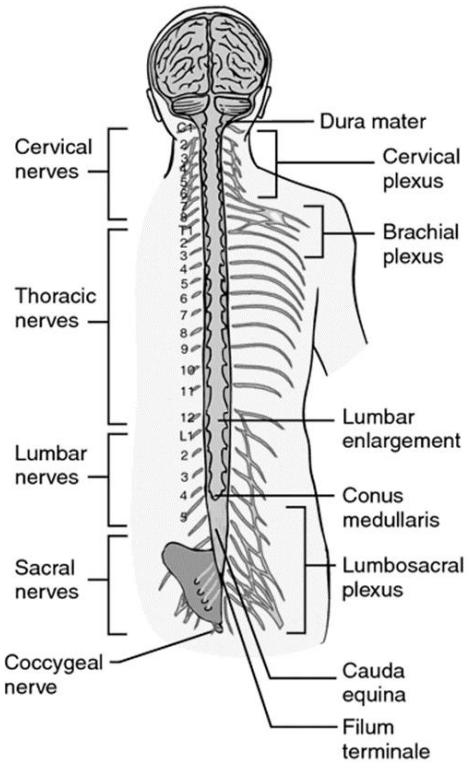

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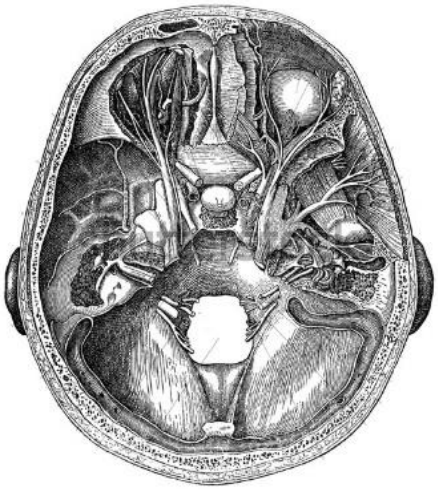
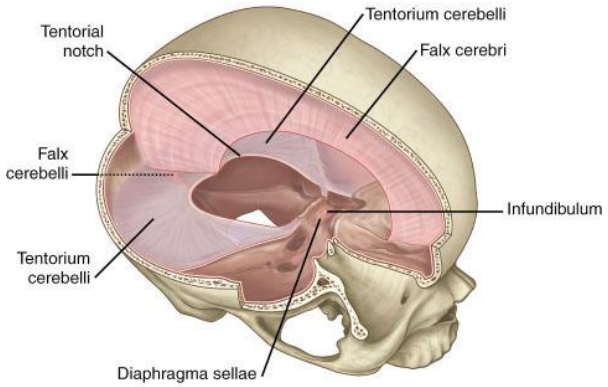


Cranial nerves



Intracranial membrane system

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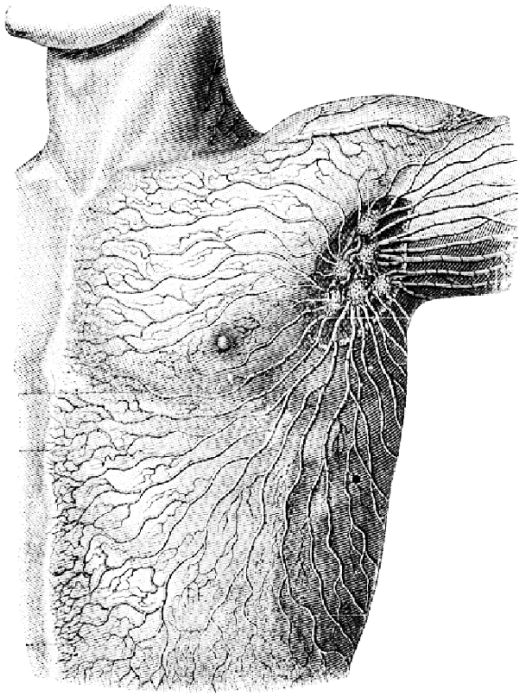
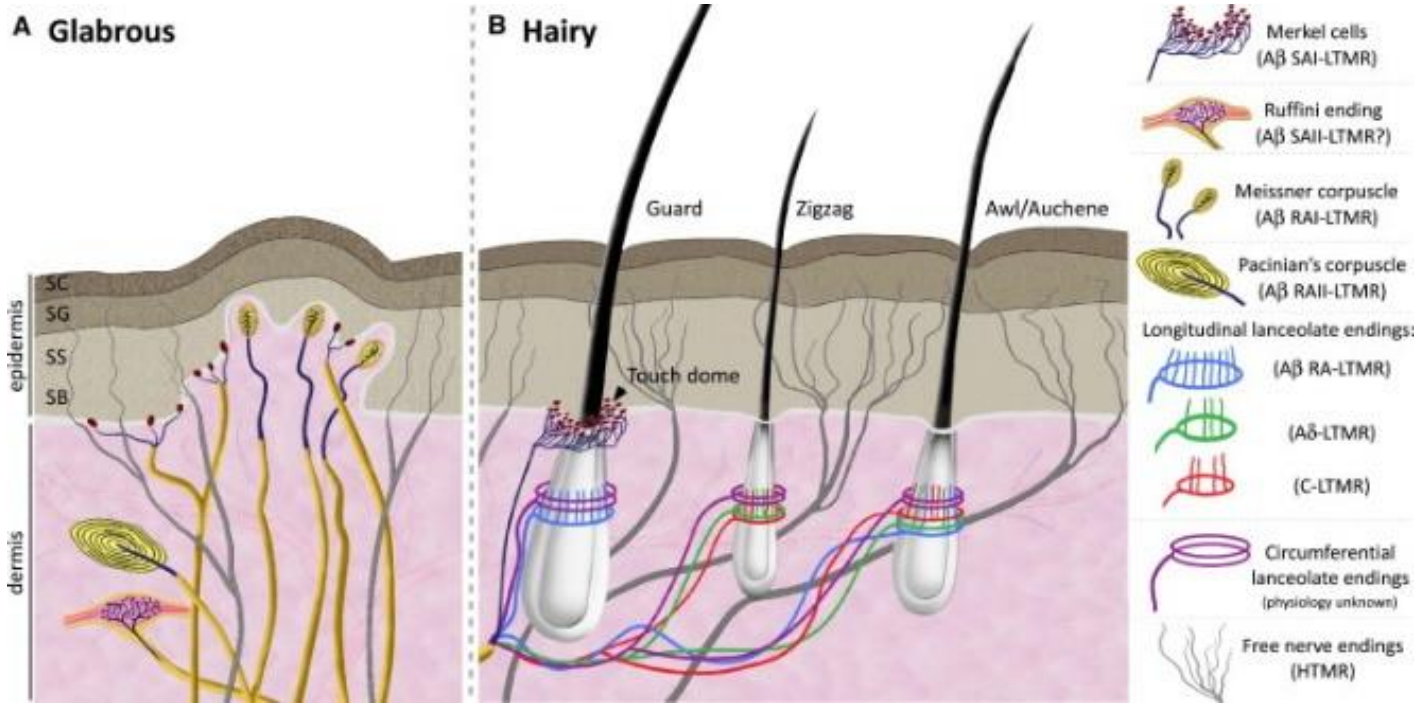


Sappy's mercurial injection of the human superficial lymphatic system, the system that clears inflammation.



The Autonomic Nervous System receptors within the [epi]dermis

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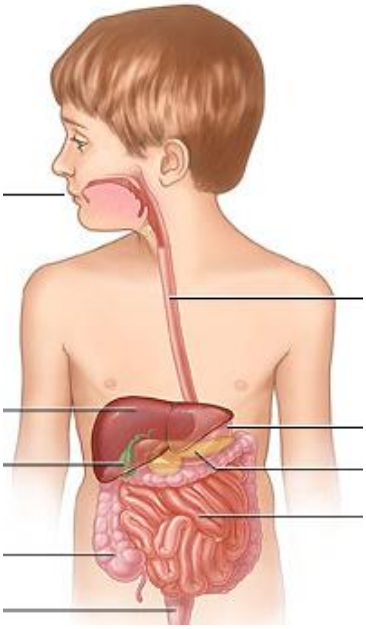
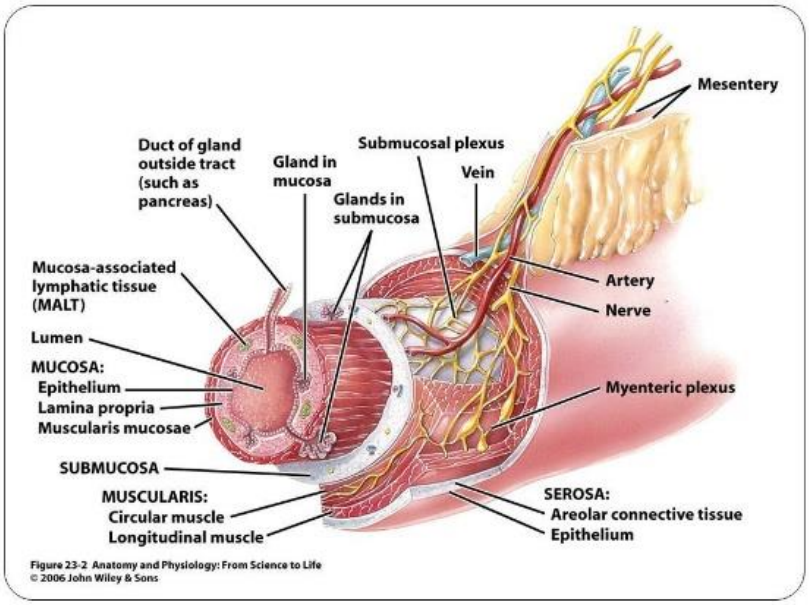
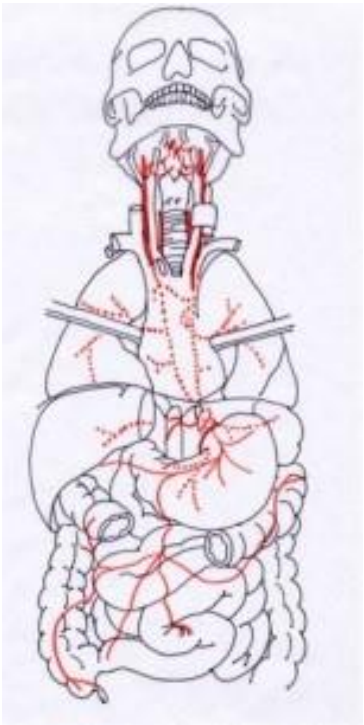
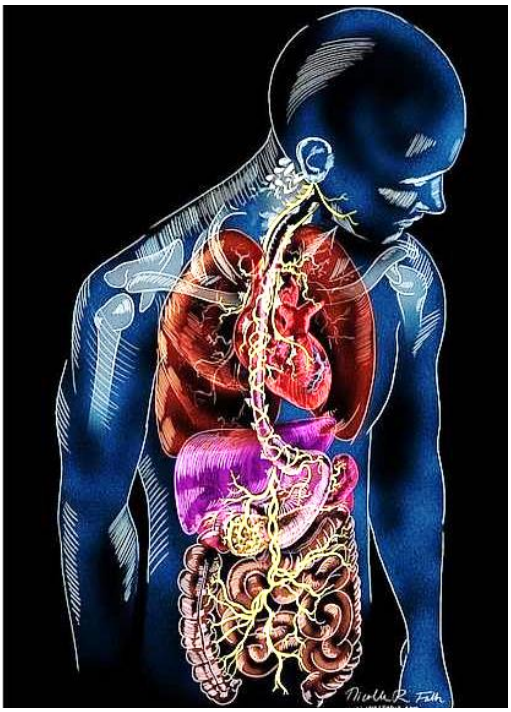




The GI Tract – reveals ANS behaviors related to tone continuum of the Enteric System (nerve mesh) and through the flexibility and motility of the seven digestive sphincters. All palpable & treatable directly



Vagus nerve - distal branching



Vagus system - proximal plexuses

The ANS tone-continuum basically reflects the degree of vasoconstriction, lymphatic stagnation, protective retraction, or hindered fluid and energy flow through nerve pathways and the investing fascia of the musculoskeletal system. Sensory signals must have structural balance, free of compressions, twists, and distortions of tensegrity, to optimize the input channels. All sensory integration and processing begin with optimal input, but up to now, we have assumed these visceral structures are not changeable. Various bodywork methods have given occupational therapists (incorporating bodywork into clinical practice) much more information into the structural explanations for over-reactivity, under-reactivity, and shut down behaviors.

Fusing craniosacral therapy with lymphatic, visceral, myofascial and interstitial methods, Susan Vaughan Kratz shares depths of this evidence to widen our considerations of sensory dysfunction etiology. Structural tissue restrictions from the birthing processing or in utero confinement have been assumed not be a factor in the health and wellness of infants and young children. However, the evidence presented here challenges that assumption. Mechanical forces change, alter, and keep altered the vast cellular matrix of the whole-body fascia organ with compromised tensegrity, in turn raising sympathetic alarms and risks of maladaptive behaviors. The whole-body organ of fascia seems to be a player in the bodywork findings as discoveries into its properties reveal shock absorbing and background sensory functions.

Furthermore, retained structural compressions from birth or childhood trauma may contribute to retained reflexes (persistently stimulated from movement against tight fascia layers). Bodywork directly manages the structural manifestations, which in turn has had individualized positive effects on these SPD and other behaviors, Once freed and released from from restricted fascia (anywhere and everywhere), behaviors of self-regulation and parasympathetic states emerge. Often times positive effects are observed fairly quickly (when compared to other intervention methods).

Inflammation leads to tight fascia and retained compressions maintains tension which perpetuates the range of sympathetic tone. Enteric nervous system tension surrounding visceral organs seems to be a factor in modulation issues. Combined with local naturopathic practices that evaluate biological sources for systemic inflammation, gut biome imbalance, and toxin/microbe load, bodywork methods assist tissue recovery, detoxification, and promotion of a parasympathetic state.

Positive changes are routinely observed in two decades of **practice-based evidence** offered in this presentation. Much of this evidence has been observed in bodywork for babies as well as bodywork for the standard variety of sensory processing dysfunctions identified through standards of practice.

Practice-based evidence offers these examples of co-occurring findings in various functional areas:

Self-regulation and sensory modulation	Tight mesentery/peritoneum around visceral organs
Eating performance	Deep front line fascia restrictions (effecting organs and vasculature); digestive sphincter flexibility, taut nerve plexuses of the vagal nerve system at various points along midline, over-reactive sympathetic nerve ganglion in anterior chest cavity Occiput condyle compression into foramen for hypoglossal and vagal nerves – interferes with swallowing and peristalsis Compressed mandible, and cranial nerve outlets to lips, cheeks and tongue can interfere with smooth movements of oral motor structures and tongue Frontal bone compression at cribriform plate & olfactory nerve Generalized taut organs, peritoneum, and mesentery of GI organs and vasculature. GI tract tension seems to correlate to aversions to sensations of foods and smells.
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Touch processing	Taut skin, often in individualized dermatomes Lymphatic tightness and fluid stagnation Compressed occiput-cervical based (cranial base)
Head control, core stability, posture	Compression into dorsal columns of spinal cord with dural mater tensions
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Sleep performance	Any or all of the above can contribute to less-than-optimal sleep duration

Conclusion:

The responses of applying various manual therapy methods to infants, children and adult with a variety of sensory processing challenges has created a revolutionary way to approach health and wellness with this population. Inducing the parasympathetic state (and tone) to body structures not only enhances flexibility of organs, but also improves behavioral parallels (to the PNS state). Resiliency in behavioral homeostasis is a consistent observation. Global affects are generalized to all nervous systems (central peripheral, vagal, and enteric), resulting in measurable improvements to modulation and regulation. Observations of physical effects include improved postural and balance reactions, coordination and timing, and reflex integration.

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Pilot Study of Procedures for Effectiveness of the STAR SOS Feeding Approach

Laura Hoffman, OTD, OTR/L; Sarah Schoen, PhD, OTR; and Rachel Balderrama, M.ED., LPC
The STAR Institute

Abstract

Research Questions:

1. Are the following outcome measures of behavioral coding, the parent stress index, and the visual analogue scale sensitive to change?
2. Is it feasible to have parents send home videos for behavioral coding?
3. Are current feeding treatment sessions consistent with and meet a majority of the Food Scientist Fidelity measure?

Literature Review: Eating is one of the most complex activities an individual can participate in as engagement of every muscle and body system must occur. There has been growing awareness of feeding challenges affecting children with developmental disabilities. While few studies have looked at treatment effectiveness with feeding interventions, there is a need for studying the SOS Feeding Approach because of its widespread use

Methodology: Pilot Case Study with data collected pre-intervention, post-intervention, and 2 weeks post-intervention.

Results: Results varied based on when outcome measure was given (pre, post, 2 weeks post). Overall, utensil use and food consumption increased as well as mom's understanding of her child's feeding needs.

Discussion:

- VAS sensitive to change
- PSI Parent Domain sensitive to change; Child Domain did not indicate significant change
- Behavioral Coding sensitive to change

Conclusion: Although the data demonstrated mixed findings, the pre/post measurement information discovered is important and should be used in future, more rigorous research.

Literature Review

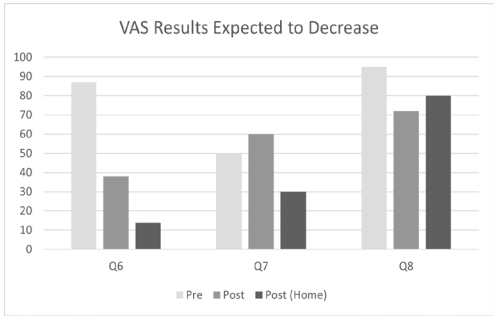
Eating is one of the most complex activities an individual can participate in as engagement of every muscle and body system must occur. There has been growing awareness of feeding challenges affecting children with developmental disabilities. Pediatric feeding disorders are common; research reports that 25% of children present with some form of feeding disorder. This number increases to 80% in developmentally delayed children (Keen, 2008). Research supports that feeding challenges commonly occur in children with sensory processing difficulties (Davis et al., 2013 & Yi et al., 2015). While few studies have looked at treatment effectiveness with feeding interventions, there is a need for studying the SOS Feeding Approach because of its widespread use. Therefore, this study aims to pilot procedures in preparation for a rigorous study of treatment effectiveness, including if the outcome measures proposed are sensitive to change

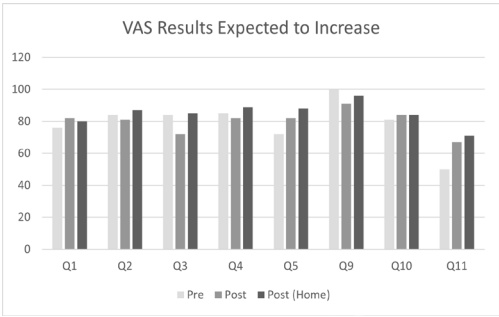
Methodology

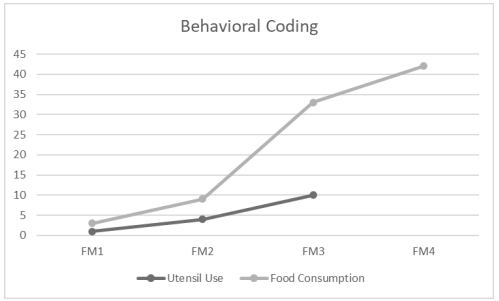
Design:
Pilot Case Study
Participant:
11-year-old male with diagnosis of Autism Spectrum Disorder and Attention Deficit Disorder
Instruments:
Visual Analogue Scale (VAS), Parent Stress Index Fourth Edition (PSI), and Behavioral Coding
Procedures:

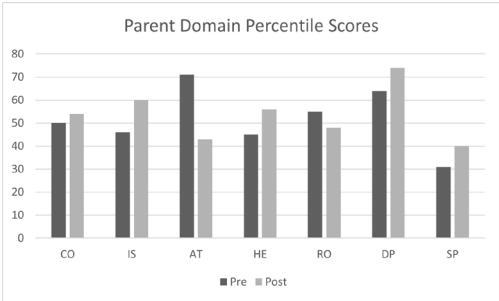
1. Parent sent family meals pre-treatment and researcher coded
2. Parent completed VAS and PSI pre-treatment
3. Record treatment sessions and scored with Food Scientist Fidelity Measure to insure consistency
4. Parent sent a family meal video during treatment and researcher coded
5. Parent completed VAS and PSI immediately after treatment
6. Parent completed VAS and sent family meal video two-weeks after treatment

Results









Conclusion

Findings

- VAS sensitive to change
- PSI Parent Domain sensitive to change; Child Domain did not show significant change
- Behavioral Coding sensitive to change

Lessons Learned for Future Study

- More reliable way to receive family meal videos
- Need more specific guidelines for the family meal videos
- Reword the VAS questions

Future Implications:

- Occupational therapists play a vital role in addressing the needs of children with feeding disorders.
- Occupational therapists should use evidence-based interventions for children with feeding disorders
- Research efforts need to focus on treatment effectiveness studies of the SOS Feeding Approach.
- A pilot study provides valuable information regarding procedures and sensitive outcome measures
- With added incentive, video coding of home meals would be a feasible method for data collection in a future multiple baselines study.

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Abstract

Pilot Study of Procedures for Effectiveness of the STAR SOS Feeding Approach

Laura Hoffman, OTD, OTR/L; Sarah Schoen, PhD, OTR; and Rachel Balderrama, M.ED., LPC

Research Questions:

1. Are the following outcome measures of behavioral coding, the parent stress index, and the visual analogue scale sensitive to change?
2. Is it feasible to have parents send home videos for behavioral coding?
3. Are current feeding treatment sessions consistent with and meet a majority of the Food Scientist Fidelity measure?

Methodology: Pilot Case Study with data collected pre-intervention, post-intervention, and 2 weeks post-intervention.

Results: Results varied based on when outcome measure was given (pre, post, 2 weeks post).

- **Behavioral Coding**: Both utensil use and food consumption increased.
- **Visual Analogue Scale:** Significant improvements in their ability to support their child while eating, the ability to use utensils, the tolerance of the child to engaging with novel or non-preferred food, and his ability to eat in an age-appropriate manner.
- **Parent Stress Index:** Child domain did not show significant change. Parent domain subtest scores that demonstrated decreased stress included attachment and role restriction subtests. Subtest scores that demonstrated increased stress included health of parent, depression, isolation, and support from partner.

Discussion:

- VAS sensitive to change; findings suggest measuring change immediately after the intervention was not reflective of the gains experienced in treatment.
- PSI Parent Domain sensitive to change; Child domain did not indicate significant change
- Behavioral Coding sensitive to change

Conclusion: Although the data demonstrated mixed findings, the pre/post measurement information discovered is important and should be used in future, more rigorous research.

The effects of moderate pressure massage on self-regulation and play in preterm babies

Principal investigator: Helene Chaya Hendel, PhD, OTR/L – Occupational Therapy Dept., Touro School of Health Sciences, NYC

ABSTRACT

Purpose: to examine whether mother-administered moderate pressure massage intervention could improve self-regulation, which would result in improvements in play outcomes. It was posited that a child who is self-regulated may be more successful in his/her play and that moderate pressure massage could be an effective tool to improve self-regulation in preterm infants with decreased self-regulation. Method: A-B nonconcurrent multiple baselines across subjects design in which each participant acted as his/her own control as well as a pretesting and posttesting component with objective measures. Baselines were of varying lengths, ranging from 3 to 7 weeks. Measurements were done weekly to establish baseline. Intervention of mother-administered massage was 6 weeks long for all participants. Three objective standardized measures were used in pretesting and posttesting. Measures included the Infant Toddler Social Emotional Assessment to measure self-regulation, the Revised Knox Preschool Play Scale to measure play age, and the Test of Playfulness to measure playfulness. Additionally, visual analogue scales, with mother generated behavioral goals related to the three standardized assessments, were scored weekly by the mothers. Results: moderate pressure massage had a calming and regulating effect on the child and resulted in improvements in the child's play skills and playfulness over the course of the 6 weeks of intervention. Discussion/Conclusion: cost-effective, parent-administered technique can positively affect outcomes of improved self-regulation, playfulness, and play skills. In addition, the study contributes important information about the influence of self-regulation on the development of play and playfulness in preterm babies and on mothers' participation in their baby's intervention, which contributes to a family-centered approach.

LITERATURE REVIEW

Self-regulation difficulties are more prevalent with preterm infants than with the general population (Lynn, Cuskelly, O'Callaghan, and Gray, 2011) and poor self-regulation may impact many areas of development in the preterm infant, such as toy exploration and task persistence in play. Poor attention to toys resulting from poor self-regulation may be an underlying reason for delay in play skill development. Consideration of play with the preterm infant population is important because research has linked a preterm infant's play ability to later learning abilities at preschool age (Lawson & Ruff, 2004; Ruff, McCarton, Kurtzberg, & Vaughan, 1984; Sigman, Cohen, Beckwith, and Topinka, 1987).

Many studies provide support for moderate pressure massage to improve self-regulation. The studies indicated positive outcomes, both physiologically and behaviorally, including reduction in levels of the stress hormone cortisol, increase in vagal tone, reduction in stress behaviors and activity levels, as well as improved sleep and improved functional skills (Field, Diego, and Hernandez-Reif, 2010; Hernandez-Reif, Diego, & Field, 2007)

PURPOSE

To examine whether moderate pressure massage intervention administered by mothers could improve self-regulation with resulting improvements in play outcomes.

METHOD

IRB Approval #:04231524Exp> Nova Southeastern University, Ft. Lauderdale, Florida

Design

A-B nonconcurrent multiple baseline across subjects

Subjects

5 infants born preterm and their mothers, corrected age of infants 12-18 months, Anglo-Jewish residing in the greater Jerusalem area, displaying difficulties with self regulation and delay in play skill or playfulness

Data Collection Tools

ITSEA (Infant Toddler Social Emotinal Assessment)– self regulation
RKPPS (Revised Knox Preschool Play Scale) – play age
ToP (Test of Playfulness)- playfulness
Visual analog scales (VAS) – mother developed and scored

Process

Variable length of baselines – random-3 to 7 weeks
Six weeks of intervention – mother performed
Variables:
Independent: moderate pressure massage
Dependent: self-regulation, play skill, playfulness

Data Analysis

ITSEA: pretest/posttest t-score and # of areas of concern. Graphic visual analysis

RKPPS: pretest/posttest play age side-by-side with corrected age

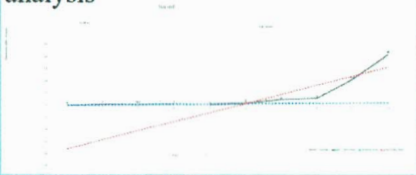
ToP: subscale scores converted to %age, pretest/posttest graphed side-by-side.

VAS's: graphic analysis:
Baseline and intervention trend lines
2-SD band technique for statistical significance

Sample graphing of results

VAS for self-regulation - 2-Standard deviation band technique

VAS for self-regulation - Trendline analysis



RESULTS

Summary-results for all participants

Part #	Pretest posttest	Problem domain # areas concern	Compet domain # areas concern	RKPPS months	ToP Extent	ToP Intensity	ToP Skillfulness
1	pretest	4	2	7.5	62%	40%	22%
	posttest	0	2	15.4	76%	80%	42%
2	pretest	1	4	9	76%	60%	38%
	posttest	1	0	16.9	86%	87%	68%
3	pretest	6	2	17.25	66%	60%	38%
	posttest	2	4	18	71%	80%	68%
4	pretest	4	1	14	62%	46%	33%
	posttest	3	3	16	66%	46%	44%
5	pretest	5	1	13.5	76%	80%	65%
	posttest	2	0	17	100%	100%	65%

The standardized assessments (ITSEA, RKPPS and ToP) indicated positive change for three of the participants (Participants 1, 2 and 5) and mixed results for two of the participants (Participants 3 and 4).

For the three participants with positive changes on the standardized assessments, the VAS's mostly reflected those changes for behaviors, with the exception of the VAS for play skill for Participant 4 and the VAS for self-regulation for Participant 5. For Participants 3 and 4, the ITSEA results were not reflective of improvement in self-regulation, however the VAS reflecting the parent goals for self-regulation indicated statistically significant positive change.

The most consistent positive outcomes were demonstrated by the visual analogue scales, with the two-standard deviation band method yielding statistically significant outcomes on all but three of the VAS's in total.

DISCUSSION

Conclusions:

1. This study demonstrated that a cost-effective, parent-administered technique can positively affect outcomes of improved self-regulation, playfulness, and play skills.
2. The study contributes important information about the influence of self-regulation on the development of play and playfulness in preterm babies and on mothers' participation in their baby's intervention, which contributes to a family-centered approach.

Relevance to previous literature:

This is the first known study linking moderate pressure massage with play outcomes in preterms. It expands

knowledge of use of moderate pressure massage as an intervention with preterms and its influence on self-regulation

It also demonstrates the influence of self-regulation on the development of play and playfulness in preterm babies

Relevance to clinical practice:

Utilizing parents as therapeutic partners in their baby's intervention was effective and aligns with core principles of EI and OT. It is a csst effective parent-administered technique

Limitations:

No random selection

Cannot generalize outcomes to other ethnic populations

Mother's play with child may have been influenced by study procedures

Future research:

Larger cohort

Other ethnic groups

Longitudinal studies – follow-up studies

Dosage (amount, type, frequency)

What may be limiting factors – why does massage not work for all

Environmental impact (parent characteristics, toys, sibs, med hx.)

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THE SCHOOL OF HEALTH SCIENCES OF TOURO COLLEGE

Where Knowledge and Values Meet

Abstract

The effects of moderate pressure massage on self-regulation and play in preterm babies

Helene Hendel, PhD, OTR/L

Focusing and attending are components of self-regulation in the child, and are needed in order for a child to learn how to play. Preterm infants often display poor focusing and attending. Literature supports use of moderate pressure massage to improve self-regulation. The purpose of this study was to examine whether mother-administered moderate pressure massage intervention could improve self-regulation, which would result in improvements in play outcomes. It was posited that a child who is self-regulated may be more successful in his/her play and that moderate pressure massage could be an effective tool to improve self-regulation in preterm infants with decreased self-regulation. Participants were five preterm children ranging from 12 to 18 months corrected age and their mothers. Mothers were taught to administer massage in a specific manner tailored to their child's needs. The study utilized an A-B nonconcurrent multiple baselines across subjects design in which each participant acted as his/her own control as well as a pretesting and posttesting component with objective measures. Baselines were of varying lengths, ranging from 3 to 7 weeks. Measurements were done weekly to establish baseline. Intervention of mother-administered massage was 6 weeks long for all participants. Three objective standardized measures were used in pretesting and posttesting. Measures included the Infant Toddler Social Emotional Assessment to measure self-regulation, the Revised Knox Preschool Play Scale to measure play age, and the Test of Playfulness to measure playfulness. Additionally, visual analogue scales, with mother generated behavioral goals related to the three standardized assessments, were scored weekly by the mothers. The results indicated that moderate pressure massage had a calming and regulating effect on the child and resulted in improvements in the child's play skills and playfulness over the course of the 6 weeks of intervention. The important clinical implications are that this cost-effective, parent-administered technique can positively affect outcomes of improved self-regulation, playfulness, and play skills. In addition, the study contributes important information about the influence of self-regulation on the development of play and playfulness in preterm babies and on mothers' participation in their baby's intervention, which contributes to a family-centered approach.

A Qualitative Analysis of Adults' and Adolescents' Lived Experiences with Sensory Integration and Processing Challenges

Dana Miller, OTD, OTR
Dr. Sarah Schoen, PhD, OTR

ABSTRACT

Purpose: Adolescents and adults report that their sensory integration and processing differences impact their occupational performance and quality of life. Research has yet to investigate this population's experiences regarding (a) response to intervention, (b) strategies offered for managing sensory differences, and (c) need for further follow up upon completion of intervention.
Design: This qualitative study sought to explore the lived experiences of 11 adolescents and adults with sensory processing and integration differences. Each participant had previously completed occupational therapy intervention. Their experiences were collected using a semi-structured interview. Researchers gathered data through these interviews then performed axial coding using an inductive coding process to group initial open codes into categories.
Results: Open codes were grouped into three core categories: (a) therapist related factors, (b) client related factors, and (c) client/therapist follow-up. From the categories, four main themes of the therapist client relationship emerged from the data: (a) therapeutic alliance, (b) education and knowledge, (c) strategies, tools, and resources, and (d) follow up.
Conclusion: This study provides a new perspective on the adolescent and adult population's experience specific to the impact a sensory-focused occupational therapy intervention had on their quality of life. Not only does this study highlight the need for further research addressing effective sensory-based interventions for the adolescent and adult population, but it also captures which interventions the clients deemed helpful. This will aid occupational therapists in designing intervention for current and future clients.

OBJECTIVES

This study sought to answer the following questions:

1. What components of intervention do adult and adolescent clients identify as being helpful/meaningful?
2. What changes in daily life do adult and adolescent clients report experienced after completing an intervention focused on sensory processing/integration regulation and relationship?
3. What do clients identify as a need following participation in an intervention program?

LITERATURE REVIEW

- Literature on sensory processing and integration challenges and interventions primarily focuses on the pediatric population along with specific diagnoses such as Autism Spectrum Disorder (ASD), neglecting other populations with similar challenges. It has become a priority to address sensory processing challenges present within the adult and adolescent population[1,16].
- According to the American Occupational Therapy Association [AOTA] (2017), many adults may present with sensory processing issues in isolation, with a misdiagnosis, or as a comorbid condition to mental health diagnoses including anxiety and panic disorders, depression, posttraumatic stress disorder (PTSD) and schizophrenia[1,9,12,14,20,21]. However, this association between mental health diagnoses, sensory challenges, and functional performance deficits is not well understood[13].
- Occupational therapy practitioners are mainly taught to utilize the sensory integration frame of reference in regard to the pediatric population. As a result, formal education and application of sensory integration interventions for the adult population is inadequate[18]. The most common form of intervention for children with SPD is Ayres sensory integration, sensory strategies, and sensory accommodations[30].
- There is a growing body of research regarding the processes and effectiveness of treatment within pediatrics[24,25], however there is an absence of research addressing treatment effectiveness within the adult population. Furthermore, there is not enough information or research for a systematic review of sensory-based interventions for the adult and adolescent population[3,8,24,25,30]. It is unknown what similarities and differences in approaches are utilized with adults.
- Although there is a growing interest/awareness of sensory processing challenges in adults, there is a lack of validation by personal accounts, including their sensory symptom presentation and why they seek services. Further research is needed to explore the personal experience and developmental trajectory of symptoms.

METHODOLOGY

Research Design
- Retrospective qualitative study focused on reviewing responses to a questionnaire designed for a quality improvement project

Data Collection
- A comprehensive chart review was completed prior to interviews
- Sampling: convenience sampling was completed through use of online and paper database at STAR
- Participants: 11 participants agreed to be interviewed, ages 11-50
- Inclusion criteria: must have completed a program at STAR

Interviews
- 20-60 minute phone interviews
- 8 semi-structured interview questions
- Reflective commentary was completed by researcher to ensure credibility

Inductive Coding Process

Initial descriptive codes derived directly from the interviews

↓

Descriptive data were entered into ATLAS TI (qualitative software) and consolidated into categorical codes through axial coding

↓

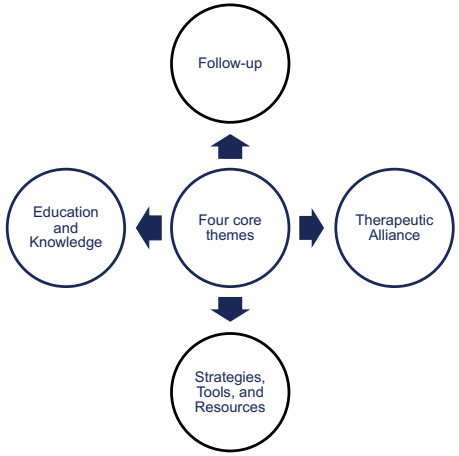
The three categorical codes assigned:
1. Therapist Related Factors
2. Client Related Factors
3. Client/Therapist Follow-up

↓

The team reached consensus on four emerging themes

RESULTS

Overall, clients expressed an overall positive experience with intervention. The important themes that emerged from analysis are shown below:



DISCUSSION

- This study supports previous research emphasizing the significance of creating and maintaining a positive therapeutic relationship throughout treatment[6,22,27].
- Need for additional follow-up was a theme supported through the data due to continued challenges participants face such as parenting self-efficacy and sleep.
- This study gave insight into the value of strategies, resources and tools adults and adolescents utilize during and after treatment.
- Education and knowledge during treatment seemed to impact occupational roles, improve self-awareness, and highlight the need for self-advocacy.

IMPLICATIONS FOR OT

- This study suggests occupational therapy practitioners can benefit from first person accounts of the sensory integration and processing challenges identified by adults and adolescents to better design targeted intervention.
- Occupational therapists should consider the value of providing support and intervention to the adult and adolescent population, while also building awareness of how to address these needs.
- Sensory support groups may be a beneficial follow-up for adult and adolescent clients following individual therapy.
- Further research is needed regarding the effectiveness of adolescent and adult sensory-based interventions.

REFERENCES

Abstract

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Dana Miller, OTD, OTR | Sarah Schoen, PhD, OTR

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