

<b>Evidence Brief on Effectiveness of the Wilbarger Protocol</b>	
<b>Summary of Findings:</b> Currently all studies on this protocol consist of small samples or single subject case studies. All studies available, however, present positive findings on the effectiveness of the Wilbarger Protocol. While this level of evidence is not conclusive support of the efficacy of this protocol, this emerging evidence does support it's continued clinical use. Additional well-controlled studies are needed.	
<b>Narrative Review:</b>	
Foss, A., Swinth, Y., McGruder, J., & Tomlin, G. Sensory modulation dysfunction and the Wilbarger Protocol: An Evidence Review. <i>OT Practice</i> , 8(12), CE1 – CE8.	On the basis of this review, emerging evidence supports the use of a brushing intervention, such as the Wilbarger Protocol, specifically for persons who present with overresponsiveness. Because of the limited empirical evidence supporting or refuting the effectiveness of the Wilbarger Protocol, it should be applied with caution. The protocol should always be used within the context of a comprehensive occupational therapy intervention, and data should be collected to ensure that the brushing results in improved occupational performance.
<b>Level III: Quasi-Experimental-Pre/Post Design</b>	
Zbytniewski, R. (2002). The effects of sensory integration's Wilbarger technique on engaging behaviors. Bay Shore, NY: Touro College. (Master's project)	The short term effects of Wilbarger's brushing Protocol was the focus of this research project. Three different types of engaging behaviors were examined including visual, motor, and both visual and motor combined. This investigation used the quasi-experimental, one group, and subjects serving as their own control design. Each subject also served as a single case study subject. Seven children, two girls and five boys, with Sensory Integrative Dysfunction, especially sensory defensiveness, were observed in a pre-school classroom for five minutes pre-brushing treatment and five minutes post-brushing treatment. However, the data from this research project was unable to support the Wilbarger Protocol. Although the data was not significant, boys may show a greater response to the Wilbarger technique than girls. Research has now been started and other occupational therapists may want to continue a different perspective on this topic.
<b>Level IV: Single Case Series</b>	
Kimball, J. G., Lynch, K. M., Stewart, K. C., Williams, N. E., Thomas, M. A., & Atwood, K. D. (2007). Using salivary cortisol to measure the effects of a Wilbarger protocol-based procedure on sympathetic arousal:	This study investigated changes in salivary cortisol, the stress hormone, after administration of a procedure based on the Wilbarger protocol to children diagnosed with sensory defensiveness (SD), a type of sensory modulation dysfunction. Using a single-subject design across participants, we studied 4 boys with SD ages 3 to 5 years. Each participant completed four sessions consisting of the

<p>A pilot study. <i>American Journal of Occupational Therapy</i>, 61, 406–413.</p>	<p>collection of a saliva sample, administration of a procedure based on the Wilbarger protocol, 15 min of quiet neutral activities to allow time for any changes in cortisol level to manifest in the saliva, and the second collection of saliva. Saliva samples were analyzed using enzyme-linked immunosorbent assay (ELISA). Salivary cortisol levels in all participants changed after each of four applications of a procedure based on the Wilbarger protocol. The cortisol levels of 2 children whose levels were relatively higher on pretest decreased at each posttest. The levels of 1 child whose cortisol was higher on pretest three times decreased those three times and increased the one time the pretest cortisol was lower. The levels of 1 child who had the lowest cortisol levels of any of the children increased each time. Therefore, in all participants, cortisol moved in the direction of modulation. In these 4 boys, a procedure based on the Wilbarger protocol modulated cortisol levels toward a middle range. This pilot study indicates that there is an association between sympathetic nervous system response and the Wilbarger protocol–based procedure, as indicated by salivary cortisol levels.</p>
<p>Moore, K &amp; Henry, A. Treatment of Adult Psychiatric Patients Using the Wilbarger Protocol, <i>Occupational Therapy in Mental Health</i>, 18, 1, 43-63.</p>	<p>This pilot study examined the effect of the Wilbarger brushing and joint compression protocol and sensory diet on symptoms associated with Sensory Defensiveness among 3 women with histories of self-injurious behaviors. Data were collected through interview, the 50-item Sensory Defensiveness Screening for Adults, and patient journals. Treatment lasted approximately 1 month. Symptoms and patterns of role engagement and self-injury were compared before and nine months after treatment. At follow-up all participants were re-engaged in valued roles with no incidents of self-injury. Respective items endorsed by participants on the Sensory Defensiveness Screening for Adults dropped from 58% to 54%, 43% to 18%, and 72% to 36%. This treatment approach appeared to have some positive influence on Sensory Defensive symptoms. Results suggest that it may be useful in treating women with a history of self-injurious behavior and they indicate the need for further investigation of this treatment approach.</p>
<p><b>Level V: Case Study</b></p>	
<p>Reisman, J &amp; Gross, A. (1992). Psychophysiological measurement of treatment effects in an adult with sensory</p>	<p>Deep touch pressure was used to treat and adult with sensory defensiveness. Findings provided evidence for the relationship between sensory defensiveness and autonomic arousal and for the effectiveness of deep-touch pressure in</p>

defensiveness. <i>Canadian Journal of Occupational Therapy</i> , 59,248-257.	its treatment.
Snyder-Stonebraker, D. (2001). The effects of a Wilbarger-based brushing protocol: A single subject study. Unpublished master's thesis. University of Puget Sound, Tacoma, WA.	An AB design was used with an 8 year old girl with developmental delays and sensory defensiveness. Statistical analysis yielded indications of positive functional outcomes in response to handwashing and handlotion, response to movement, and response to oral stimuli using an adapted Target Behavior Rating Scale and the Sensory Profile.
Stagnitti, K & Ryan, P. (2002). Sensory defensiveness syndrome: a psediatric perspective and case study, <u><i>Australian Occupational Therapy Journal</i></u> , 46,4, 175-187.	Sensory defensiveness syndrome includes sensory defensiveness and the associated behavioural difficulties that can occur when a child or adult perceives non-threatening sensory input as potentially harmful. This paper presents a paediatric case study where sensory defensiveness syndrome was diagnosed and treated. The effectiveness of the sensory summation technique was confirmed. Effective behavioural strategies are explained and differential diagnosis between sensory defensiveness syndrome and other disorders such as autism spectrum disorders is emphasized. Changes to Willbarger and Wilbarger's three levels of severity of sensory defensiveness are suggested to aid clarity in diagnosis and as a guide for future research. The Wilbarger Protocol was administered to a boy clinically identified with tactile defensiveness. He demonstrated functional improvements in group participation at school, decreases in incidence of tantrums, and social participation at home and in the community. He also demonstrated improvements in performance on the Miller assessment for preschoolers and the Sensory Profile.
<b>Qualitative Studies</b>	
Segal, R., & Beyer, C. (2006). Integration and application of a home treatment program: A study of parents and occupational therapists. <i>American Journal of Occupational Therapy</i> , 60, 500–510.	The purpose of this article is to describe parental adherence to home treatment programs. A qualitative exploratory study with six parents and eight occupational therapists who used the brushing and compression technique (Wilbarger Protocol) was conducted. Participants were interviewed one or two times, exploring their experiences in adhering to the protocol. Data analysis focused on facilitators and hindrances to parental adherence and on occupational therapists' strategies used to encourage it. Parents identified their children's responses to brushing, its perceived efficacy, and interaction of the protocol with family daily schedules, as factors influencing their adherence. Occupational therapists identified only family daily schedules as influencing parental adherence. The findings are discussed in the context of the ecocultural theory of family accommodations.

<b>Survey:</b>	
Sudore, K. (2001). Tactile defensiveness and the Wilbarger brushing protocol in system management. Unpublished master's thesis. D'Youville College, Buffalo, New York.	A survey of occupational therapists in AOTA's Sensory Integration Special Interest Section found that 78% of respondents use the Wilbarger Protocol in the intervention of tactile defensiveness.
<b>Anecdotal</b>	
Stratton, J. & Gailfus, D. (1998). A new approach to substance abuse treatment Adolescents and adults with ADHD. <i>Journal of Substance Abuse</i> , 15(2), 89-94.	Article discussed positive outcomes from the Wilbarger Protocol when it was administered to adolescents and adults with attention deficit disorder in substance abuse treatment.
Clark, G. & Ward, S. (1999). Charting results: Evaluating progress of children with sensory processing disorder. <i>OT Practice</i> , 4(10), 12-16.	Article presents a single case study example of charting progress of a child using the Wilbarger Protocol.
<b>Compiled by:</b> T. May-Benson, 2008. Contributions from abstracts and from Foss, et al (2003).	