Comparative Effectiveness Review Disposition of Comments Report

Research Review Title: *Interventions Targeting Sensory Challenges in Children With Autism Spectrum Disorder (ASD)—An Update*

Draft review available for public comment from September 6, 2016 to October 3, 2016.

Research Review Citation: Weitlauf AS, Sathe NA, McPheeters ML, Warren Z. Interventions Targeting Sensory Challenges in Children With Autism Spectrum Disorder—An Update. Comparative Effectiveness Review No. 186. (Prepared by the Vanderbilt Evidence-based Practice Center under Contract No. 290-2015-00003-I.) AHRQ Publication No. 17-EHC004-EF. Rockville, MD: Agency for Healthcare Research and Quality; May 2017. www.effectivehealthcare.ahrq.gov/reports/final.cfm. doi: https://doi.org/10.23970/AHRQEPCCER186.

Comments to Research Review

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Comments on draft reviews and the authors' responses to the comments are posted for public viewing on the Web site approximately 3 months after the final research review is published. Comments are not edited for spelling, grammar, or other content errors. Each comment is listed with the name and affiliation of the commentator, if this information is provided. Commentators are not required to provide their names or affiliations in order to submit suggestions or comments.

The tables below include the responses by the authors of the review to each comment that was submitted for this draft review. The responses to comments in this disposition report are those of the authors, who are responsible for its contents, and do not necessarily represent the views of the Agency for Healthcare Research and Quality.

Commenter and Affiliation	Report Section	Comment	Response
TEP Reviewer #1	Clarity and Usability	Overall the report was well structured and organized. The main points are clearly presented and conclusions are relevant. Given the diverse audience who would be reading the report, and the wide range in their skill, knowledge base, familiarity with systematic and/or CER, the report might benefit from simplifying and/or clarifying the abstract.	We have revised the abstract to improve clarity.
Peer Reviewer #2	Clarity and Usability	Basically all very clear (but see comments above).	Thank you for your comments.
TEP Reviewer #4	Clarity and Usability	The report is well organized; I was able to quickly find areas of interest to me, and then to go back and review the entire manuscript in a more chronologic format. the reader will be able to find specific areas of interest quickly, as well as broader summaries and the details of the appendices. Conclusions are relevant to practice decisions, and have implicatons for policy / funding of future research. A problem with reviews of this type is that the positive aspects of the review (what does work, what doesnt) is often overlooked by excessive focus on weaknesses and future/ additional research needs. The tone overall is good, not overly negative, such that a clinician can find suggestions / support for treatments while gaining / reinforcing those weak points that need to be considered.	Thank you for your comments.
Peer Reviewer #7	Clarity and Usability	"...may be used to treat symptoms of ASD" This line is easily taken out of context, and could be interpreted as an endorsement of this treatment approach.	We changed this to read "have been used."
TEP Reviewer #2	Clarity and Usability	I think that the conclusions are clearly relevant to policy and practice decisions.	Thank you for your comments.
TEP Reviewer #3	Clarity and Usability	The report is clear, well written, and respectful of the possibility that some therapies may be associated with benefits in individual cases. The authors state this while making the important point that the existing literature needs to be extended using appropriate research designs.	Thank you for your comments.
TEP Reviewer #3	Clarity and Usability	Durability beyond the immediate intervention period may not be negative - if the intervention is not harmful and can continue to be provided it may help an individual adapt to sensory differences - not cure them.	Thank you for your comments. We have added discussion regarding this to the Future Research section.
TEP Reviewer #1	General Comments	This (combined) report is clinically meaningful, and addresses an extremely important area for the audience: consumers (children with ASD and their parents) and providers. It serves as a valuable resource as a compendium/collection of research evidence for multiple treatments in use. Target population is well described and defined, but it would be helpful to the reader if the authors would reiterate explicitly the rationale for limiting the age range to 2-12 years in the early parts of the report.	Thank you for your comments. We have added more detail about our restriction to children ages 2-12 in the Scope of Review section (e.g., focus on children with confirmed diagnoses).

TEP Reviewer #1	General Comments	Key questions are appropriate and explicitly stated. The introduction to the report, describing the intent and purpose of the systematic reviews are helpful (pages ii – iv, depending on which report).	Thank you for your comments.
TEP Reviewer #3	General Comments	The report is clinically meaningful and the questions explicitly stated. the key questions were fair and similar to those one would want to know about any therapy.	Thank you for your comments.
Peer Reviewer #2	General Comments	Both reviews are generally well-written and clear. I only have a few small points that should be addressed.	Thank you for your comments.
Peer Reviewer #2	General Comments	One point that was unclear to me was what time frame the authors considered to be "long-term": ≥ 6 months; > 6 months; ≥ 12 months; or > 12 months? This seemed to be inconsistent between different sections. KQs define short term as ≤ 6 months and longer-term as >6 months, but the abstract describes short term as < 12 months.	We have clarified the time frame to reflect ≤ 6 months as short term and greater than 6 months as long term.
Peer Reviewer #2	General Comments	Lists of excluded studies were mostly but not completely in alphabetical order. A few references at the beginning did not follow that order (perhaps they were added later?).	The excluded studies appendix is organized by year and then alphabetically.
Public Reviewer #2 (Tristram Smith)	General Comments	Lengthy and somewhat confusing as the major topic areas were presented with conclusions and then further in the document, there's more description of the studies presented with the same conclusions which made it all seem redundant.	We have attempted to reduce redundancy throughout the reports but note that the medical report includes an executive summary, which includes a more concise presentation of information in the full report. The reports also include "key points" sections to present key messages for each section.
Peer Reviewer #7	General Comments	This report will be very valuable to the autism patient community, as they seek information to help guide their treatment decisions, and to the autism research and research funding community, as they evaluate the gaps in current knowledge and the most important directions that research should pursue.	Thank you for your comments.
Peer Reviewer #7	General Comments	Figure ES-1 (repeated as Fig 1, on p. 31? and p. 122?) requires review and revision. It indicates a KQ7, but there is no such KQ. I am not sure that the other KQ symbols are correctly located on the figure.	We have revised the figure to correct this oversight.
TEP Reviewer #2	General Comments	Note: the report is generally well-written with few typos. In the context of being asked to perform an expert review, I have not dwelled on typos or minor errors but instead focus on more substantial issues.	We hope that we have caught and corrected any typos. We appreciate the reviewer's thoughtful comments on the content of the report.
Peer Reviewer #2	General Comments	Sensory interventions/Abstract: "likely overlapping populations in four studies" should be "samples" (or "participants", as in main text) instead of "populations".	We have changed this to participants.
Peer Reviewer #7	General Comments	The abstract and Executive Summary are of particular importance, as many interested consumers of this report will not have the expertise to digest the full report. Regretably, I did not find an Executive Summary for the review of sensory-related treatments; I strongly urge that an Exec Summary be added.	Thank you for your comments. As the sensory report was brief, we felt that an Executive Summary would add unnecessary redundancy. We have added, however, a listing of key messages at the beginning of the

			report and note that the AHRQ's Eisenberg Center may develop consumer- and clinician-focused translational materials for these reports.
Peer Reviewer #7	General Comments	I believe a key issue that is not adequately addressed is that of blinding in non-pharmacological studies. While drug studies can be blinded relatively easily with a placebo pill, it is much more challenging to control for non-specific/placebo effects in trials of treatments that cannot be blinded. Many/most of the sensory-related treatments fall into this category, and I believe this is not adequately accounted for in the assessment of the studies, or adequately discussed in the report.	We agree that blinding can be challenging in studies that investigate interventions that include educational or behavioral components. Our risk of bias system attempted to account for such variations by considering multiple elements in addition to blinding in determining an overall risk of bias rating.
TEP Reviewer #2	General Comments	The sensory report is similarly placed nicely into context, including the new DSM5 criteria. Its challenges largely have to do with evaluation of a much lower quality literature, which seems quite inconsistent compared to the medical literature. I think that the authors had the best of intentions but did not capture some of the key weaknesses in the ratings of individual papers nor the differences in the actual treatments being delivered across studies within a given domain.	We have added additional discussion of the limitations of this literature to the report as well as additional detail regarding our rationale for grouping studies into broader categories.
TEP Reviewer #1	Introduction	The introduction is quite clear in terms of definition of autism spectrum disorder (ASD). The first paragraph summarizes goals of treatment and complication of treatment (and outcome) by comorbid conditions. The third paragraph of the introduction (2nd paragraph of treatment) would benefit from an introductory/ summary sentence to more clearly specify that some medications have approval by FDA for treatment of comorbid conditions (NOT core symptoms) and most are off label.	We have added text to clarify this statement to the Introduction.
TEP Reviewer #1	Introduction	The last sentence in the intro (under treatment) might be clarified that there are other treatments (not just “devices”) that might be used to address comorbid conditions (e.g., supplements).	We have added text to clarify this statement to the Introduction.
TEP Reviewer #3	Introduction	Succinct. Issues in treatment identified (no consensus, need for evidence base, individualized approaches to intervention)	Thank you for your comments.
TEP Reviewer #4	Introduction	The introduction is concise, well written and well referenced. for both the medical therapies and the sensory therapies the writing is focused on these therapies; there is not a need for extensive discussion of ASD as this report is of interest to professionals with experience with ASD.	Thank you for your comments.
Public Reviewer #2 (Tristram Smith)	Introduction	Well written and concise	Thank you for your comments.
Peer Reviewer #7	Introduction	p. 119, line 33/34 - please review the grammar of this sentence.	Revised, thanks for noting this.
TEP Reviewer #1	Introduction	The background (paragraph 2) is well written and describes the rationale for these types of treatments. The segment "Interventions targeting sensory challenges" is well written and helpful.	Thank you for your comments.

Peer Reviewer #2	Introduction	Sensory interventions/Scope of review: Ref. 14 is not correct. Should be ref. 17.	We have corrected the references.
Public Reviewer #1 (Roseann Schaaf)	Introduction	Your report failed to separate the evidence for Sensory Integration from Sensory Based interventions. These are different approaches (see Case Smith, Weaver, Fristad, 2015) for more specific recommendations on this. You will reach different conclusions from the sensory integrative studies and the sensory based studies. Interventions that are in keeping with the sensory integrative approach (Ayres, 1972, 1979, 2005) follow a set of principle and practices and are contextualized in play with active involvement of the child. There is a validated fidelity measure to evaluate whether an intervention adheres to Ayres Sensory Integration (Parham, et al, 2007, 2011) to help distinguish sensory integration from sensory based. To improve clarity about the effectiveness of interventions that use "sensory-focused" (your term) interventions it is important to be clear about the differences and evaluate these bodies of literature separately. The statement "the field lacks consensus on a definition of sensory-focused approach" is not accurate. There is clear understanding of the difference in sensory-based from sensory integration (again, refer to Case-Smith, et al for more clarity on this issue).	We have expanded our discussion of our rationale for grouping these studies together. We note that all of the sensory integration-based studies included in the review either explicitly noted that they were based on Ayres principles or noted using a coordinated program of specific sensory-based activities selected based on a given child's needs and incorporated into the child's daily routine. We considered the evidence separately for Ayres-based studies and for other sensory integration studies and note that our conclusions did not differ when we considered separately vs. grouped together. We recognize that other investigators may categorize interventions differently. We revised our text to note that the field lacks broad consensus as sensory-focused interventions encompass multiple strategies and targets.
Public Reviewer #1 (Roseann Schaaf)	Introduction	Conclusion section states that data on harm of intervention is lacking. There is a study that addresses harm of the Ayres Sensory Integration Approach that should be included. This study found no harm from this approach (Schaaf, R.C., Benevides, T., Kellly, D., & Mailloux, Z (2012). Occupational Therapy and Sensory Integration for Children with Autism: A Feasibility, Safety, Acceptability and Fidelity Study. Autism: The International Journal of Research and Practice, 16 (3); 321-327. PMID: 22318118. doi: 10.1177/1362361311435157	Thank you pointing out this study. We only included comparative (i.e., treatment and control group) studies in the review. Thus, this study did not meet eligibility criteria.
Public Reviewer #1 (Roseann Schaaf)	Introduction	Your definition of "sensory integration-based interventions" is inaccurate. Intervention using sensory integration follows a set of principles and practices outlined by Ayres (1972, 1979, 2005) and elaborated on by others (Schaaf & Mailloux, 2015). Intervention is based on a comprehensive assessment of the sensory motor factors impacting the child's behavior and development. Intervention consists of active, individually-tailored, sensory motor activities that target these underlying sensory factors and is contextualized in play, includes active involvement of the child, follows a systematic approach. The therapist facilitates the child's ability to participate in the sensorymotor experiences in adaptive ways to improve the ability to process and integrate sensation as a	Thank you for your comments. We have expanded our discussion of our rationale for grouping sensory integration studies together. We note that all of the sensory integration-based studies included in the review either explicitly noted that they were based on Ayres principles or noted using a coordinated program of specific sensory-based activities selected based on a given child's needs and incorporated into the child's daily routine. We considered the evidence separately for Ayres-

		foundation for functional skills.	based studies and for other sensory integration studies and note that our conclusions did not differ when we considered separately vs. grouped together. We recognize that other investigators may categorize interventions differently.
TEP Reviewer #2	Introduction	The sensory introduction is well-written and appropriate.	Thank you for your comment.
TEP Reviewer #1	Methods	Inclusion and exclusion criteria are well described and justifiable. For the medical report, for consumers who did not read the 2011 report, the authors might want to reiterate the justification for age range of children with ASD (2-12 years).	We have added information on our rationale for this focus to the Scope of Review section.
TEP Reviewer #1	Methods	The analytic framework explicitly stated, including model used (PICOTS) and where KQ fit in. Literature search strategy robust and well described.	Thank you for your comments.
TEP Reviewer #1	Methods	The definitions of outcome measures described risk of bias assessment of individual studies and strength of the body of evidence.	Thank you for your comments.
Peer Reviewer #2	Methods	Both reviews/Search Strategy: Why were SCI and SSCI (ISI Web of Science) not searched?	We chose not to search the Web of Science database given its significant overlap with MEDLINE and PsycInfo, both of which we searched for the review.
Peer Reviewer #2	Methods	Both reviews/Gray Literature: Was the ISRCTN register searched? This is the other major database in addition to Clinical Trials.gov. The report only speaks of ”other” registries.	We searched the ISRCTN and have noted this explicitly in the report.
Peer Reviewer #2	Methods	Both reviews: Were systematic reviews searched for additional RCTs? This might have been important, see below.	We did search the reference lists of recent systematic reviews. We added the study noted below while the report was undergoing peer review.
TEP Reviewer #4	Methods	Inclusion / exclusion criteria are justifiable. Key questions are pertinent and guided clinically relevant issues. Diagnostic criteria are satisfactory, given that criteria changed during the period studied but most likely had little effect on any published studies during this period. Statistical methods are appropriate.	Thank you for your comments.
Public Reviewer #2 (Tristram Smith)	Methods	Appropriate key driver questions and appropriate framework for the analysis.	Thank you for your comments.
Public Reviewer #2 (Tristram Smith)	Methods	Well written and clear	Thank you for your comments.
Peer Reviewer #7	Methods	Almost all of the studies reviewed are noted to have "small" sample size, but the criteria for this judgment are not provided (or, I didn't find it). What constitutes small? medium? large? Similarly, what is the	We did not set specific parameters for small, medium, or large; we acknowledge that our description of "small" reflects a largely arbitrary

		justification for using cut-offs of 10 and 20 for sample size (understanding the need for larger # in the non-RCT, but why specifically 10 and 20)?	judgement, but given that studies in ASD have included more than 100 participants, we feel that it is appropriate to consider most studies in the reviews as "small." Moreover, most studies noted as a limitation their small sample size. We set the sample size criteria of 10 for RCTs and 20 for other types of studies in consultation with a panel of technical experts. Interventions to address ASD are frequently behavioral in nature and highly intensive. They are also frequently adapted to be targeted to specific study participants given the significant heterogeneity of individuals with ASD. In part because this makes ASD research quite complex and intensive, study sizes tend to be small. A cutoff sample size of 20 provides a balance, allowing us to review and comment on adequate literature for the review but with studies large enough to suggest effects of the interventions. We selected a minimum sample size of 10 for RCTs because we felt that the typically greater controls for bias and rigor helped to mitigate limitations of a smaller sample size.
Peer Reviewer #7	Methods	p.36, line 38/39 - Please review the grammar of this sentence.	We revised this text to clarify.
Peer Reviewer #7	Methods	p. 129 - Figure 2 - A very large number of studies were excluded because they did not address a KQ. It would be helpful to understand what these studies did address. Without that explanation, readers may be skeptical about the exclusion of such a large corpus.	We note that the appendix includes a list of studies with exclusion reasons, which are presented by broad category such as relevance to a key question or ineligible age range. Because the current reviews focused only on medical or sensory-focused treatments, studies that addressed another type of intervention would be excluded, as would basic science and non-intervention studies.
TEP Reviewer #1	Methods	Sensory report: good description of categorization of interventions. The authors appropriately revised the KQ and described the basis for the revisions and the resulting protocol.	Thank you for your comments.
TEP Reviewer #3	Methods	Clear and logical. I wonder, however, if prolonged effect after stopping a therapy is necessarily a demonstration that the therapy does not "work". It is plausible that a sensory therapy only "works" in the time frame it is	We have revised our discussion of duration of effects as an area for future research in the Discussion chapter.

		being employed.	
Public Reviewer #1 (Roseann Schaaf)	Methods	Again, the failure to consider sensory-based approaches from Sensory Integrative approaches is a key flaw in your methods. Auditory based interventions should either not be included or in findings about these be separated out. Auditory interventions are very specific interventions that target only one sensory system and are not in keeping with principles and practices of sensory integration.	We note that we did address auditory interventions separately from other sensory interventions.
Peer Reviewer #7	Methods	Please see my comment in the "General Comments" about the difficulty of assessing studies that are not well-blinded.	We agree that blinding can be difficult in studies that investigate interventions that include educational or behavioral components. Our risk of bias system attempted to account for such variations by considering multiple elements in addition to blinding in determining an overall risk of bias rating. We have added some information on considerations of blinding in these kinds of studies to the Limitations section of the sensory review.
Peer Reviewer #7	Methods	A small number of studies, including at least one RCT, have been conducted on "equine-assisted" therapy for autism. I am not sure whether these fit within the scope of the current review, but some consider the sensory stimulation associated with horseback-riding to be a key ingredient in this approach. for example, see J Am Acad Child Adolesc Psychiatry. 2015 Jul;54(7):541-9. doi: 10.1016/j.jaac.2015.04.007. Epub 2015 May 5.	We considered that studies to be sensory-focused if they explicitly targeted behaviors associated with sensory challenges using an approach specifically incorporating sensory modalities. We did not consider equine-assisted therapies to meet this criterion, and the study cited was not considered as explicitly sensory-focused. We recognize, however that categorizations of interventions to address challenges vary.
TEP Reviewer #2	Methods	In the sensory report, I don't understand how the authors are evaluating whether or not to lump quite different (or poorly described) interventions together to assess SOE. For sensory integration, for example, they are lumping together different protocols, treatment intensities, etc., to describe low strength of evidence for "sensory integration" broadly. I don't think this is reasonable. Instead, I think that they need to assess whether there is SOE for specific protocols that are either the same or essentially equivalent based upon the careful description of the protocol that was used.	We have expanded our discussion of our rationale for grouping sensory integration-based studies together. We note that all of the sensory integration-based studies included in the review either explicitly noted that they were based on Ayres principles or noted using a coordinated program of specific sensory-based activities selected based on a given child's needs and incorporated into the child's daily routine. We considered the evidence separately for Ayres-based studies and for other sensory integration studies and note that our conclusions did not differ when we considered separately vs. grouped together. We recognize that other investigators may categorize interventions differently.

TEP Reviewer #2	Methods	I don't understand how randomized studies that are not blinded (i.e., do not use blinded assessment of any form) can be considered as better than high risk of bias. This seems a major concern for many of the studies. If there are no studies in an area that actually have blinded assessment of potential benefit, I do not see how there could be any SOE other than insufficient.	We agree that blinding is a key methodologic component but note that our assessment of risk of bias balanced multiple factors including blinding, diagnostic methodology, fidelity and adherence, and statistical analysis, among others and was designed to be used with studies in which blinding is easier to achieve (e.g., most medical studies) and those in which it may be more difficult (e.g., behavioral interventions). We also note that only two studies that did not report blinded outcome assessment achieved better than high risk of bias. These two studies (Thompson 2014 and Srinivasan 2016) were RCTs examining music therapy and a robot-based intervention, respectively and had positive scores on risk of bias elements related to study design, participant ascertainment, and description of the intervention. We considered each study to have moderate risk of bias, and due to heterogeneity, we considered the final strength of evidence to be insufficient.
TEP Reviewer #2	Methods	It seems to me that independence of samples is critical to evaluating risk of bias. In the case where samples are not clearly independent (massage therapy), I think that there must inherently be high risk of bias.	We concur that potential overlap of samples is an important consideration that have noted explicitly in the report. We feel that these studies were appropriately downgraded for potential bias (i.e., none were considered to have low risk of bias), and our overall strength of evidence rating of "low" reflects our limited confidence in the findings.
TEP Reviewer #2	Methods	Separately, I think that consistency across research groups applying the same well-defined protocol is what is needed to establish SOE. The same group repeating the same protocol in potentially overlapping samples seems to be the definition of insufficient SOE. Lack of independent replication seems to be a considerable flaw.	We agree that independent replication would be ideal. Based on the literature available to date, and taking into consideration its weaknesses and strengths, our overall strength of evidence rating of "low" reflects our limited confidence in the findings of studies with potentially overlapping populations.
Peer Reviewer #1	Methods	Search strategies are explicitly stated, relevant and logical. The need for an extension to the previous 2011 review is also well justified.	Thank you for your comment.
Peer Reviewer #1	Methods	The key issues studied (impact on core autism symptoms and behavior problems, risk of harm, long-term effects, modifiers of treatment, generalization to other contexts etc.) are all highly relevant to the	Thank you for your comment.

		treatment of young children with ASD. The the range of outcome variables studied is also extensive and comprehensive.	
Peer Reviewer #1	Methods	The key issues studied (impact on core autism symptoms and behavior problems, risk of harm, long-term effects, modifiers of treatment, generalization to other contexts etc.) are all highly relevant to the treatment of young children with ASD. The the range of outcome variables studied is also extensive and comprehensive.	Thank you for your comment.
TEP Reviewer #1	Results	Results of literature searches for key questions well described in Results section and illustrated in Figure 2 (flow diagram). Description of included studies well done; table 2 provides a good overview of types of studies included (meeting criteria to address some or all key questions).	Thank you for your comments.
TEP Reviewer #1	Results	KQ1 - good summary of findings and analysis.	Thank you for your comments.
TEP Reviewer #1	Results	All figures, tables and appendices adequate and descriptive.	Thank you for your comments.
TEP Reviewer #1	Results	Reviewer did not identify any missing studies or ones that should have been excluded.	Thank you for your comments.
TEP Reviewer #3	Results	the authors very specifically stated what they set out to review and did exactly what they said they would do. they complemented their review with other published reviews that used other methodologies (eg. Cochrane)and discussed why the results of those reviews might differ from the AHRQ.	Thank you for your comments.
TEP Reviewer #4	Results	The manuscript / report overall is well written and provides an excellent summary of a large number of studies. The breakdown that follows the executive summary provides ample detail; the figures, tables and appendices are quite adequate. I was not able to identify any studies that had been overlooked for either the medical or the sensory therapies reviews.	Thank you for your comments.
Public Reviewer #2 (Tristram Smith)	Results	Good synopsis of the results	Thank you for your comments.
TEP Reviewer #1	Results	For Sensory report divided into categories/ types of sensory treatments and well described.	Thank you for your comments.
TEP Reviewer #3	Results	The report reads " There is low strength of evidence that auditory integration based approaches do not improve language outcomes)but the abstract indicates tht there were positive effects that were inconsistently found. The narrative does not support what will be interpreted as an endorsement of auditory integration and weighted blankets.	We have revised the abstract to improve clarity.
Peer Reviewer #2	Results	Sensory interventions/Studies of Music Therapy-Based Approaches: At least one eligible RCT of music therapy seems to have been missed,	We added the Gattino study while the report was undergoing peer review. Regarding other

		although it was published in an indexed journal and used in a cited Cochrane review (Gattino et al., Nordic Journal of Music Therapy, 2011; not listed under excluded studies). There may be more RCTs hidden in some of the cited Cochrane or other systematic reviews. Please check carefully. For example, the Cochrane review of music therapy cites 10 RCTs/CCTs, whereas the present review includes only 2 (and the reasons given in the discussion don't explain the difference).	studies included in the recent Cochrane review of music therapy: -Arezina 2011: We did not search for or include theses in the current review. -Brownell 2002: Out of publication range for current review; also included <10 participants -Buday 1995: Out of publication range for current review. -Farmer 2003: We did not search for or include theses in the current review. -Gattino 2011: Included in current review. -Kim 2008: Included in current review. -Lim 2010: We did not search for or include theses in the current review. -Lim 2011: We did not consider this be a comparative study, thus it did not meet inclusion criteria for the current review. -Thomas 2003: We did not search for or include conference proceedings for the current review. -Thompson 2012: We did not search for or include theses in the current review. We have noted the exclusion of conference proceedings and theses as a limitation of the review.
Public Reviewer #1 (Roseann Schaaf)	Results	Key Points - You missed the study by Schaaf, et al (n = 10 subjects with ASD) where no harm of intervention was reported. Further, the Schaaf, et al, 2014 study showed improvements in social skills and self care skills using a validated outcome measure of adaptive skills (the PEDI by Haley, Coster, et al). These ARE adaptive skills and support the conclusion that sensory integration treatment improved adaptive behaviors. In this study the Vineland Adaptive Behavior scale did not show differences but this was noted as due to short intervention period and lack of sensitivity of Vineland for this short period.	Thank you pointing out this study. We only included comparative (i.e., treatment and control group) studies in the review. Thus, this study did not meet eligibility criteria. We re-examined the data for these studies and determined that the outcome measures were too disparate to combine; thus, we considered the strength of evidence to be insufficient as we could not draw conclusions about the data presented.
TEP Reviewer #2	Results	Based upon the description of the studies and their dissimilarities or methodological flaws (lack of blinded assessment, inappropriate statistics), it was difficult toes that there was more than insufficient SOE in any domain of the sensory report.	We note in the report that methodologic rigor is lacking in the evidence base; however, we attempted to balance significant methodologic concerns with tempered reporting of the findings, rather than summarily dismissing all findings because study execution was lacking. We feel that we appropriately downgraded evidence in assessing the strength of the body

			of literature. We did not find greater than low (limited confidence in estimates of effect) strength of evidence (SOE) for any intervention/outcomes addressed and considered SOE to be insufficient for most intervention/outcome pairs.
Public Reviewer #1 (Roseann Schaaf)	Results	Finding that there is low strength of evidence that sensory integration treatment did not improve adaptive behaviors seems erroneous. Both Schaaf, et al, 2014 and Pfeiffer, et al, 2011 found statistically significant improvements in individual goals (measured by goal attainment scales) which address adaptive behavior.	We re-examined the data for these studies and determined that the outcome measures were too disparate to combine; thus, we considered the strength of evidence to be insufficient as we could not draw conclusions about the data presented.
TEP Reviewer #1	Discussion/Conclusion	The major findings were clearly stated. For both reports, the first paragraphs of the discussion were an excellent summary and clearly stated. Good discussion of benefits.	Thank you for your comments.
TEP Reviewer #1	Discussion/Conclusion	In both reports the future research section addressed gaps and areas for future research quite well.	Thank you for your comments.
Peer Reviewer #2	Discussion/Conclusion	Both reviews/Limitations of the Comparative Effectiveness Review Process (p. 70 of medical; p. 31 of sensory; also in Executive Summary): Whether the high percentage (99%) of ineligible items among non-English abstracts really is unlikely to introduce bias, depends perhaps also on the total number of non-English abstracts, which isn't reported.	We scanned a random sample of non-English abstracts (n=150) and identified few eligible items. We agree that a scan of the entire non-English corpus may have identified more items. We have revised this text to clarify.
Peer Reviewer #2	Discussion/Conclusion	Finally, ref. 42 is not correct – it is to an RCT protocol by the same author, not to the Cochrane review.	We have corrected the references.
Public Reviewer #2 (Tristram Smith)	Discussion/Conclusion	Concise and good detailing of limitations	Thank you for your comments.
Public Reviewer #2 (Tristram Smith)	Discussion/Conclusion	The Discussion is generally consistent with the findings of this review and is likely to be helpful to providers and families. I think it would be important to insert one additional point in "Research Gaps": Commentators have long questioned the theoretical underpinnings and proposed mechanisms of action for sensory-based interventions, especially sensory integration and sensory diets (e.g., Arendt et al., 1988, AJMR). Some have proposed more parsimonious explanations of effects if present such as reinforcing or relaxing properties of the activities and attention from therapists (e.g., Lang et al., 2012, RASD).	Thank you for your comments. We have expanded our discussion of the need to understand sensory mechanisms better.
TEP Reviewer #1	Discussion/Conclusion	Discussion/ Conclusion: The major findings were clearly stated. For both reports, the first paragraphs of the discussion were an excellent summary and clearly stated. Good discussion of benefits. For Medical report: Unfortunately (for the state of research in treatments), KQ1 was the best able to be addressed, and other KQ's could not) (see ES-22). The authors clearly described	Thank you for your comments.

		limitations of the CER and evidence based. For the sensory report: there were more reviews/ studies available, and the authors could discuss the limitations more in terms of the heterogeneity of children with ASD (and sensory issues), and other methodological weaknesses.	
TEP Reviewer #3	Discussion/Conclusion	Research gaps: clearly stated call for improvements in research design and attention to component analysis. I would suggest that also important will be translational work that relates sensory symptoms and treatments to the underlying neurobiology of the disorder.	Thank you for your comments. We have added discussion regarding this to the Future Research section.
TEP Reviewer #3	Discussion/Conclusion	The authors were complimentary of the attempts to advance the field.	Thank you for your comments.
TEP Reviewer #3	Discussion/Conclusion	Longer term effectiveness after completion of intervention may/may not be necessary if the intervention demonstrates benefit and can be continued in a safe fashion.	We have added information to the Future Research section of the report to address this point.
Peer Reviewer #2	Discussion/Conclusion	Sensory interventions/Other reviews: "Theses" is not a study design, but a publication type; that does not belong here, although the in- or exclusion of unpublished theses may be relevant to mention. The cited Cochrane review only included included RCTs and CCTs; "single subject studies" were only included if they also met the definition of RCT or CCT, i.e. specifically if they used random or quasi-random counterbalancing of treatment sequences (as in cross-over RCTs).	We have revised this text to clarify that the Cochrane review included a broader range of literature.
TEP Reviewer #4	Discussion/Conclusion	The review of sensory therapies is also concise and on target. The tone of the recommendations is more supporting while still emphasizing the weak / insufficient evidence available for these therapies.	Thank you for your comments.
Public Reviewer #1 (Roseann Schaaf)	Discussion/Conclusion	As stated above, the Low SOE for Sensory Integrations impact on adaptive behavior are erroneous. Conclusions should include a statement that Sensory integration approaches improved outcomes related to sensory challenges and motor skills as well as improvements in individual goals of adaptive skills and functional behaviors.	We re-examined the data for these studies and determined that the outcome measures were too disparate to combine; thus, we considered the strength of evidence to be insufficient as we could not draw conclusions about the data presented.
Peer Reviewer #7	Discussion/Conclusion	(no comments, except the issue of non-blinding in sensory-related treatment studies)	As noted, the risk of bias approach did not downgrade (or upgrade) studies solely based on blinding. While we agree that blinding can be more difficult with behavioral interventions, such interventions have incorporated masked assessors.
TEP Reviewer #2	Discussion/Conclusion	My concerns about the sensory report are not in regard to translation of the SOE ratings but in the SOE ratings themselves. I think that the discussion should be rewritten to better reflect the limitations of the studies that are included in the review and contribute to the SOE.	We have added additional detail about methodologic limitations.
Public Reviewer #2 (Tristram Smith)	References	Appropriate and up to date	Thank you for your comments.

Public Reviewer #1 (Roseann Schaaf)	References	Include this study to report on harm of intervention: Schaaf, R.C., Benevides, T., Kellly, D., & Mailloux, Z (2012). Occupational Therapy and Sensory Integration for Children with Autism: A Feasibility, Safety, Acceptability and Fidelity Study. Autism: The International Journal of Research and Practice, 16 (3); 321-327. PMID: 22318118. doi: 10.1177/1362361311435157	Thank you pointing out this study. We only included comparative (i.e., treatment and control group) studies in the review. Thus, this study did not meet eligibility criteria.