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## Meta-Analysis a Myriad of Data - Is It Helpful?

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## Editorial


# Meta-Analysis a Myriad of Data – Is It Helpful?



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See the article “The Clinical Implications and Complications of Anterior Versus Posterior Surgery for Multilevel Cervical Ossification of the Posterior Longitudinal Ligament; An Updated Systematic Review and Meta-Analysis” on page 530.



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The authors are congratulated for this organized, comprehensive, and well-done manuscript.<sup>1</sup> In evidence-based medicine (EBM), a meta-analysis is the highest degree or grade of evidence-based literature when it is compiled on numerous class I literature. This strategy takes numerous data sources and by combining them and weighing the result can reduce the bias of previous articles to come to a more homogeneous conclusion and define an optimal approach by increasing the overall sample size. The difficulty in medicine, and particularly in spine surgery, is that unfortunately these meta-analyses need to be based on numerous high-quality articles. Spine surgery does not have this base which to draw these EBM level 1 articles. Therefore, we must understand that the meta-analysis conclusions are only as good as the literature they reviewed. In this review, the authors are limited in that these studies are of lower level evidence grades 3 to 4. Further, the article is compiled over a greater than 30-year time period where there have been changes in numerous aspects of medicine and in spine surgery, thus limiting conclusions.

Understanding these limitations, this manuscript is strengthened by the authors' use of the PRISMA guidelines. Preferred Reporting Items for Systematic Reviews and Meta-Analyses known as PRISMA was developed to strengthen the literature and has a strict definition and outline of criteria that needs to be met when producing a meta-analysis. Overall, its use improves the consistency, transparency and reduces bias of the article. The authors further strengthen the article in that they did not restrict the search on the basis of language and therefore increase the available literature sources.

Lastly, the readers should be aware the authors did not over represent the p-values but rather reported and based results of the data with the use of the 95% confidence intervals. They are commended for this approach in that this illustrates the result in a more qualitative fashion. As a quick reminder, when evaluating the odds ratios in Fig. 2, a value of 1 means there is no difference in the groups. This is not the same as in Figs. 3 and 4 where the authors measure difference in confidence interval where zero would be considered no difference. Further, the authors deemphasized mathematical significance and focused the article on the more relevant clinical significance. In this study with over 3,000 patient's the ability to find a mathematical significant becomes much easier. However, as the authors note the results do not meet the minimal clinical important difference such that the result may not affect patient outcomes.

Overall, a well-done manuscript that illustrates our need to produce more level I evidence and emphasizes clinical practice.

## REFERENCE

1. Kim DH, Lee CH, Ko YS, et al. The clinical implications and complications of anterior versus posterior surgery for multi-

level cervical ossification of the posterior longitudinal ligament; an updated systematic review and meta-analysis. *Neurospine* 2019;16:530-41.



Title: Don Quixote

Artist: Pablo Picasso

Year: 1955

Don Quixote is a 1955 sketch by Pablo Picasso of the Spanish literary hero and his sidekick, Sancho Panza. It was featured on the August 18–24 issue of the French weekly journal *Les Lettres Francaises* in celebration of the 350th anniversary of the first part of Cervantes's *Don Quixote*. Made on August 10, 1955, the drawing *Don Quixote* was in a very different style than Picasso's earlier Blue Period, Rose Period, and Cubist periods. The painting is of Don Quixote de la Mancha, his horse Rocinante, his squire Sancho Panza and his donkey Dapple, the sun, and several windmills. The bold lines, almost scribbles, that compose the figures are stark against a plain, white background. The figures are almost laconic and deformed, and are dramatic. Sancho Panza looks up at a tall, elongated, gaunt Don Quixote, who, in return, gazes forward. Don Quixote and Rocinante stand nobly, but have a somewhat tired air.

More information: <https://www.pablocicasso.org/don-quixote.jsp>

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