



Letter to the Editor

# Disc space height and interpeduncular distance in the cervical spine may depend on more influencing factors than assumed

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Received: 28 July 2024

Accepted: 01 August 2024

Published: 23 August 2024

**DOI**

10.25259/SNI\_624\_2024

**Quick Response Code:**



Dear Editor,

We read with interest the article by Shin *et al.* on a retrospective study of the influence of height, weight, gender, ethnicity, and anthropometric characteristics on cervical disc space height (DSH) and interpeduncular distance (IPD) in 1000 healthy subjects aged between 18 and 35 years.<sup>[1]</sup> It was found that DSH and IPD measurements varied according to the patient's gender, ethnicity, and disc height.<sup>[1]</sup> The study is excellent, but some points should be discussed.

The first point is the retrospective design of the study.<sup>[1]</sup> Retrospective designs have the disadvantage that some data may be missing, the accuracy of the data cannot be easily verified, desired missing, or new data can no longer be generated, and the indication for certain investigations is often no longer comprehensible. A retrospective design also does not allow for follow-up studies. We should know how many patients had to be excluded due to missing data, how many were included despite missing data, and to what extent this influenced the results.

The second point is that the indication for spinal computed tomography (CT) was not stated in the 1000 patients included.<sup>[1]</sup> What symptoms did these subjects complain of when they underwent spinal CT? It is quite unlikely that the CT examinations were performed without any indication. Therefore, the sentence in the methods section that the included subjects were free of spinal pathology is not convincing.

The third point is that the list of exclusion criteria in Table 1 (Index paper) is incomplete.<sup>[1]</sup> We should know whether patients with cervical syndrome, hyperlordosis, scoliosis, ankylosing spondylitis, chondrosis, osteochondrosis, spondylosis, spondyloarthritis, Chiari malformation, torticollis, anterocollis, retrocollis, laterocollis, whiplash injury, or Hirayama disease were really included in the study.

The fourth point is that DSH, in particular, can be subject to diurnal fluctuations. DSH may depend strongly on the state of swelling of the nucleus pulposus, which in turn depends on previous physical activity, diet, comedication, and comorbidities. As these influencing factors were not included in the analysis, the results may be misleading.

The fifth point is that DSH may also depend on the positioning of the head and cervical spine in the CT scanner. Was the positioning and head position in the scanner standardized for all 1000 subjects included?

The sixth point is that the dependence on age was not included in the analysis. Since subjects between the ages of 18 and 35 were included, and it is conceivable that DSH and IPD also depend on age, it would have been imperative to evaluate the influence of age on these parameters.

In summary, it can be said that this interesting study has limitations that relativize the results and their interpretation. Addressing these limitations could strengthen the conclusions and substantiate the study's message. Before calculating the influence of anthropomorphic parameters, gender, and ethnicity on DSH and IPD, the exclusion criteria need to be more stringent, the methods of CT examination need to be standardized, and a prospective design needs to be applied.

#### Availability of data and material

All data are available from the corresponding author.

#### Author's contributions

JF was responsible for the design and conception, discussed available data with coauthors, wrote the first draft, and gave final approval. FS and CS contributed to the literature search, discussion, correction, and final approval.

#### Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

#### REFERENCE

1. Shin D, Shin B, Brandt Z, Nguyen K, Battikha A, Carter D, *et al.* Morphometric analysis of cervical disc space height and interpedicular distance using computed tomography. *Surg Neurol Int* 2024;15:196.

**How to cite this article:** Finsterer J, Scorza F, Scorza C. Disc space height and interpeduncular distance in the cervical spine may depend on more influencing factors than assumed. *Surg Neurol Int.* 2024;15:302. doi: 10.25259/SNI\_624\_2024

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