

## **Title**

Fatty infiltration in cervical extensor muscle: is there a relationship with cervical sagittal alignment after anterior cervical discectomy and fusion?

## **Background**

Postoperative cervical sagittal alignment is affected by many factors. Fatty infiltration of the cervical multifidus muscle may cause postural instability. However, there have been few studies regarding the relationship between posterior extensor muscle status and cervical alignment after anterior cervical discectomy and fusion (ACDF).

## **Research question**

Whether there is a relationship between posterior extensor muscle status and postoperative cervical alignment following single-level ACDF.

## **Design**

Retrospective study

## **Methods**

Patients who underwent single-level ACDF with the Zero-profile implant system were included. Cervical sagittal alignment parameters, including the C2-C7 Cobb angle, functional spinal unit (FSU) angle, cervical sagittal vertical axis (SVA), and T1 slope(T1S), were assessed. Preoperative magnetic resonance images were used to classify patients according to Goutalier grade. Clinical outcomes including Neck Disability Index (NDI) scores, Japanese Orthopaedic Association (JOA) scores and Visual Analogue Scale (VAS) scores.

## **Results**

At the last follow-up, the C2-C7 Cobb angle, FSU angle, and T1S improved after the

surgery among the groups. Although there were varying degrees of loss of curvature among the different groups during the follow-up period, the postoperative cervical sagittal alignment parameters demonstrated no statistical differences among the three groups ( $P>0.05$ ). In addition, patients in all groups experienced significant relief of their symptoms, and the clinical scores were comparable among the groups ( $P>0.05$ ).

## **Discussion**

The cervical sagittal alignment of patients with different grades of fatty infiltration grade of in the multifidus muscle can be maintained after single-level ACDF. The results indicated that the grade of fatty infiltration in the multifidus muscle in single-level ACDF patients might not be correlated with postoperative loss of cervical sagittal alignment.