

Allograft Implant

[Anterior cervical discectomy and fusion](#) is commonly performed using an [allograft](#) or [autograft implant](#) and anterior screw-supported plate.

Common [interbody graft](#) options for [anterior cervical discectomy and fusion](#) (ACDF) include structural [allograft](#) and [polyetheretherketone \(PEEK\)](#). PEEK has gained popularity due to its radiolucency and its elastic modulus, which is similar to that of [bone](#).

The authors sought to compare the rates of [pseudarthrosis](#), a lack of solid bone growth across the disc space, and the need for [revision surgery](#) with the use of grafts made of [allogeneic bone](#) versus PEEK.

The authors retrospectively reviewed 127 cases in which patients had undergone a 1-level [ACDF](#) followed by at least 1 year of radiographic follow-up. Data on age, sex, [body mass index](#), [tobacco](#) use, [pseudarthrosis](#), and the [reoperation](#) rate for pseudarthrosis were collected. These data were analyzed by performing a Pearson's chi-square test.

Of 127 patients, 56 had received PEEK implants and 71 had received [allografts](#). Forty-six of the PEEK implants (82%) were stand-alone devices. There were no significant differences between the 2 treatment groups with respect to patient age, sex, or body mass index. Twenty-nine (52%) of 56 patients with PEEK implants demonstrated radiographic evidence of [pseudarthrosis](#), compared to 7 (10%) of 71 patients with structural allografts ($p < 0.001$, OR 9.82; 95% CI 3.836-25.139). Seven patients with PEEK implants required reoperation for pseudarthrosis, compared to 1 patient with an allograft ($p = 0.01$, OR 10.00; 95% CI 1.192-83.884). There was no significant difference in tobacco use between the PEEK and allograft groups ($p = 0.586$).

The results of this study demonstrate that the use of PEEK devices in 1-level ACDF is associated with a significantly higher rate of radiographically demonstrated pseudarthrosis and need for revision surgery compared with the use of [allografts](#). Surgeons should be aware of this when deciding on interbody graft options, and [reimbursement](#) policies should reflect these discrepancies ¹⁾.

¹⁾

Fivefold higher rate of pseudarthrosis with polyetheretherketone interbody device than with structural allograft used for 1-level anterior cervical discectomy and fusion. J Neurosurg Spine. 2018 Oct 1:1-6. doi: 10.3171/2018.7.SPINE18531. [Epub ahead of print] PubMed PMID: 30485200.

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