

Cervical PEEK Cage

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Hydroxyapatite-infused cervical PEEK cage

[Hydroxyapatite-infused cervical PEEK cage.](#)

Cervical Titanium Cage

[Cervical Titanium Cage.](#)



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](#).

A study provided strong evidence that ACDF is effective treatment, but the overall rate of radiographic fusion with empty PEEK cages is slow and insufficient. Lack of complete radiographic fusion leads to less improvement of pain and disability. The study recommended against using empty uncoated pure PEEK cages in ACDF ¹⁾.

Studies comparing [cervical titanium cages](#) and PEEK cages are rare in the literature. Chou's team retrospectively compared the results of anterior cervical fusion using titanium cages, PEEK cages and tricortical bone grafts ²⁾. They noticed a better fusion rate and less subsidence in the PEEK cages group. However, the study only enrolled a small number of patients and cervical spinal function was not evaluated. In a systematic review by Kersten who compared a PEEK cage with a bone graft, titanium cage, and carbon fiber cage, no difference was found between PEEK and titanium cage ³⁾.

A [meta-analysis](#) indicated no significant difference in functional and radiographic performance between the [PEEK](#) and [titanium cages](#), although more subsidence occurred in the titanium cage group. More high-quality studies are needed to confirm these results to offer more information for the choice in clinical practice ⁴⁾.

A study 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](#).

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-squared 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 ⁵⁾.

The aim of a study is to compare [silicon nitride](#) implants with [PEEK](#) cages filled with autograft harvested from osteophytes.

A prospective, randomized, blinded study of 100 patients with 2 years follow-up. The primary outcome measure was improvement in the Neck Disability Index. Other outcome measures included SF-36, [VAS](#) arm pain, VAS neck pain, assessment of recovery, operative characteristics, complications, fusion and subsidence based on dynamic X-ray and CT scan.

There was no significant difference in [NDI](#) scores between the groups at 24 months follow-up. At 3 and 12 months the NDI scores were in favor of PEEK although the differences were not clinically relevant. On most follow-up moments there was no difference in VAS neck and VAS arm between both groups, and there was no statistically significant difference in patients' perceived recovery during

follow-up. Fusion rate and subsidence were similar for the two study arms and about 90% of the implants were fused at 24 months.

Patients treated with silicon nitride and PEEK reported similar recovery rates during follow-up. There was no significant difference in clinical outcome at 24 months. Fusion rates improved over time and are comparable between both groups ⁶⁾.

Cages

Aleutian, Stryker, MI, USA

[AVS Anchor-C](#)

Aves Cervical Bladed Peek Cage <http://www.ledamed.com>

AYERS ROCK Spineway France

CAP Cervical H.P.I. Medical France

CERAF ARCA-MEDICA Germany

cerv-X™

CERVICAL PEEK CAGE <http://www.implantint.net/>

CeSPACE® PEEK

Cervical PEEK cage Coroent <http://www.goldengatevn.com/>

Coalition, Globus Medical, PA, USA

Genoss Integral Cervical Cage™

LorX® Expandable Cervical Peek Cage with Blade

PROYSTER® Prodorth

Reborn® Cervical PEEK Cage <http://www.meditechimplant.com>

ROI-C cervical cage (LDR)

[Samarys](#)

SAS 9® Biotechni France

SOURIRE ARCA-MEDICA Germany

Velofix <http://www.youic.com/>

Zero P (Synthes, Inc.)....

Case series

see [Cervical PEEK Cage case series](#)

References

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6)

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