

TABLE E-1 Factors to Consider When Choosing ACDF or CDR\*†

Factors	Rationales for Choice of Treatment
The type of degenerative disc disease per single level	Soft-disc herniation can be treated with CDR. Spondylosis can be treated with ACDF or CDR. CDR can be used according to the presence of angular motion ( $>3^{\circ}$ ) on preoperative flexion-extension radiographs and the rate of degenerative changes (see below). In cases of $<3^{\circ}$ of angular motion, ACDF is preferred.
The degree of spondylotic vertebral body and/or facet joint degeneration at the particular level	ACDF can be used when computed tomography shows clear signs either of advanced vertebral body spondylosis or facet joint degeneration or when preoperative dynamic radiography fails to show a viable angular movement (i.e., $>3^{\circ}$ ). Conversely, CDR can be used when radiographs show angular movement without advanced signs of degenerative disc disease, particularly of the facet joints.
The amount of bone removal needed to decompress the neural structures at the particular level	It is preferable to use ACDF rather than CDR when a substantial amount of drilling is required for the removal of large osteophytes or gross osseous abnormalities, as a substantial amount of bone removal is associated with an increased risk of vertebral body weakening or the induction of heterotopic ossification.
The shape of the inferior end plate of the cranial vertebra at the disc level involved	ACDF is performed in cases requiring substantial end-plate remodeling for artificial disc insertion, in order to avoid increased risks of device subsidence or split fractures secondary to end-plate and/or cortical weakening, particularly when using prostheses with keels or rails.
The presence of adjacent, already-degenerated discs not needing surgical treatment at the time of the index procedure	In these cases CDR, when feasible according to the above criteria, is considered a better option than ACDF, in order to reduce stress on adjacent degenerated segments.

\*Reproduced, with modification, from textual information in: Barbagallo GM, Assietti R, Corbino L, Olindo G, Foti PV, Russo V, Albanese V. Early results and review of the literature of a novel hybrid surgical technique combining cervical arthrodesis and disc arthroplasty for treating multilevel degenerative disc disease: opposite or complementary techniques? Eur Spine J. 2009 Jun;18 Suppl 1:29-39. Reproduced with kind permission from Springer Science+Business Media. †ACDF = anterior cervical discectomy and fusion, and CDR = cervical disc replacement.