

## KEY PROCEDURES

PROXIMAL TIBIAL VALGUS OSTEOTOMY:  
LATERAL CLOSING WEDGE

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Published outcomes of this procedure can be found at: *Cochrane Database Syst Rev.* 2014 Dec 13;12:CD004019, *Acta Orthop.* 2008 Apr;79(2):230-4, and *J Bone Joint Surg Am.* 2014 Sep 3;96(17):1425-32.

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## Abstract

Valgus-producing high tibial osteotomy (HTO) is a well-accepted treatment modality in active patients with varus malalignment and symptomatic medial unicompartmental osteoarthritis (OA) of the knee. One of the key factors for long-term success of the osteotomy is the achievement of an even distribution of the mechanical load on the knee joint by obtaining an ideal alignment of the lower-extremity mechanical axis. Proper surgical techniques are very important, and lateral closing wedge proximal tibial valgus osteotomy (CWO) is highly effective in achieving the desired overcorrection of 3° to 7° of valgus.

The major steps of CWO are (1) preoperative planning, in which the frontal plane varus knee deformity is assessed on a standard whole-leg radiograph; (2) a transverse anterolateral incision from the tubercle toward the posterior aspect of the proximal part of the fibular head; (3) exposure and snaring of the common peroneal nerve; (4) resection of the anterior aspect of the proximal part of the fibular head; (5) use of a calibrated slotted wedge resection guide to perform the osteotomy proximal to the tuberosity under fluoroscopic guidance; (6) removal of an osseous wedge and closure of the osteotomy site, with the medial opposite cortex acting as a hinge; and (7) fixation of the osteotomy site with two step staples. Complications (e.g., nonunion, deep infection, and peroneal neuropathy) are rare. At follow-up, CWO has been shown to improve knee function and reduce pain. Male patients with early-onset knee OA have an almost ten times lower probability of failure of a CWO than women with more degenerative disease. The survival rate, with knee replacement as the end point, is approximately 75% at ten years following CWO. CWO postpones primary total knee arthroplasty (TKA) for a median of seven years, and there is low-quality evidence that osteotomy does not compromise subsequent knee replacement.

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Note: The three graphs showing survival rates after CWO in Video 14 (Results) were reproduced, with permission, from: van Raaij TM, Brouwer RW, de Vlieger R, Reijman M, Verhaar JA. Opposite cortical fracture in high tibial osteotomy: lateral closing compared to the medial opening-wedge technique. *Acta Orthop*. 2008 Aug;79(4):508-14.

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