The effect of closed wedge high tibial osteotomy on tibial slope: a radiographic study.

Abstract:
In recent years there has been a renewed interest in high tibial osteotomies (HTOs). The development of new instruments and better fixation devices has significantly simplified the surgical procedure. This technique is frequently used to correct alignment in the frontal plane. However, changes in the sagittal plane following closed wedge HTO have not been appropriately investigated. Hence, the purpose of this study was to investigate any possible alteration of the tibial slope introduced by closed wedge HTO. In addition, we also investigated whether there is a correlation between changes of the frontal plane and alteration of the tibial slope in the sagittal plane. In a retrospective study, radiographs of 67 patients (41 males, mean age 36.6 and 26 females, mean age 39.4 years) who underwent a closed wedge HTOs or removal of hardware for a previous HTO were reviewed. The frontal plane was corrected by a mean of 7.9 degrees (6-14 degrees). The mean posterior tibial slope on the preoperative images averaged 6.1 degrees (0-12 degrees). The postoperative radiographs demonstrated a significant (P=0.0001) decrease of the posterior tibial slope to a mean of 1.2 degrees. The magnitude of HTO in the frontal plane had no significant effect (P=0.739) on the postsurgical posterior tibial slope in the sagittal plane.