Proximal row carpectomy (PRC) is used in the treatment of various post-traumatic and degenerative disorders of the wrist. The biomechanics of the wrist after PRC may provide information about the mechanisms whereby these results are attained. Until now they have been studied almost exclusively in static cadaveric models.

The purpose of our study was to investigate the effects of PRC on wrist joint kinematics in patients.

Radiocapitate cartilage thickness in the operated wrists did not differ significantly from radiolunate cartilage thickness in the unaffected wrists. The radiolunate contact surface area was significantly smaller than the radiocapitate contact surface area.

The volume of the capitate was significantly increased in the operated wrists. The shape of the capitate changed significantly in two of three orthogonal directions.

In this case-series study it was shown that after PRC the mean joint space thickness stays intact and the articular surface area slightly increases. The capitate undergoes anatomical changes after PRC, its volume and size increasing significantly.

The combination of remodelling of the capitate, the corresponding increase in the articular surface area and the unaltered joint space thickness could help to explain the clinical success of PRC.