The behaviour of pure polycrystalline cobalt in compressive deformation is influenced by the presence of high temperature fcc phase. To investigate this influence samples are prepared using annealing at different temperatures (600 °C-1100 °C) with ≈ 6-10% of residual fcc phase. Additional sets of samples are also subjected to thermal cycling around the phase transformation temperature for ten or twenty cycles with the goal of stabilising the microstructure and creating material with no fcc fraction. Samples are tested in compression and a decrease in ductility and strength is observed after the the fcc phase is removed using thermal cycling. The interrupted deformation experiment shows that the transformation is rather sluggish and the main contribution of fcc grains to deformation is their ability to accommodate shape change. The presence of 71° boundaries also suggests that the transformation is not fully stabilised and further thermal cycling could lead to further evolution of microstructure. Additionally the slow transformation does not seem to produce detectable acoustic emission (AE) signal. The energies of AE events (recorded mostly around the yield point) follow a power law distribution. This is in line with recent investigations of the collective nature of dislocation motion and the avalanche-like behaviour of dislocation ensembles.