Abstract: For the biharmonic problem, we study the convergence of adaptive $C^0$-Interior Penalty Discontinuous Galerkin ($C^0$-IPDG) methods of any polynomial order. We note that $C^0$-IPDG methods for fourth order elliptic boundary value problems have been suggested in [3], whereas a residual-type a posteriori error estimator for a quadratic $C^0$-IPDG method applied to the biharmonic equation has been developed and analyzed in [2]. Following the convergence analysis of adaptive IPDG methods for second order elliptic problems [1], we prove a contraction property for a weighted sum of the $C^0$-IPDG energy norm of the global discretization error and the estimator. The proof of the contraction property is based on the reliability of the estimator, a quasi-orthogonality result, and an estimator reduction property. Numerical results are given that illustrate the performance of the adaptive $C^0$-IPDG approach.

