The osteoarthritis (OA) of thumb carpometacarpal (CMC) joint is a critical disease in upper extremity. Several studies suggested that high contact stress induced by unstable contact would result in osteoarthritis. However, only limited articles had investigated the relationship between contact modes and contact stress. This research examined the contact mechanics of the first CMC joint by finite element analysis and emphasized on the posture effect, including: resting and neutral in order to link the contact characteristics with the association with OA. The result showed the stress were concentrated on contact regions especially dorsalradial. The bending force would result in higher peak stress than compression force. The contact characteristics of finite element analysis were coinciding with previous experimental studies.