**Statement of problem:** Various materials are available to secure implant attachment housings in overdentures. Surface roughness and the adaptation of these materials to the denture base and the housings may increase the microcracks and bacterial adhesion at the interfaces in the long term. The surface characteristics of the interface between the denture base orientation material and the attachment housing have not been extensively studied.

**Purpose:** The purpose of this in vitro study was to evaluate the surface roughness and the adaptation of 5 different housing orientation materials to the housings and the denture base.