

Thermoplastic masks are used in most clinics all over the world for stereotactic radiotherapy. In this study the differences of re-positioning of four probands with a mask and a dental impression with and without a bite block for the upper jaws were measured. The probands were positioned on a treatment couch, the dental impression with some infrared reflecting markers was inserted and the position was tracked for 15 sec. The probands left and reentered the mask for 6 times. For the next seven measurements the proband was positioned in the open mask the bite block was inserted in the mouth and the proband moved the head to the comfortable position. After closing of the mask the block was removed and the dental impression inserted. To measure the uncertainty from the dental impression the proband re-entered the impression four times while staying in the mask. Two additional measurements show the maximum movement possible in the mask. The probands were positioned in the mask and while tracking of the infrared markers they moved as much as possible.

The results show improved positioning for the cranio-caudal direction in cases where the initial re-positioning was 1.8 ± 1.2 mm which was reduced to 0.9 ± 0.1 mm. For probands with good initial re-positioning the bite block had no significant effect. The movements possible in the mask made up to 4 mm.

The improved positioning for patients with rather poor re-positioning especially for the cranio-caudal direction encourages us in the continuous use of the bite block for our daily stereotactic treatments.