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There has been a recent growth of interest in managing the inter- and intra-fractional target motions in the radiotherapy. The intra-fractional target motion is caused by the discrepancy of two isocenters, the isocenter in patients and the machine isocenter, during the treatment. While the machine isocenter is static, the isocenter in patients, usually in a tumor, moves due to physiological reasons. To manage this discrepancy, three methods are available. The first is the wait and shoot method, which delivers radiation only when one isocenter coincides with the other. The second is the moving MLC method, which moves the center of the MLC field to follow the tumor isocenter, and the third is the moving couch method, which moves the patient's couch in opposite direction to the tumor motion. We investigated the feasibility of the third method since, in theory, this method can compensate tumor motion continuously without increasing the treatment time. For experiment, a phantom that simulates tumor motions, and a moving board were constructed. The target simulating tumor, had three patterns of trajectory of maximum 2.3 cm deviations from the static position in x and y directions. The moving board was designed to generate the three patterns of motion compensating the target movement. The experiments which used the phantom and the moving board showed positive result, reducing the deviation from 2.3 cm to 0.6 to 0.15 cm, in x and y directions. respectively. Extensive studies on tumor movement need to be done to apply this result to clinical cases.