The Deformation Analysis and Experimental Study of Chinese Brush Based on the Central Spine Model With Seven Segments

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As a world cultural heritage, the art of Chinese brush calligraphy is elegant and beautiful. However, many existing researches on it mainly stay in artistic creation. In order to explore the physical law in the process of brush calligraphy, central spine model with seven segments is brought up in this paper, using quantitative methods to study the vertical displacement and elasticity of the Chinese brush. In this essay, both displacement-deformation and force-deformation mathematical analysis of central spine model with seven segments are carried out by the paper. Moreover, related experimental studies are also carried out by utilizing the designed Chinese brush force-deformation experiment platform. After we comparing the calculations by mathematical analysis with data derived from experiments, it’s demonstrated that mathematical analysis can be used to simulate the real situation.