Screw-shaped implants were used due to their ability to withstand axial loads. The type of implant design and the crown material used can affect the magnitude of peri-implant strains. The Wilcoxon signed-rank test was used to compare microstrains between different implant designs, with Bonferroni's adjustment for multiple comparisons. The Mann-Whitney U test was used for non-parametric comparisons. The most common strain gauge is used for strain analysis, and its sensitivity is expressed as the gauge factor (GF). The effects of different loading conditions, such as axial and off-axial loading, were also considered. The ultimate crowns showed statistically significantly higher microstrain values, regardless of other variables. The use of short implants offers several advantages over standard implants, such as smaller diameters and shorter lengths. However, they may not be suitable for patients with larger bone deficiencies. In contrast, standard implants can be used to support long-term functional forces, but they may require more complex surgical procedures and bone augmentation. The molars are one of the first teeth to be lost, and the use of implants in the posterior region can help maintain jaw function and prevent alveolar nerve repositioning. However, these implants require more advanced surgical techniques and expertise. Implantation is generally the preferred treatment option for patients, but it is still a complex procedure with potential complications.