The AAPM TG-56 report recommends that prostate brachytherapy treatment plans "place seeds peripherally to improve dose homogeneity and to avoid unnecessary radiation damage to the urethra." This report compares the dosimetry of small, medium, and large prostates planned using either a peripheral loading philosophy or the modified uniform loading technique advocated by the Seattle group. All seeds in a given implant had the same activity and their positions limited to 0.5cm offsets along needle paths available on standard templates. Dose volume histograms (DVH's) characterized the implants in terms of coverage of the planning volume and dose homogeneity. Dose profiles along the superior-inferior midline and an AP/PA midline were also plotted to illustrate the effect on a central structure such as the urethra and a peripheral surface such as the anterior rectal wall. Both implant techniques required placement of some seeds outside the planning volume and both achieved coverage exceeding 99% of the mPD and kept the superior-inferior midline dose below 130% of mPD. However, peripheral implants using either a large number of relatively low activity seeds or relatively few seeds at higher activity were less homogeneous than modified uniform implants based on the planning volume receiving > 150% of mPD. In addition, compared to modified uniform loading in which the posterior border of the prostate defines a plane of seeds, peripheral implants which place seeds closer than 5mm to the posterior border create a significantly higher dose to the rectum which is considerably less radiation tolerant than the urethra.