Microsurgical skills and techniques are the bases for numerous research studies involving rats. Moreover, these animals are widely used for microsurgical training in surgical disciplines. To reduce the number of rats used during research and microsurgical training, we developed the sealing maneuver. This technique helps to reduce bleeding especially in arterial anastomoses after opening of the vascular clamps. In 32 rats we performed 62 microanastomoses using the sealing maneuver. The distal clamp is shortly opened to let a small amount of blood into the anastomotic area. The clamp is then closed and the blood is left for about 1 minute for sealing. Finally, the bloodstream is reestablished and blood loss is kept to a minimum. We describe the use of this technique for end-to-end and end-to-side microanastomoses. The sealing maneuver is simple and reliable. This technique is especially useful in rats because of their physiological high fluid volume turnover.