Several vascular carriers for different tissues were used for the purpose of fat tissue prefabrication. However, the inguinal fat pad in rats can be elevated with a vascular pedicle and considered as a vascular carrier. To the best of our knowledge, the fat tissue in rats as a vascular carrier has not been reported in any experimental studies to date. In our study, we aimed to describe a new prefabrication model in rats in which skin prefabrication was accomplished using the inguinal fat pad as a vascular carrier. Inguinal fat pads in rats were elevated over a superficial epigastric vessel pedicle in the pilot study. The contralateral inguinal fat pads were prepared as grafts. After 1 week, we compared the histopathological findings of the inguinal fat pad flaps and grafts and determined that the inguinal fat pad can be safely elevated over the vascular pedicle. In the experimental group, bilateral vascularised inguinal fat pads were transferred to the lower abdomen for skin prefabrication. After 3 weeks, bilateral fat-skin composite flaps including prefabricated lower abdomen skin were elevated over the vascular pedicles. One side was used as a composite flap while pedicle of the other side was transected at its origin at the femoral vessels to create the composite graft. Composite flap and graft were inserted at their original positions. One week later, the composite flaps were stained with India ink, perfused by fluorescein, and fitted with contrast material for microangiographic study. In the histological examination, fat and skin tissues of the composite flaps were viable while those of the composite grafts were necrotic. Based on these findings, we can conclude that the fat tissue as a vascular carrier can be successfully used for tissue prefabrication in plastic surgery.