The free vascularized fibular epiphyseal transfer: long-term results of wrist reconstruction in young patients.

To date, the dominant blood supply to the head of the fibula and to the growth plate is known to be the anterior tibial artery. The peroneal artery had been used before, among other donor pedicles, for microvascular transfers of this epiphyseal region. This study presents the long-term results of this now obsolete pedicle and compares them to other reports in the literature. Follow-up was performed in 1996 and in 2003 with six patients who underwent wrist reconstruction in the 1980s. Procedures were performed following one resection of a malignant synovialoma, two traumatic hand amputations, and three radial aplasias. Evaluation was performed with functional and radiographic examinations. Three cases that were examined in 2003 are presented in detail. The study shows that if growth plates are closed at the time of procedure or the transplanted fibula is long enough to ensure anastomotic flow between metaphyseal and epiphyseal vessels, results are good. If any of these two conditions is not fulfilled, vascular supply to the epiphysis is insufficient. Long bone deviation or bone necrosis will result. These results confirm clinically current knowledge about the epiphyseal and metaphyseal blood supply to the fibula.