INTRODUCTION: Despite, the crescent understanding of bone reconstruction with microsurgery, the fibular flap is still one of the most challenging free flap and complications, including thrombosis of the anastomoses and pseudarthrosis, remains a challenge. This study evaluated the results and risk factors, that could increase the complications, in vascularised fibular flap.

METHODS: Patients undergoing vascularised fibular flap for limb reconstruction, from July 2014 through July 2017, were consecutively included. Patient demographics (age, sex and comorbidities), location and size of bone defect, operative technique, intraoperative and postoperative complications were studied. Statistical analysis were performed with SPSS 20.0.

RESULTS: 23 vascularised fibular flaps with following indications: trauma in 13, tumor in 7 and congenital pseudarthrosis of the tibia in 3. The bone lesion was located in the leg in 8 cases, followed by forearm in 6 cases. The average defect size of patients with complications was 9,7 cm and patients without complications was 12,5cm, no statistical difference was observed (p=0,163). The type of fixation with plate and screw compared to other methods, did not influenced the results, regarding the complications (p=0,855) or consolidation rates (p= 0,640). Three patients had thrombosis of the anastomosis, in two patients the avascular fibula was maintained after debridement of soft tissue and the third patient was submitted to leg amputation. Obese patients were significantly associated with an increase in early complications (p= 0,037).

DISCUSSION: The vascularised fibular flap is a reliable technique for reconstruction of bone defects, usually larger than 6 cm. Indications includes: limb reconstruction after tumor, trauma, infection and congenital deformities. The type of bone fixation of the vascularised fibular flap varies according to the recipient site, location, age of patients and the preference of the surgeon. Inadequate fixation is one of the causes of pseudarthrosis, in our study, we could not observe difference in consolidation rates or complications with different types of fixation, and bone union was obtained in 74% of cases. Obesity may lead to difficulties during harvest and inset of free flap, prolonging operative time, increasing the risk of post-operative deep surgical site infection, intraoperative total blood loss and free flap loss. We observed that obese patients, with BMI > 30 kg/m², had an increase in early complications, with statistically significant difference.

CONCLUSION: Obesity is a risk factor for complications in vascularised fibular flap in orthopedic surgery.