

**Immediate Recoil After Percutaneous Balloon Angioplasty of Below The Knee Arteries in
Patients With Critical Limb Ischemia.**

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Purpose: This study aimed to evaluate the extent and percentage of immediate recoil in patients with critical limb ischemia (CLI) undergoing below-the-knee balloon angioplasty. While elastic recoil has been extensively studied in coronary arteries, its impact on peripheral arteries remains less understood. Given that elastic recoil depends on elastin content, which varies by artery type and proximity to the aorta and its significance in peripheral vessels warrants investigation. **Methods:** We hypothesized that immediate recoil, defined as more than 10 % lumen compromise, is common after below-the-knee angioplasty and contributes to restenosis. Twenty-five consecutive CLI patients (17 men, 8 women; mean age 69.2), 96% of whom were diabetic, underwent angiographic evaluation immediately after balloon angioplasty and again after 15 minutes. Target lesions included the anterior/posterior tibial and peroneal arteries, with or without the tibioperoneal trunk. Minimal luminal diameter (MLD) was measured at baseline, post-dilation, and at 15 minutes using fluoroscopic markers. Recoil percentage was calculated by comparing MLD post-angioplasty to MLD at 15 minutes. Recoil was correlated with age, sex, diabetes, lesion site and length, and balloon length. **Results:** Immediate elastic recoil occurred in 19 patients (79%) with an average luminal compromise of 31%. MLD increased from 0.25 mm at baseline to 2.0 mm post-dilation, then decreased to 1.55 mm immediately and 1.57 mm at 15 minutes. **Conclusion:** Immediate recoil is frequent in CLI patients undergoing below-the-knee angioplasty and may play a significant role in restenosis. These findings highlight the potential value of mechanical scaffolding to improve long-term outcomes