Objectives To identify the major tyrosine-phosphorylated proteins in the normal artery and their changes after balloon injury.

Methods The normal and balloon-injured carotid arteries, the aorta, and other tissues from Sprague-Dawley rats were perfused with sodium vanadate, excised, and then homogenised in detergent-containing lysis buffer. The clarified tissue lysate was subjected to immunoprecipitation with anti-phosphotyrosine antibody, and then analysed by Western blot with antibodies against focal adhesion kinase (FAK), paxillin, and phosphotyrosine.

Results Western blot analyses with three different antibodies against phosphotyrosine revealed that pp68 and pp125 were the two major tyrosine-phosphorylated proteins present in the normal carotid artery and the aorta. Reprobing with various antibodies identified these proteins was paxillin and FAK. Immunodepletion with antiphosphotyrosine removed FAK and paxillin, which suggested that most of these proteins were tyrosine-phosphorylated in the artery. The artery contained greater amount of tyrosine-phosphorylated FAK than that in the other tissues examined, including the inferior vena cava and the heart. The content of FAK and paxillin was decreased following the balloon injury of the carotid artery, but not after endothelial denudation ex vivo.

Conclusions The findings suggest that FAK and paxillin may play an important role in the maintenance of the normal structure and function, and in the response to balloon injury of the artery.