

[54] **CONCENTRIC INDEPENDENTLY INFLATABLE/DEFLATABLE MULTIPLE DIAMETER BALLOON ANGIOPLASTY CATHETER SYSTEMS AND METHOD OF USE**

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[57] **ABSTRACT**

Disclosed is a catheter for performing balloon angioplasty comprising concentric, independently inflatable/deflatable balloons, each balloon having a different diameter. The balloons are capable of withstanding pressures in excess of 100 psi and are non-elastomeric and imperforate. Also disclosed is a method for performing balloon angioplasty by advancing a balloon catheter of the type disclosed into a stenosis inside a blood vessel, inflating a first balloon to partially dilate the stenosis, advancing a second balloon into the partially dilated stenosis, wherein the diameter of the second balloon is greater than the diameter of the first balloon, and inflating the second balloon to further dilate the stenosis. Also disclosed is a method for performing balloon angioplasty with a catheter of the type disclosed herein, by positioning a first balloon inside a first stenosis in a blood vessel and inflating a first balloon to dilate the first stenosis, and positioning a second balloon inside a second stenosis in a blood vessel and inflating the second balloon to dilate the second stenosis, wherein the diameter of the first balloon is different from the diameter of the second balloon. The method further may include positioning a third balloon inside a third stenosis in a blood vessel and inflating the third balloon to dilate the third stenosis, wherein the diameter of the third balloon is different from the diameters of the first and second balloons.

52 Claims, 8 Drawing Sheets

