Introduction
The active ingredient of chilli pepper, capsaicin, produces dose-dependent vasoconstriction in experimental animals (Griffiths et al, 1996). Although application of capsaicin locally to the skin induces vasodilation (Munce & Kennedy, 2003), there is no information available on the effects of regular capsaicin consumption (in the form of chilli) on vascular function in humans.

Aim
The aim of the present study was to determine the effects of chilli supplementation on endothelium-independent and endothelium-dependent vasodilatation.

Methods
Fifteen non-smokers (M/F 7/8; aged 47.3 ± 11.8 (±SD) years; weight 78.9 ± 14.2 kg; body mass index 27.3 ± 3.7 kg/m²) with no history of hypercholesterolemia, diabetes mellitus or renal dysfunction consumed a chilli-free bland diet (normal diet with no chilli and minimal black pepper, ginger, etc) or chilli-supplemented diet (normal diet plus 30g/day ‘Freshly chopped chilli’ blend (MasterFoods®, Australia) for three weeks each. After three weeks on each diet, heart rate, fasting peripheral and central (aortic) blood pressure, augmentation pressure (AP), augmentation index (AIx), AIx at HR=75 beats per minute (AIx@HR75) and subendocardial viability ratio (Buckberg index) were determined using a sphygmomanometer and pulse wave analysis (SphygmoCor, AtCorMedical, Australia) (Wilkinson et al, 2002). AIx and subendocardial viability ratio (SEVR) are measures of arterial stiffness and coronary perfusion, respectively.

Results
After adjusting for order and period of diet, mean (±SD) baseline AIx (23.97 ± 10.56) and AIx@HR75 (15.77 ± 8.59) were significantly lower (P < 0.05, general linear model) after the chilli diet compared to the chilli-free diet (AIx, 27.97 ± 10.45; AIx@HR75, 19.40 ± 7.87). All parameters were then measured at regular intervals for 30 min after sublingual GTN (600 µg) and for 20 min after inhaled salbutamol (200 μg). Although AIx and AIx@HR75 at ten and 15 min after GTN was lower on the chilli diet compared to the bland diet, there was no difference in the maximal change in any of the measured parameters or overall vasodilator response (area-under-the-curve) in response to GTN or salbutamol between the two diets.

Conclusion
These results suggest that regular chilli consumption reduces baseline vascular stiffness but has no significant effect on either endothelium-independent or -dependent vasodilatation.