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EFFECT OF ACUTE CIGARETTE SMOKING ON BLOOD PRESSURE AND PERIPHERAL ENDOTHELIAL FUNCTION IN YOUNG HEALTHY MALE SMOKERS: PRELIMINARY DATA

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Aim: Smoking is one of the major risk factors for atherosclerosis associated with premature coronary and artery diseases. Endothelial dysfunction is an early event in atherosclerosis, and seems mainly related to the decreased production or availability of nitric oxide in smokers. The objective of the study is to investigate the effect of a single cigarette on blood pressure and peripheral arterial function in young moderate smokers (approximately 15 cigarettes/day).

Methods: The study includes young, male, healthy volunteers recruited from the student population of the University of Milan. Sixty subjects were screened to check their eligibility taking into account smoking, physical activity, alcohol consumption, dietary habits, and endothelial function (PAT score ≥1.67). Blood pressure, heart rate and peripheral endothelial function (determined through finger plethysmography; Endo-PAT2000), were assessed before and after smoking or non-smoking a single cigarette.

Results: Preliminary results on 12 subjects showed that smoking increased systolic (from 111.3±7.20 mmHg to 128.6±6.53 mmHg, $p< 0.001$) and diastolic pressure (from 71.4±7.9 mmHg to 82.0±6.5 mmHg $p< 0.001$), heart rate (from 56.9±10.0 beats/min to 71.8±16.5 beats/min; $p=0.001$) and reduced peripheral endothelial function (from 2.16±0.30 PAT score to 1.87±0.30 PAT score; $p=0.039$). No significant difference was observed without smoking.

Conclusions: From these preliminary data, smoking a single cigarette seems to increase blood pressure and heart rate, and reduce peripheral endothelial function in young healthy male smokers. Since anthocyanin-rich foods have been suggested to modulate vascular endothelium, their role in counteracting smoke related effects is under evaluation.