

Psychosocial Influences on Endothelial Health

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Background: In addition to traditional risk factors such as high cholesterol, high blood pressure, and obesity (Vogel & Benitez, 2000), cardiovascular disease (CVD) is also influenced by emerging physiological factors such as endothelial function (Landmesser, Hornig, & Drexler, 2004) and psychological characteristics such as aggression, depression, stress, anxiety, and rumination (Bunker, Colquhoun, Esler, et al., 2003).



Objective: The purpose of this study is to assess the influence of aggression, depression, stress, anxiety, and rumination on endothelial function.

Methods: The study group consisted of 61 healthy adults with one or more CVD risk factors (hypertension, hyperlipidemia, pre-diabetes, and obesity). Endothelial function was assessed using EndoPAT 2000, a non-invasive office-based device. Psychological characteristics were assessed using seven research-established questionnaires.

Results: Thirty-six percent of the subjects were identified as having endothelial dysfunction. Measures of hostility, aggression, depression, anxiety, stress, and rumination were significantly inter-correlated. Hostility ($r = 0.25$, $p = 0.045$) and cynicism ($r = 0.34$, $p = 0.008$) were positively correlated with total cholesterol/high density lipoprotein ratios. Aggressive responding ($\beta = -0.76$, $p = 0.009$), negative affect ($\beta = -0.71$, $p = 0.040$), and grouped measures of hostility ($F = 3.13$, $p = 0.043$) and depression ($F = 6.60$, $p = 0.008$) were most predictive of endothelial dysfunction.

Conclusion: This study revealed significant associations between endothelial dysfunction and measures of hostility, depression, and anxiety. Individuals with mild to moderate risk biological risk for CVD may benefit from management of harmful psychosocial characteristics.

Penn State IRB numbers 24895 & 24534. Arcadia IRB number 091071.

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