

Supplementary Table S1: Impact of Specific Sleep Abnormalities on Cardiovascular Health

Sleep Abnormality	Health Outcomes	Mechanisms
Insomnia	Increased risk of hypertension Elevated risk of heart disease and stroke	Sympathetic nervous system activation Chronic inflammation and endothelial dysfunction
Obstructive Sleep Apnea (OSA)	Increased incidence of arrhythmias	Intermittent hypoxia and autonomic dysfunction
Circadian Rhythm Disorders	Higher risk of hypertension Impaired cardiovascular function	Altered regulation of blood pressure via disrupted circadian clock Disruption of the circadian rhythm of autonomic control
Sleep Deprivation	Increased risk of myocardial infarction Increased arterial stiffness	Elevated stress hormone (e.g., cortisol) levels leading to vascular damage Impaired endothelial function from reduced sleep quality