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Precision Cardiovascular Medicine: Integrating Prevention, Imaging, and Artificial Intelligence

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Cardiovascular disease remains the leading cause of mortality worldwide despite remarkable advances in diagnosis and treatment. Precision cardiovascular medicine is transforming patient care by integrating advanced imaging, genomic medicine, artificial intelligence, and personalized risk assessment to improve early detection and prevention. This presentation explores how multimodal cardiovascular imaging, machine learning algorithms, and digital health technologies are improving the diagnosis of coronary artery disease, heart failure, and atherosclerosis.

Recent developments in biomarker discovery, wearable monitoring devices, and predictive analytics have enabled clinicians to identify high-risk individuals before clinical symptoms develop. The presentation also examines advances in preventive cardiology, including lifestyle interventions, lipid management, and individualized treatment strategies that reduce long-term cardiovascular risk. Future perspectives include AI-assisted clinical decision support, precision therapeutics, and multidisciplinary collaboration to improve cardiovascular outcomes globally.

Biography

Valentin Fuster is President Emeritus of Mount Sinai Heart and Physician-in-Chief at The Mount Sinai Hospital, USA. He is internationally recognized for his pioneering work in cardiovascular medicine, thrombosis, and preventive cardiology. His research has significantly influenced modern cardiovascular prevention and patient care.