Jolanda Van Der Velden

Jolanda van der Velden, PhD, is Professor of Physiology, and chairs the Department for Physiology and the Department of Experimental Cardiology at the Amsterdam University Medical Center. The main research interest of the van der Velden group is to study the role of sarcomere proteins in cardiac performance. As mutations in sarcomere proteins are a frequent cause of heart disease, research on inherited cardiomyopathies is a central research line in Amsterdam, and experiments are performed from bench to the clinic.

Expertise includes functional studies at single cardiac muscle cell and multicellular level, and mitochondrial studies in patient samples obtained during cardiac surgery and stem cell-derived heart models. Close collaboration with clinical departments allows translational research in which the functional studies in cardiac samples are combined with in vivo parameters of cardiac pump function and energetics. Moreover, methods have been developed to refine research in animal models, including high-throughput analyses of cardiomyocyte function. At national level, she co-directs the Netherlands Heart Institute as scientific director.

van der Velden has been actively involved in writing an advisory report, invited by the Netherlands National Committee for the protection of animals used for scientific purposes (NCad), on the current state of art in animal-free innovations and future perspectives, with the aim to come to a balanced view on studies in both animals and animal-free models for the coming years. In addition, she coordinated writing of a position paper by working groups of the European Society of Cardiology on recent advances in the reduction of animals for cardiovascular research based on the 3R principles: replacement, reduction and refinement, and thereby provide a guide to help researchers in their experimental design to bridge bench and clinic. This European position paper aims to provide support for the cardiovascular community by making a statement about the need of animals models for CV research, and pace at which animal models may be replaced by animal-free alternatives. The NCad advisory report will be rewritten and made up to date in 2026.