



## CLINICAL RESEARCH SUMMARY

### Cardio NeuroSystem

Category	Test	Acronym	Clinical Reference	Sensitivity	Specificity	Sources
Autonomic Testing (Neurologic)	Heart Rate Variability	HRV	Cardio NeuroSystem + performs the battery of tests recommended by the American Academy of Neurology since 1996, and the Cardiovascular Autonomic Neuropathy Subcommittee of the Toronto Consensus Panel on Diabetic Neuropathy, for assessing the autonomic nervous system. Autonomic testing is recommended for all patients with type 2 diabetes at the time of the diagnosis, and 5 years after diagnosis in individuals with type 1 diabetes. A reduction in HRV has been associated with the early stages of clinical cardiac autonomic neuropathy (CAN). HRV analysis reflects the autonomic nervous system components of balance and activity. Ewing tests are established for assessing autonomic dysfunction and CAN.	Gold Standard		1.American Academy of Neurology, Assessment: Clinical Autonomic Testing, Report of the Therapeutics and Technology Assessment Subcommittee. 2.Boulton et al., 2005 3.Tesfaye et al., 2010 4.Spallone et al., 2011 5.Bernardi et al.,2011 6.Diabetes Care 2014
	Cardiac Autonomic Reflect Test/ Ewing Test	CARTs/Ewing		Gold Standard		
	Galvanic Skin Response	Sudomotor	The sudomotor testing clinical data suggest it may be the most sensitive means to detect peripheral distal neuropathy. The sudomotor score using the 3 markers of the test had a sensitivity of 91.4% and specificity of 79.1% (cutoff number>3) to detect symptoms of peripheral distal neuropathy (P=0.0001). Area under the ROC curve (AUC) -0.893.	91.4%	79.1%	Low et al 2006
Cardiac and Vascular Testing	Ankle Brachial Index	ABI	An ABI less than 0.90 has been shown to have sensitivity of 90.0% and specificity of 98.0% for detecting lower-extremity stenosis of greater than 50%.	90.0%	98.0%	Park C.W. 2013
	Pulse Volume Velocity	PVV	ABI PWV had a sensitivity of 60.1% and specificity of 70.8% and area under ROC curve of 0.639 in predicting coronary artery stenosis.	60.1%	70.8%	Chung et al 2015

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