

Introduction letter

Arteriograph is now considered to be the GOLD STANDARD of the oscillometric arterial stiffness measurement methods. This is the one and only existing technology that involves a decade of knowledge and clinical experience enabling the management of cardiovascular screening.

The Arterial Stiffness device Arteriograph analyses the cardiovascular system and provides an easy, fast, reliable and user-independent method for measuring several arterial function parameters, as well as central blood pressure values

This world-wide patented, innovative device measures all the relevant arterial function parameters such as aortic pulse wave velocity (PWVao), augmentation index (Aix) and central blood pressure values simultaneously with the peripheral blood pressure.

The measurement takes just two minutes with an upper arm cuff. The measurement is safe and painless not causing any harm to the patient. The device provides a measurement report called arteriogram assessing the general condition of arteries. The assessment tells you whether the endothel function (stress level of arteries measured by Aix) and the Pulse Wave Velocity of the aorta (elasticity and stiffness of the aorta measured by PWV) are acceptable or not.

Several studies have shown that arterial function parameters – such as aortic Pulse Wave Velocity (PWVao), Augmentation Index (Aix) and Central Systolic Blood Pressure – are strong and independent predictors of cardiovascular mortality. The pulse wave velocity measurement is even included in the recommendations of the latest hypertension management guidelines*.

Features

- EASY, as an oscillometric blood pressure measurement
- Fast, as it takes only 2 minutes (including patient data input)
- USER INDEPENDENT, as it is fully automatic; the users only have to launch the measurement.
- EXCELLENT REPRODUCIBILITY, as it is proved to be superior to the reproducibility of other available methods
- LOW VARIANCE, as it is proved to be the lowest among non-invasive arterial function assessing methods. (Variance is the estimate of measurement errors for the repeat measurements within one session.)
- OUTSTANDING COST-BENEFIT RATIO, among clinically accepted devices.
- VALIDATED, to invasive and non-invasive measurements.

Pulse Wave Velocity.

In the arterial system the pulse wave travels with different velocity. Basically, the softer, the more elastic the aortic wall, the lower the pulse wave velocity (PWV) is. Thus the lowest pulse wave velocity (PWV) can be measured on the aorta, because this is typical elastic, “reservoir” artery. Towards the periphery the arterial wall contains more muscular elements, the wall will be stiffer and consequently the pulse wave will be higher and higher.

Central Blood Pressure

To clear the definition of the central blood pressure we have to go through some important connections.

Physiologically the blood pressure (BP) in the human arteries is different. The systolic blood pressure (SBP) increases remarkably from the aortic root towards the periphery, however the diastolic pressure (DBP) and the mean arterial pressure (MAP) remain practically unchanged. Consequently the pulse pressure (PP = the difference between SBP and DBP) increases from the aortic root towards peripheral arteries. This phenomenon is called physiological pulse pressure amplification that characterizes the healthy, young arterial system.

Augmentation Index

The Augmentation Index is a very important marker of the arterial function evaluation.

The Augmentation Index formula is based on the first systolic wave and the second reflected systolic wave ratio to each other.

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