

## Q&A Vascular age

### **ABOUT VASCULAR AGE**

#### **What is my vascular age?**

We think of chronological age as our "real" age, but rarely do we consider how old we are on the inside. Your arteries can age more or less faster depending on your lifestyle. Vascular age is a health biomarker that provides a measurement of your arteries' age to give you a clearer picture of your cardiovascular health.

#### **How is it measured?**

Vascular age is based on pulse wave velocity (PWV), an innovative metric used by the medical community to assess arterial stiffness. Body Cardio measures the time difference between blood ejection by the heart in the aorta and the arrival of blood flow in the feet; The time it takes for the pressure wave to travel along the arterial tree is used by Body Cardio to compute Pulse Wave Velocity. Our exclusive algorithm developed with cardiology specialists takes your PWV measurements and computes your vascular age, a biomarker that goes further than a simple metric and offers a comprehensive view of one's cardiovascular health.

#### **Are PWV measurements reliable?**

To assess the measurement validity of Body Cardio, Withings performed a study comparing pulse wave velocity in Body Cardio to a sphygmometer, the golden standard to measure cardiovascular health. The study was conducted by Prof. Pierre Boutouyrie of AP-HP at the Georges Pompidou European Hospital (Paris, France) on a group of 86 people in a clinical setting by a medical team specialized in arterial stiffness. The results of the study show a strong correlation between pulse wave velocity measurements with Body Cardio and measurements with the sphygmometer. This study was published in the American Journal of Hypertension<sup>1</sup>.

#### **Concretely, how does the vascular age algorithm work?**

Vascular Age algorithm analyzes PWV measurements by comparing a user's PWV to the PWV of other Withings users of the same chronological age.

To simplify:

If a user has a PWV that is higher than the average PWV of other Withings users of the same chronological age, then the user will have a higher vascular age. Conversely, if a user has a PWV that is lower than the average PWV of other Withings users of the same chronological age, then the user will be assessed to have a lower vascular age.

#### **Is the vascular age algorithm reliable?**

Vascular age has then been developed with the help of a pharmacology expert and takes into account several publications concerning the concepts of "early vascular aging" (EVA) and "supernormal vascular aging" (SUPERNOVA) in order to define our ranges and classification.

Vascular age is based on Withings PWV database, the biggest PWV database available to this day with more than 80 million measurements. This high number of measurements allowed us to study the evolution of PWV for a large population for different ages. With this approach, we were able to define a classification and the algorithm behind vascular age.

#### **Why does my vascular age matter?**

Vascular age is a metric recognized by the scientific community: a vascular age that is close to or less than your actual age can reduce your risk of developing cardiovascular disease.

### **Is vascular age different from pulse wave velocity?**

Vascular age is based on pulse wave velocity and goes further in the interpretation of the data by offering a comprehensive view of one's cardiovascular health by displaying an age range that is easy to put in perspective as well as a trend so users can see the results of their actions.

### **What are normal values for my vascular age?**

Your vascular age range is accompanied with color-coded feedback and falls into 3 categories: optimal, normal and not optimal. A normal value means that your vascular age is aligned with your chronological age.

### **Can I improve my vascular age?**

There are several things that can help you decrease the aging of your vascular health. A healthy diet, daily exercise, and positive social relationships all work together to create smoother vascular aging. However, unhealthy foods, non-stop stress, smoking, and other physical-mental factors can increase the aging rate of your vascular health.

### **Is vascular age a medical feature?**

Vascular age should be considered a wellness indicator only and is not intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease.

### **Other smart scales have a metabolic age feature. How is this different from vascular age?**

Some scales feature metabolic age, an indicator companies say is based on basal metabolic rate (BMR), or the total number of calories that your body needs to perform basic, life-sustaining functions. While this indicator serves a wellness purpose, it's only based on weight and other factors the user has input (like age, weight, and sex). Metabolic age doesn't rely on a unique measurement beyond weight/body composition whereas vascular age is based on a reading beyond weight, is taken by the device, and is calculated by a proprietary algorithm. These features give our users new insights into their overall cardiovascular health, something other scales are unable to do.

## **ABOUT THE LAUNCH**

### **Why is Withings launching this feature?**

Withings is driven by the promise to revolutionize people's relationship with their health, by bringing measurement tools that collect and monitor insightful, accurate & comprehensive biomarkers. We launched PWV 4 years ago and have now gathered a PWV database consequent enough that enables us to go a step further in the analysis and interpretation of this innovative metric. By offering the vascular age metric to Body Cardio users, Withings empowers even more users to have a full picture of their cardiovascular health so they can take action to improve it.

### **How is the feature reactivated on my scale?**

The feature will be automatically reactivated for Body Cardio users all over the world via an automatic update if the scale is connected to Wi-Fi. Users will also need to update to the latest version of the Health Mate application (5.5 version).

If the scale is configured in Bluetooth, users will need to update the scale manually by going in the device settings. They also need to update to the latest version of the Health Mate app (5.5 version).

### **I have a Nokia-branded Body Cardio. Is the feature also reactivated on my scale?**

The feature will be available again on all Body Cardio devices, whether they are branded as Nokia or Withings.

## **ABOUT BODY CARDIO**

### **Is Body Cardio a medical device?**

Body Cardio is not a medical device and as such it is not intended to detect, prevent, monitor, or treat any disease. Always consult your doctor or healthcare professional before making any healthcare decisions or starting any diet or exercise program.

### **Is Withings planning to certify Body Cardio as a medical device in the future?**

We are not planning to certify Body Cardio as a medical device as Body Cardio is not intended to detect, prevent, or treat a disease. The scale, via vascular age computation, gives you an indication of your cardiovascular health as well as tips to develop healthier habits to improve your overall long-term health.

### **Are you going to increase the MSRP of Body Cardio?**

No. We are delighted to give our users an innovative feature that will help us improve their health.

## **SPECIFIC QUESTIONS**

### **Why has the data visualization of my PWV changed?**

Withings is committed to offer the best-in-class user experience to its users. Vascular age is the main heart health metric that users will see on their scale and app as it offers a more comprehensive view of cardiovascular health. The PWV graph remains available on the Health Mate app.

### **Where can I retrieve all of my PWV data?**

PWV data & graphs can be retrieved on the dashboard.

### **Is vascular age replacing the PWV feature?**

No. With vascular age, Withings offers users a complementary heart health biomarker so that every weigh-in now gives more insights on cardiovascular health.

[1] D. Campo, H. Khettab, R. Yu, N. Genain, P. Edouard, N. Buard, and P. Boutouyrie, "Measurement of Aortic Pulse Wave Velocity With a Connected Bathroom Scale", *American Journal of Hypertension*, Sept. 2017.

[2] Reference Values for Arterial Stiffness' Collaboration. Determinants of pulse wave velocity in healthy people and in the presence of cardiovascular risk factors: 'establishing normal and reference values'. *Eur Heart J*. 2010 Oct;31(19):2338-50. doi: 10.1093/eurheartj/ehq165. Epub 2010 Jun 7. PMID: 20530030; PMCID: PMC2948201.

Laurent S, Boutouyrie P, Cunha PG, Lacolley P, Nilsson PM. Concept of Extremes in Vascular Aging. *Hypertension*. 2019 Aug;74(2):218-228. doi: 10.1161/HYPERTENSIONAHA.119.12655. Epub 2019 Jun 17. PMID: 31203728.

Bruno RM, Nilsson PM, Engström G, Wadström BN, Empana JP, Boutouyrie P, Laurent S. Early and Supernormal Vascular Aging: Clinical Characteristics and Association With Incident Cardiovascular Events. *Hypertension*. 2020 Nov;76(5):1616-1624. doi: 10.1161/HYPERTENSIONAHA.120.14971. Epub 2020 Sep 8. PMID: 32895017.

[X1] Laurent S, Boutouyrie P, Cunha PG, Lacolley P, Nilsson PM. Concept of Extremes in Vascular Aging. *Hypertension*. 2019 Aug;74(2):218-228. doi: 10.1161/HYPERTENSIONAHA.119.12655. Epub 2019 Jun 17. PMID: 31203728.

[X2] Bruno RM, Nilsson PM, Engström G, Wadström BN, Empana JP, Boutouyrie P, Laurent S. Early and Supernormal Vascular Aging: Clinical Characteristics and Association With Incident Cardiovascular Events. *Hypertension*. 2020 Nov;76(5):1616-1624. doi: 10.1161/HYPERTENSIONAHA.120.14971. Epub 2020 Sep 8. PMID: 32895017.