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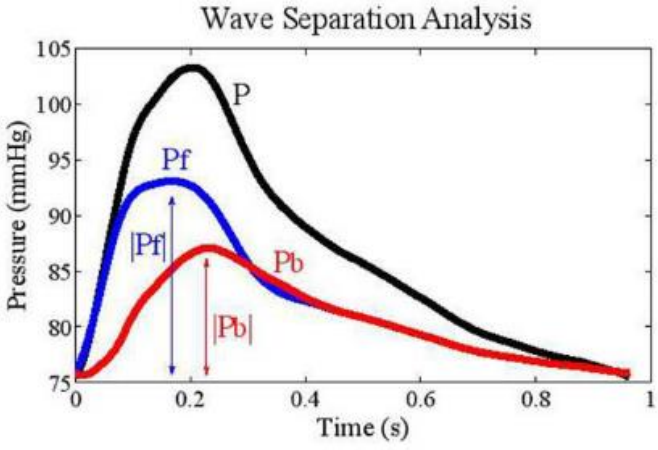
REFLECTION MAGNITUDE

What is it?	The reflection magnitude is an index computed from the aortic blood pressure waveform, defined as the ratio of the amplitude of the backward wave [Pb] to that of the forward wave [Pf] [Zamani 2014]. The backward and forward components are obtained from wave separation analysis.
Why do we measure it?	The reflection magnitude is used to quantify the modification of backward and forward pressure waves that can be altered by ageing [Charlton 2021] and some other pathologies as diabetes [Tran 2021] and hypertension [Manisty 2010]. Reflection magnitude showed a strong predictive value both for cardiovascular events and new-onset heart failure in a large community sample [Picone 2016].
How can it be measured	The reflection magnitude (RM) is defined as the ratio between the backward wave amplitude (Pb) and the forward wave amplitude (Pf) [Climie 2019]. Simultaneous measurements of pressure and flow are needed to allow for wave separation analysis. RM can be expressed in percentage or absolute value. RM = |Pb|/|Pf|*100
Where is it measured?	RM can be calculated at any location where pressure and flow waveforms can be measured for separation of the pressure waveform into forward and backward wave. It is most often assessed in the (proximal) aorta [Westerhof 1972].
Figure	Figure from a publication:  Example of aortic pressure wave (in black) decomposed in forward wave (in blue) and backward wave (in red).

	Climie, Rachel E., et al. "Measuring the interaction between the macro-and micro-vasculature." Frontiers in cardiovascular medicine 6 (2019): 169.
References	Zamani et al. 2014 DOI: 10.1161/HYPERTENSIONAHA.114.03855. Charlton et al. 2021. DOI: 10.1152/ajpheart.00392.2021 Tran et al. 2021. DOI: 10.1161/ATVBAHA.120.315317 Manisty et al. 2010. DOI: 10.1016/j.jacc.2010.03.030 Picone et al. 2016. DOI: 10.1097/HJH.0000000000000916 Climie et al. 2019. DOI: 10.3389/fcvm.2019.00169 Westerhof et al. 1972. DOI: 10.1093/cvr/6.6.648

FEEDBACK AND SUGGESTIONS FOR THESE DEFINITIONS* CAN BE SUBMITTED AT

https://vascagenet.eu/feedback-for-official-glossary-of-key-terms

* These definitions have been downloaded from https://vascagenet.eu/official-glossary and were released on 1st April, 2023.