



Development of a measurement device for blood flow velocity in the carotid artery

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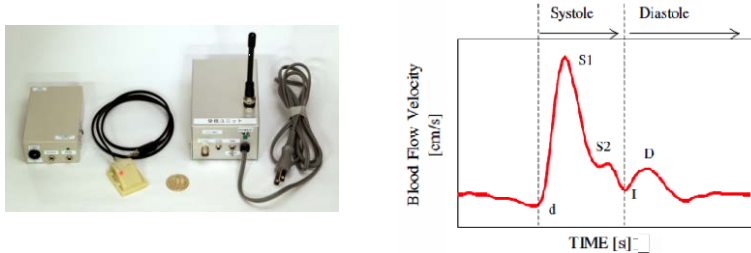


Fig 1. Prototype of a measurement device for blood flow velocity (BFV) and typical waveform of BFV in the carotid artery

Young group (age ranges: 20-38) → Middle group (age ranges: 39-57) → Older group (age ranges: 58-76)

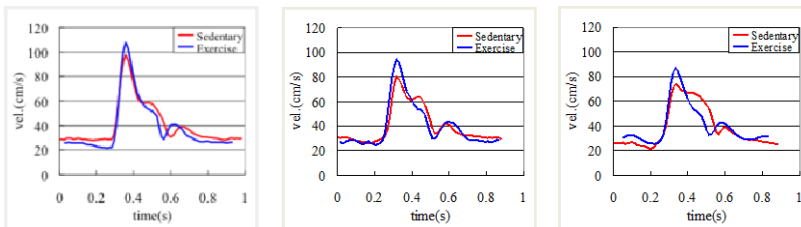


Fig 2. Change of BFV waveforms with age and exercise

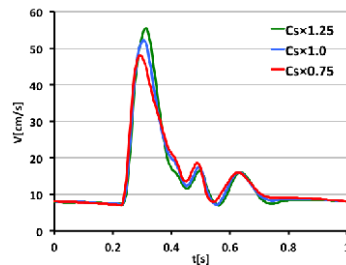


Fig 3. Change of BFV waveforms for different compliance of the arteries (computer simulation)

Content:

According to the vital statistics from Ministry of Health, Labour and Welfare, 33% of Japanese are died by diseases related to the circulatory system. It is well-known that diet modification and an appropriate exercise are effective to prevent these diseases. If we have a portable device which can evaluate the circulatory system and exercise habit, it is expected to suppress these diseases and medical care costs.

We have developed a portable measurement device (Fig. 1) for blood flow velocity (BFV) and investigated the relationship to various conditions for hundreds of subjects. As results of them, BFV waveforms show remarkable trends corresponding to aging and exercise habit as shown in Fig. 2. These trends may reflect extent of atherosclerosis. We confirmed that they are caused by compliance of the arteries by use of the multi-branched arterial segment as shown in Fig.3.

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