



35<sup>th</sup> World Congress on **Heart Diseases**  
33<sup>rd</sup> World Congress on **Cardiology & Heart Diseases**

**Anatomical-Physiological and Mathematical justification of the new principle of the function of the Cardiovascular system and the development of Cardiovascular diseases.**

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**A**natomical features of the structure of the arteries and features of their functioning and mathematical research-allowed us to take a fresh look at the principle of the function of the cardiovascular system. The main role in transportation of blood to the capillary bed is played by the artery, the power of the heart is only 0,49-0,027 % of the power needed to transport blood to the capillary bed. Vascular pump is regulated by the frequency of contractions of the heart muscle and is tightly synchronized with the work of the heart. The rapid spread of the pulse wave causes a suction effect. Following the reduction of the vessel wall, the blood is just drawn from the aorta and large arteries to the smaller vessels down to the capillary bed. Systematic irregularities in the vascular pump cause increased pressure in arteries located above the lesion and lead to the development of hypertension and can be a starting point in the development of various diseases of the cardiovascular system and other body systems. These illnesses may be both local and systemic, depending on the size and the location of pathological changes in the vascular wall.