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Universal Constant of Nature and Life Expectancy

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It is known that blood flow in the human body is carried through the work done by the heart. The bulk of this work makes left ventricle of the heart (systemic circulation). The work A_1 done by the left ventricle of the heart in a single heartbeat can be calculated by the formula $A_1(p+\rho v^2/2)V=pV+\rho v^2V/2$, where p – blood pressure, ρ – density of blood, v – the maximum velocity of blood in the blood vessels, V-volume of blood transferred into the aorta in a single heartbeat. Given p = 1,33.10^4 Pa, v = 0, 5 m /s, ρ = 1,06.10^3 kg/m^3 and $V \approx$ 60 ml = 6.10-5m^3, we find that the left ventricle, the heart performs work $A_1 \approx$ 0.81 J in a single heartbeat. The work A_2 done by the right ventricle of the heart (pulmonary circulation) typically is 0, 15 ÷ 0, 2 part of the A_1 work. We can therefore assume that $A_2 \approx$ 0.14 J. Thus, in a single heart palpitation does the work of $A_{12}=A_1+A_2 \approx$ 0.95 J. Since the number of heartbeat acts of a healthy person one minute is $N \approx$ 70 min^{-1}, we can easily calculate the total work done by the heart of the average life t ≈ 60 year =3,15.107 minutes, which is $A=A_{12}Nt \approx$ 2,1.10^{9}J.

You can see that this work is the a order of magnitude surprisingly consistent Planck energy $E_p = \sqrt{\hbar c^5/G} \approx 2 \cdot 10^9$ J, prepared on the basis of the three universal constants of nature: the speed of light in a vacuum $c \approx$ 3.10^{8}m/s, the Planck constant $\hbar \approx$ 1,05.10^{-34} J.s and the constant of gravitation G ≈ 6,67.10^{-11} kg^{-1}m^{3}s^{-2}. Therefore we can assume that $A \approx E_p$.

On the other hand it is known that the Planck energy is a characteristic energy, where equal intensities of all four fundamental interactions (strong, weak, electromagnetic and gravitational), known in nature. It is possible that the Planck energy determines the scale of the whole of fundamental physics. In our opinion, fairly good agreement between the values of the heart and the Planck energy is not accidental and has profound physical meaning. It is possible that this indicates a deep respect and harmony between nature and living matter, which is part of nature. If this line does have some physical basis, we can see that for a given mode of the heart, life expectancy is determined by these universal constants of nature, i.e. maximum work performed by the heart of every person throughout life, is determined by the Planck energy. In turn, this statement does not contradict the basic tenet of the so-called anthrop principle, according to which the education of life in our universe was made possible thanks to the chosen values of universal constants. You can also see that under this correspondence, the life expectancy depends on blood pressure and blood volume that is passed into the aorta in a single heart, as well as the number of heart beats in one minute, to a certain extent, is observed in medical practice. In particular, this means that the human life span decreases with increasing blood pressure and heart rate in the number of acts in one minute (such as stress, smoking, alcohol and other bad habits, increase heart rate or increase blood pressure), which is not in doubt.