

QUANTUM BIOMECHANICS OF TEETH ENAMEL

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Summary

The studying in greater detail biomechanics of dental tissues from position of quantum mechanics, give enables us to study more detailed and understanding of processes that occur at the molecular level.

Key-words: teeth, enamel, quantum biomechanics, soliton.

Introduction. Since the early 80s of the last century Gh. Brancov noted that the development of biomechanics is necessary to determine the influence of internal processes that occur at micromolecular and fundamental influence on the external manifestations of living organisms, since all they consist of molecules and atoms. It is necessary to investigate the nature of the processes that determine their structural organization and ergonomics and their functionality. For this reason and given the new direction of development biomechanics, biomechanics called quantum, why is aimed at studying the mechanical movements of molecules and atoms, including nucleus and electrons movements [1].

Objective. Study and particularite analysis of biomechanics at micromolecular level of the enamel.

Methods and materials. Inductive analysis method as one of the principles of biology, analytical, scientific literature studying anatomical and histological structure of the theme of human maxillary dental system and biomechanics, also biology, biophysics and quantum mechanics. .

Each crystal of hydroxyapatite is coated with a layer of hydrated with a of 1 nm thickness. It follows that if each of hydroxyapatite crystals is covered with a layer of hydrates, then the entire prism is covered with the layer, which retain the hydrophilic parts of the protein [2].

Results and objective. In our opinion, the biomechanics on this region consists from the weak hydrogen bonds that unite split water crystals, allowing them to respond to various external stimulus. As the spiral chains of biopolymers are in a constant state with mechanical vibration, thus it seems that the influence of outside can serve as an induce for the development of so-called solitons. Soliton – is a structural-stable solitary wave that keeps its speed of spreading and shape over time, reflecting its manner of particles (by analogy with other particles: electron, proton, etc.) Soliton – is a phenomenon so astonishing and general world around us, that is manifested in all its fields as bioenergy is the very basis of life. Nowhere unity of nature and its laws do not manifest the universality better than the vibrations and wave phenomens. Vibration – natural movement or change of state of the object or system. Excitation formed during vibratory movement transmitted from an environment to another through waves. The general nature of the links between vibration,

which is well known. For example, the blood vessels supplying a waveform that tracks and measures the called pulse. In the past 50 years solitons have become important objects in studying. Currently studying solitons in crystal structure, transmitters, living organisms, the atmosphere of Earth and other planets, even galaxies. It is obvious that solitons could play an important role in the evolution of the world [3,4]. From Barber F. E. et al. (1969) speed of sound in enamel - 6250 м/с, from Löst C. et al. (1986) - 5980 м/с [5]. Interesting fact, that the speed of monocrystalline quartz – 5720 м/сек. (quartz plates are used as microelectronic chips).

Conclusion. Quantum biomechanical theory gains greater knowledge about hard tissue of teeth [6,7] and the development of new methods of diagnosis and minimally invasive treatment.

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