

## Hypotheses on the biophysical mechanisms of deuterium depletion on biological structures

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### Hypotheses on the biophysical mechanisms of deuterium depletion on biological structures

Authors: Walther Bild, Ioan Stefanescu, Alexandru Popescu, Cristian Mladin  
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## Abstract

It is well known that the naturally-occurring deuterium levels in terrestrial waters is of 145-150 ppm, which means that grosso modo, out of 6500 atoms of hydrogen in the body, one is a deuterium atom. It seems an insignificant ratio, but for comparison, for each calcium ion in the intercellular fluid there are 1000000 molecules of water, and the entry in action of the calcium-dependent biological mechanisms needs at least a 100-fold increase in the calcium concentration. This demonstrates that even minute changes in the isotopic distribution can have important biological effects.

Isotopic effects are no doubt much more subtle, nevertheless they can be biologically significant. Since the discovery of deuterium by Urey in 1931, a lot of its biological effects have been identified. Kinetic effects reflect the involvement of protons and deuterons in chemical reactions. There are a series of hypotheses on the organization of water, in and out of biological structures in a group of super molecules like hydronium with hydration envelope and secondary hydration envelopes which might explain a series of unusual properties of water.

Water pores and channels also benefit from these characteristics, and water and proton passages through biological membranes are determinants of biological functions. Variations of the proton-deuterium ratio are of major significance in these processes.

The present work tries to summarize the actual knowledge on the deuterium biological effects and to emit plausible hypotheses on the consequences of the alteration of the native deuterium-proton ratio by the use of deuterium-depleted water.

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octombrie 18, 2017 / Fără categorie

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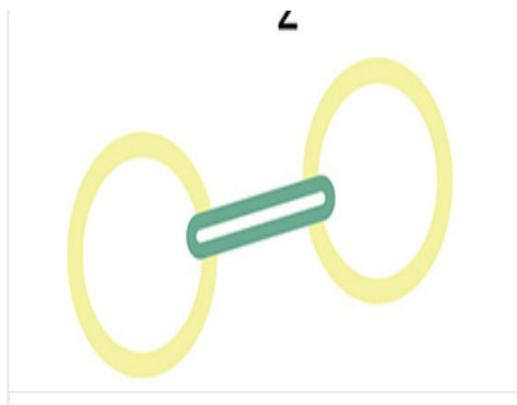
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Viata s-a nascut in apa, dar intr-una cu ...

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Daca acum un secol, oamenii de stiinta proclamau

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> ANPC  
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> SOL  
(<https://ec.europa.eu/consumers/odr/main/index.cfm?event=main.home.show&lng=RO>)

## Linkuri utile

> Qlarivia  
(<https://qlarivia.com/>)

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> Magazin online Drogheria.ro  
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