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5

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Content of water in an organism of athletes-runners

Water has paramount value in manifestation of various forms of activity. Considerable physical activities lead to reorganization of an organism – to change of component structure of a body and a ratio of bone, muscular and fatty components. Increase in the working muscle bulk demands increase in them and water. Content of liquid in an organism of the athlete is very important as it regulates thermal balance at rest and at muscular activity.

Researches on a subject of research work of NUFVSU have been conducted: «A complex assessment of the immune status and functional condition of cardiovascular system of athletes at stages of long-term preparation» (code 2.30, state registration No. 0113U004012), section «Anthropometrical Researches».

Anthropometrical researches were conducted on 60 students athletes who are usually engaged in run on different distances (1 group – run on 100–200 m, the 2nd group – run on 800 m, the 3rd group – run on 3000-10000 m), age – 18-20 years. An experience of occupations – 5-7 years. Duration of occupations – 5-7 days a week.

Content of water in an organism was determined by a formula E. Mellits, A.D. Cheek (1970), etc. taking into account a floor.1

The next indexes were counted: 1) ratio of water and muscular component of a body, 2) ratio of water and fatty component of a body. Earlier results of a research of components of a body of these groups sportsments have been stated.2

Carried out the comparative analysis of these results of researches of athletes and group of people who don't play ports (young men and girls).

Our researches have shown that the relative content of water in a body of athletes of the first group: at girls $-51,39 \pm 3,05\%$, at young men $-61,73 \pm 4,12\%$. Relation of an amount of water to muscle bulk: at girls $-1,026 \pm 0,11$, at young men $-1,18 \pm 0,1$. Relation of mass of water to the mass of fatty tissue: at girls $-4,43 \pm 0,6$, at young men $-6,64 \pm 0,7$.

Athletes-runners on 800 m have next data of the content of water in an organism: at girls $-52,65 \pm 2,99\%$, at young men $-63,31 \pm 3,79\%$. Relation of mass of water to muscle bulk: at girls $-1,0 \pm 0,2$, at young men $-1,11 \pm 0,2$. Relation of mass of water to the mass of fatty tissue: at girls $-4,18 \pm 0,3$, at young men $-5,3 \pm 0,4$.

At the athletes running on long distances, the relative content of water in an organism makes: at girls $-53,21 \pm 2,0\%$, and at young men $-62,73 \pm 3,01\%$. Relation of mass of water to muscle bulk: at girls $-0,967 \pm 0,11$, at young men $-1,12 \pm 0,15$. Relation of mass of water to the mass of fatty tissue: at girls $-4,93 \pm 0,55$, at young men $-5,9 \pm 0,3$.

Results of our researches have shown that there are no reliable differences on the studied indicators between the athletes specializing in run on various distances. It is possible to assume that water exchange is stabilized at considerable physical activities, irrespective of distances which are overcome by the athlete at trainings and competitions. Athletes of a different sex have reliable differences in all three groups.

Comparison with the people who aren't playing actively sports is shown by reliable differences in indicators of a ratio of an amount of water to muscle bulk – on average 1,5 times more at girls and in 1,6 times more at young men (compared to average data of all three groups of athletes). Distinctions are explainable considerably the smaller absolute muscle bulk of not athletes. There are distinctions and in the ratio the mass of water to fatty weight: athletes have this index in 1,4 and in 1,37 times more (at girls and young men, respectively). In particular, it is explained by the bigger mass of a fatty component of a body of the people who aren't playing sports.

Considering the fact that in muscles 72-75% of water is collected, increase in muscle bulk, increases also an amount of water, which is being there. It, apparently, can provide better activity of muscles that gives the chance to achieve certain results at the increased physical activity of an organism.

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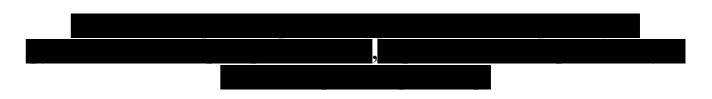
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The influence of polyelectrolytes differing in the ratio and charge sign of functional groups on the regulation of stability of bentonite hydrodispersions



Дисперс жуйелер тұрақтылығының суда еритін функционалды полимерлердің-полиэлектролиттердің (ПЭ) әсерінде реттелуі үдерісін зерттеу қазіргі заманғы коллоидты химияның теориялық және тәжірибелік тұрғыдан аса маңызды өзекті мәселелерінің біріне айналды.1,2 Себебі, суда еритін функционалды полимерлердің-полиэлектролиттердің (ПЭ) әсерінде дисперс жүйелердің тұрақтылығын мақсатты бағытты түрде реттеу өндірістің, шаруашылықтың, тұрмыстың әр алуан салаларының түйінді мәселелерін шешуді қамтамасыз етумен тығыз байланысты.

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6

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Applied Sciences and technologies in the United States and Europe

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Contents:

Section 1. Agricultural sciences
Evgeniy Pavlov, Alfiya Aznabaeva Die Perspektiven der Herstellung von abbaubaren Biomülltüten in Russland
Section 2. Biology6
Babak Svitlana Vitaliivna Content of water in an organism of athletes-runners
Section 3. Chemistry
Asanov Amankait, Masalimova Bakytgul Kabykenovna, Satkymbayeva Aigerim Bakhytkyzy, Khadzhikov Askhad Polatovich, The influence of polyelectrolytes differing in the ratio and charge sign of functional groups on the regulation of stability of bentonite hydrodispersions
Section 4. Economics and Management
Rahmatullo Rashidov A'lojonovich The issues of using efficiently resources in the cotton production based on economization
12 <i>Usmanov Bunyod</i> Development of corporate governance in joint-stock companies of the Republic of Uzbekistan
Section 5. Medicine
Lytvynets Liudmila Yaroslavivna Condition of humoral immunity in children with bronchial asthma and cytomegalovirus infection
Nurkhasimova Raushan Gabbasovna, Ibrayeva Damira Eseyevna, Ayazbekov Ardak Kerimkhanovich, Taubekova Makpal Effectiveness of organ preserving operations at puerperal bleedings
Section 6. Pedagogy
Tokarieva Anastasiia Victorovna Students' citizenship education: international and national prospects
Dina Kurmanayeva, Gulzhakhan Tazhitova Master Students Attitude toward Research Report Writing
in Higher Education
Section 7. Philology and linguistics
Abdullaeva Nargiza Erkinovna Paremiopragmatics
Section 8. Philosophy
Lebedeva Nadezhda Anatolievna Philosophical Views of Valery Ruzin in the Context of Cultural Evolutionism and their Practical Application 30

32 33