Міністерство освіти і науки України
Міністерство охорони здоров'я України
Харківський національний медичний університет
Національний фармацевтичний університет
Харківський національний педагогічний університет ім. Г.С. Сковороди

ФІЗІОЛОГІЯ – МЕДИЦИНІ, ФАРМАЦІЇ ТА ПЕДАГОГІЦІ: АКТУАЛЬНІ ПРОБЛЕМИ ТА СУЧАСНІ ДОСЯГНЕННЯ

Матеріали IV Всеукраїнської наукової конференції студентів
та молодих вчених з фізіології з міжнародною участю

16 травня 2017 року

Харків
ХНМУ
2017

УДК 612
Ф11

«Фізіологія – медицині, фармації та педагогіці: актуальні проблеми та сучасні досягнення»: матеріали IV Всеукраїнської наук. конф. студ. та молодих вчених з фізіології з міжнародною участю (16 травня 2017 р.). – Харків : ХНМУ, 2017. – 144 с.

«Физиология – медицине, фармации и педагогике: актуальные проблемы и современные достижения»: материалы IV Всеукраинской научн. конф. студ. и молодых ученых по физиологии с международным участием (16 мая 2017 г.). – Харьков : ХНМУ, 2017. – 144 с.

Physiology to Medicine, Pharmacy and Pedagogics: “Actual problems and Modern Advancements”: materials of IV Ukrainian Students and Young Scientists Scientific Conference with international participation (May, 16 2017). – Kharkiv : KhNMU, 2017. – 144 p.

Конференцію включено до Переліку МОН України.

Відповідальність за достовірність даних, наведених у наукових публікаціях, несуть автори

ЗМІСТ

UDC 612.67:573.7.017.67

Ponomareva A.M., Nagovskaya D.M., Shakina L.A.

SKIN AGING AND METHODS FOR ITS PREVENTION

National University of Pharmacy, Kharkov, Ukraine
Forever_aska2013@rambler.ru

Skin aging is an inevitable phisiological process that reflects the aging of the body as a whole. The visible signs of skin aging include dry skin, dull, uneven complexion, clear folds and deep wrinkles on the skin, loss of skin density, pore enlargement and appearence of age spots. The correct choise of anti-aging face cream can slow down the natural processe of biological aging of the skin and protect it from the damaging effects of exogenous factors.

The purpose of this work was the theoretical substatiation of the correct choice of anti-aging cream based on the analysis of the composition of its active components. For the survey, a questionnaire method (60 respondents aged 30–45 years were interviewed) and method of literary seach were used.

Accoding to the results of the questionnaire, for the age group “30–45” the following chronophysiological processes in the skin are characteristic: 1. disruption of the skin hydro-barrier, which is complex of keratinocyte epidermal lipids (98 % of respondents); 2. slowing down the processes of regeneration of the epidermis (9 2%); 3. reduction in the synthesis of collagen, elastin and GAGs in the dermis (80 %); 4. decrease in the amount of collagen and accumulation of dead sells around the pores (65%); 5. reduction of the total number of melanocytes and their grouping (3 %). At the same time, 83 % of respondents noting the visible signs of skin aging (dry skin, dull complexion, wrinkles, loss of skin density, pore enlargement and appearence of age spots), do not assotiate them with the above processes, and 62 % could not indicate active components of anti-aging creams that slow down the listed processes (hyaluronic asid, collagen (50 kDa), elastin, inorganic UV filters, antioxidants (coenzyme Q 10, vitamins C and E, green tea extract), etc.). 92 % of respondents do not identify “doubtful” ingredients of anti-aging creams, which in addition to positive effects may have a side-effects: glycerin, csffeine, propylene glycol, zinc sulfate, benzyl alcohol, mineral oils, octil, parabens.

The results of questioning of respondents indicate a low level of knowledge of middle-aged people about the processes of chronobiological aging of the skin and their prevention. On the basis of the analysis of the scientific literature, the main active components of anti-aging creams with a pronounced effect on the visible signs of aging of the skin, as well as their “doubtful” ingredients, are presented.

UDC 612.141-057.875:613.73

Sabareesh Sridharan, Baskar Kalaivani, Rajasaimani Kandeeswari, Nataliia Hloba

BLOOD PRESSURE LEVELS IN TRAINED AND UNTRAINED FOREIGN STUDENTS

Kharkiv National Medical University, Kharkiv, Ukraine
sabareeshsridharan7@gmail.com

Background. In everyday life human cannot be separated from physical activity, all forms of human work performed in subsistence use it. In the implementation of physical activity the body will respond to the quality or quantity of it by changes of circulation and respiration systems parameters. Those parameters and their changes greatly depend on initial state of the person, if his organism is already accustomed to physical load or not. Exercise causes increase in cardiovascular function to deliver required oxygen and other nutrients to the exercising muscles and muscle blood flow increases drastically during exercise, it is one of the important tools used to diagnose and understand the functions of cardiovascular system, thus proving the importance of research in that area.

The aim of current research was to study the difference in blood pressure levels in trained and untrained young people.

Materials and methods. Current study was carried out in 70 young people aged 19–21, among them 45 men and 25 women. Heart rate (HR) was determined by palpation of radial artery. Systolic arterial pressure (SP) and diastolic arterial pressure (DP) were determined using the method of Korotkov. Mean arterial pressure (MAP) was calculated using standard formula.

Results. According to amount and regularity of physical activity, all examined people were divided into 2 groups – 1st group included sportsmen (23 persons) and 2nd group – non-sportsmen (47 persons). Mean values of HR in 1st group was 67±3,5 bpm, in 2nd group – 75,5±5,2. Average value of SP in 1st group was 133,3±12,2 mm Hg, of DP – 84,6±8,2 mm Hg, MAP – 100,9±8,4 mm Hg. Values in 2nd group were the following – SP 122,9±12,4 mm Hg, DP 79,7±10,3 mm Hg, MAP 94,1±9,9 mm Hg.

As results state, in people who are accustomed to physical load, HR was lower in 1st group consisting of trained people. Values of SP, DP and MAP are higher, than in 2nd group, though all the parameters are in the normal range. Such increase of blood pressure in sportsmen can be caused by hypertrophy of myocardium and increase of stroke volume of the heart. Those parameters can be the evidence of adaptation to constant physical activity.

Conclusion. Adaptation of human organism to regular physical load will result in initially lower HR because of increase of stroke volume of the heart. Such change leads to slight increase of blood pressure even in state of rest. This shows that regular training has beneficial effect on body by making it better adapt to situations of demand like exercise.

UDC 612.743:616.74-009.125-009.54

Sader Abbas, Vasylieva O.V.

THE EFFECT OF CHRONIC ELECTRICAL STIMULATION ON THE PHYSIOLOGICAL PROPERTIES OF MUSCLES IN PATIENTS WITH MYOTONIC DYSTROPHY

Kharkiv National Medical University
oksavas@yandex.ru

Background. To date, in Myotonic Dystrophy type 1 (DM1) the rehabilitative interventions have always been aimed at muscle strengthening, increasing of fatigue resistance and improving of aerobic metabolism efficiency whereas the electrical membrane fault has always been addressed pharmacologically. Neuromuscular electrical stimulation (NMES) is a useful therapeutic tool in sport medicine and in the rehabilitation of many clinical conditions characterized by motor impairment such as stroke, cerebral palsy and spinal cord injury.

The aim of our pilot study was to evaluate the effects of chronic electrical stimulation both on functional and electrical properties of muscle in a small group of DM1 patients.

Materials and methods:five DM1 patients and one patient with Congenital Myotonia (CM) performed a home electrical stimulation of the tibialis anterior muscle lasting 15 days with a frequency of two daily sessions of 60 minutes each. Muscle strength was assessed according to the MRC scale (Medical Research Council) and functional tests (10 Meter Walking Test, 6 Minutes Walking Test and Timed Up and Go Test) were performed. We analyzed the average rectified value of sEMG signal amplitude (ARV) to characterize the sarcolemmal excitability.

Results. After the treatment an increase of muscle strength in those DM1 patients with a mild strength deficit was observed. In all subjects an improvement of 10MWT was recorded. Five patients improved their performance in the 6MWT. In TUG test 4 out of 6 patients showed a slight reduction in execution time. All patients reported a subjective improvement when walking. A complete recovery of the normal increasing ARV curve was observed in 4 out of 5 DM1 patients; the CM patient didn't show modification of the ARV pattern.

Conclusions. NMES determined a clear-cut improvement of both the muscular weakness and the sarcolemmal excitability alteration in our small group of DM1 patients. Therefore this rehabilitative approach, if confirmed by further extensive studies, could be considered early in the management of muscular impairment in these patients. An attractive hypothesis to explain our encouraging result could be represented by a functional inhibition of SK3 channels expressed in muscle of DM1 subjects.

UDC 612.313

Shivan Amin, Vasylieva O.V.

SALIVARY GLANDS AND THEIR PHYSIOLOGICAL ROLE

Kharkiv National Medical University
oksavas@yandex.ru

The salivary glands in mammals are exocrine glands, glands with ducts that produce saliva. They also secrete amylase, an enzyme that breaks down starch into maltose. In other organisms such as insects, salivary glands are often used to produce biologically important proteins like silk or glues. In the duct system, the lumina are formed by intercalated ducts, which in turn join to form striated ducts. These drain into ducts situated between the lobes of the gland (called interlobar ducts or secretory ducts).

All of the human salivary glands terminate in the mouth, where the saliva proceeds to aid in digestion. The saliva that salivary glands release is quickly inactivated in the stomach by the acid that is present there but the saliva also contains enzymes that are actually activated by the acid. The parotid gland is a salivary gland wrapped around the mandibular ramus in humans. It is one of a pair being the largest of the salivary glands, it secretes saliva through Stensen's ducts into the oral cavity, to facilitate mastication and swallowing and to begin the digestion of starches. The secretion produced is mainly serous in nature and enters the oral cavity via Stensen's duct. It is located posterior to the mandibular ramus and in front of the mastoid process of temporal bone. This gland is clinically relevant in dissections of facial nerve branches while exposing the different lobes of it since any iatrogenic lesion will result in either loss of action or strength of muscles involved in facial expression.

The submandibular glands are a pair of glands located beneath the lower jaws, superior to the digastrics muscles. The secretion produced is a mixture of both serous fluid and mucus, and enters the oral cavity via Wharton's ducts. Approximately 70 % of saliva in the oral cavity is produced by the submandibular glands, even though they are much smaller than the parotid glands. You can usually feel this gland, as it is