

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
Харківський національний медичний університет  
(кафедра фізіології)  
Харківський національний фармацевтичний університет  
(кафедра біології, фізіології і анатомії людини)  
Харківський національний педагогічний університет ім. Г.С.Сковороди  
(кафедра анатомії та фізіології людини ім. проф. Я.Р.Сінельникова)

**ФІЗІОЛОГІЯ  
МЕДИЦИНИ, ФАРМАЦІЇ ТА ПЕДАГОГІЇ:  
«АКТУАЛЬНІ ПРОБЛЕМИ  
ТА СУЧАСНІ ДОСЯГНЕННЯ»**

Тези доповідей  
II Всеукраїнської студентської наукової конференції з фізіології  
з міжнародною участю  
12 травня 2015 року

Харків ~2015

**Фізіологія медицині, фармації та педагогіці: «Актуальні проблеми та сучасні досягнення»:** тези доповідей ІВсеукр, студент, наук. конф. з фізіології з міжнародною участю (12 травня 2015 р.). - Харків : ХНМУ, 2015. –62 с.

**Физиология медицине, фармации и педагогике: «Актуальные проблемы и современные достижения»:** тезисы докладов І Всеукр. студен, науч. конф. по физиологии с международным участием (12 мая 2015 г.), – Харьков : ХНМУ, 2015. –62 с.

**Physiology to Medicine, Pharmacy and Pedagogies: «Actual Problems and Modern Advancements»:** brief outline reports of І Ukrainian Students Scientific Conference of Physiology with international participation (May, 12 2015). –Kharkov : KhNMU, 2015. –62 p.

**Редакційна колегія:** Д.І. Маракушин (головний редактор),

*Л.М. Малоштан,*

*І.А. Іонов,*

*Н.І. Пандікідіс,*

*Н.В. Деркач,*

*Т.Є. Комісова.*

Адреса редколегії: м. Харків, пр. Леніна, 4, ХНМУ, кафедра фізіології.

## ЗМІСТ

*Aashish Papneja, Tarannum Bano, Karmazina I.S., Isaeva I.N.*

<b>FUNCTIONAL ASYMMETRY OF CORTICAL HEMISPHERES AND FUNCTION OF LEFT AND RIGHT CORTEX IN INTELLIGENCE ACTIVITY.....</b>	<b>3</b>
---	----------

*Andrew Brian Amoah-Danful, Karmazina I.S., Isaeva I.N.*

<b>CIRCULATORY DYNAMICS DURING EXERCISE.....</b>	<b>4</b>
--	----------

*Mohamad Sultan, Karmazina I.S., Isaeva I.N.*

<b>VARIATION OF ACTIVITIES OF DIFFERENT PARTS OF CORTEX HEMISPHERES AND CARDIOVASCULAR SYSTEM BETWEEN MALES AND FEMALES DURING STROOP TEST.....</b>	<b>5</b>
---	----------

*Oluronbi Olubunmi Ifeolu, Karmazina I.S., Isaeva I.N.*

<b>REST, STRESS AND ITS EFFECTS ON MENTAL AND PHYSICAL ACTIVITY.....</b>	<b>6</b>
--	----------

*Fatma Sheenam, Karmazina I.S., Isaeva I.N.*

<b>PHYSIOLOGICAL &amp; SIDE-EFFECTS OF AUTONOMIC REFLEXES IN CLINICAL PRACTICE.....</b>	<b>8</b>
---	----------

*Арутюнян А. Ю., Григоренко Н. В.*

<b>ГИПЕРПАЗИЯ МЫШЕЧНЫХ ВОЛОКОН КАК ВОЗМОЖНЫЙ МЕХАНИЗМ АДАПТАЦИИ СКЕЛЕТНЫХ МЫШЦ К ПОВЫШЕННЫМ ФИЗИЧЕСКИМ НАГРУЗКАМ.....</b>	<b>10</b>
---	-----------

*Березняков А.А., Пандикидис Н.И.*

<b>РОЛЬ 5-HT<sub>2</sub>-РЕЦЕПТОРОВ В ОРГАНИЗМЕ ЧЕЛОВЕКА.....</b>	<b>12</b>
---	-----------

*Божко О.А., Мамотенко А.В.*

<b>ДОСЛІДЖЕННЯ ЛАТЕРАЛЬНОГО ФЕНОТИПУ ТА ВЕДУЧОЇ МОДАЛЬНОСТІ У СТУДЕНТІВ – ПСИХОЛОГІВ.....</b>	<b>13</b>
---	-----------

*Возовик К.Д., Гречишнікова М.П., Коц С.М.*

<b>ДОСЛІДЖЕННЯ ФУНКЦІОНАЛЬНОГО СТАНУ СИСТЕМИ КРОВООБІГУ ТА ТРИВОЖНОСТІ У СУЧАСНИХ СТУДЕНТІВ.....</b>	<b>15</b>
--	-----------

*Гавілей Н.С., Комісова Т.Є.*

<b>ДОСЛІДЖЕННЯ РОЗУМОВОЇ АКТИВНОСТІ УЧНІВ В ЗАЛЕЖНОСТІ ВІД ЇХ ІНДИВІДУАЛЬНИХ ХРОНОТИПІВ.....</b>	<b>16</b>
--	-----------

*Гниденко В.С., Григоренко Н. В.*

<b>ВЛИЯНИЕ ГИПОДИНАМИИ НА ФУНКЦИОНАЛЬНЫЕ ИЗМЕНЕНИЯ СИСТЕМЫ ПИЩЕВАРЕНИЯ.....</b>	<b>18</b>
---	-----------

neurons become over-loaded with calcium they fire too frequently and die – they are literally excited to death. These go a long way to tell us that an equilibrium between rest and mental or physical exertion leads to increased mental activity, while a shift in equilibrium in case of greater exertion over relaxation leads to decreased mental activity, depression, frustration and stress related sickness.

*Fatma Sheenam, Isaeva I.N., Karmazina I.S.*

## **PHYSIOLOGICAL & SIDE-EFFECTS OF AUTONOMIC REFLEXES IN CLINICAL PRACTICE**

Kharkiv National Medical University, Kharkiv, Ukraine

**Background.** Autonomic reflexes are extremely various and numerous and they have very important scientifically grounded diagnostic and therapeutic value.

**Results.** There is an opinion about stimulation of carotid artery baroreceptors by pressing at the point where the common carotid artery divides into its two main branches to normalize high blood pressure leading to activation of carotid sinus reflex slowing of the heart rate which is based on the following mechanism: when the baroreceptors are activated (by an increased blood pressure), the NTS activates the CVLM, which in turn inhibits the RVLM, thus inhibiting the sympathetic branch of the autonomic nervous system, leading to a decrease in blood pressure. Likewise, low blood pressure causes an increase in sympathetic tone via "disinhibition" of the RVLM. The NTS also sends excitatory fibers to the dorsal nucleus of vagus nerve that regulate the parasympathetic nervous system, aiding in the decrease in sympathetic activity during conditions of elevated blood pressure. But excessive stimulation of carotid sinus can cause carotid sinus reflex death which is a disputed mechanism of death in which manual stimulation of the carotid sinus allegedly causes strong glossopharyngeal nerve impulses leading to terminal cardiac arrest. A carotid massage can also possibly dislodge a thrombus, or some plaque. This could lead to any number of life threatening effects, including stroke. There is another opinion how to lower high blood pressure which is pressing in region of epigastric area. This reflex arc begins from receptors of inner organs; they send impulses by splanchnic nerve to the spinal cord. In spinal cord impulses travel to the vagal center of medulla oblongata increasing activity of vagal nuclei leading to negative effects to the myocardium with following deceleration of heart rate, lowering of blood pressure. But excessive irritation in this region leads to strong excitation of vagal center with following symptoms: acute bradycardia, respiratory arrest, hypotension, unconsciousness.

The point of next opinion that patient with hypertensive crisis or paroxysmal tachycardia can lower heart rate and blood pressure by the pressing the eyeball causing activation of oculocardiac reflex. Oculocardiac reflex is a

slowing of the rhythm of the heart following compression of the eyes; slowing of from 5 to 13 beats per minute is normal. The reflex is mediated by nerve connections between the ophthalmic branch of the trigeminal cranial nerve via the ciliary ganglion, and the vagus nerve of the parasympathetic nervous system. Nerve fibres from the maxillary and mandibular divisions of the trigeminal nerve have also been documented. These afferents synapse with the visceral motor nucleus of the vagus nerve, located in the reticular formation of the brain stem. The efferent portion is carried by the vagus nerve from the cardiovascular center of the medulla to the heart, of which increased stimulation leads to decreased output of the sinoatrial node. Bradycardia, junctional rhythm and asystole, all of which may be life-threatening, can be induced through this reflex in case of excessive irritation. Currently, there are results of scientific research suggesting that respiratory training could be used as a promising intervention to increase baroreceptor cardiac function in primary hypertension. In literature one mixed opinion exists about using of forced respiration or cough affecting to the coronary circulation. But even in case of superficial breathing hypoxia causing coronary vasodilation and increasing blood supply of myocardium. Next recommendation is hot or warm foot bath causing local vasodilation and redistribution of blood. Local vasodilation is caused by bradykinin which is forming in case of skin heating. There is an opinion that bradykinin reduces focus of myocardium necrosis. In addition, it initiates releasing of vasodilators such as nitrogen monoxide and prostaglandins. But effect of bath is based on cutano-visceral reflexes. Peculiarity of these reflexes is connection of skin receptors to the sympathetic system that is why any stimulation of skin receptors results in sympathetic effects.

**Conclusions.** Usage of autonomic reflexes' effect in emergency aid in case of acute cardio-vascular disorders must be accurate because incorrect usage of them can cause negative symptoms and even lead to a fatal termination.