



colloquium-journal

ISSN 2520-6990

Międzynarodowe czasopismo naukowe

**Medical sciences
Economic sciences
Veterinary sciences
Agricultural sciences
Pedagogical sciences**

№22(145) 2022



colloquium-journal

ISSN 2520-6990

ISSN 2520-2480

Colloquium-journal №22 (145), 2022

Część 1

(Warszawa, Polska)

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UDC: 6169:616.3:636.1

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[DOI: 10.24412/2520-6990-2022-22145-3-7](https://doi.org/10.24412/2520-6990-2022-22145-3-7)

PREVALENCE OF EQUINE GASTRIC ULCER SYNDROME IN POPULATION OF TORI AND HUCUL HORSE IN WESTERN UKRAINE

Abstract

Equine gastric ulcer syndrome (EGUS) is a very common disease among horses with the highest prevalence in performance horses. The objectives of this study were to investigate the prevalence and severity of EGUS in the population of $n=22$ horses presented with two breeds Tori and Hucul horse. The prevalence and severity of EGUS have been studied depending on workload management in this study horses, using for riding lessons and driving using drawn equipment suitable for horses. The gastroscopy was performed on two stables located in the Western region of Ukraine during the spring-autumn period of 2020. Stomachs were evaluated using a 3-m long endoscope to assess the squamous and glandular mucosa of each horse. Gastric ulcers were evaluated using a 0-4 grading system. In this study, due to the contrast between the physiology and etiopathogenesis of gastric mucosa, stomach lesions were divided into squamous (ESGD) and glandular (EGGD) gastric diseases. This study shows the overall prevalence of EGUS in 27.2% of examined horses. Squamous gastric ulcers were diagnosed in all horses with EGUS, unlike glandular lesions. In this study, gastric lesions were presented with severity scores ranging from 1 to 3 whereas lesions grade 2 were observed in most horses with EGUS. Both squamous and glandular lesions were diagnosed in 9% of horses. The presented study conclude that EGUS in this particular population of horses, not in a race and intensive training, was relatively low prevalent within the squamous and glandular mucosa. Also, low difference was found between the group of riding lesson and driving horses, besides we did not find clear association between sex and age in horses with EGUS.

Key words: EGUS, ESGD, EGGD, horse, stomach, ulcer, prevalence.

Introduction

In veterinary clinical practice, stomach diseases in horses is highly prevalent. Most often they appear as erosive and ulcerative adhesions of gastric mucosa and may vary depending on the severity and numbers of lesions. Equine gastric ulcer syndrome (EGUS) is a term used to describe the complicated and multifactorial nature of erosive and ulcerative diseases of the gastric mucosa, as well as the use of the term peptic ulcer disease (PUD) in man [18]. Two terms: Equine squamous gastric disease (ESGD) and Equine glandular gastric disease (EGGD) are used to describe gastric mucosal defects according to anatomical features of the stomach.

EGUS is a common problem in horses and foals, which may negatively affect their health and performance. Although the aetiology of this disease is not known well, risk factors like: active training, feeding management, housing and stall confinement, administration of non-steroidal anti-inflammatory drugs (NSAID), gender, temperament, and transportation is thought to be associated with EGUS [11,12,15,16].

Pathophysiologically imbalance between mucosal aggressive factors (increased acid content) and protective factors (mucus and bicarbonate) have been implicated as causative mechanisms for gastric ulcer disease in horses [7].

Diagnosis of EGUS requires a thorough history and physical examination. However, gastroscopy is the most effective diagnostic method currently available.

This study therefore aimed to investigate the prevalence, anatomical distribution and severity of gastric ulceration in population of Tori and Hucul horse in Western region of Ukraine.

The Hucul or Carpathian is a small horse breed originally from the Carpathian Mountains. It has a heavy build and possesses great endurance and hardiness. Hucul horse are usually calm with a good disposition, and are used for both hacking and pulling timber in otherwise inaccessible forested areas.

By nature, the Tori horse is energetic, good-natured, docile and is a willing animal. The Tori horse was wide-rangingly crossed with Hannoverians, English Thoroughbreds, and other sporty breeds. In 2008, the Tori studbook that is held by the Estonian Horse Breeders' Association (Et: Eesti Hobusekasvatajate Selts) was split into two sections; TA and TB, the heavier Toris went into TA and the lighter ones into TB.

Material and Methods

The study was conducted on two stables in Western region of Ukraine during summer-autumn period of 2020.

Examinations were performed with a 3m endoscope Surevision VLS- 150D Digital Video system. Before examination, all horses were fasted for 12-16 hours prior to endoscopy, and water was withheld for 5 hours before the procedure. Horses were sedated with xylazine (0.5-0.7 mg/kg, IV) or detomidine (0.11

mg/kg, IV) and acepromazine (0.02 mg/kg, IV). During gastroscopy procedure, the stomach was insufflated with air to allow a visualise of entire stomach regions. As the endoscope enters the stomach, all anatomical features were evaluated for ulcerative changes on the gastric mucosa. Some stomach wall areas covered by remains of food were flushed by water to exclude presence of mucosal changes. In 3 horses, the pylorus was unable to be visualized because of the presence of residual feeding material. Gastric mucosal changes were scored by the 0-4 EGUS council grading system [18]. **Grade 0:** The epithelium is intact and there is no appearance of hyperkeratosis, **grade 1:** the mucosa is intact, but there are areas of hyperkeratosis, **grade 2:** small, single, or multifocal lesions, **grade 3:** large single or extensive superficial lesions, **grade 4:** extensive lesions with areas of apparent deep ulcerations. Glandular mucosa within anatomical regions: cardia, fundus, antrum and pylorus were evaluated and differentiated between hyperemic, hemorrhagic, fibrinosuppurative, ulcerated; depressed, flat, and rised mucosal changes.

A total of n= 22 horses were selected for this study. The criteria for this were healthy horses older than 2 y.o., without treatment by anti-ulcers medications for last 2 months. Information including age, gender, dietary management was obtained for each horse. The age difference in the studied horses ranged from 2 – 15 years (mean 7.4 ± 2.8). N= 10 horses were 2 – 5 years, n= 12 horses were 6 – 15 years old. There were 13 mares, 4 stallions and 5 geldings including n= 16 Tori and n= 6 Hucul horse. According to Tori studbook that is held by the Estonian Horse Breeders Association (Et: Eesti Hobusekasvatajate Selts) Tori horse breed is divided into two sections: TA (heavy Tori) and TB (light Tori) [4]. In this study Tori horses take the place of two types: the heavy (old) Tori horse n= 8 and the light Tori horse n= 8 were included in this study.

In present study, selected horses were represented by various types of workload, whereas n= 8 light Tori were used for riding lessons 2 - 3 times a day, 4 – 5 times a week in a controlled environment with limited riding and trail riding. Another horses including n= 6 Hucul and n= 4 heavy Tori horse were used in driving

either using drawn equipment suitable for horse Drawn – Farming in agriculture sector, rest n= 4 heavy Tori were used in the carriage recreational riding in a city, 2 - 3 times a week each carriage.

Horses were fed grass hay and grain diets, with access to water. Medical history was obtained and included: administration of NSAIDs or anti – ulcer medications (omeprazole, misoprostol, sucralfate, H2 antagonists). Two horses with previous illness history had received NSAID over the source of days and none of the examined animals received any anti-ulcer medication.

All manipulations with animals were carried out in accordance with the European Convention for the Protection of Vertebrate Animals, used for Experimental and Scientific Purposes (Strasbourg, 1986).

Results

A population of n= 22 horses were included in this study and considered for gastroscopic examination. Withholding feeding material before gastroscopy allowed the entire squamous gastric region lining to be seen in all horses. In 13.6% of horses, no glandular mucosa was observed due to obscured ventral portions of the stomach caused by leftover feeding materials and gastric secretion.

The overall prevalence of EGUS in all examined horses was 27.2%, most of them were mares 30.7% and horses 5 – 16 years old age group - 33.3%. Squamous gastric ulcers were diagnosed in all horses with EGUS, unlike glandular lesions. However, both squamous and glandular lesions were detected in 9% of horses with EGUS. Gastric lesions were presented with severity scores ranging from 1 to 3, whereas grade 4 lesion was not observed. Squamous mucosal defects with signs of hyperkeratosis were diagnosed in 4.5% of horses. In the majority, squamous gastric ulcers grade 2 were diagnosed in 13.6% of horses and 9% had ulcers grade 3. Squamous gastric lesions usually appeared on the stomach wall near *margo plicatus* border and glandular lesions seem to be located in pylorus and antrum region as focal hyperemia.

Table 1.

Severity of equine gastric ulcer disease by use and breed of horses based on the 0-4 grade system (EGUS council grading system).

Use	Ulcer severity grade				
	0	1	2	3	4
Lesson horses	6	1	1	0	0
Driving horses	10	0	2	2	0
Breed	-	-	-	-	-
Heavy Tori horse	6	1	1	0	0
Light Tori horse	6	0	1	1	0
Hucul horse	4	0	1	1	0
Total	16	1	3	2	0

According to various workload management between horses, EGUS was diagnosed in 25% of riding lesson horses with 12.5% grade 1 as well as grade 2 lesions. All lesions were related to the squamous region of this grove.

EGUS in driving horses was observed in 28.5% of animals. In carriage recreational riding horses squamous lesion grade 3 was observed in 1/4 horse without lesions grade 1 – 2 and 4. In a Drawn – Farming horses squamous lesions grade 2 – 3 appeared in 3/10 horses. Both squamous and glandular lesions were presented in 2/10 horses of this grove.

In this study EGUS prevalence based on the horse breed was established in 33.3% of Hucul horse and 25% of Tori horse. Both squamous lesion grade 2 and hyperemia of glandular mucosa of the stomach were presented in 1/8 heavy Tori horse and 1/6 Hucul horse.

In this study, EGUS was seen in 30.7% of females, 20% of geldings, and 25% of stallions. The distribution of EGUS by age noticed 33.3% gastric lesions in 6 – 15 years old group of horses and 20 % in 2 – 5 years old (Table 1).

Discussion

The length of the fasting before the gastroscopy procedure was adequate to make both anatomical portions of the stomach to be visible in 19/22 horses. Gastroscopy is the most sufficient method of EGUS diagnosis which allows to characterize the extent and severity of gastric lesions in horses by using a grading system [18]. In the current study horses with EGUS were scored by the 0-4 EGUS council grading system and had a severity grade 1 – 3 with most squamous lesions grade 2 presented in 18.1% of horses respectively.

This study shows that EGUS in the majority appeared on the squamous mucosa of the stomach unlike glandular. The results of other studies also confirm that gastric lesions are more likely to occur on the squamous mucosa than glandular [13,19] In accordance with foreign authors gastric ulcers most commonly affect squamous mucosa along the *margo plicatus* of the lesser curvature [13,16]. Similarly, this study shows that squamous lesions have occurred near *margo plicatus* with an overall prevalence of 27.2%. Both squamous lesions and glandular stomach hyperaemia were diagnosed in 9% of a 6 - 15 years old group of horses. Most often glandular mucosa ulceration occurs in combination with ESGD [3]. Association between localization and severity has also been described, whereas squamous lesions in area of *margo plicatus* are more severe and pylorus lesions of the glandular mucosa are more common [1,13]. Similarly, glandular hyperaemia appears in this study horses as blushing of the rugal folds of the pylorus. However, the reported prevalence of EGGD is higher and ranges between 13 - 51% compared to 9% in this study population [13,23]. The risk factors for EGGD have been poorly described. Although, there is an opinion about negative effect of different management strategies like feeding and exercise in the etiopathogenesis of EGGD. Pathogenesis and risk factors reported for EGGD are different from ESGD whereas high-intensity exercise show more clear

association with squamous lesions, in contrast to glandular where risk factors are not clear and more variable between populations. It has been suggested that management changes are imposed upon horses with the commencement of training, which can increase the risk factors for ESGD [23]. Recently it has been highlighted that exercise is associated with acid exposure in the squamous region of the stomach through acid reflux [12]. It also may have a significant effect on the nonglandular stomach.

This study found a low range of breed specific prevalence with 33.3% of Hucul affected horses and 25% of Tori horses with no difference between heavy and light Tori types. However, breed itself was not identified as a risk factor for EGUS [9]. In contrast, a postmortem study of 3,715 horses found to be EGUS more prevalent in Thoroughbred and Standardbred breeds than in cold-blooded horses [16]. It has been confirmed that the workload management and use of horses for competition, racing etc. is more evident risk factor for squamous lesions developing [2]. Gastric ulcers are often diagnosed in mentioned breeds due to the active training and high performance which is a confirmed risk factor for EGUS and as the intensity of training increases, the prevalence and severity of gastric ulcers growth [13,18,21,22]. In a previous study, we have shown that EGUS is a common disease in Thoroughbred and Ukrainian riding horse whereas gastric ulceration occurred in 35,7 – 50% of population horses depending on the training intensity between two periods of examination [17]. High EGUS prevalence was shown in endurance horses whereas gastric ulceration occurred in 93% and in 37% of untrained racehorses increasing to 80-100% within 2-3 months of race training [17,18,21,22].

This study find no associations between groups based on the use and physical activity. Gastric ulceration was present in 25% of examined lesson horses, and this is consistent with a prevalence 28.5% in driving horses in this study population. Analysis of the published researches did not show reports about the EGUS in a specific breed like Hucul and Tori horse used for a drawn power for different operations. Most of them report high EGUS prevalence in performance racehorses whereas a low number of studies have been performed on various horse breeds with different workload management.

In the current study prevalence of squamous gastric ulcers in light Tori horses involved in riding lessons was 25 % with no glandular lesions. In another study, ESGD was found to be less prevalent in 11% of university riding programme horses [8]. As author mentioned that low prevalence could be related to the fact that these study horses were not exposed to environmental and diet changes. According to published data, ESGD was found to be far more prevalent and severe in endurance horses in up to 93% of affected horses this has been correlated with the type of training due to the competitive elements [21]. However, several studies report about EGUS prevalence in 53% of pleasure, 35% of riding, and 49% of leisure horses with minimal physical activity [1,3,24].

This study did not find any association between horses of two age groups. However, lesions of the squamous and glandular mucosa were shown in older horses of the 6-15 year old group. Similarly, a clinical study found a significant difference in older horses which were more likely to have both glandular and squamous ulcers [10]. Another author did not find clear association between age and sex in horses which were impacted by physical activity [5]. The same result has been revealed by another paper with no significant effect of age and sex in Thoroughbred horses with ESGD [22]. However, some studies suggest that number of lesions and ulcer severity may increase with age [13,15].

In this study horses were taken out to pasture, with a total time of 4-5 hours per day spent outdoors with access to grazing. It is thought that horses grazing at pasture have lower evidence through the continuous saliva secretion as a buffer stomach acid. In one study the effect of paddock versus stall housing on gastric pH was not evident [6].

It is important to note that EGUS in horses may show mild clinical signs [14]. Clinical signs associated with EGUS are numerous and may include symptoms like poor appetite, weight loss, decreased performance, diarrhoea, and acute or recurrent colic. Some horses commonly show abdominal pain and poor general appetite with presence of behavioral changes [14]. However, we did not record any clinical signs, all horses appear to be clinically healthy.

In conclusion, in this particular population of horses, not in race and intensive training, there was a relatively low prevalence of EGUS within the squamous and glandular mucosa. Also, low difference was found between the group of a riding lesson and driving horses, besides we did not find a clear association between sex and age in horses with EGUS. There is a little number of studies reported about EGUS prevalence in other breeds of horses with different workload management.

References

1. Begg L.M., O'Sullivan C.B.. (2003). The prevalence and distribution of gastric ulceration in 345 racehorses. *Aust. Vet. J.* 81:199-201. <https://doi.org/10.1111/j.1751-0813.2003.tb11469.x>
2. Bell R.J.W., Kingston, J.K., Mogg T.D., Perkins N.R.. (2007). The prevalence of gastric ulceration in racehorses in New Zealand. *New Zealand Veterinary Journal* 55(1), 13-18 doi: 10.1080/00480169.2007.36729.
3. Dionne R.M., Vrins A., Doucet M.Y.. (2003). Gastric ulcers in Standardbred racehorses: prevalence, lesion description, and risk factors. *J Vet Intern Med* 17:218-222.
4. Erkki S., Krista R., Sirje V.. (2019). Genetic diversity of Estonian horse breeds and their genetic affinity to northern European and some Asian breeds. *Livestock Science* vol. 220, 57-66 <https://doi.org/10.1016/j.livsci.2018.12.006>
5. Hepburn R. J.. (2014). Endoscopic examination of the squamous and glandular gastric mucosa in sport and leisure horses: 684 horses (2005-2011). *Proc 11th International Equine Colic Research Symposium BMC VET. Res* 10, 11

6. Husted L., Sanchez L. C., Olsen S. N.. (2008) Effect of paddock vs. stall housing on 24 hour gastric pH within the proximal and ventral equine stomach. *Equine vet. J.* 40(4) 337-341 doi: 10.2746/042516408X284673

7. Jenifer A., Nadeau M. S., Frank M., Andrews M. S., Alan G.. (2000). Evaluation of diet as a cause of gastric ulcers in horses. 61 (7), 784-790 <https://doi.org/10.2460/ajvr.2000.61.784>

8. Kelly A., Chamero M.S., Jenifer A. Nadeau., Sandra L. Bushmich.. (2006) Prevalence of non-glandular gastric ulcers in horses involved in a university riding program. 23(5) 207-211. doi: 10.1016/j.jevs.2006.03.001

9. Luthersson N., Nielsen Hou. K., Harris P., Parkin T.D.H.. (2009). Risk factors associated with equine gastric ulceration syndrome (EGUS) in 201 horses in Denmark. *Equine vet. J.*, 41(7) 625-630 doi: 10.2746/042516409X441929

10. Luthersson N., Nielsen Hou. K., Harris P., Parkin T.D.H.. (2009). The prevalence and anatomical distribution of equine gastric ulceration syndrome (EGUS) in 201 horses in Denmark. *Equine vet. J.*, 41(7) 619-624 doi: 10.2746/042516409X441910

11. McClure S. R., Glickman L. T., Glickman N. W.. (1999). Prevalence of gastric ulcer in show horses. *J. Am. vet. med. Ass.* 215(8):1130-1133

12. McClure S. R., Carithers D. S., Gross S. J., Murray M. J. (2005). Gastric ulcer development in horses in a simulated show or training environmental. *J. Am. Vet. Med. Ass.* 227, 775-777. <https://doi.org/10.2460/javma.2005.227.775>

13. Murray M. J., Schusser G. F., Pipers F. S., Sheila J.. (1996). Gross. Factors associated with gastric lesions in Thoroughbred racehorses. *Equine Vet. J.* 28 (5) 368-374 doi: 10.1111/j.2042-3306.1996.tb03107.x.

14. Niedźwiedz A., Kubiak K., Nicpoń J.. (2013). Endoscopic findings of the stomach in pleasure horses in Poland. *Acta Veterinaria Scandinavica*, 55/45 DOI: 10.1186/1751-0147-55-45

15. Rabuffo T. S., Orsini J. A., Sullivan E., Engiles J., Norman T., Boston R.. (2002). Associations between age or sex and prevalence of gastric ulceration in Standardbred racehorses. *J. Vet. Intern. Med.* 19:744-750

16. Sandin A., Skidell J., Haggstrom J., Nilsson G.. (2000). Postmortem findings of gastric ulcers in Swedish horses older than age one year: a retrospective study of 3715 horses (1924-1996) *Equine vet. J.* 2000. 32, 36-42

17. Stefanyk O., Slivinska L.. (2021). Prevalence of gastric ulcer in horses with different exercise intensity. *Scientific Messenger LNUVMB. Series. Veterinary sciences.* 23(102) doi: 10.32718/nvlvet10211

18. Sykes, B.W., Hewetson, M., Hepburn R.J. (2015). European College of Equine Internal Medicine Consensus Statement – Equine gastric ulcer syndrome in adult horses. *J. Vet. Intern. Med.* 29:1288-1299

19. Sykes B.W., Bowen M., Habershon-Butcher J.L.. (2019). Management factors and clinical implications of glandular and squamous gastric disease in horses. *J Vet Intern Med* 33:233-240.

20. Sykes B.W., Jokisalo J.M.. (2015). Rethinking equine gastric ulcer syndrome: Part 2 – Equine squamous gastric ulcer syndrome (ESGUS). *Equine Vet. Educ.* 27(5) 264-268. <https://doi.org/10.1111/eve.12277>

21. Tamzali Y., Marguet C., Priymenko N., Lyazri F.. (2011). Prevalence of gastric ulcer syndrome in high – level endurance horses. *Equine vet. J.* 43(2) 141-144. doi: 10.1111/j.2042-3306.2010.00129.x

22. Vattistas N. J., Sifferman R. L., Holste J.. (1999). Induction and maintenance of gastric ulceration in horses in simulated race training. *Equine Vet. J.*

Supp. 29:40-44 DOI: 10.1111/j.2042-3306.1999.tb05167.x

23. Ward S., Sykes B.W., Brown H.. (2015). A comparison of the prevalence of gastric ulceration in feral and domesticated horses in the UK. *Equine Vet Educ* 27:655-657.

24. Zigmantaite V., Grigaleviciute R., Statkeviciute J.. (2018). Prevalence and anatomical distribution of equine gastric ulceration syndrome (EGUS) in 190 horses in Lithuania. *Vet. Med. Zoot.*, T. 76 (98) 35-36

MEDICAL SCIENCES

УДК 61

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BACKGROUND AND PROSPECTS FOR DIGITAL TRANSFORMATION IN THE MEDTECH INDUSTRY

Abstract.

Technological innovations have launched a process of radical change in the market, and, accordingly, business. Companies and even entire industries have started the process of digital transformation. As a result, over the past few years, the world has rapidly entered a new era - the digital era. Emerging technological platforms remove intermediaries between the producer and consumer of a product or service, and the accumulating volumes of data make it possible to predict the behavior of machines and people. With the advent of the digital era, new challenges have arisen for medical device companies (MedTech).

Key words: *innovations, MedTech, Digital Transformation, digital era.*

In a highly competitive environment, companies are faced with a range of problems, such as: pressure from health care providers, increased pricing pressure, more strict regulations, operational inefficiencies arising from a general trend of consolidation.

End-users and providers demand lower-cost devices, value- and outcome-based payment models. In turn, the Government demands more strict regulations.

Pandemics and crises have made consumers more cost-effective. On the one hand, people are paying more attention to their health and are willing to pay for premium services, but eventually, faced with high prices, refuse treatment. In this regard, the issue of pricing is very acute for MedTech companies. So, they are forced to lower prices. To remain profitable and at the same time competitive, it is necessary to provide exceptional value for patients and providers while reducing costs.

Despite the challenges may seem daunting, MedTech companies can focus on new technologies and frameworks as a way of countering threats and positively affecting their bottom line.

As digital technologies take over the world, MedTech companies must stay up to speed to survive. It's time to explore new ways to improve their bottom lines. The world of healthcare looks markedly different than ever. Digital transformation is also reshaping the MedTech landscape. Deloitte experts have identified five areas of the supply chain where MedTech companies can benefit the most from digital adoption [1]:

- Inventory management;
- Logistics and distribution;
- Device maintenance;
- Product development;
- Warehouse operations.

By introducing digitization in these areas, companies can enhance the visibility of the supply chain, reduce maintenance and research and development costs, increase client satisfaction and improve the patient experience. Digital supply networks can harness data from digital sensors and connected packaging to provide real-time visibility of inventory at all locations,

connect smart cabinets that automatically track inventory transactions, and trigger replenishment requests. Achieving a higher degree of transparency over the end-to-end supply chain composes another long-lasting challenge for MedTech companies. Digital supply networks (DSNs) can have a profound impact on research and manufacturing functions of companies by opening up a whole new frontier of digital and manufacturing development. Digital manufacturing has the potential to dramatically reduce R&D costs by shortening development cycles and enabling companies to increase the number of design iterations to deliver better products at a significantly reduced cost.

Taking all this into account, MedTech companies can increase the efficiency of supporting operations, improve their customer satisfaction by reducing potential equipment downtime, and ultimately maximize their service contract profit margins.

Obstacles are an essential element of digital transformation. They do NOT hinder with changes because they are part of them.

Digital transformation always requires a lot of effort, because it is necessary to rebuild many things from scratch. For the same reason, there are higher risks: when the familiar methods are used, it is usually possible to predict both the process and the final result. When everything is being changed, it is not possible to know how effective the actions are and whether they are effective or not.

Based on the foregoing, digital transformation will help solve a number of problems and do the following:

- Improve distribution;
- Reduce research and development costs;
- Achieve more transparency within the supply chain;
- Improve customer satisfaction;
- Improve patient experiences.

Previously, business existed in a world of linear structures. We needed to manage the value chain, where everything is simple and clear: we build relationships with the supplier and with the client. Today, the linear system is beginning to transform into a network

within which the company is forced to interact with a number of players performing different roles at different times.

Digital transformation is the process of incorporating digital technology throughout a company in an effort to better serve customers. So, increasing operational efficiency and providing greater value to their customers through DSNs should certainly be a start.

It should be noted, that it is necessary to train workforces and plan time and resources to fully take advantage of a DSN's potential. In order to ensure significant change throughout the organization it's important to take an agile approach to a DSN development and deployment.

Transformation is not a plan or a project. It's a series of experiments, each one easy to implement individually, but collectively they lead to a change in the way you work.

Modern MedTech companies need to learn how to experiment in order not only to survive, but also to succeed. Furthermore, they need to challenge their traditional mindset. Processes, business models, products, customers, employees, technologies, infrastructure and the entire ecosystem are undergoing digital transformation.

Probably the most interesting question that companies have to solve today sounds like this: how to properly take advantage of new opportunities, what areas should be developed in order to capitalize on digital transformation right now.

The growing importance of digital innovation has significantly transformed how all sectors of healthcare operate. In the past, most patients were satisfied with undergoing a medical examination once a year, and only checking in with their doctors when something went wrong. But in the digital era, patients are concentrating on prevention and maintenance, and demanding information about their health more frequently.

Thanks to technology, patients get better treatment with virtual reality tools, wearable medical devices, telehealth, and 5G mobile technology. Digital transformation also revolutionizing the MedTech area, medical devices are at the forefront of digital revolution. Decision making system is changing, new tools and approaches are emerging.

Deloitte experts in their report recommend a "think big, start small, act fast" approach [1]. What is this approach?

-The first step is developing a future-state vision of an optimized supply chain from suppliers to providers and patients.

-Then, start with incremental changes to mitigate the risks and demonstrate early success to stakeholders.

- Finally, determine the highest priority areas that can unlock several stages of potential value while acting fast to achieve quick wins.

Digital transformation is a complex business transformation associated with a successful transition to new business models, communication channels with customers and providers, products, business and production processes, corporate culture, which are based on fundamentally new approaches to data management using digital technologies, with to significantly improve its efficiency and long-term sustainability [2]. It should be noted that any technology in health care should lead to an increase in the quality of medical care.

Digitalization, obviously, requires serious funding, however, the return will be significant - reducing the cost, increasing productivity and significantly improving the quality. Digital transformation sets the stage for exponential growth of the company.

The future is increasingly digital. And in this digital era, the importance of cybersecurity is enormous. Technologies for collecting, processing and storing information allow us to solve customer problems in new, effective ways, but they also give rise to problems, primarily in the field of cybersecurity.

In order to successfully and safely operate MedTech companies need to install cybersecurity in every stage of the supply chain.

In their report on *Digital transformation in the MedTech industry* [1], Deloitte experts address three significant points:

1. Choosing the right technology and addressing cybersecurity as a top priority to avoid potential issues down the road.
2. Training employees continuously on security threats and corresponding countermeasures.
3. Developing backup solutions and building safeguards to potential threats.

But despite the existing risks, the opportunities emerging through digital transformation carry huge potential. Systematic tactical steps that companies can take in the context of digitalization will lead to the solution of pressing problems. In an increasingly smart and connected world, digital transformation is a requirement for today's and tomorrow's competition.

References

1. The digital era in the MedTech industry. Digital supply networks and MedTech. 2020. URL: <https://www2.deloitte.com/th/en/pages/operations/articles/digital-transformation-medical-device-industry.html>
2. What is digital transformation? SAP. URL: <https://www.sap.com/insights/what-is-digital-transformation.html>

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FETAL ANATOMICAL VARIABILITY OF HUMAN PARATHYROID GLANDS

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ФЕТАЛЬНА АНАТОМІЧНА МІНЛИВІСТЬ ПРИЩИТОПОДІБНИХ ЗАЛОЗ ЛЮДИНИ

Abstract.

The article presents variants of the external form and topical location of the parathyroid glands, which were found in human fetuses of various ages. The aim of the study was to reveal the anatomical variability of the parathyroid glands during the fetal period of human development. Conclusions. In human fetuses of different ages, individual and age-related anatomical variability of the parathyroid glands has been revealed, which is manifested by variations in their external shape, size, and topography. Also, human fetuses have rare variants of the external form and topical location of the parathyroid glands. During the fetal period of human ontogenesis, the superior parathyroid glands are usually oval (35.87%), elongated (29.35%) and rounded (17.39%) shapes, and the inferior parathyroid glands are characteristically round (42.71%) and lenticular (20.83%) forms.

Анотація.

В статті наведено варіанти зовнішньої форми та топічного розташування прищитоподібних залоз, які були виявлені у плодів людини різного віку. Метою дослідження було виявити анатомічну мінливість прищитоподібних залоз впродовж плодового періоду розвитку людини. Висновки. У плодів людини різного віку виявлено індивідуальну та вікову анатомічну мінливість прищитоподібних залоз, що проявляється різновидами їхньої зовнішньої форми, розмірів та топографії. Також у плодів людини зустрічаються рідкісні варіанти зовнішньої форми та топічного розміщення прищитоподібних залоз. Впродовж плодового періоду онтогенезу людини верхнім прищитоподібним залозам, як правило, властива овальна (35,87%), видовжена (29,35%) та округла (17,39%) форми, а нижнім прищитоподібним залозам притаманна округла (42,71%) і сочевицеподібна (20,83%) форми.

Key words: *parathyroid glands, variability, fetus, human being, anatomy.*

Ключові слова: *прищитоподібні залози, мінливість, плід, людина, анатомія.*

Relevance of research. Knowledge of the age-related features of the structure and topography of the thyroid and parathyroid glands is of great practical importance for the development of rational surgical approaches to the organs and structures of the neck [1, p. 221-227]. In recent decades, there has been an increase in the number of congenital malformations and acquired diseases of the organs of anterior neck region, which leads to increased interest of both morphologists and clinicians in a detailed and in-depth study of the features of morphogenesis and formation of the topography of organs and structures of the neck [2, p. 120-127; 3, p. 178-187; 4, p. 22-26].

Of special scientific value are studies on the detection of fetal anatomical variability of organs, as they become a morphological basis for performing diagnostic and therapeutic manipulations and choosing adequate methods of operative treatment of perinatal pathology [5, p. 52-57; 6, p. 67-72].

The aim of the study. To reveal the anatomical variability of the parathyroid glands during the fetal period of human development.

Materials and methods of research. The study was conducted on 50 preparations of human fetuses without external signs of anatomical deviations or de-

velopmental anomalies using a complex of morphological research methods. The distribution of the material into age groups was carried out in accordance with the classification of periods of human ontogenesis, adopted by the VII All-Union Conference on the Problems of Age Morphology, Physiology and Biochemistry (Moscow, 1965), the periodization of intrauterine development according to G.A. Schmidt (1968) and taking into account the «Instructions for determining the criteria of the perinatal period, live births and stillbirths», approved by Order No. 179 of the Ministry of Health of Ukraine dated March 29, 2006. The age of the subjects of the study was determined according to the consolidated tables of B.M. Patten (1959), B.P. Khvatova, Y.N. Shapovalova (1969) based on the measurement of parietal-coccygeal length (PCL). During the research, preparations of human fetuses from the museums of the Department of Human Anatomy named after M.G. Turkevich and the Department of Anatomy, Clinical Anatomy and Operative Surgery of Bukovinian State Medical University. Preparations of fruits weighing more than 500.0 g were studied directly at the Chernivtsi Regional Communal Medical Institution «Pathological Anatomical Bureau» in accordance with the cooperation agreement.

The research methods were: macromicroscopic – to find out the shape, features of the external structure of the thyroid and parathyroid glands in the fetal period of human development; production of topographic and anatomical sections – for the study of the syntopy of the parathyroid glands and vascular and nervous formations of the anterior cervical area; computer three-dimensional reconstruction – to clarify the shape and space-time relationships of the thyroid and parathyroid glands, obtaining digital morphometric data; morphometric – to obtain quantitative characteristics; statistical – to determine the degree of probability of the morphometric parameters of the parathyroid glands in human fetuses.

The results. At the beginning of the fetal period of human ontogenesis, intensive development of the parathyroid glands occurs. In 11 examined fetuses of 4-5 months, variability in the shape of the right and left superior and inferior parathyroid glands was found. Thus, the elongated form of the superior parathyroid glands and its varieties (elongated-oval, elongated-rounded, spindle-shaped) was observed in 10 cases (45.5%), oval in 7 observations (31.8%), and bean-shaped in 5 cases (22.7%). The following variants of the shape of the inferior parathyroid glands were established: round – 8 cases (36.4%), oval – 6 cases (27.3%), elongated – 5 (22.7%) and crescent – 3 (13.6%). In fetuses of 4-5 months, the superior parathyroid glands are mainly located at the level of the middle third of the back surface of the thyroid gland (9 cases, 40.9%) or at the border of the upper and middle thirds of the thyroid gland (6 observations, 27.3%), less often – on at the level of the upper third of the lobes of the thyroid gland – 3 cases (13.6%), at the border of the middle and lower thirds of the thyroid gland – 2 observations (9.1%) or in the thickness of the thyroid gland – 2 (9.1%). The right and left inferior parathyroid glands occupy the following positions: at the level of the lower third of the posterior surface of the lobes of the thyroid gland (8 cases, 36.4%), below the lobes of the thyroid gland – 6 (27.3%), at the border of the middle and lower thirds of the thyroid gland – 4 (18.2%), within the vascular and nerve bundles of the neck – 3 (13.6%) and in the thickness of the thyroid gland – 1 (4.5%). The following varieties of the shape of the superior parathyroid glands were found in fetuses of 6-7 months: oval – 13 cases (34.2%), elongated – 10 (26.3%), round – 7 (18.4%), crescent – 5 (13.2%), lenticular – 3 (7.9%). Inferior parathyroid glands are also characterized by variability in shape: round – 16 (38.1%), lenticular – 10 (23.8%), bean-like – 8 (19.1%), oval – 5 (11.9%), elongated – 3 (7.1%). In fetuses of this age group, the superior parathyroid glands, as a rule, are localized on the border of the upper and middle thirds of the posterior surface of the lobes of the thyroid gland – 15 cases (39.5%) and on at the level of the middle third of the thyroid gland – 11 (28.9%), less often – at the level of the upper third of the thyroid gland – 7 (18.4%) or within the vascular and nerve bundles of the neck, lateral to the lobes of the thyroid gland – 5 (13.2%). The inferior parathyroid glands are topically determined within the lower third of the lobes of the posterior surface of the thyroid gland – 19 observations (45.2%), below the lobes of the thyroid gland – 11 (26.2%), at the border of the middle and

lower thirds of the lobes – 8 (19%), within the vascular and nerve bundles of the neck – 2 (4.8%) or behind the sternum – 2 (4.8%).

Aplasia of the superior parathyroid glands was detected in fetuses of 255.0 mm and 260.0 mm PCL.

At the end of the fruiting period (16 fetuses of 8-10 months were examined), there is variability in the shape and position of the right and left superior and inferior parathyroid glands. The following variants of their external shape were established: oval (40.6%), round – 9 (28.1%), elongated – 7 (21.9%), flat – 2 (6.3%), drop-shaped – 1 (3.1%). The inferior parathyroid glands are characterized by round – 17 observations (53.1%), lenticular – 10 (31.3%), elongated – 4 (12.5%) and oval – 1 (3.1%) forms are less common. Superior parathyroid glands, as a rule, are located on the border of the upper and middle thirds of the back surface of the lobes of the thyroid gland – 12 (37.5%), or at the level of the upper third of the thyroid gland – 11 (34.4%), less often – at the level of the middle third thyroid gland – 4 (12.5%), in the thickness of the thyroid gland – 3 (9.4%) or above the lobes of the thyroid gland – 2 (6.2%).

Conclusions. 1. In human fetuses of different ages, individual and age-related anatomical variability of the parathyroid glands was revealed, which is manifested by variations in their external shape, size, and topography. Also, human fetuses have rare variants of the external form and topical location of the parathyroid glands.

2. During the fetal period of human ontogenesis, the superior parathyroid glands are usually oval (35.87%), elongated (29.35%) and rounded (17.39%) shapes, while the inferior parathyroid glands are characteristically round (42.71%) and lenticular (20.83%) forms.

References:

1. Fancy T., Gallagher D. 3rd, Hornig J.D. Surgical anatomy of the thyroid and parathyroid glands. *Otolaryngol Clin North Am.* 2010. Volume 43, Issue 2. P. 221–227. doi: 10.1016/j.otc.2010.01.001.
2. Kikuta S., Iwanaga J., Kusukawa J., Tubbs R.S. Triangles of the neck: a review with clinical/surgical applications. *Anat. Cell Biol.* 2019. Vol. 52. P. 120–127. <https://doi.org/10.5115/acb.2019.52.2.120>
3. Мокрышева Н.Г., Крупинова Ю.А., Воронкова И.А. Околощитовидные железы: нормальное развитие, анатомическое и гистологическое строение. *Эндокринная хирургия.* 2018. Т. 12., №4. С. 178–187. doi: 10.14341/serg10039
4. LoPinto M., Rubio G.A., Khan Z.F., Vaghaiwalla T.M., Farra J.C., Lew J.I. Location of abnormal parathyroid glands: lessons from 810 parathyroidectomies. *J Surg Res.* 2017. Volume 207. P. 22–26. doi: 10.1016/j.jss.2016.08.045.
5. Lopushniak L.Ya., Khmara T.V., Boichuk O.M., Ryznychuk M.A., Shvyhar L.V., Kryvchanska M.I. Fetal anatomy of parathyroid glands. *Wiadomości Lekarskie.* 2020. Tom 73, № 1. P. 52–57.
6. Hasselt A.V., Wong E.W., editors. Head and Neck: Dissection and Reconstruction Manual. Hong Kong: The Chinese University of Hong Kong, 2015. 175 p. P. 67–72.

PEDAGOGICAL SCIENCES

UDC: 378.147.091.016:616.1/4

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METHODOLOGICAL ASPECTS OF TEACHING INTERNAL MEDICINE AT THE DEPARTMENT OF PROPAEDEUTICS OF INTERNAL DISEASES

Abstract.

The article highlights the methodological aspects of teaching internal medicine for future doctors at the undergraduate stage.

An important aspect of the methodology of teaching internal medicine is the implementation of the principle of systematicity and continuity, which combines knowledge from previous disciplines and is reinforced by new learned material, which is established by close interdisciplinary ties.

Attention was drawn to the issue of practical training of students; raising the professional level and mastering new methods of diagnosis and treatment in the field of internal medicine and related specialties.

Key words: *internal medicine, educational process, students, competencies, pedagogical methods, practical training.*

Introduction. Currently, the teaching system in higher educational institutions of Ukraine is undergoing many changes. The historically formed educational process changes in connection with new forms of education and new requirements of the time in order to meet new standards [1, 3]. The success of reforming the system of training doctors depends on the understanding by doctors, teachers, students, and the population of Ukraine of our place in the world and in Europe in terms of the level of medical care, life expectancy, and preservation of population health [3]. At the same time, one of the main conditions for success is the high professionalism of doctors.

The complexity and versatility of the educational process, the comprehensive nature of higher medical education, which is based on the study of a large number of scientific disciplines, necessitate the coordinated actions of all departments, clinics, laboratories and service units of a medical educational institution [4, 5]. In this regard, the final results of the training of doctors depend on the skillful organization of the educational process, the development of relevant planning documents, the organization of the interaction of the units of the educational institution, systematic control over the completeness of the implementation of the curriculum and program, the quality of education and upbringing [3].

The basis of modern higher professional medical education is the formation of competencies of general cultural and professional types. The determining factor in the educational process is not the amount of scientific information learned by the student, but the system of

key and professional competencies, including the ability to find, systematize, and generate new information based on existing in the process of his independent work. The competence of a graduate of a medical university is a set of abilities, knowledge and experience for the successful professional activity of a doctor or medical scientist [1,4]. A student's motivation to study is a difficult pedagogical problem, because the listeners sometimes show inactivity in simply receiving information, which entails a lack of desire for knowledge. A modern student must possess methods of independent search for knowledge, be aimed at a variety of learning methods [1].

The problem of diseases of internal organs, despite the significant progress of medical science in recent decades, continues to be relevant. Diseases of internal organs make up a significant specific weight in the structure of general morbidity, disability and mortality of the adult population. Special attention is paid to modern concepts, diagnosis and treatment of the most common diseases of internal organs.

The goal of teaching the discipline is aimed at improving the practical training of students; raising the professional level and mastering new methods of diagnosis and treatment; acquaintance with new achievements in the field of internal medicine and related specialties; preparing students for the "KROK-2" licensing exam.

Main part. An important aspect of the methodology of teaching internal medicine is the implementation of the principle of systematicity and continuity, which combines knowledge from previous disciplines and is

reinforced by new learned material, which is established by close interdisciplinary connections [1,4]. Students use their knowledge in the method of survey and objective examination of the patient, in the analysis of medical records of outpatients and extracts from the records of inpatients. During practical classes, the method of problem-based learning and competitive groups, interactive technologies and active teaching methods are used, which involve the participation of each student in the educational process. Visual teaching aids (tables, graphic structures, multimedia presentations and problem-based lectures, video films), diagnostic and treatment algorithms, and methods of individual work are widely used [2]. For conducting practical classes at the department, there is a typical curriculum based on which methodical recommendations for students have been created. When studying the discipline, students gain knowledge about the causes, mechanisms of development and consequences of treatment of diseases of internal organs, which makes it possible to apply this information in further medical practice.

The use of interactive technologies in the educational process imposes certain requirements on the structure of classes and its elements (motivation, justification of the topic and expected learning outcomes, provision of necessary information, interactive exercises and presentation of the results of their implementation). Practical classes are conducted according to the method of competitive groups. It is also important to have information from previous disciplines (especially related ones), which allows you to integrate knowledge from different subjects, involve all participants in the process of discussing a certain problem, and develop the ability to conduct a professional discussion.

In order to evaluate the acquired knowledge from the previous disciplines, a test control of the initial level is conducted, during which information is obtained about the general training of the student as a doctor.

Students must fully master practical skills and professional skills on each topic, using the method of survey and objective examination of the patient, analyzing the medical charts of inpatients and outpatients in order to solve a specific task, determine the presence and correspondence of pathological changes to certain symptoms and syndromes. Curation of patients takes place under the supervision of a teacher and promotes the development of clinical thinking in students, the ability to make a diagnosis and prescribe adequate treatment.

The teacher prepares the student for communication with the patient, draws students' attention to the basic rules of doctor's behavior, ethical standards, and the relationship between doctor and patient. Students must learn to master the language of the profession in various communication situations, pay attention to the peculiarities of the character of patients, their contingent and the individuality of each. Between the student and the patient, mutual relations should be built based on the principle of trust and benevolence. Compassion and the desire to help the patient pushes the future doctor to search for information and knowledge about the patient's illness,

his examination and treatment. A student's work with patients allows one to consolidate theoretical knowledge and acquire practical skills. Various schemes and drawings, diagnostic and treatment algorithms, and clinical situational problems are used in the practical session. Teachers provide students with x-rays, laboratory research data, educational video and audio materials, which increases the level of assimilation of information.

Assessment of the level of knowledge in the practical session is carried out with the help of test tasks (current and final control) in combination with a survey (oral or written), analysis of clinical situational problems, radiographs and laboratory studies. Clinical situational tasks develop students' ability to analyze disease symptoms, teach them to identify the main clinical syndrome, make a preliminary diagnosis, draw up an examination and treatment plan, which increases the quality of training of future specialists. When analyzing situational problems, the teacher can objectively assess the theoretical level of knowledge of each student and his ability for clinical thinking. When solving situational tasks, the future doctor also develops the ability for logical thinking and an individual approach.

Survey methods, which are used in the educational process of students, have proven their effectiveness, as they determine the level of knowledge of the student. The method of problem-based learning deserves special attention, because it helps to develop the clinical thinking of students, causes them to be more interested in the discussed problems, that is, it creates motivation (perceived) to study the discipline [4,5]. An important task of the teacher is to provide the future doctor with the skills of reading scientific literature, the ability to quickly "orientate" in its structure and in a convenient form for the student to "fix" everything necessary for studying the discipline. Traditional methods of teaching students are primarily aimed at acquiring and deepening knowledge through the transfer of information, followed by its implementation in concrete actions in a practical session. However, this teaching methodology does not contribute to the development of independent cognitive activity [1, 5].

Students' independent work allows them to independently acquire the necessary knowledge with the help of methodological manuals prepared by university employees and the use of information technologies, which makes it possible to learn the educational material from the discipline in a more differentiated way. Situational tasks, sets of radiographs, tomograms, spiograms, educational case histories, methodological guidelines for students and methodological recommendations for teachers have been created for each topic of the practical session.

Students familiarize themselves with the main international guidelines for each pathology. Effective methods and techniques for organizing students' independent work include: providing students with visual, educational audio, video, and computer teaching aids, a developed information base; optimization of teaching methods, implementation of interactive learning technologies in the educational process to

increase teacher productivity; development and implementation of electronic manuals in the educational process; active use of information technologies that allow the student to master the educational material at a time convenient for him; participation in the analysis of problem situations; selection of recommended educational, reference, methodical and scientific literature, preparation of educational and methodical materials, individual creative tasks for organizing students' independent work; application of the system of communicative tasks for the development of all communicative skills; conducting self-control by the student: analysis of the performed activity and its self-evaluation; accounting for individual and group characteristics of students, competent management of students' independent work; clear criteria for monitoring and evaluating the student's work.

Independent work of students in practical training requires modern information support. Students' active use of the Internet in medical information systems opens up wide opportunities for increasing their level of knowledge through daily self-education. During independent work, the teacher in individual communication with students corrects, clarifies and more fully discloses the material, which contributes to the growth of interest, develops educational and cognitive activity and helps to master this knowledge.

Computerization and the use of modern innovative technologies significantly improve the scientific and methodological support of the educational process at the department, which helps to significantly increase the student's knowledge level, limiting his time for assimilation.

In order to consolidate the acquired level of knowledge and practical skills in internal medicine, students have the opportunity to take an active part (at their own request) in the work of a scientific student scientific group that is constantly operating at the department. The final control of the level of knowledge at the department is carried out in several stages: testing the level of students' knowledge, an oral survey based on the materials of practical classes, solving situational

problems and describing radiographs with pathological changes in the lungs. At the same time, students demonstrate not only theoretical knowledge, but also their skills in applying this knowledge in practical activities, which is reflected when solving situational problems.

Conclusions. Practical classes in the discipline of internal medicine provide an opportunity to determine the level and possession of information from previous (adjacent) disciplines, which allows you to integrate knowledge from different subjects, involve all participants in the process of discussing a certain problem and develop the ability to conduct a professional discussion. The use of innovative technologies turns a traditional lesson into an interactive one, allows to increase the volume of educational services and creates conditions for its continuous work, improves the quality of education and contributes to the systematization of acquired knowledge and professional skills of future doctors.

References:

1. Milerian V. Ye. *Metodychni osnovy pidhotovky ta provedennia navchalnykh zaniat v medychnykh vuzakh: metod. posib.* / V. Ye. Milerian. – K., 2006. – 80 s.
2. Zakharchenko T. *Rol naochnosti u protsesi vykladannia profesiino oriietovanykh dystsyplin* / T. Zakharchenko // *Vyshcha shkola*, 2013. № 12. S. 30–38.
3. Taktashov H. S., Hrona N. V., Homozova O. A., Suprun O. O., Kozynska I. A. *Osoblyvosti zastosuvannia interaktyvnykh, vysokotekhnolohichnykh informatsiinykh ta dystantsiinykh metodiv pry vvychnni dystsypliny «vnutrishnia medytsyna» v umovakh zmislanoho navchannia* // *Ukrainskyi zhurnal medytsyny, biolohii ta sportu*; 2020; Tom 5, № 5 (27). S.298-304.
4. *Interaktyvni tekhnolohii navchannia doroslykh: navchalnometodychni posibnyk* / Sysoieva S.O.; NAPN Ukrainy, In-t pedahohichnoi osvity i osvity doroslykh. – K.: VD «EKMO», 2011. – 324 s.
5. Maksymenko S.D., Filonenko M.M. *Pedahohika vyshchoi medychnoi osvity. Pidruchnyk* – K. : Tsentr uchbovoi literatury, 2014. – 288 s.

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[DOI: 10.24412/2520-6990-2022-22145-15-17](https://doi.org/10.24412/2520-6990-2022-22145-15-17)

FEATURES OF FAMILIARITY WITH THE PHARMACEUTICAL MATTER BY FIRST-YEAR STUDENTS

Abstract

Choosing a major is one of the decisive steps in the life of every young person, but applicants are not always motivated about their major. Therefore, the presentation of the future speciality is relevant, which will allow students to understand the essence of the chosen profession, and in the future to consciously approach their studies, especially if the applicant decides to join the community of pharmacists. Pharmacy is one of the oldest spheres of human activity, and the task of educational pharmaceutical institutions is to optimize the professional training of pharmaceutical specialists and harmonize it by taking into account Ukrainian and foreign experience following European and world standards, trends of integration into the European and world educational space, the main task. Choosing a major is one of the decisive steps in the life of every young person, but applicants are not always motivated about their major. Therefore, the presentation of the future specialty is relevant, which will provide an opportunity for students to understand the essence of the chosen profession, and in the future to consciously approach their studies.

Key words: *pharmaceutical matter, disciplines of free choice, Herbal Medicine.*

The Ukrainian pharmaceutical market, like the global one, shows high growth rates and is characterized by high competition between domestic and foreign drug manufacturers. However, today presents more and more challenges to the pharmacy. At such a time, the availability of a large assortment and an increase in the share of science-intensive high-tech products that meet international GMP standards is insufficient [1,p.56]. To maintain a position in the pharmaceutical market, the advantage of a pharmaceutical company in modern economic conditions is the presence of competent personnel who possess high self-organization, the necessary set of competencies and set clear goals for themselves [2, p.20].

One of the motivations of former students for choosing a speciality is the connection between pharmacy and medicine, and the desire to help people leads to the profession. Traditionally, it was believed that the pharmaceutical industry is among the most respected, humane and noble. Precisely because of this, the desire to become a student of a pharmaceutical institution of higher education and obtain a diploma remains prestigious and socially significant. However, the vast majority of applicants are superficially familiar with the future specialization, so it is important to familiarize students with the speciality in the first years of student life.

The purpose of our work was to study the process of familiarization with the pharmaceutical speciality of students of primary courses at the institution of higher education Bukovinian State Medical University - at the Faculty of Pharmacy.

Undergraduate studies are one of the most important links in the training of specialists. If the quality of the production process and medicines is equal to the European standard, then the direction of improvement and comparison of the training of specialists should also correspond to the European standard. The main task of the Bukovinian State Medical University, is to provide training of highly qualified specialists with moral and spiritual values, competitive specialists for the pharmaceutical sector of health care, with the amount of knowledge, skills and practical skills necessary to solve all types of professional activity of a specialist in the relevant position, able to use theoretical knowledge and practical skills for providing pharmaceutical assistance to consumers of pharmaceutical services.

The peculiarity of the training is the combination of traditional and innovative teaching methods, which are implemented during lectures, practical classes and independent training of students, as well as practical training in pharmaceutical establishments of various types of activity and forms of ownership. It is no less important to form students' knowledge of the historical path of development of pharmacy and pharmacy

business, theoretical foundations and important professional skills regarding the organization of providing medicines to the population, and knowledge of the basics of proper pharmacy practice.

The curriculum of first-year students of a higher education institution provides for the study of 13 disciplines (Table 1), among which is "Introduction to Pharmacy".

Table 1

LIST OF DISCIPLINES THAT STUDENTS TAKE IN THE FIRST YEAR OF STUDY

№	Subjects	Number of credits	Number of hours
1	Foreign Language	3	90
2	Ukrainian language (by professional direction)	3	90
3	History of Ukraine and Ukrainian culture	3	90
4	Latin	3	90
5	Philosophy	3	90
6	Biology with the basics of genetics	4	120
7	Biological physics with physical methods of analysis	4,5	135
8	Higher mathematics and statistics	3,5	105
9	Human anatomy and physiology	5	150
10	Ethics and deontology in pharmacy	3	90
11	Introduction to pharmacy	3	90
12	General and inorganic chemistry	6	180
13	Life Safety; basics of bioethics and biosafety	3	90

In total, according to the work program, 90 hours are provided, of which 20 hours are allocated to lectures, 20 to practical and 20 to seminar classes. "Introduction to Pharmacy" belongs to the cycle of disciplines of professionally oriented training of specialists in the "Pharmacy" speciality.

According to the requirements of the industry standard of higher education, the discipline "Introduction to Pharmacy" acts as a connecting link between theoretical disciplines that form the profile of a pharmacist and pharmaceutical practices that consolidate theoretical knowledge and practical skills and are intended to improve the professional training of specialists in the field of pharmacy [3, p. 3].

The discipline practically presents the future speciality, which will allow students to understand the essence of the chosen profession, and in the future to consciously approach their studies [4, p. 242].

According to the structure of the Educational Program, students are offered many optional courses [5, p. 22], which ensure the individual interests of students, provide an opportunity for in-depth and detailed study of specialized subjects, as well as the formation of an individual educational trajectory of a student of higher education, which is aimed at improving orientation towards a conscious and responsible choice of a future profession (Table 2).

Table 2

LIST OF DISCIPLINES OF FREE CHOICE

№	Name of the course	Number of credits	Number of hours
1	Cell biology	4	120
2	Modern problems of molecular biology	4	120
3	Ecology of plants	4	120
4	Herbal Medicine	4	120
5	European standard of computer literacy	4	120
6	Modeling processes in pharmacy	4	120
7	Emotional intelligence	4	120
8	Basics of psychology and interpersonal communication	5	150
8	Communication training	5	150
10	Techniques of laboratory works	5	150
11	Interactive workshop in chemistry	5	150

One of the offered courses is "Herbal Medicine" - an educational discipline that studies the main historical stages of the development of herbal treatment, its role and place in modern medical practice, the historical heritage of pharmacognosy, pharmacology, and medical experience. Herbal Medicine is the largest component of traditional medicine and a significant direction of the scientific medical field.

Acquaintance with this course will help in the formation of a complex of knowledge, skills and ideas about the history of the use of plants, the formation of a holistic view of the forms and methods of folk medicine, understanding of the place and role of medicinal plants in scientific and folk medicine, the possibility of integrating Herbal Medicine with modern traditional methods of treatment, and also the study of the vegetation of the native land.

The main task is to acquaint students with the history of the development of medicine and pharmacy, which is directly related to herbal medicine; familiarize them with the raw material base of medicinal plants, the rules of rational harvesting of LRS of different morphological groups, protection of wild medicinal plants; vegetation of Bukovyna. The floristic diversity of Bukovyna includes more than 2,000 species of plants, including many relics preserved here from past geological epochs, as well as rare species of representatives of the flora listed in the Red Book of Ukraine. The study of the flora of the native region will make it possible to educate students on a careful attitude to nature, and their history of use in medicine will encourage more thorough research and careful analysis of medicinal plants.

The results of the study of this discipline will provide an opportunity to acquaint students with the history of the development of medicine, pharmacy and pharmacognosy, to prepare students to study professionally oriented disciplines such as botany, pharmacognosy, and pharmacology.

The educational program provides for conducting seminar classes, which take place in the form of interviews, round tables, performances and presentation of presentations. The best works can be continued in the speeches of the authors at student scientific circles.

Departments are equipped with teaching and methodical materials for classes. To improve the assimilation of the material, as well as during the period of forced online learning, students have the opportunity to use the distance learning server, where they can find all the necessary information for preparing for a practical lesson, as well as the necessary material for independent preparation.

Therefore, the purpose of teaching academic disciplines is to form students' knowledge of the historical path of development of pharmacy and pharmacy business, students' acquisition of practical

competencies in the field of professional activity of pharmaceutical workers.

Conclusion. Taking into account the above, it can be stated that the Bukovyna State Medical University has created all the conditions for high-quality training of students, which give future specialists the opportunity to realize not only the responsibility of the chosen specialty, but also the prospects for their development in practical activities.

Improving the quality of education of future specialists is a prerequisite for the integration of pharmaceutical education into the European educational and scientific space.

References

1. Ковінько О. М. Фармацевтичний ринок України як рушійний важіль розвитку економіки / О. М. Ковінько, А. І. Стахова, А. П. Вовк // Науковий вісник Ужгородського національного університету. Серія: Міжнародні економічні відносини та світове господарство. – 2017. – Вип. 11. – С. 56–59.
2. Лукашев С. В. Мотивація працівників фармацевтичної галузі / С. В. Лукашев, К. О. Яндола // Управління розвитком. - 2015. - № 2. - С. 19-25.
3. Історія фармації: курс лекцій з дисципліни «Вступ у фармацію» для студ. I курсу ден. та заочн. форм навч. спец. 226 – «Фармація. Промислова фармація» ф-ту хімії та фармації / [Кобернік А.О., Грицук О. І., Еберле Л. В., Радаєва І.М.]. – Одеса : Фенікс 2021. – 120
4. Барало Р. П., Яковлева О. О., Семененко І. Ф. Вибіркові дисципліни як щабель в досягненні фахових компетентностей та інші Клінічні протоколи та персоналізована медицина: як знайти золоту середину/Матеріали XI Всеукраїнської науково-практичної конференції з міжнародною участю, 12–13 листопада 2021 року. – Вінниця, ТОВ «Твори» – 272 с.
5. L. Movchan, I. Zarishniak. The role of elective courses in students' professional development: Foreign experience. *Comp ProfPedagog* 2017;7(2):20-6. doi: 10.1515/rpp-2017-0018.

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[DOI: 10.24412/2520-6990-2022-22145-18-20](https://doi.org/10.24412/2520-6990-2022-22145-18-20)

ORGANIZATION AND CONDUCTING OF EDUCATIONAL AND PRODUCTION PRACTICE IN THE PROFESSIONAL COLLEGE OF BUKOVINIAN STATE MEDICAL UNIVERSITY DURING ONLINE TRAINING

Abstract.

Comprehensive training of pharmacist students is not only the acquisition of knowledge but also the formation of the ability to apply theoretical knowledge in the process of professional activity. That is why practice is an integral part of the master's training process in higher education institutions. Practical training is essential because by passing it students fix knowledge received during their studies, form and improve practical skills. One of the tasks of the college Bukovinian State Medical University is to create conditions for effective orientation of future specialists in the professional field. Achieving this goal will be possible when students have the necessary practical skills.

Key words: *Practical training, learning process, pharmacy students.*

The practice of students is an integral part of the process of training specialists in higher educational institutions and is carried out in the educational institutions equipped in the appropriate way, in pharmacies, pharmacy storages, educational and research sites on the growing of medicinal plants [2, p.110]. However, the forced circumstances dictate new conditions for us. Students are forced to practice online by necessity right now. Therefore, the organization of practice, including pharmacognostic, is topical.

The purpose of the work consists in analyzing the organization and conduct of educational and production practices, as one of the main stages of training, which provides an opportunity for the development of personal and professional qualities, and the creative individuality of future specialists.

The tasks of the practice are forming on the basis of the knowledge obtained in the higher educational institution, professional skills and skills for making independent decisions during their future professional work in the real market and production conditions, education of the need to systematically renew their knowledge and apply them creatively in practical activities [1, p. 76, 3, p. 429].

In sum, BSMU college carried out 5 practices, of them, 1 practice at the health centre of the village, which is called Repuzhyntsi and the research areas of BSMU. The rest as bases used pharmacies of different forms of ownership in Chernivtsi and the region.

Training practice on pharmacognosy is the initial stage in the formation of professional knowledge, skills and skills of the future bachelor of pharmacy and is a logical continuation of theoretical training and is

carried out after the spring examination session on 1 (for students on the basis of full general secondary education) and 2 (for students on the basis of basic general secondary education) courses within 5 working days. Practice in pharmacognosy based on the student's courses in pharmacognosy, pharmaceutical botany, biology, and Latin language and integrated with these disciplines. Also, the pharmacognostic practice provides the ability to apply knowledge in pharmacognosy in the process of further training and in professional activity, lays the foundations of rational natural resource use, and creation of raw base of medicinal plants due to their cultivation forms practical skills and skills in preparation of standard medicinal plant raw materials.

The purpose of the training practice on pharmacognosy is to consolidate, expand and improve the theoretical knowledge received by students in studying courses of pharmacognosy. During the pharmacognostic practice students expand, deepen, and systematize knowledge of morphological features of medicinal plants in conditions of their growth; improve skills in collection, primary processing and drying of medicinal plant raw materials; conduct herbarium of medicinal plants. On the other hand, students should have professional experience of work with normative and technical documentation and reference literature concerning medicinal plant raw materials, as well as bases of cultivation of the MP(medicinal plants) and rules of ecologically pure production of the medicinal plant raw materials, detection of growth of wild-growing of the MP and provision of recommendations on rational natural resource use.

The subject of study in the educational discipline is medicinal plants, medicinal plant raw materials, as well as some products of plant and animal origin as a source of medical raw material. Modern pharmacognosy is based on the chemical classification of biologically active substances and introduces students to the regularities of their spread in nature, and the ways of biosynthesis.

The practice was to be conducted on 2 educational-research sections of the Department of Pharmaceutical Botany and Pharmacognosy (Chernivtsi region, Zastavivsky district, S. Repuzhintsy, recreation camp "Zdorovya"; Chernivtsi, 15 Fedkovych St.).

The practice was carried out in accordance with the current normative documents and according to the curricula and program.

The use of these bases gave quite positive results both in the consolidation of theoretical material passed during the academic year, and in the provided by the visual material, and also, undoubtedly, more consolidated students and improved labour discipline.

For rational conducting of educational and production practices department of the practice of Bukovian State Medical University conducts a number of measures. For each practice, teachers of the relevant disciplines submit recommendations on types, forms, tests of knowledge level, skills, skills, which students should achieve during practice and which are covered in the methodical recommendations on the relevant practice [4, p.71; 5, p.52].

The main responsibility is placed on the direct leaders of practices in the educational institution.

Thus, the heads of practice from the higher educational institution are obliged to:

- before the beginning of practice to control readiness of practice bases, to inform the department of practice about the presence of students on the basis of practice, as well as students who have not started to practice;

- to ensure that all organizational arrangements are carried out before the start of the practice: instruction on the procedure of passing of practice and safety techniques, providing students-trainees with necessary documents (direction, program, diary, calendar plan, individual task, topics of course and diploma project (works), methodological recommendations and others), the list of which is established by the educational institution;

- informs students about the system of reporting on practice adopted at the department, namely: submission of a written report (diary), execution of research work, execution of individual task in the appropriate way, etc.;

- in close contact with the practice manager from the practice base to ensure high quality of its passage according to the program;

- to control the performance of students-trainees of the rules of internal labor order, to conduct or organize maintenance of a table of attendance by students of the base of practice;

- in the commission to accept the charges from practice;

- within 3 days after the end of the practice, submit a written report on the practice with comments and suggestions on the improvement of students.

Since during the online training, the students passed the practice at the place of residence, and the teachers of the staff developed individual tasks, which consisted of preparation and description of five medicinal plants of different photosensors. The students presented their work in the form of short video films on the arrest of the germination of the plant, as well as presentations, in which they covered the description (supported by the photograph of the plant and its parts), peculiarities of preparation, application. Some students conducted scientific research on the analysis of drugs based on one or another raw material. Each student presents his/her work during an online conference on Google meet. The best results of research work have an opportunity to continue research-based activity in the student scientific group.

The general and characteristic form of student reporting for practice is the submission of a written report, signed and evaluated directly by the head of the practice base.

The report on practice and the final control is protected by the student in the Commission appointed by the department of practice. The Commission includes the heads of practice from the institution of higher education and, if possible, from the bases of practice.

The Commission takes final control of students in the last days of its passage in online mode. The assessment for practice is made in the examination-examination and in the student's student's-book with the signatures of the Commission members. The results of each practice are discussed at the sessions of the department, and the general results of the practice are summed up at the scientific councils of higher educational institutions once during the academic year.

Thus, practice is one of the important stages of preparation of pharmaceutical specialist, which prepares future specialists for independent professional activity and allows students to consolidate their knowledge, adapt to the working day, and learn to make optimal decisions in non-standard situations.

Conclusions

1. The special features of the training of students studying in a modern speciality require constant improvement, including the organization of the performance of practical skills.

2. Educational and production practice is essential component in the process of specialists training and practical activity.

3. Creating an optimal environment, in which students have the opportunity to perform practical skills is the main task of the practice department of BSMU.

References

1. Вища освіта України і Болонський процес: Навчальний посібник / За редакцією В.Г. Кременя, Авторський колектив: М.Ф. Степко, Я.Я. Болубаш, В.Д. Шинкарук, В.В. Грубінко, І.І. Бабін. - Тернопіль: Навчальна книга - Богдан, 2004. - 384 с.

2. Герман, А. О. Виробнича практика з аптечної технології ліків – відповідальний етап у підготовці провізора / А. О. Герман, Є. С. Хуторнюк, Ю. М. Азаренко // Актуальні питання практичної підготовки студентів НФаУ в Україні та за кордоном : матеріали наук.-практ. конф. з практики студентів НФаУ та коледжу НФаУ, 16 квіт. 2015 р., м. Харків. – Х. : НФаУ, 2015. – 75-77. – №2. – С. 10-14.
3. Фармацевтична енциклопедія/ Голова ред. ради та автор передомови В.П.Черних. – Київ: «МОРИОН», Ф24. 2005. – 848с.
4. M.S. Monaghan, J.J. Cain, P.M. Malone, et al. Educational technology use among US colleges and schools of pharmacy. *Am J Pharm Educ.* 2011;75(5):Art 87.
5. C.Y. Offiong, V.U. Oji, W. Bunyan, J.A. Lewis, C. Moore, O.A. Olusanya. The role of colleges and schools of pharmacy in the advent of Healthy People 2020. *Am J Pharm Educ.* 2011 Apr 11;75(3):56. doi: 10.5688/ajpe75356.

AGRICULTURAL SCIENCES

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MORPHOLOGICAL AND BIOCHEMICAL INDICATORS OF THE BLOOD OF QUAIL AFTER USING PROBIOTIC FEED ADDITIVE "PROPOUL plv"

Abstract

The research is based on optimizing the feeding quails process due to the probiotic feed additive "PROPOUL plv" on the background of a concentrated mixture as part of the ration. The scientific and industrial research was carried out in the conditions of LLC "BARKOM" of the Pustomytiv district of the Lviv region. The work aimed to investigate the morphological and biochemical indicators of the blood of birds after using the probiotic feed supplement "PROPOUL plv". Adding a probiotic supplement to the quail diet normalizes blood parameters. Furthermore, it lowers cholesterol, especially in the blood of quails of the 4th group, which received the probiotic supplement in the highest dose. Furthermore, analysis of indicators of protein metabolism and activity of transferases once again proves the practicality of using the complex probiotic preparation "PROPOUL plv" in the quail breeding scheme. A particularly pronounced positive effect was recorded in the group of birds of the 4th experimental group.

Keywords: quail, probiotic supplement, feeding, blood, biochemical indicators.

Introduction

The modern development of multi-branch poultry farming is characterized by a high level of technologies, which are developing in two main directions, particularly the production of eggs and poultry meat. In recent years, special importance has been given to developing such a field as quail breeding and egg products, which are superior in quality compared to others and are widely used in baby food [1, 2].

Therefore, modern technologies of industrial quail breeding are provided for their keeping in closed rooms and cages. This method of keeping excludes the possibility of contact of the bird with the external environment, particularly with the soil from which it can replenish part of the nutrients and biologically active substances during free range [5, 7, 8].

At the same time, it should be noted that existing standard mixed feeds contain an insufficient amount of individual mineral and biologically active substances and substances of a prophylactic nature. These would support the body's immune system and have a preventive effect on the processes occurring in the gastrointestinal tract [3, 4].

Therefore, one of the urgent directions of ensuring total nutrition of birds is using feed additives of natural substances when feeding them, which allows avoiding many side effects associated with a negative impact on

the preservation of the bird and its productivity. Feed additives of this composition are significantly different from synthetic ones. They are primarily based on activating the body's natural protective reactions, and one of them should include the probiotic feed additive "PROPOUL plv" [5, 6].

This supplement's biological action consists of the rapid growth of positive bifidobacteria. It can take nutrients from the pathogenic intestinal microflora, thereby preventing their growth and reproduction. In this way, the general condition of the bird's body improves productivity increases due to better assimilation of feed nutrients [9, 10].

The work aimed to investigate the morphological and biochemical indicators of the blood of quails after using the probiotic feed supplement "PROPOUL plv".

Research material and methods

The research is based on optimizing the feeding quails process due to the probiotic feed additive "PROPOUL plv" on the background of a concentrated mixture as part of the ration. The scientific and industrial experiment was carried out in the conditions of BARKOM LLC, Pustomytiv district, Lviv region, on four groups of quail chickens, and later on adults, 100 heads in each, according to the scheme given in (Table 1)

Table 1.

Scheme of the scientific and industrial experiment, duration 120 days

Groups of experimental birds	Number of birds in the group, g	Features of feeding
1st control	100	BR (basic ration)
2nd experimental	100	BR+ "PROPOUL plv" - 4 g per 100 g of the feed mixture
3rd experimental	100	BR+ "PROPOUL plv" - 6 g per 100 g of the feed mixture
4th experimental	100	BR+ "PROPOUL plv" - 8 g per 100 g of the feed mixture

The groups were formed by the method of analogs by origin, live weight, and age. Quails were fed three times a day with dry, nutritionally balanced crushed concentrated feed. Access to water was free.

All experimental interventions and animal slaughter were carried out in compliance with the requirements of the "European Convention for the Protection of Vertebrate Animals Used for Experimental and Scientific Purposes" (Strasbourg,

1985) and the resolutions of the First National Congress on Bioethics (Kyiv, 2001).

Results and discussion

A controlled bird slaughter was carried out, and blood was taken for research to study the effect of probiotics on the hematological and biochemical parameters of quail. Data on the morphological and biochemical indicators of the blood of quails after using a probiotic supplement are presented in Table 2.

Table 2.

Morphological indicators of quail blood (M+m, n=25)

Indicators	Groups of quails			
	1st control	2nd experimental	3rd experimental	4th experimental
Erythrocytes, 10 ¹² /l	3.21±0.09	3.29±0.11	3.34±0.08	3.36±0.12
Hemoglobin, g/l	124.11±3.28	127.24±3.09	129.45±2.98	131.13±3.14
Platelets, 10 ⁹ /l	126.21±4.12	127.14±4.03	126.36±4.34	128.13±5.01
Leukocytes, 10 ⁹ /l	24.06±1.1	23.64±1.02	24.02±1.09	23.02±1.42
Urea, mmol/l	1.56±0.11	1.48±0.16	1.41±0.09	1.39±0.07
Cholesterol, mmol/l	3.99±0.13	4.01±0.14	3.76±0.13	3.74±0.14*

The data in the table shows that the birds' hematological parameters were within physiological values. Still, it is worth noting that the number of erythrocytes in the experimental groups was higher by 2.49, 4.04, and 4.67% compared to the control group. Furthermore, the hemoglobin content in the blood of the quails in the experimental groups also increased dynamically. For example, the blood of the birds of the 4th group was 5.6% higher than the control group. On the other hand, the number of leukocytes in the experimental groups decreased significantly compared to the control group.

The addition of probiotic supplements positively affected the biochemical indicators of quails. The cholesterol level in the 2nd experimental group was 4.01±0.14 mmol/l, in the 3rd - 3.76±0.13 mmol/l, and in

the 4th - 3.74±0.14 mmol/l. Against the background of the control group (3.99±0.13) mmol/l, with a statistically significant difference (P<0.05). There were no significant differences in urea content between quail groups.

An analysis of protein metabolism, aminotransferase activity, protein content, and protein fractions was performed to evaluate the probiotic supplement's effect. As can be seen from the data in Table 3, the inclusion of a probiotic in the diet positively affected the biochemical indicators of the blood serum of quails. Thus, they had an insignificant decrease in globulins in the 2nd and 4th groups. Also, the same slight increase in albumins was recorded, with a similar character (table 3).

Table 3.

Biochemical indicators of quail blood (M+m, n=25)

Indicators	Groups of quails			
	1st control	2nd experimental	3rd experimental	4th experimental
JSC, Unit/l	384.72±7.23	381.3±6.48	394.23±7.12	389.11±8.01
AlAT, Units/l	34.18±1.30	33.68±1.02	36.11±1.87	35.99±1.05
De Ritis coefficient	11.25±1.2	11.32±0.88	10.92±0.66	10.81±1.11
Total protein, g/l	32.84±1.45	33.70±1.03	34.17±1.14	33.12±1.06
Albumins, g/l	14.56±1.31	15.68±2.89	15.02±1.09	15.59±1.14
Globulins, g/l	18.28±1.02	18.02±1.72	19.15±1.07	17.53±1.11
A/G ratio	0.79±0.02	0.87±0.03*	0.78±0.02	0.88±0.02**

However, when using the supplement, the albumin-globulin ratio did not undergo significant changes and only showed a slight tendency to increase in birds of the 2nd and 4th groups. At the same time, this indicator's value was within physiological limits in all research periods.

As for the activity of protein metabolism enzymes, the level of AST enzyme activity in quails of the 3rd and 4th experimental groups was higher than in the control group by 2.4 and 1.1%, respectively, and ALT by 5, 6, and 5.2%, respectively. An excessive increase

in the activity of two aminotransferases was not recorded.

Conclusions

Adding a probiotic supplement to the quail diet normalizes blood parameters. It lowers cholesterol, especially in the blood of quails of the 4th group, which received the probiotic supplement in the highest dose. Analysis of indicators of protein metabolism and activity of transferases once again proves the practicality of using the complex probiotic preparation "PROPOUL plv" in the quail breeding scheme. A

particularly pronounced positive effect was recorded in the group of quails of the 4th experimental group.

References

1. Bashchenko, M.I., Boiko, O.V., Honchar, O.F., Gutyj, B.V., Lesyk, Y.V., Ostapyuk, A.Y., Kovalchuk, I.I., Leskiv, Kh.Ya. (2020). The effect of milk thistle, metiphen, and silimevit on the protein-synthesizing function of the liver of laying hens in experimental chronic cadmium toxicosis. *Ukrainian Journal of Ecology*, 10(6), 164-168. doi: 10.15421/2020_276
2. Brezvyin, O.M., Guta, Z.A., Gutyj, B.V., Fijalovych, L.M., Karpovskiy, V.I., Shnaider, V.L., Fari-onik, T.V., Dankovych, R.S., Lisovska, T.O., Bushuieva, I.V., Parchenko, V.V., Magrelo, N.V., Slobodjuk, N.M., Demus, N.V., Leskiv, Kh.Ya. (2021). The influence of HamekoTox on the morphological and biochemical indices of the blood of laying hens in spontaneous fumonisin toxicosis. *Ukrainian Journal of Ecology*, 11 (2), 249-253 doi: 10.15421/2021_107
3. Karnauh, Je.V., Bazaleeva, A.N. (2013). Probiotiki v korrektsii kishhechnogo mikrobiocenoza. zb. *Nauk. Prats. problemy ekolohichnoi ta medychnoi henetyky i klinichnoi imunolohii*. Kyivskiy natsionalnyi universytet imeni Tarasa Shevchenka, Luhanskyi derzhavnyi medychnyi universytet. K. Luhansk, 1(115), 204–215 (in Ukrainian).
4. Pidhorskyi, V.S., Kovalenko, N.K. (2004). Probiotyky na osnovi molochnokyslykh bakterii–suchasnyi stan i perspektyvy. *Materialy mizhnarodnoi naukovoï konferentsii*. Ternopil. 3–7 (in Ukrainian).
5. Povroznyk, H.V., Pivtorak, Ya.I. (2016). Vplyv probiotychnoi kormovoi dobavky «PROPOULplv» na intensyvnist rostu molodniaku ta produktyvni pokaznyky nesuchykh perepeliv. *Nauk.visnyk LNUVMBT imeni S.Z. Hzhyskoho*. Lviv 18, 1, (65), 100–104 (in Ukrainian).
6. Povroznyk, H.V., Pivtorak, Ya.I., Dvyliuk, I.V. (2015). Probiotychna kormova dobavka «PROPOUL plv» – perspektyvy vykorystannia u ptakhivnytstvi. *Nauk. visnyk LNUVMBT imeni S.Z.Hzhyskoho*, Lviv 17(63), 286–290 (in Ukrainian).
7. Shnurenko E. O., Studenok A. A., Gutyj B. V., Karpovskiy V. I., Trokoz V. O. (2021). Age features of the interrelation between catalase and tocopherol activity in chickens with different types of autonomous nervous regulation. *Colloquium-journal*, 12(99), 12-15.
8. Shnurenko, E. O., Studenok, A. A., Karpovskiy, V. I., Trokoz, V. O., Gutyj, B. V., Torzhash, A. Y., & Radchikov, V. F. (2021). Autonomous regulation of antioxidant protection and protein exchange in chickens. *Scientific Messenger of Lviv National University of Veterinary Medicine and Biotechnologies*. Series: Veterinary sciences, 23(103), 43–50. doi: 10.32718/nvlvet10307
9. Sobolev, O. I., Gutyj, B. V., Kuzmenko, P. I., Riznychuk, I. F., Kyshlaly, O. K., & Sobolieva, S. V. (2022). Selenium and its modeling effect on the body of young geese. *Scientific Messenger of Lviv National University of Veterinary Medicine and Biotechnologies*. Series: Agricultural sciences, 24(96), 61–69. doi: 10.32718/nvlvet-a9608
10. Sobolev, O.I., Lisohurska, D.V., Pyvovar, P.V., Topolnytskyi, P.P., Gutyj, B.V., Sobolieva, S.V., Borshch, O.O., Liskovich, V.A., Verkholiuk, M.M., Petryszak, O.Y., Kuliaba, O.V., Golodiuk, I.P., Naumjuk, O.S., Petryszak, R.A., Dutka, H.I. (2021). Modeling the effect of different dose of selenium additives in compound feed on the efficiency of broiler chicken growth. *Ukrainian Journal of Ecology*, 11 (2), 292-299. doi: 10.15421/2021_113

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СОДЕРЖАНИЕ ОРГАНИЗАЦИОННОЙ КУЛЬТУРЫ ПРЕДПРИЯТИЯ

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THE CONTENT OF THE ORGANIZATIONAL CULTURE OF THE ENTERPRISE

Аннотация

Организационная культура является основой жизненного потенциала организации и определяет то, ради чего люди становятся ее членами. В данной статье систематизированы знания об организационной культуре предприятия, рассмотрена важность и роль организационной культуры в становлении компании.

Abstract

Organizational culture is the basis of the life potential of an organization and determines what people become its members for. This article systematizes knowledge about the organizational culture of the enterprise, examines the importance and role of organizational culture in the formation of the company.

Ключевые слова: *организационная культура, корпоративные ценности, организация, коллектив*

Keywords: *organizational culture, corporate values, organization, team*

Важной составляющей организационной культуры, безусловно, считаются постулаты, на базе которых формируются общепризнанные меры и формы действия в компании. Непосредственно ценности, разделяющиеся и провозглашающиеся основателями и влиятельными сотрудниками предприятия, нередко оказываются тем основным звеном, от которого находится в зависимости единство работников. Ими создается целостность представлений и операций, таким образом, гарантируется достижение результат предприятия.

Со стороны аксиологии (теории касательно ценностей), ценности предполагают под собою свойство социального объекта исполнять конкретные нужды какого-либо человека или группы лиц. Ценностные взаимоотношения не появляются вплоть до тех времен, пока субъект никак не выявил для себя затруднительность удовлетворения важной для него необходимости. Согласно к координационной культуре ценности, возможно, установить как целевое и желанное явление, так как человек постоянно овладевает позицией оценки касательно всех составляющих окружающей ее наружной среды. Ценности в этом случае выступают катализатором, важным обстоятельством для каждого вида взаимодействия.

Классифицируют ценности благополучия, под ними подразумевают те ценности, которые счита-

ются важным обстоятельством для укрепления физической и интеллектуальной деятельности людей. Знаменитый общественед С.С. Фролов причисляет к ним последующие ценности: благосостояние (содержит в себе состояние здоровья и защищенность), благополучие (владение разными вещественными благами и услугами), профессионализм (компетентность в конкретных типах работы), просвещенность (познания, информационные возможности), почтение (содержит в себе положение, авторитет, известность и репутацию). К группе нравственных ценностей причисляют доброту, беспристрастность, добродетельность и прочие высоконравственные свойства. Подобная ценность как власть является одной из универсальных и важных, так как дает возможность приобретать всевозможные прочие ценности.

Коллективные ценности и нормы, содержат в себе: назначение компании и ее «лицо»; главенство, а также власть; значимость разных управляющих должностей и их функции; взаимодействие с народом; аспекты подбора в управляющие и контролирующие должности; организация деятельности и поведения; стиль управления и руководства; ход принятия заключений; продвижение и обмен данными; вид контактов; вид социализации; пути урегулирования инцидентов; анализ результативности деятельности. [1]

Любое предприятие реализовывает собственную работу в согласовании с теми ценностями, обладание которыми является преимущественной значимостью для ее работников. Формируя координационную культуру, следует принимать во внимание социальные эталоны и культурные устои государства. Помимо этого, для всестороннего представления и освоения ценностей работниками компании, немаловажно гарантировать различное выражение коллективных ценностей в рамках предприятия. Градационное утверждение данных ценностей членами компании даст возможность достигать устойчивости и немалого продвижения в формировании компании.

Разделяя и продолжая убеждения российского специалиста в области психологии Д.А. Леонтьева, отмечаются 3 ключевые фигуры жизни коллективных ценностей [4]:

1) эталоны - произведенные управлением и делимые им общие понятия касательно безупречности в разных проявлениях и областях работы компании,

2) олицетворение данных эталонов в работе, а также дисциплина работников в рамках компании,

3) внутренние мотивационные свойства персоны работников компании, подталкивающие к олицетворению в действии работы коллективных ценностных эталонов.

Данные фигуры обладают иерархической текстурой осознания сотрудниками, и со временем переплетаются: организационные и культурные эталоны усваиваются работниками и подталкивают их динамичность в качестве "модификаций должного", вследствие чего совершается настоящее олицетворение данных модификаций. Наглядно выраженные ценности в сами превращаются в базу для развития координационных эталонов и так далее вплоть до нескончаемости. Данная процедура повторяется, постоянно улучшаясь на любом этапе формирования коллективной культуры предприятия.

Многофункциональная значимость присутствия ценностей компании непосредственно сопряжена лично с прецедентом существования людей в мире. Крупный эксперт в данной области К. Клаксон полагает, что в отсутствии ценностей "жизнедеятельность общества была бы невозможной; деятельность общественной системы никак не могло бы удерживать нацеленность на достижение целей для массового народа; люди не имели бы возможность приобрести от иных то, что им необходимо в сфере индивидуальных и психологических взаимоотношений; кроме того они никак не ощущали бы для себя требуемую меру порядка единства целей". Все это без исключения можно с полной уверенностью причислить и к организационной культуре. В отсутствии общей концепции ценностей компании никак не смогли бы стабильно работать и добиваться установленных целей.

Вместе с этим, не все коллективные ценности, ощущаемые и воспринимаемые работником как правильные, на самом деле делаются его личностными ценностями. Принятие любых ценностей и позитивный настрой по отношению к ней играет малую роль. Более того, чаще всего этого и не нужно делать. На самом деле важным обстоятельством данной трансформации считается фактическое введение работника в работу компании, нацеленную в реализацию данной ценности. Только лишь каждый день, следуя коллективными ценностями, придерживаясь определенных общепризнанных норм и принципов деятельности в организации, работник способен быть частью фирмы, подходящим по внутригрупповым общественным ожиданиям и предъявляемым условиям.

Абсолютное взаимопонимание работника с организацией обозначает то, что он не только осмысливает эталоны организации, отчетливо придерживается принципов и общепризнанных норм действия в компании, но и духовно целиком берет на себя коллективные ценности. В данном случае культурные ценности компании становятся личными ценностями работника, захватывая крепкую роль в мотивационной структуре его действий. По истечении времени сотрудник не прекращает делить данные ценности независимо от того, располагается ли он в рамках этой компании или начинает работать в иной организации. Более того, такой сотрудник становится сильной основой сведений ценностей и эталонов, как в рамках сформировавшей его компании, так и иной организации, предприятия и т.п.

Проблема касательно уровня воздействия организационной культуры на результативность и показатели компании еще остается не закрытым. Однако мы можем сказать то, что взаимоотношения между культурой и итогами деятельности компании довольно сильно зависят от ценностей, какие ратифицируются определенной культурой в компании. Ценности считаются значимой категорией, вводимой писателями в установление организационной культуры. Они направляют человека в том, какое действия необходимо рассматривать возможным или невозможным.

Список литературы

1. Галкина Т.П. Социология управления: от группы к команде: Учебное пособие, М.: Финансы и статистика, 2009г., 224 с.
2. Гибсон Дж.Л., Доннелли Д.Х.– мл, Иванцевич Д.М. Организации: поведение, структура, процессы. М.: Инфра-М, 2009.
3. Ф. Лютенс. Организационное поведение. М.: «Инфра-М», 2009.
4. Магура М.И., Курбатова М.Б. Современные персонал технологии. М.: ЗАО «Бизнес школа «Интел Синтез», 2009. 376 с.

UDC: 658:330.3(477)

JEL Classification: D20; M20

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DOI: [10.24412/2520-6990-2022-22145-26-36](https://doi.org/10.24412/2520-6990-2022-22145-26-36)

ORGANIZATIONAL AND ECONOMIC MECHANISM OF BUSINESS DEVELOPMENT IN UKRAINE

Abstract.

The article examines the theory of mechanisms in economic phenomena and processes and outlines their regulatory role. Nature, system essence, functions, and conceptual model of the organizational and economic mechanism are substantiated. The structural components of the organizational and financial subsystem of the mechanism have been established. The levers and tools of the influence of the managerial and economic mechanism on entrepreneurial activity for the performance of tasks and the achievement of goals have been studied. The category of organizational and economic mechanisms is defined.

Keywords: *mechanism, relations, levers, instruments, system, regulation, activity.*

Formulation of the problem. The use of the term "mechanism" was initiated by the founders of the mechanism philosophical current, who relied on exclusively rational laws of the construction of the universe, adhered to the mechanistic concept of the world and united in a philosophical scientific school called "mechanism." Later, this concept was also used in the natural sciences. Since any mechanism is a set of interdependent and interacting elements of the system, parts (aggregates) in the presence, on the one hand, of internal orderliness and coherence between them, and on the other hand of differentiation and relative autonomy, the production system is also a kind of "mechanism" with a certain degree of its perfection, aimed at solving its deep internal contradictions.

In the economic system, the term "mechanism" was used for the first time by K. Marx in the first volume of "Capital" to characterize the processes of production functioning, considered as an "economic mechanism" [1, p. 72]. Various stages of the economic development of society required an adequate mechanism. However, the problem of knowledgeable and active use of the mechanism of the production system as a practical task was outlined only in the 20th century. In scientific usage, the expressions "mechanism of social production", "state economic mechanism", and "mechanism of the production system" are commonplace.

The terms used are an abstraction of social relations embodied in the category called "organizational and economic mechanism." However, for a long time, this category was not a special subject of scientific research, so its economic essence and content remain insufficiently studied, contradictory, and improperly substantiated. When discussing this subject area, problems arise regarding the unambiguous interpretation, mission, formation, and regularities of the functioning of the organizational and economic mechanism, and, accordingly, the ways and means of its improvement.

Analysis of recent research and publications.

The domestic scientific school actively researches the

processes related to the formation of the organizational and economic mechanism in the 60s of the last century. In the 70-the 80s of the XX century. Its content is determined by transformational processes in the economy and is considered based on the action of regularities of the reflection of processes and phenomena, as well as the management of the state, industry, region, and enterprise, especially in the field of planning, simulation and organization.

L. Abalkin, P. Bunin, I. Lukinov, O. Onyshchenko, B. Paskhaver, A. Chukhno, and others made a significant contribution to the development of the theory of the "organizational-economic mechanism" in the period of the planned-centralized economy and the administrative-command system of management. As follows, L. Abalkin defines the peculiarity of the mechanism of the production system in the reflection of processes and phenomena characteristic of this or that object at a certain stage of its development and considers this mechanism from the standpoint of social establishments as a surface layer of production relations, a connection of socio-economic relations with other links of the formation [2; 3, p. 8]. E. Vagina and M. Pokyrdchenko highlight the problems of the mechanism of the production system in dynamics [4], N. Petrakov, and others. Investigate the mechanism in the system of optimal functioning of the economy [5], A. Chuhno etc. are working out ways to improve it [6], P. Bunich etc. outline the mechanism of economic management [7], F. Gumerov etc. reveal the content and determine the supreme directions of its development [8]. E. Minaev and others paid attention to the organizational and economic mechanism of the enterprise, its concept, and practical aspects [9], and efficiency by V. Kashin and V. Ionov [10].

The analysis of publications devoted to the organizational and economic mechanism of this period shows the absence of a single methodology for its research and formation. In the process of development of social production and scientific circulation of the term

"organizational and economic mechanism", views on its interpretation change, become diverse, and sometimes contradictory.

The formation of the organizational and economic mechanism in the 90s of the 20th – the beginning of the 21st century is related to such aspects of macro and microeconomics as public accounting relations (Sabluk P., Malik M., Oliynyk V.) , financing, insurance, taxation, management, and regulation (Demyanenko M., Stetsyuk P., Alekseychuk V. , Navrotsky S., Mocherny S.) [11; 12].

In the economic encyclopedia, the organizational and economic mechanism is defined as a system of basic forms, processes, and levers of using economic laws, resolving contradictions of the social method of production, a realization of property, as well as comprehensive development of a person and coordination of his interests with the importance of the collective, society. It is formed by the interaction of individual links, parties, and such elements of the economic system as productive forces, technical-economic and organizational-economic, and production relations (or relations of economic ownership) [13, p. 269–270].

According to the A. Chuhno's definition, the mechanism is an organic component of the economic system; the functional side of industrial relations; a way of organizing and managing production with its inherent forms, methods and means that implement socio-economic, organizational-economic and scientific-technological principles and relations in the interests of meeting the needs of each business entity and society in general [14].

In this context, the term "mechanism" is used as an activity regulator. At the macro-level, the mechanism regulates the functioning, reproduction, and development of the national economy, at the meso-level – industries, and at the micro-level – enterprises. It is a means of solving tasks or solving problems of production, distribution, exchange, consumption and reproduction.

The purpose of the article is the methodological substantiation of the system essence and the construction of a conceptual model of the organizational and economical mechanism with an outline of the content of its organizational and economic subsystems as organizational and economic mechanisms.

An overview of the main material. Predominantly, the organizational and economic mechanism is outlined in a system of objective relations, expresses the essential features of economic life, conditioned by relations that open up with the knowledge of categories and laws and the principles and methods established by them, which characterize the behavior of people in financial life. In this sense, the mechanism is considerably broader in the scope of economic laws and specific forms of their manifestation, since it covers, in addition to the basic ones, superstructure relations, which include political, legal, moral, and ethical ones that actively influence the basis.

The nature of the organizational and economic mechanism is based on the economic interests of vari-

ous social groups as one of the main forms of manifestation of industrial relations, providing space for the development of society. The formation of the mechanism is based on the consideration of interests, influence on them, the management of interests, and through interests, the realization of interests, the totality of which is the driving force of social progress [15].

The interpretation of the organizational and economic mechanism as a special formation or organization of elements and connections that ensure the development of a certain object has become generally accepted. At the macro level, in the system of this mechanism, its spheres such as legislative, executive, economical, financial, economic management, self-management, and others are distinguished as independent objects. Simultaneously, each of these spheres (systems) includes a set of elements (subsystems) that form a certain order, the structure of the arrangement in the act, and the action of the system in general. Thus, all constructive subsystems of the construction of the organizational and economic mechanism, functioning independently and purposefully in the system, achieve unity and act as a single entity.

The essence of the organizational and economic mechanism is manifested in the process of the dialectical unity of its content and form. The content is defined by the system of industrial relations making these components, and the form is defined by the system of organizational implementation corresponding to it. The dialectical relationship between the content and the form of the mechanism is manifested in its functions arising from the tasks implemented in its system, namely [16]:

- bringing the levels of development of productive forces and industrial relations into the line with each other under the requirements of economic laws (cost, competition, demand/supply, market equilibrium, etc.) , knowledge and use of these laws;

- harmonization of social and personal importance and implementation of the interests of the individual, collective, social and professional groups to resolve socio-economic contradictions that go beyond economic laws;

- stimulation of scientific-technological and socio-economic progress with a focus on compliance with ecological principles of development;

- decentralization of state administration, demarcation of competencies and powers of state authorities and self-government, implementation of mechanisms and procedures of public participation in solving problems and strategic and tactical tasks.

Thus, the organizational and economic mechanism, according to the definition of Yu. Luzan creates conditions for the effective use of the potential of economic growth, ensuring harmony of interests and justice, the ecological and social direction of economic development, and the establishment of democracy based on the construction of civil society [17, p. 14].

The structure of the organizational and economic mechanism as a complete system includes organizational and financial subsystems (Fig. 1).

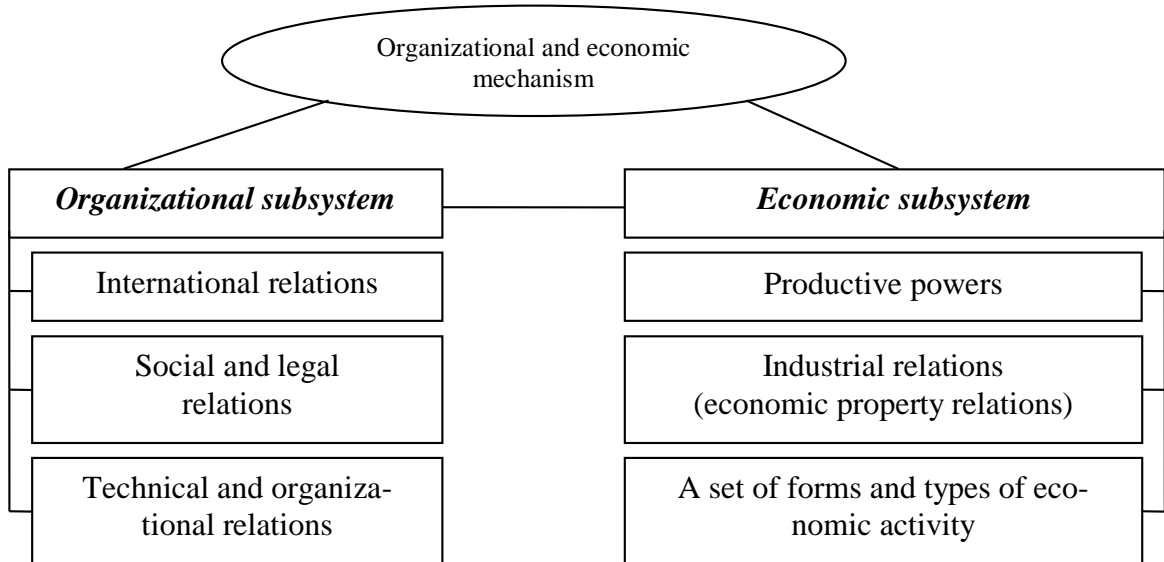


Fig. 1. Conceptual model of the organizational and economic mechanism

Source: the author's development.

The organizational subsystem includes international relations formed in the process of Ukraine's membership in international organizations and worldwide cooperation; socio-legal relations aimed at satisfying the legitimate interests of society, labor groups, companies, and enterprises, which need to be regulated by law; technical and organizational relations related to specialization, cooperation, combination and concentration of production, development of horizontal communications in the process of innovations and affect the organization of work, the structure, and forms of employment, the formation of the internal labor market. The economic subsystem is characterized by productive forces that produce material goods; industrial rela-

tions arising in the process of social production, distribution, exchange, consumption, and reproduction of material goods; a set of forms (private, collective, state) and types of economic activity that ensure the processes of production of material goods.

In the organizational subsystem, a mechanism is formed, which includes a set of levers and regulators of economic life and can change over time and the requirements of the internal and external environment. Levers and tools of influence on economic activity ensure an organized, purposeful, coordinated interaction of the elements of the organizational mechanism system with the aim of achieving the set goals and objectives (Fig. 2).

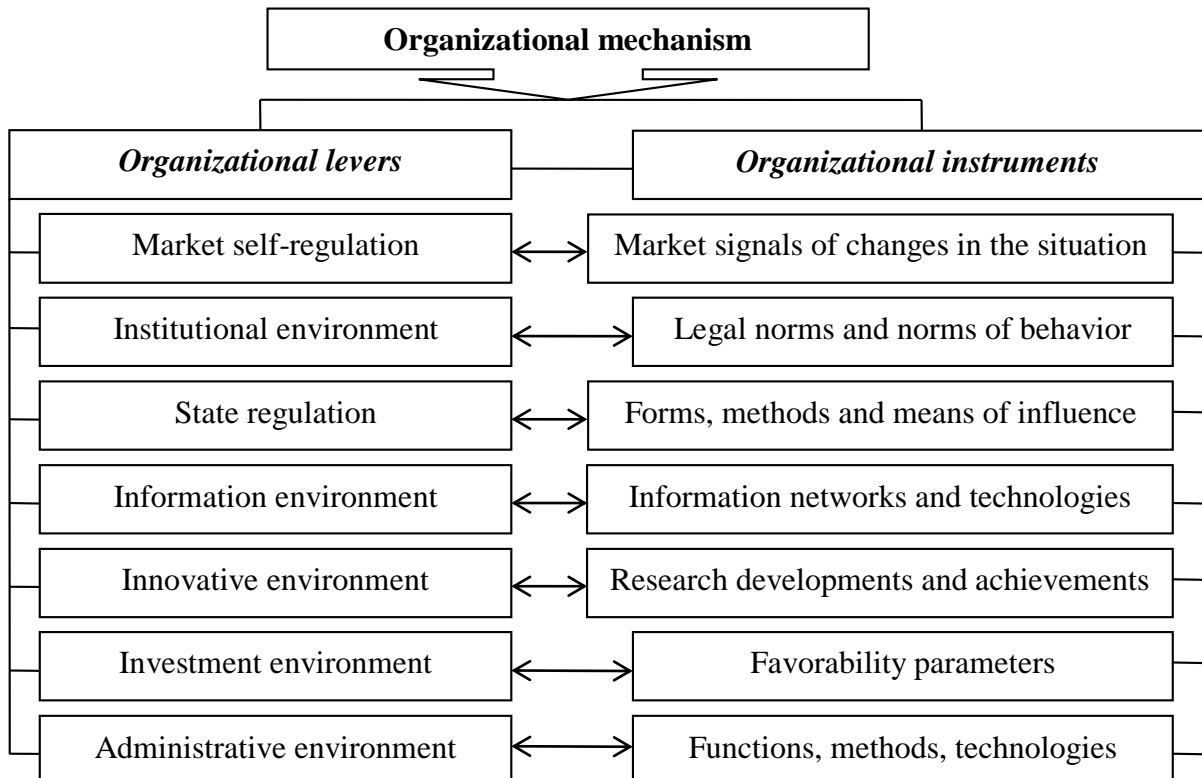


Fig. 2. Model of the organizational mechanism

Source: the author's development.

The main organizational lever of the market system is market self-regulation, in the process of which the proportions of development are formed by market methods subject to market signals about changes in the situation. The free market contributes to a more efficient distribution of resources, but it can respond merely to those common needs that are revealed through solvent demand, which does not ensure the production of socially necessary goods and the preservation of natural sources, and causes the instability of development with its inherent aggravation of social tensions in society and inflationary processes.

To reduce administrative pressure, market self-regulation is also carried out by market representatives themselves. Business entities establish their norms/standards/rules of activity and monitor their compliance by all members of the organization, sanctioning violations [18].

The institutional environment is formed by official and unofficial rules and procedures for their implementation, which increase the efficiency and stability of the market system. Official Rules (formal institutions) are provided with legislative and forceful promotion of legal authorities (supporting institutions), while unofficial rules (contracts and voluntarily accepted codes of conduct) are supported by established traditions, norms of behavior, and ethics and acquire the status of informal (interned) institutions. Formal institutions include normative legal acts (laws, resolutions, decrees, orders), establish norms, regulations, and restrictions, and regulate relations between business entities. Informal societies are formed by self-governing institutions - associations, unions, unions of commodity producers, and consulting centers [19, p. 285].

The key function of institutions consists in harmonizing economic relations and managing them, providing signals (generating information) about the needs of society in combination with the simultaneous resolution of emerging problems, and maintaining the balanced interests of all market participants. State institutions regulate relations between the state, business entities, and consumers of products, and ensure budget filling, subsidies, standardization and environmental control at the legislative level [20].

Disadvantages of market self-regulation determine the expediency of state intervention in business processes. State regulation is carried out by effecting significant changes in the conditions of market functioning in the type of direct (state orders, financing of targeted complex programs) and indirect (taxes, subsidies, prices) influence, carried out by legal (legislative acts, social norms, national norms, and standards), administrative (decrees, resolutions, orders that allow, prohibit, limit and regulate) and economic (indicative planning) methods and means of the power of the state in the form of legislative and executive bodies on the sphere of entrepreneurship and market infrastructure to generate or ensure conditions for their activity following the national politics. In this way, nation intervention in the economy is reduced to the creation of appropriate situations for the functioning of the market.

The information environment includes a set of technical and software means of storing, processing,

and transmitting information, as well as organizational, economic, and cultural conditions for the implementation of informatization processes. The concept of information is presented in philosophy as a form of reflection of the real world, one of the attributes of matter that reflects its structure.

Manifestations of the information environment are characterized by an increase in the role of information and knowledge in the life of society; the growth of the number of people employed in IT, communications and the production of information goods and services, the strengthening of informatization and the importance of IT in business and social processes and relations.

Created by a collection of information, information infrastructure, and entities that collect, form, distribute and use information, the information space ensures effective information interaction of people, access to global information resources, and satisfaction of consumer needs regarding information products and services. The world of information around an individual becomes the sphere of his information activity.

The properties of the information environment are defined by the information content of any given information space and its constant and long-term storage, as well as variable, projective and communicative orientation and its mass replication. The functional information environment provides operational information exchange, storage of information for further usage in the system of knowledge reproduction, maintenance of information and processing of consumer requests, cognitive assistance in transforming information into user understanding, use of information architecture for search availability of information in the accumulated volume [21].

The internal information environment, the information resources of which are related to the information space of enterprises and organizations, serves to unite divisions and business units. Its structure is determined by information, knowledge and people who are in a state of informational interaction. Extensive informatization in the system of organizational and production factors, which are accompanied by the creation, accumulation and use of information, become a defining information technology method of activity.

Informatization in all spheres of social life, electrification, digitization and robotization of production and everyday entity, on the one hand, frees a person from the producing process itself, places him alongside it, and on the other hand, increases the requirements for the educational and qualification level of the employed, the intellectual capacity of production, labor and product.

The rapid growth of information resources and the emergence of the latest technologies cause fundamental changes in the activities of enterprises and their business processes. The information space of deployment and flow of information sciences, permanent interaction of the processes of production and consumption of information unites people, integrates different types of human activity and economic subjects into a single socio-cultural and informational environment through the

implementation of interactive and mobile communication, the actualization of interests and socialization of relations in various spheres.

The external information environment, the organizational tools of which are information networks and digital technologies, includes a set of relationships that arise during the formation and use of information resources based on the creation, collection, processing, accumulation, storage, search, distribution and provision of documented information to the consumer, as well as the creation and the usage of IT and means of their support, information protection, rights of subjects participating in information science and informatization.

In the conditions of economic globalization and European integration, powerful flows of information consolidate the information environment, contribute to the establishment of "rules of the game" on the world stage and intensification of interactions, and serve as a source of a transformation and control of geopolitical relations and competition, greening of production, standardization of product quality and safety offers.

The innovative environment is formed as a result of innovative activities, the conduct of fundamental and applied research by research institutions and organizations and the accumulation of scientific results, the attributes of which are new or improved products, new or modified technologies, more effective types of organization, specialization, cooperation, concentration, diversification of production, financing and lending, methods of labor organization, management of economic processes, forecasting of dynamics, etc.

However, by themselves, the issues of research project, created scientific and technical inventions, knowledge bases of new technologies, scientific works, patents and licenses do not automatically flow into the innovation process and therefore are not a sufficient condition for innovative development. A necessary stage of innovative activity represents the transference of inventions and technologies by the organizational structure, which forms a portfolio of offers and orders for scientific developments, carries out the commercialization of science-intensive products, their continuous improvement on the way to the market, evaluation with the determination of the share of remuneration to author groups in the form of royalties, capitalization and withdrawal in the kind of current technologies to the market and transfer to the sphere of production [22].

Despite this, notwithstanding with the presence of appropriate structures that contribute to the implementation of developments in production, scientific and technical inventions may remain inactive until the necessary economic conditions for their application appear. Limitations of financial resources for investments can remain the limiting factors of the innovation process. At the same time, the intensification of investing activities also does not always cover the modern sphere and ensure innovative investment. Under the condition of an extensive path of development, investments reproduce the existing technological base without transformations (modernization).

Although investing and innovation processes are closely related, riskier changes with uncertain outcomes do not respond as instantly to changing profitability conditions as investments. To give investing activity an innovative focus, additional measures are needed, based on the private interest of technological renewal of production to increase its competitiveness and bring a new product to the market to obtain the maximum profit from its sale.

The investment market is in close contact with self-regulating and regulatory factors. State regulation of financings ensures the balance of demand and supply of investment goods. It is aimed, first of all, at correcting the behavior of subjects of investment relations and involves direct management of state investments, control over investment activities and requirement of factors influencing investments. Accordingly, such a model of regulation of the investing sphere is formed, in which what the market cannot provide, the state supplies [23].

Activation of investment activity is carried out with the help of budgetary and credit-monetary levers of state influence. The dynamics and level of interest rates becomes the object of conducting credit and monetary policy. The direct influence of the policy is carried out according to the scheme: money supply - interest rate — investments — national (business) income.

The management environment of the organizational mechanism is arranged depending on the forms and scales of management and under the influence of internal and external factors. In joint-stock corporations, created due to the pooling of capital with the separation of capital-property from capital-function, the management environment is defined by corporate governance and requires efficient control. They also include limited-liability corporations with a strict separation of owners and managers.

The procedure for the creation and operation of joint-stock companies and their legal status, rights and obligations of shareholders is determined by the legislation of Ukraine [24]. The international standard "Principles of corporate government of the OECD" considers collective governance as including complex relations between the company's board, its board of directors, shareholders, and other interested parties (stakeholders) [25, p. 11].

The innovative approach to management in a joint-stock company is based on the fact that shareholders move away from the presentation of entrepreneurial functions, and hired professional managers to take on the performance of current tasks that go beyond the scope of a leased employee, carry out proactive business activities at their own risk, perform duties an entrepreneur.

In state-owned joint-stock companies, the range of issues of independent management decision-making is significantly limited. The state as a shareholder performs the macroeconomic function of regulatory influence to ensure national interests, the needs of public production and the country's population, and the microeconomic business of a shareholder-owner of corporate rights, related to economic action, control over reproduction and effective use of its property.

The purpose of corporate governance depends on the goals of the social system, the stages of the administration process, the types of management activities, the objects of management - common rights, the corporation as an official entity and the current activities of production units. From the point of view of the effectiveness of corporate management directly by the company as an enterprise, actions in the interests of the owners cannot always be justified. Norms and procedures of owners' relationships and their influence on management become necessary and extremely significant elements of it [26].

According to S. Puffer, D. McCarthy, "Corporate governance is one of those terms that everyone understands in their way, but at the same time, everyone agrees that good corporate governance requires severe moral behavior of managers, members of the board of directors and shareholders" [27, with. 48]. It should be based on the concept of social responsibility for the decisions and activities of them to shareholders, landlords, employees, and suppliers, consumers of products, financial intermediaries and territorial communities.

However, a fundamental division of functions in the field of corporate management of joint-stock companies is extremely rare. Customarily, it extends the scope of its influence to the entire enterprise management system, including control over business processes, strategic administration, values, etc. Executive bodies of joint-stock companies owned by the majority shareowners are typically wholly managed, which does not ensure their independence and leads to ignoring the rights of minority shareholders and concerned parties. Not always socially responsible corporate business is in addition in compliance with economic, labor, antimonopoly and tax legislation and the principles of *sustainable development*.

The improvement of the corporate governance system in the conditions of globalization is considered a necessary tool for the development of the capital market, a stable institution of responsible shared governance, the growth of business value in the long term and a source of the economic advance of countries.

Business management (enterprise management) is carried out in the production and scientific sphere to ensure the organization, coordination and regulation of

the making process, and in the socio-economic sphere to regulate the relations between the participants of the production means in conditions of division of labor and cooperation, the formation of them among managers and executors of technological processes and production tasks.

However, the integrity and viability of the business as an extended system are ensured thanks to the elements from which it is arranged. The totality of these elements constitutes the internal environment of the enterprise. It is designed and created taking into account the specifics of the activity, the circle of consumers, market conditions, business positions, etc. When arranging the internal environment, the management system must ensure that the characteristics of its most important components accompany the conditions of the external environment in which the enterprise operates.

The enterprise management process is considered an infinite chain of management decisions. The effectiveness of economic management depends on the successful use of the main functions of management (planning, organization, motivation, control) and other opportunities and approaches to the science of management, especially system analysis, economic and mathematical modeling, planning methods, the creation of communication links, the formation of social and psychological climate.

The process of developing management solutions includes several separate stages, each of which is based on the performance of certain types of work, considering numerous factors. With the increasing complexity of management in conditions of uncertainty and mobility of external factors, empirical decision-making methods, including expert assessments, carry out a significant role. Particular attention is devoted to methods of developing solutions and adequate management of problems. To overcome the problems associated with decision-making in complex situations, the concept of modeling management decisions that affect the effectiveness of decision-making is becoming widespread.

In the economic subsystem of the effective mechanism, an economic mechanism is established with levers and tools to influence on the functioning of the economic system, ensuring the development of productive forces and production relations of a set of forms and types of economic activity (Fig. 3).

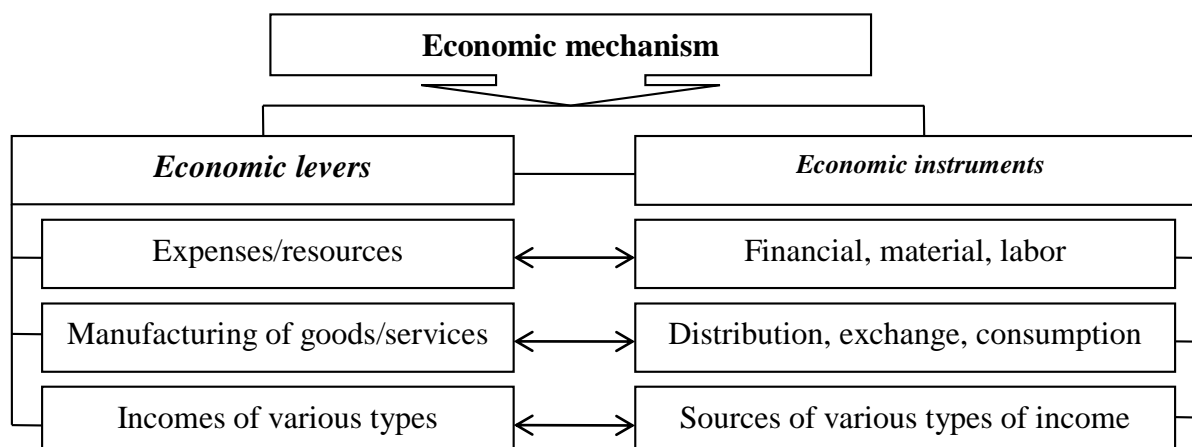


Fig. 3. Model of the economic mechanism

Source: the author's development.

The economic leverage of costs/resources is based on the business nature of costs, caused by the limitation (scarcity) of resources, that is, access to resources at the market price and excess cash. The rarity of production supplies requires consideration of alternative options for their use and the search for the most efficient method of producing prices to obtain maximum profit. Therefore, the economic essence of production costs is based on alternative possibilities of profitable use of limited production supplies.

Costs are divided into constant costs, the cost of which does not be based on changes in the volume of production, variable costs, the value of which depends on the quantity of producing and marginal costs, which represent additional (variable) costs for each other unit of production. Such a division establishes a cause-and-effect relationship in production. Increased costs of one resource with a constant number of other production resources and production technology from a certain moment lead to the manifestation of the law of diminishing marginal productivity or increasing opportunity costs put differently, causing a decrease in production growth.

The effect of diminishing returns on costs (production efficiency) is caused by a violation of the proper ratio between the used resources, which occurs when the costs of some resources increase for a fixed (given) amount of others, incomplete use of available producing resources and an excessive amount of material stock.

Such negative economic consequences are typical for the short-term period of production under the condition of quantitative and qualitative changes of only certain factors of producing. When the entire production process is changed under the influence of material-technological and socio-economic progress, the law of diminishing marginal productivity practically does not manifest itself.

Managing the ultimate costs of the enterprise, which includes fixed and variable costs, determine the average production costs per unit of production, compare them with the market price of the product to make the profit (loss) of production, as well as analyze the dynamics of costs. A decrease in regular prices is ensured by increasing production volumes, enterprise sizes, or the effect of scale.

The relationship between the volume of production and the level of its average costs, which is accompanied by the saving of resources, serves to determine the optimal size of the enterprise and to establish trends in the growth of average costs with a more isolated increase in the scale of production.

Nonproduction costs consist of transaction costs. They are multidimensional, related to the functioning of the market, arise in the process of searching for information about suppliers and buyers, conducting negotiations, concluding and executing market agreements (contracts), transferring and protecting property rights, and include spending money, time and psychophysical energy.

Various costs are incurred in the process of production of material and spiritual goods and their appropriation in all spheres of the social picture, which includes the organic unity of production, distribution, exchange and consumption [13, p. 471]. The leading place among the phases of reproduction belongs to production, which is characterized by economic relations between people and is a labor means with a finished technological cycle and the result of a genuine good obtained. Based on production, a simple, narrowed, or expanded reproduction and renewal of the elements of the economic system is constantly carried out. The impetus for the development of production is provided by needs, which constantly change along with production. Satisfying some needs invariably leads to the appearance of others, modernization and improvement of production technologies, methods of provision and expansion of the product range.

Production is characterized by the presence of contradictions regarding needs, economic importance, and competition, which remains the driving forces of its development. Untimely resolution of these contradictions aggravates problems, reduces the effectiveness of activities, and restrains the process of development, and achievement of an aim or goals, the basis of which are needs and interests.

The essence of economic interests comes down to the specifically directed satisfaction of perceived requirements in resources and means of producing, items of personal consumption and conditions of functioning of business entities. They reflect the objective motivating motives of economic activity, determined by the place in the system of social production, division of labor and financial property relations. Economic interests encourage the formation of a system of material incentives for making concerning the receipt and distribution of income based on the results of live and physical labor.

Relations between people, manifested in the sphere of distribution, are formed in the process of appropriation of the produced product (service) by different categories of workers in the type of business income, rent, taxes to the state, payments, remuneration of employees, etc. Distribution in the economic process links production with consumption and determines the shares of the manufactured product for its appropriation and further use. Indirectly, distribution continues the producing process, stimulates labor, develops opportunities and establishes the proportions of development. The material content of distribution is determined by production conditions and labor results.

Simultaneously, distribution relations affect production by distinguishing deductions for various costs to produce a product, including wages, taxes and fees, interest on credit, dividend payments and enterprise development. In the process of distribution, funds for using up, replacement and collection are created, and contradictions arise regarding the renewal and expansion

of producing, wages of employees and profits of enterprise owners, concerning accumulation and consumption.

Relations in the field of exchange, the beginning of which is on top laid by production, arise in the process of buying and selling goods and services. With the help of exchange, the goods move to the consumer. Exchange contributes to satisfying needs, finding unused opportunities for their satisfaction and offering new products. Objects of exchange include land, money, and valuables. There is, in addition, an exchange of activities, skills, experience, information, etc.

Externally separated from production, exchange mediates the previous phases with the consumption of manufactured products. It seems to complete the producing process and at the same time maintains it, is intertwined with distribution and is directly related to the satisfaction of needs. The core elements of exchange include capital circulation, the proportionality of reproduction, optimization of production and product structure, market and its infrastructure, financial and credit relations and money circulation. Accelerating the turnover of resources and timely delivery of products as intended increases the role of exchange in the economic system.

According to the law of importance, an exchange is characterized by the appropriation of approximately the identical amount of profit for an equal amount of capital. The non-equivalence of exchange, revealed in the process of buying and selling goods, leads to the overflow of capital from the sphere of low profitability to the sphere of high. However, the operation of the law of value does not mean the exchange in each specific case is carried out according to value. The cost, as a monetary expression of value, obtain not inevitably its exact measure, usually, it spontaneously deviates from the importance of goods. Pricing does not fully meet the requirements of the law of value because there are other laws affecting exchange in the market. But in the conditions of competition, these deviations cannot be significant and last over time, and therefore value fluctuations around the use practically do not violate the law of value.

However, the manifestation of the law of value due to spontaneous price fluctuations affects the development of commodity production, forces commodity producers to improve the organization of work, to introduce progressive technologies. As a result, the level of development of productive forces increases, the means of production and labor force are distributed among various industries, and proportionality is achieved between economic spheres.

The final phase of social reproduction represents the relations between production and non-production (social, individual, personal) use, where the produced product is acquired by the ultimate consumer. As the ultimate goal and generalizing factor of production, consumption accumulates the effectiveness of other phases of social reproduction. At the same time, consumption as distribution and exchange also depends on production and affects production, restores needs for its results, stimulates the appearance of new products and

makes it impossible to release an outdated range of products of enterprises.

The socio-reproductive process, which includes production, distribution, exchange and consumption, a system of commodity-money relations between economically separated commodity producers and consumers, ensures final consumption and receipt of expected income by all market operators. According to the rules of the Tax Code of Ukraine, the sources of income of enterprises obtain income from operational activities (from the sale of goods, performance of work, and provision of services) and other revenue (in the form of dividends, from rental/leasing operations, etc.) [28].

For the aggregated economic units of the macroeconomics as a totality and the basis that unites the "economy of firms", the economic mechanism sets the rules of the "economic game", orienting the activity and behavior of economic entities in the direction of the realization of the established goals. It acts on market components (production and consumption) and the interface sphere that connects them and regulates economic relations between subjects through the interaction of supply and demand.

The definition of an economic mechanism as a strategic game based on the interaction between economic issues, a description of how business subjects can act and what a set of their actions will lead to, belongs to the laureates of the Nobel Prize in Economics (2007) Leo Hurwitz, Roger Myerson, Eric Maskin for his "fundamental contribution to the theory of economic mechanisms". The economic mechanism, according to Leo Hurwitz, defines a set of choices of economic subjects, each of which is associated with some result. In this sense, the mechanism arranges a system of incentives and approaches the concept of "economic institution" [29]. However, the institute cannot represent a separate mechanism but represent a complex set of economic mechanisms.

At the same instant, L. Hurwitz focuses attention on the importance of integrating economic hypothesis and the theory of institutions for solving the problems of institutional design of reforms: the effective design of superstructures of existing institutions, current institutions, rules and mechanisms of coercion, and compliance with these regulations, must contain at its core an analysis of people's behavior in within certain incentives or mechanisms. Traditionally close to the perception of economists, such a part of the institutional structure as an economic mechanism is unsustainable without reliance on social institutions of a deeper level.

As follows, the economic mechanism endures a way of ensuring the implementation of the requirements of objective economic laws in the process of subjective human activity. Its levers and tools, which combine objective and subjective factors in economic activity, make it possible to obtain options for choosing the optimal solution in the process of purposeful development and are more effective than coercion.

Conclusions. The organizational and economic mechanism expresses the peculiarities of economic life and includes, in addition to the fundamental ones, superstructure relations. Its nature is based on economic

importance as a form of manifestation of industrial relations in the development of society. Accordingly, the formation of the economic process is based on consideration of interests, influence on interests, the management of interests, and through interests and realization of interests as a driving force of social growth.

The organizational and economic mechanism represents a combination of elements and connections that arrange an exact order, the structure of the system in action and the action of the system in general, independently and purposefully functioning in the system achieve unity, act as a unique entity and ensure the development of a certain object.

The essence of the organizational and economic mechanism is manifested in the process of the dialectical unity of its content, which is outlined by the arrangement of industrial relations and the form, which is determined by the corresponding system of the organizational embodiment. The dialectical relationship between the content and the form of the mechanism is manifested in its functions arising from the tasks implemented in its structure.

The structure of the organizational-economic mechanism as a proper system includes organizational and economic subsystems that generate conditions for the effective use of the potential of the economic process, ensuring harmony of interests and justice, the ecological and social direction of economic development, and the establishment of democracy based on the construction of civil society.

In the organizational subsystem, a mechanism is produced, which includes a set of levers and regulators of economic life and can change over time and the requirements of the internal and external environment. Levers and tools of influence on economic activity ensure an organized, purposeful, coordinated interaction of the elements of the organizational mechanism system to achieve the established goals and objectives.

In the economic subsystem of the economic mechanism, an economic mechanism is produced with levers and tools to influence on the functioning of the economic system, ensuring the development of productive forces and production relations of a set of forms and types of economic activity. The economic mechanism represents a way of ensuring the implementation of the requirements of objective economic laws in the process of subjective human work. Its levers and tools, which combine objective and subjective factors in economic activity, make it possible to determine options for preferring the optimal solution in the process of purposeful development and are more effective than coercion.

As follows, the organizational and economic mechanism comprises a system of interdependent organizational and economic levers and tools of influence on the functioning of the economy, which in their interconnection and interaction ensure economic development, as well as an integral organizational and economic component of production that affects the performance of its separate functions and operations, the use of a set of resources and methods of their combination for the implementation of the process, which is in a state of waiting for regulatory measures and management actions aimed at profitable entrepreneurship.

References:

1. Marks K. (1963). *Debaty o svobode pečati* [Debate on freedom of the press]. *Sochineniya – Works* (Vol. 1). Moskva : Politizdat [in Russian].
2. Abalkin L. I. (1980). *Čto takoe hozyajstvennyj mekhanizm?* [What is the economic mechanism?]. Moskva : Mysl' [in Russian].
3. Abalkin L. I., et. al. (1990). *Hozyajstvennyj mekhanizm obščestvennyh formacij* [Economic mechanism of social formations]. Moskva : Mysl' [in Russian].
4. Vagina E. YU., Pokidchenko M. G. (1990). *Hozyajstvennyj mekhanizm: problemy prošlogo i nastoyashčego* [Economic mechanism: problems of the past and present]. Moskva : Znanie [in Russian].
5. Petrakov N. Ya., et. al. (1985). *Hozyajstvennyj mekhanizm v sisteme optimal'nogo funkcionirovaniya socialističeskoj ekonomiki* [Economic mechanism in the system of optimal functioning of the socialist economy]. Moskva : Nauka [in Russian].
6. Čuhno A. A., et. al. (1979). *Hozyajstvennyj mekhanizm i ego sovershenstvovanie na sovremennom etape* [Economic mechanism and its improvement at the present stage]. Kiev : Vishcha shkola [in Russian].
7. Bunich P. G., et. al. (1991). *Hozyajstvennyj mekhanizm upravleniya ekonomikoj SSSR* [Economic management mechanism of the economy of the USSR]. Moskva : Ekonomika [in Russian].
8. Gumerov F. I., et. al. (1990). *Hozyajstvennyj mekhanizm: soderžanie i osnovnye napravleniya razvitiya: ucheb. posob.* [Economic mechanism: content and basic directions of development] (textbook). Kazan' : Izd-vo Kazan. un-ta [in Russian].
9. Minaev E. S., et. al. (1991). *Hozyajstvennyj mekhanizm predpriyatiya: koncepciya, metody, praktika* [Economic mechanism of the enterprise: concept, methods, practice]. Moskva : Izd-vo MAI [in Russian].
10. Kashin V. N., Ionov V. YA. (1997). *Hozyajstvennyj mekhanizm i effektivnost' promyshlennogo proizvodstva* [Economic mechanism and efficiency of industrial production]. Moskva : Nauka [in Russian].
11. Demyanenko M. Ya. (2000). *Finansy silskogospodarskyh pidpryemstv (posibnyk z pytan' finansovyh vidnosyn u rynkovykh umovax)* [Finances of agricultural enterprises (manual on issues of financial relations in market conditions)]. Kyiv : IAE [In Ukrainian].
12. Mochernyi S. V., et. al. (2001). *Ekonomična teoriya : posibnyk* [Economic theory: a guide]. Kyiv : Akademiya [In Ukrainian].
13. Mochernyi S. V., et. al. (2000). *Ekonomična encyklopediya* [Economic encyclopedia] (Vol. 1). Kyiv : Akademiya [In Ukrainian].
14. Čuhno A. (2007). *Gospodarskyi mexanizm ta shlyahy jogo udoskonalennya na suchasnomu etapi* [Economic mechanism and ways of its improvement at the modern stage]. *Ekonomika Ukrainy*, 3 [In Ukrainian].
15. Olejnik V. YA. (1987). *Hozyajstvennyj mekhanizm agropromyshlennogo kompleksa (tekst lekcii)* [Economic mechanism of the agro-industrial complex] (lecture text). Dnepropetrovsk: Dnepropetrovskij SKHI [in Russian].

16. Rossokha V. V. (2009). Organizacijno-ekonomichnyj mehanizm ta jogo rol' u rozvytku agrarnoyi sfery [Organizational and economic mechanism and its role in the development of the agrarian sphere]. *Visnyk KhNAU* [In Ukrainian].
17. Luzan Yu. Ya. (2010). Organizacijno-ekonomichnyj mehanizm zabezpechennya rozvytku agropromyslovogo vyrobnytva Ukrainy [Organizational and economic mechanism of ensuring the development of agro-industrial production of Ukraine] (monograph). Kyiv : NNCz IAE [In Ukrainian].
18. Platforma efektyvnogo reguluvannya (2021). Rynkove samoreguluvannya [Platform for effective regulation]. (market self-regulation). Retrieved from: <https://regulation.gov.ua/dialogue/kontrol-i-nahlyad/25-rinkove-samoreguluvanna> [In Ukrainian].
19. Petrychenko O. A. (2018). Rozvytok molokoproduktovogo pidkompleksu v Ukraini : monografiya. [Development of the dairy sub-complex in Ukraine] (monograph). Kyiv : NNCz «IAE» [In Ukrainian].
20. Rossokha V. V., Petrychenko O. A. (2019). Instytucijne zabezpechennya umov gospodaryuvannya v molochnij galuzi [Institutional provision of business conditions in the dairy industry]. *Perspektyvni formy organizaciyi gospodarskoyi diyalnosti na seli*. Kyiv : NNCz «IAE» [In Ukrainian].
21. Vikipediya. (2021). Informacijne seredovyshche. [Information environment]. Retrieved from: <https://uk.wikipedia.org/wiki/> [In Ukrainian].
22. Rossokha V. V. (2005). Metodologiya innovacijnogo procesu ekonomichnogo rozvytku [Methodology of the innovative process of economic development]. *Metodychni osnovy suchasnogo doslidzhennya v agrarnij ekonomici* (Vol. 1). Zhytomyr : Derzh. agroekologich. un-t [In Ukrainian].
23. Bova T. V. (2009). Teoretychni modeli derzhavnogo reguluvannya innovacijno-investycijnoyi sfery [Theoretical models of state regulation of the innovation and investment sphere]. *Derzhavne upravlinnya: udoskonalennya ta rozvytok*, 3. Retrieved from: <http://www.dy.nayka.com.ua/?op=1&z=36> [In Ukrainian].
24. Pro akcionerni tovarystva : Zakon Ukrainy vid 17.09.2008 r. № 514-VI. [On joint-stock companies: Law of Ukraine from 17.09.2008 No. 514-VI]. *Baza danykh "Zakonodavstvo Ukrainy"*. *VR Ukrainy*. Retrieved from: <https://zakon.rada.gov.ua/laws/show/514-17> [In Ukrainian].
25. OECD Principles of Corporate Governance – Organization for Economic, Cooperation and Development, 2004. Retrieved from: <http://www.nccg.ru/en/site.xp/057052050124> [in English].
26. Rossokha V. V. (2020). Organizaciya korporativnogo upravlinnya v akcionernyh tovarystvah agropromyslovogo vyrobnytva [Organization of corporate management in joint-stock companies of agro-industrial production]. *Socialno-kompetentne upravlinnya korporacijamy v umovax povedinkovoyi ekonomiky*. Lucz'k [In Ukrainian].
27. Paffer Sh., MakKarti D. (2004). Korporativnoe upravlenie: poisk modeli [Corporate management: the search for a model]. *Ekonomicheskie strategii*, 2 [in Russian].
28. Podatkovyj Kodeks Ukrainy : Zakon Ukrainy vid 2.12.2010 r. № 2755-VI (zi zminamy) [Tax Code of Ukraine: Law of Ukraine from 2.12.2010 No. 2755-VI (with changes)]. *Baza danykh "Zakonodavstvo Ukrainy"*. *VR Ukrainy*. Retrieved from: <https://zakon.rada.gov.ua/laws/show/2755-17> [In Ukrainian].
29. Hurwicz L. (1994). Economic Design, adjustment processes, mechanisms, and institutions // *Economic Design*, 1 [in English].
- Література**
1. Маркс К. Дебаты о свободе печати // Сочинения / К. Маркс, Ф. Энгельс. Москва : Политиздат, 1963 г. Т. 1. 540 с.
2. Абалкин Л. И. Что такое хозяйственный механизм? Москва : Мысль, 1980. 80 с.
3. Хозяйственный механизм общественных формаций / Абалкин Л. И. и др. ; под общ. ред. Л. И. Абалкина. Москва : Мысль, 1986. 268 с.
4. Вагина Е. Ю., Покидченко М. Г. Хозяйственный механизм: проблемы прошлого и настоящего. Москва : Знание, 1990. 64 с.
5. Хозяйственный механизм в системе оптимального функционирования социалистической экономики / Петраков Н. Я. и др. ; под общ. ред. Н. П. Федоренко, Н. Я. Петракова. Москва : Наука, 1985. 346 с.
6. Хозяйственный механизм и его совершенствование на современном этапе / Чухно А. А. и др. ; общ. ред. А. А. Чухна. Киев : Вища школа, 1979. 304 с.
7. Хозяйственный механизм управления экономикой СССР / Бунич П. Г. и др. ; под общ. ред. П. Г. Бунича. Москва : Экономика, 1991. 316 с.
8. Хозяйственный механизм: содержание и основные направления развития: учеб. пособ. / Гумеров Ф. И. и др. Казань : Изд-во Казан. ун-та, 1990. 180 с.
9. Хозяйственный механизм предприятия: концепция, методы, практика / Минаев Э. С. и др. ; под ред. Э. С. Минаева, А. Р. Виес. Москва : Изд-во МАИ, 1991. 208 с.
10. Кашин В. Н., Ионов В. Я. Хозяйственный механизм и эффективность промышленного производства. Москва : Наука, 1997. 368 с.
11. Фінанси сільськогосподарських підприємств (посібник з питань фінансових відносин у ринкових умовах) ; за ред. М. Я. Дем'яненка. Київ : ІАЕ, 2000. 604 с.
12. Мочерний С. В. Економічна теорія : посібник. Київ : Академія, 2001. 656 с.
13. Економічна енциклопедія : в 3-х т. / редкол.: ... С. В. Мочерний (відп. ред.) [та ін.]. Київ : Академія, 2000. Т. 1. 864 с.
14. Чухно А. Господарський механізм та шляхи його удосконалення на сучасному етапі. *Економіка України*. 2007. № 3. С. 60–67.
15. Олейник В. Я. Хозяйственный механизм агропромышленного комплекса (текст лекции). Днепропетровск : Днепропетровский СХИ, 1987. 32 с.

16. *Россоха В. В.* Організаційно-економічний механізм та його роль у розвитку аграрної сфери. *Вісник ХНАУ*. 2009. № 13. С. 84–91. (Серія “Економіка АПК і природокористування”).
17. *Лузан Ю. Я.* Організаційно-економічний механізм забезпечення розвитку агропромислового виробництва України : монографія. Київ : ННЦ ІАЕ, 2010. 472 с.
18. Платформа ефективного регулювання. Ринкове саморегулювання. URL : <https://regulation.gov.ua/dialogue/kontrol-i-nahlyad/25-rinkove-samoreguluvanna> (дата звернення 23.10.2021).
19. *Петриченко О. А.* Розвиток молокопродуктового підкомплексу в Україні : монографія. Київ : ННЦ «ІАЕ», 2018. 348 с.
20. *Россоха В. В., Петриченко О. А.* Інституційне забезпечення умов господарювання в молочній галузі. *Перспективні форми організації господарської діяльності на селі* : зб. матеріалів Сімнадцятого Конгр. вчен. економістів-аграрників та Міжнар. наук.-практ. конф. Київ : ННЦ «ІАЕ», 2019. С. 195–200.
21. Інформаційне середовище. *Вікіпедія*. URL : <https://uk.wikipedia.org/wiki/> (дата звернення 4.11.2021).
22. *Россоха В. В.* Методологія інноваційного процесу економічного розвитку. *Методичні основи сучасного дослідження в аграрній економіці* : зб. матеріалів міжнар. наук.-теор. конф. в 3-х ч. Житомир : Держ. агроекологіч. ун-т, 2005. Ч. 1. С. 168–172.
23. *Бова Т. В.* Теоретичні моделі державного регулювання інноваційно-інвестиційної сфери. *Державне управління: удосконалення та розвиток*. 2009. № 3. URL : <http://www.dy.nauka.com.ua/?op=1&z=36>.
24. Про акціонерні товариства : Закон України від 17.09.2008 р. № 514-VI. URL : <https://zakon.rada.gov.ua/laws/show/514-17> (дата звернення 5.11.2021).
25. OECD Principles of Corporate Governance – Organization for Economic, Cooperation and Development, 2004. URL : <http://www.nccg.ru/en/site.xp/057052050124.html> (дата звернення 5.11.2021).
26. *Россоха В. В.* Організація корпоративного управління в акціонерних товариствах агропромислового виробництва. *Соціально-компетентне управління корпораціями в умовах поведінкової економіки* : зб. матеріалів міжнар. наук.-практ. конф. Луцьк, 2020. С. 310–312.
27. *Паффер Ш., МакКарти Д.* Корпоративное управление: поиск модели. *Экономические стратегии*. 2004. № 2. С. 48–52.
28. Податковий Кодекс України : Закон України від 2.12.2010 р. № 2755-VI, документ чинний у редакції від 21.11.2021, підстава 1617-IX. URL : <https://zakon.rada.gov.ua/laws/show/2755-17#Text> (дата звернення: 26.11.2021).
29. *Hurwicz L.* Economic Design, adjustment processes, mechanisms, and institutions // *Economic Design*. 1994. Vol. 1. P. 1–14.

Colloquium-journal №22(145), 2022

Część 1

(Warszawa, Polska)

ISSN 2520-6990

ISSN 2520-2480

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«Colloquium-journal»

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Format 60 × 90/8. Nakład 500 egzemplarzy.

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