

ФІЗИЧНЕ ВИХОВАННЯ РІЗНИХ ГРУП НАСЕЛЕННЯ

MANAGEMENT OF HEALTH AND PHYSICAL ACTIVITY TO PREVENT OCCUPATIONAL HAZARDS FOR EMPLOYEES IN MINERAL PROCESSING PLANT ENVIRONMENT



Stepanova Iryna

State Academy of Physical Culture and Sport

Анотація

Вивчено вплив сучасних умов праці на стан здоров'я працівників гірничо-збагачувальних підприємств, та організацію спортивно-масової та фізкультурно-оздоровчої роботи на підприємствах. Представлена структура захворювань працівників гірничо-збагачувальних підприємств. Вивчено вплив виробничого середовища на здоров'я працівників та виявлено найбільш впливові антропогенні фактори. Визначено основні робочі професії середньої категорії професійного ризику гірничо-збагачувальних підприємств. Запропоновано ефективні умови організації фізкультурно-оздоровчої роботи для профілактики професійних ризиків розвитку захворюваності працівників гірничо-збагачувальних підприємств, а також структура і критерії ефективності моделі фізичної культури особистості.

Ключові слова: фізкультурно-оздоровча робота, гірничо-збагачувальне підприємство, працівники, захворюваність, профілактика, умови, фізична культура особистості.

Аннотация

Изучено влияние современных условий труда на состояние здоровья работников горно-обогатительных предприятий, изучена организация спортивно-массовой и физкультурно-оздоровительной работы на предприятиях. Представлена структура заболеваний работников горно-обогатительных предприятий. Изучено влияние производственной среды на здоровье работников и выявлены наиболее влиятельные антропогенные факторы. Определены основные рабочие профессии средней категории профессионального риска горно-обогатительных предприятий. Предложены эффективные условия организации физкультурно-оздоровительной работы для профилактики профессиональных рисков развития заболеваемости работников горно-обогатительных предприятий, а также структура и критерии эффективности модели физической культуры личности.

Ключевые слова: физкультурно-оздоровительная работа, горно-обогатительное предприятие, работники, заболеваемость, профилактика, условия, физическая культура личности.

Research question and literature review. Today, Ukraine faces a number of important economic, political and social issues. Human capital is the basic resource for the accomplishment of goals [1].

Many modern professions are characterized by hyperkinesia, hypodynamia, working in forced posture, and local muscle loads. Mechanization and automation of production processes have sharply reduced motor activity in people and redistributed the load from large to small muscle groups. Against a sharp decrease in total motor activity, this uneven load distribution on the human musculoskeletal system is the cause of adverse changes in the physiological functions of body systems [2].

Increased in the market economy environment, a psychophysiological load also causes a number of diseases: Arterial hypertension, coronary heart disease, osteochondrosis of the spine, and others that require new forms of recovery [2, 3].

Many large plants and factories observe a steady depreciation of fixed assets and a relatively low efficiency of existing equipment. As a result, almost every other employee is busy with heavy manual labor. Such employees are in the group for occupational categories with higher risks [4].



Approved by the Ukrainian Parliament, the State Social Program to Improve State of Safety, Hygiene of Labor and Industrial Environment for 2014-2018 declared the formation of a modern, safe, and healthy production environment and the minimization of occupational injuries, occupational diseases and accidents at work [5].

Unfortunately, Ukraine's slow economic development hampers the adoption and use of modern technologies and technical and organizational measures aimed to improve working conditions and to prevent occupational diseases and accidents at work. In order to maintain the labor potential and create conditions for the country's economic development, workforce health is now a priority in health care. Therefore, production management's most important task is nurturing workforce health and meeting their needs and interests in physical fitness. In industries as much as in a business environment, mass sporting events and physical activity are underdeveloped. Their role is downplayed in social and economic challenges. Most managers have considered fitness centers as unable to positively affect the results of productive activity. Furthermore, some experts recently have noted the difficulties in organizing Physical Education and Recreation (PER) among employees under the new socio-economic conditions. This leads to an increase in disability due to illness and a reduction in the plant's economic profit [1, 6]. This can be only be changed through the overhaul of existing aims, the function and structure of PER, and mass sporting events for employees. It should most closely approximate its content to the needs of a plant.

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The purpose of research is to give scientific credence to the modern approaches to the organization of Physical Education and Recreation (PER) to prevent occupational risks for employees of mineral processing plants.

Results and discussion. According to the Ukrainian Research Institute of Industrial Medicine under the Ministry of Health of Ukraine, morbidity statistics information is available for mining industry employees of Kryviy Rih [3,4]. The analysis of work-related diseases revealed that the rate of chronic lung diseases is the highest and increasing. The total percentage of COPD (chronic obstructive pulmonary disease) varies from 32.7 to 56.9% and is on average 48%. There is also a growing number of cases when the illness can be linked to working conditions.

The study of the impact of working environment on the workforce health makes it possible to identify the most influential anthropogenic factors. For the majority of occupations, dust is the chief factor due to the high dust content on the territory of the sludge husbandry. Furthermore, 50% of excess was 3.3 times. The microclimate comes second because hydraulic dust control reduces dustiness. Instead of 70%, the relative humidity reaches 91% in some workplaces (mechanics on hydromechanization, drivers in pipe-laying). Noise comes third (with the normative value of 80 dB some working environments can range from 72 to 95 dB, 95% of workplaces have excess).

Among workers engaged in most common jobs, the average occupational risk belongs to a shift foreman, the site's electrician man, repair men, as well as drivers and operators for diggers, cranes, scrapers, pipe stackers and the pump installation.

In addition, six jobs have a high degree of occupational health risk. A small-vehicle mechanic and bulldozer operator belong to a high

occupational health risk category because of the impact of vibrations with dust levels exceeding the norm three times while a mechanic, oxygen cutter, electrical fitter, and electric welder because of a set of factors, the main of which is dust.

Physical education is one of the most important factors in the restoration of manpower and an increase of its labor activity. With the new conditions of management, recreational physical activity should contribute not only to health strengthening and work capacity increasing in workers, but also in increasing their productivity and gaining additional profits. The methodically grounded application of recreational physical activity taking into account the plant type will significantly reduce morbidity, increase professional efficiency and, therefore, positively affect economic indicators.

The survey of mineral processing plant employees revealed that 87% of the respondents had a positive attitude towards physical activity while only 9-11% systematically do sports. On mineral processing jobs, physical activity and recreation should be arranged with a rational, expedient approach that combines effective pedagogical methods and skillful organization. Recreational physical activity with a differentiated choice of means, methods and organizational forms has a significant impact on physical health, improves psychological and emotional conditions, reduces the risk for diseases and colds, reduces economic losses from workforce illnesses.

In today's conditions, workers' physical activity to prevent occupational risks in mineral processing plants can be effective if the following factors are considered when organizing it:

- age-sex characteristics, levels of physical condition and health of workers;
- type of labor;
- working posture, body position, work movements;
- degree and character of fatigue



according to individual indicators;

- links between indicators of physical condition and health;
- financial capabilities of employees, their interest and needs in doing sports;
- interrelation of indicators of physical development and morbidity;
- optimal gradation of physical activity according to health indicators;
- if it is based on a differentiated set of means of physical culture.
- selection of means for psycho-emotional regulation;
- comprehensive use of additional means for recreation (cold water treatment, respiratory gymnastics, phytotherapy, music therapy, color therapy, aromatherapy);
- the sanitary-hygienic condition of premises for physical activity.

The main point here is for employees to gain new knowledge and get into cooperation. It encourages them to include physical culture into their understanding of the individual. Overall, the model of an individual's physical culture should include the following main components: knowledge on physical culture and sports, motivation and a positive attitude (motifs, interests, settings, persuasion, needs), physical perfection (physical qualities, motor skills, physical fitness), and physical activity and sports.

The efficiency criterion for the developed model is to ensure the psycho-physiological suitability and adaptation of a worker, the comprehensive personal development expressed in the implementation of one's personal potential, which is reflected in the following main aspects:

- in the economic aspect, it is envisaged to ensure the economy and rational use of material and other labor resources, increase productivity and labor efficiency by reducing and eliminating unnecessary time losses, introduction of ad-

vanced methods of work, better use of labor, elimination of equipment downtime, increase the degree of equipment exploitation, and reduction for low power testing time;

- psycho-physiological and hygienic aspects relate to creating in manufacturing and processing jobs the most favorable conditions for the normal functioning of labor force, health preservation and strengthening, and the improvement of working environment;
- socio-humanitarian aspects imply the optimization of the process and manufacturing environment aimed at the continuous growth of the cultural and technical level of workers, their all-round development, expansion of labor creativity, increase of labor attractiveness and its transformation into a basic necessity.

A guided management of physical activity in manufacturing and processing jobs provides the following results for an employee:

- management of an employee's physical resources;
- health preservation and promotion, improved work capacity, and as a result, one's productivity and efficiency;
- morbidity reduction (a decrease in sick leaves);
- reduction of occupational injuries;
- positive influence on employees' motivation and loyalty, increase of their social activity;
- employee turnover reduction;
- corporate culture development, improvement of company image.

All these measures will preserve the best traditions of the Ukrainian people, unite people's interests and bring innovations to the development of mass physical culture.

The expected result of the model is an increase in labor productivity together with the optimization of its impact on an employee.

In this respect, preventing disease implies the minimization of

the aggregations of occupational risks through physical activity and recreation.

Conclusions

Today there is a need for qualitative changes in physical culture for industry. Modern approaches and joint efforts of interested organizations and the general population should be used. Of particular importance is the definition of strategic directions of development, the forecasting of promising processes, the use of comprehensive and program-targeted approaches in the development and implementation of practical measures for this area.

Prospects for further research

are to determine the most effective forms and means of physical culture in industry and labor in order to prevent occupational risks in workers of mineral processing plants.

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