

**On approval of the requirements for the health state of persons for service in the state aviation of the Republic of Kazakhstan**

*Unofficial translation*

Order of the Minister of Defence of the Republic of Kazakhstan dated December 22, 2020 No . 721. Registered in the Ministry of Justice of the Republic of Kazakhstan on December 22, 2020 No. 21860

Unofficial translation

In accordance with subparagraph 2) of paragraph 2 of Article 11 of the Code of the Republic of Kazakhstan dated July 7, 2020 "On Public Health and Healthcare System", I HEREBY ORDER:

1. To approve the attached requirements for the health state of persons for service in the state aviation of the Republic of Kazakhstan.

2. To recognize as invalid the order of the Minister of Defence of the Republic of Kazakhstan dated December 28, 2009 No. 499fou "On approval of the requirements for the conformity of the health state of persons for service in the state aviation of the Republic of Kazakhstan" (registered in the Register of state registration of regulatory legal acts under No. 6032).

3. The main military-medical department of the Armed Forces of the Republic of Kazakhstan, in the manner established by the legislation of the Republic of Kazakhstan, shall ensure:

1) state registration of this order in the Ministry of Justice of the Republic of Kazakhstan;  
2) placement of this order on the Internet resource of the Ministry of Defence of the Republic of Kazakhstan after its first official publication;

3) sending information on implementation of the measures provided for in subparagraphs 1) and 2) of this paragraph to the Legal Department of the Ministry of Defence of the Republic of Kazakhstan within ten calendar days from the date of state registration.

4. Control over implementation of this order shall be entrusted to the Deputy Minister of Defence of the Republic of Kazakhstan in charge of medical support.

5. This order shall be communicated to the officials in the part concerning them.

6. This order shall be enforced upon the expiration of ten calendar days after its first official publication.

*Minister of Defence  
of the Republic of Kazakhstan*

*N. Ermekbayev*

" A G R E E D "

Ministry  
of the Republic of Kazakhstan

of

Healthcare

" A G R E E D "

Ministry of Internal Affairs  
of the Republic of Kazakhstan

" A G R E E D "

National Security Committee  
of the Republic of Kazakhstan

Approved  
by the order of the  
Minister of Defence  
of the Republic of Kazakhstan  
dated December 22, 2020 No. 721

### **Requirements for the health state of persons for service in the state aviation of the Republic of Kazakhstan**

1. Requirements for the health state of persons for service in the state aviation of the Republic of Kazakhstan (hereinafter – the Requirements) shall determine:

1) for health reasons, the degree of fitness of military personnel and citizens in reserve for flight work;

2) for health reasons and physical development, the degree of fitness of citizens and military personnel entering military educational institutions for the preparation of aviation personnel for admission to the flight specialties of a military educational institution for the training of aviation personnel, as well as cadets studying in flight specialties of a military educational institution for the training of aviation personnel (hereinafter- cadets) for flight training;

3) for health reasons, the degree of fitness of military personnel for command and control of flights, control of unmanned aerial vehicles, performance of flight tasks on board the aircraft, fitness for parachute jumps and flights on gliders and other light aircraft.

2. The requirements for the health state of citizens, cadets and military personnel for service in the state aviation of the Republic of Kazakhstan are determined in Appendix 1 to these Requirements.

3. Requirements for the health state of citizens, cadets and military personnel are presented in the following columns:

1) column I - citizens and military personnel entering the flight specialties of a military educational institution for the training of aviation personnel (hereinafter - candidates) and cadets before the start of flight practice;

2) column II - cadets with the beginning of flight practice, regardless of the specialty of training, pilots and navigators flying on fighter planes, attack aircraft, fighter-bombers;

3) column III - pilots and navigators flying on bombers, tanker aircraft;

4) column IV - pilots and navigators flying on transport and piston aircraft;

5) column V - pilots and navigators flying on all types of helicopters;

6) column VI - other members of flight crews (flight engineers, flight technicians, radio operators, flight mechanics, airborne operators, gunners and other airborne specialists), military personnel performing flight tasks on board the aircraft, parachutists, glider pilots and aeronautics;

7) column VII - military personnel in charge of flight management and control, air traffic operators (hereinafter- the flight director), operators of unmanned aerial vehicles.

4. The columns of requirements for the health state of citizens, cadets and military personnel for service in the state aviation of the Republic of Kazakhstan (hereinafter - the Requirements for columns) are set out by classes of diseases in accordance with the international classification of diseases of the 10th revision (hereinafter - ICD-10), in the form of paragraphs, subparagraphs with the names of diseases, mutilations (wounds, injuries, contusions).

5. Explanations on application of paragraphs and sub-paragraphs of the requirements for the health state of citizens, cadets and military personnel for service in the state aviation of the Republic of Kazakhstan according to the columns are determined in Appendix 2 to these Requirements.

6. Requirements for the health state of those examined upon admission to military educational institutions (hereinafter- MEI), implementing educational programs of postgraduate education (in flight specialties), upon restoration to flight work (flight management), as well as upon being called up for military training or in registration purposes are presented in columns II-VII, depending on the specialty and type of aviation.

Appendix 1  
to the Requirements for  
to the health state of persons  
for service in the  
state aviation of the  
Republic of Kazakhstan

**Requirements for the health state of citizens, cadets and military personnel for service in the state aviation of the Republic of Kazakhstan**

Paragraph	Name of diseases, injuries (wounds, traumas, contusions), codes according to ICD-10, subparagraphs	I column	II column	III column	IV column	V column	VI column	VII column
Chapter 1. Infectious and parasitic diseases								
1	Some infectious and parasitic diseases (A00-A09, A20-A28, A31-A49, A90-A99, B00-B09, B25-B34, B50-B64, B65-B83, B85-B89, B99)							
1) refractory or difficult to treat	not fit							
2) temporary functional disorders after acute								

infectious and parasitic diseases	not fit	vacation, exemption from flights with the performance of other duties of military service, full exemption from the performance of duties of military service	
2	Tuberculosis (A15-A19, except A17)		
1) active, any localization, during the main course of treatment, clinically healed	not fit		
2) inactive, of any localization, in the absence of signs of activity for 3 years or more	not fit	individual assessment (hereinafter - IND)	
3	Lepra (A30)	not fit	
4	Disease caused by the h u m a n immunodeficiency virus (HIV): AIDS patients, HIV-infected (B20-B24)	not fit	
5	Syphilis and other sexually transmitted infections (A50-A64, A65-A69, A70-A74)		
1) syphilis	not fit		
2) gonorrhea and other venereal diseases (chancre, lymphatic granuloma, inguinal granuloma, non-gonococcal urethritis)	The candidates are not fit. The rest after the completion of treatment are fit		
6	Mycoses (B35-B49)		
1) deep mycoses, dermatophytosis are common, often recurrent, making it difficult to wear military or flight uniforms, shoes and the use of special equipment	not fit		
2) superficial mycoses, limited dermatophytosis, rarely recurrent, not making it difficult to wear military or flight uniforms, shoes and the use of special equipment	not fit	IND	fit

Chapter 2. Neoplasms			
7	Malignant neoplasms of any localization, regardless of the radicality of treatment (C00-C97, D00-D09, D37-D48)		not fit
8	Benign neoplasms (D10-D36)		
1) in case of dysfunction of the organ and (or) in case of difficulty in wearing military	not fit		

or flight uniforms, shoes and the use of special equipment			
2) without dysfunction of the organ and not making it difficult to wear military or flight uniforms, shoes and the use of special equipment	not fit	IND	fit
3) temporary functional disorders after surgical treatment	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties		
Chapter 3. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism			
9	Diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism (D50-D89, except D86)	not fit	
Chapter 4. Diseases of the endocrine system, eating disorders and metabolic disorders			
10	Other forms of non-toxic goiter (E04)		
1) disrupting the function of nearby organs and (or) making it difficult to wear flight uniforms and special equipment	not fit		
2) not disrupting the function of nearby organs and not making it difficult to wear a flight uniform and the use of special equipment	not fit	IND	fit
3) temporary functional disorders after surgical treatment	not fit	sick leave, exemption from flights with the performance of other duties of military service	
11	Other diseases of the thyroid gland, other endocrine glands, eating disorders, metabolic disorders (E00-E90)		
1) with dysfunction; obesity of III-IV degree; malnutrition	not fit		
2) without dysfunction; obesity II degree	not fit	IND	
3) obesity I degree; subnutrition	not fit	IND	fit
Chapter 5. Mental and behavioral disorders			
12	Organic mental disorders due to brain damage or dysfunction (F00-F09)	not fit	
13	Schizophrenia, schizotypal and delusional disorders, mood disorders (affective disorders) and other endogenous psychotic disorders (F20-F29, F30-F39)	not fit	
14	Symptomatic mental disorders and other mental disorders of exogenous etiology (F00-F09)		
1) with pronounced persistent mental disorders; in the presence of a moderately expressed, prolonged asthenic state, pathological	not fit		

changes in personality and organic damage to the central nervous system (hereinafter - CNS)			
2) in the presence of a moderately expressed , prolonged asthenic state	not fit	sick leave followed by a medical examination	
3) in the presence of a slightly expressed and short-term asthenic state after an acute illness, which ended in recovery	not fit	I N D , cadets - not fit	fit
15	Neurotic, stress-related and somatoform disorders, behavioral syndromes associated with physiological disorders and physical factors (F40-F48, F50-F59, F95)		
1) with sharp and moderately pronounced, persistent, prolonged or repeated painful manifestations	not fit		
2) with mildly pronounced and short-term painful manifestations that ended in recovery	not fit	I N D , cadets – not fit	fit
16	Personality and behavioral disorders (F60-F69, F90-F98, except F95, F98.0, F98.5)		
1) sharply or moderately expressed, with a tendency to repeated prolonged decompensations, unstable compensation or pathological reactions	not fit		
2) behavioral disorders with persistent compensation of personality reactions	not fit	I N D , cadets – not fit	
17	Mental and behavioral disorders related to substance use (F10-F19)	not fit	
Chapter 6. Diseases of the nervous system			
18	Inflammatory, demyelinating diseases of the central nervous system and their consequences, tuberculosis of the nervous system, viral infections of the central nervous system (A17, A80-A89, G00-G09, G35-G37)		
1) in case of dysfunction or progressive course	not fit		
2) with minor residual effects or in the presence of objective data without dysfunction of the central nervous system	not fit	I N D , cadets – not fit	
19	Brain and spinal cord injuries and their consequences. Consequences of CNS lesions from external factors (T90, T91.3, T98.1)		
1) with significant or moderate dysfunction of the central nervous system	not fit		
2) in the presence of objective data without dysfunction of the central nervous system	not fit	IND	fit
20	Vascular diseases of the brain and spinal cord (G45, G46, I60-I69, R55)		
1) with severe focal symptoms, impaired function of any degree, or signs of			

progressive deterioration of cerebral circulation	not fit		
2) initial phenomena in the absence of clinical signs of cerebral circulation insufficiency	not fit	IND , cadets – not fit	fit
3) acute neurovascular disorders such as fainting or collapse (syncope)	not fit	IND , cadets – not fit	
21	Organic, hereditary-degenerative diseases of the central nervous system and neuromuscular diseases (G10-G13, G20-G26, G30-G32, G70-G73, G80-G83, G90-G99, Q00-Q07)	not fit	
22	Diseases of the peripheral nervous system (G50-G59, G60-G64)		
1) with significant or moderate dysfunction	not fit		
2) with minor dysfunction or in the presence of objective data without dysfunction	not fit	IND	fit
23	Peripheral nerve injuries and their consequences (T90.3, T92.4, T93.4)		
1) with significant or moderate dysfunction	not fit		
2) with minor dysfunction or in the presence of objective data without dysfunction	not fit	IND , cadets – not fit	fit
24	Episodic and paroxysmal disorders (G40-G47, кроме G45, G46)		
1) with severe clinical manifestations	not fit		
2) without pronounced clinical manifestations	not fit	IND	
25	Temporary functional disorders of the central or peripheral nervous system after an acute illness, exacerbation of a chronic illness, trauma, or surgical treatment	not fit	vacation, exemption from flights with the performance of other duties of military service, full exemption from the performance of duties of military service
Chapter 7. Diseases of the eye and its adnexa			
26	Diseases and consequences of injuries and burns of the eyelids, lacrimal ducts, orbits, conjunctiva (H00-H06, H10-H13, Q10, T90.4 )		
1) severe or moderate anatomical changes or deficiencies in the position of the eyelids,			

lacrimal ducts, orbit or conjunctiva with significant or moderate impairment of visual or motor functions in one or both eyes	not fit		
2) slightly expressed anatomical changes or deficiencies in the position of the eyelids, lacrimal ducts, orbit or conjunctiva in one or both eyes ; slightly expressed diseases of the eyelids, lacrimal passages, orbit or conjunctiva in one or both eyes	not fit	IND	fit
27	Diseases and consequences of injuries and burns of the sclera, cornea, iris, ciliary body, lens, choroid, retina, vitreous body, eyeball, optic nerve (H15-H22, H25-H28, H30-H36, H43-H45, H46-H48, Q11-Q14, T90.4)		
1) sharply or moderately pronounced, progressive deterioration of visual functions in one or both eyes	not fit		
2) slightly pronounced, non-progressive with rare exacerbations in one or both eyes	not fit	IND	fit
28	Detachment and rupture of the retina of any etiology in one or both eyes (H33)	not fit	
29	Glaucoma in the stage of pregaucoma, initial stage, advanced and subsequent stages of one or both eyes (H40-H42, Q15.0)	not fit	
30	Diseases of the muscles of the eye, disorders of friendly eye movement (H49-H51)		
1) paralysis or persistent paresis of the oculomotor muscles in one or both eyes, as well as concomitant strabismus of more than 10 degrees	not fit		
2) strabismus up to 10 degrees	not fit	IND	fit
31	Refractive errors (H52.0-H52.3)		
1) myopia or hyperopia of any eye in one of the meridians above 5.0 diopters, or astigmatism of any kind in any eye with a refractive difference in the two main meridians above 2.5 diopters	not fit		
2) myopia or hyperopia of any eye in one of the meridians above 3.0 diopters, or astigmatism of any kind on any eye with a refractive difference in the two main meridians above 2.0 diopters	not fit		IND
3) myopia or hyperopia of any eye in one of the meridians above 2.5 diopters, or astigmatism of any kind in any eye with a refractive difference in the two main meridians above 1.5 diopters	not fit , other flight crew members – IND		IND



4) myopia of any eye in one of the meridians is above 1.0 diopters, farsightedness of any eye in one of the meridians is above 2.5 diopters, or astigmatism of any kind in any eye with a refractive difference in the two main meridians above 1.0 diopters	not fit		IND
5) myopia of any eye in one of the meridians above 0.5 diopters, hyperopia of any eye in one of the meridians above 1.0 diopters, or astigmatism of any kind in any eye with a refractive difference in the two main meridians above 0.5 diopters	not fit	IND	fit
32	Accommodability disorders (H52.4-H52.5)		
1) paralysis or persistent spasm of accommodability in one or both eyes	not fit		
2) presbyopia of 3.5 diopters and above in each eye	not fit		IND
3) presbyopia above 3.0 diopters for each eye	not fit	IND	fit
4) presbyopia 2.0 diopters for each eye	not fit	IND	fit
33	Decreased visual acuity (H54)		
1) 0.5 and below for each eye	not fit		fit
2) 0.5-0.7 in one eye and 0.7 in the other eye; binocular 0.7	not fit	IND	fit
3) 0.6-0.7 in one eye and not lower than 0.8 in the other eye; binocular 0.8	not fit	IND	fit
4) 0.8 for each eye	IND	fit	
5) 0,9 for each eye	fit		
34	Anomalies of color vision (H53.5)		
1) dichromasia, abnormal trichromasia type A, color weakness III (A) or II (B) degree	not fit		
2) abnormal trichromasia type B or C, color weakness I (C) degree	not fit	IND	fit
35	Temporary functional disorders of the organ of vision after an acute illness, exacerbation of a chronic disease, trauma or surgical treatment	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties	
Chapter 8. Diseases of the ear and mastoid process			
36	Diseases of the outer ear (H60-H62, Q16, Q17)	not fit	
37	Diseases of the middle ear and mastoid process (H65-H75)		

1) with frequent exacerbations or complications; with unsatisfactory results of surgical treatment	not fit		
2) with rare exacerbations, not accompanied by the complications provided for in subparagraph 1)	not fit	IND	
3) consequences of diseases of the middle ear and mastoid process, chronic non-suppurative inflammation of the middle ear with a slight impairment of hearing and barofunction	not fit	IND	fit
38	Impairment of the barofunction of the ear and paranasal sinuses		
1) persistent and significantly pronounced	not fit		
2) persistent and slightly pronounced	not fit	IND	fit
39	Loss of hearing (H80, H90, H91, H93, H94)		
1) persistent hearing loss in both ears with average values of hearing thresholds at frequencies of 500, 1000 and 2000 hertz up to 40 decibels, at a frequency of 4000 hertz up to 65 decibels with the perception of whisper speech at a distance of up to 2 meters	not fit		
2) persistent hearing loss in both ears with average values of the auditory thresholds at frequencies of 500, 1000 and 2000 hertz from 26 to 40 decibels, at a frequency of 4000 hertz from 51 to 60 decibels with the perception of whisper speech at a distance of 3 meters or more; persistent hearing loss in one ear with average values of the auditory thresholds at frequencies of 500, 1000 and 2000 hertz from 26 to 40 decibels, at a frequency of 4000 hertz from 51 to 60 decibels with the perception of whisper speech at a distance of up to 2 meters and with average values of hearing thresholds at frequencies of 500, 1000 and 2000 hertz from 11 to 25 decibels, at a frequency of 4000 hertz from 41 to 50 decibels with the perception of whispered speech at a distance of 2 to 5 meters to the other ear	not fit	IND, onboard radio operators – not fit	not fit
	3) persistent hearing loss in both ears with average values of the auditory thresholds at frequencies of 500, 1000 and 2000 hertz from 16 to 25 decibels, at a frequency of 4000 hertz from 41 to 50 decibels with the perception of whisper speech at a distance of 2 to 5 meters;		

	persistent hearing loss in one ear with average values of the auditory thresholds at frequencies of 500, 1000 and 2000 hertz from 16 to 25 decibels, at a frequency of 4000 hertz from 41 to 50 decibels with the perception of whisper speech at a distance of 3 to 5 meters and with average values of auditory thresholds at frequencies of 500, 1000 and 2000 hertz up to 15 decibels, at a frequency of 4000 hertz from 26 to 40 decibels with the perception of whisper speech at a distance of more than 4 meters to the other ear	not fit	IND	
40	Disorders of vestibular function (H81)			
1) persistent, significantly or moderately pronounced vestibular-vegetative disorders	not fit			
2) mildly pronounced vestibular-vegetative disorders	not fit	IND		fit
41	Temporary functional disorders of the ear and mastoid after an acute illness, exacerbation of a chronic illness, trauma or surgical treatment	not fit	vacation, exemption from flights with the performance of other duties of military service, full exemption from the performance of duties of military service	
Chapter 9. Diseases of the circulatory system				
42	Chronic inflammatory rheumatic, non-rheumatic heart diseases, cardiomyopathies, degenerative and dystrophic lesions of the heart (I00-I09, I34-I52)			
1) with impaired blood circulation and functions	not fit			
2) in the presence of objective data without impaired blood circulation and functions	not fit	IND		fit
43	Arterial hypertension (I10-I15)			
1) with severe and moderate dysfunction	not fit			
2) with minor dysfunction	not fit	IND		
44	Somatoform autonomic dysfunction of the heart and cardiovascular system (I99)			
1) with persistent significantly or moderately expressed vegetative-vascular disorders and cardiac arrhythmias	not fit			

2) with slightly expressed disorders	not fit	IND	fit
45	Diseases and consequences of damage to the aorta, great and peripheral arteries and veins, lymphatic vessels (I70-I79, I80-I89, except I84)		
1) with impaired blood circulation and functions	not fit		
2) in the presence of objective data without impaired blood circulation and functions	not fit	IND	fit
46	Temporary functional disorders of the circulatory system after an acute illness, exacerbation of a chronic disease or surgical treatment	vacation, exemption from flights with the performance of other duties of military service, full exemption from the performance of duties of military service	
Chapter 10. Diseases of the respiratory system			
47	Diseases of the paranasal sinuses (J30-J34)		
1) chronic polyposis and cystic sinusitis in the presence of dystrophy of the mucous membrane of the upper respiratory tract; chronic purulent sinusitis with frequent exacerbations	not fit		IND
2) chronic purulent sinusitis with rare exacerbations in remission; sinusitis with mild changes in the mucous membrane of the upper respiratory tract; chronic non-suppurative sinusitis (catarrhal, serous, vasomotor and other non-suppurative forms of sinusitis), as well as cysts of the maxillary sinuses without dysfunction and clinical manifestations	not fit	IND	fit
48	Diseases or consequences of diseases and injuries of the nose, pharynx, larynx and trachea (J30-J35, J37-J38, Q32.0, Q32.1)		
1) accompanied by a pronounced impairment of the respiratory, speech (voice), swallowing, chewing functions or complicating the use of special equipment or equipment	not fit		
2) not accompanied by a pronounced disorder of the function and not hampering the use of special equipment or device; persistent decrease or complete absence of smell	not fit	IND	
49	Chronic tonsillitis (J35.0)		
1) decompensated form	not fit		
2) compensated form	not fit	fit	

50	Chronic nonspecific diseases of the lungs and pleura, disseminated lung diseases of non-tuberculous etiology, the consequences of their injuries or surgical interventions (J40-J99, except J45, D86)		
1) with significant or moderate dysfunction	not fit		
2) with minor dysfunction	not fit	IND	fit
51	Bronchial asthma (J45)	not fit	
52	Temporary functional disorders of the respiratory system after an acute illness, exacerbation of a chronic illness, or surgical treatment	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties	
Chapter 11. Diseases of the digestive system			
53	Disruption of the development and eruption of teeth. Diseases of hard tissues of teeth, pulp, periapical tissues, gums, periodontium, salivary glands, soft tissues of the oral cavity and tongue (K00-K06, K12-K13)		
1) not amenable to treatment, in case of dysfunction and difficulty in using special equipment	not fit		
2) well amenable to treatment, without impairment of functions and difficulty in using special equipment	not fit	IND	fit
54	Maxillofacial anomalies (except for congenital malformations), other diseases and condition of the teeth and their supporting apparatus, diseases of the jaws (K07-K11, K14)		
1) with significant or moderate impairment of functions and (or) difficulty in using special equipment	not fit		
2) with minor impairment of functions or in the presence of objective data without impairment of functions and without difficulty in using special equipment	not fit	IND	fit
55	Peptic ulcer, duodenal ulcer (K25-K28)		
1) acute or chronic recurrent forms, with dysfunction	not fit		
2) in the stage of stable remission, without digestive function	not fit	IND , cadets – not fit	fit
56	Diseases of the esophagus, stomach and duodenum (except for gastric ulcer and duodenal ulcer), intestines, gallbladder and biliary tract, pancreas, liver and other diseases of the digestive system (K20-K23, K29-K31, K70-K77, K80-K87 , B15-B19)		

11) with significant or moderate dysfunction and frequent exacerbations	not fit		
2) with minor dysfunction	not fit	IND , cadets – not fit	fit
57	Hernia (inguinal, femoral, umbilical); other hernias of the abdominal cavity (K40-K46)		
1) with dysfunction	not fit		
2) in the presence of objective data without impairing functions and difficulties in using special equipment	not fit	IND	fit
58	Hemorrhoids (C64)		
1) with frequent exacerbations, prolapse of nodes, secondary anemia	not fit		
2) with rare exacerbations with successful treatment	not fit	IND	fit
59	Temporary functional disorders of the digestive system after an acute illness, exacerbation of a chronic illness, or surgical treatment	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties	
Chapter 12. Diseases of the skin and subcutaneous tissue			
60	Diseases of the skin and subcutaneous tissue, including congenital (L00-L99, Q80-Q82)		
1) common with a recurrent course, refractory or difficult to treat and (or) making it difficult to wear a flight uniform and use special equipment	not fit		
2) rarely recurrent, limited and does not make it difficult to wear a flight uniform and use special equipment	not fit	IND	
Chapter 13. Diseases of the musculoskeletal system and connective tissue			
61	Infectious arthropathies, inflammatory polyarthropathies, systemic lesions of connective tissue, ankylosing spondylitis (M00-M03, M05-M14, M30-M36, M45)	not fit	
62	Arthrosis and lesions of large joints, diseases and lesions of muscles , synovial membranes and tendons, disorders of bone density and structure, osteopathy, chondropathy (M15-M19, M20-M25, M60-M63, M65-M68, M80-M85, M86-M90, M91-M94)		
1) with dysfunction of any degree and (or) chronic recurrent course	not fit		

2) in the presence of objective data without dysfunction	not fit	IND	fit
63	Dorsopathies (M40-M43, M46-M49, M50-M54)		
1) with significant or moderate dysfunction	not fit		
2) with a slight dysfunction or in the presence of objective data without dysfunction	not fit	IND	fit
64	Absence, deformation, defects of the hand and fingers (M20-M21.3, M21.5)		
1) with dysfunction of any degree	not fit		
2) in the presence of objective data without dysfunctions	not fit	IND	fit
65	Flat feet and other deformities of the foot, including congenital (Q66, M20-M21, except M21.7)		
1) with dysfunction of any degree	not fit		
2) in the presence of objective data without dysfunctions	not fit	IND	fit
66	Acquired limb deformities (M21.7 - M21.9)		
1) with impaired functions, making it difficult to wear flight uniforms or use special equipment	not fit		
2) in the presence of objective data without impaired functions and without difficulty in wearing a flight uniform and using special equipment	not fit	IND	fit
67	Absence of limb (Z89)	not fit	
Chapter 14. Diseases of the genitourinary system			
68	Glomerular, tubulointerstitial kidney disease , renal failure (N01-N08, N10, N11.8, N11.9, N12, N14-N16, N18-N19, N26)	not fit	
69	Urolithiasis (N20-N23)		
1) with a recurrent course, regardless of the state of renal function	not fit		
2) newly diagnosed, after the discharge of a single stone or its removal, without dysfunction	not fit	IND , cadets – not fit	fit
70	Obstructive uropathy and reflux uropathy, pyelonephritis (secondary), other diseases of the kidney, ureter and urinary system (N11.0, N11.1, N13, N25-N29 except for N26, N30-N39)		
1) with dysfunction	not fit		
2) in the presence of objective data without dysfunction	not fit	IND	fit
71	Diseases of the male genital organs (N40-N51, N62):		

1) with significant or moderate impairment of function	not fit		
2) with minor impairment of function or in the presence of objective data with minor clinical manifestations	not fit	IND	fit
72	Temporary functional disorders of the genitourinary system after an acute illness, exacerbation of a chronic disease or surgical treatment	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties	
Chapter 15. Diseases of the female reproductive system			
73	Chronic inflammatory diseases of the female genital organs (N70-N77)	not fit	
74	Non-inflammatory diseases of the female genital organs (N60, N81-N90, N99):		
1) with dysfunction	not fit		
2) in the presence of objective data without dysfunction	not fit	IND	fit
75	Disorders of ovarian-menstrual function (N91-N95)		
1) with significant or moderate dysfunction	not fit		
2) with slight dysfunction	not fit	IND	fit
76	Temporary functional disorders of the female genital organs after an acute illness, exacerbation of a chronic disease or surgical treatment	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties	
Chapter 16. Pregnancy, childbirth and the postpartum period			
77	Pregnancy. The postpartum period (O00-O99)	not fit	
Chapter 17. Congenital anomalies (malformations), deformities and chromosomal abnormalities			
78	Congenital anomalies (malformations), deformities and chromosomal abnormalities (Q00-Q99)		
1) with dysfunction	not fit		
2) in the presence of objective data without dysfunction	not fit	IND	fit
Chapter 18. Consequences of injuries, poisoning and some other consequences of exposure to external causes			



79	Post-traumatic and postoperative injuries (defects) of the bones of the skull without signs of organic damage to the central nervous system (S02.0, S02.1, T90.2)	not fit	
80	Fractures of the spine, trunk bones, upper and lower extremities and their consequences with impaired function of any degree (S12, S22, S32, S42, S52, S72, S82, T91.1, T91.2, T92.1, T93.1, T93.2)	not fit	
81	Injuries to the internal organs of the chest, abdominal cavity and pelvis and their consequences (S26, S27, S36, S37, T91.4, T91.5)		
1) with dysfunction of any degree	not fit		
2) in the presence of objective data without dysfunction	not fit	I N D , cadets – not fit	fit
82	Consequences of injuries to the skin and subcutaneous tissue (T95)		
1) with significant or moderate impairment of function and (or) making it difficult to wear a flight uniform and use of special equipment	not fit		
2) with a slight impairment of function, not making it difficult to wear a flight uniform and the use of special equipment	not fit	IND	fit
83	The consequences of poisoning with drugs, medicines and biological substances, the toxic effect of substances mainly for non-medical purposes, the impact of external causes (T51-T78, T96, T97, T98)		
1) with significant or moderate dysfunction	not fit		
2) with minor dysfunction	not fit	I N D , cadets – not fit	fit
84	Temporary functional disorders of the musculoskeletal system and connective tissue after treatment of diseases, injuries, trauma, poisoning, exposure to external causes	The candidates are not fit. The rest - vacation, exemption from flights with the performance of other duties of military service, complete exemption from the performance of military service duties	
Chapter 19. Other diseases			
85	Disharmony in physical development, disproportionate body type	not fit	
86	Enuresis (F98.0, R32)	not fit	
87	Speech disorders (F98.5, R47-R49)	not fit	

Appendix 2  
to the Requirements for

## **Explanations on the application of paragraphs and subparagraphs of the requirements for the health state of citizens, cadets and military personnel for service in the state aviation of the Republic of Kazakhstan according to columns**

### **Chapter 1. Infectious and parasitic diseases**

Paragraph 1 Requirements for columns. Intestinal infections, bacterial zoonoses, other bacterial diseases, viral diseases accompanied by rashes, viral and other diseases transmitted by arthropods (except for infections of the central nervous system), other diseases caused by viruses and chlamydia, rickettsioses, other infectious and parasitic diseases.

Subparagraph 1) of paragraph 1 of the Requirements for the columns provides for chronic recurrent forms of infectious diseases that are not amenable or difficult to treat:

dysentery, typhoid paratyphoid diseases, brucellosis, salmonellosis, echinococcosis, toxoplasmosis, trichocephalosis, hemorrhagic fevers, viral hepatitis and other infectious diseases;

persistent carrier of bacteria after acute dysentery and typhoid paratyphoid diseases.

Subparagraph 2) of paragraph 1 of the Requirements for the columns includes conditions after acute infectious, parasitic diseases in the presence of temporary functional disorders, when, upon completion of inpatient treatment, the patient retains general asthenia, loss of strength, and insufficient nutrition.

A conclusion on sick leave or exemption from flights (for a period of 30 to 60 days) shall be issued when a period of at least a month is required to assess the persistence of residual changes and full restoration of professional performance of a serviceman, and for diseases requiring the recovery of professional performance of a serviceman for less than one month full exemption from military service duties shall be granted for up to 15 days.

A medical examination for the purpose of restoring to flight work of military personnel who have had viral hepatitis "A" in mild or moderate form, hepatitis "B" in mild form, is carried out no earlier than 12 months after the end of treatment. Those who have been ill with viral hepatitis "B" in moderate and severe form, as well as with hepatitis "C" or "D", mixed hepatitis are not subject to recovery.

Cadets with the beginning of flight practice after hospital treatment for mild forms of viral hepatitis are discharged with the conclusion of the medical flight commission (hereinafter - MFC) on exemption from flights for 6 months on training aircrafts, for 12 months on other types of air transport with subsequent examination in the hospital.

Military personnel who have suffered severe form of dysentery shall be granted sick leave followed by a medical examination.

Detection of the surface antigen of viral hepatitis "B" and (or) antibodies to the hepatitis "C" virus is the basis for a detailed examination in order to exclude latent chronic viral hepatitis.

Carriage of the surface antigen of viral hepatitis "B" without signs of chronic liver disease is not a basis for the application of this paragraph in those examined under column II-VII. Military personnel with chronic viral hepatitis are examined according to paragraph 56 of the Requirements for the columns, taking into account the degree of activity and the presence of liver dysfunctions.

When a positive test result for markers of hepatitis "B" and (or) "C" is established, the candidates are deemed unfit for admission to the university, and the military personnel selected for appointment to the positions of a flight crew member, paratrooper, glider pilot or aeronaut, as well as to a flight director and an operator of unmanned aerial vehicles (hereinafter-military personnel selected for appointment to flight positions) – not fit for flight work, flights, flight management or parachute jumping (hereinafter- to flight work).

Paragraph 2 of the Requirements for columns. Tuberculosis of the respiratory system, other organs and systems.

Subparagraph 1) of paragraph 2 of the Requirements for columns provides for all forms of active tuberculosis of the respiratory system and extrathoracic localization, inactive tuberculosis of the spine, bones and joints, as well as large residual changes in the postponed tuberculosis of the respiratory system.

Subparagraph 2) of paragraph 2 of the Requirements for columns provides for inactive tuberculosis of any localization (except for tuberculosis of the spine, bones and joints), which did not entail functional disorders of the affected organs and systems, after completion of treatment, absence of signs of activity and removal from the dispensary registration after 3 years or more, including those with small residual changes in the transferred respiratory tuberculosis.

Paragraph 3 of the Requirements for columns. Leprosy.

Candidates, cadets and military personnel, when establishing a diagnosis of leprosy, as well as when registering a leprosy disease in a family, by a health authority are recognized as not fit for all columns of the requirements.

Paragraph 4 of the Requirements for columns. Disease caused by the human immunodeficiency virus (hereinafter - HIV).

This paragraph includes patients with acquired immunodeficiency syndrome (hereinafter - AIDS) and HIV-infected.

Paragraph 5 of the Requirements for columns. Syphilis and other sexually transmitted infections.

Subparagraph 1) of paragraph 5 of the Requirements for columns provides for patients with primary, secondary and tertiary syphilis, regardless of the outcome of treatment.

Subparagraph 2) of paragraph 5 of the Requirements for columns provides for gonorrhea and other venereal diseases (chancre, lymphatic granuloma, inguinal granuloma, non-gonococcal urethritis), as well as preventive treatment of syphilis.

If a venereal disease is detected in a soldier, treatment shall be carried out in a hospital. The criterion for the cure of gonorrhea and syphilis is the resolution of clinical signs and presence of a threefold negative result in laboratory control, as well as the absence of secondary complications (including epididymitis, prostatitis, arthritis, inflammation of the uterine appendages).

A medical examination with the aim of restoring to flight work of military personnel who have completed treatment of primary seronegative syphilis is carried out no earlier than 12 months later; military personnel who have completed treatment for primary seropositive syphilis no earlier than 3 years later.

Paragraph 6 of the Requirements for columns. Mycoses.

Subparagraph 1) of paragraph 6 of the Requirements for columns includes: deep mycoses, dermatophytosis, widespread, often recurrent, making it difficult to wear military or flight uniforms, shoes and the use of special equipment.

Subparagraph 2) of paragraph 6 of the Requirements for columns includes: superficial mycoses, limited dermatophytosis, rarely recurrent, not making it difficult to wear military or flight uniforms, shoes and the use of special equipment. The diagnosis and treatment results are confirmed by laboratory tests.

## **Chapter 2. Neoplasms**

Paragraph 7 of the Requirements for columns. Malignant neoplasms.

The paragraph provides for malignant neoplasms of any localization, regardless of the prevalence, stage of the disease, the outcome of treatment, cases of refusal of the patient from the treatment of malignant neoplasms, regardless of the stage and spread of the neoplasm, including persistent cure of skin cancer, lower lip.

Paragraph 8 of the Requirements for columns. Benign neoplasms.

In the presence of benign neoplasms, according to the indications being examined, surgical treatment is offered.

Subparagraph 1) of paragraph 8 of the Requirements for columns provides for single or multiple benign neoplasms of the skin, connective and soft tissues, blood or lymphatic vessels, bone and cartilage tissue, respiratory organs, digestive organs, genitourinary system, endocrine glands, mammary gland, disrupting the function of the affected organ, in case of unsatisfactory results of treatment, refusal from it or making it difficult to wear military or flight uniforms, shoes and the use of special equipment.

Subparagraph 1) of paragraph 8 of the Requirements for columns also includes:

giant pigmented nevi, the largest linear size of which is more than 20 cm;

often traumatized nevi (with confirmation of trauma by medical documents) with signs of inflammation and (or) ulceration when they are localized in areas of possible trauma caused by wearing military or flight uniforms, shoes, or using special equipment;

multiple warty (more than 7), pigmented nevi (more than 20) or single (more than 0.5 cm in diameter), raised above the skin surface, nevi when they are localized in areas of possible trauma caused by wearing military or flight uniforms, shoes or using special equipment;

benign neoplasms of the brain and spinal cord, regardless of the effectiveness of treatment and the degree of dysfunctions.

Subparagraph 2) of paragraph 8 of the Requirements for columns provides for benign neoplasms or the consequences of their treatment, not accompanied by dysfunction of the affected organ, not making it difficult to wear military or flight uniforms, shoes and the use of special equipment: lipomatosis, hemangiomas, dermoid cysts, chondromas, polyps, papillomas, warty and pigmented nevi, with the exception of the nevi specified in subparagraph 1) of paragraph 8.

When diagnosing osteoma of the paranasal sinuses, the category of suitability examined in column II-VII is determined depending on the clinical manifestations, impairment of their function and the results of the study in the pressure chamber according to the relevant subparagraphs of this paragraph. Candidates are not fit.

The osteoma of the paranasal sinuses is confirmed by the data of X-ray examination of the paranasal sinuses in 2 projections, to clarify the nature of the formation – by computed tomography (hereinafter - CT).

After operative removal of benign neoplasms of internal organs, musculoskeletal system, military personnel shall be allowed to flight work no earlier than 4 months after completion of treatment, depending on the type and complexity of the surgical intervention, after stationary examination. The cadets are not fit.

Those who are examined after surgical removal of benign neoplasms of the skin and subcutaneous tissue shall be allowed to flight work no earlier than 1 month after the completion of treatment.

Those examined patients, operated on for benign neoplasms of the mediastinum, are not fit for flight work (flight training).

Sick leave under subparagraph 3) of paragraph 8 of the Requirements for columns shall be granted after surgical treatment for benign neoplasms, when after completion of inpatient treatment, full recovery of function requires a period of at least a month. In other cases, full exemption from military service duties or exemption from flights with the performance of other military service duties for a period of up to 15 days shall be provided for the full restoration of professional working capacity, followed by a medical examination.

### **Chapter 3. Diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism**

Paragraph 9 of the Requirements for columns. Diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism.

The paragraph includes anemias associated with nutrition (iron deficiency, vitamin B12-deficiency, folic acid deficiency and other anemias) of moderate and severe degree with insufficient treatment effectiveness, hypo- or aplastic anemias, blood clotting disorders, purpura and other hemorrhagic conditions, as well as immunodeficiency states except for HIV disease and sarcoidosis.

Candidates are considered not fit for admission to a university if the hemoglobin content in the blood is less than 130 g/l.

#### **Chapter 4. Diseases of the endocrine system, eating disorders and metabolic disorders**

Paragraph 10 of the Requirements for columns. Other forms of non-toxic goiter.

The paragraph includes a simple, nodular, cystic, mixed euthyroid goiter.

To determine the size of the goiter by degrees, the following scale is used: 0 - the thyroid gland is not palpable; I - the isthmus of the gland is enlarged, clearly palpable and visible when swallowing; II - the lateral lobes and the isthmus are well defined, both when palpating and when swallowing; III - the gland is clearly visible, smoothes the anterior sections of the neck ("thick neck"); IV - the gland changes the shape of the neck; V - the gland reaches very large sizes.

Subparagraph 1) of paragraph 10 of the Requirements for columns includes euthyroid goiter of III-IV-V degree, which disrupts the function of nearby organs and (or) makes it difficult to wear military or flight uniforms and use special equipment. Surgical treatment is offered to those being examined. Subparagraph 1) is also applied in cases of unsatisfactory results of surgical treatment or refusal of the operation.

Subparagraph 2) of paragraph 10 of the Requirements for columns includes euthyroid goiter of 0-I-II degree, which does not disrupt the function of nearby organs and does not make it difficult to wear a military or flight uniform and the use of special equipment, as well as the state after surgical treatment (not earlier than 6 months) of euthyroid goiter in the absence of functional disorders of the thyroid gland, after a course of drug therapy.

Subparagraph 3) of paragraph 10 of the Requirements for columns provides for sick leave with subsequent medical examination after surgical treatment of euthyroid goiter.

Military personnel and cadets with newly diagnosed euthyroid goiter shall be subject to dispensary observation for 3 years.

In case of dysfunction of the thyroid gland, the decision on admission to flight work shall be made after treatment for at least 3 months upon reaching a stable euthyroid state with control of thyroid hormones.

An ultrasound examination of the thyroid gland is mandatory for candidates and military personnel selected for appointment to flight positions. When euthyroid goiter is detected,

candidates are recognized as not fit for admission to a university, and military personnel selected for appointment to flight positions are considered not fit for flight work.

Paragraph 11 of the Requirements for columns. Other diseases of the thyroid gland, other endocrine glands, eating disorders, metabolic disorders.

Subparagraph 1) of paragraph 11 of the Requirements for columns includes:

diffuse toxic goiter of any severity;

subacute, chronic fibrous and autoimmune thyroiditis with dysfunction;

hypothyroidism and other thyroid diseases;

diseases of other endocrine glands, regardless of the degree of dysfunction;

type 1 diabetes mellitus;

type 2 diabetes mellitus of moderate and severe severity, in which compensation for carbohydrate metabolism is achieved by taking hypoglycemic drugs and (or) insulin against the background of diet therapy;

type 2 diabetes mellitus in the presence of secondary complications;

obesity of III-IV degree;

malnutrition (BMI less than 18.5 kg / m<sup>2</sup>).

Subparagraph 2) of paragraph 11 of the Requirements for columns includes:

autoimmune thyroiditis without dysfunction;

obesity of II degree with good functional capacity of the cardiovascular system;

type 2 diabetes mellitus, in which the compensation of carbohydrate metabolism is achieved by diet therapy.

Military personnel are allowed to flight work on the mastered types of aircrafts under subparagraph 2) of this paragraph.

Military personnel with type 2 diabetes mellitus are allowed to flight work on aircrafts with dual control in the presence of a co-pilot with full compensation of carbohydrate metabolism without the use of hypoglycemic drugs. Military personnel (except for pilots) are allowed to use antidiabetic drugs that do not cause hypoglycemia - alpha-glucosidase inhibitors (glucobay) and (or) the biguanide group (metformin) as an addition to the diet.

In the case of a newly diagnosed form of type 2 diabetes mellitus, military personnel are exempted from flights (flight control) with the performance of other duties of military service, shall be subject to observation and treatment for up to 3 months. Fitness for flight work (flight control) is decided after a stationary examination.

Military personnel with type 2 diabetes mellitus are considered unfit if full control of blood sugar is not achieved and constant intake of hypoglycemic drugs and/ or insulin is required.

When diseases of the endocrine system are detected, candidates are recognized as not fit for admission to the university, and military personnel selected for appointment to flight positions are deemed not fit for flight work.

Subparagraph 3) of paragraph 11 of the Requirements for columns includes:

obesity of the 1st degree with good functional capacity of the cardiovascular system;  
reduced nutrition.

To assess the nutritional status (malnutrition, degree of obesity) of citizens who have reached the age of 18, the Quetelet body mass index (hereinafter - BMI) determined by the authorized body in the field of healthcare of the Republic of Kazakhstan is used, calculated by the formula:

$$\text{BMI (kg/m}^2\text{)} = \text{body weight (kg)} / \text{height squared (m}^2\text{)}.$$

Normal weight corresponds to BMI 18.5-24.9 kg/m<sup>2</sup>; overweight - BMI 25.0-29.9 kg/m<sup>2</sup>; obesity of the 1st degree - BMI 30.0-34.9 kg/m<sup>2</sup>; obesity of the 2nd degree - 35.0-39.9 kg/m<sup>2</sup>; obesity of the 3rd degree - 40.0 kg/m<sup>2</sup> or more.

To assess the nutritional status during the examination of citizens under 18 years of age, the standards of physical development of children and adolescents adopted in the Republic of Kazakhstan are used.

Military personnel and cadets with reduced nutrition (underweight) shall be subject to stationary examination for establishing the cause.

If obesity of any degree of severity is detected, candidates are recognized as not fit for admission to the university, cadets of 1-2 courses are recognized as not fit for flight training, and military personnel selected for appointment to flight positions are not fit for flight work.

In case of symptomatic (secondary) obesity of endocrine, cerebral genesis, the suitability is assessed according to the underlying disease.

## **Chapter 5. Mental and behavioral disorders**

Paragraph 12 of the Requirements for columns. Organic mental disorders due to brain damage or dysfunction.

The paragraph provides for psychoses, other mental disorders, personality and behavioral changes caused by damage and cerebral dysfunction, arising from trauma, brain neoplasms, encephalitis, meningitis, neurosyphilis, as well as senile and presenile psychoses, vascular, degenerative and other organic diseases or brain lesions.

A medical examination is carried out only after a comprehensive examination in a psychiatric or neuropsychiatric hospital.

Paragraph 13 of the Requirements for columns. Schizophrenia, schizotypal and delusional disorders, mood disorders (affective disorders) and other endogenous psychotic disorders.

Provides for all forms of schizophrenia, manic-depressive psychosis and cyclothymia. Military personnel and cadets with these diseases are not subject to recovery regardless of the course, form, duration of the disease, duration of remission and removal from dispensary registration.

Paragraph 14 of the Requirements for columns. Symptomatic mental disorders and other mental disorders of exogenous etiology.



The paragraph provides for psychoses and other mental disorders due to general infections, intoxications (except those caused by the use of psychoactive substances), somatic diseases of various origins, childbirth caused by menopause, metabolic disorders and other reasons. This also includes mental disorders caused by exposure to radioactive substances, ionizing radiation sources, propellant components, sources of electromagnetic fields, laser radiation.

Subparagraph 1) of paragraph 14 of the Requirements for columns provides for mental disorders with pronounced clinical manifestations and a long (more than 3 months) course, with pathological changes in personality and phenomena of organic damage to the central nervous system (hereinafter - the CNS).

Subparagraph 2) of paragraph 14 of the Requirements for columns includes moderate, prolonged (up to 3 months) asthenic conditions (cerebrasthenia) after an infection or somatic illness in the absence of organic lesions of the central nervous system.

Military personnel who have undergone short-term mental somatogenic disorders, after recovery from the underlying disease, complete compensation of neuropsychic functions without the use of supportive therapy, shall be examined no earlier than 6 months after positive observation results, clinical and psychological examination, and good tolerance of stress tests.

Military personnel who have suffered acute poisoning with psychoactive substances (alcohol, drugs, toxic substances) are not granted sick leave.

Subparagraph 3) of paragraph 14 of the Requirements for columns includes mental disorders arising from an acute illness, proceeding with mild and short-term (up to 2-3 weeks) asthenia and ending with recovery.

The favorable outcome of these mental disorders is confirmed by examination in medical organizations providing medical assistance in the field of mental health.

Paragraph 15 of the Requirements for columns. Neurotic, stress-related and somatoform disorders, behavioral syndromes associated with physiological disturbances and physical factors.

Subparagraph 1) of paragraph 15 of the Requirements for columns includes:

- reactive psychoses;
- psychogenic paranoid psychosis;
- hysterical psychosis with a change in consciousness;
- reactive depression;

severe or moderately pronounced, long-term neurotic and somatoform disorders, including somatoform dysfunctions of the autonomic nervous system, not amenable to or difficult to treat;

conditions with repeated hospitalizations (more than 2 times a year).

Subparagraph 2) of paragraph 15 of the Requirements for columns includes:

- acute reactions to stress;
- adaptation disorders;

slightly pronounced, short-term neurotic and somatoform disorders, including somatoform dysfunctions of the autonomic nervous system, characterized mainly by emotional-volitional, autonomic disorders, well amenable to treatment and ending with the patient's recovery, complete social adaptation.

Paragraph 16 of the Requirements for columns. Disorders of personality and behaviour.

Subparagraph 1) of paragraph 16 of the Requirements for columns provides for severe or moderate, personality and behavioral disorders (psychopathies; pathological personality development; mental infantilism, except for tic disorders, disorders of sexual identification and sexual preference) with a tendency to repeated prolonged decompensation, unstable compensation or pathological reactions.

Subparagraph 2) of paragraph 16 of the Requirements for columns includes personality disorders (transient, partial) that do not reach the level of psychopathy, with persistent (more than 3 years) compensation for emotional-volitional and other pathological manifestations.

Military personnel with a history of suicide attempt shall not be subject to restoration for flight work.

Paragraph 17 of the Requirements for columns. The paragraph provides for mental and behavioral disorders associated with the use of psychoactive substances (alcohol, drugs, toxic substances). Single or episodic use of psychoactive substances without mental disorders cannot serve as a basis for the application of this paragraph.

## **Chapter 6. Diseases of the nervous system**

Paragraph 18 of the Requirements for columns. Inflammatory, demyelinating diseases of the central nervous system and their consequences, tuberculosis of the nervous system, viral infections of the central nervous system.

Subparagraph 1) of paragraph 18 of the Requirements for columns provides:

primary and secondary encephalitis, encephalomyelitis and meningitis;

inflammatory processes in the brain and spinal cord that have arisen metastatic or contact (meningococcal meningitis, serous meningitis, poliomyelitis, tick-borne and mosquito viral encephalitis, multiple sclerosis);

demyelinating diseases;

lesions of the nervous system in tuberculosis, syphilis and other infectious diseases.

Subparagraph 2) of paragraph 18 of the Requirements for columns includes the consequences and residual effects of lesions of the central nervous system, in which there are minor phenomena of asthenization, autonomic dysfunction and individual scattered organic signs (asymmetry of cranial innervation and anisoreflexia, slightly pronounced sensory disorders), without impairment of motor, sensory, coordinating and other functions of the nervous system.

Military personnel with severe emotional-volitional or intellectual-mnemonic disorders resulting from organic brain damage, infectious disease or intoxication are examined in accordance with paragraph 14 of the Requirements for columns.

Paragraph 19 of the Requirements for columns. Brain and spinal cord injuries and their consequences. Consequences of CNS lesions from external factors.

The paragraph provides for the immediate and distant (a year or more from the moment of injury) consequences of brain and spinal cord injuries, and complications of traumatic injuries of the central nervous system.

Subparagraph 1) of paragraph 19 of the Requirements for columns includes:

- consequences of open or closed brain injuries with pronounced organic changes in the central nervous system, mental disorders, hypertensive or convulsive syndrome;
- consequences of spinal cord injury with motor, sensory or pelvic disorders;
- suffered severe craniocerebral injuries, as well as spinal cord injuries, accompanied by their compression or partial (complete) break.

Subparagraph 2) of paragraph 19 of the Requirements for columns includes long-term consequences of brain and spinal cord injuries, in which there are separate scattered organic signs, weakly expressed vegetative-vascular instability and (or) minor asthenization phenomena without disturbing motor, sensory, coordinating and other functions of the nervous systems, without pathological changes on electroencephalography (hereinafter - EEG ).

The fact of treatment for a brain or spinal cord injury or a history of their consequences is confirmed by medical documents.

Military personnel who have suffered a brain or spinal cord injury are recognized as not fit for flight work with the performance of other duties of military service. Military personnel who have suffered a moderate brain contusion or closed spinal cord injury are rehabilitated for flight work no earlier than 12 months after the injury, and those who have suffered a concussion or mild brain contusion - 6 months after the injury. In the next 3 years after the injury, those being examined are allowed to fly on aircrafts with dual control in the presence of a co-pilot. These military personnel shall undergo the next examination in stationary conditions.

Paragraph 20 of the Requirements for columns. Vascular diseases of the brain and spinal cord.

Subparagraph 1) of paragraph 20 of the Requirements for columns provides:

- vascular diseases of the brain and spinal cord with a progressive course, deterioration of blood supply to the brain, transient or persistent dysfunctions, pronounced focal prolapse of various localization;

- transient disorders of cerebral circulation (transient cerebral ischemia, hypertensive cerebral crises);

- consequences of subarachnoid hemorrhages of a non-traumatic nature;

cerebral forms of neurogenic angiodystonia with severe clinical manifestations.

Subparagraph 2) of paragraph 20 of the Requirements for columns provides for;

initial atherosclerotic changes in cerebral arteries in the absence of clinical signs of insufficient blood supply to the brain and good tolerance of functional load tests;

cerebral angiodystonia with a favorable course in the absence of subjective complaints, when the diagnosis is established based on the results of clinical and instrumental research.

To verify the diagnosis, magnetic resonance imaging (hereinafter - MRI) of the brain is performed with angiography of the vessels.

Subparagraph 3) of paragraph 20 of the Requirements for columns provides for acute neurovascular disorders such as fainting or collapse (syncope).

Those examined in the presence of syncope, in the development of which it is not possible to establish the previous reasons, shall be recognized as not fit for all columns. This group includes repeated, as well as deep syncope with loss of consciousness, persistent arterial hypotension, bradycardia, convulsive muscle contractions.

Those examined after a short-term syncope with a deterioration in well-being during medical manipulations, functional load tests, extreme exposures, intoxications and infections, after a comprehensive clinical examination with good tolerance of functional load tests, shall be recognized as fit. These military personnel shall undergo the next examination in stationary conditions.

The conclusion is based on the study of circumstances of fainting, its clinical manifestations, a comprehensive assessment of the state of health, the results of instrumental examination and functional stress tests. When establishing the causes (infection, injury, illness, intoxication) that caused fainting, the decision shall be made on the underlying disease, taking into account the prognosis and repeated fainting.

The diagnosis "repeated fainting" shall be removed after 2 years of dispensary observation and inpatient examination.

Paragraph 21 of the Requirements for columns. Organic, hereditary-degenerative diseases of the central nervous system and neuromuscular diseases.

The paragraph provides for groups of diseases: systemic atrophies, affecting mainly the central nervous system, extrapyramidal and other movement disorders, other degenerative diseases of the nervous system, cerebral palsy and other paralytic syndromes, diseases of the neuromuscular synapse and muscles, other disorders of the nervous system, congenital anomalies (malformations) nervous system.

In addition, they include: hereditary ataxias, spinal muscular atrophy, Parkinson's disease, essential tremor, Alzheimer's disease, muscular dystrophy, cerebral palsy, hydrocephalus, toxic or unspecified, including residual encephalopathy, cerebral cyst, syringomelia, syringobulbia.

Paragraph 22 of the Requirements for columns. Diseases of the peripheral nervous system

The paragraph provides for diseases and lesions of the cranial nerves (except for pairs II and VIII), spinal nerves, plexuses, roots and ganglia, as well as their secondary lesions due to intoxication, changes in the spine, soft tissues and other lesions of the peripheral nervous system.

Subparagraph 1) of paragraph 22 of the Requirements for columns includes:

diseases of peripheral nerves and plexuses, often (2 or more times a year) recurrent and long-term, in which the main function is significantly or moderately disturbed;

chronic recurrent radiculitis, plexitis, neuropathy, neuritis, accompanied during the period of exacerbation by the forced position of the trunk, pain along the nerves and requiring continuous inpatient (outpatient) treatment for 2 or more months.

Subparagraph 2) of paragraph 22 of the Requirements for columns includes rarely (less than 2 times a year) recurrent diseases of the peripheral nerves and plexuses with minor dysfunction or without dysfunction, with the presence of mild residual effects that do not affect professional performance.

Paragraph 23 of the Requirements for columns. Peripheral nerve injuries and their consequences.

Subparagraph 1) of paragraph 23 of the Requirements for columns includes:

consequences of traumas or injuries of peripheral nerves and plexuses in the presence of significantly or moderately pronounced, persistent motor, sensory and trophic disorders, persistent pain syndrome;

paralysis of facial muscles, due to trauma to the facial nerve.

Subparagraph 2) of paragraph 23 of the Requirements for columns includes the consequences of damage to the peripheral nerves and plexuses with minor or no dysfunction, with the presence of mild residual effects that do not affect professional performance.

Paragraph 24 of the Requirements for columns. Episodic and paroxysmal disorders.

The paragraph includes epilepsy, migraine, other headache syndromes and sleep disorders

Subparagraph 1) of paragraph 24 of the Requirements for columns includes:

epilepsy as a chronic disease of the brain with generalized or partial seizures, mental equivalents or specific personality changes;

migraine with frequent (3 or more times a year) and long-term (day or more) migraine attacks, persistent headache syndromes and sleep disorders, confirmed by medical documents and dynamic observation, requiring treatment in stationary conditions (MRI of the brain is required to verify the diagnosis with angioprogram);

paroxysmal, epileptoid activity and significantly expressed changes in the EEG.

Subparagraph 2) of paragraph 24 of the Requirements for columns includes rare (up to 2 times a year) migraine attacks, not accompanied by the duration of the course and the severity of clinical manifestations.

Military personnel with newly diagnosed paroxysmal or epileptoid activity on the EEG of the "peak-slow wave" type in the absence of other signs of epilepsy or an organic disease of the central nervous system shall be exempted from flights (flight management) with the performance of other military duties for a period of 4 months with subsequent examination in a hospital conditions. With the stability of these changes on the EEG, the examination shall be carried out according to subparagraph 1) of paragraph 24.

Those examined according to columns II-VII with suspicion of epilepsy shall be subject to inpatient examination with obligatory daily monitoring of the EEG, consultation of an epileptologist. Epileptoid activity on the EEG confirms the diagnosis of epilepsy, and its absence does not exclude the diagnosis. Confirmed diagnosis of epilepsy determines unfitness for flight work (flight training).

Examination of military personnel with symptomatic epilepsy shall be carried out according to the disease that led to the development of convulsive syndrome, according to the corresponding paragraph of the Requirements for the columns.

Electroencephalography is mandatory for candidates and military personnel selected for appointment to flight positions in order to timely detect paroxysmal or epileptoid activity.

Paragraph 25 of the Requirements for columns. Temporary functional disorders of the central or peripheral nervous system after an acute illness, exacerbation of a chronic illness, trauma or surgical treatment.

The paragraph provides for a condition after an acute, exacerbation of a chronic disease, intoxication lesions (except for psychoactive substances), trauma to the central or peripheral nervous system, as well as their surgical treatment, in the presence of temporary functional disorders.

When, after completion of inpatient treatment, a period of at least a month is required to assess the persistence of residual changes and full recovery of professional performance, sick leave shall be granted. In other cases, full exemption from military service duties or exemption from flights with the performance of other military service duties for up to 15 days shall be granted.

## **Chapter 7. Diseases of the eye and its adnexa**

Paragraph 26 of the Requirements for columns. Diseases and consequences of injuries and burns of the eyelids, lacrimal passages, orbits, conjunctiva.

The paragraph provides for congenital and acquired (due to diseases, injuries and burns) anatomical changes or deficiencies in the position of the eyelids, diseases of the eyelids, lacrimal passages, orbit and conjunctiva. The conclusion about fitness for flight work shall be made depending on the severity of anatomical changes, the severity of the course of the disease (injuries and burns), treatment results, and eye functions.

Subparagraph 1) of paragraph 26 of the Requirements for columns provides:

twisting of the eyelids or eyelash growth towards the eyeball, causing eye irritation;

chronic trachomatous lesion of the conjunctiva;  
eversion of the eyelid, disrupting the function of the eye;  
fusion of the eyelids with each other or with the eyeball in one or both eyes in case of impaired eye function;  
ptosis of the upper eyelid (ptosis) in one or both eyes of any etiology, limiting the field of vision;  
ulcerative blepharitis;  
pterygoid hymen (pterygium), which supports the catarrhal state of the conjunctiva in at least one eye;  
chronic, often (at least 2 times a year) recurrent conjunctivitis with papillary hypertrophy and significant infiltration of the submucosa;  
consequences of diseases of the lacrimal ducts, their damage or surgical interventions in one or both eyes with severe impairment of the lacrimation function.

Subparagraph 2) of paragraph 26 of the Requirements for columns provides:  
consequences of surgical treatment of the eyelids with restoration of functions;  
persistent clinical effect after treatment for chronic inflammation of the edges of the eyelids and conjunctiva;  
pinguecula, small chalazion and non-progressive pterygium, without catarrhal symptoms from the conjunctiva;  
consequences of diseases of the lacrimal ducts, their damage or surgical interventions in one or both eyes with a slight impairment of the lacrimation function.

The conclusion on admission to flight work under subparagraph 2) of paragraph 26 of the Requirements for columns shall be made no earlier than 3 months after the end of the surgical treatment with a good clinical effect.

Simple blepharitis with individual scales and slight hyperemia of the edges of the eyelids, follicular conjunctivitis with single follicles, velvety conjunctiva in the corners of the eyelids and in the area of the conjunctival arches, separate small superficial scars of the conjunctiva of non-trachomatous origin, as well as smooth scars of the conjunctiva of trachomatous origin without other changes in the conjunctiva, cornea and without relapses of the trachomatous process during the year shall not be the grounds for application of this paragraph.

Paragraph 27 of the Requirements for columns. Diseases and consequences of injuries and burns of the sclera, cornea, iris, ciliary body, lens, choroid, retina, vitreous body, eyeball, optic nerve.

The paragraph provides for chronic diseases of the sclera, cornea, iris, ciliary body, lens, choroid, retina, vitreous body, eyeball, optic nerve, as well as the consequences of injuries and burns.

Subparagraph 1) of paragraph 27 of the Requirements for columns provides:  
chronic recurrent diseases of the sclera, cornea, vascular tract, retina of any etiology with low treatment efficiency;

progressive clouding of the lens or vitreous body with a decrease in visual function;  
inflammatory diseases, the consequences of damage to the optic nerve with severe visual impairment;  
narrowing of the field of view of any etiology by more than 10 degrees;  
central and paracentral scotomas of any etiology;  
tapetoretinal abiotrophies regardless of eye function;  
presence of a foreign body inside the eye that is not indicated for extraction or if surgical treatment is ineffective;  
retinal pigment degeneration;  
persistent decrease in night vision.

Minimum boundaries of the monocular field of view for white are: outside - 90 degrees, inside - 55 degrees, above - 55 degrees, below - 60 degrees; individual fluctuations, in the range not exceeding 5-7 degrees.

Pigmented retinal degeneration with or without pigment in combination with dark adaptation disorder (hemeralopia) is confirmed by two-hour adaptometry performed using control methods for studying twilight vision.

Subparagraph 2) of paragraph 27 of the Requirements for columns provides:

diseases of the sclera, cornea, vascular tract, retina with a positive effect of treatment and stable remission;

limited, non-progressive clouding of the lens with slight impairment of visual functions;

clouding of the vitreous body after previous diseases with good visual functions;

consequences of surgical treatment of benign eye neoplasms without impairment of visual functions (no earlier than 3 months after completion of treatment).

In the presence of neoplasms of the eye and its appendages, depending on their nature, the examination shall be carried out according to paragraphs 7 or 8 of the Requirements for columns.

After laser coagulation of the retina for degenerative-dystrophic changes in the retina, the issue of admission to flight work shall be decided not earlier than 1 month after the operation, taking into account the degree of preservation of visual functions. Those examined in columns II-III shall be recognized as not fit for flight work. Those examined under column V shall be recognized as fit for flight work, with the exception of highly maneuverable helicopters.

Night vision (dark adaptation and twilight vision acuity) is necessarily examined in candidates, as well as in those examined according to columns II-V during stationary examination. The research results are evaluated according to the relevant indicators specified in the instructions for the device used. A persistent, significantly pronounced decrease in dark adaptation without pathological changes in the fundus, established by repeated hourly adaptometry, in case of unsuccessful treatment in a hospital, shall be assessed as tapetoretinal retinal abiotrophy.



Paragraph 28 of the Requirements for columns. Retinal detachment and tears.

The paragraph provides for retinal detachment (tears) in one or both eyes of any etiology.

Paragraph 29 of the Requirements for columns. Glaucoma.

Intraocular pressure is measured annually in those examined who have reached the age of 40. When intraocular pressure is detected above 25 millimeters of mercury (hereinafter- mm Hg) in at least one eye, intraocular pressure asymmetry is 5 mm Hg. Art. and more, as well as if an examined person has complaints that cause suspicion of glaucoma, a stationary examination shall be carried out using stress tests.

Military personnel with secondary glaucoma shall also be examined under this paragraph.

Paragraph 30 of the Requirements for columns. Diseases of the muscles of the eye, disorders of friendly eye movement.

Subparagraph 1) of paragraph 30 of the Requirements for columns provides:

paralysis or persistent paresis of the motor muscles of the eyeball;

concomitant strabismus more than 10 degrees;

pronounced spontaneous oscillatory movements of the eyeballs;

persistent diplopia after an orbital injury with damage to the muscles of the eye.

In case of diplopia, which is a consequence of any disease, the conclusion shall be made on the underlying disease.

Subparagraph 2) of paragraph 30 of the Requirements for columns provides for strabismus of less than 10 degrees without impairing binocular vision, confirmed in stationary conditions.

In case of impairment of binocular vision, the candidates are recognized as not fit for admission to the university, and military personnel selected for appointment to flight positions shall be considered not fit for flight work.

Nystagmoid twitching of the eyes in the extreme abduction of the eyeballs are not grounds for applying this paragraph. With nystagmus, which is a symptom of damage to the nervous system or ENT organs and is not accompanied by a decrease in visual acuity, the decision shall be made on the underlying disease.

Paragraph 31 of the Requirements for columns. Refractive error.

The type and degree of refractive error is determined by skiascopy and refractometry. The data obtained during skiascopy are confirmed by a subjective method (selection of corrective glasses).

In the case when an individual assessment of suitability is provided for with the refractive errors specified in this paragraph, the decisive importance is attached to visual acuity.

In candidates, refraction is determined under conditions of cycloplegia. For military personnel, cycloplegia is carried out only on indications. If a spasm of accommodation is suspected, refraction is determined in conditions of cycloplegia. Military personnel who have undergone cycloplegia shall be allowed to flights only after the restoration of accommodation.

With complex astigmatism, the conclusion shall be made not by the degree of astigmatism, but by the value of refraction in the meridian of the greatest ametropia.

If a serviceman with good visual functions has a degree of refractive error exceeding the permissible limits by no more than 0.5 diopters, there is no reason to apply this paragraph.

In case of myopia, simple astigmatism not exceeding 0.5 diopters or hyperopia not exceeding 1.0 diopters with a visual acuity of 1.0 for each eye without correction, the diagnosis "Healthy" shall be made.

After any type of refractive keratoplasty, keratotomy, laser keratoectomy, candidates and cadets are not fit for flight training, military personnel of fighter, fighter-bomber aircraft and highly maneuverable helicopters are not fit for flight work.

In the presence of myopia above 1.0 diopters, anisometropia, intolerance to contact lenses, flight crews, examined according to columns IV-V may carry out laser vision correction. After laser vision correction, the issue on admission to flight work shall be decided not earlier than 3 months after the operation, taking into account the degree of preservation of visual functions.

Paragraph 32 of the Requirements for columns. Accommodability disorders.

Military personnel with persistent spasm of accommodability shall be sent for inpatient examination. When the spasm of accommodability is due to diseases of the nervous system, internal organs, the conclusion shall be made on the underlying disease.

Age-related changes in accommodability (presbyopia) are judged by the location of the nearest point of clear vision. The study is carried out monocularly.

Military personnel over 40 years old, as well as with hyperopia of 1.5 diopters or more, regardless of age, shall be examined for near visual acuity according to the Sivtsev table.

Those examined according to columns II-III with visual acuity near binocular less than 0.2 without correction are not fit for flight work according to subparagraph 3) of this paragraph, regardless of the degree of presbyopia. Those examined according to columns IV-V are fit for flight work in corrective glasses or contact lenses on airplanes (helicopters) with a co-pilot under subparagraph 3) of this paragraph.

Those examined according to columns II-III are fit in corrective glasses that do not prevent the use of special equipment on airplanes with dual control in the presence of a co-pilot under subparagraph 4) of this paragraph.

Those examined according to columns IV-V are fit for flight work in corrective glasses or contact lenses on mastered types of aircrafts under subparagraph 4) of this paragraph.

With hyperopia, the permissible degree of presbyopia is reduced by the number of refractive diopters. With myopia, the permissible degree of presbyopia is increased by the number of refractive diopters.

Paragraph 33 of the Requirements for columns. Decreased visual acuity.

Distance visual acuity is determined monocularly and binocularly. At the same time, for those examined according to columns I-V, visual acuity is taken into account without

correction, and for those examined according to columns VI-VII with correction. If it is difficult to diagnose visual acuity, control methods shall be used for research.

For the rows of the Golovin-Sivtsev table, where the visual acuity is from 0.7 to 1.0, with an error of no more than one sign on one row, the visual acuity is considered complete. Military personnel who are examined according to graphs III-V with a decrease in visual acuity due to refractive errors are allowed to fly in corrective glasses or contact lenses. In this case, the conclusion shall be made with good tolerability, absence of diplopia, eye irritation, visual acuity with a correction of at least 1.0 for each eye according to subparagraph 2) of paragraph 33. In this case, the spherical glass corrective force for pilots and navigators  $\pm 2.0$  diopters, and cylindrical –  $\pm 1.0$  diopters. Other flight crew members are allowed to wear corrective glasses with a force of not more than  $\pm 3.0$  diopters or contact lenses with a visual acuity of not less than 0.7 binocularly.

Military personnel participating in the performance of flight missions on board the aircraft, as well as flight directors, shall be allowed to perform professional activities in corrective glasses or contact lenses. Military personnel wearing contact lenses are required to carry a spare set of glasses.

Correction of astigmatism of any kind is carried out with cylindrical or combined glasses completely along all meridians. At the same time, the corrected binocular visual acuity in this category of the examined is not less than 0.8.

Paragraph 34 of the Requirements for columns. Color vision abnormalities.

When diagnosing the forms and degrees of color perception reduction, it is necessary to follow the methodological instructions to the threshold tables for the study of color vision, which are allowed for use in medical practice. Disorders of color perception are expressed in the form of color weakness of I, II, III degrees, respectively, for red (protodeficiency), green (deutodeficiency) and blue (tritodeficiency) color or dichromasia on one of the three color receivers of the eye: protanopia (red color blindness), deuteranopia (green color blindness), tritanopia (blue color blindness). The identified color vision disorders are assessed according to threshold tables for color vision testing in accordance with Appendix 3 to these Requirements.

It is allowed to diagnose the state of color differentiation using polychromatic tables by E. B. Rabkin in accordance with the method specified in the tables.

Difficult to diagnose conclusions about fitness for flight work shall be made on the basis of an anomaloscope study.

Paragraph 35 of the Requirements for columns. Temporary functional disorders of the organ of vision after an acute illness, exacerbation of a chronic illness, trauma or surgical treatment.

The conclusion on granting a sick leave shall be issued when a period of at least a month is required to fully restore the ability to perform the duties of military service.

The conclusion on exemption from flights shall be made when, after its completion, it is assumed that the professional working capacity of military personnel is restored.

## **Chapter 8. Diseases of the ear and mastoid process**

Paragraph 36 of the Requirements for columns. Diseases of the outer ear.

This paragraph includes:

eczema of the external auditory canal and auricle;

chronic diffuse otitis externa;

otitis externa with mycoses;

acquired narrowing of the ear canals;

exostosis of the external auditory canals;

congenital anomalies (malformations) of the ear and other diseases of the outer ear.

The diagnosis of eczema of the external auditory canal and auricle, external otitis media with mycoses shall be established in conjunction with a dermatologist.

Paragraph 37 of the Requirements for columns. Diseases of the middle ear and mastoid process.

Subparagraph 1) of paragraph 37 of the Requirements for columns provides:

chronic suppurative otitis media (unilateral or bilateral) with frequent (2 or more times a year) exacerbations;

chronic suppurative otitis media (unilateral or bilateral) accompanied by complications (polyps, granulations, caries of the walls of the tympanic cavity);

condition after radical surgery on the middle ear with incomplete epidermisation of the postoperative cavity.

With persistent and complete epidermisation and preservation of the auditory function (whisper speech is perceived at a distance of more than 1 meter), assessment of suitability is conducted according to subparagraph 2) of paragraph 37 and paragraph 39 of the Requirements for columns.

Military personnel in case of repeated occurrence of otorrhea shall be sent for examination, treatment and survey in a hospital conditions.

Subparagraph 2) of paragraph 37 of the Requirements for columns includes chronic suppurative unilateral otitis media with rare (less than 2 times a year) exacerbations, not accompanied by the complications specified in subparagraph 1) of this paragraph. Military personnel shall be subject to dynamic observation by an otorhinolaryngologist at least once every 3 months.

Subparagraph 3) of paragraph 37 of the Requirements for columns includes:

chronic non-suppurative inflammation of the middle ear with a slight impairment of hearing and barofunction;

dry perforation of the tympanic membrane;

cicatricial changes in the tympanic membrane or foci of calcification;

adhesions in the tympanic cavity.

A persistent dry perforation of the tympanic membrane means the presence of a perforation of the tympanic membrane in the absence of inflammation of the middle ear for 12 months or more.

Small scars without thinning at the site of former perforations and calcification of the tympanic membrane, with its good mobility, good hearing and not impaired barofunction, do not give grounds for applying this paragraph.

Those examined according to columns II-VI, in which dry perforation of the tympanic membrane is detected, adhesive otitis media are subject to examination and survey in stationary conditions, where a complete audiometric and X-ray examination is performed.

Paragraph 38 of the Requirements for columns. Disruption of barofunction of the ear and paranasal sinuses.

The persistence and severity of disruption of the ear barofunction, in addition to otomanometry, is confirmed by the study in the pressure chamber. Persistent and significantly pronounced disruptions of the ear barofunction (total hyperemia of the tympanic membrane with hemorrhage into it or effusion into the ear cavity), which occur during the study in the pressure chamber, shall be the basis for recognition as not fit for graphs I-VI. A similar decision shall be made when it is not pain and local reactions from the tympanic membrane that come to the fore, but long-term auditory disorders (more than a day) that occur every time after exposure to air pressure changes in normal flight conditions or after a test in a pressure chamber. Before the test in the pressure chamber for the tolerance of barometric pressure and after it, a study of the state of auditory function shall be carried out (audiometry – according to indications).

The presence of total hyperemia of the tympanic membrane without hemorrhage and effusion into the middle ear cavity, accompanied by a feeling of pain or congestion in the ears, as well as moderate hearing disorders that disappear within 24 hours after testing in a pressure chamber, shall be assessed as a slightly pronounced disruption of the ears barofunction.

Assessment of the state of the ear barofunction shall be made by comparing the results of ear manometry with the data of ENT endoscopy, acumetry and the results of testing in a pressure chamber for the tolerance of barometric pressure differences.

In cases where, with a normal otoscopic picture and good hearing, ear manometric tests (including blowing the ears according to the Police) establish a disruption of the patency of the Eustachian tube, a re-examination is recommended after anemization of the nasal mucosa. The presence in candidates after pressure chamber tests of mild hyperemia of the tympanic membranes or injection of vessels along the handle of the hammer with good otomanometry data and the absence of other pathology of the ENT organs shall not be an obstacle to admission to the university.

Disruption of barofunction of the paranasal sinuses shall be established on the basis of complaints, the condition of the nasal cavity, tests in a pressure chamber for the tolerance of barometric pressure differences, the results of X-ray or ultrasound examination of the paranasal sinuses before and after testing in a pressure chamber.

Paragraph 39 of the Requirements for columns. Loss of hearing.

If hearing impairment is detected, it is necessary to re-examine whispering and speaking, tuning fork and audiometric studies, if indicated, computer audiometry.

If you doubt the stability of hearing loss, especially for the bass group of words, blowing the ears according to the Polacek or by catheterization of the auditory tubes shall be used.

When making a conclusion, the worst indicators of hearing shall be taken as a basis, regardless of whether they belong to the bass or treble group of words. For the assessment of auditory function, data obtained from tone audiometry shall be of great importance, which allow you to accurately assess the degree of hearing loss and thus monitor the dynamics of auditory pathology.

The change in auditory sensitivity in the area of perception of the zone of speech frequencies (500, 1000, 2000 hertz), according to tonal audiometry, reflects the state of speech perception, that is, characterizes the state of hearing acuity. Assessment of the state of the auditory function according to the data of tonal audiometry is carried out according to the value of the arithmetic mean hearing loss at speech frequencies (500, 1000 and 2000 hertz) and at a frequency of 4000 hertz.

An important criterion in the examination of auditory disorders in military personnel shall be the audibility of radio signals in flight, which is taken into account when applying an individual assessment.

For those examined with hearing impairment, in whom speech audiometry fails to obtain 100 percent of speech intelligibility in each ear at a loudness level of 70 decibels or more (at a rate of 100 percent speech intelligibility with its intensity less than 70 decibels), the question of suitability shall be decided individually in aggregate data from the study of auditory function, information about the conduct of radio exchange in flights.

With the progression of hearing loss, a conclusion shall be made about unfitness for flight work for all columns.

Military personnel with reduced hearing function shall be subject to dynamic observation by an otorhinolaryngologist (at least once every 3 months) with compulsory audiometry once a year, and with sensorineural or sensorineural hearing loss - 2 times a year.

Candidates shall be considered fit if they perceive whispering speech in the bass and treble groups of words at a distance of at least 6 meters to each ear.

Those examined with otosclerosis, or those who have undergone hearing restoration surgery for otosclerosis, shall be recognized as not fit for all columns.

Tone audiometry is mandatory for candidates and military personnel selected for appointment to flight positions.

Paragraph 40 of the Requirements for columns. Vestibular dysfunction.

The paragraph provides for reduced resistance of the vestibular apparatus to the cumulative effects of Coriolis accelerations.

Vestibular (statokinetic) stability in military personnel shall be determined by the results of vestibulometry (research on a rotating chair) the method of continuous cumulation of Coriolis accelerations (hereinafter- CCCA) or intermittent cumulation of Coriolis accelerations (hereinafter- ICCA). Vestibulometry is performed 1 time a day in the morning, not earlier than 2 hours after eating. On the day of the test, the examined is not exposed to other influences (including the pressure chamber, on the centrifuge). Vestibulometry evaluates vestibulo-somatic reactions (defensive movements) and vestibulo-vegetative reactions. Defensive movements, even of degree II, in the absence of pronounced vestibulo-vegetative reactions, shall not be the grounds for applying this paragraph. The results of vestibulometry shall be evaluated together with a neurologist.

Military personnel with vestibular instability after previous illnesses (including gastritis, cholecystitis, food poisoning, acute respiratory diseases) and traumatic brain injury shall be subject to hospital examination.

Subparagraph 1) of paragraph 40 of the Requirements for columns provides:

persistent, significantly or moderately pronounced vestibular autonomic disorders, manifested in flight, not amenable to vestibular training;

vestibulovegetative disorders, accompanied by symptoms of Menier's disease.

Subparagraph 2) of paragraph 40 of the Requirements for columns provides for mildly expressed vestibulo-vegetative disorders, compensated (not manifested) in flight.

Slightly pronounced vestibulovegetative reactions in the form of slight pallor, slight hyperhidrosis, found in military personnel with vestibulometry, with good flight tolerance and absence of any deviations in the state of health, shall not be grounds for establishing a diagnosis. If the military personnel have motion sickness only when flying as a passenger or during bench tests, those examined under subparagraph 2) of this paragraph shall be recognized as fit for flight work in the order of individual assessment with good flight tolerance (taking into account these characteristics that reflect professional activity). In case of inconstancy of vestibulovegetative reactions to vestibulometric studies (with systematic observation, various vegetative disorders are detected in the examined person), the examination shall be carried out in stationary conditions.

For candidates and military personnel selected for appointment to flight positions, vestibulometry shall be performed within 3 minutes by the CCCA method or 2 minutes by the ICCA method. Upon receipt of pronounced vestibulo-vegetative reactions (sharp pallor, profuse sweating, profuse salivation, nausea, retching or vomiting), the test shall be repeated after 1-2 calendar days. When the reduced resistance of the vestibular apparatus to the cumulative effect of Coriolis accelerations is re-identified, the examined shall be considered unstable to vestibular stimuli and recognized as not fit.

For military personnel and cadets, vestibulometry shall be carried out within 2 minutes by the CCCA method or 1 minute by the ICCA method. For military personnel of the naval aviation, during the selection for airplanes and helicopters, vestibular stability shall be determined by two methods (CCCA - 3 minutes, ICCA - 2 minutes). The intervals between studies are 1 calendar day.

Paragraph 41 of the Requirements for columns. Temporary functional disorders of the ear and mastoid process after an acute illness, exacerbation of a chronic disease, trauma or surgical treatment.

After radical operations on the middle ear, military personnel shall be granted a sick leave

Re-examination for flight work shall be carried out no earlier than 12 months after the operation. After this period, with complete epidermisation of the postoperative cavity, the conclusion shall be made on paragraph 37 of the Requirements for columns.

## **Chapter 9. Diseases of the circulatory system**

In diseases of the circulatory system, heart failure is assessed by functional classes ( hereinafter - FC) in accordance with the classification of the New York Heart Association ( NYHA, 1964).

Paragraph 42 of the Requirements for columns. Chronic inflammatory rheumatic, non-rheumatic heart disease, cardiomyopathy, degenerative and dystrophic heart disease.

Medical examination of citizens with primary prolapse of the mitral and (or) other heart valves (as manifestations of connective tissue dysplasia) shall be carried out in accordance with paragraph 78 of the Requirements for columns, and with secondary prolapse of the mitral and (or) other heart valves (formed in ischemic heart disease, myocarditis, cardiomyopathy, trauma) - on this paragraph.

Subparagraph 1) of paragraph 42 of the Requirements for columns provides:

heart diseases with heart failure FC I-IV according to NYHA classification;

ischemic heart disease, regardless of the clinical form;

rheumatism and rheumatic heart diseases (rheumatic pericarditis and myocarditis; rheumatic defects of the mitral, aortic and other valves);

acquired heart defects, regardless of the state of general circulation;

various types of cardiomyopathies;

long-term outcomes of myocarditis, diseases of the pericardium and endocardium with insufficiency of general circulation or the presence of persistent disturbances of the heart rhythm and (or) conduction;

disturbance of heart rhythm and conduction: extrasystole of any type and form (with the exception of rare single), all forms of paroxysmal tachycardia, atrial fibrillation and flutter, ventricular fibrillation and flutter, sick sinus syndrome; sinoatrial block, intra atrial block, atrioventricular block of 1, 2 and 3 degrees (except for functional or vagal atrioventricular



block of the 1st degree), complete left bundle branch block, posterior branch block of the left bundle branch, all types of bifascicular blocks, trifasci blocks;

prolapse of the mitral and other heart valves of the II degree or more with or without disturbance of intracardiac hemodynamics;

prolapse of mitral or other heart valves of I degree (from 3 to 5.9 mm) with regurgitation of I degree or more;

prolonged Q-T interval syndrome of a persistent nature;

the consequences of surgical interventions: coronary artery bypass grafting, stenting, operations on the valve or septal apparatus of the heart, implantation of an artificial pacemaker; implantation of an automatic defibrillation system and other interventions.

In case of complete block of the right leg or the anterior branch of the left bundle branch of the bundle of His, military personnel who are examined according to columns II-III are not fit for flight work, and according to columns IV-VI shall be allowed on an individual basis according to subparagraph 2) of paragraph 42 of the Requirements for columns.

Presence of coronary heart disease must be confirmed by instrumental research methods (mandatory - electrocardiography at rest and with stress tests, echocardiography (hereinafter - EchoCG), 24-hour ECG monitoring; additional - stress echocardiography, coronary angiography, CT of coronary arteries, MRI, positron emission tomography, single-photon emission CT, myocardial perfusion scintigraphy, transesophageal electrocardiostimulation and other studies).

A sufficient basis for the diagnosis of coronary heart disease shall be a combination of a positive ECG test with exercise with local myocardial ischemia detected during exercise scintigraphy or stenosis of one of the coronary arteries of the heart by more than 50 percent, or stenosis of 2 arteries by more than 30 percent with aortocoronarography.

Subparagraph 2) of paragraph 42 of the Requirements for columns provides:

the initial signs of atherosclerosis of the aorta, its branches and coronary arteries of the heart;

prolapse of the mitral and other heart valves of the 1st degree (from 3 to 5.9 mm) without disturbance of intracardiac hemodynamics;

limited myocardiosclerosis due to the transferred infectious-inflammatory or metabolic diseases of the myocardium (myocarditis, focal myocardial dystrophy), myocardial dystrophy with good functional ability of the cardiovascular system.

For military personnel who have undergone ablation (including radiofrequency) of additional pathways due to anomalies of the cardiac conduction system or other arrhythmias, re-examination in stationary conditions shall be carried out no earlier than 3 months after ablation. In the absence of recurrence of arrhythmias according to the results of electrophysiological studies, those examined according to column II-III are not fit for flight

work, according to column IV-V - are fit on airplanes with dual control in the presence of a co-pilot. In the next 2 years after ablation, medical examination of these military personnel shall be carried out in stationary conditions.

Military personnel who have undergone treatment for inflammatory heart disease are re-examined no earlier than 3 months after the completion of treatment.

Functional (vagal) atrioventricular block of the 1st degree, incomplete block of the right bundle branch block are not grounds for applying this paragraph, do not prevent admission to the university.

Paragraph 43 of the Requirements for columns Arterial hypertension.

Subparagraph 1) of paragraph 43 of the Requirements for columns includes:

rapidly progressive (malignant) form of arterial hypertension;

arterial hypertension of 3 degree;

arterial hypertension of 2 degree;

arterial hypertension of 1 degree, risk 3-4 (in the presence of more than 3 main risk factors or organ damage mediated by hypertension - risk 3; in the presence of cardiovascular diseases - risk 4).

Subparagraph 2) of paragraph 43 of the Requirements for columns provides for arterial hypertension of 1 degree, risk 1-2 in the absence of target organ lesions, associated clinical conditions with a tendency to spontaneous normalization after a short rest without taking antihypertensive drugs. Retraining military personnel with grade 1 arterial hypertension to new types of aircraft is impractical.

The degree of arterial hypertension is characterized by the following blood pressure indicators, confirmed, among other things, by the results of repeated daily blood pressure monitoring:

1 degree - at rest systolic blood pressure 140-159 mm Hg, diastolic blood pressure 90-99 mm Hg;

2 degree - at rest systolic blood pressure 160-179 mm Hg, diastolic blood pressure 100-109 mm Hg;

3 degree - at rest systolic blood pressure 180 mm Hg. and above, diastolic blood pressure 110 mm Hg. and higher.

When the values of systolic blood pressure and diastolic blood pressure fall into different categories, the degree of arterial hypertension shall be set according to higher blood pressure indicators.

Military personnel with symptomatic arterial hypertension shall be examined for their underlying disease.

In the presence of a syndrome of high blood pressure, closely associated with the presence of vegetative-vascular disorders (hyperhidrosis of the hands, "red" persistent dermographism,

lability of the pulse and blood pressure with a change in body position and other vegetative-vascular reactions), the examination shall be carried out according to paragraph 44 of the Requirements for columns.

Paragraph 44 of the Requirements for columns. Somatoform autonomic dysfunction of the heart and cardiovascular system.

Somatoform autonomic dysfunction is characterized by a syndrome of vegetative-vascular disorders with an inadequate blood pressure response and (or) heart rhythm disturbances to any stimuli.

Subparagraph 1) of paragraph 44 of the Requirements for columns includes somatoform autonomic dysfunction of:

hypertensive type with lability of blood pressure in the presence of constant complaints and persistent significantly or moderately pronounced vegetative-vascular disorders that do not respond to treatment and reduce performance;

hypotensive type with persistent fixation of blood pressure at rest: systolic below 100 mm Hg, diastolic below 60 mm Hg, in the presence of persistent complaints, persistent significantly or moderately expressed vegetative-vascular disorders that do not respond to treatment and reduce performance;

cardial type in the presence of persistent cardialgia, accompanied by significantly or moderately pronounced vegetative-vascular disorders, persistent disturbances in heart rhythm and conduction.

Persistent cardiac arrhythmias include arrhythmias requiring antiarrhythmic therapy and recurring after discontinuation of treatment or refractory to it.

Subparagraph 2) of paragraph 44 of the Requirements for columns includes somatoform autonomic dysfunction of any type with mildly pronounced disorders, including transient disturbances of the heart rhythm and conduction, which do not reduce the ability to work.

When transient cardiac arrhythmias are detected, the fitness for flight operation is determined based on the results of daily ECG monitoring.

Rare single supraventricular extrasystoles of rest (1-5 per hour and/or less than 100 per 24 hours according to 24-hour ECG monitoring), sinus arrhythmia of a functional nature in the absence of vegetative-vascular disorders shall not be grounds for applying this paragraph, do not prevent admission to the university.

Candidates shall be recognized as not fit for admission to a university, and military personnel selected for appointment to flight positions are not fit for flight work with repeated increases in blood pressure at rest: systolic above 130 mm Hg, diastolic above 80 mm Hg. or with a persistent decrease in blood pressure at rest: systolic below 105 mm Hg, diastolic below 60 mm Hg.

Paragraph 45 of the Requirements for columns. Diseases and consequences of damage to the aorta, main and peripheral arteries and veins, lymphatic vessels.

Subparagraph 1) of paragraph 45 of the Requirements for columns includes:

arterial and arteriovenous aneurysms of the main vessels;  
obliterating endarteritis, thromboangiitis, aortoarteritis and atherosclerosis of vessels of the lower extremities, regardless of the severity and state of blood circulation;  
post-thrombotic and varicose veins of the lower extremities with impaired blood circulation of any degree and (or) function;  
angiotrophoneuroses stage II and III;  
lymphostasis I-III degree;  
varicose veins of the spermatic cord II-III degree;  
varicose veins of the esophagus, regardless of the etiology and clinical manifestations of the disease;  
the consequences of diseases and injuries of the main and peripheral vessels, as well as operations on them, accompanied by impaired blood circulation and (or) lymph circulation, trophic disorders, pain syndrome.

Surgical treatment is offered to military personnel and cadets with varicose veins of the spermatic cord II-III degree. In case of refusal of surgical treatment, unsatisfactory results of surgical treatment or repeated relapse, military personnel shall be recognized as not fit for all columns. A single recurrence of varicose veins of the spermatic cord shall not be a basis for applying subparagraph 1) of this paragraph. The issue of admission to flight work shall be decided not earlier than 2 months after the operation.

Subparagraph 2) of paragraph 45 of the Requirements for columns includes:

varicose veins of the lower extremities without signs of venous insufficiency and dysfunction;  
lymphostasis 0 degree;  
varicose veins of the spermatic cord I degree;  
angiotrophoneurosis of I degree.

Admission to flight work after planned surgical treatment of uncomplicated varicose veins of the lower extremities shall be decided not earlier than 3 months after the operation according to the results of inpatient examination.

Military personnel and cadets who have undergone reconstructive operations on the main and peripheral vessels shall be recognized as not fit according to columns I-V, according to columns VI-VII, an individual assessment shall be determined.

Paragraph 46 of the Requirements for columns. Temporary functional disorders of the circulatory system after an acute illness, exacerbation of a chronic illness or surgical treatment.

The conclusion on granting a sick leave shall be made after active rheumatism, non-rheumatic myocarditis, myocardial infarction, as well as after surgery on the heart, coronary vessels, large main and peripheral vessels, ablation (radiofrequency and other

ablation) of additional conduction pathways or orifices of the pulmonary veins, with impaired functions of a temporary nature, when a period of at least a month is required to complete rehabilitation treatment and fully restore the ability to perform military service duties.

After surgical treatment of varicose veins of the spermatic cord, complete exemption from military service duties shall be granted for 15 days.

## **Chapter 10. Diseases of the respiratory system**

Paragraph 47 of the Requirements for columns. Diseases of the paranasal sinuses.

Subparagraph 1) of paragraph 47 of the Requirements for columns includes:

chronic purulent, cystic or polypous sinusitis, occurring with frequent exacerbations and labor losses, accompanied by hypertrophic or atrophic changes in the mucous membrane of the upper respiratory tract and impaired nasal breathing;

fetid coryza (ozena), scleroma;

year-round allergic rhinitis (pollinosis) with frequent exacerbations and recurrent course with impaired nasal breathing;

hyperplastic sinusitis;

a cyst of the maxillary sinus, occupying more than 1/3 of the volume of the maxillary sinus;

frontal sinus cyst.

Frequent exacerbations of the disease mean exacerbations 2 or more times a year.

The diagnosis of chronic suppurative disease of the paranasal sinuses is confirmed by rhinoscopic data (purulent discharge), X-ray tomography and (or) X-ray of the paranasal sinuses with contrast in two projections, and for the maxillary sinus, in addition, by diagnostic puncture. If there are medical indications, CT (MRI) or videoscopic examination is performed .

When diagnosing ozena or scleroma, military personnel shall be recognized not fit for flight control.

Subparagraph 2) of paragraph 47 includes:

chronic diseases of the paranasal sinuses (purulent, catarrhal, serous, vasomotor and other non-purulent forms of sinusitis) with slightly pronounced changes in the mucous membrane of the upper respiratory tract, without frequent exacerbations associated with labor losses;

cysts of the maxillary sinuses (asymptomatic, identified as an X-ray finding), occupying less than 1/3 of the volume of the maxillary sinuses, without disturbing their barofunctions;

allergic rhinitis (hay fever) recurrent up to 2 times a year with successful treatment, no inflammatory changes and good barofunction of the paranasal sinuses.

In the presence of a cyst of the maxillary sinus, occupying more than 1/3 of the volume of the sinus, or with an increase in the size of the cyst during dynamic observation, as well as in combination with a cyst with vasomotor changes in the nasal mucosa and polyps, curvature of the nasal septum, vicar hypertrophy of the turbinates, in the presence of an allergic

component, a foreign body in the maxillary sinuses, military personnel shall be subject to surgical treatment. Examination of military personnel after radical maxillary sinusitis shall be carried out no earlier than 12 months after the end of treatment (including sick leave), with endoscopic methods of maxillary sinusitis – no earlier than 3 months and determined individually.

When diagnosing congenital underdevelopment of the frontal or maxillary sinuses, candidates shall be recognized not fit for admission to the university.

X-ray examination of the paranasal sinuses is mandatory for candidates and military personnel selected for appointment to flight positions.

Parietal thickening of the mucous membrane of the maxillary sinuses, identified in candidates and military personnel, shall not be a basis for making a conclusion about unsuitability.

Paragraph 48 of the Requirements for columns. Diseases or consequences of diseases and injuries of the nose, pharynx, larynx and trachea.

Paragraph 48 includes: curvature of the nasal septum, adenoids, hypertrophy of the turbinates, diseases of the bone walls of the paranasal sinuses (including osteomyelitis), dystrophy of the mucous membrane of the upper respiratory tract such as hypertrophy or atrophy, laryngitis, laryngotracheitis and other diseases of the upper respiratory tract that cause a violation respiratory, speech (vocal), swallowing, chewing functions or making it difficult to use special equipment or device. Cadets and military personnel shall be subject to treatment.

Subparagraph 1) of paragraph 48 of the Requirements for columns provides for diseases or consequences of diseases and injuries of the nose, pharynx, larynx and trachea, which are not eliminated by surgical, conservative treatment or upon refusal from it. When eliminating the defects of these bodies, the function of which has been restored, the conclusion shall be made under subparagraph 2) of paragraph 48 of the Requirements for columns.

Military personnel with a persistent decrease or complete absence of smell shall be allowed to flight work when this state is not in a pathogenetic connection with other diseases.

Surgical treatment of candidates for the curvature of the nasal septum, adenoids, hypertrophy of the turbinates shall be carried out no later than 2 months before the beginning of examination by the MFC of the university.

Paragraph 49 of the Requirements for columns. Chronic tonsillitis.

Subparagraph 1) of paragraph 49 of the Requirements for columns provides for chronic tonsillitis of a decompensated form with frequent (2 or more times a year) exacerbations, the presence of tonsillogenic intoxication (subfebrile condition, fatigue, lethargy, malaise), involvement in the inflammatory process of the peri-lymph tissue (parathonic lymph nodes) abscess, regional lymphadenitis) and metatonsillar complications.

Treatment of chronic decompensated tonsillitis is surgical.

Subparagraph 2) of paragraph 49 of the Requirements for columns provides for chronic tonsillitis of the compensated form.

Paragraph 50 of the Requirements for columns. Chronic nonspecific diseases of the lungs and pleura, disseminated lung diseases of non-tuberculous etiology, the consequences of their injuries or surgical interventions.

Subparagraph 1) of paragraph 50 of the Requirements for columns provides:

chronic diseases of the bronchopulmonary apparatus and pleura;

chronic diffuse bronchitis;

bronchiectasis;

suppurative lung diseases;

diffuse pneumofibrosis;

diffuse and bullous emphysema of the lungs;

sarcoidosis without a tendency to spontaneous resolution;

fibrotic changes in the lungs after surgical interventions on the organs of the chest with significant or moderate respiratory failure.

Subparagraph 2) of paragraph 50 of the Requirements for columns provides:

non-purulent forms of segmental chronic bronchitis with rare exacerbations;

sarcoidosis of the lungs without a tendency to progression;

the consequences of acute diseases, injuries and surgical interventions of the bronchopulmonary apparatus in the form of limited pneumofibrosis, pleural adhesions with slightly pronounced respiratory failure.

Military personnel and cadets who have had spontaneous pneumothorax for the first time shall be examined in stationary conditions not earlier than 3 months after the end of treatment and allowed to flight work, with the exception of supersonic aircrafts. In case of repeated pneumothorax, military personnel and cadets shall be recognized as not fit.

Military personnel with sarcoidosis of the lungs without a tendency to progression shall be allowed to flight work with the exception of supersonic aircrafts.

The study of the function of external respiration in military personnel with diseases of the bronchopulmonary apparatus is mandatory.

Assessment of the degree of respiratory failure shall be carried out in accordance with Appendix 4 to these Requirements.

Paragraph 51 of the Requirements for columns. Bronchial asthma.

The paragraph provides for bronchial asthma, regardless of the clinical form and severity of the course. The diagnosis is established, and the examination is carried out only after an inpatient examination.

Paragraph 52 of the Requirements for columns. Temporary functional disorders of the respiratory system after an acute illness, exacerbation of a chronic illness or surgical treatment.

In case of a complicated course of acute pneumonia (suppuration, para- and metapneumonic effusion pleurisy, atelectasis, extensive pleural overlays, severe asthenization after severe pneumonia and other complications), a conclusion shall be made on granting a sick leave, admission to flight work no earlier than 6 months after control X-ray examination and clinical examination with normal indicators of external respiratory function.

In case of residual symptoms of an uncomplicated course of acute diseases, exacerbation of chronic lung diseases, a conclusion on exemption from flights for 3 months shall be made.

After tonsillectomy and surgical treatment of curvature of the nasal septum, adenoids, hypertrophy of the turbinates, removal of polyps and cysts from the paranasal sinuses, military personnel and cadets shall be granted exemption from military service for up to 15 days.

## **Chapter 11. Diseases of the digestive system**

Paragraph 53 of the Requirements for columns. Disorder of the development and eruption of teeth. Diseases of hard tissues of teeth, pulp, periapical tissues, gums, periodontium, salivary glands, soft tissues of the mouth and tongue.

Subparagraph 1) of paragraph 53 of the Requirements for columns includes:

absence of 6 or more teeth on both jaws;

generalized periodontitis or severe periodontal disease with frequent (3 or more times a year) exacerbations and (or) abscess formation, with a dentogingival pocket depth of 5 mm or more, bone resorption of the tooth socket by 2/3 of the root length, tooth mobility II-III degree;

persistent, recurrent diseases of the oral mucosa, salivary glands and tongue that are resistant to treatment.

Subparagraph 2) of paragraph 53 of the Requirements for columns includes:

multiple complicated caries;

generalized periodontitis or moderate periodontal disease with the depth of the periodontal pocket from 3.5 to 5 mm, bone resorption of the interdental septa up to 1/2 of the root length, tooth mobility of the 1st degree;

generalized periodontitis or mild periodontal disease with a pocket depth of up to 3.5 mm, mainly in the interdental space, there is an initial degree of destruction of the interdental septum bone tissue, a decrease in the height of interdental septa less than 1/3 of the root length, in the absence of tooth mobility;

leukoplakia, gingivitis, stomatitis, glossitis, cheilitis and other rarely recurrent (less than 2 times a year), well-treatable diseases, including precarcinosis.

Diagnosis of generalized periodontitis and periodontal disease is established after a thorough examination of the entire dentoalveolar system with radiography and identification of concomitant diseases.



To assess the severity of periodontitis, the Russell periodontal index values are also used ( mild degree up to 1.0, medium degree up to 4.0, severe degree up to 8.0).

Multiple complicated caries is exhibited when the sum of carious, filled and extracted teeth is more than 9 and at the same time at least 4 teeth with clinical or radiological signs of chronic inflammation with damage to the pulp and periodontium, including teeth with filled root canals. In case of refusal of treatment- not fit.

Examination of citizens, military personnel and cadets shall be carried out after the sanitation of the oral cavity and, if necessary, the completion of dental prosthetics.

When calculating the total number of missing teeth, wisdom teeth (18, 28, 38, 48) are not taken into account. The roots of the teeth, if it is impossible to use them for prosthetics, are considered as missing teeth. Teeth replaced with fixed prostheses are not considered missing.

Paragraph 54 of the Requirements for columns. Maxillofacial anomalies (except for congenital malformations), other diseases and changes in the teeth and their supporting apparatus, diseases of the jaws, salivary glands, tongue.

Subparagraph 1) of paragraph 54 of the Requirements for columns includes:

- defects of the upper and (or) lower jaws, not replaced by grafts after surgical treatment;
- acquired defects and deformities of the maxillofacial region;

- chronic diseases of the jaws, salivary glands, tongue, temporomandibular joints with frequent (3 or more times a year) exacerbations;

- ankylosis of the temporomandibular joints;

- contractures and false joints of the lower jaw;

- anomalies of the bite of the III degree with the separation of the bite of more than 10 mm without taking into account the chewing efficiency;

- anomalies of the bite of the II degree with bite separation from 5 to 10 mm with a chewing efficiency of less than 60 percent according to N. I. Agapov;

- chronic osteomyelitis of the jaws with the presence of sequestral cavities and sequestrs.

Subparagraph 2) of paragraph 54 of the Requirements for columns provides:

- rarely recurrent and treatable chronic diseases of the maxillofacial region;

- the consequences of injuries to the maxillofacial region with minor impairment of speech, breathing, taste, chewing, swallowing;

- anomalies of the bite of the 1st degree with bite separation of less than 5 mm without disturbing the act of chewing.

Paragraph 55 of the Requirements for columns. Peptic ulcer, duodenal ulcer.

The diagnosis of peptic ulcer disease shall be confirmed in stationary conditions with mandatory endoscopic examination and X-ray examination under conditions of artificial hypotension.

Military personnel who, during the examination, revealed a post-ulcer scar or cicatricial deformity of the duodenum without dysfunctions, when directed to flight work, shall be examined according to subparagraph 2) of paragraph 55 of the Requirements by columns.

Military personnel with acute gastric and duodenal ulcers or exacerbation of peptic ulcer after treatment shall be considered not fit for flight work. Recovery for flight work of military personnel who have suffered an acute form of peptic ulcer disease shall be carried out no earlier than 12 months after the end of treatment (including sick leave) with a favorable outcome and no exacerbation during the specified period.

Military personnel who have had gastric ulcer disease repeatedly, as well as peptic ulcer disease with a complicated (bleeding, perforation, penetration) or recurrent course, cannot be restored to flight work.

The results of treatment of acute cases and exacerbations of diseases (peptic ulcer, gastritis, colitis) are monitored endoscopically.

Paragraph 56 of the Requirements for columns. Diseases of the esophagus, stomach and duodenum (except for gastric ulcer and duodenal ulcer), intestines, liver, gallbladder and biliary tract, pancreas.

Subparagraph 1) of paragraph 56 of the Requirements for columns includes:

liver diseases (cirrhosis of the liver, lobular or persistent hepatitis) with significant or moderate dysfunction or persisting moderate activity for more than 3 months and (or) frequent (more than 2 times a year) exacerbations;

mix-hepatitis "B" and "C" regardless of dysfunction;

gastroesophageal reflux disease stage 3-4 (classification according to Savary-Miller);

erosive esophagitis, gastritis and gastroduodenitis;

enteritis, chronic gastritis and gastroduodenitis with significant or moderate impairment of secretory, acid-forming function, frequent exacerbations and malnutrition (BMI 18.5 kg/m<sup>2</sup> or less);

chronic nonspecific ulcerative colitis, Crohn's disease, regardless of the degree of dysfunction and the nature of the course;

acute cholecystitis;

calculous cholecystitis;

chronic acalculous cholecystitis with significant or moderate dysfunction with frequent (2 or more per year) exacerbations with satisfactory treatment results;

acute pancreatitis;

chronic pancreatitis with significant or moderate impairment of the exocrine function of the pancreas, with frequent (2 or more per year) exacerbations;

cicatricial narrowing, strictures and neuromuscular diseases of the esophagus with dysfunction of any degree;

adhesions in the abdominal cavity with impaired evacuation function;

prolapse of the rectum of any stage;

chronic paraproctitis.

Military personnel who have undergone acute (or exacerbation of chronic) erosive gastroduodenitis shall be considered not fit for flight work. The issue of restoration to flight

work is considered no earlier than 6 months after the end of treatment, depending on the severity and spread of the disease with a favorable outcome and no exacerbation during the specified period.

Subparagraph 2) of paragraph 56 of the Requirements for columns provides:

gastroesophageal reflux disease stage 1-2 (classification according to Savary-Miller);

chronic gastritis and gastroduodenitis with a slight disorder of the secretory function, with rare (no more than 2 times a year) exacerbations;

dyskinesia of the biliary tract without dysfunction;

fermentopathic (benign) hyperbilirubinemia;

chronic acalculous cholecystitis, no more than one exacerbation per year, without a tendency to recurrence with good treatment results;

chronic pancreatitis with a slight disorder of the exocrine function of the pancreas or without dysfunction;

chronic persistent hepatitis without clinical manifestations.

When diagnosing other diseases of the esophagus, intestines and peritoneum, examination shall be carried out according to the relevant subparagraphs of this paragraph, depending on the dysfunction.

Recovery for flight work of military personnel who have undergone an acute form of cholecystitis, pancreatitis, surgical intervention for calculous cholecystitis, shall be carried out no earlier than 6 months, laparoscopic cholecystectomy - no earlier than 3 months after the end of treatment (including sick leave) with a favorable outcome and no exacerbation during the specified period.

The diagnosis of chronic liver disease is confirmed by the results of a puncture liver biopsy or laparoscopic examination, and if it is impossible to conduct them, by clinical, laboratory and instrumental studies, indicating stable liver damage, with the exclusion of diseases accompanied by secondary liver damage.

In case of adhesive disease, after operations on the pancreas, the examined persons cannot be restored.

Paragraph 57 of the Requirements for columns. Hernia (inguinal, femoral, umbilical); other hernias of the abdominal cavity.

In the presence of a hernia, the examined person is offered surgical treatment.

Subparagraph 1) of paragraph 57 of the Requirements for columns provides:

hernias of any localization (inguinal, femoral, umbilical, postoperative ventral, hernia of the esophageal opening of the diaphragm) with dysfunction;

unsatisfactory results of treatment (relapse of the disease) or refusal of treatment, as well as contraindications for its conducting.

Subparagraph 2) of paragraph 57 of the Requirements for columns includes:

small umbilical hernias not making it difficult to use special equipment;

hernia of the esophageal opening of the diaphragm, which does not impair the function of the chest organs and is not impaired.

Paragraph 58 of the Requirements for columns. Hemorrhoids.

Subparagraph 1) of paragraph 58 of the Requirements for columns includes frequently recurrent forms of hemorrhoids, prone to bleeding, thrombosis and inflammation.

Frequent exacerbations of hemorrhoids include cases when the person being examined 2 or more times a year is treated in an inpatient or outpatient conditions for bleeding, thrombosis or prolapse of hemorrhoids, as well as when the disease is complicated by repeated bleeding requiring inpatient treatment.

Subparagraph 2) of paragraph 58 of the Requirements for columns includes hemorrhoids with rare (no more than 1 time per year) exacerbations with successful treatment.

Surgical or conservative treatment is offered to those examined according to indications. In case of unsatisfactory results of treatment or refusal from it, examination shall be carried out according to subparagraph 1) or 2), depending on the secondary anemia and the frequency of exacerbations.

A single collapsed external hemorrhoidal node without signs of inflammation, in the absence of data on seeking medical help for 3 years or more, shall not be a basis for the application of this paragraph in those examined under column II-VII.

Paragraph 59 of the Requirements for columns. Temporary functional disorders of the digestive system after an acute illness, exacerbation of a chronic illness or surgical treatment.

The conclusion on granting of sick leave shall be issued when at least a month is required to fully restore the ability to perform military service duties.

A conclusion on exemption from flights shall be made when, after its completion, it is assumed that the professional working capacity of military personnel must be restored.

After appendectomies, hernia repairs, a decision shall be made on the complete exemption from military service for a period of 15 days.

## **Chapter 12. Diseases of the skin and subcutaneous tissue**

Paragraph 60 of the Requirements for columns. Diseases of the skin and subcutaneous tissue, including congenital.

Subparagraph 1) of paragraph 60 of the Requirements for columns provides:

often recurrent common or limited forms of eczema, atopic dermatitis, psoriasis, lichen planus;

abscessing and ulcerative pyoderma;

common and total forms of alopecia areata (alopecia) and vitiligo;

chronic urticaria, recurrent Quincke's edema;

vasculitis of the skin, collagenosis with clinically pronounced, common forms;

a plaque form of limited scleroderma, regardless of the location, number and size of lesions;

congenital ichthyosis, erythroderma ichthyosis, recessive ichthyosis (black or blackening), dominant (simple);

keratoderma (including congenital) of the palms, impairing the function of the hands, as well as soles, making it difficult to walk and wear standard shoes;

a common form of follicular keratosis;

recurrent dermoid cysts of the tailbone after repeated (3 or more times) radical surgical treatment;

limited, rarely recurrent skin diseases with localization that makes it difficult to wear military or flight uniforms and the use of special equipment.

Subparagraph 2) of paragraph 60 of the Requirements for columns provides:

rarely recurrent limited forms of psoriasis, atopic dermatitis, eczema (with the exception of eczema of the external auditory canal and auricle, which are examined in accordance with paragraph 36 of the Requirements for the columns);

limited forms of alopecia areata (alopecia) and vitiligo;

xeroderma;

limited form of follicular keratosis;

epithelial coccygeal fistula (pilonidal cyst) after radical surgical treatment in the absence of relapse.

A common form of alopecia areata (alopecia) is understood as the presence of multiple (3 or more) foci of alopecia with a diameter of at least 10 cm each, and when bald patches merge, there is no hair growth on an area of over 50 percent of the scalp.

The common form of vitiligo means the presence of multiple (3 or more), as well as single, but large (the size of the patient's palm or more) depigmented spots on the skin of various anatomical areas. This also includes foci of vitiligo on the face, which is a cosmetic defect.

The common form of psoriasis or lichen planus is understood as the presence of multiple (3 or more), as well as single, but large (the size of the patient's palm or more) plaques on the skin of various anatomical regions.

Limited forms of psoriasis are understood as single (up to 3) lesions of various localization, including in various anatomical regions, with an area up to the patient's palm. With eczema, damage to one of the anatomical areas (foot, lower leg, hand, head) is regarded as limited.

Often, recurrent forms of skin diseases are considered to be those forms in which exacerbations occur 2 or more times a year over the past 3 years.

Rarely recurrent forms of skin diseases include cases of exacerbation of skin diseases no more than 1 time during the last 3 years.

The presence of atopic dermatitis (exudative diathesis, childhood eczema, neurodermatitis) in the anamnesis and in the absence of relapse within the last 10 years, as well as a type of limited scleroderma - "white spot disease" shall not be a basis for applying this paragraph.

Military personnel with rarely recurrent limited forms of skin diseases that do not make it difficult to wear military or flight uniforms and use special equipment as an individual assessment shall be allowed to flight work, with the exception of supersonic aircrafts.

### **Chapter 13. Diseases of the musculoskeletal system and connective tissue**

Paragraph 61 of the Requirements for columns. Infectious arthropathies, inflammatory polyarthropathies, systemic lesions of connective tissue, ankylosing spondylitis.

Paragraph provides:

infectious arthropathies (arthritis associated with infection, reactive arthropathies and other arthritis);

inflammatory polyarthropathies (rheumatoid arthritis, psoriatic and enteropathic arthropathies, gout and other polyarthropathies);

systemic lesions of the connective tissue (polyarteritis nodosa, other necrotizing vasculopathies, systemic lupus erythematosus, dermatopolymyositis, systemic sclerosis and other systemic lesions);

ankylosing spondylitis.

Chronic forms of reactive arthritis in the absence of an exacerbation of the disease for more than 5 years and without dysfunction of the joints shall not be the grounds for applying this paragraph.

After acute inflammatory diseases of the joints, the examination shall be carried out in accordance with paragraph 84 of the Requirements for columns.

Paragraph 62 of the Requirements for columns. Arthrosis and lesions of large joints, diseases and lesions of muscles, synovial membranes and tendons, disorders of bone density and structure, osteopathy, chondropathy.

Subparagraph 1) of paragraph 62 of the Requirements for columns includes:

ankylosis of a large joint;

a defect in the bones that form a large joint, causing its instability;

severe deforming osteoarthritis of large joints with pain and atrophy of the muscles of the limb;

osteomyelitis;

habitual dislocation of any bone, including dislocation of the finger of the hand, which complicates the performance of professional operations, if surgical treatment is refused or if it is ineffective;

osteochondropathy;

synovitis of the joints due to physical exertion or repeated injury;

post-traumatic deformity of the articular ends of the bones;

hyperostoses that impede the movement of the limb or wearing of military or flight uniforms, shoes, or the use of special equipment.

The osteomyelitis process is considered complete in the absence of exacerbation, sequestral cavities and sequestrars for 3 or more years.

Repeated dislocation of the joint is confirmed by medical documents and radiographs of the joint before and after reduction of the dislocation. Instability due to damage to the ligaments and joint capsule is confirmed clinically and radiographically.

After surgical treatment of the usual dislocation of the shoulder joint or instability of the knee joint, admission to flight work shall be carried out no earlier than 12 months after the end of treatment, provided that the function of the joints is fully restored.

Military personnel who have undergone plastic surgery on joints using synthetic materials, artificial joints shall be considered not fit for flight work.

The assessment of the range of movements in the joints shall be carried out in accordance with Appendix 5 to these Requirements.

Paragraph 63 of the Requirements for columns. Diseases of the spine and their consequences (except for congenital deformities and malformations).

Subparagraph 1) of paragraph 63 of the Requirements for columns includes:

infectious spondylitis, regardless of the nature of the course;

spondylolisthesis of II-IV degree (displacement from 1/2 of the transverse diameter of the vertebral body and more);

deforming spondylosis of the cervical spine with dysfunction of any degree;

deforming spondylosis of the thoracic and lumbar regions with significant or moderate dysfunction;

intervertebral osteochondrosis of the thoracic and lumbar regions with significant or moderate dysfunction;

fixed acquired curvature of the spine, confirmed radiographically by wedge-shaped deformities of the vertebral bodies, their rotation in the places of the greatest curvature of the spine and accompanied by deformation of the chest (rib hump and other deformities) and respiratory failure of a restrictive type;

curvature of the spine (kyphosis, structural and non-structural scoliosis of II-IV degree), including osteochondropathic kyphosis with wedge-shaped deformity of 3 or more vertebral bodies with a decrease in the height of the anterior surface of the vertebral body by 2 or more times accompanied by dysfunction or persistent pain syndrome;

acquired critical stenosis of the spinal canal (cervical spine less than 13 mm, thoracic spine less than 13 mm, lumbar spine less than 16 mm);

fixing ligamentosis (Forestier disease);

traumatic spondylopathy (Kummel's disease);

multiple (5 or more) Schmorl's hernias.

The angle of scoliosis is determined by the Cobb method according to the anteroposterior radiograph of the spine, taken in a standing position with the capture of the wings of the iliac bones (level I of the sacral vertebra). The degree of scoliosis is determined by a radiologist

from radiographs based on measuring the angles of scoliosis: I degree - 5-10 degrees, II degree - 11-25 degrees, III degree - 26-40 degrees, IV degree - 41 degrees or more.

Subparagraph 2) of paragraph 63 of the Requirements for columns includes:

minor anatomical and functional changes in the spine in the absence of pain syndrome;

limited deforming spondylosis (damage to 3 or more vertebrae);

intervertebral osteochondrosis (damage to 3 or more intervertebral discs) with little or no dysfunction;

widespread intervertebral osteochondrosis of 1-2 parts of the spine without dysfunction (according to goniometry data) and pain syndrome.

Morphological changes in the vertebrae revealed in military personnel during routine X-ray examinations in the form of sharpening, thickening of the inner edges, single styloid growths without clinical manifestations shall not be the grounds for using this paragraph.

Slightly pronounced youthful curvature of the spine (up to 5 degrees) with normal physical development, as well as congenital sacralization of the V lumbar or lumbarization of the I sacral vertebrae, splitting of the vertebral arches without radicular disorders, not accompanied by dysfunction of the spine, pelvic organs, pain syndrome shall not be an obstacle to admission in the university and flight training.

All types of pathological kyphosis determine unfitness for flight work and flight training. Pathological kyphosis does not include a "round back" (a kind of posture).

The main method for diagnosing degenerative-dystrophic changes in the spine is the X-ray method. The nature of pathological changes in the spine is confirmed by multi-axial, stress and functional studies.

After removal of the herniated disc, the examination shall be carried out no earlier than 6 months after discharge from the hospital, taking into account the nature of the operation and the course of the postoperative period.

The assessment of the volume of movement of the spine is carried out in accordance with Appendix 6 to these Requirements.

Paragraph 64 of the Requirements for columns. Absence, deformation, defects of the hand and fingers.

Subparagraph 1) of paragraph 64 of the Requirements for columns includes:

absence of a brush at any level;

absence, complete reduction or immobility of two fingers of one hand, the first or second finger of the right hand, the first finger of the left hand;

ankylosis of the wrist joint;

chronic dislocations, osteochondropathy and osteomyelitis of the bones of the wrist joint;

contracture of small muscles of the hand due to damage to the ulnar and radial arteries (or each of them separately) with impaired circulation of the hand and fingers;



damage to the common palmar branches of the median or ulnar nerves with moderate dysfunction of the hand and innervation of two or more fingers (anesthesia, hyposthesia and other disorders).

For the absence of a finger on the hand should be considered: for the first finger - absence of a nail phalanx, for the other fingers - absence of two phalanges. Absence of a phalanx at the level of its proximal head is considered as the absence of a phalanx.

Subparagraph 2) of paragraph 64 of the Requirements for columns includes the absence, complete reduction or immobility of one of the fingers of the left hand, or the third, or fourth or fifth fingers of the right hand.

Injuries or diseases of the bones, tendons, blood vessels or nerves of the fingers, leading to the development of persistent contractures in a vicious position, are considered missing fingers.

When assessing the suitability for flight work, in case of defects in the structures of the hand and fingers not specified in this paragraph, one should proceed from the degree of preservation of function of the hand, which allows performing the necessary actions in the cockpit of an aircraft (helicopter) and with a parachute. Professional skills shall be determined on a flight simulator. The conclusion shall be made with participation of an instructor pilot.

The wrist joint is the complex of joints connecting the hand to the forearm and includes the wrist, carpal, intercarpal, carpometacarpal and intercarpal joints, as well as the distal radioulnar joint.

Paragraph 65 of the Requirements for columns. Flat feet and other deformities of the foot, including congenital.

Subparagraph 1) of paragraph 65 of the Requirements for columns provides:

congenital or pathological feet (equine, calcaneal, varus, hollow, flat-valgus, equino-varus and other deformities) and other acquired deformities of the feet that make it difficult to walk, wear shoes and use special equipment;

longitudinal flat feet of the III degree or transverse flat feet of the III-IV degree, regardless of the presence of exostosis;

curvature of the feet;

lack of toes or part of the foot at any level;

longitudinal or transverse flat feet of the II degree with deforming arthrosis of the II stage in the talo-scaphoid joint or joints of the middle part of the foot;

post-traumatic deformities of the feet with pain syndrome or impaired statics.

Subparagraph 2) of paragraph 65 of the Requirements for columns provides:

longitudinal or transverse flat feet of the I or II degree with deforming arthrosis of the I stage in the talo-scaphoid articulation or joints of the midfoot;

consequences of traumatic injury to the feet with transient pain syndrome without disturbance of statics.

The degree of longitudinal flat feet is established according to profile radiographs in a standing position under load. When assessing the degree of longitudinal flat feet, the height of the arch is of prime importance. Normally, the angle of the arch is 125-130 degrees, the height of the arch is 39-36 mm.

Degrees of longitudinal flatfoot:

I degree: the angle of the longitudinal inner plantar arch is 131-140 degrees, the height of the arch is 35-25 mm;

II degree: the angle of the longitudinal inner plantar vault is 141-155 degrees, the height of the arch is 24-17 mm;

III degree: the angle of the longitudinal inner plantar vault is more than 155 degrees, the height of the arch is less than 17 mm.

To determine the degree of post-traumatic deformity of the calcaneus, the Beler angle (angle of the articular part of the calcaneus tubercle) is calculated. Normally, this angle is 20-40 degrees. A decrease in the Beler angle indicates post-traumatic flat feet. The most informative for assessing the state of the subtalar joint is its CT scan performed in the coronary plane perpendicular to the posterior articular facet of the calcaneus.

Transverse flatfoot is assessed from frontal and midfoot radiographs taken under load.

The degrees of transverse flat feet:

I degree: the angle between the I-II metatarsal bones is 10-12 degrees, the angle of deflection of the first toe is 15-20 degrees;

II degree: the angle between the I-II metatarsal bones is 13-15 degrees, the angle of deflection of the first toe is 21-30 degrees;

III degree: the angle between the I-II metatarsal bones is 16-20 degrees, the angle of deflection of the first toe is 31-40 degrees;

IV degree: the angle between the I-II metatarsal bones is more than 20 degrees, the angle of deflection of the first toe is more than 40 degrees.

Degrees of deforming arthrosis of the foot joints:

Stage I: narrowing of the joint space by less than 50 percent and marginal bone growths not exceeding 1 mm from the edge of the joint space;

Stage II: narrowing of the joint space by more than 50 percent, marginal bone growths exceeding 1 mm from the edge of the joint space, deformity and subchondral osteosclerosis of the articular ends of the articulating bones;

Stage III: the joint space is not radiologically determined, there are pronounced marginal bone growths, gross deformation and subchondral osteosclerosis of the articular ends of the articulating bones.

The absence of the first toe on the foot is an obstacle to admission to the university for training aviation personnel.

The absence of a toe on the foot is considered to be its absence at the level of the metatarsophalangeal joint, as well as the complete reduction or immobility of the toe.

Longitudinal or transverse flat feet of I or II degree without arthrosis in the talo-navicular joints or joints of the middle part of the foot is not a basis for application of this paragraph, does not prevent admission to a university for training aviation personnel.

If an examined person has II degree flat feet on one leg and I degree flat feet on the other leg, the conclusion shall be made on II degree flat feet.

Paragraph 66 of the Requirements for columns. Acquired limb deformities.

The paragraph provides for acquired shortening and deformities of the limbs, including due to angular deformation of bones after fractures.

Subparagraph 1) of paragraph 66 of the Requirements for columns includes shortening of an arm or leg by more than 2 cm.

Subparagraph 2) of paragraph 66 of the Requirements for the columns includes shortening of an arm or leg up to 2 cm.

Paragraph 67 of the Requirements for columns. The paragraph provides for the absence of a limb at any level.

#### **Chapter 14. Diseases of the genitourinary system**

Paragraph 68 of the Requirements for columns. Glomerular, tubulointerstitial kidney diseases, kidney failure.

Paragraph provides:

- chronic kidney diseases (chronic glomerulonephritis, chronic pyelonephritis, chronic interstitial nephritis, amyloidosis and other diseases), complicated by chronic kidney failure;

- chronic kidney diseases without chronic kidney failure (the presence of persistent pathological urinary syndrome persisting for more than 6 months after acute kidney disease);

- primary chronic pyelonephritis with impaired kidney function.

The diagnosis of primary chronic pyelonephritis is established in the presence of leukocyturia and bacteriuria that persist for more than 6 months, despite the treatment and are detected by quantitative methods, provided that inflammatory diseases of the urinary tract and genital organs are excluded after examination with the participation of a dermatovenerologist, urologist (for women, in addition, gynecologist) with a mandatory X-ray urological or radioisotope study of the kidneys.

Admission to flight work after acute inflammatory, dystrophic kidney diseases, poisoning, intoxication, when transient moderate changes in urine (in the form of transient proteinuria and single blood cells) persist for no more than 6 months, in the absence of clinical signs of the development of a chronic inflammatory process, is considered not earlier than 12 months after completion of treatment. Complete recovery or transition to a chronic form of kidney inflammation is established only after an inpatient examination.

In chronic pyelonephritis in the stage of persistent remission without impaired kidney function, confirmed by X-ray, those examined according to column I are not fit, according to

column II-III - an individual assessment, according to column IV-VII - fit. After exacerbation of pyelonephritis, those being examined are recognized as not fit.

Paragraph 69 of the Requirements for columns. Urolithiasis disease.

Subparagraph 1) of paragraph 69 of the Requirements for columns provides:

presence of concretion in the cup-pelvic system of the kidneys or urinary tract;

relapse of stone formation (stone formation in the same organ, on the same side within one year).

Subparagraph 2) of paragraph 69 of the Requirements for columns provides:

state after the spontaneous passage of the concretion;

state after surgical treatment, lithotripsy (remote shock wave or contact lithotripsy), installation of the stand;

a stone in the "detached" calyx of the kidney.

When a diagnosis of urolithiasis is established, a conclusion about unfitness for flight work (flight training) with a recommendation for surgical treatment shall be made.

Recovery for flight work of military personnel who have had renal colic with spontaneous passage of concretion, surgical intervention for urolithiasis, shall be carried out no earlier than 3 months after completion of treatment, after non-invasive treatment methods (including after extracorporeal lithotripsy) - no earlier than 1 month after the intervention, in the absence of pain syndrome and complete recovery of renal function after inpatient medical examination and survey. In these cases, the pilots are fit on dual-control aircrafts. Navigators and other flight crew members are fit.

These military personnel shall undergo the next examination in stationary conditions.

Paragraph 70 of the Requirements for columns. Obstructive uropathy and reflux uropathy, pyelonephritis (secondary), other diseases of the kidney, ureter and urinary system.

Subparagraph 1) of paragraph 70 of the Requirements for columns includes:

hydronephrosis of II-III stage;

pyonephrosis;

chronic (secondary) pyelonephritis;

chronic diseases of the urinary system (cystitis, urethritis) with a recurrent course (exacerbations 2 or more times a year, requiring hospital treatment);

nephroptosis of stage II and III, regardless of the state of renal function and presence of pathological changes in the urine;

unilateral or bilateral nephroptosis stage I with impaired renal excretory function and pathological changes in the urine;

the absence of one kidney removed for disease, regardless of the state of function of the remaining kidney;

dystopia of the kidney (pelvic - regardless of the state of kidney function, lumbar - with impaired renal excretory function of any degree);

urethral stricture, requiring bougienage once or more per year.

Disorder of renal excretory function is confirmed by data from excretory urography, CT, ultrasound or radioisotope studies.

Subparagraph 2) of paragraph 70 of the Requirements for columns includes:

chronic diseases of the urinary system (cystitis, urethritis) with rarely recurrent course, with good treatment results;

unilateral or bilateral nephroptosis of stage I without impaired renal function, pain syndrome and pathological changes in the urine;

lumbar dystopia of the kidney without impaired renal function.

The stage of nephroptosis is determined by the radiologist according to radiographs made in the vertical position of the examined:

Stage I - falling of the lower pole of the kidney by 2 vertebrae;

Stage II - falling of the lower pole of the kidney by 3 vertebrae;

Stage III - falling of the lower pole of the kidney by more than 3 vertebrae.

Physiological mobility of the kidneys, normally, is the downward shift of the kidney contour by no more than the height of the body of 1 vertebra.

With an intermediate position of the pole of the kidney between the vertebrae, the worst position of the pole is considered as the basis.

After the establishment of stage I nephroptosis, the military personnel examined under subparagraph 2) of paragraph 70 of the Requirements for columns shall be subject to an annual inpatient medical examination and survey within 3 years.

Exacerbation more than 2 times a year or a single exacerbation for 3 years in a row is considered frequent.

Paragraph 71 of the Requirements for columns. Diseases of the male genital organs.

For diseases of the male genital organs, according to the indications of the examined, surgical treatment is offered. In case of unsatisfactory results of treatment or refusal from it, the examination is carried out according to subparagraph 1).

Subparagraph 1) of paragraph 71 of the Requirements for columns includes:

prostatic hyperplasia of stage II-IV;

chronic often (more than 2 times a year) recurrent prostatitis;

recurrent (after repeated surgical treatment) unilateral or bilateral dropsy of the membranes of the testicle or spermatic cord.

Subparagraph 2) of paragraph 71 of the Requirements for columns includes:

prostatic hyperplasia of stage I;

stones of the prostate gland with asymptomatic course;

chronic prostatitis with prostate stones with asymptomatic course;

chronic rarely recurrent prostatitis with good treatment results.

The absence of one testicle after its removal due to diseases (non-specific and benign), wounds or other injuries, while its endocrine function is preserved, shall not be a basis for applying this paragraph.

Paragraph 72 of the Requirements for columns. Temporary functional disorders of the genitourinary system after an acute illness, exacerbation of a chronic illness or surgical treatment.

The conclusion on granting of sick leave shall be made only after acute diffuse glomerulonephritis; with a prolonged course of acute pyelonephritis; after surgical treatment of urolithiasis, remote shock wave or contact lithotripsy.

A conclusion on exemption from flights, on complete exemption from the performance of military service duties for up to 15 days shall be issued in case of diseases requiring full restoration of professional working capacity.

## **Chapter 15. Diseases of the female reproductive system**

Paragraph 73 of the Requirements for columns. Chronic inflammatory diseases of the female genital organs.

Provides for often (3 or more times a year) exacerbating chronic inflammatory diseases of the female genital organs or their irreversible consequences. The diagnosis of the disease is established in a hospital.

Paragraph 74 of the Requirements for columns. Non-inflammatory diseases of the female genital organs.

Subparagraph 1) of paragraph 74 of the Requirements for columns includes:

benign dysplasia of the mammary gland (mastopathy, fibroadenosis and other dysplasias) requiring surgical treatment or refusal from it;

complete prolapse of the uterus or vagina;

complete rupture of the perineum;

fistulas with the involvement of the genital organs (genitourinary, intestinal-genital) in case of unsatisfactory results of treatment or refusal from it;

prolapse of the female genital organs;

incorrect position of the uterus, accompanied by menorrhagias, constipation, pain in the sacrum and lower abdomen.

Subparagraph 2) of paragraph 74 of the Requirements for columns includes:

benign breast dysplasia, which does not require surgical treatment;

slight prolapse of the walls of the vagina;

cicatricial and adhesions in the pelvic area without dysfunction and pain syndrome.

Incorrect position of the uterus without dysfunction is not the basis for application of this paragraph.

Military personnel selected for appointment to flight positions, in the presence of objective data without impairing their function, shall be recognized as not fit.

Paragraph 75 of the Requirements for columns. Disorders of ovarian-menstrual function.

Subparagraph 1) of paragraph 75 of the Requirements for columns includes:

organically not associated bleeding, leading to anemia;

disorders of ovarian-menstrual function, manifested by oligomenorrhea, amenorrhea (not postoperative), including in Stein-Leventhal syndrome.

Subparagraph 2) of paragraph 75 of the Requirements for columns includes:

sexual infantilism with satisfactory general development;

primary infertility in the presence of a two-phase cycle.

At the time of menstruation, women must be exempted from flights.

Paragraph 76 of the Requirements for columns. Temporary functional disorders of the female genital organs after an acute illness, exacerbation of a chronic illness or surgical treatment.

The conclusion on granting sick leave shall be made only after acute (with a treatment period of not more than 2 months) inflammatory diseases of the female genital organs (bartholinitis, vulvitis, colpitis, endometritis, adnexitis).

The conclusion on exemption from flights, on complete exemption from the performance of military service duties for up to 15 days shall be made in case of diseases requiring full restoration of professional working capacity.

## **Chapter 16. Pregnancy, childbirth and the postpartum period**

Paragraph 77 of the Requirements for columns. Pregnancy. Postpartum period.

In any period of pregnancy, women are not fit for all columns of requirements.

Women are allowed to flight work no earlier than 12 months after childbirth according to the conclusion of the MFC, with a mandatory examination by a gynecologist, subject to the end of breastfeeding.

In a pregnancy that ends in abortion or premature birth, re-examination is carried out no earlier than 3 months later.

## **Chapter 17. Congenital anomalies (malformations), deformities and chromosomal abnormalities**

Paragraph 78 of the Requirements for columns. Congenital anomalies (malformations), deformities and chromosomal abnormalities.

Subparagraph 1) of paragraph 78 of the Requirements for columns includes:

congenital defects of the heart or large vessels (aorta, pulmonary artery) with heart failure;

prolapse of the mitral and other heart valves of the II degree or more with or without disturbance of intracardiac hemodynamics;

prolapse of mitral or other heart valves of I degree (from 3 to 5.9 mm) with regurgitation of I degree or more;

anomalies in the development of the cardiac conduction system in the presence of self-arising (spontaneous) or reproducible during electrophysiological studies of persistent heart rhythm disturbances - the syndrome of premature excitation of the ventricles of Wolf-Parkinson-White or Clerk-Levi-Christesco;

prolonged Q-T interval syndrome of a persistent nature;  
congenital anomalies (malformations) of the broncho-pulmonary apparatus and pleura with respiratory failure of any degree;  
congenital deformities (anomalies) of the spine (kyphosis, scoliosis and other deformities) with respiratory failure of any degree according to the restrictive type;  
congenital anomalies of the maxillofacial region (including clefts of the hard palate and lips, microtia, atresia of the ear canal) with clinical manifestations and dysfunction;  
congenital anomalies (malformations) of the digestive system with clinical manifestations and dysfunctions;  
congenital deformities (abnormalities) of the chest (sunken or keel-shaped chest, rib hump and other deformities);  
congenital deformities of the hip and pelvis, accompanied by limitations of movement in the hip joints;  
congenital anomalies (malformations) of the kidneys: aplasia of one kidney in case of dysfunction of the remaining kidney, regardless of its severity; polycystic kidney disease; solitary cysts 2 or more; dysplasia of the kidney; doubling of the kidney and their elements; horseshoe kidney;  
congenital anomalies (malformations) of the ureters or bladder with impaired excretory function of any degree;  
scrotal or perineal hypospadias, complete (total) epispadias;  
varus deformity of the femoral neck with leg shortening by more than 2 cm;  
O-shaped curvature of the legs when the distance between the protrusions of the inner condyles of the femurs is more than 9 cm;  
X-shaped curvature of the legs with a distance between the inner ankles of the lower legs of more than 9 cm;  
osteosclerosis (marble disease);  
retention of the testicles in the abdominal cavity, inguinal canals or at their outer rings;  
retention of one testicle in the abdominal cavity;  
fistula of the urethra from the root to the middle of the penis.

Subparagraph 2) of paragraph 78 of the Requirements for columns includes:

small heart anomalies or their combination that do not change the geometry of the cavity of the left (right) ventricle (excessive trabecularity of the ventricles, abnormal attachment of leaf chords, abnormal position of chords, abnormalities of papillary muscles and other abnormalities);

anomalies in the development of the cardiac conduction system, in the absence or presence of unstable cardiac arrhythmias produced during electrophysiological studies;

non-fixed curvature of the spine without clinical manifestations;

congenital anomalies of the kidneys, ureters and bladder without dysfunction;

solitary kidney cyst, single small (up to 20 mm in diameter) without renal dysfunction;



delay of one testicle in the inguinal canal or at its outer ring;  
varus deformity of the femoral neck with leg shortening up to 2 cm.

Echocardiography and ultrasound examination of the genitourinary system are mandatory for candidates and military personnel selected for appointment to flight positions.

If anomalies in the development of the heart and other changes are detected based on the results of instrumental examination methods, candidates shall be recognized as not fit for admission to a university, and military personnel selected for appointment to flight positions shall be considered not fit for flight work.

Citizens and military personnel with congenital diseases of the skin and subcutaneous tissue shall be examined in accordance with paragraph 60 of the Requirements for columns.

Citizens and military personnel with congenital defects of the hand or foot shall be examined in accordance with paragraphs 64 or 65 of the Requirements for columns.

Sacralization of the V lumbar vertebra or lumbarization of the I sacral vertebra, non-closure of the arches of these vertebrae, hypospadias at the coronary sulcus shall not be the grounds for applying this paragraph.

## **Chapter 18. Consequences of injuries, poisoning and some other consequences of external factors**

Paragraph 79 of the Requirements for columns. Post-traumatic and postoperative injuries (defects) of the bones of the skull without signs of organic lesions of the central nervous system.

This paragraph includes:

- defects of the bones of the cranial vault after wounds and traumas, not replaced or replaced by plastic material;
- defects and deformities of the maxillofacial region after wounds and traumas, not replaced or replaced by grafts;
- ankylosis of the temporomandibular joints;
- false joints of the lower jaw;
- contractures of the maxillofacial area.

Paragraph 80 of the Requirements for columns. Fractures of the spine, trunk bones, upper and lower extremities and their consequences.

This paragraph includes:

- fractures or dislocations of the body of one or more vertebrae, regardless of the degree of functional disorders and the outcome of treatment;
- long-term consequences of fracture of bodies of 2 or more vertebrae with wedge-shaped deformity of II-III degree;
- state after treatment for a fracture of the arches, processes of the vertebrae with dysfunction of the spine and pain syndrome;
- state after fractures of the pelvic bones;

state after diaphyseal and metaphyseal fractures of long tubular bones (after the end of treatment);

metal structures after bone fractures;

consequences of central dislocation of the femoral head with dysfunction (including ankylosis and deforming arthrosis);

state after dislocation of the joints of the lower limb.

Recovery for flight work after the end of treatment for an uncomplicated fracture of small bones, transverse and (or) spinous processes of the vertebra shall be carried out no earlier than 3 months in the absence of functional disorders and pain syndrome.

Recovery for flight work after the end of treatment (including sick leave) of metaphyseal fractures of long tubular bones shall be carried out no earlier than 6 months in the absence of functional disorders and pain syndrome after inpatient examination and survey.

Recovery for flight work after the end of treatment (including sick leave) of diaphyseal fractures of long tubular bones, fractures of the spine, pelvic bones without deformation of the pelvic ring, dislocation of the joints of the lower extremity shall be carried out no earlier than 12 months in the absence of functional disorders and pain syndrome after stationary examination and survey.

Healed isolated fractures of individual pelvic bones without deformation of the pelvic ring shall not be the grounds for applying this paragraph.

Paragraph 81 of the Requirements for columns. Injuries of internal organs of the chest, abdominal cavity and pelvis, and their consequences.

Subparagraph 1) of paragraph 81 of the Requirements for the columns includes the following conditions and consequences of injuries or trauma:

bronchopulmonary apparatus with respiratory failure of any degree;

consequences of polytrauma of organs (two or more);

resection of the esophagus, stomach, small or large intestine;

lack of kidney, spleen, penis;

a foreign body at the root of the lung, in the heart or near large vessels;

removal of the lobe of the lung or lung;

resection of part of the kidney, liver, pancreas and other internal organs of the chest, abdomen or pelvis.

Subparagraph 2) of paragraph 81 of the Requirements for columns includes states (not earlier than 12 months after the end of treatment for injury or trauma):

after suffering atypical lung resections without respiratory failure;

after undergoing thoracotomies or laparotomies in order to stop bleeding, eliminate pneumo- or hemothorax;

after suturing wounds of the intestines, stomach, liver with an outcome in recovery.

Recovery for flight work after the end of treatment for injury or trauma shall be carried out no earlier than 12 months in the absence of functional disorders after inpatient examination and survey.

Paragraph 82 of the Requirements for columns. The consequences of injuries to the skin and subcutaneous tissue.

Subparagraph 1) of paragraph 82 of the Requirements for columns includes:

ulcerative, hypertrophic, keloid scars, welded to the underlying tissues, significantly or moderately impairing function, making it difficult to wear military and (or) flight uniforms, shoes and the use of special equipment;

scars that disfigure the face, with unsatisfactory results of treatment or refusal from it.

Subparagraph 2) of paragraph 82 of the Requirements for columns includes insignificantly restricting or non-restricting movements, but not making it difficult to wear military and (or) flight uniforms, shoes and the use of special equipment, elastic scars that do not ulcerate with prolonged walking and other physical exertion.

Citizens and military personnel with the consequences of burns or frostbite with damage to the eyes, hand or foot shall be examined in accordance with the relevant paragraphs of the Requirements for columns.

The presence of elastic scars, including postoperative scars, which not make it difficult to wear military and (or) flight uniforms, shoes and the use of special equipment, which do not restrict joint movements and do not disrupt the functions of nearby organs and systems, shall not give grounds for applying the paragraphs of the Requirements for columns.

Paragraph 83 of the Requirements for columns. The paragraph provides for the consequences of poisoning with drugs, medicines and biological substances, the toxic effects of rocket fuel components and other toxic substances, acute or chronic exposure to an electromagnetic field, laser radiation, ionizing radiation, exposure to other external causes, allergic reactions.

A medical examination is carried out after the end of treatment in stationary conditions.

Military personnel who have suffered from acute radiation sickness shall be examined according to subparagraph 1) of paragraph 83 of the Requirements for columns.

Military personnel suffering from food allergies with clinical manifestations (confirmed by a stationary examination) to basic food products according to the flight ration norms shall be examined according to subparagraph 1) of paragraph 83 of the Requirements for columns. In case of other allergic diseases (urticaria, hay fever, allergic rhinitis, dermatitis and other diseases), the examination shall be carried out according to paragraphs of the Requirements for columns, depending on the state of the functions of the affected organ or system.

After the end of treatment (including sick leave) of acute poisoning, toxic-allergic effects, acute allergic diseases (anaphylactic shock, serum sickness, syndrome of Lyell's,

Stevens-Johnson), the effects of other external causes, fitness shall be determined depending on the outcome of the diseases and functions of the affected bodies or systems according to paragraphs of the Requirements for columns.

Paragraph 84 of the Requirements for columns. Temporary functional disorders of the musculoskeletal system and connective tissue after treatment of diseases, injuries, trauma, poisoning, exposure to external factors.

The conclusion on granting of sick leave to military personnel who have suffered from acute inflammatory diseases of the joints shall be made when, after completion of inpatient treatment, moderate, transient pain in the joints after physical exertion persists, in the absence of clinical and laboratory signs of inflammation and a period of a month or more is required for restoration the ability to perform the duties of military service.

The conclusion on the granting of sick leave to military personnel with temporary restrictions of movements after operations on bones and joints, plastics or tendolysis of tendons (except for fingers and toes), in case of fragile calluses after bone fractures, a period of a month or more is required for restoration the ability to perform the duties of military service.

In case of uncomplicated closed fractures of small bones that do not require inpatient treatment, it is allowed to be examined on an outpatient basis, with the issuance of a conclusion on granting exemption from all works and trainings for a period of 15 days.

In case of uncomplicated closed fractures of tubular or other bones, requiring only immobilization with a plaster cast, after the appearance of signs of callus, military personnel shall be discharged from a medical organization for outpatient treatment before the plaster cast is removed, with a conclusion on granting sick leave or full (or partial) exemption. To continue treatment, cadets shall be transferred to the infirmary of the university.

The basis for the conclusion on granting sick leave in the consequences of injuries of the jaws and soft tissues of the face shall be the delayed consolidation of fractures, presence of dense scars or fractures that required complex methods of surgical or orthopedic treatment, as well as fractures accompanied by traumatic osteomyelitis.

## **Chapter 19. Other diseases**

Paragraph 85 of the Requirements for columns. Disharmony in physical development, disproportionate body type

The paragraph provides for the ratio of body weight to its length and limb length (the relativity of the average statistical indicators taken as the norm).

Citizens and military personnel shall be recognized as not fit for admission to a university and flight training:

- with a body mass index below 18.5 kg/m<sup>2</sup>;
- with a height of less than 165 cm and more than 186 cm;
- with legs length less than 80 cm;

with arms length less than 76 cm;

with height in a sitting position less than 80 cm and more than 93 cm.

Military personnel weighing more than 90 kg are exempted from training parachute jumps and ground ejection.

Paragraph 86 of the Requirements for columns. Enuresis.

The examination of military personnel suffering from nocturnal urinary incontinence shall be carried out in stationary conditions. The medical examination is carried out in a comprehensive manner with participation of a urologist, neuropathologist, dermatovenerologist and psychiatrist.

If urinary incontinence is one of the symptoms of any disease, the conclusion shall be made according to the paragraph of the Requirements for columns providing for the underlying disease.

Paragraph 87 of the Requirements for columns. Speech disorders.

The paragraph provides for stuttering (stammering). In the presence of speech disorders, the examined person is subjected to an in-depth examination by a neuropathologist, psychiatrist, otorhinolaryngologist and speech therapist. The degree of stuttering (stammering) shall be determined by dynamic observation of the state of speech function in various conditions and is assessed by the moments of the most pronounced manifestation of the disease.

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**Assessment of color vision impairment according to threshold tables for the study of color vision**

Color receiver, test numbers											Diagnosis
Red				Green				Blue			
1	2	3	4	5	6	7	8	9	10	11	
+	+	+	+	+	+	+	+	+	+	+	Normal trichromasia
—	+	+	+	+	+	+	+	+	+	+	Protodeficiency I degree
—	—	+	+	+	+	+	+	+	+	+	Protodeficiency II degree
—	—	—	+	+	+	+	+	+	+	+	Protodeficiency III degree
—	—	—	—	+	+	+	+	+	+	+	Protanopia
+	+	+	+	—	+	+	+	+	+	+	Deitydeficiency I degree
+	+	+	+	—	—	+	+	+	+	+	Deitydeficiency II degree
+	+	+	+	—	—	—	+	+	+	+	Deitydeficiency III degree
+	+	+	+	—	—	—	—	+	+	+	Deutanopia
+	+	+	+	+	+	+	+	—	+	+	Tritodeficiency degree I
+	+	+	+	+	+	+	+	—	—	+	Tritodeficiency II degree
+	+	+	+	+	+	+	+	—	—	—	Tritodeficiency III degree

Note: "+" is the correct answer, "-" is the wrong answer.

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**Assessment of the degree of respiratory failure (indicators are post-dilatational)**

Indicators	Norm	Degree of respiratory failure		
		I degree (minor)	II degree (moderate)	III degree (expressed)
1. Clinical:				
1) Shortness of breath	n o	with previously available efforts	under normal loads	constant at rest
2 ) C y a n o s i s	no	no or insignificant, increasing after load	distinct, sometimes significant	pronounced diffuse
3) Pulse at rest (per minute)	up to 80	not increased	tendency to increase	increases significantly
2. Instrumental:				
1. Partial pressure of oxygen PaO2 ( mm Hg)	more than 80	80	79-65	less than 65
2. FEVC as a percentage from due values	more than 80	60-80	50-60	less than 50
3. FEV1 - as a percentage from due values	more than 80	60-80	50-60	less than 50
4. Genslar index (ratio of FEV1/ VC in percentage)	more than 70	less than 70	less than 70	less than 70

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**Assessment of the range of movements in the joints (in angular degrees)**

Anatomical localization	Movement	Norm	Restriction of movement		
			insignificant	moderate	significant
Shoulder joint	Flexion (forward movement involving the shoulder joint)	175-180	115	100	80
	Extension (backward movement)	45-50	up to 40	20	15
	Abduction (involving the shoulder girdle)	180	120	100	80
	Flexion	27-30	up to 80	90	100

Elbow joint	Extension	180	160	140	120
	Abduction	180	135	90	60
	Supination	180	135	90	60
Radius joint	Pronation	90	up to 60	45	30
	Supination	90	up to 60	45	30
Wrist joint	Flexion	80	35	20-25	15
	Extension	65	30	20-25	15
	Abduction	160	up to 175		
	Bringing	135-140	up to 165		
Metacarpophalangeal joint	Flexion	of the 1st finger up to 135, the rest 90-95	up to 155 up to 60	limitation of movements in the interphalangeal joints with preserved grasping function of the hand and opposition of the 1st finger to the rest	
	Extension	180-210	165-170		
Hip joint	Flexion	75	100	110	120
	Extension	180	170	160	150
	Abduction	50	25	20	15
	Bringing	20-30	10		
	Supination (outward rotation)	60	40	30	20
	Pronation (inward rotation)	40	up to 25	up to 20	up to 15
Knee-joint	Flexion	40	60	90	110
	Extension	180	175	170	160
Ankle joint	Flexion	130	120	110	100
	Extension	70	75	80	85
Temporomandibular joint	Vertical movement	opening of the mouth from 3 to 6 cm	3 cm		

Appendix 6  
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### Assessment of the range of movement in the spine (in angular degrees)

Spine position	Normal range of movements	Restriction of movement		
		insignificant	moderate	significant
Standing	16 – 10 – 12	5 – 5 – 12	5 – 5 – 25	5 – 01 – 25
Tilt forward	75 – 100 – 145	60 – 90 – 180	60 – 60 – 110	50 – 50 – 110
Tilt back	0 – 45 – 50	0 – 25 – 30	5 – 20 – 25	5 – 10 – 15
Tilt to the sides	40 / 40	30 / 30	20 / 20	10 / 10

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