

Exploration on Ways of Flying Cadets' Primary Physical Training

Jianming Yao

Civil Aviation Flight University of China, Guanghan, 618307, China

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Abstract. According to current constitution requirements proposed for flying cadets, we shall combine with the current situation of flying cadets' physical training to research and formulate reasonable ways of primary physical training. This paper analyzes the common problems incurred in flying cadets' primary physical training, discusses the main ways of flying cadets' primary physical training, and proposes the countermeasures of improving the quality of flying cadets' primary physical training. Nowadays, with higher and higher technological content of war, the physical requirements for flying cadets also becomes higher and higher. The high-tech application not only makes fighting rhythm become quicker, but also cruelly causes more severe fighting environment for flying cadets; therefore, from objective perspective, the flying cadets shall have strong constitution and can bear hungry, thirsty, and fatigue. As for flying cadets who just join the army, the primary physical training in enrollment education period can help them to adjust and control physiological function and state, thus improving their cardio-pulmonary function, muscular strength, muscular endurance, flexibility and other physical fitness as well as physical reserve in handling emergent events, mainly include speed, sensitivity, harmony, balance, and various qualities so as to improve flying endurance and ensure flying security as well as lay an important foundation for flying cadets in future cultural learning and exercise training of heavier intensity.

I. Common problems incurred in flying cadets' primary physical training

Firstly, the flying cadets pay insufficient attention to primary physical training. As for partial flying cadets, it is difficult for them to understand the important significance of primary physical training, thus they pay insufficient attention. Some basic-level leaders think that it is unnecessary to implement primary physical training. Besides, although some flight personnel know that they contract fatty liver, cervical spondylosis, lumbar disease and other relevant diseases, they think that the above diseases cause little influence on flying and the primary physical training can't effectively treat relevant diseases. Some flying cadets think that the flying technology is unrelated with primary physical training, thus they have passive and even conflicting emotion towards the primary physical training.

Secondly, the arrangement of primary physical training is non-standard. Currently, China and some other countries all suggest that the flying cadets shall take three or four times of anaerobic exercises per week; during this period, the cadets shall take three times of aerobic exercise at interval, and the aerobic exercise time at each time shall be controlled within 30 minutes so as to avoid the situation that the excessive aerobic exercise results in reduction of flight personnel's anti-load endurance. However, some flying cadets regard primary physical training as competitive competition, and excessively seek for breaking through their own physiological limit; some flying cadets regard primary physical training as daily fitness and don't emphasize the endurance on exercise load; some flying cadets can't distinguish anaerobic exercise from aerobic exercise, and they don't know the difference in their influence on body. Moreover, due to limitation of facility and equipment condition, although the flying cadets can insist on 5km long-distance running or carry out basketball or football exercise everyday, they rarely take the training of anaerobic endurance such as weight-lifting, dumbbell, or joint trainer, which results in continuous reduction of muscular power, high tension of vagus nerve, and suppression of sympathetic nerve, thus it is easy to cause cadets' bradycardia, lowering of blood pressure, reduction of anti-load endurance, atrioventricular block or spine disease; if the situation is serious, the syncope may happen, which

causes certain hidden danger on flying security.

Thirdly, the primary physical training can easily induce training damage. In recent years, the phenomenon of Chinese flying cadets' training damage shows a continuously rising trend. It can be known through one investigation that the rate of flying cadets' bone joint damage incurred from physical training is up to 17.6%, and the occurrence of flying cadets' training damage is up to 38%, which results in serious non-fighting personnel reduction. The reason may be that some flying cadets think that they have good physical condition so that they endure regular fatigue or excessive exercise, and even take exercise in illness or recovery period. Meanwhile, the cadets pay no attention to warm-up and cooling-down; in this way, flying cadets' in vivo lactic acid and ureogenesis will increase, thus causing sports fatigue and then causing muscle rigidity, improvement of transaminase and creatine kinase level and other consequence; if serious, the abnormal liver function, myocarditis, or cardiac failure may happen.

II. Main ways of flying cadets' primary physical training

(I) Way of flying endurance training

The flying cadets shall have good flying endurance; however, the performance in long-distance running doesn't completely reflect cadets' flying endurance. The long-distance running training is also called aerobic exercise; it is a kind of method used to cultivate good will and quality, and it plays a good function in improving cadets' respiratory system and cardiovascular system. However, the flying cadets commonly think that the long-time and high-intensity long-distance running training lacks of significant function in cultivating flying ability. Meanwhile, the repeated running can easily form fixed rhythm and amplitude, thus easily forming rigid action and tired emotion, which is disadvantageous for learning and mastering many kinds of flying technology. This point can be shown via flying cadets' questionnaire. Through feedback survey, it can be found that the performance in long-distance running is not in positive correlation with talent rate. In view of this, it is suggested to reasonably adjust the performance requirement and content for flying cadets' long-distance running training project in the training outline. For example, there is much basic training time of 400m and 5000m running, thus it is unnecessary to list them as exam course and investigation course; however, the 3000m running shall be carried out through regular up-to-standard way and shall be kept. In collective confronting assessment, to which degree the excellence rate is reached is not encouraged, but the attention shall be paid to rate of reaching the standard so as to realize reasonable training effect.

(II) Way of rotation project training

According to the author's survey feedback, it can be known that the flying cadets have imbalanced balance function, which is mainly reflected at the situation that the emesis often happens in flying checking process; such situation even happens in cadets with rather excellent performance in rotation project. Through looking up study outline, it can be found that the assessment criterion of winding stair and fixed roller is continuously being improved; however, the information fed back from flying teachers shows that the flying cadets' anti-dizziness ability is not obviously improved with continuous improvement of criterion. According to the analysis, it shows that the current requirement for assessment criterion of flying cadets' primary physical training only emphasize "quickness", that is to say, the cadets can pass the assessment as long as they complete the rules of training outline; in this way, the repeated stimulation on vestibular organ naturally lacks, the repeated training on spatial directional judgment ability lacks, and the training of anti-dizziness control ability required in flying process also lacks. That is to say, the current rotation project training method is very single and the training lacks of due intensity. In view of this, it is required to reasonably add the training of winding stair and fixed roller, and make reform for original training standard, that is, 20 circles in positive and reverse direction respectively (40 circles in total) and time requirement, to change the standard as completing 40 circles within stipulated time and having a braking and changing the direction after 5 circles. In this way, the directional stimulation is increased to 8 times so as to enhance stimulating frequency on vestibular organ, improve the proportion of anti-dizziness ability and spatial directional ability, and formulate new reasonable

assessment criterion for implementation.

(III) Way of gymnastics with apparatus training

Large quantity of feedback information shows that the training method of horizontal bar and parallel bars is very single, and it doesn't conform to flexible delicacy quality. The repetition of same action will let flying cadets have muscular stiffness and feeling of boredom. In view of this, some flying physical training teachers proposes that the excessively difficult or complicated actions are unnecessary in flexibility training, and the training of different perspectives is required to improve flying cadets' speed in mastering technology. The aviation sports theory also proves that it will be more advantageous for cultivating flying cadets' flexibility in case and more and wider conditioned reflex stimulation. Therefore, the current training content shall be recomposed comprehensively. Therefore, there is no doubt that expanding partial easy and feasible single training content is a very good training method. Meanwhile, it is required to practically change the ways, method, and concepts of evaluation and assessment of traditional significance, evaluate flying cadets' coordination ability based on the speed of mastering action, and actively encourage cadets to actively develop quick stimulation ability so as to cultivate cadets' quick and accurate acceptance ability, sensible and rapid thinking ability, and other qualities. Therefore, it is suggested to reasonably enhance joint training of gymnastics with apparatus group, and evaluate the performance based on the speed of mastering action so as to let flying cadets develop strong flying technology of extraordinary retentive memory, quickness and accuracy, and stable emotion.

III. Countermeasures of improving the quality of flying cadets' primary physical training

(I) To perfect physical training mechanism

It is required to comprehensively standardize and perfect flying cadets' physical training work via perfecting various rules stated in Flight Personnel's Military Training and Assessment Outline, Soldiers' Physical Standard, and Rules for Safety Work of Flight Crew's Physical Training so that there are laws to abide by as for primary physical training work. The flight surgeons and superior leaders shall deeply implement attendance registration mechanism and assessment mechanism, implement a summary once a month, and post a notice for open release once a quarter; circulate a notice of criticism as for individuals with low training participation rate and unqualified result of physical training, and include the criticism into flying cadets' personal training file; and consider cancellation of flying qualification as for cadets who don't participate in training for many times or have unqualified result in make-up examination. Meanwhile, the relevant training safety rules shall be implemented.

(II) To enhance publicity and education work of primary physical training

The institutional framework of flying cadets' primary physical training shall enhance publicity and education of primary physical training related theoretical knowledge and hygiene knowledge for flying cadets. Meanwhile, in primary physical training process, the instructors shall personally demonstrate correct actions and explains the matters which they shall pay attention to so as to let flying cadets know that the physical training is an important content to resist and treat relevant disease, keep powerful physical strength, and improve flying ability, as well as enhance flying cadets' enthusiasm and initiative to carry out training. On this basis, it is required to often carry out investigation in basic-level troop to carry out dynamic monitoring on flying cadets' biochemical criterion before and after training so as to realize scientific evaluation on flying cadets' healthy condition and effect of physical training, make a statistics of development probability of injury situation in training, and analyze main features and occurrence reason; in this way, it is able to practically and effectively solve relevant problems existing in flying cadets' training process. Meanwhile, we shall actively borrow ideas from advanced experience in foreign military aviators' primary physical training, and combine with Chinese national conditions and actual military condition to make adjustment.

(III) To enhance the supervision on flying cadets' physical training

The flight surgeons shall combine with actual condition of army to formulate physical training arrangement of each month, each week, and each day in details, and carefully implement the

arrangement according to flight type, subject, season, and climate season, etc. Before training, the flight surgeons shall carefully check site and equipments, and actively supervise flight personnel to enhance preparation, and formulate reasonable treatment scheme for some activity projects and apparatus with large danger. Before training, the flight surgeons shall make sufficient preparation; in the training process, they shall always insist on step-by-step principle to carry out comprehensive training and make the focal points stand out so as to realize mutual combination of fundamental physical training and special quality training, mutual combination of aerobic training and anaerobic training, mutual combination of necessary project and auxiliary project, and the relaxation combination of training way. It is required to select reasonable flying training project based on the difference in flying cadets' respective physiological conditions, physical fitness, and features of exercise physiology so as to teach flying cadets to judge and master the amount of exercise through actively feeling or measuring change of pulse or other easy and feasible method. Upon completion of primary physical training, the reasonable adjustment shall be made to let the body realize physiological and psychological adjustment. It is required to make use of reasonable and effective primary physical training to continuously improve flying cadets' stability in balancing skills, enhance acceleration tolerance, promote healing of corresponding disease and functional recovery, and practically reduce the occurrence rate of training damage.

(IV) To greatly add physical training equipments

Currently, all countries in the world all pay great attention to flying cadets' primary physical training. However, in Chinese basic-level troop, the situations still commonly exist such as insufficient investment, limited primary physical training site, simple and old equipments, and insufficient protection device, etc., thus it is hard to stimulate flying cadets' subjective initiative in training. Therefore, we shall continuously expand the investment in flying cadets' primary physical training equipments so as to realize combination of aerobic training and anaerobic training, tight combination of land sports training and water sports training, close relation between individual activity training and group activity training, and combination of interestingness and scientificity of physical training project so that the flying cadets can participate in primary physical training under a good environment.

IV. Conclusion

In a word, the aviators are the most important fighting power of air force; they bear specific work responsibilities, thus the physical requirement for flying cadets is extremely strict. Therefore, we shall actively explore many ways in flying cadets' physical training in enrollment education stage so as to effectively improve flying cadets' physical power, thus the physical training not only has feasibility, but also has good effectiveness, and it is worth popularizing and application.

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