

Investigation and analysis of training injuries among officers and men in fire brigade

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Abstract. Training injuries is one of the unavoidable situations in the training of fire officers and soldiers. In order to reduce and prevent the occurrence of training injuries, this article will elaborate on the causes of training injuries and how to avoid the occurrence of injuries and the prevention during training. According to the investigation and statistics of fire forces training injuries, the investigation results indicate that by strengthening the knowledge of sports physiology master training preparation, training before and after relaxation, work intensity and protection training can reduce the incidence of training injuries.

1. Introduction

Military training injury refers to the military training in the process of tissue pathological changes of organ dysfunction or injury caused by a series of direct training intensity, content, method, environment and other factors of the trainees.

1.1. Research background

China's fire forces shoulder the arduous task of maintaining social stability and safeguarding the people's lives and property. The officers and men's health is related to the completion of this arduous task. At present, the officers and soldiers in the training in different degree of injury is more prominent, and some serious injuries can lead to return to the training ground in the training, some even leave serious sequelae affect the future life, training to the officers and men injured caused by heavy mental stress and burden.

1.2. Research purpose and significance

Training is an important way to improve the combat effectiveness of troops, officers and soldiers and for various reasons, was injured in training, the training injury has become a "stumbling block to improve the quality of the military training of troops and soldiers". In order to strengthen the training of the injured to understand the situation, to carry out prevention work effectively, a detachment of 200 soldiers were injured in training to carry out the investigation and analysis of the training of officers and soldiers injured occurrence characteristics and reason, put forward prevention measures and methods of training injury improved training, improve the quality of training.

2. Training the basic situation and influencing factors of injuries

2.1. Respondents and methods

200 officers and soldiers of a detachment were selected. The fill in the questionnaire survey, the survey includes the type of training; knowledge of sports physiology mastery; preparation activities carried out; whether in training injury; training injury, cause, type, degree and time; whether there have been repeated injury and injury; training course so, the survey is carried out, the results of statistics and analysis.

2.2. Train and train the basic situation of injuries

2.2.1 trains the frequency of injuries

According to the survey, from the frequency of injuries, 92% officers and soldiers in training injuries, of which 14% soldiers were injured in training often; it is worth noting that the recruits during training injury in high frequency, according to a survey of 85% officers and soldiers during training in various types of damage still hurt mainly to overuse injury, injury accounted for 77.7%; the main peak is injured with the body is unable to adapt the high intensity training on (Table 1).

Table 1 Statistics of injuries of officers and soldiers

Injury situation	The number of	Proportion
No injuries	16	8%
Occasionally injured	156	78%
Often injured	28	14%

2.2.2 Trains injured types

According to the survey, various types of training injuries, with ligament injury, joint injury, muscle injury, muscle strain, 34% officers and soldiers in training a hamstring injury, 41% officers and soldiers in training with joint damage, 30% officers and soldiers in training with a muscle injury, 43% officers and soldiers in training in a muscle strain, and muscle injury types in these kinds of overuse injury incidence is highest; from other injuries, a cramp, sprain, joint injury, skin injury and other injury bleeding. From the point of view of the extent of injury, mild and moderate injuries accounted for 86%, severe physical injury accounted for nearly 15% due to training, causing serious bodily injury to a large proportion in the contest during the training period; repeated investigation officers were injured in the situation, there are 65% officers and soldiers have the same parts of multiple injuries (Table 2).

Table 2 Statistics of injuries among officers and men

Degree of injury	The number of	Proportion
Minor wound	126	63%
Moderate injury	44	22%
Injured	30	15%

2.2.3 Trains injured parts

Through investigation and statistics, training injuries occurred in the waist and knee joints of the largest number of people, 58% of officers and soldiers' waist injury, 57% of officers and soldiers knee joint injuries. Firstly, the structure of the human body, waist and knee joint training plays a supporting role, bear the heaviest load, so vulnerable parts; secondly it is due to the special nature of fire forces caused by the training project mainly focused on endurance, weight lifting, climbing and so on, in the long time and large load training, it is easy to cause the waist and knee injury (Table 3).

Table 3 Statistics of types of injuries among officers and soldiers

Injured part	The number of	Proportion
Waist	116	58%
Knee joint	114	57%
Ankle joint	90	45%
shoulder	32	16%

2.2.4 Trains injured time

Through the investigation and statistics of training injuries with the seasons, winter and summer in the number of injuries, especially in winter, there are 65% soldiers in the winter training in the wounded, which is mainly due to cold weather in winter, the body is difficult to fully play in place, easy to cause injury in training; followed by 36% officers and soldiers in the summer training in the wounded, the contest mainly concentrated in the summer, high strength training is likely to cause bodily injury.

2.3. Train injured factors

Through the investigation and statistics, from four aspects of the injured in training, were not fully prepared, exercise intensity is too large, the training method is not scientific, the mental state is not good; because of not fully prepared and wounded accounted for 69%, due to high exercise intensity

and injuries accounted for 54%, because of the training method is not scientific and the injury accounted for 46%, because of the mental state is not good and the injury accounted for 36%.

2.3.1 Not compatible with itself

Physical endurance is a prerequisite and guarantee for training, training is stronger than the body can withstand the easily injured, recruits during training injury peak is due to physical capacity is weak. According to the survey analysis, the former army often take part in physical exercise and physical labor, the low incidence of training injuries, their physical endurance is more often than not to participate in sports activities of physical stamina training, can reduce the incidence of injuries. A long period of training can cause physical fatigue, 73% of which have been injured by fatigue.

2.3.2 Not adequately prepared

Through the investigation and statistics, pre training preparation time is generally low, preparation time in 15 minutes or less accounted for 70%, and before the training requirements of the preparation time should not be less than 15 minutes; from the point of view of preparatory activities, 90% training only the most basic muscle stretching and jogging; specifically, to prepare the training accounted for only 30%, but prepared to guide the activities or guidance of personnel accounted for only 19%. Inadequate preparation activities, lack of preparation activities, lack of professionalism and lack of professionalism before training are also important reasons for training injuries.

2.3.3 Training method is unscientific

Through the investigation and statistics, the officers and soldiers to exercise physiology knowledge less, 80% of the soldiers do not know or understand and grasp the point; whether the injured from processing capacity, only 8% troops for professional treatment; from the above statistics, lack of exercise physiology knowledge for soldiers how to deal with the lack of understanding after the injury. Judging from the professionalism of the training, 84% of the officers and men think the training is lack of professionalism. The training course arrangement, training, increase training intensity and increase the difficulty of unreasonable exceed the capacity of the body will lead to the occurrence of injury, no professional training work will lead to the incidence of training injuries was significantly higher.

2.3.4 Bad mood

Mental state is bad, will lead to ideological concentration, ideological concentration is more prone to training injuries. Especially the new recruits, just enter the army, for the army discipline, training and high tension forces is difficult to adapt to life, and with family and friends far away, often in the minds of tension and uneasiness of negative emotions.

3. Conclusion

This paper has carried on the investigation and statistics of the fire troops injured in the training situation, analyzes and summarizes the reasons for the training of officers and soldiers injured in different conditions, combined with the investigation and analysis of the situation, in the prevention of training injuries suggests to strengthen the focus on the following work.

3.1 strengthen the knowledge of exercise physiology

Soldiers should conscientiously study and master the methods of training and exercise physiology scientific knowledge; training personnel should fully understand the harm to bring in professional training, organize training to scientific training, and reduce training injuries. We should increase the diversity of training methods and improve the enthusiasm of officers and men training.

3.2 preparation before training and relaxation after training

Before the training preparations include training before exercise and prepare the equipment, facilities and equipment should be based on different training courses and carry out targeted selection, to make strict inspection on site and equipment, generally choose the flat hazard area, reduce the probability of occurrence of the injured person. Before training, warm up activities should be done,

and relaxation activities should be done after training. By means of targeted or professional guidance, warming up and relaxing exercises can prevent injuries during training.

3.3 training should be moderate in intensity and amount of training

The chances of training injuries are directly proportional to the intensity of training and the amount of training. The greater the intensity, the more the training, the higher the chance of injury. Training plan must be scientific planning, group training work should be tight, training intensity should be in accordance with the "first easy", "difficult", the training amount according to the "small, big later" arrangement.

3.4 attach great importance to protection work

Attention should be paid to the protection work. In order to reduce the occurrence of injuries, equipment protection should be combined with education and protection. Usually to carry out injury prevention education, strengthen the self-protection consciousness; secondly to the rational use of protective equipment, according to the characteristics of training subjects by using appropriate protective equipment, reasonable use of protective equipment can reduce the incidence of injuries in training.

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