



Conflict between Weightlifting and Health? The Importance of Injury Prevention and Technology Assistance

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COMMENTARIES

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ABSTRACT

As the level of weightlifting competition continues to improve, athletes need to continuously improve their athletic performance to achieve better results. However, we often see in training that some excellent weightlifters are often interrupted due to sports injuries, and their special ability and competitive level cannot be improved. How to effectively prevent sports injuries and reduce the incidence of sports injuries is a topic that needs to be grasped in the current sports team training process. The Chinese national weightlifting team attaches great importance to the role of technology in training and competitions. During the Tokyo Olympic preparation period, the concept of technology to help the Olympics has been fully implemented in the Chinese national weightlifting team. New training equipment, new monitoring methods, and new recovery methods have added more guarantees to the preparation of the Chinese national weightlifting team, improving athletes' competitive performance, reducing the risk of sports injuries, and ensuring the safety and health of athletes.

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INTRODUCTION

Weightlifting is a sport with a long history. It involves grasping the barbell with both hands and performing reasonable technical movements. The maximum strength of the body is used to lift the barbell above the head. The weight of the lifted barbell is the basis for winning or losing. Weightlifting may seem simple, but it is a comprehensive test of the athlete's muscle strength, explosive power, and coordination (Huebner *et al.*, 2020). From feet to legs, from hips to the abdomen, from shoulders to arms, the entire body must be traction with a complete power chain. Complete the snatch and clean and jerk. Unlike most people's impressions, weightlifting is not a sport that only requires "brute force". Weightlifting requires excellent technical movements, but in extreme weights, it is not easy to control technical movements (Golshani *et al.*, 2018). When the athlete lifts, he needs to mobilize all the muscles of his body and hold his breath. The pressure in the body increases instantly (Yasser *et al.* 2019). If the technical movements are not controlled well, the waist, wrist, elbow, and shoulder are all easily injured (Soriano *et al.* 2019).

For the Tokyo Olympics, the International Weightlifting Federation changed the competition level (Pichardo *et al.* 2019). The Chinese weightlifting team responded actively, adhering to keeping pace with the times and constantly innovating. Not only did it not regress, but on the contrary demonstrated a stronger dominance. The Chinese weightlifting team won 7 gold medals and 1 silver medal in the Tokyo Olympics. I won a gold medal with a total score of 364 kg. The result broke the previous world record that I had maintained (*Figure 1*).



Figure 1 The key training factors for the elite weightlifting athlete.

During the Tokyo Olympic period, the Chinese weightlifting team continuously researches the most advanced weightlifting training methods in the world and combines the physical fitness and strength characteristics to form a complete set of scientific weightlifting training methods for China (Solberg *et al.* 2019). The team makes full use of technology to help train with the wings of technology. The Chinese weightlifting team also pays attention to building a composite support team to do a good job in guaranteeing athletes' training, rehabilitation, scientific research, and medical care (Huebner & Perperoglou 2019). The Chinese weightlifting team adheres to the concept of individual project team combat. From training to competition, from scientific research to medical affairs, from nutrition to recovery, it has organized several coaches (physical fitness, rehabilitation, and technology) and multidisciplinary researchers (biomechanics, physiology, psychology, and nutrition) combined teamwork (*Figure 2*) (Yasser *et al.* 2019).



Figure 2 The integrated team for weightlifting Olympic champion.

The National Weightlifting Team Training Hall of China has a scientific research monitoring laboratory and a body recovery laboratory. The scientific research monitoring laboratory is divided into a physical therapy area, a training monitoring area, a rehabilitation area, and a psychological training area (Liu *et al.* 2018). Biochemical analyzers, automatic electrolyte analyzers, etc. monitor the intensity and effect of athletes' training, which can intuitively detect the athlete's body's response to training intensity and training volume; biochemical indicator testing equipment such as hemoglobin testers can accurately reflect athletes' adaptation of training and the recovery of the body can help coaches develop training plans more scientifically, and help athletes reduce the hidden dangers of injuries (Golshani *et al.* 2018; Sun *et al.*, 2018). The compression cold therapy equipment in the body recovery laboratory has 9 treatment bags, which are placed on different parts of the body, which can produce a large area of ice-like effect and help athletes speed up circulation. Compression training equipment is tied to the upper limbs or lower limbs near the heart position, with 30% to 40% of the maximum strength training, you can achieve 100% of the maximum strength training effect, to a certain extent, can prevent athletes from sports injuries (Liu *et al.* 2011).

In terms of sports equipment, the weightlifting shoes developed by Anta for me and my teammates are made of wear-resistant fiber, with a wear resistance of 2.5 times that of ordinary materials, and can withstand the weight of more than 14 adults. This weightlifting shoe has the characteristics of arch shock absorption, which can absorb the impact of the heel and reduce the athlete's risk of injury (Legg *et al.* 2017). In addition, the weightlifting competition clothes provided by Anta also apply a unique lumbar support system, which can reduce muscle damage caused by being overweight and demonstrate the power of technology.

Athletes' success is inseparable from the team's efforts. In terms of scientific and technological assistance, the Chinese national weightlifting team has formed several major systems, including nutrition, rehabilitation, physical fitness, technical analysis, psychological and physiological and biochemical monitoring, including logistics support personnel, scientific and technical personnel, and they are always preparing for the athletes. Provide a full range of help, while rapidly improving the athlete's competitive level, but also pay more attention to the health of the athletes.

COMPETING INTERESTS

The authors have no competing interests to declare.

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