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Technological advancement in Olympic weightlifting

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Abstract

This paper investigates the use of Technological advancement in Olympic weightlifting in the context of training, coaching training plans, organization of Competitions and skills analysis. The technology is the sum of techniques, skills methods and process used in the accomplishment of objectives. Olympic weightlifting sport has two fundamental skills i.e. snatch and clean & jerk. Athlete in this sports use technology in different areas to assess and improve the quality of performance, Coaching & Training, Organization & Administration. The use of different technological gadgets also helps coaching staff, Sports Science experts, officials, Competition organizers, international federation & National Associations. The use of advance technology helps in getting optimum performance in the competitions with minimum injury. In this, paper, analysis and discussion of technological advancement will help in making good Training and Coaching Plan, skills analysis for improving the performance, Organization & Administration in Competition and Rehabilitations.

Keywords: Technology, Olympic weightlifting, snatch and clean & jerk

Introduction

In the 21 century technology grew rapidly, and became important input for every socioeconomic development. Technology has been applied in the field of sports in different games. Olympic Weightlifting has dominated the history of Olympic Games being of first modern Olympic game since 1896. Olympic Weightlifting is a sport in which athletes compete in lifting a barbell loaded with weight plates from the ground to overhead with athlete successfully lifting the heaviest weight. In this sport that Comprise of two lifts skills that include two hands Snatch, in which the lifters lift the barbell or Weight from the ground or Platform to overhead in one continuous motion and two hand clean and jerk, The lifer complete the skill in two parts lift in one part lifting barbell or weight from the ground or Platform to the shoulders, than jerks it overhead to arm length.

Technological improvement in equipments design provides mechanical or biomechanical advantages. Individually and collectively, these are the major reasons in weightlifting sports where records are (broken.) and new records are set.

The Meaning of Technology and Sports Technology can be understood as follows

Technology

“Application of scientific knowledge & principles for special or practical purposes”.

Sports Technology

“It is a by which athletes attempt to improve their training and Competitive surroundings in order to enhance their overall performance with the help of Scientific knowledge & Principles”

Benefits of Advanced Technology in Olympic Weightlifting Sport

In recent development in international weightlifting sports athletes have created new Olympic and world records in the competitions. The use of variety of advanced technologies help athletes and coaches to assess the Physiological, Psychological, Kinetics & Kinematics components for making effective training plan for competition perpetration. Modern sporting technologies have also made Weightlifting competitions judging easier and more accurate with help of Electronic Scoreboards.

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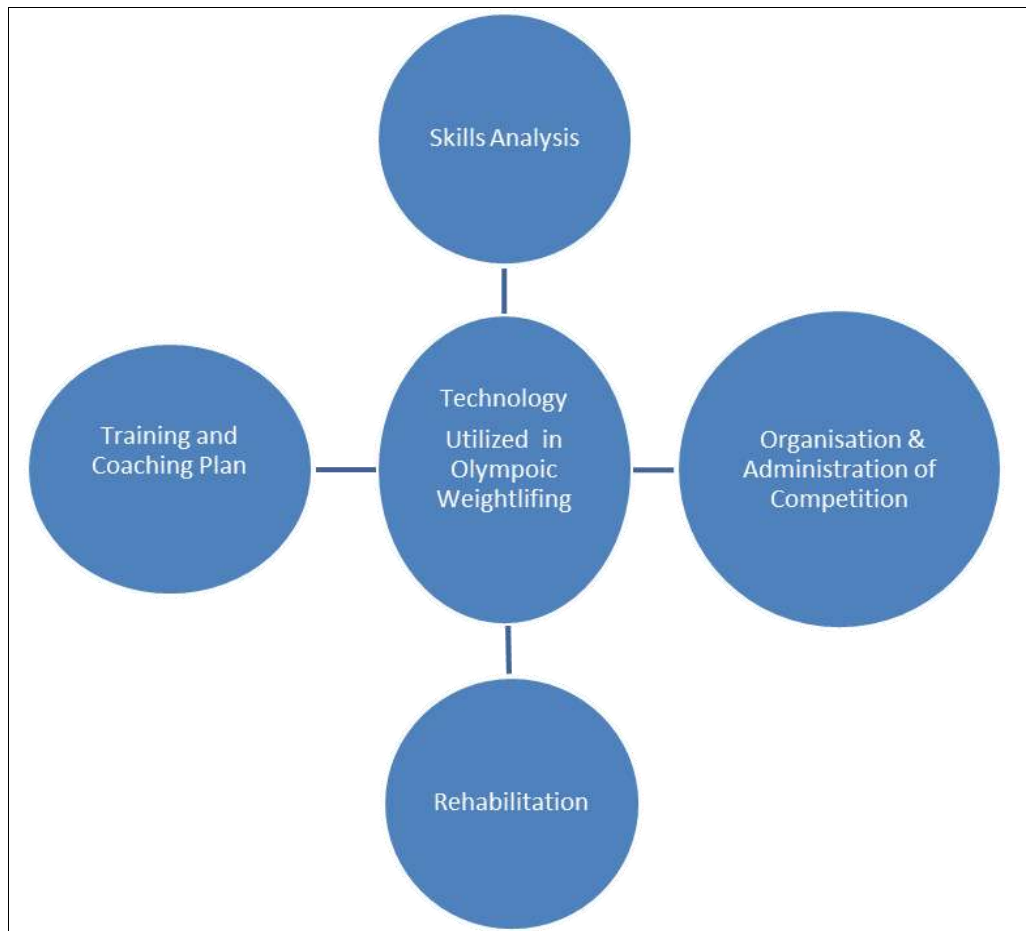


Fig 1: Technology used in Olympic Weightlifting in Different Areas

Skills Analysis

Technology helps athletes and coaches to study the movements of skills and techniques of athletes during the training and competitions. Biomechanical Force Platform is an apparatus used in weightlifting for measurement of Vertical Ground reaction force and acceleration throughout weightlifting skills during the training and analyzing how to improve and give better performance in the competitions. Motion Sensors Video Cameras (Three dimensional Monitoring) and infrared camera assist to help athletes and Coaches to analyse velocity bar displacement & velocity acceleration, trajectory of bar and joint Movements & sagittal plane during the skills analysis.

Organization & Administration of Competition

The technology helps as a tool during the competition or before the competition. Electronic Score Board and time clock are used while organizing the weightlifting competition and in the warming up arena. Score Board is attached with officials setting in warming up arena for attempt card of each athlete. The digital Clock is also attached with score board while athlete is performing lifts. For the measurement of body weight of competitors the digital scale Machine also used in the competitions.

Coaching & Training Plan: The Coaches use the technological device data to help make a plan for training session during, pre and post training on regular basis for every individual athlete in weightlifting sport. They record the movements of the athletes and accordingly the Periodization training plans (Mesocycles and Microcycles)

is chalked out to correct the weakness and maintain the strong area the athlete. Technology has also analyzed the Physiological and Psychological parameters before, during and after training sessions of athletes. It helps to design an effective training plan, and understand the history of injuries and recommendation of prevention, when weightlifters are about to exceed their Physical thresholds.

Rehabilitations

Technology is used keep athlete safe and minimizes injury. Shoulder, elbow, wrist and knee are common areas of injury seen in Olympic weightlifting sports. Technology is being used in the treatment of athlete in weightlifting sports include Digital modeling (Soft tissue injury) gyroscope, camera based monitoring system, inertial sensor monitoring units and aquatic therapy. Advance technology has made it possible to collected large amount of data on weightlifters that in further used as guide treatment of injury and Rehabilitations programme. The paramedics can use technology to make a customized Programme for athletes according to injury which would help in better rehabilitation.

Conclusion

Technological Development has undoubtedly brought a revolutionary change in the Olympic weightlifting sport. It has widely helped athletes, coaches, organizers, official and paramedics in improving the safety and quality of the sport. It has also brought significant change to asses the improvement in the techniques or skills and process of treatment of injury & rehabilitation. From the point of view

of viewers also the technology has played an important role and has improved the viewer ship of the sport giving the required motivation to athlete.

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