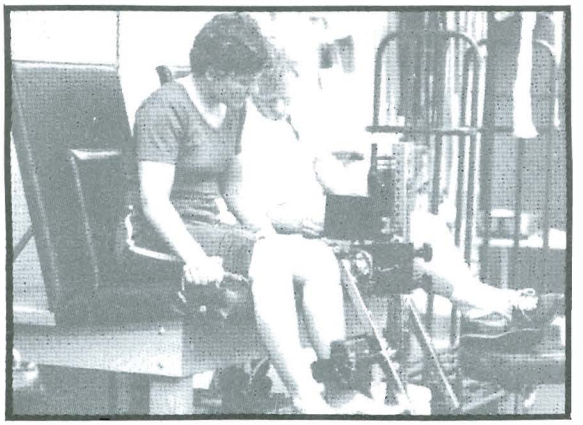
SPORTS MEDICINE AT THE OTC



State-of-the-art equipment is used to prevent injuries and for rehabilitation.

USOC Sports Medicine

The impressive sports medicine program is blueprinted by the USOC Sports Medicine Council appointed every four years and composed of volunteer physicians, dentists, physiologists, athletes and recognized sports authorities.

At the U.S. Olympic Headquarters, Dr. Kenneth (Casey) Clarke is director of the Sports Medicine Division. He directs and integrates all the efforts of the sports medicine clinical services and sports computer-assisted educational and research services.

The USOC has a comprehensive sports medicine program available for athletes participating in the training effort. Its philosophy is to maximize the talent and skills of every athlete at the OTC, while minimizing injury and health problems.

Sports medicine at the OTC starts with educating the athlete to help minimize the frequency and the severity of injuries. The continuing program provides metabolic, physical and physiological evaluation and direction.

The sports medicine program concentrates on four basic areas — clinical services, sports physiology, biomechanics and educational services.

USOC Sports Medicine Clinical Services

The primary function of the USOC Sports Medicine Clinical Services Program is to provide quality medical attention to athletes who utilize the OTC and are selected for the U.S. teams.

The staff arm of the clinical services program is composed of one physician, three certified athletic trainers and a dental hygienist as the permanent core staff. This staff works with experienced sports physicians and certified athletic trainers from across the country who volunteer for one or two weeks of duty at the OTC during the year. This experience also qualifies the volunteers to be selected for the medical staffs of the National Sports Festivals, Pan American Games, World University Games and the Olympic Games.

USOC Sports Physiology

Sports physiology is an applied discipline that evaluates cardio-pulmonary (heart-lung) endurance and capacity, muscle power (the ability to use one's strength in an explosive manner), body composition (percent of body fat) and joint flexibility (the ability to use one's full range of motion).

The USOC Sports Physiology facilities incorporate state-of-the-art equipment to fully test an athlete in all these areas. The test findings help to tailor a specific training program that will improve and maximize the athlete's natural abilities.

Experts in the sports physiology division identify individual potential and map out maintenance and developmental programs to help the athlete achieve peak performance.

A mobile research laboratory is an extension of the sports physiology service. Laboratory equipment has been built into the traveling mobile home for on-the-road use. The lab travels by appointment throughout the nation to test and evaluate athletes where they are clustered.

Sports physiology data collected on an athlete are computerized and compared to a pool of characteristics and experiences of many top athletes in particular sports. The comparison is used to determine if further clues can be found to help the athlete achieve his/her top performance.

USOC Biomechanics Laboratory

The USOC Sports Medicine Program houses one of the foremost biomechanics laboratories in the world. Biomechanics, the study of human movement, is a direct application of classic physics and modern computer capabilities. It plays an integral part in the sports medicine program.

High-speed cameras, computers and special analytical systems help evaluate the body's mechanics and how they relate to optimum performance. Instant feedback aids in analyzing the stresses of repeated forces on the body and helps refine an athlete's movements.

The sophisticated equipment used for biomechanical analysis and feedback is valued at more than one-half-million dollars. The computers here are used to speed and enhance the thousands of calculations necessary for a single analysis of human movement for coach and athlete.

Here's a simplified example of biomechanical analysis. Imagine a discus thrower in position. The motion of preparing and releasing the discus is filmed by three high-speed 16mm cameras. The cameras operate at a minimum speed of 16 frames per second and at a maximum speed of 500 frames per second. (By comparison, the brain comprehends about 16 to 18 frames per second.) Each frame is then transferred to a computer program by an electronic stylus that traces the image of the athlete's body and locates major joints.

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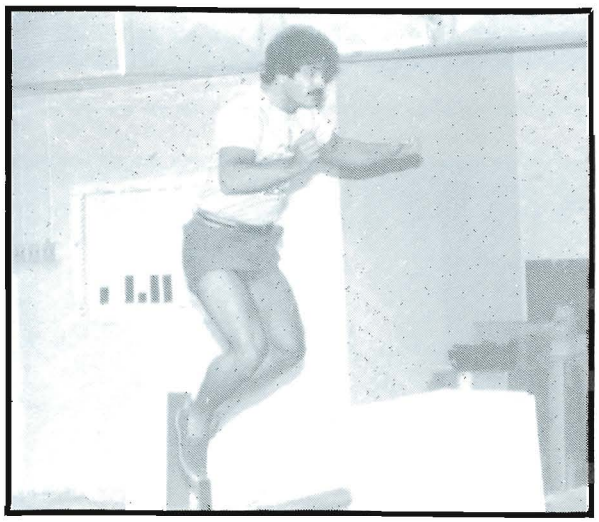

Rick Anderson doing jumping or Plyometrics in Olympic Weightlifting Gym.

Olympic Weightlifting Team

Veteran Olympic Weightlifting Coach Harvey Newton will be at the helm again for the summer Olympic games at Los Angeles. He gave us the grand tour of the Weightlifting Team's facility and answered many questions. The maximum number of lifters at any one time at the OTC is 15 with 10 to 12 being the average. The program is paid for by the Olympic Committee. However, the lifters do provide their own transportation to the Olympic Training Center and can stay through a 6 month semester.

The Olympic team is chosen at the Olympic trials. Qualification for the team must be accomplished at this meet. Ten weight classes comprise a team with an additional two alternates. There is a great deal of strategy involved during a meet. It is like a game of chess deciding on which poundages to select for each attempt while trying to psyche out the other competitors. Coach Newton states "You can't go out on the platform like a crazy wild man, you must have a controlled psyche."

We asked Coach Newton as to who decides on what poundage is to be selected for an attempt. He replied, "It is a joint decision on what to lift. You have to be very careful, if you miss 365 for example, you can't try 350 on the next attempt. You've got to try 365 or more," he further explained. There are two lifts in Olympic lifting: the snatch and the clean and jerk. Each lifter only gets three attempts on each of the two lifts. Therefore, it becomes absolutely critical on selecting the right poundage. A coach has got to know his lifters and each lifter has got to know himself.

We asked Coach Newton what happens if a lifter in the heat of competition calls for 450 pounds and you know he can't make it and it would be far smarter instead to attempt 435 pounds. "It's not like football, where a coach calls all the shots. Naturally, I'd try to talk it over, but if the lifter demands to try it, he can. It's that simple."

"Does Nautilus or any other machine have a place in your training regimen?" we asked. "Absolutely not" Coach Newton emphatically stated. "Well then coach, how about one set of 8 to 12 or 15 reps as a training system?" we queried again. Coach Newton looked at me funny and said, "No way, we are ranked 11th as a team in the world standings and I can assure you that absolutely no one trains that way who is ahead of us."

Coach Newton gave us some other thoughts. "The higher the calibre of performance of an athlete, the more important nutrition becomes." For the United States to move up from its 11th spot, Coach Newton suggests three areas of improvement:

First, we need help on **motivation**. Our lifters do not get any attention, no recognition like other countries. In fact, much of our competition will receive super gifts for winning; but not here. Athletes need rewards! Our lifters are motivated for intrinsic reasons.

Second, we have to do a better job in **selecting available talent**. Especially in developing our younger talent.

Third, we must develop a **scientific application** to our lifting and technique. This is one area where the Olympic Training Center is being very helpful. The Biomechanics Lab and other video and physiological testing are proving to be of great benefit here at the OTC.

We asked Coach Newton what he thought about record keeping. He stated, "I think it's tremendously important; some of our lifters keep records and some don't. However, they all should!"

We wish to thank Coach Harvey Newton for the tour and we express our best to him and his team for the '84 summer games in Los Angeles!

Sports Medicine At the OTC
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The analysis can precisely depict movement patterns, velocity of each body segment and resultant muscular forces. The study of the athlete's movement provides specific data that can be used to improve the discus thrower's performance. Analysis may show that by raising the elbow or angling the body slightly, the athlete's power is increased.

NEWS FLASH!

E.E. Smith High School in Fayetteville, North Carolina had a super clinic, tied a record with six athletes dead lifting 500 lbs. or more. Strength Coach Glenn Draughon was ecstatic.