

Accepted Practices in Developing a Safe Strength and Conditioning Program For Volleyball

The purpose of this document is to provide anyone interested in establishing a volleyball-specific strength and conditioning program a way to do so by following safe and accepted practices. It is not intended to offer a specific program. The actual program that is designed will incorporate many variables unique to a specific situation and the individual needs of the athlete. By incorporating these safe and accepted practices the process of designing a program will insure the very best for the volleyball athlete in realizing full athletic potential.

#1 Exercise Techniques

Correct techniques must be performed at all time and should be taught by a qualified instructor who has had hands on experience in teaching all the exercises selected for the program. The instructor should demonstrate correct techniques, observe the athlete doing the techniques and correct techniques as appropriate. Athletes must demonstrate correct techniques with their own body weight before any external loading (weight) is added. When external loading is introduced the instructor must remain diligent so that correct techniques continue to be performed. If proper techniques are compromised the loading must be reduced to the point were correct techniques are once again performed.

When correct technique is maintained, all resistive exercise can be considered incrementally so long as the application of the resistive exercise does not diminish technique performance quality.

If done with correct technique, there is no really bad/wrong exercise; it's only the application of the exercise that can create a problem.

#2 Exercise Selection/Sequencing

Exercises must be selected based on the equipment available, the time allotted to the completion of the program and the individual needs of the athlete. Exercises that increase strength and power (quality-intensity) should be preformed before endurance type activities (quantity-volume).

#3 Testing

The 1st step in developing a volleyball specific program is by establishing a testing program. It will help identify the individual needs of the athlete. The testing program should measure volleyball athleticism including volleyball skill specific vertical jump, court movement/agility and endurance.

Tests should be conducted reliably with consideration to consistent test dates, tests sequencing, testing surface and testing personal. Test results should be used to measure the effectiveness of the strength and conditioning program, motivate the volleyball athlete and provide performance data to indicate recovery from an injury. Data from the testing program needs to be maintained year after year for comparison purposes.

#4 Program Design Objectives

A well designed program should have the qualities of injury prevention as well as performance enhancement. Injury prevention strategies should ensure strong joint,

tendon, ligament and muscle with special considerations to postural balance based on the side dominant nature of volleyball activity. Performance enhancement is accomplished by building on the strength base and transferring it to the explosive power movements (work done in relation to time) of volleyball and the metabolic (endurance) demands of the game.

#5 Program Design Training Age/History

An athlete with no training experience or history will progress at a faster rate than a more experienced athlete. As the athlete gains this experience the program intensity (loading) should be varied to assure progression. Progression is also determined as to where the athlete is at on the maturation continuum.

#6 Program Design Seasonal Considerations

The objective of the strength and condition program varies by the seasons. The off-season's priority is strength gains. The pre-season's priority is the transfer of strength to power specific to volleyball activity and endurance requirements to provide adequate recovery through the duration of a match. Ability to recover adequately is based on a 3 to 1 rest to work ratio specific to volleyball with average rally time of 4.4 to 6 seconds and average rest of 11-15 seconds between rallies. The in-season's priority is to provide the athlete adequate recovery opportunities, maintenance of strength and conditioning level and the enhancement of volleyball skills.

#7 Program Design Gender Considerations

Based on the increased frequency of knee injury due in part to the anatomical differences of the female vs. the male athlete, the construction of the program should be adjusted to reflect this difference. During initial evaluation, have each female jump from a two foot platform and watch how they land from the front. If the athlete's kneecaps drop in toward each other into valgus angulation or "kissing knees," that athlete needs ACL prevention principles incorporated into her program. This might include focused hamstring muscle strengthening and training on landing mechanics - including soft landing during plyometric training.

#8 Achieving Seamless Integration

The ultimate responsibility of the strength and conditioning program must be that of the volleyball coach. This is done by establishing an annual calendar that identifies and integrates total work load based on competition, practice and strength and conditioning training. Competition should include scholastic and club play. Practice should consider strength and/or conditioning activities done on court including warm-up and jump training etc. Strength and conditioning should include training with the school's/club's strength and conditioning coach and other training outside the volleyball coach's control such as at a private gym. In the case of a multi-sport athlete the volleyball coach should have the additional task of communicating with other sport coach(s) as to the progress of the athlete. The final outcome is to provide adequate recovery based on total workload to allow the athlete to progress physically, improve volleyball skills and reach their full athletic potential through this seamless integration process.

Content Acknowledgements SMPC Members:

Lisa Bartels

Robert Brown

Dr. William Briner

Reviewers: Rev. Carl R. Cramer, Ed D, ATC, LAT

Associate Dean, School of Human Performance and Leisure Sciences, Barry University, Florida, USA

Mike Arthur, Director of Strength and Conditioning University of Nebraska-Lincoln

Yuri Feito, Ph. D., MPH, Assistant Professor

School of Human Performance and Leisure Sciences

Sport and Exercise Physiology

Barry University, Miami Shores, Florida USA