

Skill Based Conditioning: A Perspective From Elite Volleyball

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Introduction

Volleyball involves frequent bouts of intense activities such as jumping, diving, and lateral movement, and these activities are coupled with short rest periods throughout a match duration that is typically 60-120 minutes (4). As one might expect, strength and power qualities as well as metabolic conditioning are important contributors to success in the sport (3, 5). As such, these qualities are the primary focus of the physical training program in most clubs and national teams. However, research evidence has shown that when examining successful selection to a volleyball squad, skill assessments, but not endurance-type fitness tests, help predict selection to the higher or lower group (1, 2). In support of this, in the author's experience, very few volleyball coaches at the elite level would suggest that a source of defeat with their team is fitness, but not skill. In other words, at the highest level, the discriminating factor between winning and losing is skill level.

With this in mind, it is an important consideration to optimize skill development in volleyball while still obtaining appropriate conditioning levels. A common method to accomplish skill development as well as improve conditioning level is skills-based conditioning (also known as games-based conditioning). To examine the pros and cons of conditioning approaches, the scope of this article is limited to a discussion of the two major categories of conditioning that are generally used for volleyball: traditional and skills-based conditioning.

Traditional Vs Skills-Based Conditioning

For the purposes of this article, traditional conditioning involves the completion of specific repetitions, intensities, distances, or durations. An example of traditional conditioning could be:

Shuttle Runs

4 sets x 5 reps x 18 m (length of court)

Reps on 10 sec. turnaround

2 minutes rest / set

In this example, intensity is easily quantified by using a stop-watch or timing lights to monitor each repetition. The total distance (360 m in this case), can be used to plan progressions in the training program in regards to volume of work. Although quantifying total work to ensure effective planning and progression is important, this form of traditional conditioning is limiting in that no skill development takes place, only physical preparation.

Skills-based conditioning differs in that it involves outcomes that are focused on skill(s) or game-play, rather than physical based quantification of distances and intensities. Put simply, skills-based conditioning is centred on a skill (or set of skills) as the objective, and then the nature of the drill or game is manipulated to achieve a desirable conditioning effect. An example of skills-based conditioning would be:

Lateral step, block, and dig drill

Player is positioned at middle of net, takes rapid lateral step(s) and executes block to stationary ball or varied jump and reach apparatus. Upon landing, player backs off of net and retrieves ball (e.g. pass/dig) that is hit over net by coach/player.

In this example, conditioning (through stress) can be achieved by manipulating rest periods, sets, reps, and the nature of the drill (athlete may need to block more than once per rep, cover longer distances laterally to make the block, or make the ball that must be passed harder to retrieve). This basic example of skills-based conditioning involves the pre-planned skill (i.e.

‘closed skill’) of lateral movement and blocking, and the ‘open skill’ of moving off of the net and retrieving a ball. The drill can be progressed further so that the lateral movement and block task is an open skill, having the player read and react to a set from the opposing side, and having an attacker (2 or more options) actually hit the ball. The 2nd ball would then be added in so that the blocker had to retreat from the net and dig or pass the 2nd ball.

These subtle variations are manipulated by the coach, dependent on the skill level of the individual and the outcome priority. For example, if a player needed to develop effective footwork at the net, it would be wise to begin with closed skill activities for skills-based conditioning. This allows for greater attention to the technical aspects, as the athlete has a lower perceptual and decision-making demand, and can therefore focus on executing the technical aspects correctly.

In team training, a more complex, multi-skill (and open skill) example of skills-based conditioning for volleyball could be:

3-ball drill, 6 vs. 6

First team to 25, (but scoring starts at 10-10)

First ball served in and rally played out

2nd ball immediately passed in from side of court that lost point and 2nd rally played out.

3rd ball immediately passed in to side that lost 2nd point and 3rd rally played out.

The team that wins 2 out of the 3 rallies scores one point. Other scoring variations can be used. 5 seconds rest

In the above example, the coaches create an emotionally intense environment by implementing a scoring system (playing to 25), with the teams tied at 10-10. It could be viewed that the addition of the second and third ball allows for a conditioning demand that literally exceeds that of a match, in that during a match, rests between rallies are typically 12 seconds or less, but range from 4 to 38 (2). The immediate addition of 2 extra rallies per service allows for both emotional and physiological stress, which we have found to be similar in physiological response (heart rate, blood lactate) to that of the most extreme demands of competition.

Although the duration of each individual rally in this drill is not controlled by the coach, total duration of the drill can be recorded to assist in inter and intra-session planning. The total repetitions can be easily quantified by summing the total points played in the rally, then multiplying by the number of rallies per point. For example, in the scenario presented here, 25 – 20 indicates that 25 points were played, and multiplying by 3 rallies per point gives 75 repetitions.

Summary

Traditional Conditioning Benefits

- Easy to prescribe (athletes can perform with little supervision)
- Simple quantification of workload, possibly leading to more precise physical training outcomes

Detriments

- No skill development, less efficient use of training time as a result
- Athlete enjoyment generally lower than in skills-based conditioning

Skills-based Conditioning

- Allows skill development, single focus or multi-faceted
- Efficient training type, combining physical development as well as technical and mental skills
- Athletes enjoy the competitive games that can be used

Detriments

- More time intensive to quantify workload

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