Chapter XII

TECHNICAL DEVELOPMENT
OF THE VOLLEYBALL PLAYER

by Charles Cardinal

The Coach’s main role should be to pursue the technical development of his players. This role requires an analytical, systematic approach if we want to reach optimal efficiency.

Upon completion of this unit, the coach will have a better understanding of the following:

- The stages of technical development of a volleyball player.
- The tasks and requirements of each stage.
- The role of the coach at each stage.

The technical efficiency of an athlete during competition is comparable to that of a musician or a craftsman. The dexterity acquired after long hours of work is used to create a piece of work in a momentary performance. Technical efficiency can be defined as doing the right movement for a specific situation at a given time. It becomes evident that the sought-after perfection of these gestures is a long-term process, requiring a large number of correct repetitions, carried out under conditions created by a coach. Efficiency of technical movements in competition is then, a variable factor which affects performance. Attainment of this technical efficiency by an athlete is influenced by a coach.

In our opinion, it is essential that “a coach consider his role as helping an athlete to develop as harmoniously as possible and to realize his potential by helping him to overcome increasingly complex situations adapted to his capacities.” (H.C.I.L., 1978). The pursuit of this objective is based on the respect and application of the following main principles:

- The technical development of the athlete must be considered as a comprehensive, progressive and continuous entity.

- The skill training and optimal development of physical qualities required for the activity, are closely related and will condition and influence each other.

- The use of a theoretical model comprising elements to be mastered by an athlete at each stage of his evolution.
This article is limited to the steps to be completed in the technical development of a volleyball player, the conditions to be set out by a coach and the objectives pursued:

- Teaching the mechanics of a movement
- Familiarization with a movement
- Developing tactical intelligence
- Integrating the player/skill into a system of play
- Verifying the efficiency of a player/skill through competition

A coach looks for results of technical efficiency, that is, ability to hold up in competition. To do this, his plan for development must include the following components:

The level of development reached by the participant in the activity—the physical and motor abilities of the participant.

Psychological factors and individual objectives (desire to work, desire to improve, need for self-realization, etc.).

From an athlete’s point of view, his reward and motivation comes from the fact that through training and coaching he is able to do today what was impossible yesterday. (Toyoda, 1979)

Teaching the Mechanics of a Movement

At the start of technical training, no matter the method, an athlete must imitate a model as closely as possible. This model is usually a coach (or a successful athlete) who demonstrates the proper execution of a technique. To reproduce the model exactly, an athlete must have an accurate mental image of the movement. Audio-visual methods can help in this regard. A series of successive photos illustrating the execution of the movement, a film, observation of successful athletes in competition are current methods to be used by a coach. It is, however, important to emphasize that the attention of athletes be kept only on elements essential to this stage. Technical details are presented later, after the athlete has completed the exercise with a success rate of 70% or more. We thus see a systematic evolution where the main thrust of the exercise switches from a particular segment or part of the movement, to a complete execution of the movement. An understanding of physical laws and mechanical principles governing body movement is vital to efficient teaching. This approach allows a coach to decide what is right, possible, important, and what is not. Furthermore, the attention of a coach is centered on the causes of errors and interventions favoring improvement in the efficiency of a movement. (Fig. 12-1)

An athlete is first placed under artificial conditions and then under easy and constant conditions. Working conditions are completely isolated from the reality of a match. First, the coach uses visual aids, auxiliary materials and appropriate equipment to help in the acquisition of the motor skill. For example, drawing footwork for the approach and the take-off point for the spike, using balls of various weights and sizes to introduce contact with the ball, etc. Second, give the athlete simple exercises geared for overcoming internal constraints only.
Fig. 12-1
This means complete respect for basic principles in positioning, direction of movement, dynamics and timing of the movement, the sequential use of segments, etc., in order to have a proper feeling for the exact movement. The objective is to progressively acquire the global motor skill involved.

It is very important for a coach to increase the volume of training, that is, the frequency and number of volleyball contacts. Do not forget that practice, or repetition, generates habits. However, if you are not insistent and the young person practices any way he feels like, problems may result. It is not enough to maintain that training be done a certain number of hours per week. A coach must ensure that the exercises are properly executed if he wants to develop habits which will allow the attainment of technical efficiency.

Familiarization With a Movement

At this stage, the requirements of the task come closer to the actual conditions for execution. All artificial conditions are then eliminated. A coach progressively increases the requirements on an athlete, while continuing to maintain a high level of quality as far as execution of the technique is concerned. To do this, new requirements cannot be introduced until the athlete sufficiently masters those from the previous stage. On the other hand, if the requirements put on an athlete are too easy for his level, the exercises will not stimulate him thus holding up his development and progress. *(Fig. 12-2)*

Following are the different variables which can be manipulated by a coach:

Increasing physical requirements by increasing:

- speed of execution of the movement
- strength of application or resistance
- distance to be covered for a given time
- the height or length to be attained
- and by playing with intensity and recovery time

Calling for accuracy of a movement and consistency in performance: It is not sufficient at this stage to just return the ball to a partner; it must also be returned accurately. Furthermore, an athlete must be able to repeat the movement regularly and efficiently, even if the conditions are changing.

Add, before or after performance of the skill, different types of movements or changes in direction. A coach can also introduce going from one skill to another or changing rhythm of performance of the same motor skill.

Ensure that the skill is carried out in various locations on the court. Examples: back court defense in 1, 6 and 5 spikes at the net in 4, 3, and 2.

At this stage, familiarization with the movement is done under conditions controlled by the coach. Exercises are various and diverse. Technique will be assimilated as quickly as possible in a systematic but kinetic way, by modifying the conditions for execution. The choice of
exercises and their sequential order of presentation must follow a certain progression in terms of difficulty of the task imposed on the athlete, from a perceptual point of view as well as from a motor point of view. In this type of work situation, there is only one response: an athlete does not have many solutions to choose from. He knows beforehand the motor task to be accomplished. So, the athlete is the only person involved in the exercise, there is emphasis on only “one” role, or only “one” technical element being stressed. If other players and movements are required, they are only auxiliary to the proper performance of the exercise. Exercises used by the coach must respect the following constraints:

- The sequential order of motor skills while playing
- The notion of rhythm in exercise
- Spatial orientation of players on the court
- The movements found in a game

Very briefly, the carrying-out of a task at the stage of familiarization with a movement calls for perceptive-kinetic requirements related to speed of reaction, speed of movement, body precision, and motor accuracy. The participant is preoccupied with assessing the trajectory of the ball, its speed, and its place of landing and by the nature, direction and accuracy of the return by choosing the proper technical response respecting the rules of play. The objective at this stage is twofold: First, there is development of specific details of skills for competition (example: footwork and positioning, or the movement of the attacking arm, etc.). Second, the technique becomes consolidated and stable so that a player can bring his selective attention to more complex tactical tasks.

During competition situations change quickly. A tactical problem can and must be resolved through various techniques. A player who always uses the same skill becomes stereotyped, making it easier for the opposition. However, it is hardly possible that all motor skills used in volleyball be consolidated and stable. This is why only basic motor skills are stabilized. As soon as an athlete has fairly mastered the basic motor skills, a coach can introduce variations to these movements thus increasing his repertory of tactical solutions.

**Developing Tactical Intelligence**

The behavior of a highly skilled player shows efficient application of successive skills. “This application of successive skills is the basis of team play” (Mahlo, 1969). This succession of movements in a game is the individual response of an athlete to a problem confronting him in a given situation. If a player does not need to focus attention and intellectual ability on the performance of these skills, he can instead concentrate on the more complicated tactical tasks. “These combinations of movements will then be guided by kinesthetic sensations and by perception” (Cardinal, Boulonne, Caron, 1975).

It then becomes vital at this stage of an athlete’s evolution, to be able to pick up pertinent information on teammates and opponents so he can act in time and not react to a situation or to the ball. Pertinent information can be translated by reading keys that will reveal an athlete’s tactical intent before he/she plays the ball. Each playing situation creates a problem, a tactical problem for the team and more particularly for the player called on to play the ball. Thus, a
playing situation is the result of an action with the ball and the motor response of the player, at this particular moment, to solve a temporary tactical problem creating a new series, a succession of different and changing playing situations, which materialize through direct actions with the ball (Baacke, 1978).

It is a coach’s role to bridge the skill to other related motor skills and to introduce its proper application in multiple playing situations. “All motor behavior, such as that which appears in sports in the form of relatively complicated movements, presupposes programmed skills” (Schnabel, 1968). Therefore, during a game, programming of proper motor responses meets the requirements of a situation based on the gathering of pertinent information. This information comes from the following sources:

- Direction, trajectory, speed and landing spot of the ball.
- Position and play actions of partners.
- Position and play actions of opponents.
- External conditions such as score, refereeing, rhythm and momentum of the game, lighting, space around the court, height of the ceiling, spectators, etc.
- The tactical intention of the athlete playing the ball.

A player in a playing situation must not only see a lot of things, but must also, with complete perception, pick out the essential and isolate the unessential in the shortest time possible. “In all team sports, the motor response must be adapted to what is happening during play thus giving extreme importance to perception of requirements of the situation” (Thiffault, 1975).

Conditions created by the coach for application of skills must be similar or identical to the competition conditions, that is: speed of execution, rhythm, spatio-temporal orientation, relationship with partners, knowledge of opponents. Under competitive conditions, several players are involved with assigned tactical tasks. Cooperation, synchronization and complicity between players are essential to resolve the task. These conditions call for an athlete to make a quick analysis of the situation and a decision based on a choice of methods according to both partners and opponents.

By creating actual game conditions in training, a coach can manipulate one or several of the following variables: First, include the skill in a succession of motor skills. Second, increase the difficulty of the task by properly manipulating the intensity of the exercise, the recovery period, length of the exercise, and frequency. Third, increase the complexity of the task so the player has to think about the situation and choose the proper response from several alternatives. It is then important to make the player competent at choosing the best solution from several possibilities for a given momentary situation.

At this stage of a player’s development, a coach pursues several objectives. A player must become progressively autonomous in the organization on the court. He must be able to complete a task with less effort. His behavior must reflect progressive control of uncertainty. And finally, he must aim for increased efficiency in information gathering. Exercise chosen by a coach must allow players to reach these objectives. A player must be able to evaluate his own tactical behavior in order to efficiently adapt himself to changing situations.
Integrating a Player/Skill Into a System of Play

According to Theodosescu (1965), a system of play can be defined as follows: “A general way of organizing offensive or defensive actions of players by stabilizing a precise plan for certain tasks—by positions and sections—as well as certain principles of cooperation among them.” At this stage of a player’s development, one of the coach’s goals should be the methodical development of actions (technical-tactical movement) and of tactical thought. As tactics largely depend on intellectual standards, it appears necessary that an athlete reach the following objectives within a training situation which almost totally respects the conditions found in competition:

- To increase tactical knowledge, to reinforce it, systemize it, with the intention of rapid actualization in concrete situations: this is the learning process of the role and responsibilities of a player during various moments of a game. A film of a match will show, for attack as well as for defense, moments of play clearly defined in time and place and, according to the rules of the game, the different possibilities (motor response) offered to a player. Each moment of the game is characterized by a tactical task subject to the activity of each player and those of the entire team. “Without common awareness of concrete realities and without harmonious tactical knowledge, the potential unity of play favorable to a team is not possible.” (Rioux et Chappuis, 1967).

- To develop a system of associative solutions: This method is considered the quickest way of linking perception to a tactical solution. “If all team members have identical training, there is homogeneous perception of the structure of the action and instant comprehension based on the associative solution” (Mahlo, 1969). Associative solutions to simple tactical problems is a feature of a mature player. The ability to establish a mental association between the perceived situation and a corresponding solution, represents the quickest method of mentally solving the problem at the appropriate moment in a game.

- To train independent productive thinking: This phase includes the capacity to analyze a situation and to transfer known solutions to new and analogous problems (Mahlo, 1969). The highest form of technical-tactical movement conveys the importance of the intellectual component through tactical awareness, topped with independent productive thinking. It is creative thinking in the sense that new concrete solutions are found and that it is a source of new general knowledge (Mahlo, 1969).

- To create a power struggle with the opponent: To disrupt the opponent’s trends and strong points and to take advantage of his weaknesses, deficiencies, and inadequacies. This adaptation towards an opponent done during training, is to make a player capable of solving practical problems by himself during a match. However, training alone is not enough to develop tactical thinking. It is during a match, under various stress situations imposed on an athlete, that tactical thinking can reach its height. A coach must be aware that “the quality of perception increases from a tactical point of view at the same time as the player’s knowledge of the game, and his/her briefing on what to expect from an opponent in a given situation” (Cardinal, Boulonne, Caron, 1975). This means that when a player is aware of technical-tactical particularities of opponents, his perception and analysis of a playing
situation is favorably influenced, facilitating and accelerating the proper response. Thus, tactical knowledge, advance information about what an opponent will do in a given situation and experience of players are factors which influence the speed and accuracy with which a player adapts during competition. (Fig. 12-4)

The acquisition of efficient tactical thinking makes systematic intervention by a coach indispensable. The framework for an athlete’s work, which emerges as a system of play, must take into account the actual characteristics of players. It is dangerous to blindly copy what other teams of high caliber do. Intervention by a coach in this context must be done with the objective of making players capable of thinking out and solving their own problems. A coach must then use different competitive situations such as controlled play and experimental matches where there are certain beneficial features to aid the decision-making of players in resolving tactical problems, while ensuring their autonomy on the court. Realization of the task by a player in a system of play, calls for motor, perceptual and memory requirements.

Verifying the Efficiency of a Player/Skill Through Competition

Once an athlete becomes involved in a game, a coach is generally very limited in his interventions. He has only two time-outs and six substitutions. He has no control of the situation. An athlete, alone, faces the performance to be carried out; it is he who plays. In the midst of action, a player must try to carefully manipulate the following variables: concentration, self-control, correction of movements, and adaptation to situations as they occur.

Of course, these variables must be emphasized in the previous stages if positive results are to be obtained. It is absurd to require disciplined behavior of your athletes if you only talk about it for the first time during a match. If you have not created conditions appropriate for learning the previously mentioned variables, you might end up with a good technician, a marvelous stylist who will impress spectators during pre-competition warm-up. He will not, however, measure up to your expectations under the stress of competition.

Conclusion

It seems obvious to us that to attain technical efficiency during competition, a coach cannot limit interventions to helping a player acquire a skill and leave the rests to chance. He is responsible for gradually and progressively bringing an athlete over increasing difficulties up to the efficient application of skills during competition. However, it is necessary to differentiate between “efficiency” which means a job well done, one which is technically correct, and “effectiveness” which means doing well what one is supposed to do. In other words, using the proper skill for the situation at hand. To reach this objective, a coach must ensure he creates learning conditions which favor execution of dynamic and flexible motor stereotypes.
Summary

The steps of technical development can be identified as:

- Teaching the mechanics of a movement
- Familiarization with a movement
- Developing tactical intelligence
- Integrating the player/skill into a system of play
- Verifying the efficiency of a player/skill through competition

The development process is geared towards correct and appropriate use of skills in competition.

The technical development is closely related to the development of specific physical qualities.

The technical and tactical development must be considered as an entity.

Bibliography


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Attack Tactical Scheme
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