Chapter XVIII

THEORY OF TRAINING

Definition of Training

Volleyball training includes everything that coaches do with their teams. It is characterized by long-term, specialized physical education stressing mental as well as physical development, both for the team as a whole and for each individual player. Within their limitations, players reach maximum performance capacity and are capable of achieving good results in volleyball competitions. Through training, players undergo biological, psychological and social adaptations which prepare them for the workload required in a volleyball match or tournament.

This specialized physical education consists of various kinds of training and different competitions which create team unity necessary for reaching ultimate training goals and tasks.

While training in the narrow sense means the influence of physical exercises (including participation in matches), the wider sense of this term comprises the influence of a team’s environment and players’ lifestyles.

Volleyball Performance

In order to obtain good results in competitions, players must be able to demonstrate a sufficiently high level of individual and team performance. Performance is the crucial part of volleyball training.

The term "performance" means the actual behavior of a team or an individual in a match and it is always bound to the idea of a match or some part of it such as a set. "Habitual performance" is used in terms of tournaments or entire seasons.

Performance can also be defined as the "quantity and quality of individual or team behavior in the course of a match." Individual behavior cannot be taken into account irrespective of its
influence on the behavior of the team and its opponents. Also the player’s personality plays its role. With such a complex approach, the coach alone is able to explain and utilize performance as one of the training goals. This approach makes it difficult to determine performance with full objectivity. In fact, only the combination of objective analyses and subjective evaluations can give a fully valid opinion about the performance of both the team and the individual players.

A close interrelationship exists between team and individual player performance. The selected system of play, game combinations and formations significantly influence an individual’s play and the probability of success and efficiency. Coaches must take these things into consideration when they prepare models for their team and players’ performance which will serve later on in training as determining factors for selecting physical exercises, training loads and goals to reach the desired level of performance.

Figure 18-1 illustrates an example of a team’s performance based upon observed data about play and performance of top teams. However this is less important than the construction of the model itself. Figure 18-1 illustrates, first, that the hierarchy of team, group and individual activity must be maintained, and, secondly, that neither effectiveness or activity are sufficient for the training goal, but both must be taken into account, as well as any other relevant data such as errors. Coaches must prepare models taking into consideration their teams’ level of play and performance and their potential. They must use all items of the model in their planning.

Players and team performance also serve to show both coach and players indications about how close or how far they are from the goal and what exercises and tasks must be stressed in future training to reach that goal by a certain time, usually the date of a tournament or some kind of competition.

Performance plays a multiple role in training and coaches should use it skillfully because it creates the strongest training stimuli for motivation.

**General Training Principles**

In order for training to be really efficient, it is necessary to accept and keep certain rules such as the set of general training principles.

The following principles should be applied in both physical as well as mental development for any situation. The first three correspond to the preparatory stages before the real training starts, while the rest are connected directly with the application of physical exercises.

1. **Motivation**

This principle stresses that any individual participating in training must be motivated. This fact
has been known for a long time from psychology and other fields of study. If a player is not sufficiently motivated, he will not learn nor improve his performance. The first and always repeated task in training is to increase the player’s motivation in regard to immediate as well as future tasks.

There are a lot of techniques and possibilities for motivation. The motivational structure of each individual on a team is different and varies according to personal development and the gradual fulfillment of needs and demands. A coach must skillfully choose the most efficient and acceptable motivation technique and apply it to the appropriate situation.

There are two motivational techniques which have proved their validity for the most part with situations and individuals in spite of the fact that under some conditions they are not always the most effective:

a) Making the task seem important

A coach should present all training tasks in such a way that they are accepted as being desirable for accomplishing the training goal.

b) Goal setting

In training various goals are used. Long-term, future goals are aimed mainly at some complex performance or result. Short-term goals are aimed mostly at one of the constituent parts of volleyball such as the improvement of jumping. Actual momentary goals are aimed at one training unit or a weekly training microcycle.

Correctly set, goals have proved to be a strong motivational influence. To be correct, goals must have two basic properties:

To be real and accomplishable. Motivation level will be decreased if goals are too low or too high. Set goals should create a challenge which has not been met, but in order to meet it, a player or team has to develop his/its full potential. A goal must be concrete and not abstract in order to measure how and when it was accomplished.

2. Understanding and activity

This principle means creating deeper player relationships with all activities associated with training. It requires coaches to explain reasons and objectives for training steps, demands and requirements that are, or will be, required of players. The understanding of reasons for any training activity will then result in more active and intensive performance by players in fulfilling their training tasks and will be reflected in the higher rate of accomplishment in all training objectives.

Systematic application of this principle in volleyball training will significantly increase the players’ creative thinking in the game. This creative thinking is based upon the knowledge of the game’s course as well as the prediction of players’ behavior in game situations. This kind
of thinking will become evident in higher volleyball performance and will, in fact, help players create deeper relationships to coaching in the present and future.

3. Getting the idea or image of the training task

In order to learn a new skill, to realize a designated practice drill, or to behave properly in a match as well as in training, the proper image about movement or behavior and its basic causes must first be created in a player’s mind. This is usually accomplished in several ways—in fact, the more variety, the better the effect will be.

The usual methods of application include explanations or verbal instructions, practical demonstration by the coach as well as the players, audio visual, demonstrations off the crucial points of given motor tasks, magnetic court boards etc.

This principle has its special significance in training youths because youngsters usually have a higher learning level in observing. However, players on the top volleyball levels need to learn from observing their potential opponents in order to oppose them more easily. In any case, the observation of advanced play is very important and coaches should do this as often as possible with their players.

4. Systematic and gradual progression

This principle necessitates arranging training, both generally and specifically, to progressing from simple tasks to more complicated ones, from individual tasks to group tasks etc. Despite the fact that this principle is known in general, coaches often fail to cope with it. Failure in its applications by too fast or too slow progress or insufficient loading, always means the slowing down, if not the stagnation, of performance development or its prerequisites. In some cases, progressing too quickly can harm the health of players.

Youths always adapt more easily to this training method because coaches plant the idea in their minds that training is only preparing them for higher training levels and adult performance in volleyball. Therefore they must not be in a hurry to specialize or be prematurely exposed to high levels of training as such an approach would lead to retarding and even ending a young player’s future development.

5. Corresponding and appropriate progression

This principle is closely connected with the previous one. It stresses the necessity that a coach, when preparing and running training with a team, must carefully consider such things as age and sex of players, their average playing experience, skills and abilities. It also requires the coach to adjust his behavior, commands and his approach to players in accordance with the actual situation.

Failure to cope with this principle has the same consequences as the previous one. Furthermore it can cause serious health problems (for example, trying to use physical exercises unsuited
to women's body construction even though such exercises were successful with men. It can also significantly shorten the period of an individual's top performance.

6. Individualized progression and instructions

This principle states that in training the individual approach is to be implemented because only under such situations can the optimal conditions for a player's most efficient volleyball performance be endured. While the previous principle stresses the group characteristics of a team, this one calls for a more detailed approach to the conduct and organizing of training.

This principle has already been utilized in training individual sports, but it has its full validity in volleyball training too. The experiences of the best teams show the necessity to individualize 40 to 60 percent of the training volume in a year. Individualization should take place in the following areas:

- In correcting training and playing drawbacks or weaknesses.
- In relation to the playing functions of players in a team.
- In connection with the actual mental as well as physical state of players (different training load for players recovering from an illness or when overcoming frustration after an unexpectedly lost match).
- In mental, emotional, somatic and other characteristics of players.
- In relation to the level of motor abilities and to the individual rate of development: in fact, conditioning, in order to be effective, must be individualized.
- In connection with the various training loads of particular players resulting from the different utilization of players in matches during the course of a season or competitive period etc.

7. Repetition—Number of Trials

Each trial in learning new skills, each repetition of a motion leaves temporary traces in a person's brain—a connection of particular cortex centers. In order to acquire such a skill or to increase the level of certain physical abilities, the cortex connection has to be optimally fixed and strengthened by appropriately programmed systems of selected exercise repetitions. One execution of a movement cannot make cortex connections permanent. Repetition becomes one of the basic principles of volleyball training as well as motor learning and learning in general.

This generally well known principle has specialized areas in training practice. A number of trials necessary in learning certain kinds of skills or to improve the level of physical abilities, will be significantly different in regard to different kinds of skills and abilities. It will vary
among gifted and non-gifted individuals. For recreational, low and middle level sports, the number of trials (the volume of training) will be one of the most decisive factors in the progress of learning and increase of motor abilities.

The system of practical trial repetitions aimed at the accomplishment of various training tasks have been the subject of exhaustive research and practical experience assessments. In this way, development methods for various abilities and qualities as well as the process of motor learning have been established. The latter contains such methods as massed or distributed practice, and repetition under game conditions, while the former contains such methods as interval training, isometric methods of strength development etc.

This principle is valid, not only in the preparation of one training unit or even only some of its parts, but also in programming the repetitions within the weekly microcycles and other longer training cycles.

8. Knowledge of Results

This principle reflects and stresses one of the basic laws of the existence of living organisms - information feedback. By knowledge of results, “verbal post-response information about performance outcome” is understood. It has been shown that such information is of vital importance for motor learning for without it no learning occurs. This knowledge has, of course, a very similar influence during the accomplishment of other training tasks, too, although not so vital, but it always speeds up performance improvement.

9. Motor Learning Situations

Information about performance results should be provided after each trial.

While the length of intervals between performance and information seems not to have a basic influence, the interval between information and the following trial must not be too short for the learner must have time to process the information.

For children, information need not be very precise, whereas in adults, performance increases with the increase of precise information. However this is valid only up to a certain point.

Knowledge of results reacts on players in many ways. In coaching practice, however, it is important to use various methods such as video tapes, explanations, recordings of mechanical data, precise determination of attained performance, etc. Information should also cover errors made, for it has been shown that this kind of information is critical in the learning progress.

10. Training Load

When organizing training, players are exposed to the necessity of performing different exercises, and are required to repeat them for a certain time period with a certain rhythm or
frequency, stressed by the demand for higher accuracy or for selection between two or more possibilities as to how to solve a given training task. In this way, of course, players develop a corresponding effort in order to overcome all training demands.

In connection with this we usually say that we “load our players” and the term “training load” means a certain sum of psychological acts and physical activities realized in the course of training.

Training load develops various body responses in players. The principal goal of training is to cause such responses that will gradually lead to players adapting to all conditions under which volleyball matches are played. In regard to this requirement, the training load is generally split into two parts:

a) Energy necessary to perform the given training load.

b) Specificity of training load in comparison to volleyball performance.

The first part is mostly expressed by two components—volume and intensity.

The volume of training load always means the total amount of training realized within certain training intervals. It can be expressed many ways such as by number of jumps, time when the selected exercise is performed, number of meters run, number of training units or total time in the case of longer training periods.

The intensity of the load refers to the concentration of training in the period of time given. Roughly it is possible to say that intensity deals with the ratio between training volume and the exercise period time. In other words, intensity can be expressed by the effort a player needs to exert in order to accomplish the exercise.

These components are closely related. The volume of training load tends to decrease intensity and visa versa. This reflects the energy used in training.

The second part of the training load can be expressed by the consequences of training exercises from the special to general such as game, game exercises, special preparatory exercises, other sports.

In order to get the best results, a coach has to carefully combine intensity and volume with the selection of suitable exercises, otherwise different abilities and qualities could be developed in players.

**Content of Volleyball Training**

Volleyball training is a very broad, complicated phenomenon which ensures the most effective way to reach the highest possible volleyball performance in important competitions. Therefore the content of this process has to be very closely related to the constituent parts of a team as well as the player’s performance.
The content of volleyball training includes all physical activity, all purposeful psychological measures and all other intentional influences of the outer and inner environment assigned to the players individually and collectively as the whole team which support, develop, improve or perfect volleyball performance as a whole or as any of its respective parts.

As to the extent of the performance itself, and taking into account all factors influencing the development of a player, the entire volleyball training process must be divided into the following sections:

1. Conditioning or physical preparation.

The objective of conditioning is the development of necessary motor abilities which are directly connected with movements and which support previous ones.

The objective of technical and tactical preparation involves teaching and learning individual and group activities such as game combinations and systems. An important feature of this training process is the close connection between the movements taught and their selection in relation to the appropriate game situation which means, in fact, the tactical aspect of both individual and group activities. This feature reflects the unity of higher mental and motor processes. It stresses in this way that the players be taught to play and not just to perform a certain selected fundamental.

Another important aspect is the necessity of utilizing game combinations throughout the whole process of teaching, learning and perfecting. The reason for this feature is based on the rules of the game which directly require players to cooperate, thus significantly reducing individualism within the game.

The objective of psychological preparation is the adaptation of the central nervous system and all other co-influencing body systems to volleyball match conditions. It helps to overcome all psychological stresses accompanying the hard, demanding process of long-term volleyball training.

All of these sections have their theoretical and practical parts. While the practical is composed mainly of physical exercises inserted into training, theory stresses the reasons and supposed effects of their use. Although physical exercises are not the only reasons, they are, and will remain, the principal ones among the stimuli of adaptation utilized in volleyball training as the content of all its organizational elements.

Each of these components has its general and special areas. By this is meant either the direct or indirect approach to accomplishing each component objective. In special areas, coaches usually use corresponding movements (physical exercises) from the game itself. The general areas use exercises and other stimuli common to other sports and current life situations. Special
and general areas are closely related in training content and in the entirety of all components which fit the exact situation from the real game.

**Year-Long Training Cycle**

It has been explained earlier that a successful training process for the training of high-class teams and players, cannot be over a short period of time. It is rather the opposite. It will last a fairly long time. Such training, however, cannot be organized haphazardly. It requires firm and purposeful planning of all activities connected with a team as well as with the progress of its players' performance.

The basic element of planned long-range training is the early cycle. There are at least three principal reasons for such a state. One reason is the fact that each country's championship competitions are usually organized in a relatively stable time frame within a year and, therefore, each following competition starts approximately a year after the beginning of the previous one. The second reason is the fact that regular periods in life are significantly reflected in all processes connected with the performance as well as with the overall mental and physical development of every player. The third reason is the fact that the most efficient state of a player's body in connection with the highest possible performance also develops over year-long periods of time.

In order to ensure correct and efficient increase in training performance, each year should be divided into several periods with relatively firm training tasks. The basic structure of a training year consists of

- **Preparatory periods** (4 to 5 months)
- **Competitive period** (6 months)
- **Transitional (also "off") period** (3 to 4 weeks)

**Preparatory period**

This period is divided into two subdivisions:

**The general preparatory stage** lasts two and a half to three months and is always longer than the second part of this period. It ensures quantitative work. A greater volume of training is always possible as the players’ potential for training load changes. The greater amount of training devoted to the general preparation in all areas of training, is one of the important features of the organization of work at this stage. In fact, almost all increase of motor abilities in a training year is produced as the result of the training at this stage.
The special preparatory stage lasts approximately one to two months. It ensures the players’ form through qualitative training. Training volume is gradually substituted with intensity as a leading factor of the training load influence. All training gradually gets more specific. More time is devoted to group and team activities. Only some special motor abilities are further developed while general ones are kept on the gained level.

The competitive period or season is the period of main competitions. The main task of training is to keep in form. Training, its organization and structure, is primarily connected with the consequences of matches. It determines training microcycles and their content as a result of single match outcomes. Play is the most time-consuming stimulus.

The transitional period ensures the complete recovery of players after the exhausting, and sometimes boring, competitive period. It also helps to begin the following year-long cycle by starting general conditioning. The organization of training within the weekly microcycles varies according to what is valid as well as the selection of exercises for training. The training volume is sharply decreased.
### Fig. 18-1 MODEL OF A TOP TEAM'S PERFORMANCE

<table>
<thead>
<tr>
<th>GAME COMBINATIONS</th>
<th>GAME ACTIVITY</th>
<th>Occurrence %</th>
<th>Effectivity %</th>
<th>Mistakes %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL SET</td>
<td>Set parallel to net</td>
<td>10-15</td>
<td>60-70</td>
<td>1 - 5</td>
</tr>
<tr>
<td></td>
<td>Deep set</td>
<td>10-15</td>
<td>40-50</td>
<td></td>
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<tr>
<td></td>
<td>Set to back court hitter</td>
<td>5-10</td>
<td>50-60</td>
<td></td>
</tr>
<tr>
<td>OFFENSIVE</td>
<td>with one hitter</td>
<td>10</td>
<td>50</td>
<td></td>
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<tr>
<td>QUICK SET</td>
<td>with two hitters in tandem</td>
<td>30</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with two hitters in cross</td>
<td>10</td>
<td>70</td>
<td></td>
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<tr>
<td></td>
<td>with three possible hitters</td>
<td>5</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with back court hitter(s)</td>
<td>15</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>DEFENSE</td>
<td>with monoback</td>
<td>30</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with doubleback</td>
<td>50-60</td>
<td>40-60</td>
<td></td>
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<tr>
<td></td>
<td>with triple back</td>
<td>10-20</td>
<td>30-50</td>
<td></td>
</tr>
<tr>
<td>SERVE</td>
<td>floating placed</td>
<td>55-60</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hard (spiked)</td>
<td>15</td>
<td>5-10</td>
<td></td>
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<tr>
<td>PASS</td>
<td>Serve reception - specialist</td>
<td>90</td>
<td>75</td>
<td></td>
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<tr>
<td></td>
<td>During rally - overhead</td>
<td>75</td>
<td>95</td>
<td></td>
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<tr>
<td></td>
<td>- underhand</td>
<td>25</td>
<td>80</td>
<td></td>
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<tr>
<td>SET</td>
<td>After reception - specialist</td>
<td>90(70)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- others</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>During rally - specialist</td>
<td>60-70(30-40)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- others</td>
<td>30-40</td>
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<tr>
<td>FUNDAMENTALS</td>
<td>total</td>
<td>65-70</td>
<td>65-70</td>
<td>10</td>
</tr>
<tr>
<td>ATTACK</td>
<td>in quick - as first hitter</td>
<td>60-70</td>
<td>20-25</td>
<td></td>
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<tr>
<td>HIT</td>
<td>in combinations - as second hitter</td>
<td>70</td>
<td>65</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>- as back court hitter</td>
<td>15-20</td>
<td>70</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>with normal set</td>
<td>30-35</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BLOCK</td>
<td>middle blockers</td>
<td>80</td>
<td>25-30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>others</td>
<td>45-60</td>
<td></td>
<td></td>
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<tr>
<td>RETRIEVING</td>
<td>spikes to side of block</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>spikes off block</td>
<td>60</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>tipped balls</td>
<td>30</td>
<td></td>
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</table>
Acrobatic Diving in Women's Game

Tip Execution