University Amar Thelidji-Laghouat

Institute of Science and Technology of Physical and Sports Activities

Title of the scientific publication

Volleyball speciality

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جامعة عمار ثليجي الأغواط
Université Amar Telidji - Laghouat

Ministry of Higher Education and Scientific Research

Institute of Physical Activity Sciences and Techniques

Teacher information sheet

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reception day:

Cycle: Licence degree

Level: 3rd year

Field: Physical education and sports

Specialisation: Physical Education and Sports

Module: Collective specialisation in volleyball

Hours per week: 1h15 hours of Theory / 4 hours of Practical Work (14 weeks =77h)

Coefficient: 4

Credits:6

Presentation of the course

This course is intended for third-year Bachelor's degree students in physical education, specialising in ‘physical education and sports’. This course aims to develop coaching and training skills and mastery of physical education and sports in relation to team sports, particularly volleyball, physical qualities, training methods, motor skills, basic volleyball techniques, mental preparation and tactics.

General objectives

The course is entitled ‘Volleyball Specialisation’ and covers all the knowledge acquired during the first year of the Bachelor's degree. This sports specialisation allows you to master the fundamental concepts of sports training in order to determine and plan teaching and training objectives, taking into account: the level of the target audience, the volume, the periods and the conditions of volleyball practice.

The course is divided into a series of learning units that enable you to acquire skills in volleyball theory and practice with the aim of being able to lead and manage sports training for professional athletes and physical activity for school pupils. The primary objective is to understand the consistency between the knowledge you have acquired and the knowledge you are going to acquire.

The general objectives

The course is entitled 'Volley-ball specialty collective' covers all the knowledge acquired during the 1st year of Bachelor’s degree. This sports specialty allows you to master the fundamental concepts of sports training to determine and plan teaching objectives and training taking into account: the level of the target audience, the volume, periods and conditions of volleyball practice.

The course is divided into a set of learning units that allow you to acquire skills in the theory and practice of volleyball with the aim of being able to conduct and manage sports training againstwith regard to professional athletes and physical activity for students in a school environment. The primary objective is to understand the existing coherence between the acquired knowledge and those you will acquire.

Assessment method:

- A diagnostic assessment (assessment of prerequisites)

- A summative/certification assessment

a final written examination covering the concepts covered in the course during the semester. During this examination, which accounts for 60% of the final mark, you will also be required to:

- Solve problem situations similar to those dealt with in tutorials and practicals.

- Answer summary questions (via multiple-choice questions).

Formative or continuous assessment:

This is carried out through occasional activities (remote or face-to-face) to help you pass your final examination.

This continuous and regular assessment accounts for the remaining **40%** of your mark and allows you to earn points throughout the semester or even the year. It takes various forms, with each activity accounting for a quarter (1/4) of the overall mark. These are:

- an individual project on the basic concepts of volleyball training: the assessment will take into account compliance with instructions, relevance and organisation of the work.

- a group project on the physical and sporting activities of the specialities carried out in practical classes.

- Practical work scheduled each week throughout the semester, covering each point covered during the course. The practical work is divided into two parts: a theoretical part to be prepared at home and a practical part to be carried out in the field. The assessment of the practical work is based on the preparation of the theoretical part, combining it with the practical part. The report summarises the theoretical and experimental parts.

A practical work examination is planned at the end of the semester, covering all the points covered during the practical work sessions.

Support arrangements

Support for this course will be provided in person and remotely.

Summary

The first axis : Key concepts in volleyball

The first lecture

Key concepts in volleyball

The key concepts in volleyball are serving, receiving, passing, attacking and blocking; teamwork; player rotation; and sending the ball over the net to land in the opponent's court using a maximum of three touches. The objective is to score points by landing the ball in the opponent's court or forcing the opponent to commit a fault.

Game and positioning concepts

The three touches: Each team has a maximum of three touches to return the ball over the net. These touches are usually the reception, the placement (pass) and the attack (or smash).

Rotation: To ensure fairness and allow players to develop multiple skills, players change positions after each point won by the opponent. This ensures that each player goes through different roles on the court.

Specialised roles: Players can occupy specific positions, such as setter (who organises the play), attacker (who hits hard), or libero (a defence specialist) .

Basic techniques: The game is based on fundamental techniques such as serving, receiving (arm and forearm), high pass, hitting/smashing, and blocking.

Points and faults: A point is scored when the ball touches the opponent's court or when the opposing team commits a fault (ball out of bounds, net fault, etc.).

Team and strategy concepts

Teamwork: This is a team sport that relies on excellent communication and coordination between players.

Communication: Players must talk to each other constantly to coordinate and announce who is going to play the ball.

Defence and attack: Each team tries to score points by attacking and defend against the opponent's attacks by blocking or receiving the ball.

Indirect contact: Unlike other sports, volleyball does not involve direct physical contact between opponents, making it an accessible and safe sport.

The second axis: Current requirements in volleyball

The highest level is the ability to adapt one's own game to that of the opponent (Blain. 2006). High-level trends according to Craemer. (2001), it is mainly strategic and tactical aspects that determine performance, and these are the same in all sports because the game has become faster and more powerful. Today, volleyball is a completely different sport from the one played 30 years ago.

The new rules have certainly not changed the techniques, but they have profoundly altered the behaviour and role of the players. Modern volleyball has undergone changes in the rules of the game. Indeed, one of the objectives of the FIVB is to shorten the duration of matches in order to improve media coverage and attract sponsors and audiences. Volleyball, while similar to other team sports, differs from them in its specific characteristics. The distinctive feature of competitive volleyball lies in the execution of a large number of technical moves and tactical actions such as smashes, blocks, passes, receptions, etc., performed in a short period of time but with frequent interruptions.

- Less inflated and coloured balls reduce the power of hits and make it easier to control and see the ball.

- Playing with the whole body reduces defensive movement.

- The libero, a back player who is free to enter and leave the court and specialises in receiving and defence, allows teams to play with only one true receiving specialist. This brings an additional centre attacker onto the court, who is often replaced by the libero in the back positions, thus changing the appearance of certain teams.

-The continuous scoring system (RPS) has reduced playing time. The rally point system (RPS) has completely changed the philosophy of the game. This profound change was one of the main arguments put forward by opponents of the reform at the time. The two main reasons for its implementation were, firstly, the need to ‘be

programmable by television’ and therefore to control the length of matches and, secondly, to be more understandable to an uninformed audience, particularly in the distribution of points. Before the continuous scoring system, only the team serving could score a point. With the RPS, each action is concluded by the awarding of a point. The consequences of this rule on the very structure of the sport are nothing short of revolutionary. Playing time has been considerably shortened (Blain, 2006). This limitation on the duration of matches has led to changes in the management of team preparation and in the management of the competition.

Game tactics have also been impacted by this new rule. The old system was based on patiently building up to victory, in which the concept of not losing points was an integral part of the game. We are now in a dynamic of immediate efficiency where mistakes are directly penalised by a point for the opponent. Opponents' errors currently account for between 10 and 30% of the points scored by a team. (Blain. 2006). Although technical, physical and tactical qualities are essential, mental qualities have become more important than in the past in a player's performance.

The ability to manage stress, take responsibility and maintain concentration The ability to manage stress, take responsibility and maintain concentration are qualities that the RPS has undoubtedly highlighted. Not that they were absent before the RPS, but they must now be demonstrated from the very first point and not just at the end of the set. The number of rotations per set has narrowed the gap between teams. It is necessary to rotate quickly on the opponent's serve and score 7 to 10 points on one's own serve to win a set.

The two technical time-outs at 8 and 16 points, as well as the possibility for the coach to approach the court, facilitate management. Finally, the possibility of the ball touching the net on serve has given a little more leeway to risky serves.

Today's high-level volleyball remains a highly strategic sport, based on height,power and speed. Video and computer analysis tools make it possible to accurately determine

the opponent's playing tendencies and the key points that will tip the balance of power in favour of one team. Matches are prepared using computer video, image scanning, editing and specific game plans. Players must then be able to apply a number of organised systems in order to exploit their opponents' weaknesses and counter their strengths.

Third axis: Physical qualities in Volleyball

First lecture

Introduction:

As with any sport, whether played individually or as part of a team, volleyball requires adequate physical preparation to maximize athlete performance. Proper physical preparation is essential not only to reduce the risk of injury, but also to improve players' strength, endurance, speed and responsiveness, enabling them to reach their full potential on the court.

However, volleyball has specific characteristics that require special attention when it comes to physical preparation. The sport demands a unique combination of physical qualities such as explosive power, agility, coordination and flexibility. Players must be able to react quickly to balls in flight, execute explosive jumps to attack or block, and maintain stable posture and balance during dynamic phases of play.

Good physical preparation for volleyball therefore includes a varied mix of exercises and techniques aimed at strengthening the specific muscles used in this sport, improving cardio-respiratory endurance, developing reaction speed and promoting movement coordination. Coaches should also pay particular attention to developing the strength of the lower limbs, especially the leg and trunk muscles, which are essential for powerful jumps and for maintaining stability during lateral and rotational movements.

Volleyball is a dynamic sport that requires a combination of strength, speed, power, agility, endurance, coordination, and flexibility. Each of these physical qualities contributes to the player's ability to perform specific technical and tactical actions efficiently (such as jumping, spiking, blocking, digging, and serving).

Second lecture

Volleyball characteristics

Volleyball players are subjected to a series of unique physical challenges, including the intensive repetition of jumps throughout a match. To illustrate this, let's take the example of Benjamin Toniutti, who performs an average of 140 jumps over the course of a match. This intense physical demand requires specific preparation to strengthen leg muscles and improve endurance to maintain optimum performance throughout the game.

Unlike many other sports, such as handball, soccer or basketball, volleyball has no time restrictions. Matches are played in sets, and a team must win three sets of 25 points each to win the match. In the event of a fifth set, the match is played to 15 points. The absence of a time limit means that the duration of a match can vary considerably, depending on the intensity of the exchanges and the teams' ability to score points.

Volleyball is also characterized by a discontinuous alternation of actions over the course of a match. Sequences of play are short and intense, with an average of just 8 seconds of play followed by 12 seconds of recovery. This jerky nature of the game demands excellent physical condition and the ability to recover quickly between points to maintain a high level of performance throughout the match.

1. Strength and Power

Volleyball players need muscular strength and explosive power to perform vertical jumps, spikes, and blocks. Power is particularly important because most actions in volleyball occur rapidly and explosively. "Muscular strength and power are the most important factors contributing to successful performance during elite competitions." Sheppard, J. M., & Newton, R. U. (2009). Journal of Strength and Conditioning Research.

As well as strengthening the lower part of the body, it's obvious that we also need to focus on the upper part. This can be done with or without weights. Upper-body strengthening exercises include movements such as push-ups, pull-ups, bench presses and lateral raises. The use of additional weights can be beneficial for increasing training intensity and stimulating muscle growth, but it's important to ensure that proper technique is maintained to avoid injury.

In addition, a full-body workout that incorporates stabilization and coordination exercises is essential to improve volleyball players' overall performance. This can include sheathing exercises, stability exercises on a Swiss ball, and coordination exercises for arm and leg movements.

Examples:

- Lower-body power for vertical jumps (e.g., squat jumps, Olympic lifts).
- Upper-body power for hitting and serving (e.g., medicine ball throws).

2. Speed and Agility

Speed allows players to move quickly to the ball, while agility enables them to change direction efficiently during rallies. Volleyball involves frequent short sprints and rapid changes of position. "Athletes … must have the maximum level of agility, jumpiness, and the ability to quickly understand and respond to the situation on the field." Khudoykulov, B. (2023). Global Research Network Journal.

Examples:

- Short sprints to reach balls.
- Agility ladder drills to improve reaction and direction change.

3. Endurance (Anaerobic and Aerobic Capacity)

While volleyball is primarily anaerobic, players need good endurance to sustain high performance throughout long matches and multiple rallies. "The ability of volleyball players to perform certain physical activity without being too tired to implement technical skills during the game is a key physical fitness trait." International Journal of Scientific Development and Research (IJSDR, 2022).

Examples:

- Interval and circuit training for stamina.
- Repeated jump or rally simulations for sport-specific endurance.

4. Flexibility and Mobility

Flexibility improves range of motion, reduces injury risk, and enhances technical movement execution (e.g., reaching for digs, blocking at different angles). "Flexibility, agility, and coordination are essential components of physical preparation for volleyball players." Ilyasova, N. (2022). STEM Journal.

Examples:

- Dynamic stretching before play.
- Static stretching and mobility work after training.

5. Coordination and Balance

Players must coordinate complex upper and lower body movements while maintaining balance, especially during jumps and defensive plays. "Coordination and balance enable volleyball players to perform technical elements with precision under dynamic conditions." Bompa, T. & Buzzichelli, C. (2019). Periodization: Theory and Methodology of Training.

Examples:

- Core stability exercises.
- Balance drills on unstable surfaces (e.g., BOSU ball).

6. Anthropometric Factors (Body Composition and Height)

While training can enhance performance, some physical characteristics — such as height and limb length — give certain advantages in volleyball, particularly in front-row positions. "Height could be considered the most important physical attribute; middle blockers and opposite hitters were the tallest and heaviest players." Gabbett, T. J., et al. (2009). Journal of Strength and Conditioning Research.

Examples:

- Taller athletes often specialize in blocking and attacking.
- Shorter athletes excel in defensive roles like libero due to agility and reaction speed.

- **Summary Table**

Physical Quality	Importance in Volleyball	Training Focus
Strength & Power	Jumping, spiking, blocking	Squats, plyometrics, medicine ball throws
Speed & Agility	Quick movement and direction change	Sprint drills, agility ladder, reaction work
Endurance	Sustaining energy over long matches	HIIT, rally simulation, aerobic intervals
Flexibility & Mobility	Range of motion, injury prevention	Stretching, yoga, mobility training
Coordination & Balance	Technical precision and stability	Core training, proprioception drills
Anthropometrics	Role suitability (blockers vs. liberos)	Monitoring, specialized role assignments

The fourth axis : Coordinative Abilities in Volleyball

First lecture

Introduction:

Coordinative abilities refer to the set of motor control skills that allow athletes to perform movements efficiently, accurately, and adaptively in response to changing game situations. In volleyball — a sport characterized by rapid exchanges, varied trajectories, and precise timing — these abilities determine the quality of technical execution and tactical performance. "Coordination abilities are the foundation for learning and mastering complex motor skills; they ensure the effective interaction of the nervous and muscular systems in sports performance." Bompa, T. & Buzzichelli, C. (2019). Periodization: Theory and Methodology of Training.

1. Precision

Precision is the ability to perform movements with high accuracy, especially when directing the ball to a target (e.g., serving, setting, spiking).

"Accuracy and precision are fundamental to successful volleyball performance, as the ball must be placed in exact locations under time pressure." Forthomme, B. et al. (2005). European Journal of Applied Physiology.

Example in play:
A setter must deliver the ball precisely to the hitter's optimal attack point; a server must aim for weak zones in the opponent's reception.

Training methods:
Target serving drills, wall-passing with accuracy zones, and precision setting with variable trajectories.

2. Concentration

Concentration allows players to maintain focus throughout long rallies and sustain attention under stress and noise.

"The ability to concentrate on relevant stimuli while ignoring distractions is crucial for consistent technical execution in volleyball." Weinberg, R. & Gould, D. (2015). Foundations of Sport and Exercise Psychology.

Example in play:
A libero maintaining focus on the opponent's hitter's shoulder position to anticipate attack direction.

Training methods:
Mental focus drills, visualization, mindfulness training, and fatigue-resistance exercises combined with decision-making tasks.

3. Balance

Balance ensures stability during dynamic movements — such as landing from a spike or changing direction after a dig — and prevents injury.

"Balance control plays an essential role in volleyball, where players must stabilize their body during jumping and landing maneuvers." Bizzini, M. et al. (2003). Journal of Sports Medicine and Physical Fitness.

Example in play:
Maintaining stability after a block or during a defensive dive to recover quickly for the next action.

Training methods:
Single-leg balance drills, core stability work, proprioceptive training on unstable surfaces (BOSU, balance boards).

Second lecture

1. Agility

Agility combines speed, coordination, and reaction ability — allowing quick changes in direction and posture while maintaining control.

"Agility is a multifaceted ability involving balance, coordination, and reactivity, enabling the player to adapt rapidly to game situations." Sheppard, J. M. & Young, W. B. (2006). Journal of Sports Sciences.

- **Example in play:**
  Transitioning from defense to offense within seconds or adjusting position to block an unexpected tip.
- **Training methods:**
  Agility ladder drills, reactive cone exercises, and change-of-direction sprints responding to visual or auditory cues.

2. Rhythm

Rhythm in volleyball refers to the temporal coordination and timing of movements — particularly during sequences such as approach, jump, and spike.

"Rhythm and timing are key components of efficient movement patterns; athletes must synchronize actions with ball flight and team coordination." Schmidt, R. A. & Lee, T. D. (2011). Motor Control and Learning.

- **Example in play:**
  The spiker's approach must match the setter's toss rhythm; team blocks must jump in synchrony.
- **Training methods:**
  Footwork rhythm drills, tempo-based spiking sequences, and synchronized blocking exercises.

3. Overall Coordination

Coordination integrates all the above — enabling players to link body parts harmoniously to perform complex skills.

"General coordination provides the basis for technical skill efficiency, while specific coordination allows the adaptation of learned movements to variable conditions." Hirtz, P. (2000). Coordination Abilities in Physical Education and Sport.

- **Example in play:**
  Executing a jump serve where the toss, jump, arm swing, and hit must be perfectly timed and aligned.
- **Training methods:**
  Complex drills combining movement patterns (e.g., dig–set–attack sequences), small-sided games, and variable ball trajectory exercises.

- **Summary Table**

Coordinative Ability	Role in Volleyball	Examples of Training Methods
Precision	Accurate serving, setting, spiking	Target drills, variable accuracy tasks
Concentration	Sustained focus during play	Focus tasks, mindfulness, dual-task training
Balance	Stability during jumping/landing	Core and proprioceptive exercises
Agility	Quick adaptation to game situations	Reactive agility drills, ladder work
Rhythm	Timing of approaches and jumps	Tempo drills, synchronized team actions
Coordination	Integration of movement sequences	Complex motor tasks, technical drills

Conclusion

In volleyball, coordinative abilities are decisive for performance. They allow players to execute skills efficiently, adapt to dynamic play conditions, and maintain precision under pressure. Training programs should therefore integrate both technical and neuro-motor components to enhance these abilities systematically.

"Technical mastery in volleyball depends not only on physical qualities but also on the refinement of coordination, rhythm, and timing." Papageorgiou, A. & Spitzley, W. (2003). Volleyball: Training for the Advanced Player.

The fifth axis: Flexibility in Volleyball

First lecture

1. Definition

Flexibility is the ability of a joint or series of joints to move through an unrestricted, pain-free range of motion. It depends on the elasticity of muscles, tendons, and connective tissues surrounding the joints.

"Flexibility refers to the range of motion available at a joint or group of joints and is influenced by muscle length and joint structure." American College of Sports Medicine (ACSM, 2021). ACSM's Guidelines for Exercise Testing and Prescription.

In volleyball, flexibility is a key component of physical fitness, allowing players to perform technical movements smoothly, prevent injuries, and maintain efficient posture during play.

2. Importance of Flexibility in Volleyball

Volleyball demands a wide range of movement — from overhead arm actions in serving and spiking to lower-body mobility in defensive positions and transitions. Proper flexibility contributes to both performance efficiency and injury prevention.

"Flexibility is a vital component of volleyball performance, as it supports technical skills such as spiking, blocking, and serving by allowing greater joint mobility and muscle control." Yuktasir, B. & Kaya, F. (2009). Journal of Strength and Conditioning Research.

"Players with higher levels of flexibility can execute movements more efficiently and are less likely to suffer from overuse injuries of the shoulder and lower back." Lobietti, R. et al. (2010). British Journal of Sports Medicine

3. Key Areas Requiring Flexibility

Body Region	Role in Volleyball	Common Movements
Shoulders & Upper Back	Needed for powerful serves and spikes	Overhead arm swing, follow-through
Hips & Hamstrings	Enable deep defensive stances and jumps	Squatting, lunging, take-off position
Ankles & Calves	Support balance and stability during landings	Jumping, blocking, directional changes
Core & Spine	Allow body rotation and bending	Serving, spiking, defensive dives

"Flexibility of the shoulder and hip joints is essential for the correct execution of volleyball technical skills." Karali, A. (2018). European Journal of Physical Education and Sport Science.

4. Performance Benefits

Enhanced Range of Motion (ROM):
Greater ROM allows players to reach difficult balls, perform deeper squats for defense, and achieve higher jump positions.

Injury Prevention:
Adequate flexibility reduces muscle stiffness and minimizes risks of strains, sprains, and tendon injuries.

Efficient Technique Execution:
Flexible joints enable smoother and more controlled technical actions (especially during overhead serves and spikes).

Improved Recovery and Longevity:
Stretching helps maintain muscle elasticity and promotes faster recovery after training or matches.

“Maintaining optimal flexibility helps athletes perform technical movements with efficiency while preventing the development of musculoskeletal imbalances.” Behm, D. G., & Chaouachi, A. (2011). Sports Medicine.

Second lecture

1. Training Methods to Develop Flexibility

To enhance flexibility, volleyball players should integrate different types of stretching into their routines:

Type of Stretching	When to Use	Example Exercises
Dynamic Stretching	Before training or matches	Arm circles, leg swings, hip rotations
Static Stretching	After training	Shoulder stretches, hamstring stretches
PNF (Proprioceptive Neuromuscular Facilitation)	During recovery sessions	Partner-assisted hamstring or chest stretches
Active Stretching	During warm-ups	Lunge with torso twist, standing quad stretch

"Dynamic stretching before activity and static stretching after training improve flexibility and functional performance in volleyball players." Amiri-Khorasani, M. & Sotoodeh, V. (2013). Journal of Human Kinetics.

2. Practical Examples in Volleyball

- Spiking and Serving:
  Shoulder and chest flexibility allow a greater range of motion for the arm swing, leading to more powerful and accurate attacks.
- Defensive Digs:
  Hip and hamstring flexibility enable low, stable positions to receive fast spikes.
- Blocking:
  Flexible ankles and shoulders help players achieve maximum reach above the net with proper form.

- **Summary**

Aspect	Description
Definition	Ability to move joints freely through a full range of motion
Main Benefits	Improved performance, reduced injury risk, smoother technique
Key Areas	Shoulders, hips, hamstrings, ankles, spine
Training Methods	Dynamic, static, active, and PNF stretching
Example Skills Affected	Serving, spiking, blocking, defensive dives

3. Conclusion

Flexibility is a fundamental physical quality in volleyball that supports technical proficiency, reduces injury risk, and improves efficiency of movement. A well-structured flexibility program — including both dynamic and static stretching — enhances players' ability to perform the explosive and acrobatic movements that characterize modern volleyball.

"Flexibility should be developed systematically alongside strength and coordination to ensure functional movement patterns and long-term performance success in volleyball." Bompa, T. & Buzzichelli, C. (2019). Periodization: Theory and Methodology of Training.

The sixth axis : Play area in volleyball

First lecture

Introduction

The play area includes the playground surface and the free area, and it should be rectangular and symmetrical.

I. The playing area

1. Dimensions

The playing court is 18m long and 9m wide and is surrounded by a free zone 3m wide on all sides.

The space above the playing area is known as the free playing space and is a minimum of 7m high from the playing surface.

For FIVB, world and official competitions, the free zone measures a minimum of 5m from the side lines and 8m from the ends lines. The free playing space is a minimum of 7m high from the playing surface.

2. Playing surface

The playing surface is flat and a light colour. For FIVB, world and official competitions, only a wooden or synthetic surface is allowed.

White colours are required for the lines. Other different colours are required for the playing court and free zone.

3. Line markings

All lines on the court are 5cm wide and are a light colour different from the colour of the floor.

The boundary lines are the two side lines and end lines. The centre line divides the playing court into two equal courts, 9m x 9m each. This line extends from beneath the

net from sideline to sideline.

On each court the rear edge of the attack line is drawn 3m back from the middle of the centre line and marks the front zone.

4. Zones and areas

The front zone on each court is limited by the axis of the centre line and the rear edge of the attack line. The front zone extends beyond the side lines to the end of the free zone.

The service zone is a 9m wide area behind each end line and extends to the end of the free zone. It is 15cm long and drawn 20cm behind the end line as an extension of the side lines.

The substitution zone extends from both attack lines to the scorer's table.

The Libero Replacement zone is part of the free zone on the same side as the team benches, extending from the attack line up to the end line. A penalty area, 1m x 1m, is located in the control area outside of the endlines.

5. Nets and posts

- The net is 2.43m high for men and 2.24m high for women. It is placed vertically over the centre line. It is 1m wide and 9.5m-10m long and is 10cm square black mesh.
- The height of the net is measured from the centre of the playing court.
- The antenna is a flexible rod, 1.8m long and 10mm in diameter and made of fibreglass or similar material. It is fastened on opposite sides of the net. The top of the antenna extends 80cm above the net and is marked with 10cm stripes of contrasting colour, usually red and white.
- The 2.55m high posts are placed 0.50m-1.0m outside the side lines. The posts are rounded and fixed to the ground without wires.

6. Dimensions

The playing field is a rectangle measuring 18 meters by 9 meters, with a free zone around it that is no less than 3 meters wide on all sides.

Meters from all sides

- The free play height is the height above the play area that is free of any obstacles, and the height must not be less than the specified measurement.

The free play area should be at a height of 7 meters from the playing surface.

- In international and Olympic volleyball competitions, the free zone must not be less than 5 meters.

From the sidelines and 6.5 meters from the end lines, and the height of the free zone for play should not be less than 12.5 From the playing surface.

Second lecture

1. **Playing surface:**

   - The surface must be flat, horizontal, and uniform, and it should not pose any risk of injury to the players.

   Playing on rough or slippery surfaces.

   - In the international and official competitions of the International Volleyball Federation, only wooden or synthetic surfaces are allowed.

   industrial materials, and any surface must be previously approved by the International Volleyball Federation.

   - The playing surface must be a light color in covered courts.

   - For international and Olympic volleyball competitions, white is required for the lines, and different colors are required for the court and free zone.

   Other colors differ from each other for the court and free zone.

   - A slope of 5 mm per meter is allowed in open fields for water drainage, and field lines made of

   Solid materials.

2. **Lines on the field:**

   - All lines should be 5 cm wide and must be in a light color that differs from the color of the ground and any other lines.

   Others.

   - Boundary lines: The field is defined by the side and end lines, which mark the boundaries of the playing area.

   Within the dimensions of the playing field.

   - Midfield line: The midfield line divides the playing field into two equal halves, each measuring 9X9 meters.

   The two halves of the field are equal, and this line extends below.

   Of them, and in any case, the total width of the line is considered to be equal.

   The net from side to side

   Attack line: The front area in each field of play is defined by the attack line, which

ends three meters behind the goal line.

Center line.

- In international and national volleyball competitions, an attack line is extended with additional dashed lines from

The side lines, with five short lines each 15 cm long and 5 cm wide, are drawn 20 cm apart from each other.

The other at an overall length of 1.75 meters.

- Coach's restriction line: Dashed lines extending from the goal line to the end of the field, parallel to the side lines and at a distance of

1.75 meters from it, consisting of short lines 15 cm long, drawn 20 cm apart from each other to indicate the boundaries.

The coach's training area.

II. Areas and Zones

In volleyball, the court is divided into specific areas and zones that help organize team play, guide tactical decisions, and structure defensive and offensive systems. Understanding these zones is essential for players, coaches, and officials because each zone has a strategic purpose that influences positioning, rotation, and in-game responsibilities.

The volleyball court (9 m × 18 m) is split into six numbered zones on each side, corresponding to player rotation positions. These zones dictate where players must stand during rotations and how they transition to their tactical positions in defense and attack. In addition to the rotational zones, volleyball uses specialized attack zones, defense areas, and service zones, each determining the type of action allowed. For example, the front-row attack zone (Zones 2, 3, and 4) allows players to perform front-court attacks and blocks, while back-row zones (1, 5, and 6) limit players to back-court attacks from behind the 3-meter line.

Mastering the concept of areas and zones enables teams to apply advanced volleyball systems such as the 5–1 or 4–2 offense, zone defenses (1–5, 2–4, 6–0), and specialized roles like libero positioning, coverage systems, and serve-receive formations. Ultimately, knowledge of volleyball zones enhances game intelligence, improves court organization, and helps players make faster tactical decisions during competition.

1. Areas and zones

- The front area: The front area in each field is defined by the center line, the attack line, and the back line.

  The back of the attack line, the front area is considered to extend beyond the sidelines to the end of the free zone.
- Service area: The service area is 9 meters wide behind the end line, defined laterally by two short lines.

  Each of them is 15 cm long and is placed 20 cm behind the end line as an extension of the side lines.

  The two short lines are part of the width of the service area. The service area extends in depth to the end of the free zone.
- Switching Area: The switching area is defined by the extension of the attack line to the recording table.
- Free substitution area: The free substitution area is part of the free area from the side of the bench.

  The team and limited by the extension of the attack line to the end line.
- The substitution area: In international and Olympic volleyball competitions, the area of the substitution zones is approximately 3x3 meters.

  Approximately 3x meters and located at both corners of the court, next to the benches outside the free zone.
- Penalty area: The approximate size of the penalty area is 1x1 meter, marked with two chairs and positioned within the monitoring area.

- Outside the extension of each boundary line, and it can be marked with a red line 5 cm wide.

2. Temperature:

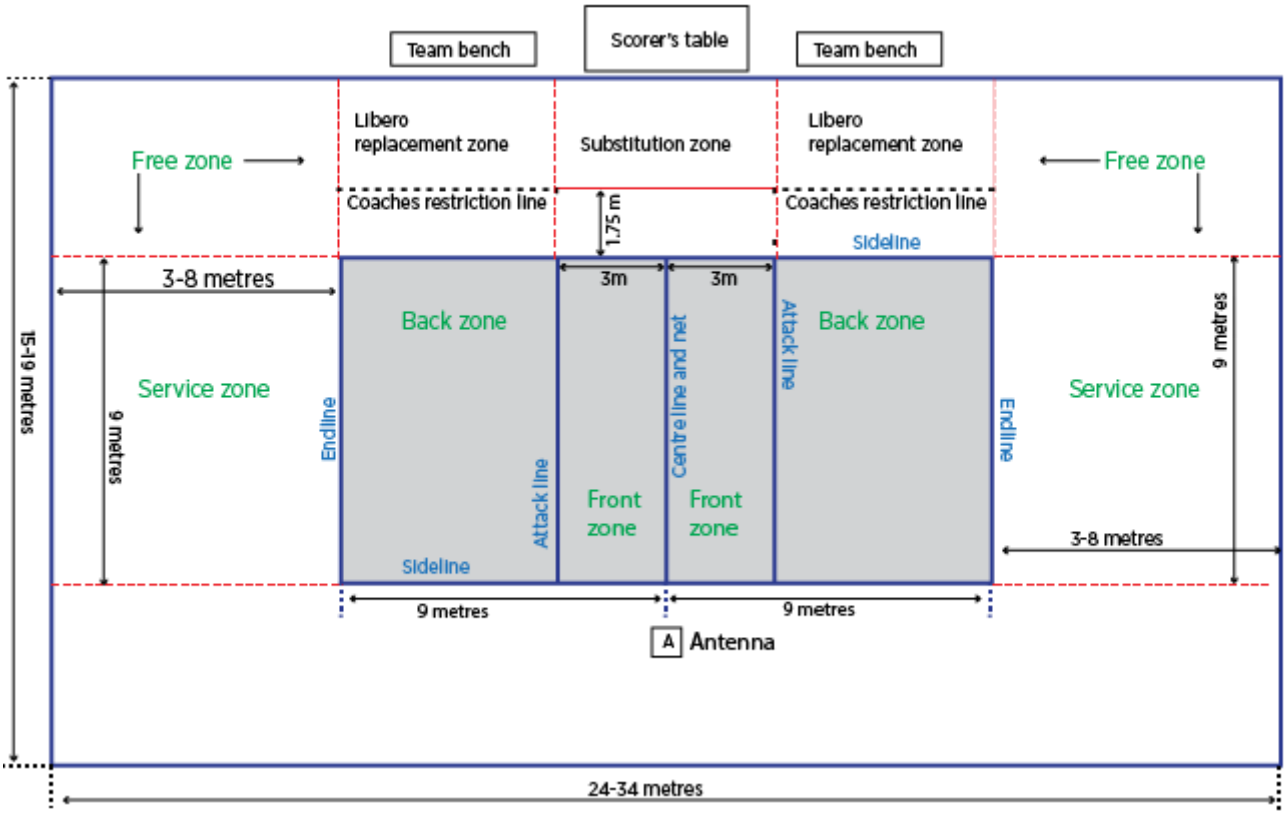
- The minimum temperature must not be less than 10 degrees Celsius (50 degrees Fahrenheit).

- For the international and official volleyball competitions, the maximum temperature must not exceed 25 degrees Celsius. 77°F and not less than 61°F.

3. Lighting:

- For international and Olympic volleyball competitions, the lighting on the playing area should be between 1000 to 1500 lux, measured at a height of one meter above the playing area surface.

picture showing the dimensions of the volleyball court



The sixth axis: (2) Volleyball posts

First lecture

Introduction:

1. **The term positions**

   First of all, it is crucial to understand that the term "positions" in volleyball can mean two different aspects. When someone talks about "positions," they may be referring to the physical location you occupy on the court. The volleyball court is divided into 6 zones, numbered from 1 to 6. Each player occupies one of these "positions on the volleyball court."

2. **Positions of volleyball players**

   In addition to having designations for the positions on the court, players are assigned specific volleyball positions. These volleyball positions have distinct names, similar to the titles of goalkeepers, defenders, midfielders, and forwards in football.

a- Setter

As the title indicates, this player governs the flow of the game. Reactivity and game vision. A crucial position in volleyball generally involves the second ball in an offensive strategy. This maneuver can be executed by a pass, primarily done with an overhand. The setter has the discretion to direct a pass to any of their attackers, whether it be the middle attacker, the outside attacker (spiker), or the opposite.

b- Outside hitter

The outside hitter or receiver/attacker primarily handles reception and attack. This role, essential among volleyball positions, frequently engages the first and/or third ball in an offensive strategy. In most net rotations, the receiver/attacker assumes the front left position in volleyball.

c- Central

Constantly engaging at the center of the net, the middle blocker often receives the third

ball, which justifies their name. This position in volleyball requires effective blocking skills, hence the titles of middle blocker or main blocker. It is common for a middle blocker to be replaced by a libero on defense.

d- Libero

Identifiable by a distinct jersey, the libero is limited to the three back positions on the volleyball court. Primarily responsible for reception and defense, liberos replace players with less defensive skills. They are often replaced by the central attacker after the serve.

e- Opposite Hitter

Known as the "cleaner" of the team and a major hitting force, the opposite player is central to many attacks. This position in volleyball is typically held by a robust attacker with less inclination for defense. The term 'Opposite' reflects their position on the court, always diagonal to the setter.

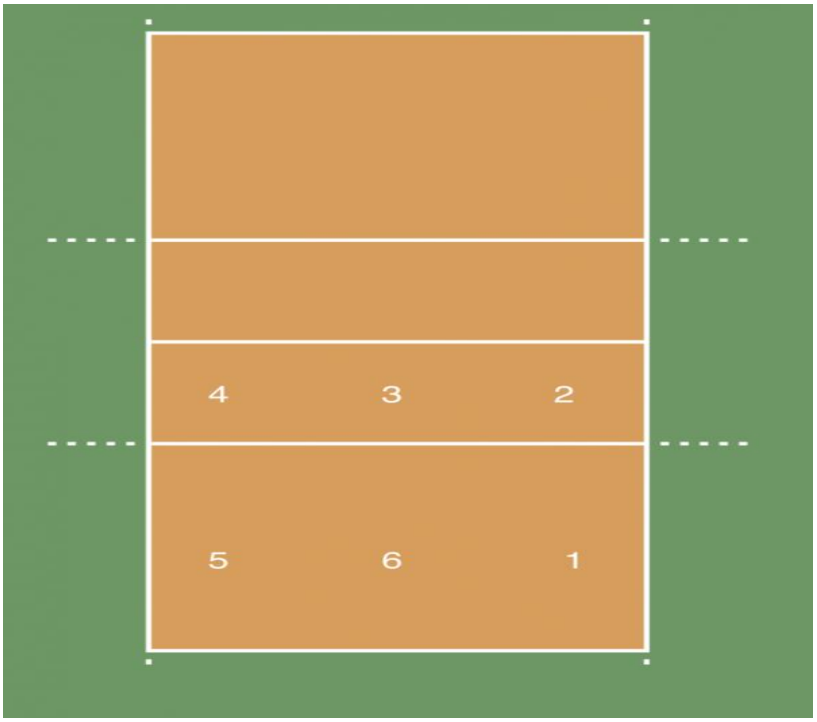
By understanding these positions on the volleyball court, players can optimize their strategic play, thereby improving both their individual and team performance. Whether you are a beginner or a seasoned professional, understanding the subtleties of volleyball positions is essential for mastering the game.

Second lecture

Different position in volleyball playing

1. **Context: Positions 1-6**

   In volleyball, positions 1 to 6 are used to designate the rotation of players and their placement on the court. These positions are essential for team organization and adherence to rotation rules. The field is divided into six zones, numbered from 1 to 6, starting from the bottom right corner and progressing clockwise.



2. **Position to be filled:**

   Back right (position 1): This position is located in the back right corner of the court.

   - The player in position 1 is often responsible for serving or defending the back line.

   Right front (position 2): Located on the right side of the net.

   - This is generally where a setter or an attacker positions themselves, ready to make a pass or an attack.

   Middle of the front (position 3):

- Directly on the net in the middle.
- Generally occupied by a middle blocker, focussing on blocking and quick attacks in the centre.

Left front (position 4): On the left side of the net.

- Often the position of the team's main attacker or outside hitter, responsible for various attacks.

Left back (position 5): In the back left corner of the court.

- This player often plays an important role in service reception and defence.

Middle back (position 6): In the middle of the court.

- The player in this position generally focusses on defence, particularly low receptions, and is often a key player in service reception formations.

Rotation and movement:

The players rotate clockwise each time their team wins the serve from the opposing team. The rotation ensures that all players alternate between front-line and back-line positions.

Players must be in their correct positions at the time of the serve, but can move to their specialised zones immediately after the serve.

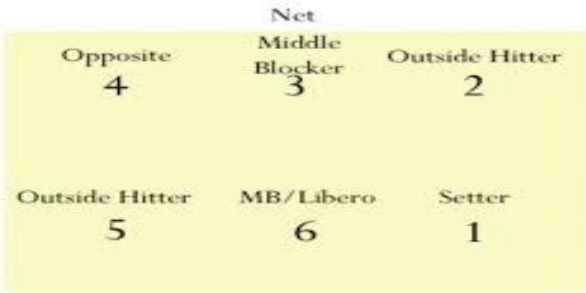
Understanding these positions and rotations is essential for an effective team strategy and to ensure that all aspects of the game, such as serving, attacking, blocking, and defending, are covered by the appropriate players.

3. **The one-setter system (5-1)**

In the majority of cases, the composition of a volleyball team is the same:

- setter / opposite hitter / 2 middle blockers who switch places with their libero when they are in the back positions (positions 1-6-5) / 2 attacker-receivers (R4).

Two identical positions are always placed in opposition to each other, to ensure that one of the two players is always on the front line and the other on the back line.

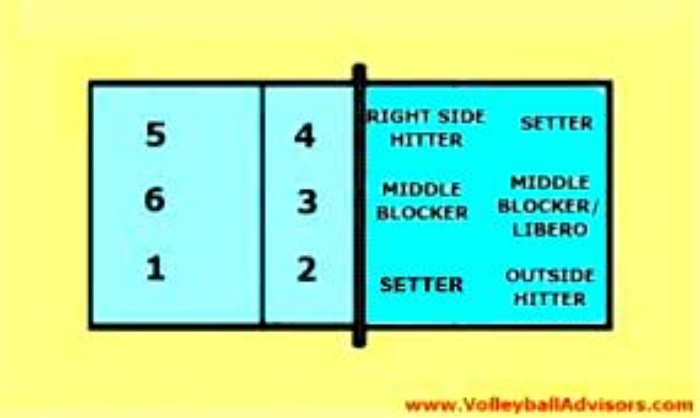


4. The two-setter system (4-2)

It's about having 2 setters who have the dual role of setter and outside hitter at the front.

When one of the passers arrives at a back position, they take on the role of the back passer. During this time, the second passer moves to the front line and takes on the role of a sharp attacker.

With this organisation, there are 3 attackers permanently in the forward positions along the line.



5. The attacker/receiver, also called "the 4 position" or the R4:

The first mission asked of the R4 is reception. The reception of a team is shared by 3 players on the court: the libero and the 2 R4s.

Reception is fundamental in volleyball, as it lays the groundwork for being able to follow up with all the subsequent actions: the pass and the attack.

So, the receivers need to successfully complete the majority of their receptions: a high, lobbed ball in the heart of the court, close to the net.

Next, in defence, the R4 is among the players who are called upon to touch the most balls. If they are effective on defence, they help improve their team's overall game and provide additional opportunities for the offensive specialists: the opposite hitter and the middle blockers.

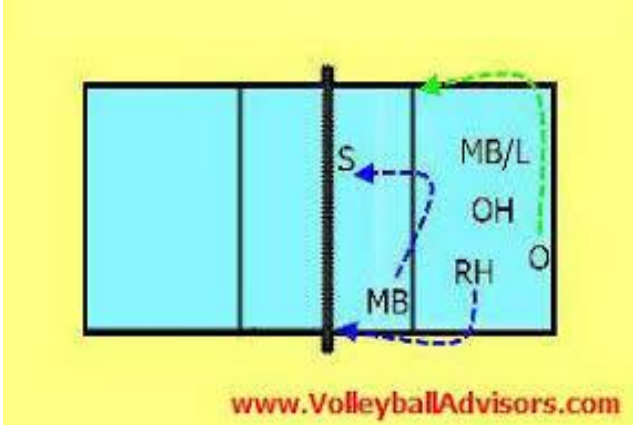
His mission doesn't stop there; the R4 must be versatile, being both good on defence and holding his own at the net on offence. He is in charge of attacking on the left side of the net. (Receiver who attacks in position 4, hence the name R4).

When he is in the back positions, he also attacks in the pipe, centre of the court, but behind the 3-meter line.

The key skills of a receiver 4: A good receiver must successfully complete the majority of their receptions and be very clean on rebound balls. He must be very enduring, as his versatile game requires consistency and precision throughout the match.

The significant amount of reception requires great concentration at R4 and good control of one's nerves to avoid a series of bad streaks.

Even if it is not the main offensive weapon, position 4 must be very precise in attack, as it is often to him that the setter turns when he no longer has passing possibilities under ideal conditions. The receiver 4 must then enhance their attack with often degraded balls. The receiver 4 is a complete and versatile player who provides a solid foundation for the team.



Third lecture

The role of players in volleyball

1. **The central (position 3):**

The role of the central player is to occupy position 3, at the centre of the net. His main role is to be the boss at the net. Whether it's at the centre of the net on a quick attack timing or reinforcing the block on the wings. By widening the block, it allows the rest of the team to have less space to cover on defence.

On defensive phases, he has the heavy task of blocking his counterpart on the fast break. If the opposing setter chooses to send the pass to the wing, then our middle blocker, barely having finished their first block, must move to the wing to provide block reinforcement.

If his team defends the ball, he barely touches the ground before he has to lower his position on the court to start his fast break. In the space of a few seconds, he has to make 3 jumps. You can multiply that by the number of exchanges in a point, and you understand the importance of physicality for such a position.

It's not just about cardio or explosiveness, having a large wingspan is a plus because it allows you to cover more space on defence or offence.

That's often why the tall players on the team are central.

Let's not lie to ourselves, since the creation of the libero position, the role of the middle blocker is much less important on the back lines.

He starts by doing his services when he is at post 1. There, he has a role to play in destabilising the reception across the street.

Next, he positions himself on defence, at position 5. For base 1 (defensive position during the central's fast break), he moves a bit towards the heart of the court to be ready to receive the central's attack. If the ball goes to the wing, he retreats towards the sideline of the field to defend against attacks coming from the wings.

Once his team has lost the serve, the middle blocker leaves the court and is replaced by the libero. He has a few minutes to catch his breath, as he will have jumped much

more than anyone else on the balls where he was in the front position.

He reclaims his spot on the field just as the libero is about to move into the front positions.

1.1 The key skills of the middle blocker:

Jump speed: ability to jump quickly to block and attack effectively.

Game reading: anticipating the opponent's passes to position oneself for the block.

Physical strength: endure frequent jumps and repeated jumps at the net.

Generally, the tallest and most athletic players on the team play in the centre. Their specialisation also means that they are generally less skilled at receptions. That's why the libero switches with them as soon as the middle blocker no longer has to serve and is in the back position.

Also, they are there to take over from the passer, in case they cannot intervene, because they have just made a defence or if they are too far from the ball.

2. The setter, the playmaker of a volleyball team

The setter is a key position in volleyball, often compared to a conductor. His role is essential: he is the one who distributes the game and puts his attackers in the best conditions to score points. Both a strategist and a technician, he must demonstrate precision, intelligence, and a great capacity for adaptation to adjust to game situations and the preferences of his teammate**s.**

2.1 The role of the setter: Being a setter requires a lot of qualities.

The setter's role is to distribute the game to their attackers to put them in the best conditions to score a point.

He is therefore the player who takes the ball on the second touch of the exchange.

He never receives the ball because you can't touch the ball twice in a row.

On defensive phases, he is also involved in defence, but as soon as the opportunity arises, he frees himself from his defensive constraints thanks to the compensation of

other players in **order to start** positioning himself in his passing zone.

a- The positioning of the passer on the field

Most teams play with only one setter on the court. Once the serve is done, he positions himself on the right side of the court. On the other hand, depending on whether he is on the front or back line, his way of playing changes.

b- When the setter is on the front line

When he is forward, the setter is close to his passing position, he has little distance to cover, it is easier for him to distribute the ball to any attacker. Provided that the reception is high and successful.

As seen in the diagram, the setter can choose from 5 possibilities to score:

Make the point himself with a first hand: he drops the ball behind him instead of making a pass.

The quick attack: the middle blocker is already in the air, next to him at the moment of the pass, he gives it to him for a quick attack.

c- The wing attack: He pushes the ball to the opposite wing so that the R4 attacks at the end of the net.

The pipe attack for the R4 back: Ball lifted in the middle of the court, a little before the 3-meter line, the attacker who takes their jump from behind the 3-meter line and finishes their jump in the 3-meter zone.

Finally, the ball for the outside hitter in position 1, he also takes his jump impulse outside the 3-meter line.

d- Back setter, penetrating setter

When the passer is in the back, they have a bit more distance to cover to position themselves well in the passing zone. The receptions need to be higher and lobbed, as it is more difficult for him to salvage a poor reception.

When he is in the back, he has the same ball distribution possibilities, except that he is not allowed to make a first-hand play. On the other hand, the outside hitter finds themselves on the front line in position 2 (right of the net). We therefore have one less choice to score, but on the other hand, the spiker is in a better position to score points.

2.3 The role of the setter on defence

When the setter is in the front, they position themselves for the block in position 2, on the right side of the net if the attack is on their side.

If the attack is on the opposite side of the net, he positions himself on defence in case of a small diagonal attack, or he goes to support the block in case the attack drops the ball just above the block. It all depends on the block announcement decided by the team**.**

2.4 When the setter is on the back line, they cover position 1 in defence:

He is in an advanced position, in the heart of the field, to defend against the opponent's fast break.

He defends the line if it's the opposite R4 attacking and the block is taking care of the diagonal.

He defends the long diagonal if the ball comes from position 2 opposite.

If the opponent fails to attack the ball and sends it back into the camp with a rebound, the setter shouts "Rebound," which means they won't deal with defending the ball coming towards them. He anticipates his positioning and places himself in the heart of the court, in a passing position. His teammates, who have an easy ball to handle, compensate for the setter's retreat by covering more ground.

This allows the team to optimise their play sequence, as they put the opposing team in difficulty on the previous ball. They must take advantage of their ideal situation to score on the serve. It is in these cases that we also see that volleyball sometimes requires patience, as we can gain the upper hand over the opponent in several exchanges.

5. The qualities of a good setter

Being a setter requires many qualities, both technical, mental, and physical. If it's not the first player who makes an impression on the volleyball courts, you quickly realise that a good setter makes the difference in a match.

5.1 Technical precision

A setter must be able to make precise and consistent passes, whether they are forward, backward, or jump passes. This precision is crucial to allow the attackers to perform

effective actions. The ball touch must be perfect to avoid the referee calling "double touch."

5.2 Reading the game and making quick decisions

The ability to quickly analyse the game situation, assess the position of opposing counters, and choose the best-placed attacker is essential. A good passer must make decisions in a fraction of a second to destabilise the opposing defence.

Moreover, each attacker has their preferences in terms of pass height and speed. An effective passer knows how to adapt their passes to the individual needs of their attackers, so they can be even more effective on the attack.

5.3 Concealing one's intentions

To prevent opposing blockers from anticipating his passes, a good setter must be able to conceal his intentions until the last moment, making it difficult for the opposition to read his game.

When you see the opposing middle blocker not moving to the right side to form the block with their outside hitter, there's a good chance the setter has something to do with it.

5.4 Emotional stability and game rhythm management

Faced with pressure, a setter must remain calm and focused, avoiding emotional fluctuations that could affect their performance and that of the team.

A good setter knows when to speed up the game to surprise the opponent or slow it down to regain control, thus controlling the pace of the match.

5.5 Mobility and agility

A setter must be able to move quickly and efficiently on the court to reach difficult balls and ensure optimal game distribution. As soon as the reception is less good, the setter runs a lot to get into a passing position.

Moreover, depending on the ball trajectories, he very regularly has to manage the ball in strenuous postures to keep his torso well-oriented, in order to maintain perfect ball contact.

A good reception is a ball that allows the setter to make an extended pass, so we can

well imagine the number of jumps a setter has to make to distribute the game as well as to block the opponent.

6. The setter's gestures

6.1 The extension pass

As it mentioned earlier, a good reception is a high, lobbed ball that lands in the middle of the net, just above the white band of the net.

It allows the setter to have their shoulders perpendicular to the net, to distribute the ball forward or backward (with an arm + wrist movement), and even to make a first hand to score directly.

The extension pass also allows the setter to have the necessary energy to push the balls far enough to the wings.

A ball that is too short for a winger prevents them from attacking on the line and forces them to have a run that is visible to the opposing block.

6.2 The one-handed pass

Quite easy to guess, the one-handed pass is the same as the two-handed pass, but generally, it is performed in a slightly more extreme position where he has to reach a bit further for the ball.

Very difficult gesture to perform, it requires very good ball handling to maintain precision, without being whistled by the referee.

It's the spectacular move of the setter! When it is successful, the spectators are delighted to admire this pass.

6.3 The first hand

When the ball is high enough, the setter can choose to score alone without going through the attackers. Generally, either he accompanies the ball by pushing it downwards so that it descends faster to the ground, or he drops it with a small back pass, just behind the R4 who is blocking in front of him. The ball comes to rest on the ground, quite far from the other defenders.

There is also the possibility of pushing the ball into the opposite corner of the field if the entire team is advanced in defence.

6.4 The setter's announcements

To communicate his passing choices to the team, he uses gestures with his fingers, to discreetly show his teammates without the opponents seeing it.

Before the serve, it is not uncommon to see the setter pull on his jersey at the level of his stomach to mask his gesture. Otherwise, more classically, he makes the announcement behind his back.

Each team defines its exact gestures, but, in general, a certain logic is respected.

6.4 The short attack

To indicate to the middle blocker to come right in front of him in a quick attack, the setter points his index finger downwards, fist closed.

This announcement also serves the rear R4 so that he shifts slightly to the left during the pipe attack. This prevents landing on the front middle and shifts the attacker of the opposing block.

6.5 Piston or déca

To indicate to the middle blocker to shift laterally 3 meters from the setter, always in a fast attack tempo.

The setter makes an L with their index finger and thumb to show their combination.

This space between the setter and the middle blocker leaves room for a cross-court run for a wing attacker (see the following combination).

On this call, the R4 back, who is likely to attack in Pipe, stays in the heart of the court to also attack in the free space between the middle and the setter.

6.6 The cross

Depending on the position of the attacking players, there are several ways to make a cross. The cross means that the attackers make a cross run. This always involves a centre and a winger.

To communicate this combination, the setter crosses the index and middle fingers.

This crossed run often disrupts the opposing block. Each blocker must switch their opponent. If this is not seen quickly, large gaps open in the wall of the counter.

Fourth lecture:

3.The Spiker: the offensive asset of a volleyball team

The opposite hitter holds an important place within a volleyball team, combining power, strategy, and adaptability. Often decisive in crucial moments, this position requires not only exceptional physical abilities but also game intelligence and a team spirit. we explore the essential skills, responsibilities, and development opportunities that this unique role offers.

3.1 His role in offensive phases

Among the 24 different positions in volleyball, the opposite hitter is positioned on the right side of the net, in position 2. He must transform complex balls into scoring opportunities, even in the face of the opposing block that awaits him at the turn.

Even when he is in a back position, he is very often served by the setter to make an attack behind the 3-meter line, in position 1. The opposite hitter performs a large number of attacks behind the 3-meter line, and either sprays the back of the opposing court or explodes the hands of the block.

Being left-handed is an advantage for this position, as it allows for all possible attack angles (like a right-handed player in R4).

Offensive success is the key factor that determines whether a point player is of a good level.

3.2 His role during defensive phases

As with the middle blocker, modern volleyball has led this player to specialise in offensive phases. As a result, in the defensive phase, the opposite hitter is exempt from reception. He stays back, hidden behind the receivers (R4 + the libero).

On the other hand, in the game, he defends in position 1 when he is in the back. He is in an advanced position in base 1 to defend against the attack from the opposing middle. If the ball goes to the wing, he moves back on his line to defend the line attack or the "quéquette" (one of the common expressions in volleyball) placed just behind the block.

When he is on the front line, in front of the net, he has the heavy task of blocking the

R4 on the opposite side and possibly going to support the central block.

3.4 The Qualities of the spiker

Among all the positions we have on a volleyball team, the outside hitter is surely the most offensive of them. Whether he is positioned on the front line or the back line, he is the player most often served by the setter.

As we ask the R4 to be consistent in reception, a good outside hitter must be consistent in attack and make a minimum of direct errors and a maximum of points.

- Power in attack: The spiker must possess exceptional strength to attack and score points even in complex or high-pressure situations.
- Mental resilience: Called upon in critical moments, the point guard must demonstrate optimal concentration and great combativeness. There is a real power struggle between him and his opponent at the block.
- Agility and positioning: Excellent coordination to adjust one's movements according to game situations.

4. The libero, the boss of the defence in volleyball

The libero position brought about a revolution in the world of volleyball, changing not only the way the game is played but also the dynamics of the teams and the profile of the players.

Volley Balma Quint-Fonsegrives

By introducing a defence specialist, the International Volleyball Federation (FIVB) has managed to extend the rallies and offer a more captivating spectacle, particularly well-suited for television broadcasts.

This unique defensive role has highlighted the importance of reception and defence, making the libero a true pillar of the team.

4.1 Impact on other positions

The appearance of the libero also had a direct impact on the other positions, particularly that of the middle blocker. Previously, the middle blocker had to be versatile, capable of receiving and defending as much as attacking at the net. With the specialisation of the libero in defence, the middle blocker has transformed into an even more physical player, often taller and more powerful, focused on blocking and attacking at the net.

4.2 The role of the libero

The libero is a unique position that has become crucial in volleyball. Recognisable by his distinct jersey, he is the conductor of the team's defence, responsible for receiving the majority of the opposing serves and saving balls on defence. Unlike other players, the libero cannot attack at the net or block, which allows them to focus exclusively on the defensive aspects of the game.

He only plays in the backcourt positions. He regularly enters and exits the field, which is why he wears a jersey of a distinct colour, with colours strictly opposite to those of the rest of the team. Moreover, Libero comes from Italian and means "free."

4.3 Why was the libero position created?

The libero position was introduced in 1998 by the International Volleyball Federation (FIVB) with a specific goal: to make the game more dynamic and visually appealing, particularly for television broadcasts.

Before this reform, the exchanges were often brief (less than 3 seconds most of the time), as teams had few solutions to ensure reception against increasingly powerful serves and attacks. The authorities had even considered raising the height of the net to prolong the exchanges. Their choice leaned towards the creation of this new position.

By allowing a player to specialise defensively, the FIVB aimed to extend the rallies and offer a more captivating spectacle for the spectators.

The other objective induced by the creation of the libero position is that it gives smaller players opportunities to perform at a high level. In this sport, quickly,

physicality takes over, and we realise that it is rare to perform at a high level if you are less than 1.90 meters tall.

By specialising players in defence and reception, we promote qualities such as speed, agility, and reactivity. These qualities are predominant when you have a lower centre of gravity. It is easier to retrieve balls on the ground or change direction when the ball is deflected by a block or an uncontrolled defence.

By prohibiting the libero from attacking or blocking, the rules emphasise their defensive role and ensure greater stability in reception and defence phases.

The creation of this position has transformed the game by further valuing defensive skills and providing teams with an additional strategy to balance exchanges. Today, the libero is a key player in modern volleyball, bringing fluidity and allowing spectators to enjoy longer and more intense rallies.

4.4 The specific rules of the libero in volleyball

The libero is a player with a particular role and strict rules that govern their actions on the court.

According to the regulations, the libero must wear a jersey with colours opposite to the rest of the team.

- This player, recognisable by a differently coloured jersey, must adhere to some specific rules:

- Do not attack above the net,

- The libero never serves, they come in on the central, once it has lost the serve.

- The libero cannot come to the net to block or attempt to block an opponent. He constantly plays in the back position.

- He can't be the team captain, since there are times when he will be on the bench.

- His interventions are limited to reception and defence, and any pass he makes above the shoulders must be done behind the 3-meter line if it leads to an attack.

This change allows him to catch his breath on the bench while the team racks up points on the serves of the second centre.

Recently, it has become possible to have two liberos on the match sheet. Only one can

be on the court, but this rule change has led to specialisation even among liberos:

- A specialist for reception.
- A specialist for defence.

These restrictions allow for the maximisation of his defensive skills and ensure a clear distribution of roles within the team, thus promoting a harmonious and strategic collective game.

4.5 The qualities of a good libero

To excel as a libero, certain qualities are essential and go far beyond technique.

Reactivity is paramount: the libero must be able to react in a fraction of a second to intercept a serve or dive to save a difficult ball. But reactivity alone is not enough. This player must also demonstrate fine anticipation, capable of reading the opposing team's game to position themselves accurately and gain precious time for their teammates.

A good libero also possesses a well-developed game vision and a great capacity for observation, skills that allow them to guide the defence, support other positions, and strengthen defensive cohesion.

This position requires humility, as you must accept staying in the background so that the collective can shine. Being a libero means understanding that, even without scoring points, you actively contribute to the team's success by becoming a true force of support and cohesion.

Finally, patience and perseverance are essential, as this position requires staying focused and adapting to unforeseen situations.

By cultivating these qualities, the libero becomes a silent but decisive pillar, the one who protects the team and gives them the necessary confidence to attack safely.

4.6 The responsibilities of the libero on the court

His first responsibility is to secure the reception of the opposing serve, as a precise reception is the key to an effective attack. By taking charge of the most difficult balls, he allows the setter to prepare the best conditions for the attack. In this sense, the libero is the first link in the offensive, even if they don't directly touch the net.

In defence, the libero acts as a "safety net." He is the one who covers the backcourt,

anticipating the opposing attacks and positioning himself where others don't have time to go.

He constantly communicates with his teammates to alert them of threats and ensure that each zone is protected.

Sometimes, he needs to adjust his position according to the block strategy to strengthen the defensive coverage.

The libero is also responsible for the emotional balance of the defence. By staying calm and showing determination even in moments of pressure, he encourages the rest of the team to stay focused.

Through his positioning and interventions, he inspires confidence and embodies defensive discipline.

In short, the libero is not just a defender: they are the conductor of the defence, coordinating every movement so that the team is ready to counter every attack with precision and efficiency.

Fourth lecture

5.The middle blocker in volleyball: a spectacular position

In a volleyball team, each position has a very specific role in the different phases of the game. We can consider the middle blocker as the spearhead of the team. First defensive barrier when he blocks, he is also the first wave of the attack by launching into a fast break even before the setter touches the ball.

Being central is above all about combining power and reactivity. Whether it's to form an impenetrable block at the net or to surprise the opposing defence with a quick attack, the middle blocker is a key element of a team's tactics.

Yet, this crucial role sometimes remains in the shadow of more visible attackers or passers. They must combine power and responsiveness.

5.1 The role of the middle blocker on a volleyball court

For the past few years, with the emergence of the libero, the role of the middle blocker has become highly specialised in net phases. The libero indeed replaces the middle blocker when they are in the back position after losing the serve. Thus, in the vast majority of teams, this position is occupied by the tallest player on the roster.

The middle blockers have focused their specialisation on their impact at the net, neglecting reception, from which they are exempt. However, they remain involved in a few defensive balls when they are in position 1 and it is their turn to serve.

Once the point is recovered by the opposing team, they leave the court to make way for the libero in all the back defensive positions.

This short break allows them to recover during a few exchanges so they can come back more motivated and focused when the rotation brings them back to the front position, at post 4.

It is precisely there that the role of the central office becomes fully meaningful.

5.2 On the defensive phase

The middle blocker can chain several block jumps in the same sequence.

First jump: He jumps facing the opposing middle blocker, either to block a direct

attack from the opposing middle blocker, or because he followed the opposing middle blocker who was not served. He is forced to jump because if he doesn't, he won't be able to catch up, and the defence behind will be exposed to a quick attack that is difficult to defend. His great height allows him to intervene quickly, without always jumping at full power, ready to react if the ball is distributed elsewhere.

Second jump: As soon as his feet touch the ground, he must reposition himself on the wing to form a solid block with his teammate (winger, setter, or spiker). Together, they must cover a large area of the court. It is important that they stay close together, as the defence behind does not cover the space between the two players.

Pay attention to combinations: The middle blocker must also remain vigilant against opposing combinations, such as attacker crosses ("the cross") or a "pipe" attack from position 4, behind the 3-meter line.

5.3 On the Offensive Phase

The middle blocker systematically begins their approach to make themselves available near the setter, ready to attack in "quick attack" if the setter decides to serve them.

If that's not the case, he acts as a decoy, his role being to appear as credible as possible to attract the attention of the opposing blockers. An effective decoy often allows his wing teammates to face a reduced or even non-existent block, increasing their chances of scoring.

However, the offensive impact of the middle blocker directly depends on the quality of the team's reception. If the setter is struggling due to a poor reception, the middle will generally be less served in quick attacks. He loses credibility and the block in front will position itself well to close the wings.

5.4 The secondary responsibilities of the central

5.4.1 The central must also ensure certain specific tasks:

Relay pass: When the setter is unable to play the second ball (after a defence or when they are too far away), the middle blocker takes over, but only if the ball is located within the 3-meter zone. Beyond this zone, it is the libero who takes over the pass.

Reception of short balls: On the opponent's serves, if the ball hits the net and falls just

behind, the middle blocker must be ready to intervene quickly, as the receivers are often too far away to react.

5.5 The qualities of a good middle

When we examine the role of the middle blocker in a team, we immediately understand the physical demands of this position. He must jump intensively throughout the match. On average, a middle blocker performs two to three times more jumps than any other player on the team, as they jump every time the ball crosses the net, at least once per sequence.

The other players, on the other hand, jump less frequently since they often have time to assess whether the ball directly concerns them at the net or not.

To be an effective centre in a collective, several physical and mental qualities are essential:

Height: Being tall is an undeniable advantage for covering a large area at the net and blocking balls effectively. For the setter, it's also an advantage; it's easier to give them a good ball when they have a large wingspan.

Speed and endurance: A good middle blocker must react quickly and chain efforts relentlessly, despite the repetition of jumps.

Flexibility and explosiveness: A middle blocker must be able to string together explosive movements for their jumps while remaining flexible, which helps them change direction quickly and avoid injuries from the repetition of intense efforts.

Mentally, the centre must have a great capacity for adaptation. The game requires decisions to be made in a fraction of a second. A keen observation and a good understanding of the game allow him to anticipate the trajectory of the ball and be perfectly synchronised with the timing of the game.

In attack, power is another key asset. A quick and impactful attack can surprise the opposing defence, creating a time crisis for their receivers. Once again, observation plays a crucial role: the centre must analyse the opposing block to find the best attack solution while masking their intentions so as not to be read by their opponents.

Finally, the centre must demonstrate great patience. This position requires accepting

phases of the game where he is less involved. In attack, there may be periods when he is not served much, especially when the reception is imperfect. On defence, he often has to jump "into the void," without being directly involved in the action, to respond to the opponents' feints. Despite this, he must remain focused and ready to fully play his role as soon as an opportunity arises.

Constant concentration is also essential to stay involved in all phases of the game. The centre must evaluate the opposing actions, anticipate the next combinations, and adjust their efforts to always be in the right place at the right time.

The seventh axis: Detection Criteria in Volleyball

First lecture

Morphological, Physiological, and Physical Criteria

1. Introduction

Talent detection in volleyball refers to identifying athletes with the ideal combination of body structure, physical capacities, and physiological characteristics that predict future success in the sport.

"The identification of volleyball talent is a multidimensional process that includes morphological, physiological, physical, technical, and psychological factors." Palao, J. M., Manzanares, P., & Valadés, D. (2014). Journal of Human Kinetics.

Moreover, effective talent detection extends beyond initial assessments; it encompasses ongoing monitoring and development of the athletes identified as having potential. "Implementing a structured approach toward player evaluation allows for the adaptation of training programs suited to individual needs." Devenney, J., & Cummings, T. (2018). Journal of Sports Sciences.

Coaching staff plays a crucial role in nurturing identified talent through tailored training regimes that enhance both physical capabilities and tactical understanding. Recognizing the importance of psychological resilience and teamwork, coaches should also foster a supportive environment that encourages growth and fosters passion for the sport.

Furthermore, longitudinal studies have suggested that early exposure to competitive environments can significantly influence athlete progression, making it essential for sports organizations to provide opportunities for young talents to engage in meaningful competition.

These criteria ensure that players are suited to the demands of their playing positions (setter, libero, middle blocker, etc.) and can handle the high-intensity, intermittent nature of the game.

2. The criteria

2.1. Morphological Criteria (Body Structure and Composition)

Morphological criteria refer to the anthropometric and structural characteristics of the player's body that influence performance. Volleyball, as a net-based and jumping sport, highly values height, limb length, and lean body mass.

"Anthropometric characteristics, especially body height and arm span, are key predictors of performance in volleyball." Gabbett, T. J. & Georgieff, B. (2007). Journal of Strength and Conditioning Research.

1. Body Height (Stature)

Body height is universally recognized as one of the most discriminating markers in volleyball. Many authors emphasize its direct impact on actions performed above the net.

According to Sheppard et al. (2008), "stature is a major asset for performance, particularly in blocking and spiking phases, as it determines the initial action height."

Gabbett and Georgieff (2007) show that attackers and middle blockers are, on average, the tallest players among all team sports.

A greater stature facilitates:
✔attaining a higher total jump height,
✔more effective angle closure during blocking,
✔attacking from a higher contact point.

2. Wingspan and Segment Length

Wingspan (arm span) and the segment lengths of the upper and lower limbs are key biomechanical indicators.

According to Duncan et al. (2006), “wingspan is a more relevant predictor than height for net coverage and blocking performance.”

Carvajal et al. (2012) found that among international volleyball players, wingspan often exceeds body height by several centimeters, making it a common selection marker.

A large wingspan:
✔increases defensive coverage,
✔facilitates blocking,
✔improves stability in the air,
✔allows ball contact further from the trunk, optimizing spiking efficiency.

3. Body Mass and Body Composition

Body composition—particularly the distribution between lean mass and fat mass—directly influences the ability to execute repeated explosive actions and maintain efficient movement.

Malousaris et al. (2008) observed that “high-level female players present significantly lower fat mass percentages than amateur players, indicating a direct relationship with jumping ability and movement speed.”

Gualdi-Russo & Zaccagni (2001) highlight the importance of developed lean mass, which correlates positively with mechanical power in vertical jumps.

Optimized body composition allows:
✔higher vertical jump performance,

✔greater repetition of impulses,
✔reduced mechanical fatigue,
✔reduced risk of joint overload.

4. Body Proportions (Somatotype)

Somatotype—general distribution of body segments—plays a major role in biomechanical efficiency.

Reilly et al. (2000) indicate that mesomorphic profiles (well-developed musculature, low fat mass) dominate among high-level volleyball players.

Gualdi-Russo & Zaccagni (2001) add that "the mesomorphic somatotype, associated with elongated segments, is the most suitable profile for modern volleyball."

These proportions result in:
✔improved force transmission,
✔greater movement amplitude,
✔increased efficiency in spiking and serving.

5. Height-to-Reach Ratio and Reach Height

Reach height (standing reach + jump height) is a key indicator, more relevant than height alone.

According to Ziv & Lidor (2010), "reach height is a determining parameter for understanding performance differences between players of the same stature."

Players with greater reach have decisive advantages in net actions.

Reach height is a discriminating criterion for:
✔blocking (block reach),
✔attacking (attack reach),
✔aerial defense.

Key Morphological Indicators

Parameter	Ideal/Typical for Elite Players	Relevance
Height	1.85–2.10 m (men); 1.75–1.95 m (women)	Greater reach for blocking and spiking
Arm Span	Equal to or slightly greater than height	Improves net coverage and spike reach
Body Mass / Composition	Moderate muscle mass, low fat percentage	Optimizes power-to-weight ratio
Leg Length	Longer legs associated with higher jumps	Enhances jumping mechanics
Hand Length	Large hands improve ball control	Better grip and ball manipulation

Sheppard, J. M., Gabbett, T. J., & Stanganelli, L. considred that “Height could be considered the most important morphological attribute, particularly for front-row positions.” C. R. (2009). Journal of Strength and Conditioning Research.

Conclusion on morphological criteria

Morphological criteria are essential for understanding and evaluating volleyball performance. They influence not only physical capacities (power, jump height, stability) but also technical-tactical actions. Recent research confirms that the combination of height + wingspan + body composition + segment proportions represents the most favorable anthropometric profile for high-level performance. A detailed analysis of these factors remains crucial for talent identification, selection, and performance optimization.

Second lecture

2. Physiological Criteria

Performance in volleyball depends not only on morphological and physical factors but also on physiological parameters that determine the athlete's ability to produce, sustain, and repeat high-intensity efforts. Physiological criteria describe how the body's systems function during high-intensity volleyball performance. Volleyball combines anaerobic power (for explosive movements) with aerobic capacity (for recovery between rallies).

"Volleyball is characterized by short bouts of high-intensity activity interspersed with brief recovery periods, requiring both anaerobic and aerobic fitness." Marques, M. C. et al. (2009). Journal of Sports Science and Medicine.

1. Energy Systems Used

Volleyball consists of brief, explosive actions, generally lasting under five seconds.

Ziv & Lidor (2010) report that "nearly 80% of volleyball actions rely on the alactic anaerobic system due to the very high intensity."

Sheppard & Cronin (2008) confirm that ATP-PC systems are "critical for producing repeated high-power efforts."

The lactic anaerobic system is engaged during:
✔prolonged rallies,
✔intense defensive phases,
✔maintenance of power across sets.

The aerobic system, while not directly engaged in action, contributes to:
✔rapid recovery between efforts,

✔repeated sprint and jump ability,
✔metabolic stability throughout the match (Gissis et al., 2006).

2. Neuromuscular Capacities

Neuromuscular qualities are an essential pillar of performance.

Bosco et al. (1983) show that “the efficiency of the stretch–shortening cycle depends on optimized neuromuscular mechanisms determining jump explosiveness.”

Markovic & Mikulic (2010) note that motor unit recruitment speed strongly influences power and movement velocity.

Neuromuscular parameters include:
✔activation timing,
✔intermuscular synchronization,
✔motor neuron firing rates,
✔neuromotor transmission quality.

These capacities determine:
✔vertical jump performance,
✔hitting speed,
✔aerial stability.

3. Cardiorespiratory Responses

While volleyball is not an endurance sport, cardiorespiratory mechanisms play a crucial role in recovery.

Sheppard et al. (2008) show that elite players display moderate VO_2max values adapted to the intermittent nature of the sport.

Gabbett (2000) notes that “rapid cardiorespiratory recovery is a predictor of repeated high-intensity performance.”

These responses influence:

✔heart rate recovery,

✔energy availability between actions,

✔tactical decision-making in end-of-set situations.

4. Proprioception and Sensorimotor Mechanisms

Proprioception is essential in a sport requiring continuous postural regulation, especially during jumps, receptions, and defensive movements.

Paillard (2012) states that “motor performance in unstable environments depends on fine proprioceptive regulation integrating vestibular, visual, and somatosensory inputs.”

Expert players demonstrate superior postural adjustments, even in mid-air.

Key sensorimotor mechanisms include:

✔postural control,

✔dynamic balance,

✔kinesthetic perception,

✔ball contact precision.

5. Fatigue Tolerance and Metabolic Responses

Volleyball involves successive maximal efforts that can induce local muscular fatigue.

Gissis et al. (2006) show that elite players have better tolerance to H^+ accumulation and superior muscular buffering capacity.

Ziv & Lidor (2010) report that fatigue primarily affects:

– jump height,

– technical precision,

– movement velocity.

Metabolic responses include:

✔lactate clearance,

✔acid–base regulation,

✔phosphagen reserve management.

6. Endocrine Adaptations to Competitive Stress

Competition induces physiological stress modulated by hormonal responses.

According to Filaire et al. (2001), the balance between catabolic (cortisol) and anabolic (testosterone) hormones is a key marker of readiness and stress resilience.

Elite players show better hormonal regulation, linked to emotional stability and precise motor control.

These adaptations influence:

✔performance under pressure,

✔decision-making coherence at the end of sets,

✔physical and psychological resilience.

Key Physiological Indicators

Physiological Factor	**Ideal Level or Trait**	**Relevance to Volleyball**
Anaerobic Power	High	Supports explosive actions (spike, jump, serve)
Aerobic Capacity (VO_2max)	Moderate (45–55 $ml \cdot kg^{-1} \cdot min^{-1}$)	Enhances recovery between rallies
Muscle Fiber Composition	High proportion of Type II (fast-twitch) fibers	Enables quick and powerful contractions
Reaction Time	Fast (<0.3 sec)	Improves anticipation and defensive response

Physiological Factor	Ideal Level or Trait	Relevance to Volleyball
Neuromuscular Efficiency	High	Ensures rapid transmission of impulses for explosive motion
Fatigue Resistance	Strong	Maintains performance over multiple sets

- "Elite volleyball players possess high anaerobic power output and moderate aerobic fitness levels, both of which are essential for optimal performance." Ziv, G. & Lidor, R. (2010). Sports Medicine.

Conclusion on physiological criteria

Physiological criteria in volleyball revolve around three major domains:
– energy systems supporting repeated explosive actions;
– neuromuscular capacities enabling power expression;
– cardiorespiratory, proprioceptive, and metabolic responses allowing sustained performance.

Integrating these parameters into performance analysis helps better understand the true demands of the sport and guides physical preparation toward scientifically grounded objectives.

Third lecture

3. Physical Criteria

Volleyball is an intermittent, high-intensity discipline characterized by alternating impulse actions, explosive movements, and rapid displacements. The physical criteria underlying performance are a coherent set of fundamental motor capacities including power, speed, agility, maximal strength, and anaerobic endurance. Scientific analysis of these parameters helps explain determinants of individual and collective performance. Physical criteria include measurable motor and performance abilities that reflect strength, speed, agility, endurance, and coordination — all essential for executing volleyball skills.

“Physical fitness components such as strength, power, speed, and agility are critical determinants of success in volleyball.” Gabbett, T. J. (2008). Sports Medicine.

1. Muscular Power and Explosiveness

Muscular power, especially in the lower limbs, is one of the strongest predictors of volleyball performance.

According to Newton & Dugan (2002), “vertical jump height is a fundamental indicator of explosiveness, directly influencing attack height and blocking efficiency.”

Sheppard & Cronin (2008) demonstrate that plyometric training develops “the capacity to generate high forces in extremely short time frames, essential for repeated jump actions.”

Such actions rely on the stretch–shortening cycle, a key mechanism in muscular explosiveness (Bosco et al., 1983).

Direct impact on performance:
✔jumping height (spike jump, block jump),

✔hitting velocity,
✔repetition of impulses.

2. Speed of Execution

Speed, understood as the ability to move quickly over short distances, is crucial in a sport where most actions last only seconds.

Gabbett & Georgieff (2007) report that elite players display superior lateral and diagonal speed for court coverage.

According to Marks et al. (2016), “reaction speed and anticipation determine a player’s ability to respond effectively to fast and unpredictable trajectories.”

This dimension includes:
✔movement speed,
✔limb movement speed,
✔reaction speed (visual and kinesthetic stimuli).

3. Agility and Change of Direction

Agility is the ability to rapidly modify direction and movement speed in response to external stimuli.

Markovic & Mikulic (2010) state that “volleyball-specific agility relies on neuromuscular, proprioceptive, and cognitive factors.”

Sheppard & Young (2006) emphasize reactive agility, especially critical in defensive and reception scenarios.

Agility is crucial for:
✔adjusting positioning during reception,
✔intervening during fast offensive sequences,
✔maintaining dynamic balance during complex actions.

4. Maximal Strength

Although maximal strength is not the ultimate goal in volleyball, it provides a fundamental base for optimal power expression and long-term injury prevention.

Baechle & Earle (2008) state that “maximal strength in the trunk and upper limbs is critical for stabilizing movements, generating power, and protecting the locomotor system.”

According to Suchomel et al. (2016), high strength levels enhance biomechanical efficiency during vertical impulses.

Optimal strength ensures:
✔postural stability,
✔striking power (serve, spike),
✔injury prevention (shoulders, knees).

5. Anaerobic Endurance and Repeated Effort Ability

Volleyball consists of repeated explosive efforts with very short recovery periods. The capacity to repeat these efforts depends on anaerobic systems.

Gissis et al. (2006) show that “elite volleyball players exhibit increased tolerance to lactate accumulation, allowing them to maintain intensity throughout a match.”

Ziv & Lidor (2010) emphasize that nearly 80% of volleyball actions last less than 5 seconds, relying mainly on the alactic anaerobic system.

This endurance influences:
✔maintenance of jump power,
✔execution speed over sets,
✔ability to sustain efficient technical posture.

6. Coordination and Neuromotor Qualities

Inter- and intramuscular coordination plays a major role in movement precision.

Schmidt & Lee (2011) state that “motor control in volleyball relies on a complex integration of sensory information and neuromuscular responses.”

Coordination influences:

✔passing precision,

✔reception quality,

✔fluidity and timing in attacking.

These qualities include:

✔segmental coordination,

✔limb synchronization,

✔postural regulation.

Key Physical Qualities

Physical Quality	**Importance in Volleyball**	**Testing/Indicators**
Explosive Power	Determines jump height and hitting force	Vertical jump, standing long jump
Speed and Agility	Rapid movement and directional changes	T-test, 10 m sprint, agility ladder
Strength	Foundation for power and stability	1RM squat, bench press
Endurance	Sustains energy through long rallies	Shuttle run, Yo-Yo test
Flexibility	Prevents injuries, allows full ROM	Sit-and-reach test
Coordination	Technical efficiency and precision	Ball-handling drills, reaction tests

“Muscular strength and power are the most important factors contributing to successful performance during elite competitions.”

Sheppard, J. M. & Newton, R. U. (2009). Journal of Strength and Conditioning Research.

Conclusion on physical criteria

Physical criteria in volleyball form a comprehensive set of capacities whose synergy drives performance. Muscular power, speed, agility, maximal strength, and anaerobic endurance create a functional architecture essential to executing sport-specific technical actions. Contemporary research shows that high performance depends on integrating and optimizing these parameters through targeted, scientifically guided training.

5. Position-Specific Detection

Different positions in volleyball emphasize different morphological and physical traits:

Position	**Key Morphological/Physical Features**
Middle Blocker	Very tall, long reach, high jump, strong legs
Outside Hitter	Tall, explosive, good endurance
Setter	Moderate height, excellent coordination and agility
Libero	Shorter, fast, highly agile, excellent reaction time
Opposite Hitter	Strong upper body, powerful jump, tall

"Playing position strongly influences the anthropometric and performance profile of volleyball athletes." Papadopoulou, S. D. et al. (2021). International Journal of Environmental Research and Public Health.

- **Summary Table**

Criterion Type	**Key Indicators**	**Purpose in Volleyball**
Morphological	Height, arm span, leg length, body composition	Determines physical suitability and position role

Criterion Type	Key Indicators	Purpose in Volleyball
Physiological	Anaerobic power, VO_2max, reaction time, muscle type	Supports energy production and quick responses
Physical	Power, agility, endurance, flexibility, coordination	Enhances skill execution and overall performance

Conclusion

Effective talent detection in volleyball combines morphological, physiological, and physical assessments. Ideal players are tall, lean, and explosive, with excellent reaction speed, aerobic recovery, and coordinative control. Identifying these traits early allows coaches to guide athletes toward positions and training that maximize their potential.

"An integrated evaluation of morphological, physiological, and physical parameters provides the most reliable approach to volleyball talent identification." Pion, J. et al. (2015). Journal of Sports Sciences.

The eighth axis: Criteria of selection in volleyball

First lecture

The Sports Selection

(Weineck, 1997) mentioned that sports selection is the decision relating to the training and at the entry into competition of an athlete, in a certain discipline at a given moment. The determination of the aptitudes and the selection make a whole. (Hoffeman and Shreider, 1985) state that the selection is appropriate to recruit boys and girls which are distinguished by a level of performance, or a level in the different performance factors specific to their discipline (discipline requirements profile).

The increasingly dominant criterion of this period is the competitive performance,since it reflects the personality as a whole and replaces the individual results within a framework of specific requirements. In this case it can be considered that the selection is a long-term operation that contains an evaluative follow-up. This is confirmed by (Weineck, 1997) that the objective of the assessment of abilities must be set at this moment to analyze the process of evolution of the young athlete in the determining factors of the performance on which the training is focused and to draw the conclusions that are required for the degree of aptitude.

In volleyball the coach, before accessing the selection operation must have an approach based on the aptitude requirement of the discipline and the objectives to be achieved, while objective the goal of the plot is to achieve a result or a performance.

1. Morphological (anthropometric) criteria

Anthropometry :

Anthropometry is used to evaluate and predict the performance, the changes in body dimensions testify to health and well-being in general of individuals and populations, it makes it possible to measure the different segments longitudinal and transverse of the human body, as well as the perimeters and skin folds. Anthropometry is a widely used, inexpensive and non-invasive measure of the state body in general of a person or a group of the population

The size, the span and the relaxation are among the first indicators used in detection.

- High size, especially for front-line players (central, sharp, receiver-striker).
- Large arm span (advantage for the block and the attack).
- Important jump height (spike jump and block jump).

"High-level volleyball players usually have a height and a wingspan above average, constituting a major criterion for early selection. » (Ziv & Lidor, 2010, Journal of Strength and Conditioning Research)

"The vertical jump height is a discriminating factor between performance levels and is a key element for talent detection. » (Sheppard et al., 2008, Journal of Australian Strength & Conditioning)

2. Physical criteria

Physical qualities directly influence technical and tactical effectiveness.

- Explosiveness (lower limbs)
- Strength (upper limbs and trunk)
- Speed and agility
- Flexibility (shoulders, spine, hips)

"Lower limb power and explosiveness are strongly correlated with attack and block performance. » (Sattler et al., 2012, International Journal of Sports Medicine)

"The qualities of speed and agility condition the ability to defend, move and react quickly, constituting a fundamental criterion for defensive positions. » (Gabbett & Georgieff, 2007, Journal of Strength and Conditioning Research)

3. Physiological criteria

Volleyball is a sport of repeated, explosive and intermittent efforts.

- Anaerobic power
- Intermittent specific endurance
- Reaction time
- Neuromuscular coordination

"Performance in volleyball largely depends on the ability to repeat high-intensity anaerobic efforts. » (Sheppard & Gabbett, 2009, Strength and Conditioning Journal)

"Neuromuscular abilities, in particular coordination and reaction speed, play a decisive role in technical performance. » (Forthomme et al., 2005, Journal of Sports Science)

4. Technical criteria

A selected player must master the fundamental gestures.

- Accuracy in reception and cuff
- Quality of the pass
- Efficiency in attack and block
- Coordination of gesture

"The quality of the technical fundamentals is one of the best predictors of the level of play among young volleyball players. » (Palao et al., 2014, International Journal of Performance Analysis in Sport)

"The mastery of the service, the reception and the attack constitutes a set of central skills in the evaluation of the players. » (Eom & Schutz, 1992, Research Quarterly for Exercise and Sport)

5. Tactical criteria

They determine the player's ability to understand and anticipate the game.

- Playing the game
- Information intake
- Anticipation
- Investment
- Tactical adaptation in a match

"Tactical intelligence, including game reading and anticipation, often differentiates elite players from intermediate-level players. » (Grgantov et al., 2013, Kinesiology)

6. Psychological criteria

Essential for performance and progression.

- Motivation
- Stress management
- Concentration
- Discipline
- Team spirit
- Resilience

"Psychological attributes such as motivation, perseverance and emotional management are essential in the selection processes in volleyball. » (Hodge & Smith, 2014, Sports Psychology Review

The ninth axis: Training

First lecture

1 The principles of sports training

In the complex process of sports training, certain laws prevail in the form of principles. These form a set of rules which, in training, determine the choice of content, means and methods.

The principles of training are:

1.5.1 Focus on maximum performance

The objective of volleyball training is to achieve high results, which involves considering several factors, including motivation to practise and the importance of the performance goals to be achieved.

1.5.2 Continuity of the training process

This can only be achieved if the effects of the training sessions are planned in such a way that each session builds on the effects of the previous one. The same applies to the construction of microcycles, mesocycles and macrocycles.

1.5.3 The cyclical nature of the training process

This represents the systematic repetition of the structural units of the training process (session, microcycle, mesocycle, stages, period and macrocycle). (session, microcycle, mesocycle, stages, period and macrocycle).

1.5.4 The variability of load dynamics

This refers to the judicious alternation and succession of training loads, the influence of which must be different. This principle is particularly important for training units in which several performance components are targeted.

1.5.5 The unity of general and special preparation

The quality of volleyball players' preparation depends on the state of development of their functional abilities. Although specialisation without general preparation can promote improved sporting results, these results will not be stable because they are not built on a logical foundation. For this reason, it is advisable to approach the preparation of volleyball players rationally in relation to the natural development of the body, which requires adaptation before any projections can be made about future development.

1.5.6 Individualisation in the training process

This principle requires that the preparation of volleyball players take into account their individual potential, which may vary.

1.6 Additional factors in training effectiveness

The effectiveness of training depends not only on the methods used, but also on the entire environment in which the athlete evolves. Within this environment, we can distinguish factors that concern the athlete's level of education and living conditions, the quality of the scientific and medical monitoring of their training, and finally the organisation of sporting activities in their country.

All this to say that in order to achieve good performance, it is necessary to plan sports training wisely, but also to pay close attention to other factors that can be decisive, especially at the highest level.

Second lecture

1.7 Load and its components

1.7.1 Definition of load

Load is the physical and nervous effort exerted by the body and caused by motor stimuli aimed at developing or maintaining the state of training (Harre, 1982). Physical load is a measure that characterises the influence of physical exercise on

the body. According to Matveiev (1983), the term training load refers to anincreased functional activity of the body (compared to a resting level or the initial environment) induced by training exercises and depending on their degree of difficulty. The nature of the loads is defined by the fact that they are training or competition loads of specific and non-specific loads.

This nature is also defined by the context in which it occurs: load related to the exercise, the training day, the cycle (micro, meso, macrocycle) or the training year.

According to Platonov (1984), the magnitude of training loads depends on the degree of stress they produce (low, moderate, or high). This degree of stress can be assessed through two types of indicators:

External indicators: These represent the quantitative characteristics of the work to be done, such as the number of training exercises, the speed, and the rhythm of movements, etc.

Internal indicators: These represent the qualitative characteristics; they describe the magnitude and nature of physiological, biomechanical, biochemical, and psychological changes (e.g., increase in heart rate).

We speak of a training load when the level of effort in an exercise is high enough to produce a training effect. Both internal and external indicators allow for the evaluation and control of the training load. These two types of indicators are therefore complementary.

1.7.2 Components of the Training Load

1.7.2.1 Volume

The volume of a training load refers to the duration of its effect and the total amount of work performed during an exercise or a series of exercises. The term “work” here is understood in a physical, mechanical, and also psychological sense (Matveiev, 1983).

The training volume varies according to:

The frequency of stimulations (number of repetitions, sets, or training sessions per cycle

The duration of stimulations (one or several repetitions, one or several sessions, or even years)

1.7.2.2 Intensity

The intensity of the load is related to the amount of work performed and the functional intensity involved, considering the impact of the load at each moment of the exercise or over a given time unit (covering a certain number of exercises). According to Matveiev (1983), it results from:

Intensity of Stimulations (work performed per unit of time)

Density of stimulations: the effective working time and duration of the session, as well as the work/rest ratio.

There are two indices of work intensity:

Internal index: determined by the degree of stress placed on the various functional systems.

External index: determined by the amount of energy released per unit of time.

The nature of the training impact is largely determined by the intensity of the work. It is the intensity that dictates the preferential engagement of aerobic processes in energy release, as well as the activation of anaerobic functional systems associated with them. It is also the intensity of work that determines the conditions under which sporting technique is developed.

Volume and intensity can only be increased simultaneously within certain limits, beyond which any increase in intensity results in a decrease in volume, and vice versa. Hence, it is essential to consider both factors and their correlation, according to Matveiev (1983), Platonov (1984), and Cardinal (1987).

Tableau : Training Load in Volleyball (Volume and Intensity) (Cardinal, 1987)

Sets	Day 1			Day 2		
	Repetition	Load (kg)	VL (kg)	Repetition	Load (kg)	VL (kg)
1	5	60	300	5	60	300
2	5	100	500	5	120	600
3	5	140	700	5	160	800
4–6	15	160	2400	15	180	2700
6[a]	30[a]	130[b]	3900[a]	30[a]	147[b]	4400 [a]

Notes: Day 1: 3 × 10 repetitions (target load); Day 2: 3 × 5 repetitions (target load).

[a] Total values.

[b] Mean values.

1.7.3 The Nature of the Load

The nature of the load is defined by whether it consists of training loads or competition loads, and whether it is specific or non-specific. It is also defined by the context in

which it occurs: a load related to a single exercise, a training day, or a cycle (microcycle, mesocycle, or macrocycle) — or even the entire training year.

The specificity of a load is defined by the similarity of the exercises it includes with those of competitive activity. This similarity is established on the basis of the external indicators of competitive activity (Platonov, 1984).

Third lecture

1. Principles of Training Load

1.1 Principle of Progressive and Continuous Load

Training load must be increased gradually and progressively.
To increase training volume, it is sufficient to:

- increase the number of sessions per week,
- extend the athlete's active time during exercises or session duration,
- or increase the number of actions performed during the session.

Training intensity is increased by heightening the physical and psychological effort required to complete the training task.

During technical and tactical training, intensity is increased only after the athlete has achieved a certain mastery of motor skills (M.S.).
At first, emphasis is placed on precise, technically correct motor performance before progressing to greater execution speed or higher difficulty and complexity of exercises.

The coach can also reduce rest intervals between repetitions, sets, and exercises.
This method is especially used during the competition period to develop volleyball-specific endurance.

The rate of performance development is closely related to a well-structured training load distributed throughout the year — and over several years.
This principle requires athletes to train year-round without prolonged breaks, to maintain a high workload, and to limit the transition period to a maximum of one month in order to avoid regression of adaptations, thus ensuring continuous athletic development.

1.2 Principle of Individualized and Optimal Load

Adaptation to a high training load — physically and psychologically — varies from athlete to athlete.
Several factors influence load capacity, including age, sex, body composition, nervous system, health status, previous training background, and personal/professional obligations.
Likewise, recovery time differs for each athlete.

The coach must therefore identify each player's individual load capacity, appropriate load rhythm, and personal work-recovery ratio.

In volleyball, it is normal for some athletes to repeat an exercise more often, spend more time on a specific task, or perform additional exercises depending on their playing position.
Players who are heavily involved during a tournament should receive a long enough rest period to recover fully, whereas substitute players can handle additional training loads between matches, immediately after a game, or the following day.

In addition to being individualized, the training load must be optimized.
The athlete should regularly handle an optimal load to push the limits of performance capacity.
If the athlete rarely or never reaches this optimal level, functional improvement will not occur.
Maintaining optimal effort also helps develop willpower and the ability to mobilize physical and mental reserves when fatigue sets in.

1.3 Principle of Load–Rest Alternation

After an intense stimulus during a training session, or following several days of high training load, the body requires a recovery period.
There is a direct relationship between the intensity and duration of a stimulus and the length of recovery.

The more intense and prolonged the training load, the more complete the recovery must be.

“Experiments in sports practice, based on athletes’ performance and training behavior, show that complete regeneration after high loads characterized by glycogen depletion probably occurs between 24 and 48 hours after training.”
— Harre (1986)

Some training tasks, however, require more than 48 hours for full recovery.

Can athletes train every day? How can load-rest coordination be managed when athletes train daily — or even twice a day?

Martin (1989) suggests using the fatigue–regeneration process as a guide for microcycle planning.
To organize this process, he proposes the following working hypothesis:

“We can assume that regeneration can occur in parallel with training loads, without interference, if the microcycle includes loads that are: of different magnitudes, with different objectives, and differently localized.”

1.4 Principle of Load Determined by the Training Task

It is the training task that determines the structure of the load, not the other way around. If the task involves motor skill acquisition, the volume will be high and intensity will range from low to moderate.
Conversely, if the task aims to stabilize motor skills (M.S.), the volume will be moderate, while intensity will increase to approach competitive demands.

Thus, since the training focus differs from session to session, the magnitude of the load will also vary accordingly.

According to Matveiev (1983), the adaptation of the organism to the training effect and the consolidation of adaptations are facilitated by load fluctuations within the microcycle.

1.5 Principle of Periodized Load

According to Matveiev (1983), optimal sport form cannot be maintained indefinitely. Within an annual training and competition cycle, sport form goes through three phases:

- Acquisition,
- Retention (relative stabilization), and
- Temporary decline.

Therefore, the preparatory period should be followed by a competition period and a transition period, forming a coherent training cycle that extends throughout the year or is repeated twice annually.

Longer periods are divided into stages, and each period and stage has a specific goal within systematic performance preparation, from which the training tasks, means, and load structure are derived (Harre, 1982).

According to Weineck (1993), this alternation of load types allows athletes to avoid overtraining while still achieving performance peaks that would not be possible under a constant high load over a long period.

Fourth lecture

VI.2 General characteristics of training

The concept of training is commonly used in a wide variety of fields and most often refers to a process that aims to achieve a certain level of physical fitness depending on the objectives set.

A more precise definition of sports training is provided by Matveiev (1983), who understands it to mean everything that involves the physical, technical, tactical, intellectual and moral preparation of the athlete through physical exercise. This definition implies gradual development and improvement, and does not differentiate between training for learning or leisure, which also aims at gradual improvement in performance but does not have the same long-term objectives as high-level training.

According to Platonov (1984), sports training includes all the tasks that ensure good health, education, harmonious physical development, technical and tactical mastery, and a level of development of specific qualities with a view to sports practice.

As for Carl (1989), cited by Weineck (1997), he proposes defining sports training as a complex action that has a systematic effect on the level of athletic performance and the capacity for optimal performance in test and competition situations. CAZORLA. (1990) sees it as the only way for an athlete to achieve the desired level of performance based on their genetic potential.

Preparation for sporting performance is a complex process involving sports training and all the conditions in which the athlete evolves. Thus, during the competitive period, training is a real reproduction of the conditions of the official event, and therefore consists of the most comprehensive and synthetic exercises drawn from the competition, which have the most effective impact on athletic form, hence the importance of the volume of work during the competition.

At a certain level, training must continually meet the demands of competitive activity, drawing on more in-depth scientific research. In recent years, we have seen:

-A very significant increase in the overall quality of work done in training.

-An optimal balance between different training methods, particularly between

-An optimal balance between different training methods, particularly between continuous and interval methods, with an intensity close to 90% of peak performance on the one hand, and competitive efforts on the other.

-Training that aims to support increasingly significant efforts by focusing on the effort phases and less on the recovery phases.

-Training that is very close to the competitive situation, therefore specific and planned according to the most important event of the year

-A monitoring system to check the functional status of the athlete or team

-A very high level of motivation, essential for achieving a high level (Stoikov. 1979) cited by (Bayer. 1985).

Through this set of definitions, we can say that training is a process that aims to achieve sporting performance through means specific to a sporting discipline, namely exercises in various forms of technical, tactical and physical preparation, while taking into account the biological effects induced by these means of preparation so that the training load can match that of the performance

1.3.2 Characteristics of volleyball training

In volleyball, competition is an important benchmark; achieving high performance equates to victories against different opponents. To do this, it is necessary to focus on the training process: choosing the most effective means and methods, increasing specialisation according to roles in the game, etc. In order to carry out the training

process for volleyball players, it is important to take into account the age and level of preparation of the players, to put in place the means and methods for developing physical qualities, learning rational technical processes and improving playing habits, taking into account the individual abilities individual and team functions, the structure and dynamics of workloads in annual and weekly cycles, as well as in individual sessions.

The objective of training is to enable volleyball players to respond optimally to contemporary sport, i.e. to move closer to international models (both individual and collective models). According to the same author, any training process is characterised by three main stages: programming, implementation and monitoring. One of the important factors that must be taken into account in programming is the determination of the different components of training, taking into account competitive characteristics. This is why coaches must have knowledge and experience in research, know how to observe events, analyse, assess accumulated experience and build the training study process on a scientific basis, as approved by several authors. According to Popescou. (1980), cited by Cardinal (1986), the coach must ensure that the profile of actions performed by the player during the session resembles or exceeds what is required during a regulation match.

This repertoire encompasses the sequence and frequency of technical movements and tactical actions, as well as the specific characteristics of physical effort and nervous stimulation. It is necessary for the player's body to be able to make the sudden transition from relative rest to optimal intensity effort and vice versa, several times throughout the match, without negative consequences.

With this in mind, Kouvchinicouv. (1988), cited by Cardinal. (1993), emphasises that the formulation of tasks and the determination of training content are dependent on the structure of competitive activity and the factors that determine its effectiveness. For the latter, it is first necessary to select technical and tactical actions and apply them effectively, taking into account the game situations.

It is very important to establish the quantitative correspondence between the volume achieved by the volleyball player during training and competitions. Each volleyball player must perform more technical procedures during training than during the match. This is to ensure greater stability in the execution of technical movements. In this regard, here are the standards given by (Kouvtchinicouv. 1988 cited by Cardinal. 1986) (old rules).

Smash 2 to 3 times more in training than in competition.

Block 2 to 3 times more in training than in competition.

Pass 7 to 8 times more in training than in competition.

Receive 5 to 6 times more in training than in competition.

Defend 5 to 6 times more in training than in competition.

Serve 8 to 10 times more in training than in competition.

All the actions indicated must be performed during training in the same way as during the match in terms of intensity and accuracy of rhythm. The number of repetitions of the procedures in training depends on the player's role in the game and the team.

Similarly, Kouvtchinikouv (1988), cited by Cardinal (1986), recommends performing three to four times more technical procedures during training than during matches. To this end, he recommends targeted training based on one or two procedures.

Fifth lecture

1.4 Sports training methods

The particular importance of characterising methods for developing motor skills depends on knowledge of the components of the load (volume, intensity, number of repetitions of exercises) as well as the duration and nature of breaks. The importance of a particular method depends above all on the means chosen to regulate each parameter of the load and rest. They represent the structural components of the training system.

In practice, there are several methods, the rational application of which enables high performance to be achieved, and the choice of which depends on the objective to be achieved. The main methods used in training are as follows:

- Continuous method
- Repetitive method
- Variable method
- Circuit training method
- Game method
- Competitive method
- Interval training method.

1.4 Continuous effort method (regular)

This method is characterised by continuous, long-term exercise performed at a low to moderate intensity that remains constant and regular, with no variation in pace, cadence or range of motion.

- Medium-intensity effort: the oxygen debt incurred has no influence on the continuation of the effort, which is performed aerobically, with a heart rate varying between 130 and 150 bpm.

The objectives of this method:

Development of general endurance, strength endurance, increased rationality of movements, education of volitional qualities. The regular method is used mainly in cyclic sports (running, swimming, rowing, etc.), with the intensity of the exercises varying between moderate and average. Depending on the nature of the physical exercises and the level of physical preparation, the heart rate of participants varies between 130 and 170 bpm.

The regular method is also used in non-cyclical sports (sports games, gymnastics, boxing, wrestling), in which case it consists of repeating motor actions, with the same or different structures, without rest intervals between repetitions.

Its advantage is that it facilitates the balance between consumption and needs and improves coordination between motor functions and respiratory organ functions.

It allows the athlete to focus their attention on assimilating and perfecting technical elements. Long-term work promotes and influences the cardiovascular and respiratory functions of the body; it also acts on the athlete's volitional abilities.

It allows for easy dosage of loads, and working with low intensities allows for rapid progression of volume to its maximum level and then maintenance of that level.

The disadvantage of this method is that the body adapts quickly, which reduces the effect of the training. It is mainly used for training beginners and is often used as a means of recovery and preparation for injured athletes. It is mainly used at the beginning of the preparatory period.

1.4.2 The repetitive method

This method is characterised by the repetition of the same exercise after a complete rest interval of working capacity. With this method, the intensity of the work is either maximum or submaximal, for a short, medium or long duration of exercise. The

number of repetitions or sets depends on the stability of the speed or the task to be performed.

This method is used to develop strength, speed strength and coordination skills.

1.4.3 The variable method

This method is used to improve mixed mechanisms involving the aerobic and anaerobic systems, where the heart rate varies between 150 and 180 beats per minute, with an oxygen debt estimated at between 12 and 15 litres for a small accumulation of lactic acid. This method can be used both in the preparatory period and in the competitive period and is characterised by variations in the rhythm used and the cadence of the movement.

The advantage of this method is that it avoids monotony in the work; changes in speed and effort in the exercises allow for the improvement of motor skills and movement technique. However, the disadvantage of this method is its imprecision, as the load parameters (distance, duration, speed, etc.) are planned approximately.

1.4.4 Circuit training method

This is a very interesting method for developing specific endurance.

It is used in two ways:

- without performing specific technical movements

- alternating between exercises designed to develop strength and endurance and technical exercises.

It is also used for technical and tactical improvement. It is above all a methodical system of work based on different types of methods. It represents a successive execution of specially chosen exercises, with precise indication of the number of exercises, the time taken to complete them, the rest intervals between different types of

exercises, the number of sets, and the rest intervals between sets. The load can be modified by changing one of the above elements. The athlete moves from one task to another, from one piece of equipment to another, from one workshop to another, which is why this type of training is called circuit training.

Circuit training is characterised by certain methodological features:

- Methodical development of physical qualities

- Strict control of loads and recovery

- Strict evaluation of the work performed

- The possibility of working only with well-assimilated exercises

- There are several varieties of circuit training

- Work according to the continuous method

Circuit training also has the particularity of being assimilated to all other methods.

In fact, circuit training can be repetitive, interval training, etc., depending on the method with which it is associated, and it develops the corresponding physical qualities.

1.4.5 The game method

This is based on developing mental and physical qualities through games that are not

necessarily related to sports such as volleyball. The characteristic features of this method are:

1) The subject (the intention, the game plan)

2) Different possibilities for achieving the objective

3) Integrity in the development of physical qualities

4) The development of initiative among practitioners,

5) High emotionality,

6) Interdependence in actions,

The game method is used to develop speed, strength, dexterity, endurance, courage, determination, initiative, tactical thinking, assimilation and improvement of motor habits and skills.

The shortcomings of this method are random programming of actions and limited possibilities in the dosage of effort.

1.4.6 The competitive method

It allows the acquisition of competitive experience and an understanding of its difficulties in developing and perfecting individual and collective tactical behaviour, as it promotes the education of a sense of game analysis.

In addition, it also allows for the development and improvement of physical, moral and volitional qualities, as well as the players' motor skills and habits, and the ability

to perform them in complex conditions.

It is characterised by the performance of work in conditions that are similar to those of competition. Such an environment promotes the influence of physical exercises on the body and contributes to the maximum manifestation of the functional possibilities of the body.

From a physiological point of view, the exercises can be anaerobic with maximum or submaximal intensity (heart rate over 180 bpm) or mixed and even aerobic.

The competition method can be used in basic forms, for example, to achieve the best results in certain technical elements during training, but also in the form of training and friendly competitions to prepare players for official competitions.

The competition method develops only the endurance capacity specific to the discipline. It allows players to gain competition experience, improve their tactics and study their opponents' tactics. In this method, competitions are used as training content.

It is the most complex method because it develops the special skills appropriate to the discipline in question. Performance achievement and its irrational use can have negative repercussions on the behaviour of volleyball players (selfishness, disinterest, aggression, etc.). In addition to these methods, which are widely used in volleyball, there are others that are just as important to know about.

1.4.7 Interval training method

This is very similar to the repetitive method. Both methods are characterised by multiple repetitions after specific recovery intervals. In the repetitive method, the impact on the body is determined exclusively by the exercise (the duration and intensity of the effort).

In interval training, the recovery intervals also have a significant impact.

This method is currently widely used in sports training This method is currently widely used in sports training and in most sports (running, rowing, team sports, etc.).

Interval training is the best way to get a person into good physical condition. (Fox and Mathews. 1984).

Physiologists have observed a significant improvement in performance for training at intensities close to VO2max (i.e. PMA or associated VMA). The challenge for coaches has therefore been to enable their athletes to train for as long as possible at a rate close to VO2max during a session and thus increase the volume of high-intensity work. By

using interval training, coaches are able to get their athletes to work at high intensities (close to VO2max) for much longer periods of time, while generating much lower levels of fatigue. This is due to the recovery phases between intervals, which limit fatigue while keeping the body at high levels of exertion. (Billat. 2000, Dufour.2011, Millet and Guillaume. 2005, Wilmore and Costill. (2009).

As its name suggests, in interval training, exercise is interspersed withrecovery periods. These periods usually consist of light exercise (active rest). Interval training is a series of exercise segments alternating with periods of rest. A rest period usually consists of moderate exercise.

The interval training programme prevents the accumulation of fatigue-related products associated with alternating blood pressure and cardiac work.

The key to the success of this method is the use of the appropriate exercise intensity, followed by a rest interval, which prevents the accumulation of waste products, thus allowing for more intensive exercise sequences without the added pain caused by fatigue.

This method consists of ensuring that the intensity of the effort during the repetitions of the exercise is measured in such a way that at the end of the workout, the heart rate does not exceed 160 to 180 beats per minute, since the duration of the effort is not prolonged. Oxygen consumption does not reach its maximum at the start of recovery. Despite the decrease in heart rate, oxygen consumption during the first 30 seconds rises and reaches its maximum, so the influence of training is mainly felt during the rest interval. The exercise is repeated as soon as the heart rate reaches 120-140 beats per minute, in other words, recovery is incomplete.

Interval training has several variations involving different combinations of training methods (duration, intensity, number of repetitions, etc.), although the physiological mechanism of all these variations is the same. We therefore refer to interval training in

anaerobic and aerobic regimes. On this subject, Fox and Mathews (1983) propose a procedure for developing interval training programmes based on training times.

This method allows the loads to be measured precisely. Its use saves time in organising training because the density of effort is high and endurance is quickly improved. Its shortcoming remains the monotonous alternation of loads, which has a negative influence on the athlete's mental state. As the body adapts quickly to training loads, the gains made are easily lost.

The endurance achieved by this method deteriorates more quickly than that achieved by other methods. The content of interval training is essentially determined according to the following rules :

-Define the predominant metabolic pathway from which the activity draws its energy.

-Apply the principle of progressive overload, which improves the energy system in question

-Understand that the most effective training programme is a personalised programme ; this is what we call training specificity.

Although it can take place over a long period of time, volleyball is, in principle, a series of brief, intense actions (15 seconds of work) interspersed with very short recovery periods (15 seconds), according to Gionet (1980), cited by Nadaut and Peronnet. (1980). These durations (rallies/recovery) are comparable to intermittent work. (Gionet. 1980)). The multiple repetition of active and passive phases allows the volleyball player's activity to be compared with interval training.

According to Fox and Mathews (1984): Quick starts, jumps and dives require volleyball players to have good anaerobic capacity. According to these authors, volleyball is another example of a power sport:

Leg power (used in vertical jumps) is an essential quality that coaches must strive to improve. They therefore recommend an interval programme that should mainly consist of sprints for running.

The strength training programme should consist of short, fast and intense efforts performed at intervals.

The exercises used are knee flexion-extension and ankle flexion with additional load, or rapid vertical jumps, for example: performing jumps on the spot, as high as possible:

Series 1 10 x 15 in 0:10 (0:30)

That is, 10 repetitions of 15 vertical jumps performed in 10 seconds, with 30 seconds of recovery.

Or explosive jumps on benches (bench blasts): example:

Series 1 10 x 25 in 0:20 (1:00)

Series 2 10 x 25 in 0:20 (1:00)

This programme should be carried out at each training session. Volleyball players alsoneed to develop power in their shoulders, arms, wrists and hands. As for technical exercises, among the many excellent exercises offered by volleyball, let's just mention that scramble is an excellent interval exercise that helps to increase the player's skill and improve their physical condition:

The coach or a partner, equipped with a supply of balls, throws the ball in such a way that the player is forced to move quickly in order to return the ball properly during 10- to 15-second work intervals.

All volleyball exercises should emphasise movement, particularly low movement. According to Fox and Mathews (1984), the best training method for improving the energy potential of muscle cells and physical condition for a given task is interval

training. This method is far superior to traditional continuous training regimes, and there is a very significant difference between these two types of training.

Example: suppose that one day you run at maximum capacity without stopping for 5 minutes until you are exhausted, then another day you run intermittently for 5 periods of one minute each at the same speed, with a one-minute rest interval after each period. If the same amount of work at the same intensity was produced in If the same amount of work at the same intensity was produced in both conditions, the fatigue following intermittent work would be considerably less.

This can be explained physiologically: the energy supplied by the alactic system will be less during intermittent work, and that supplied by the ATP CP system will be greater. This means that less lactic acid will be produced, resulting in less fatigue in the case of intermittent work.

The tenth axis:Training principles in volleyball

The first lecture

Introduction

Volleyball is a team sport that requires a high level of motor coordination, explosive strength, and the ability to make decisions under rapidly changing game conditions. The training process in volleyball is grounded in a set of scientific principles that guide load construction, training-unit organization, and the development of physical and technical abilities in accordance with the physiological demands of the sport (Bompa & Haff, 2009).

1. Training Load and Adaptation

Training load constitutes the core of the training process and is viewed as a composite structure consisting of volume, intensity, and density. Verkhoshansky (2006) points out that physiological adaptation occurs only when the athlete is exposed to loads that exceed habitual thresholds, thereby stimulating the energy systems and neuromuscular structures to develop.

In volleyball, loads must be programmed to match the nature of the sport, which relies on short, high-intensity efforts primarily supported by the ATP-PC energy system.

2. Principle of Progression

The literature emphasizes that increasing training load must occur progressively to avoid fatigue and injury (Matveyev, 1991). In volleyball, this principle is reflected through:

- Gradually raising the height of the net during jump-training drills,
- Increasing the speed of passes,
- Elevating the complexity of tactical situations.

Progression contributes to the development of explosive strength, which is crucial for spiking and blocking.

3. Specificity Principle

This principle asserts that adaptations occur in relation to the nature of the training stimulus. Bompa (1999) demonstrated that training should reflect the demands of competition in terms of strength type, speed, and precision.

In volleyball, specialized training is essential for developing:

- Vertical jump performance,
- Agility,
- Transitional speed,
- Hand–eye coordination,
- Technical skills such as serving, receiving, defending, and attacking.

4. Individual Differences

Harre (1982) highlights the necessity of respecting individual differences among athletes, particularly in a sport where morphological and physiological demands differ across playing positions (setter, hitter, libero, etc.).

This includes:

- Adjusting the load according to age and training age,
- Considering differences in lower-limb strength,
- Accounting for variations in neuromuscular endurance among players.

5. Recovery Principle

Studies by Zatsiorsky & Kraemer (2006) indicate that real development occurs during recovery periods rather than during training itself. In volleyball, where repeated jumps require explosive muscular efforts, recovery becomes crucial for restoring high-energy

phosphates.

Recovery strategies include:

- Active recovery,
- Adequate sleep,
- Proper nutrition,
- Massage and flexibility exercises.

6. Variety Principle

Repeating the same exercises leads to negative adaptation and reduced motivation. Platonov (1997) therefore emphasizes the importance of regularly varying training activities.

In volleyball, variety can be achieved through:

- Introducing competitive drills,
- Modifying the pace of play,
- Using different training tools (bands, lightweight balls, jump platforms).

7. Game-Based Training

Modern volleyball training adopts the model of *game-like drills*. Katsikadelli (1995) showed that tactical decision-making improves when players are exposed to situations that closely resemble actual match conditions.

This principle helps develop:

- Anticipation,
- Team communication,
- Perceptual speed,
- The ability to handle pressure.

8. Continuity Principle

According to Ozolin (1989), interruption of training leads to a rapid decline in explosive and speed-strength capabilities, which are foundational to performance in volleyball.
Regularity of training sessions is therefore essential to ensure continuous development.

Conclusion

The principles of training in volleyball constitute the scientific foundation that guides the development of players at both the physical and technical-tactical levels. Applying these principles systematically and accurately is essential for enhancing performance and achieving high competitive results.

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The eleventh axis: The Role of the Educator, Teacher, and Coach in Volleyball

The first lecture

Introduction

Volleyball is a dynamic team sport that combines technical skill, tactical awareness, physical fitness, and psychological resilience. Its practice is situated within both educational and competitive contexts, where the development of the athlete depends on a structured and multifaceted support system. Central to this system are three pivotal roles: the **educator**, the **teacher**, and the **coach**. While these roles may overlap in certain functions, each has specific responsibilities and objectives that, when integrated effectively, create a comprehensive developmental framework for learners and athletes (Bompa & Haff, 2009; Zatsiorsky & Kraemer, 2006).

1. The Role of the Educator

The educator plays a foundational role, particularly in the early stages of sports initiation. Their mission consists in providing a safe, motivating, and ethically grounded learning environment. The educator promotes values such as cooperation, respect, fair play, and perseverance. Beyond technical instruction, they focus on fostering social skills, group cohesion, and positive attitudes toward physical activity.
Their overarching aim is to ensure the balanced development of the child while introducing fundamental motor abilities that serve as prerequisites for volleyball practice.

1. The Role of the Educator

The educator primarily focuses on **moral, social, and personal development** within volleyball practice. The emphasis is not solely on physical or technical skill acquisition, but on fostering lifelong values and social competencies.

1.1. Development of Ethical and Social Values

The educator instills principles such as:

- Cooperation and teamwork
- Respect for opponents and referees
- Fair play and adherence to rules
- Perseverance and resilience under pressure

These values are critical for creating athletes who can function effectively within a team and handle competitive stress constructively (Hellison, 2011).

1.2. Creating a Supportive Learning Environment

A core function of the educator is to establish a safe and motivating environment that encourages exploration and participation. This involves:

- Promoting a positive emotional climate
- Encouraging student initiative and self-expression
- Reducing anxiety related to errors or performance

1.3. Linking Sport with Broader Educational Goals

Volleyball provides an avenue for experiential learning beyond the court. Educators integrate:

- Leadership skills
- Decision-making abilities
- Problem-solving in collaborative contexts

By fostering these capacities, educators contribute to the holistic development of learners, preparing them for both sport and life situations.

2. The Role of the Teacher

The teacher operates within a pedagogical and institutional framework, where volleyball is used as a medium for achieving educational objectives. Their responsibilities include designing structured learning sequences, adapting teaching strategies to students' developmental levels, and ensuring that each learner progresses according to their potential.

The teacher integrates theoretical knowledge—such as biomechanics, physiology, and motor learning principles—with practical activities. By using assessment tools and differentiated instruction, they guide students toward acquiring essential technical and tactical competencies. Furthermore, the teacher cultivates autonomy, critical thinking, and reflective practice among learners.

2. The Role of the Teacher (Physical Education Instructor)

Within the formal education system, the teacher bridges **educational objectives and motor skill development**. Teachers are responsible for structured delivery of volleyball lessons aligned with pedagogical curricula.

2.1. Teaching Technical Skills

Teachers ensure learners acquire foundational volleyball skills:

- Serving and receiving
- Passing and setting
- Spiking and blocking
- Defensive positioning

Instruction is often sequenced from simple to complex movements, using scaffolding techniques to ensure skill retention and gradual mastery.

2.2. Designing Pedagogical Sequences

Teachers plan lessons based on age, developmental stage, and class size:

- Defining learning objectives and success criteria
- Incorporating varied teaching methods (demonstration, guided practice, cooperative learning)
- Balancing cognitive, physical, and social learning outcomes

2.3. Differentiation and Individualization

Recognizing student variability, teachers adapt:

- Task difficulty to accommodate different skill levels
- Feedback to suit learners' cognitive and motor capacities
- Grouping strategies to optimize participation and engagement

2.4. Assessment and Feedback

Teachers employ formative and summative assessments to:

- Track progress in motor, cognitive, and social domains
- Provide corrective feedback and reinforcement
- Identify students requiring additional support or challenge

2.5. Safety and Injury Prevention

Teachers ensure that lessons are conducted safely by:

- Supervising equipment and facilities
- Teaching proper warm-up and cool-down routines
- Monitoring fatigue and overexertion

The second lecture

3. The Role of the Coach

The coach's role extends beyond basic instruction, focusing instead on performance optimization. Their work involves advanced technical and tactical training tailored to competitive demands. The coach conducts scientific monitoring of players through physical and physiological assessments, workload management, and individual performance profiling.

Additionally, the coach designs long-term training plans that align with athletes' developmental stages, competitive schedules, and recovery needs. Psychological preparation—such as motivation, emotional regulation, and team dynamics—constitutes another essential pillar of effective coaching.

In this sense, the coach embodies the figure responsible for transforming potential into high-level performance while maintaining the athlete's physical and mental well-being.

3. The Role of the Coach

The coach is primarily concerned with **performance enhancement and competitive readiness**. Their role is more specialized and intensive, focusing on higher-level skill acquisition, tactical awareness, and physiological development.

3.1. Strategic Planning and Program Design

Coaches develop comprehensive training plans that consider:

- Long-term periodization (annual and seasonal plans)
- Progressive overload and adaptation principles
- Integration of physical, technical, tactical, and psychological components (Bompa & Haff, 2009)

3.2. Physical and Physiological Development

Coaches target volleyball-specific physical abilities:

- Explosive power for jumps and spikes
- Agility, speed, and coordination
- Anaerobic and aerobic conditioning appropriate for repeated high-intensity efforts
- Injury prevention through conditioning and functional exercises (Zatsiorsky & Kraemer, 2006)

3.3. Technical and Tactical Training

Coaches refine technical execution and tactical decision-making:

- Position-specific skills for setters, hitters, and liberos
- Offensive and defensive strategies (6-2, 5-1 formations)
- Realistic game scenarios for situational problem-solving

3.4. Psychological Preparation

Coaches also develop mental resilience:

- Motivation and goal setting
- Emotional control under competitive pressure
- Enhancing focus, concentration, and teamwork

3.5. Leadership and Communication

The coach serves as a leader who:

- Facilitates cohesion and accountability within the team
- Uses constructive feedback and positive reinforcement
- Encourages autonomy while maintaining authority and discipline

4. Integration and Complementarity of Roles

The effectiveness of volleyball training depends on the **synergy between educators, teachers, and coaches**. While each role has distinct responsibilities:

Role	Primary Focus	Key Contribution
Educator	Values, social skills, personal development	Fosters ethics, teamwork, and motivation
Teacher	Motor learning, curriculum-based instruction	Teaches foundational skills, structures learning, ensures safety
Coach	Performance optimization, competition	Refines technical-tactical skills, develops physical and mental performance

This integrated approach ensures that learners develop holistically, progressing from basic motor competencies to advanced performance capabilities while maintaining personal and social development.

Conclusion

The educator, teacher, and coach each play a unique yet complementary role in volleyball. Together, they form a multi-layered support system that cultivates technical skills, physical conditioning, tactical understanding, and socio-emotional growth. The deliberate coordination of these roles is essential to producing athletes who are not only competitive but also ethically grounded, socially competent, and psychologically resilient.

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The twelveth axis :Mental and Tactical Preparation in Volleyball

The firste lecture

Introduction

Volleyball is a fast-paced team sport that demands a harmonious integration of physical, technical, tactical and cognitive skills. Among the key factors determining player effectiveness and team success are **mental and tactical preparation**, which together enhance decision-making, focus, and overall performance.

Mental preparation plays a critical role in ensuring that players can maintain concentration, manage stress, and perform optimally under pressure. It involves the development of focus and attention, enabling athletes to track the ball, teammates, and opponents' movements effectively. Techniques such as controlled breathing, muscle relaxation, and mental imagery are widely used to manage anxiety and reinforce confidence. Furthermore, self-motivation strategies, including goal-setting and positive reinforcement, help athletes maintain engagement and consistently strive for improvement. Mental imagery, in particular, allows players to rehearse tactical scenarios and visualize their technical execution before performing them in real game situations (Weinberg & Gould, 2015).

On the other hand, **tactical preparation** focuses on planning and organizing team strategies to achieve optimal performance during matches. It encompasses both offensive and defensive planning. Offensive tactics involve selecting appropriate serve types, designing spike and coverage strategies, and coordinating team attacks. Defensive preparation includes organizing formations such as 6-2, 5-1, or 4-2, positioning players to counter the opponent's attacks effectively, and ensuring quick adaptation to dynamic play. An essential component of tactical preparation is opponent analysis, which allows teams to identify strengths and weaknesses and develop flexible game plans. Effective communication among players, including verbal cues and hand

signals, is also crucial for rapid and coordinated decision-making on the court (Hughes & Bartlett, 2002).

The tools used in both mental and tactical preparation include video analysis, which enables players to review their performance and study opponents' patterns. Game-like drills that simulate real match conditions provide practical opportunities to apply tactical knowledge and refine decision-making under pressure. Written diagrams and tactical plans help clarify player positioning, movement sequences, and team responsibilities, bridging the gap between theory and practice.

The integration of mental and tactical preparation is essential for maximizing performance in volleyball. While mental preparation ensures players maintain focus, confidence, and emotional control, tactical preparation equips them with the strategies and positioning required to respond effectively to in-game situations. Together, these approaches enhance individual and team performance, increasing the likelihood of success in competitive environments.

1. Mental Preparation

1.1 Importance of Mental Preparation

Mental preparation enhances players' ability to focus and make decisions under pressure. It involves:

- Controlling stress and anxiety before and during matches.
- Maintaining attention and reacting quickly to dynamic game situations.
- Strengthening self-confidence and motivation to perform at maximum capacity (Weinberg & Gould, 2015).

1.2 Key Elements

Focus and Attention: Directing attention to the ball, teammates, and opponents' tactical movements.

Stress and Anxiety Management: Using breathing techniques, muscle relaxation, and mental imagery to reduce anxiety and optimize performance.

Self-Motivation: Setting short-term and long-term goals and reinforcing small achievements to sustain motivation.

Mental Imagery: Visualizing tactical scenarios, executing attacks and defensive movements mentally before performing them physically.

1.3 Tools for Mental Preparation

- Mindfulness programs to develop present-moment awareness.
- Video analysis for reviewing errors and reinforcing tactical decisions.
- Psychological counseling to enhance self-discipline and confidence.

2. Tactical Preparation

2.1 Importance of Tactical Preparation

Tactical preparation aims to:

- Optimize player positioning on the court.
- Develop offensive and defensive strategies aligned with the team's strengths and opponents' weaknesses.
- Improve decision-making at both individual and team levels during gameplay (Hughes & Bartlett, 2002).

2.2 Key Elements

Offensive Planning:

- Selecting appropriate serve types (powerful, high, short).
- Designing attacking strategies such as spikes, quick sets, and coverage after attacks.

Defensive Planning:

- Organizing defensive formations (6-2, 5-1, 4-2).
- Positioning players effectively to counter opponents' attacks.

Opponent Analysis:

- Studying strengths and weaknesses of the opposing team.
- Preparing adaptable game plans based on opponent strategies.

Team Communication:

- Using in-game signals and verbal cues.
- Rapid decision-making in offensive and defensive situations.

2.3 Tools for Tactical Preparation

- Video analysis of team and opponent matches.
- Game-like drills simulating realistic match conditions.
- Written tactical plans and diagrams illustrating player positions and movement patterns.

3. Integration of Mental and Tactical Preparation

Mental and tactical preparation are complementary components:

- **Mental preparation** ensures focus, confidence, and effective stress management.
- **Tactical preparation** ensures efficiency in offensive and defensive organization and promotes rapid, accurate decision-making.

The integration of both dimensions enhances overall team performance and increases the likelihood of success in competitive settings.

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The second lecture

The Role of the Teacher in Sports Education

The physical education teacher plays a central role in the **development and formation of students within the school context**, encompassing technical, physical, and socio-educational dimensions. Their responsibilities extend from skill transmission to talent selection, school sports organization, and personalized guidance. These functions can be grouped into four main domains: **transmission, selection, school sports, and guidance** (Gallahue & Donnelly, 2003; Kirk, 2010).

1. Transmission

Transmission refers to the teacher's ability to **effectively convey knowledge and sports skills** to students in a systematic and comprehensible manner. This includes teaching fundamental skills in various sports, such as volleyball, football, and athletics. The teacher employs diverse pedagogical methods—demonstration, explanation, guided discovery, and cooperative learning—to ensure students understand and develop motor competencies. Additionally, theoretical concepts related to physical health, such as warm-up routines, strength exercises, and flexibility, are integrated to promote holistic physical development (Hardman & Marshall, 2000).

2. Selection

The teacher also plays a critical role in **identifying and nurturing talented students** within the school sports framework. This involves:

Evaluating students' physical and technical abilities using objective criteria.

Selecting players for school teams or competitive events.

Considering individual differences in physical capacity, age, and technical skill during the selection process.

Supporting high-potential students to pursue athletic development in a structured and scientific manner (Bailey et al., 2009).

3. School Sports

School sports provide a vital environment for **developing students' physical and technical capacities**. The teacher organizes physical education sessions that integrate play, competition, and skill acquisition. Activities are designed to be diverse, inclusive, and engaging, ensuring broad participation. Continuous monitoring and assessment of student performance allow the teacher to refine programs and enhance outcomes. Moreover, school sports serve as a platform to instill social and ethical values such as teamwork, discipline, and fair play (Siedentop et al., 2011).

4. Guidance

Guidance represents the teacher's role in **directing students' athletic and personal development**. This includes:

Advising students on choosing suitable sports and balancing training with academic responsibilities.

Monitoring progress and supporting students in overcoming physical or psychological challenges.

Steering students toward specialized training programs or athletic pathways outside the school environment when opportunities exist.

Promoting health awareness and positive behavioral habits through continuous mentoring (Kirk, 2010).

Conclusion

The teacher's role in sports education is **multifaceted**, integrating **skill transmission, scientific selection, school sports organization, and personal guidance**. Systematic

application of these roles is essential to enhance students' physical, technical, and tactical abilities while fostering social and ethical values. This holistic approach ensures effective participation and long-term development within the school sports context.

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The third lecture

The Role of the Coach in Sports Clubs and the Development of Young Talents

The coach plays a central role in **developing athletes within sports clubs**, extending their responsibilities from overseeing physical and technical training to providing tactical and psychological guidance. Coaches are also pivotal in **identifying, nurturing, and developing young sports talents**, ensuring sustained success at competitive levels.

1. Designing Training Programs

Coaches are responsible for designing comprehensive training programs that consider:

Athletes' physical and technical capacities, allowing for both individualized and team-based planning.

Progressive training loads that align with the physical and developmental stages of young athletes (Bompa & Haff, 2009).

Variety in training methods, incorporating technical drills, tactical exercises, and physical conditioning to promote holistic athlete development.

2. Developing Technical and Tactical Skills

The coach supervises the **enhancement of both fundamental and advanced sports skills**, including:

Improving serving, receiving, attacking, and defensive skills in volleyball, or sport-specific techniques in other disciplines.

Developing **rapid decision-making abilities** under dynamic game conditions.

Designing **game-like tactical drills** to ensure the transfer of skills from training to competitive play (Katsikadelli, 1995).

3. Identifying and Nurturing Young Talents

The coach plays a key role in **discovering and guiding talented athletes** toward professional development:

Assessing players based on physical, technical, and psychological competencies.

Monitoring individual progress and providing continuous feedback to enhance performance.

Directing athletes toward advanced training programs or specialized camps to maximize potential.

4. Psychological Guidance and Motivation

Psychological support is an integral part of coaching. The coach:

Builds **self-confidence** among young athletes.

Enhances **discipline and commitment** during training and competitions.

Motivates players to persist, work collaboratively, and cope with competitive pressures (Weinberg & Gould, 2015).

5. Promoting Consistency and Long-Term Commitment

Coaches also ensure:

The development of **healthy training habits**, including adherence to programs, proper nutrition, and recovery routines.

The reinforcement of **competitive spirit and sportsmanship**, fostering balanced athlete growth.

Long-term athlete development through consistent monitoring rather than focusing solely on short-term results.

Conclusion

The coach in sports clubs serves as the **foundation for nurturing young talents**. By designing comprehensive training programs, developing technical and tactical skills, identifying promising athletes, and providing psychological support and motivation, the coach enables sustainable athlete development. Balancing physical, technical, tactical, and psychological dimensions is key to producing well-rounded athletes capable of achieving long-term competitive success.

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The thirteenth axis: Selection System for Students in Volleyball in Algeria

(Middle School, High School, Provincial Leagues, Regional and National Levels)

The first lecture

Introduction

Below is a comprehensive overview of the **selection system** used for identifying and developing volleyball talent in Algeria across different levels: **middle school, high school, provincial leagues, regional structures, and national programs**.

1. Selection System in Middle School

The objective at this stage is to **identify talent early** and establish a wide base of young volleyball practitioners.

Age Group

- 11 to 15 years old (1st to 4th year of middle school).

Organizing Bodies

- Physical education teachers.
- EPS inspectors.
- Local Education Directorates (school competitions).

Selection Criteria

A. Morphological Criteria

- Height (above the average for age).
- Arm and leg length.
- Athletic and well-balanced body type.

B. Physical Criteria

- Muscular strength (especially legs).
- Speed.
- Vertical jump ability.
- Agility, balance, and motor control.

C. Technical Criteria

- Ball control (passing, receiving, serving).
- Precision in serving.
- Reaction time.

D. Psychological Criteria

- Discipline.
- Learning capacity.
- Courage and teamwork.

Selection Methods

- Physical tests within the school.
- Friendly matches between classes.
- Choosing the best students to represent the school.
- Participation in **provincial (wilaya)** school competitions.

2. Selection System in High School

Age Group

- 15 to 18 years old.

Organizing Bodies

- Physical education teachers.
- Education Directorates.
- The Algerian Federation of School Sports.

Selection Criteria

A. Morphological

- Height becomes essential (e.g., >1.80 m for male attackers, >1.70 m for female players).
- Arm span.
- Height-to-weight ratio.

B. Physical

- Explosive leg strength (CMJ test).
- Aerobic fitness (VMA).
- Speed and training discipline.

C. Technical

- Quality of serve (float or jump).
- Accurate passing.
- High-level reception.
- Ability to play multiple positions.

D. Tactical

- Game reading skills.
- Correct positioning.
- Understanding defensive and offensive systems.

Selection Methods

- In-school tournaments.
- Inter-school competitions at provincial level.
- Qualification for **regional** then **national school championships**.

3. Selection in Provincial Leagues (Wilaya Level) – Clubs

Here begins structured **sports training within clubs**.

Age Categories

- U13
- U15
- U17
- U19

Selection Method

- Open trials.
- Recommendations from teachers and school coaches.
- Official physical and technical tests.

Selection Criteria

A. Morphological

- Height, limb length, body mass index.
- Growth potential.

B. Physical

- Vertical jump.
- Sprint 20m.
- Agility test (T-test).
- Hitting arm power.

C. Technical

- First touch quality.
- Ball direction accuracy.
- Strong and accurate serving.

D. Behavioral

- Commitment.
- Seriousness in training.
- Team spirit.

4. Regional Selection (Régional)

Includes the top talents from provincial leagues.

Organizing Bodies

- Regional volleyball leagues (East, West, Central, South).

Objectives

- Form a **regional selection team**.
- Prepare for the national youth championships.
- Identify potential players for national youth teams.

Selection Criteria

A. Morphological

- Height is essential, especially for middle blockers and attackers.
- Above-average height (e.g., >1.85 m for U17 males, >1.75 m for U17 females).

B. Physical

- Advanced vertical jump.
- Excellent fitness (speed, power, endurance).

C. Technical

- Mastery of the main skills.
- Ability to play under pressure.

D. Tactical

- Strong understanding of systems:
  - 1–5 defense
  - Structured offense
  - Quick attacks

E. Psychological

- Leadership.
- Mental stability.

5. National Selection (Algerian Volleyball Federation)

Involves the most talented players from the regional selections.

Age Levels

- U17 (cadets).
- U19 (youth).
- Senior national teams.

Organizing Bodies

- National Technical Directorate (DTN).
- National coaches.

- Specialists in morphology and physical evaluation.

Selection Method

- National camps (stages).
- Scientific testing:
    - Vertical jump measurement.
    - Serve and spike speed (radar).
    - Full morphological profiling.
    - Video analysis.

Selection Criteria

A. Morphological

- Exceptional height for age.
- Positive ape index (arm span > height).

B. Physical

- Vertical jump above 60–70 cm (males).
- High-speed game pace.

C. Technical

- Complete mastery of volleyball skills.

D. Tactical

- Ability to play fast systems and adapt rhythm.

E. Psychological

- High motivation.
- Confidence.

- Rigorous discipline.

➢ **Summary of the Volleyball Selection Pyramid in Algeria**

School (Primary – Middle)

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High School

↓

Provincial League (Clubs)

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Regional Selection

↓

National Teams