FIVB™

FÉDÉRATION INTERNATIONALE DE VOLLEYBALL

COACHES MANUAL

LEVEL II

Table of Contents

Introduction

The FIVB (Fédération Internationale de Volleyball)

The FIVB is the world governing body for Volleyball and Beach Volleyball, founded in Paris, April 20th 1947, as non-profit making organisation committed to development of its disciplines worldwide, through staging and organisation of international competitions, courses, seminars and promotion of other educational activities. This is achieved through broad collaboration with the 5 Continental Confederations, 221 National Federations and other stakeholders. The FIVB has a legal status and its headquarters are located in Lausanne Switzerland since 1984.

221 affiliated National Federations

Volleyball is today one of the major international sports, and the FIVB, with its 221 affiliated National Federations is truly unique sport easily adapted to many indoor and outdoor settings as needed. It is therefore no surprise that Volleyball and Beach Volleyball are ideal sports for all ages - fun and easy to learn. It requires few facilities and equipment, develops team spirit, provides for a great entertainment and is open for both males and females.

As the world governing body of Volleyball in all its forms (Volleyball, Beach Volleyball, Park Volley, U-Volley, Mini and School Volley), the FIVB manages and encourages the practice and the expansion of Volleyball but also offers and implements programs aimed at promoting global development initiatives through Volleyball.

The FIVB 5 continental Confederations are: Asian Volleyball Confederation (AVC), African Volleyball Confederation (CAVB), European Volleyball Confederation (CEV), South American Volleyball Confederation (CSV) and North and Central American Volleyball Confederation (NORCECA).

Today and tomorrow

The FIVB consists of 221 affiliated Federations and governs, manages and promotes all forms of Volleyball and Beach Volleyball worldwide through tournaments such as the World Championships, World League, World Grand Prix, World Cup, Grand Champions Cup, Club World Championships, SWATCH FIVB World Tour, SWATCH FIVB World Championships, Continental Beach Volleyball Cup and Beach Volleyball World Cup, Junior and Youth tournaments and, of course, the Olympic Games.

Educational material

The FIVB has in the last few years invested into new teaching material and made new resources available through the internet and its own webpage. It is a requirement that coaches benefit and utilize the best practice examples from the world best Volleyball players by accessing this material that is a part of the FIVB technical website as an open resource for National Federations, players, coaches and officials. This material is now the basis for the teaching Volleyball during FIVB coaching courses and can be accessed in the

FIVB website at:

- http://www.fivb.org/EN/Technical-Coach/Technical_Library.asp

The above material is now a part of the electronic teaching library that is used during FIVB courses. The content of the electronic teaching library is developing rapidly with needed changes and new material.

Chapter I.
Theory of Training

INTRODUCTION

Only a well-organised and complex Volleyball training is truly effective for improving the performance of individual and team Volleyball. This chapter will provide detailed information on the basic training features, the main output of Volleyball performance and widen the scope of relative problems.

1.   GOALS OF VOLLEYBALL TRAINING

Volleyball training has two types of output. The first relates to the developed body states, the second is shown immediately through those body states in team and individual performance. These outputs are closely related.

Volleyball training is a long-term specialized process that is based on developing the physical fitness of the players. Even though physical fitness is not the main goal, it is the firm basis upon which the development of other states is built. We define physical fitness as "a body's ability to react optimally through muscle work on stimuli from the outer as well as from the inner environment."

Training, Kazakhstan – 2014 Women's World Grand Prix

2.   PERFORMANCE CAPACITY

Long-term, specialized training must necessarily result in a specialized type of adaptation. It is usually called performance capacity and is defined as "the adaptation of a player's body to repeated great efforts of a specific character. On the other hand, from a different point of view: the level of a player's capacity at the effort that is identical to the effort made by players in volleyball matches.

Such adaptation results in favourable changes in various body functions and in building individual body parts. Adaptive changes can be divided into:

1)   Those occurring within the central nervous system activity
2)   Those occurring in other body tissues.

In order to evaluate or measure performance capacity, players must undergo a specific effort, determined very precisely and then their body responses should be measured in:

- Rest (before starting the test)
- After standard effort
- After maximal effort
- After a certain recovery time

In regards to body response, we distinguish between general and specific performance capacity. General performance capacity is: after subjecting players to a specific effort; their body response is measured by an unspecific function. Special performance capacity is: after subjecting players to a specific effort; their body response is measured by a specific function.

3.   SPORT FORM

If a player has a high level of performance capacity it does not necessarily mean that he shows the highest or best performance in a match. It only creates the potential.

Players have to create another level of adaptation which is temporary, complex and balanced in regards with the body systems involved and adjusts player's activities to their social environment. This is called sport form and is defined as the state of optimal readiness permitting players to give their maximal performance.

Sport form occurs in and is developed in players according to each level of performance capacity. Experience shows that players cannot keep their sport form for more than two months, and even two months is hard to maintain.

In developing sport form, the adaptation mechanisms fully involve the nervous system and various mental qualities; while in performance capacity, the corresponding body responses are mainly represented by the systems insuring the body energy supply. To adapt a player to the sport form level, all system and functions involved must be correspondingly balanced; otherwise, possible imbalances would not allow the creation of cortex connections insuring the required state of optimal readiness.

It is very important to find reliable indicators which help the coach to recognize whether or not players have attained their sport form level, as well as when they have lost it. Sport form is generally determined by stability of performance. Other indicators that show that a player is in his sport form are:

- The ability to work quickly in training or in matches or rapidly recover after exertion
- Better economical functioning of the body
- Acquiring and keeping the "feeling of the ball"
- The fuller extent of will, effort and desire which is shown by determination to win under any circumstances and which increases when the situation gets worse

4.   SYSTEM OF VOLLEYBALL TRAINING

The wide, logically organised knowledge regarding social functions, objectives, principles, contents, building, organising, evaluating and other necessary conditions and factors, which to a great extent determine the course and results of training is called the system of Volleyball training.

5.   SPECIAL TRAINING PRINCIPLES

This section is about the principles aimed at the most efficient development of various abilities, qualities and skills.

5.1. Principles of Unity between general and specific preparation

Volleyball training means highly efficient, specialized education that cannot be created without being based on the general development of various functions and qualities. Thus, the training has two different parts: general and specific preparation.
General preparation creates and widens the presumptions supporting Volleyball performance capacity in the basis of general increase of a player's functioning possibilities. Specific preparation then insured the development of skills, motor abilities and mental qualities specific for Volleyball.

5.2. Principles of alternating load and rest

This principle reflects the fact that recovery is just as important as the training load. Therefore, the coach has to take into account not only how to load players, but also the length and other parameters of rest in order to allow the corresponding body processes to appear.
There are two principal manifestations in organising and regulating training:

1) The effect of such load should strengthen the traces left by the preceding load. The influence of successive loads should maximize the positive and minimize the negative combined effects.
2) The intervals of rest must correspond to the particular training task: to be long enough when full recovery is necessary or not allowing full recovery when increased exhaustion is required.

5.3. Principle of fluctuating the training load in waves

The relationship between load and rest has been already explained. Rest, however, was not meant to be only passive. In training, recovery after a certain kind of load takes place mostly when overcoming another kind of load, this way rest is often active. This situation, together with the necessity to use maximal loads at times, causes the time dynamics of the load to seem as though they are made of waves.

Training is composed of four kinds of cycles:

1) Micro cycle: lasting from 2-3 up to 7 days; often one week. Often used with a subgroup called "offensive" where the intensity of training is relatively high.
   a. Starting
   b. Development
   c. Shock
   d. Maintenance
   e. Reduction
   f. Peak
   g. Recuperation
   h. Transition
2) Mezzo cycle: usually composed of a few micro cycles (3-6 weeks) used at the outset of the preparatory period. Principal mezzo cycles ensure the accomplishment of planned tasks. Pre-competitive mezzo cycles are used to tune the players' sport form for the best performance.
   a. Developmental
   b. Stabilizing
   c. Pre-competition
   d. Competitive
   e. Recuperation
3) Macro cycle: length varies from 6 months to 1 year (1 year is the most common)
4) Multiple-years cycle: composed of several macro cycles.

Micro Cycles (2-7 days)	Mezzo Cycles (3-6 weeks)	Macro Cycles (6-12 months)	Multiple-Year Cycles
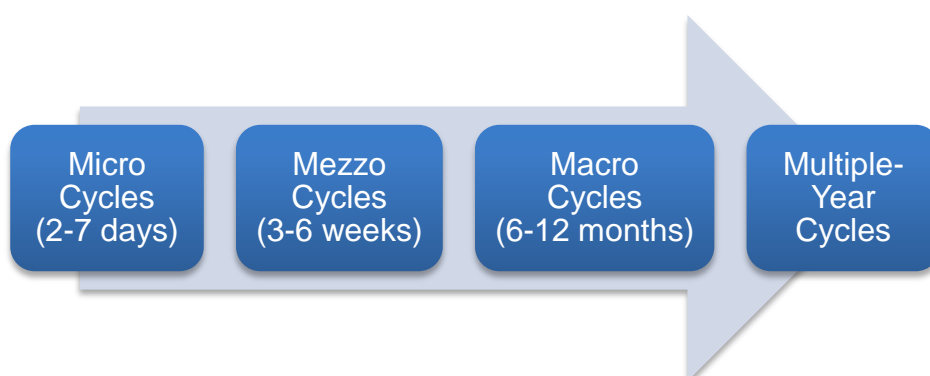
The first two types are designated for the accomplishment of selected training tasks. Mezzo cycles are the decisive elements of training for they have to provide enough time to realize selected tasks. The last two types aim to set correct and realistic objectives in connection with various components of training.
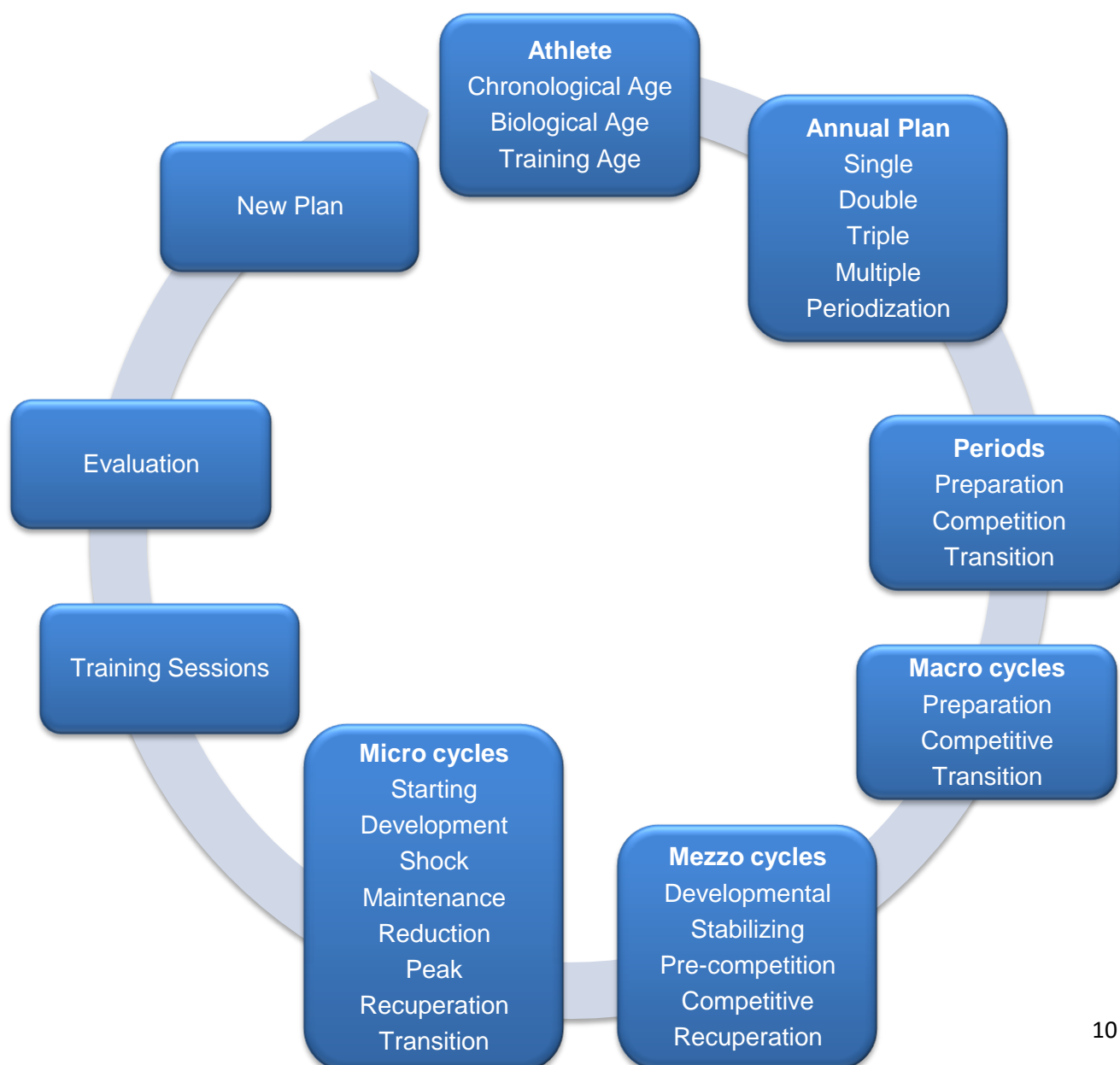
5.4. Planning

5.4.1. The reasons for having a plan

- Projection of objectives in a given period of time
- Definition of the appropriate means to reach the objectives
- Coordination of integrated actions
- Definition of what, when and who evaluates

5.4.2. What should be in the plan

- What to do
- When to do
- How to do
- Frequency
- Who is responsible

5.4.3. Planning cycle

Athlete
Chronological Age
Biological Age
Training Age

Annual Plan
Single
Double
Triple
Multiple
Periodization

Periods
Preparation
Competition
Transition

Macro cycles
Preparation
Competitive
Transition

Mezzo cycles
Developmental
Stabilizing
Pre-competition
Competitive
Recuperation

Micro cycles
Starting
Development
Shock
Maintenance
Reduction
Peak
Recuperation
Transition

Training Sessions

Evaluation

New Plan

6. CONTENT OF VOLLEYBALL TRAINING

The entire training process consists of three basic spheres:

1) Competitions
2) Training activities in training units
3) Recovery

The aim of competitions is to show training results and they act very strongly as adaptive stimuli. Training units aim primarily to stimulate adaptation. It provides occasions for various competitions among players. Recovery plays a supporting role in a majority of cases and can be used for stimulating body responses therefore influencing future adaptive changes. Coaches should answer two very important questions about their practical activity:

1) What to insert into training units through adaptation stimuli
2) How to administer the selected stimuli through suitable methods

7. ADAPTATION STIMULI

Adaptation stimuli are subdivided into two groups:

1) Specific
2) Unspecific

Specific stimuli mean all exercises in Volleyball training. The very wide choice of other stimuli is understood as unspecific: natural factors (sun, fresh air, air with lower oxygen pressure, etc.); dietary regimen (food corresponding to training tasks, additional vitamins, sufficient water, etc.); water in various forms (simple shower, alternating hot and cold water, steam bath, underwater massage, etc.); various types of massage (relaxing, Thai, healing, etc.); and psychological means (encouragement, hints, punishment, relaxation).

"Method" means step-by-step procedures for the application of respective stimuli of adaptation. Some of the methods and stimuli of adaptation are designed for the accomplishment of tasks of only one training component while others can be used more generally. By using them, the coach can fulfil conditioning tasks as well as technical preparation. The selection of training stimuli and methods of their application is the most serious task of the coach.
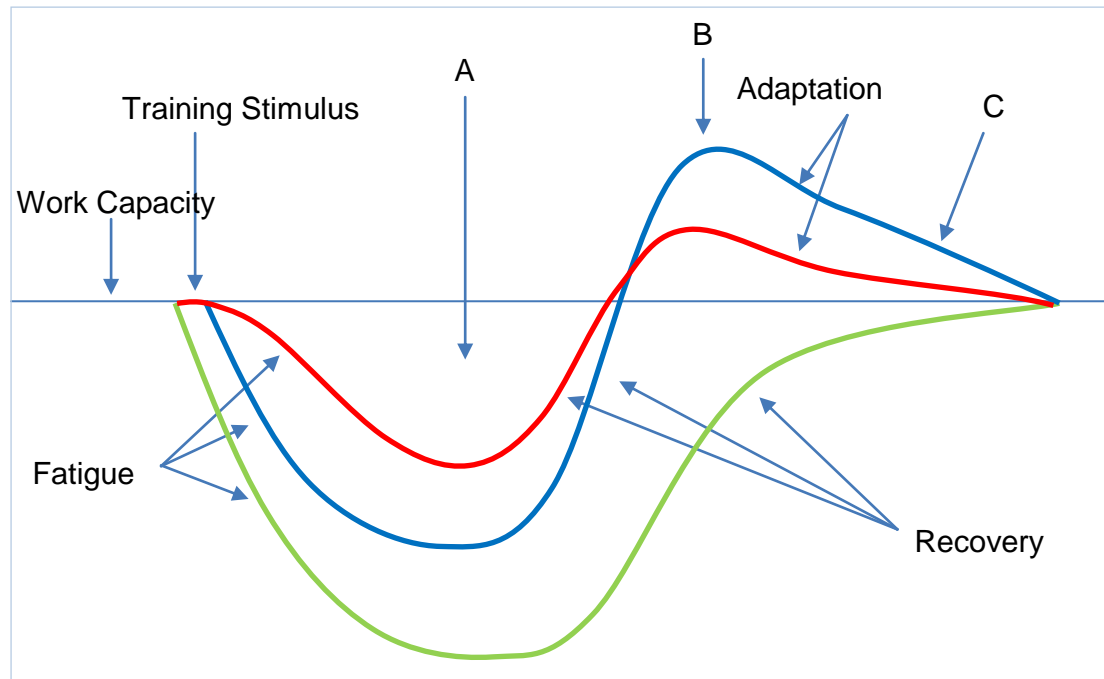
8.   GENERAL AND SPECIAL PREPARATION

TRAINING BALANCE

Motor conditioning 0%

Physical conditioning 20%

Tactics 45%

Techniques 20%

Psychological 15%
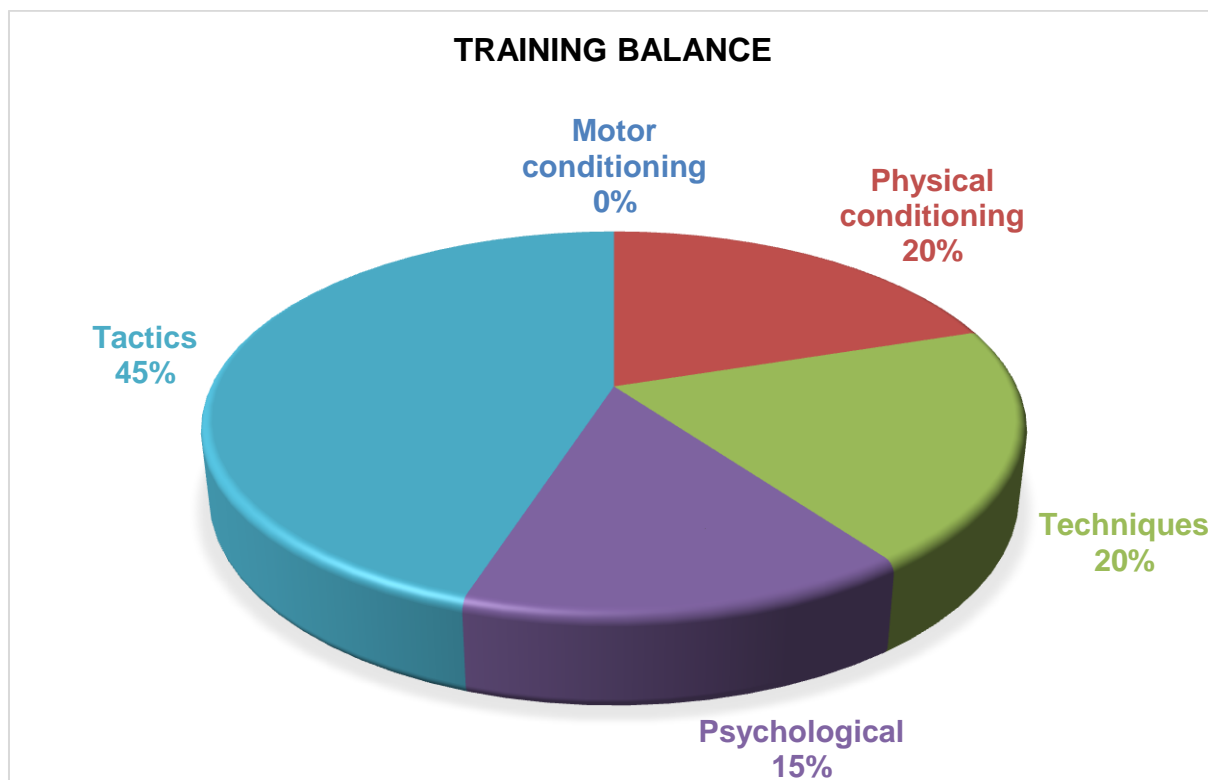
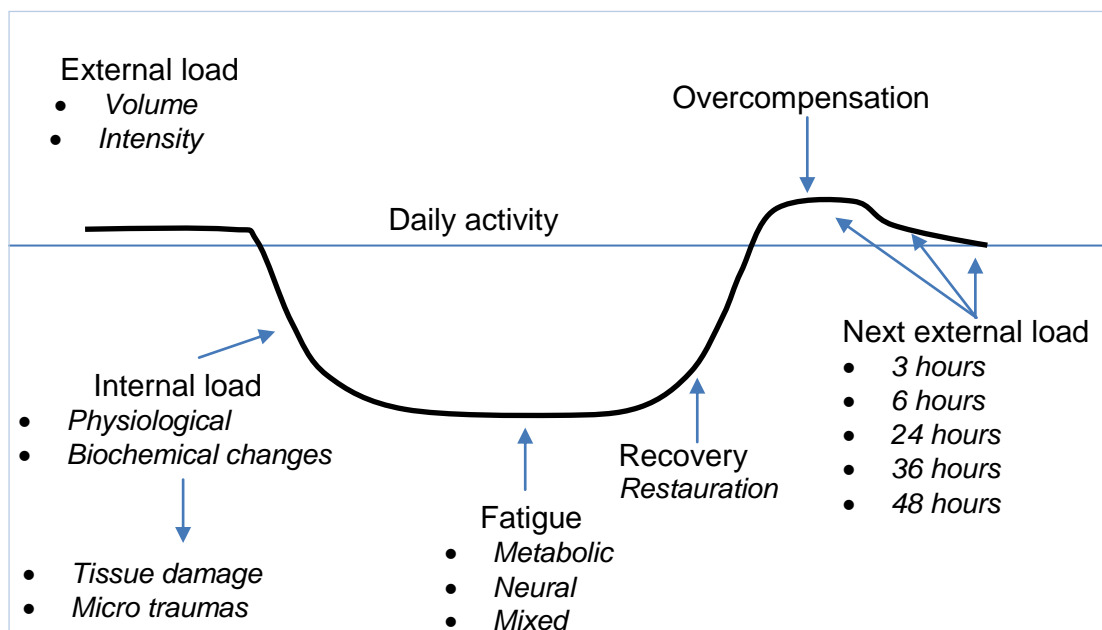*Head Coach Giovanni Guidetti (GER) – 2014 Women's World Championship*

9.   MECHANICAL STRESS AND INJURY

9.1   Alternating load and stress

9.1.1   Yakovlev's Model

9.1.2   Adaptation to training

9.1.3   Training load

Physical and mental efforts of the player, induced by motor stimulations to develop or maintain the state of training.

9.1.4   Training volume

Volume is a component of the training load, containing the duration, or the exercise extend.

9.1.5   Training intensity

The intensity of training is a quantitative component containing the duration, length, or the exercise extend.

9.1.6   Training frequency

The frequency of training refers to the number of training sessions within a given time frame (day, micro-cycle, or mezzo-cycle).

10.   TRAINING ASSESSMENT AND EVALUATION

10.1. Checking and evaluating training and results

Feedback provides the coach with information for the correct planning and application of this process. It also gives valuable information to players who want to correct their activity and motivation. A good training assessment is conditioned by full and precise records about the training course, as well as by systematic and regular measurements of developed training.

Training assessment should be thorough and precise and should be done with the same parameters the coach has already used in planning. The records should cover two types of information: the structure of contents and the dynamics of training load.
The structure of contents is recorded by the time devoted to its individual components; it should contain data about the following: conditioning; technical and tactical preparation; matches, including play in training units; psychological preparation (if any); assessment and various check-up measurements; controlled recovery and reconditioning; theoretical evaluations and meetings.

The coach or one of his assistants takes notes during the training unit. They specify the discrepancies in the planned activities or particular data that was not previously planned. Only after the training unit is completed can the record be finalized on specially prepared sheets or into a training diary.

The cumulative training effects (permanent bodily changes in players) are recorded through the results of matches, various tests, special motor tests, other measurements and examinations, especially permanent biological parameters.

10.2. Results of matches

These are the most complex indicators as they reflect influences that cannot practically be examined by other procedures. They only show the relation of performance between teams, they do not express much on the absolute level between performance of a team.

10.3. Results of Tests

To get a certain picture of the entire component, a coach can use numerous tests because a single test will describe only a selected part of each component. Tests are not only used to describe various movement characteristics, but also to find out social factors and player personality determinants, such as the relationship of the players.

10.4. Results of other measurements and examinations

Body weight, maximal aerobic capacity, force parameters of a movement, etc. provide precise, analytical data on the current level of adaptation in a given direction. When measured repeatedly on individual players the results provide very valuable data. At the end of mezzo – and macro cycles, the coach has to analyse the data obtained by comparing previous results with the amount of training work done. The result of this comparison gives a main direction for preparing the new training plan.

11.   STEPS TO THE ATHLETE SUCCESS
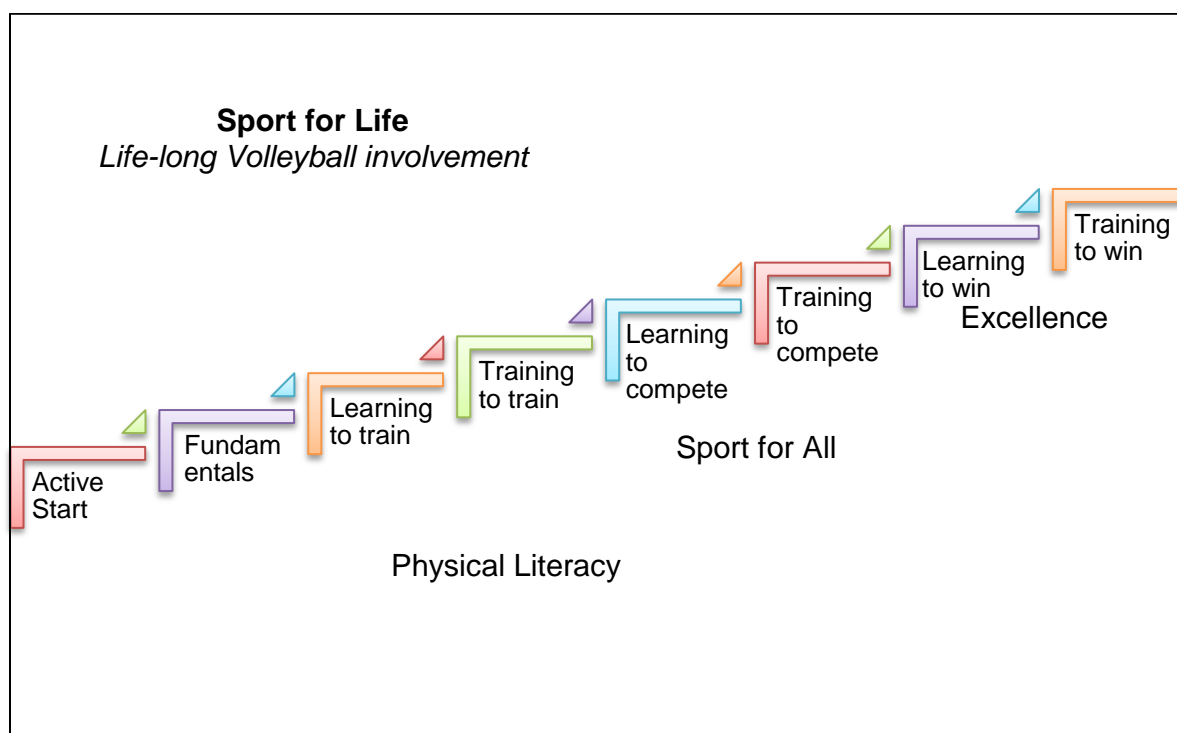
Chapter II.
Physical Training for Volleyball

Components that determine performance in volleyball are skill, tactical, mental and physical components. As the game becomes more speedy and dynamic, more time has been placed on the skill and tactical components. However, the physical component is also becoming more relied upon.

Explosive power is needed for jumping and landing when attacking and blocking as well as in the trunk, shoulders and upper limbs when swinging the arm to spike in attack. To improve ability in these areas it is necessary to improve physical ability through resistance training. Resistance training is also necessary for preventing internal and external injuries.

In order to create a suitable and effective resistance-training program it is necessary to understand the unique characteristics of the sport and potential internal and external injuries common in the sport. The various characteristics of volleyball have been widely reported in texts and research papers. These will be revised in this chapter along with the introduction of training and conditioning methods and topics.

1.   CHARACTERISTICS OF VOLLEYBALL

1.1   Characteristics of Play

Attack: An overhead arm swinging action similar to that found in tennis and baseball is performed. The major difference is that this action is performed whilst airborne with no ground support after jumping and by hitting the ball without the use of any equipment.

Block: As with attack, this is also performed whilst airborne with no ground support and is for stopping a ball from an attack that can be travelling in excess of 100km/h with both hands (one hand) or both forearms. The blocker must move and jump quickly according to the set and positioning of the attacker, and hold a set position (without twisting) in the air.
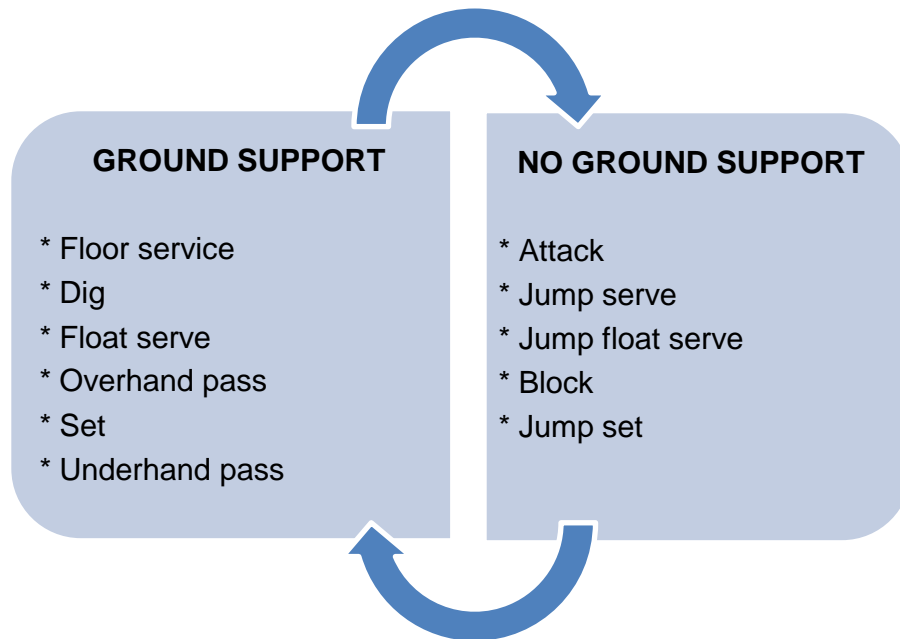
Reception, dig: In men's volleyball, receiving a jump serve must be performed in as little as 0.7 seconds after the serve. Receiving the ball in a low position enables greater ball control.

Jump serve, jump float serve: As applies to attack.

Float serve: Uses the kinetic chain with ground support transferring energy from the lower limbs to the upper limbs to hit the ball with an overhead action.

Setup: With almost no straight running involved, the player must initially move sharply and then perform agile movements including direction changes.

Plays with and without ground support

GROUND SUPPORT	NO GROUND SUPPORT
* Floor service	* Attack
* Dig	* Jump serve
* Float serve	* Jump float serve
* Overhand pass	* Block
* Set	* Jump set
* Underhand pass	

1.2   Game Characteristics

Single play time - Approx. 3 sec.

Rally time - 5-30 sec.

Play interval - 15 sec.

Match duration - 60-120 min.

Number of attacks (player/match) - 50 times

Volleyball requires the physical ability to repeat high power movements with short recovery intervals.

Furthermore, in the World Championships and Olympic Games, the length of the tournament is approximately 2 weeks, consisting of 8 – 12 matches in order to progress to the final.

Training and conditioning methods that create good fitness condition and improved recovery ability must be investigated.

1.3 Physical Factors

Attack, serve: Range of movement and stability of the shoulder joints and the chest
Range of movement of the thoracic vertebrae
Stability and strength of the trunk

Reception, digging: Flexibility of the ankle and hip flexor joints
Stability of the shoulder and the elbow joints
Stability of the trunk

Block: Stability and strength of the trunk
Stability of the shoulder and the elbow joints

Pass: Range of movement and stability of the shoulder joints and the chest
Range of movement of the wrist joint

Jump: Muscular strength (power) of the buttocks and the legs
Strength of the trunk

1.4 Common injuries as a result of accidents and stress

Shoulder joint: Injuries caused by overhead motion and overuse

Fingers: Injuries can occur when performing a block, especially to the little finger. The fingers are also sometimes susceptible to laceration injuries.

Lower back: Injuries occur from the impact of landing after jumping and from the low body position required for digging and reception. Young athletes are also susceptible to lower back pain due to the extension and the rotation necessary in attack movements.

Knee joint: The most common injuries are desmitis (inflammation of a ligament) caused by repeated jumping. Players can lose balance by landing on the foot of another player after spiking or blocking, injuring semi lunar ligaments.

Legs: injuries cause by continuous jumping.

Ankles: Acute injuries can occur when performing rapid sideway movements and by landing on the foot of another player after spiking or blocking.

Shoulder joint

• Torn rotator cuff, SLAP injury, infraspinatus muscle atrophy

Fingers

• Sprains, dislocation, fractures

Lower back

• Fascial lumbago, spondylolysis

Knee joint

• Patellar desmitis, ligament injury, meniscus injury

Legs

• Shin splints

Ankle joint

• Sprains

Serbia – 2014 Men's World League

2. RESISTANCE TRAINING

The following basic principles are important in order to implement effective resistance training.

a) Overload Principle

In order to increase muscle strength it is necessary to use a load and intensity that is greater than 60% of maximum muscle strength. As training progresses it is necessary for the athlete to increase the intensity more than the improvement from the training already conducted.

Increasing the load, increasing the number of exercises or sets, increasing the number of training sessions per week, decreasing rest time between sets or a combination of all of the above constitutes the overload principle.

b) Progression Principle

Gradually increasing the load and intensity over the course of training. If this principle is implemented correctly, long-term consistent gains can be obtained.

This applies not only to increasing the load but also the introduction of new exercises, increasing the difficulty of the exercise, increasing the number of training sessions per week, and varying the training stimulus is important.

c) Specificity Principle

The effects obtained from training vary depending on the form and content of the exercise performed. To obtain the desired results it is important to design and carry out a program designed to be specific fro that sport.

Looking at it from an energy metabolism perspective, explosive strength used in attack is dependent on the ATP-CP system whereas the ability to continue performing over a whole game is dependent on the glycolysis system.

Looking at it from a biomechanics perspective, increasing jump ability is dependent on the triple extension of the hip flexor , knee and ankle joints meaning that squat and power clean exercise is more effective that leg press exercise.

2.1 Designing the resistance training programme

It is necessary to consider the following seven variables when designing a resistance-training program. Implementation of guidelines for the principles of training and programme design are outlined below.

Variables of Programme design

1. Analysing the requirements

2. Exercise selection

3. Training Frequency

4. Exercise Order

5. Training load and number of repetitions

6. Training volume

7. Training intensity

2.1.1 Analysing requirements

This is the analysis of what is necessary for the athlete to focus training on and to set clear training goals.

Examples of resistance training related to exercise movement:

Movement	Related Exercise
Jump	Squat, romanian dead lift, snatch, power clean, push jack, calf raise, combination squat
Dig, Receive	Side step lunge
Attack, Serve	Bent over rowing, lat pulldown, lateral shoulder raise, triceps extension, internal and external shoulder rotation,cuban press
Block	Pull over, triceps extension

2.1.2 Training Frequency

It is necessary to consider training experience, exercise content and periodization when determining appropriate training frequency.

2.1.2.1 Training experience
If an athlete that is just beginning a resistance training program wants to train 2 times a week it is best to do the resistance training on Monday and Thursday or Tuesday and Friday. For intermediate athletes it is possible to perform a split routine using a 4～6 time per week training programme.

Resistance training frequency according to training experience:

Training Experience	Training Frequency (sessions per week)
Beginner	2-3
Intermediate	3-4
Advanced	4-6

Example of Split Routine:

MON	TUE	WED	THU	FRI	SAT	SUN	Training Frequency
Upper body	Lower Body	Rest	Upper Body	Lower Body	Rest	Rest	4 times per week
Chest, Back	Lower Body	Shoulders, Arms	Rest	Chest, Back	Lower Body	Shoulders, Arms	6 times per week

2.1.2.2 The Competitive Season
The number of training sessions per week depends on the yearly season schedule.

Training frequency according to the competition season:

Season	Training Frequency (sessions per week)
Off-season	4-6
Pre-season	3-4
In-season	1-3
Post-season	0-3

2.1.2.3 Other Training
Resistance training must be balanced with skill and conditioning training.

Prioritisation of resistance training according to the season and goals:

Season	Prioritisation		Goal of Resistance Training
	Skill	Resistance Training	
Off-season	Low	High	(First half) Muscle hypertrophy and endurance (Second –half) Strength and Power
Pre-season	Moderate	Moderate	Sport specific movement exercise Sport specific strength, power and endurance
In-season	High	Low	Maintaining strength gains from pre-season training
Post-season	Depends on situation	Depends on situation	Non-sport specific movement exercise

2.1.3 Selecting Exercises

Exercises used in the program must be chosen taking into considering factors such as the goal of training, movement specificity to volleyball, experience in resistance training, available facilities and equipment, and available training time. Exercises are divided into core exercises and non-core exercises.

     a. Core Exercises
       1. Incorporates multiple large muscle groups
       2. Multi joint exercises
       Ex. Bench Press, Squat, Power Cleans, Romanian Dead Lift, etc.
     b. Non- Core Exercises
       1. Single muscle exercises (biceps, triceps, abdominals, etc.)
       2. Single joint exercises
       Ex. Lateral Raise, Biceps Curl, Triceps Extension, etc.
     c. Structural and Power Exercises
       Within core exercises there are exercises that place a load on the spine. These are called structural exercises.
       Ex. Back Squat, etc.
       There are also exercises that use rapid explosive movement. These are called power exercises.
       Ex. Power Cleans, etc.

2.1.4 Exercise Order

2.1.4.1 Priority Principle
     This involves doing the most important exercises earlier in the workout.
     1. Power Exercise → Core Exercise → Non-Core Exercise
     2. Large Muscle Groups → Small Muscle Groups
     3. Multiple Joint Exercise → Single Joint Exercise
     4. Interchange between upper body and lower body exercises
     5. Interchange between pushing and pulling exercises

2.1.4.2 Superset Method
     Follow an exercise of a protagonist muscle immediately with an exercise using the antagonist muscle.
     Ex. Leg Extension → Leg Curl

2.1.4.3 Compound Set Method
     Perform two exercises on the same muscle group one immediately after the other.
     Ex. Biceps Curl → Dumbbell Hammer Curl

2.1.4.4 Pre-Exhaustion Method
     Performing single joint exercise of a specific area followed by a multi joint exercise of the same muscle group.
     Ex. Leg Extension → Squat

2.1.5   Training Load and Repetitions

The number of repetitions that can be performed in a particular exercise is dependent on the load. The heavier the load means less repetitions are possible and the lighter the load means more repetitions are possible.

2.1.5.1 RM (repetition maximum)
This represents the maximum number of repetitions possible for a particular load.

Number of repetitions in relation to 1RM:

%1RM	Repetitions
100	1
95	2
93	3
90	4
87	5
85	6
83	7
80	8
77	9
75	10
70	11
67	12
65	15
60	20
<60	>20

2.1.5.2 Increasing Training Load
As the athlete adapts to the stimulus from performing the resistance training program it becomes necessary to increase the training load following the progression principle.

The "2 for 2" system can be used as a gauge of when to increase the weight load. This refers to increasing the weight load if the athlete is able to perform 2 more repetitions than intended in 2 consecutive training sessions.

Ex. In a program consisting of 3 sets of 10 squats, the athlete is able to perform all the repetitions in all the sets and actually complete 12 repetitions in the final set of two consecutive training sessions. This indicates the athlete is ready to increase the weight load.

2.1.5.3 Setting the number of repetitions according to the goal of training.
Set the resistance-training goal according to the sports season period. The training program is designed in order to attain specific goals but Table 8 provides a reference for setting the load and repetitions.

Training Goal	%1RM	Target Repetitions
Increasing Muscular Strength*	>85%	<6
Increasing Power†		
1 Time Maximum Effort	80～90%	1～2
Multiple Maximum Effort	75～85%	3～5
Muscle Hypertrophy	67～85%	6～12
Muscular Endurance	<67%	>12

*: Used only in Core Exercises
†: Repetitions do not match the table presented on 2.1.5.1.

2.1.6 Training Volume (Load vs Reps vs Sets)

Training volume is determined as the total amount lifted during a single session. For example, if the bench press is performed for 3 sets of 10 reps at 50kg, the training volume is 1500kg (50kg×10reps×3sets). If this is done 3 times per week it becomes 1500×3=4500kg. It is important to adjust training volume according to periodization.

Guidelines for training volume according to training goals are shown below.

Training volume according to training goal

Training Goal	Target Repetitions	Sets*
Increasing Muscular Strength*	<6	2～6
Increasing Power†		
1 Time Maximum Effort	1～2	3～5
Multiple Maximum Effort	3～5	3～5
Muscle Hypertrophy	6～12	3～6
Muscular Endurance	>12	2～3

*: Warm-up not included. Used only in Core Exercises
†: Repetitions do not match the table presented on 2.1.5.1.

2.1.7 Rest time

Rest between sets is determined according to the training goal.

Training Goal	Rest Time Between Sets
Increasing Muscular Strength	2～5min
Increasing Power	2～5min
Muscle Hypertrophy	30～90sec
Muscular Endurance	<30sec

＊ Creating a Training Programme

Resistance training programmes are performed in the following order:
1. Test
2. Evaluation
3. Goal setting
4. Program creation
5. Performing the programme → Programme adjustment

Table 1. Programme for increasing muscular strength (2-3 sessions per week)

	Exercise	Repetitions	Sets	Rest (min)
Core	Squat	5-6	5	2-3
Core	Bench Press	5-6	5	2-3
Core	Romanian Dead Lift	5-6	5	2-3
Non-Core	Shoulder Lateral Raise	10	3	1
Non-Core	Leg Curl	10	3	1
Non-Core	Crunch	20	3	1

Table 2. Programme for increasing power (2 sessions per week)

	Exercise	Repetitions	Sets	Rest (min)
Core	Cleans	5-6	5	2-3
Core	Snatch	5-6	5	2-3
Core	Squat	5-6	5	2-3
Core	Bench Press	5-6	5	2-3
Non-Core	Bent Over Rowing	10	3	1-2
Non-Core	Forward Leg Lunge	10	3	1-2
Non-Core	Triceps Extension	10	3	1-2
Non-Core	Standing Calf Raise	20	3	1-2
Non-Core	Crunch	20	3	1-2

Table 3. Programme for increasing muscle mass (hypertrophy)

	Exercise	Repetitions	Sets	Rest (sec)
Core	Squat	10	4～5	60～90
Core	Bench Press	10	4～5	60～90
Core	Romanian Deadlift	10	4～5	60～90
Core	Bent Over Rowing	10	3	60～90
Non-Core	Shoulder Lateral Raise	10	3	60～90
Non-Core	Forward Leg Lunge	10	3	60～90
Non-Core	Leg Curl	10	3	60～90
Non-Core	Crunch	20	3	

Table 4. Programme for muscular endurance

Exercise	Repetitions	Sets	Rest (sec)
Bench Press	15~20	>2	30
Squat	15~20	>2	30
Romanian Deadlift	15~20	>2	30
Dips	15~20	>2	30
Side Leg Lunge	15~20	>2	30
Shoulder Lateral Raise	15~20	>2	30
Leg Curl	15~20	>2	30
Crunch	15~20	>2	30

3. TRAINING FOR THE TRUNK MUSCLES

Many of the actions in volleyball are conducted without a solid support base, it is important for the trunk area of the body to be stable in order to produce high performance. Conditioning the trunk muscles is also important for internal and external injury prevention.

The purpose of training the trunk muscles is to increase the stability of the trunk. (Core, lumber-pelvic complex)

3.1 Anatomical understanding:

a) Local muscle balance: *external abdominal* oblique, *multifidus* muscle, *psoas major* muscle (rear fibres), *iliocostalis lumborum* muscles (hip fibres), *longissimus* muscle (hip fibres), *quadrates lumborum* (inside fibres)
b) Global muscle balance: *abdominal rectus* muscle, *obliquus externus abdominis* muscle, *internal oblique* muscle, *quadrates lumborum* muscle

3.2 Methods

a) Draw-ins or Harrowing
It means training to improve the ability to contract the transverse abdominal muscles. Focus on a point just below the navel whilst drawing the stomach in towards the spine and hold for 10 seconds. It is important to keep breathing as you do it. When you become accustomed to the exercise, you can increase the time. To confirm that you are performing the exercise correctly place one palm underneath your lower back whilst lying on your back to ensure your spine is in the neutral (not too curled, not too straight) position. Place the other hand on your abdomen when performing the draw-ins.

b) Bracing
After learning to perform draw-ins correctly, contract the internal and external oblique muscles whilst contracting your traverse abdominal muscles. Perform this in the same position as draw-ins and contract the entire abdomen.

c) Various exercises utilizing body weight as load using a pillar or balance ball
   If the trunk is stable and balanced, the risk of lower limb injuries is reduced, and at the same time, jump efficiency is increased. A stable, balanced trunk also helps to learn correct movements with correct posture.

   In Volleyball, with a stable trunk, the mobility of the thoracic vertebrae and the mobility and stability of the shoulder joints; it is possible to perform fast and accurate upper body movement and powerful hitting. Fast movement in defence also becomes possible.

d) Sling training
   It is a useful method for increasing not only trunk performance but also full body performance. Originally, this form of training was used in physiotherapy. Musculoskeletal disorder causes pain, injury and reduction in muscular performance due to the resulting disuse. If the disorder is not treated the result can be a reduction in movement and performance, as well as chronic pain.

   In order to prevent this, a sling is used to establish muscular movement and performance and to improve balance and trunk stability. In recent years sports teams have used sling training to improve strength and increase training efficiency.

The goals of sling training are:

- Reduce body tension
- Increase joint flexibility
- Improve muscle flexibility
- Joint compression and traction
- Improved balance

It is known that abdominal muscle contraction precedes fast upper and lower limb movement. Accelerated contraction of the kegel muscle leads to abdominal contraction so sling training also works as a training method incorporating linked movements. From the perspective of injury prevention, abdominal pressure is increased by local muscle activity, making sling training effective in reducing the risk of lower back pain.

The five following body function principles should be incorporated when training:

1) Unbalanced position used to increase muscle activity, balance and functional muscle strength
2) Movement built into all plans
3) The closed kinetic chain (CKC) principal is incorporated
4) Functional load adjustment is accurately carried out
5) All movements are performed without pain

Sling training is a theoretical training method for improving performance through functional, neuromuscular training. An adjustable sling or rope allows partial body weight to be used as load during CKC movement, making it possible to change the program depending on the individual.
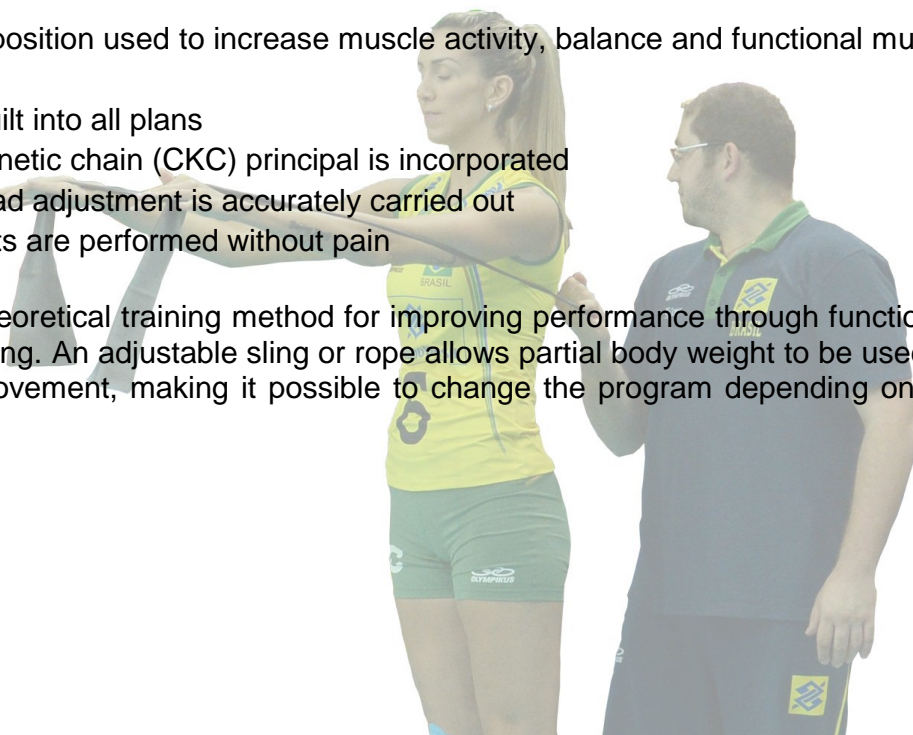
Examples of sling training:

Redcord   CrossCore

Image from http://www.andrewkinch.com/get-back-to-training/redcord-active/

e) Acceleration training
The Soviet Union space program developed acceleration training in the 1960's to combat muscle and bone density reduction due to their prolonged time in the weightlessness of space, in astronauts. Acceleration training is a form of total body vibration training and uses 3 dimensional vibrations on the vertical, frontal and sagittal axis. By riding on a plate that is vibrating at a high speed, the body is exposed to a condition of higher gravity despite the fact that the overall movement is minimal.

This training method was first introduced to the sports community by a Dutch Olympic coach, Meer. Meer focused on 'a' (acceleration) in Newton's second law of nature: 'F = ma'. Meer proposed acceleration training as a method to activate reflex muscle action without the use of heavy barbells. Since then, the effects of acceleration training have been widely researched. The recognized effects are as follows:

- Increased strength
- Increased flexibility and increased range of joint movement
- Increased bone density
- Increased muscle power (plasticity)
- Increased muscle activation; increased muscle action potential
- Increased neuromuscular reaction
- Increased blood flow and muscle temperature

Korean players' warm-up – 2014 Men's World League

It is believed that the mechanism for temporary effects on muscle power is in improved intermuscular and intramuscular condition. The activation of protagonist muscles accompanied by the suppression of antagonist muscles can be said to improve intermuscular condition. Also, it is possible that increased muscle action potential indicates that many motor units are simultaneously stimulated and that previously dormant motor units are mobilized. This is also an indication of intramuscular coordination. Increases in strength and power without an increase in muscle mass could be due to neural factors.

The above-mentioned factors indicate that acceleration training could be included as part of warming up and cooling down. Also, due to a heavy load (mass) not being necessary, acceleration training could be used as a form of conditioning training or included in a rehabilitation program.

Current acceleration training machines available vary in acceleration in the vertical, frontal and sagittal axis so it is necessary to choose an appropriate machine with the characteristics needed.

The photos below are examples of acceleration training. Detailed videos of acceleration training can be viewed at the according URL.

Power Plate

Refer to next URL: http://www.powertv.powerplate.com

Galileo Fitness

Refer to next URL:http://vibrationtraininngdevide.com /GALILEO_FITNESS.htm

Traditional weight training and conditioning is still the foundation for improving performance and preventing injuries. However, by including Sling Training and Acceleration Training in the training program it is possible to stimulate neuromuscular reflexes and introduce athletes to new functional movements.

Chapter III.
Player Development Model

1. MODELS

The field of motor skill acquisition is strongly tied to psychology. These models are useful to understand and explain the process of learning motor skills.

GOAL
The goal is established when the learner has a general idea of the requirements of the skill. Demonstration is the best method for imparting the general idea.

MOTOR PROGRAM
To develop and effective motor programme, the learner should be confronted with the environmental conditions that will control his movement.

FEEDBACK
The better the feedback, the better the learning.

RESPONSE
The more efficient the response, the more efficient the learning.

2. TEACHING METHOD

GOAL
The coach (physical educator or teacher) should be well aware of the fact that humans have a limited ability to process information. The learner should not be overloaded with information. Thus, the coach should consider two separate, but related aspects if he wants the instruction to be effective.

The first is the general idea, the content (the technique to be learned); the second is the demonstration or process (how to teach the skill).

Another important factor is the skill level of the learner and the sequential learning process.

According to Fitts and Posner (1967), there are three stages in learning a skill:

1) Cognitive stage: understanding the task and its demands.

2) Associate stage: trying to develop the motor programme that matches the exact demands of the skill.

3) Autonomous stage: continuous development of the skill but with less cognitive control, the response becomes automatic.

Stage	Process	Characteristics	Other name
Cognitive	Gathering information	Large gains, inconsistent performance	Verbal-motor stage
Associative	Putting actions together	Small gains, disjointed performance, conscious effort	Motor stage
Autonomous	Much time and practice	Performance seems unconscious, automatic and smooth	Automatic stage

* Summary of Fitts and Posner's (1967) Three Stages of Motor Learning

3. ESTABLISHING THE GOAL

There are three possible options to establish the goal.

1) Verbalization
2) Demonstration (with simple motor tasks)
3) Verbalization and demonstration (with complex motor tasks)

Key phrases should be given to the learner one at a time. With beginners, the best method is to give the new key phrase after they have success in the previous one. For intermediate and advanced players more than one key can be given at the same time.

Italy and Belgium - 2014 Women's World Championship

4.   MOTOR PROGRAM

Traditional skill progressions are violations of motor learning principles. Although there are some cases where the use of skill progression as a teaching method is the best option.

These cases are:

1)   When there is fear involved
2)   When there is danger involved
3)   To control frustration levels
4)   If the skill is too complicated

Guidelines for limited use of skill progressions:

Progression should be only with those who did not get the general idea of the skill. After demonstration, learner should be given the chance to practice the whole move. This way the coach has a chance to identify the major problems and deal with them individually. Do not break the skill into too many parts. When the learner has established the goal of the different parts in his mind, start practising the whole skill to maximize the amount of meaningful repetitions.

5.   DRILLS

Drills are very important. To develop an effective motor program, the learner should be confronted with the environmental conditions that will control his movement.

The more game-like the drills are, the better the transfer will be from the drills to the actual game. This includes:

- Proper position and movement on the court
- Proper orientation to the net
- Proper sequence of events and timing of sequences
- Proper stress levels
- Proper stimulus to react to

6. SPECIALIZATION

In the old days, rules tended to direct coaching thought from "player specialization" towards the "universal player theory." Teams with six starting players being equal in all respects has been a goal for many years. This situation, unfortunately, had in many respects, retarded the development of some top teams and of some of the thinking in Volleyball. However, the coach must understand the rotation concept and the limitations on specialization. He must use the rules effectively to train his players to be familiar with all areas of the court, to be equally comfortable in the front row as well as the back. In the learning phase, the rotation concept is perhaps the most dominant rule with which young players must become familiar. Another element that rotation dictates to Volleyball has to do with coaching adaptations in practice. We believe that since the universal player was "the ideal," we used to spend time training players in all Volleyball skills. This became virtually an impossibility in real-world situations. There simply were not enough hours in the day to train all players equally well in all Volleyball skills.

The coach's role, relative to rotation, is to work within the rules to build in specialization. This is consistent with all sports for achieving success.

Greater Specialization → Greater Success
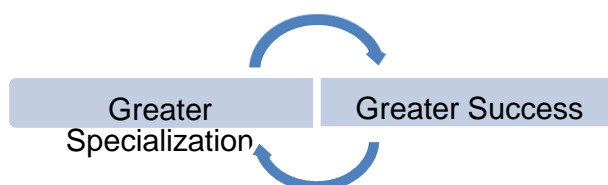
Specialization is the key. A team can be developed quickly by concentrating on a few elements of the game rather than by trying to develop a broad base of all the elements. Specialization shortens the road to success, but it can be hazardous because you are depending on a narrow set of skills rather than a broad-based foundation.

7. PHYSICAL FATIGUE

Only the continuously fatiguing tasks inhibit performance and learning. When is the best/worst time to introduce physical fatigue into a practice?
If you have to play under fatiguing conditions such as the end of a match or tournament, is it better to practice under fatiguing conditions? It is not conclusive that distributed practising is better than massed practising or vice versa; a coach should prove as many practice trials as possible under specific game-like conditions to maximize transfer to the game without producing heavy and maintained fatigue to maximize learning.
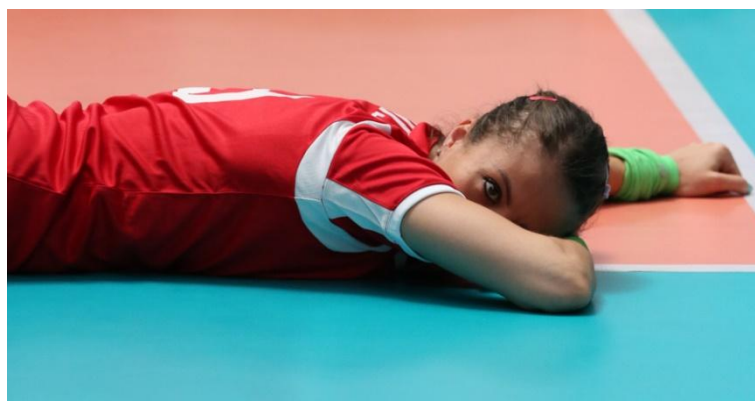
Female player (ALG) – 2015 Women's World Grand Prix

8. FEEDBACK

It is widely accepted that information feedback is the most important variable controlling learning and performance. The coach or physical educator can give feedback from two sources:

- Intrinsic: Visual, Auditory, Proprioceptive, "Error detection" mechanism
- Extrinsic: augmented by the teacher, coach, etc.

A feedback should be specific, reinforcing sometimes positive, sometimes negative results. In high intensity drills it is better to give positive or motivating, general feedback. The coach should not overload the player with information. He should let the player work on one or two things and give the player two or three practice trials to try before giving more feedback.

Information feedback about performance is helpful to maintain practice behaviour for long periods of time. There are ways to increase information feedback in practice situations: goals, competitions and by increasing the learner's awareness of intrinsic feedback.

9. PSYCHOLOGICAL PREPARATION

Psychological preparation is sometimes referred to as mental imagery or visualization, the process of practising a skill in the mind. It can create a positive mental attitude, re-establish the skill's goal in the mind and help develop the motor programme to some degree.
Guidelines for mental practising:

- Attain a sense of deep relaxation.
- Set your mind up for the activity; convince yourself that you are actually performing the skill.
- Practice only one skill at a time.
- Practice only successes.
- Practice every day for about 20 minutes once you are relaxed

Psychological preparation would also help the coach to do a better job both in practice and in competitive situations.

Maxim Mikhaylov (RUS) – 2015 Men's World Cup

10. TECHNICAL SKILLS

10.1 Positions:

10.1.1 Spiking

The "spike" is when the ball is hit or smashed over the net. It is the most powerful shot in Volleyball – and the most effective way to win a rally.

MEN (e-Poster)

Approach/position - pre contact phase
  4) As the attacker rises into the air the left arm leads the body and the right shoulder, which is rotated back to cause extra rotation into the attack initiated by hips and upper body.

Ball contact - contact phase
  5) Just before contact, the attacker puts the hitting shoulder over the ball.

6) Contact is made with a straight arm and, ideally the ball, shoulder, hip and lower leg are almost in a straight line (long lever principle).

WOMEN (e-Poster)

Approach/position - pre contact phase
4) The attacker raises the left arm to lead the body and the right shoulder is rotated back to cause extra rotation of the upper body. This transfers to more force when contacting the ball.

Ball contact - contact phase
5) The ball is set in front of the 3m line and the attacker enters into the 3m-space area. Just before contact the attacker tries to get his hitting shoulder over the ball.
6) Contact is made with a straight arm and, ideally, the ball shoulder, hip and lower leg would be in a straight line.

10.1.2   Blocking

This is the first line of defence in Volleyball. The objective of the "block" is to stop the spiked ball from crossing the net or to channel the spike to defenders. The three frontcourt players share blocking. Teams usually opt for a "read and react" block (whereby they try to react to the ball leaving the setter's hands) or for a "commit" block (whereby they decide before the point whether to jump on the quick middle balls).

The key to good blocking is penetration – the best blockers reach well over the net and into the opponent's court rather than reaching straight up, when the block can be easily penetrated by quality hitters.

MEN (e-Poster)

Approach/position - pre contact phase

3) Cue first on the arc and speed of the reception. Once the pass trajectory is established, watch the setter, then the hitter approaching. Take off position and timing depends upon the quality/timing of reception and tendencies of the setter and the attacker.

4) Once the setter sets, move towards that target with shuffle steps. At take-off, the arms, legs and body are fully extended while aiming for the hands to penetrate the plane of the net. It is easier to set a solid block if you move quickly to the target.

Ball contact - contact phase

5) Arms are extended over the net, the palms reach to the ball with fingers wide and eyes open to focus on ball.

6) At peak height the back is bent forward, abdominal muscles are contracted, eyes look up, hands move up and surround the ball with the shoulders extended to angle the arms, thus pushing the ball into the opponent's court.

WOMEN (e-Poster)

Approach/position - pre contact phase

4) Just before take-off, the arm back swing is completed when the upper arms reach a position nearly parallel to the floor, with the elbows bent backwards at close to 100 degrees and the lower arms pointing down toward the ground.

Ball contact - contact phase

5) At take-off the arms, legs and trunk are fully extended. Both blockers arrive at peak height at about the same instant, and are in a good position to prevent the attack from crossing the net. The higher the set the deeper is the leg bend to allow for maximum height and penetration.

6) At peak height the trunk is bent forward, arms are extended over the net and the palms reach to the ball, fingers are opened and eyes look up and open to focus on ball contact. P3 has to push to the middle of the court and P2 has to prevent balls from 'wiping' off the hands by turning the outside hand or correcting with shoulders if the swing block is used.

10.1.3   Serving

A serve begins each rally. A player must hit the ball with his or her hand over the net to land inside the lines of the court. Players may serve underarm or overarm (hardly anyone at elite level would offer an underarm serve). A popular serve is the "jump" or "spike" serve: the player jumps and serves the ball while airborne.

MEN (e-Poster)

Approach/position - pre contact phase
4) Both arms swing quickly upward lifting the body.

Ball contact - contact phase
5) After take-off the hitting arm, with high elbow, draws back which opens the shoulder and hips to the ball ("bow and arrow").
6) The hand of the stretched hitting arm swings over the top off the ball with contact being in line with the right shoulder, right hip and right leg and follow through to the direction of target.
7) The non-hitting arm reaches high to point at the ball. Then, is 'pulled' down to the chest giving balance in the air.

WOMEN (e-Poster)

Approach/position - pre contact phase

2) Transfer of weight from right foot to small step forward with left foot, eyes focus on the ball.

3) The back, right foot drags to lock the hips – the elbow of the contact arm is above the Shoulder.

4) The ball is tossed low with the left hand, which points to the ball until just prior to contact - hips and shoulders rotate to be square to target, followed by the elbow and open hand.

Ball contact - contact phase

5) The wrist should be "locked' upon contact, stay tall with limited back bend; the ball is contacted with the open palm.

6) The hitting arm is straight and stays "high' upon the finish – back foot drags forward with the ball in line with the hitting shoulder.

10.1.4   Digging-Diving

The "dig" is a forearm pass that is used to control the ball and pass it to the setter at the net. It is usually the first contact by the team and an effective shot to use in defence, such as when receiving a spike. The "libero" handles much of the team's serve reception and is pivotal in backcourt defence.

MEN (e-Poster)
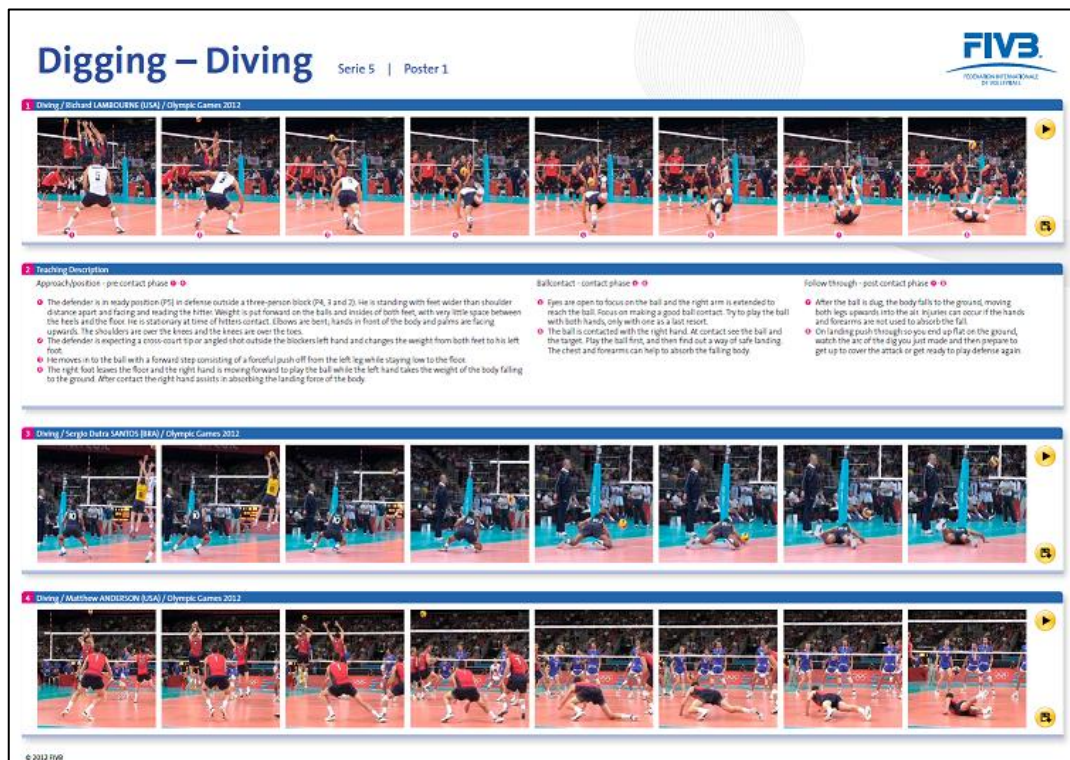
Approach/position - pre contact phase
3) He moves in to the ball with a forward step consisting of a forceful push off from the left leg while staying low to the floor.
4) The right foot leaves the floor and the right hand is moving forward to play the ball while the left hand takes the weight of the body falling to the ground. After contact, the right hand assists in absorbing the landing force of the body.

Ball contact - contact phase
5) Eyes are open to focus on the ball and the right arm is extended to reach the ball. Focus on making a good ball contact. Try to play the ball with both hands, only with one as a last resort.
6) The ball is contacted with the right hand. At contact, see the ball and the target. Play the ball first, and then find out a way of safe landing. The chest and forearms can help to absorb the falling body.

Follow through - post contact phase

7) After the ball is dug, the body falls to the ground, moving both legs upwards into the air. Injuries can occur if the hands and forearms are not used to absorb the fall.

WOMEN (e-Poster)

Approach/position - pre contact phase

4) The right foot leaves the floor and the left hand is moving diagonally left to play the ball.

Ball contact - contact phase

5) Eyes are open to focus on the ball and the left arm is extended to reach the ball. Focus on making a good ball contact. Usually try to play the ball with both hands, only with one as a last resort. The ball is contacted with the left hand. At contact, focus on the ball first and then the target, using your movement to create the right angle for the ball to stay alive for the setter to play.

6) Play the ball first, and then find out a way of safe landing. The chest and forearms can help to absorb the falling body. The right leg swings up for a good balance because of the push off from the left leg.

10.1.5   Setting

The "set" is an overhead pass used to change the direction of the dig and put the ball in a good position for the spiker.

It is usually the team's second contact. Setting is the tactical centre of Volleyball. A setter must be good enough to keep the big blockers from dominating the net. The setter must feed his or her best hitters while also looking for opponent's blocking weaknesses (such as a short player on the front line or a slow centre blocker).

MEN (e-Poster)

Approach/position - pre contact phase

3) Jump into the ball, with straight back, keeping hands high and try to make contact on the way up when rising into the air.

4) Face the direction of the target when in the air with the shoulders. This position should be the same for a front or back set.

Ball contact - contact phase

5) Contact the ball as high as possible to increase the speed of the set.

6) The ball is contacted above the head and slightly in front with a straight back. The legs bend back naturally (to create balance and stability in the air) and straighten for landing. Upon contact, the body is almost straight.

WOMEN (e-Poster)

Approach/position - pre contact phase
  3) Leading shoulder is higher and weight transfers to outside foot.
  4) Platform is created by the drop of the inside shoulder (raising the outside shoulder) and with weight transfer to the outside leg.

Ball contact - contact phase
  5) Contact on the forearms with the underhand platform.
  6) Push ball to target with thumbs leading in the arc and direction of the set.

10.1.6   Receiving

The receiver must assess incoming angle, decide where to pass the ball and then control their pass in the blink of an eye. A purely rebound sport (you cannot hold the ball), Volleyball is a game of constant motion.

10.1.7   Libero

The FIVB introduced a new specialised defensive player, the "libero", in 1998. The libero can perform only as a backcourt player and may not play an attacking shot (when the ball is hit back across the net), serve or block. If the libero makes an overhead set of the ball in front of the 3-metre attack line, the ball may not be spiked over by the team. If the libero makes the same action behind the front zone, the ball may be freely attacked.

The libero wears a different coloured uniform from the rest of the team and can be substituted in backcourt for any player on the team. The libero cannot serve, spike the ball over the net or rotate into the front-line positions, but plays a vital role for the team in serve reception and backcourt defence. There must be at least one point played between a libero substituting off for a player and going back on the court for another player – hence he cannot be on the court for the whole game.

The libero has added an extra dimension to backcourt defence, improving the reception of teams, lengthening the rallies and giving a vital role to shorter players.

The Top Four Teams' Liberos at the Olympic Games 2012 were the following:

Men's Teams Liberos

Alexey Obmochaev
RUS (188cm)

Sérgio Dutra Santos
BRA (184cm)

Andrea Bari
ITA (185cm)

Teodor Salparov
BUL (187cm)

Women's Teams Liberos

Fabiana Oliveira
BRA (167cm)

Nicole Davis
USA (167cm)

Yuko Sano
JPN (159cm)

Hae-Ran Kim
KOR (168cm)

Chapter IV.
Advanced Tactics

The roles of players, their speciality or position becomes more sophisticated and complex as the team becomes more skilled. The players' role also changes with the team's tactics and system.

1.   TEAM FORMATION

There are six players on court in a Volleyball team, who each must rotate one position clockwise every time their team wins back service from the opposition. Only the three players at the net positions can jump and spike or block near the net. The backcourt players can only hit the ball over the net if they jump from behind the attack line, also known as the three-metre line, which separates the front and back part of the court.

In parallel with the technical and physical refinement of the young players, a process of specialization occurs. Some of them prove themselves to be more successful as attackers, others show better command of the overhead pass. Once the two main groups of beginners are differentiated, the implication of group formation 3-3 becomes possible. In this formation, there are three spikers and three setters on the court, arranged in triangles, as seen in Fig. 1.

3-3 Formation
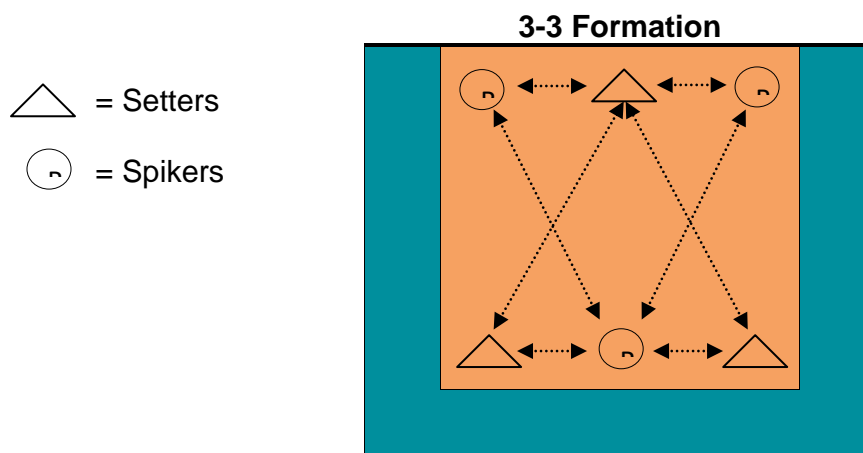
△ = Setters

◯ = Spikers

Figure 1

The position of the setter is in the middle zone, #3. The 3-3 formation requires faster penetration of the setter to that zone after service. In cases, when the front-row players are two setters and one spiker, there are two possible variations. (See Fig. 2.1, Fig 2.2)
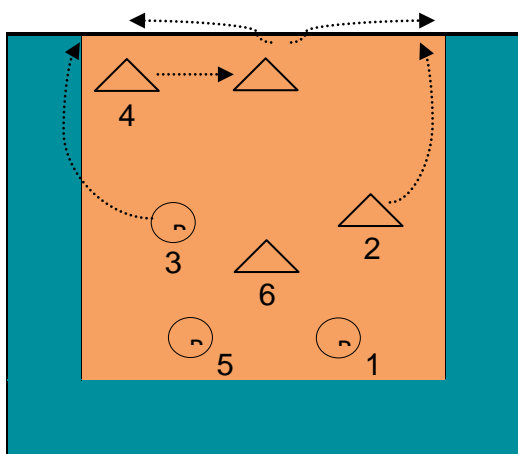
Figure 2.1
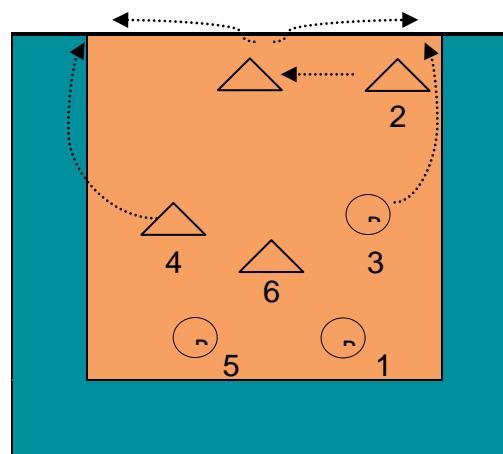
Figure 2.2

The specialization of players, based on functions, begins with the implication of the 3-3 formation. The actions of attackers and setters are not complicated and this composition does not require long-distance set-ups.

The 3-3 formation is not balanced very well in the aspect of attack. In three of the positions, there are two spikers and one setter in the front row, and in the other three there are two setters and just one spiker, which means that the team lacks attacking strength.

With the development of the young players, and based on their consequent specialization, the 4-2 formation is applied. The positioning of the players in this formation is arranged in diagonals. (See Fig. 3)

4-2 Formation
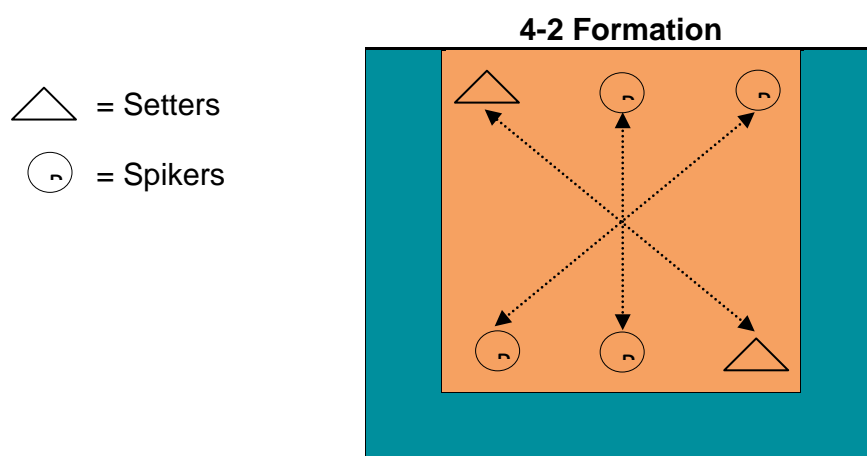
△ = Setters

◯ = Spikers

Figure 3

With this formation, the team becomes much better balanced, because regardless of rotation, there are always one setter and two spikers in the front row. The specialization of spikers at this stage of their progress, (outside spikers, quick spikers) allows for a more complicated organisation of attack combinations. Moreover, the front-row setter is the only one responsible for the set-ups.

The 4-2 is a basic team formation within the youth teams. Despite the good balance of the team and the presence of two specialized front-row spikers, the power of the attack is still not strong enough.

That is the 6-2 team formation, a logical development of the 4-2, arises. The positioning of the players is identical with that of 4-2. The main difference is in the functions of the setters. The back-row setter is responsible for the set-ups, whereas the front-row setter is active and efficient as a spiker.

The constant presence of three front-row spikers improves the team's attack capacity and enables it to come up with a rich variety of attack combinations.

There are two basic tactical variants in the positioning of the players. The first one is when the setters follow the quick spikers (See Fig. 4.1). The second model, in which setters preside the quick spikers, is also possible (See Fig 4.2)
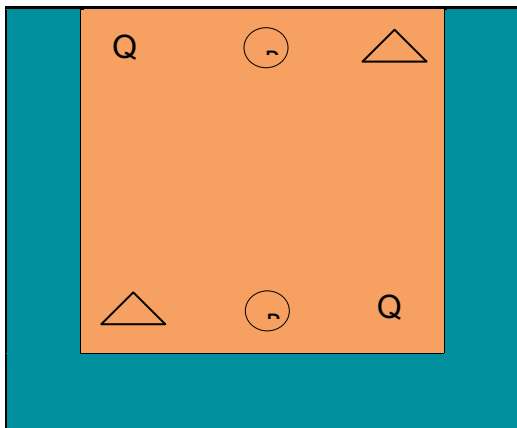
Figure 4.1
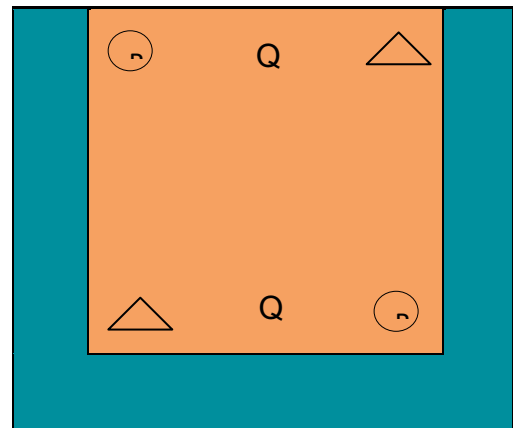
Figure 4.2

The tight specialization in contemporary Volleyball imposed the 5-1 formation. In the greater part of the high-level teams this team composition is applied, which in effect improves the power of attack by the inclusion of a fifth spiker. The classical positioning of the players is shown in Fig. 5.1 and Fig. 5.2.
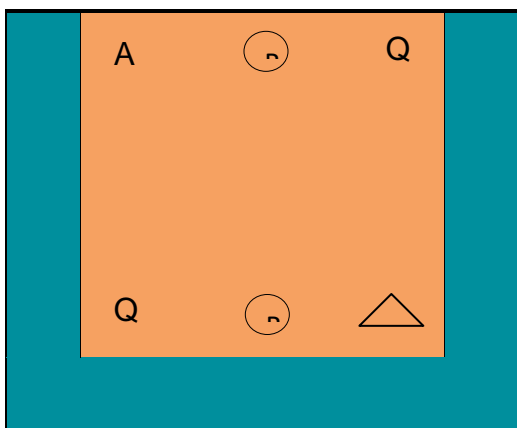
Figure 5.1
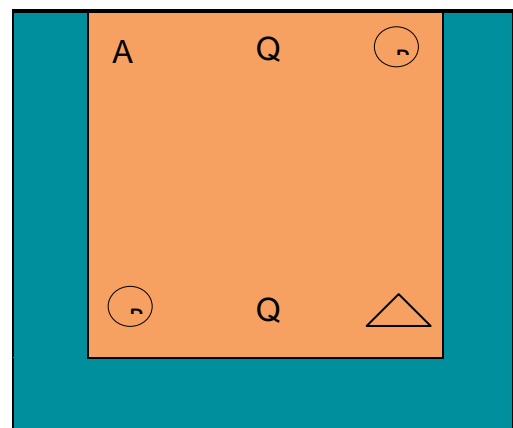
Figure 5.2

Various tactical variants exist in the use of this team formation. With the presence of a high-class setter and a solid serve reception, the spiker opposite to the setter is a key player, who is usually the main scorer of the team. In the majority of cases, the coaches place a spiker with impressive size in this position. This player is not only able to successfully complete attacks against double and triple blocks, but takes part in back-row attacks as well.

In case the quality of the serve reception is not satisfactory, it is more apt to place a universal player in this position. A player who, along with his skills as a spiker, can participate in the organisation of the attack as a setter (See Fig. 6).
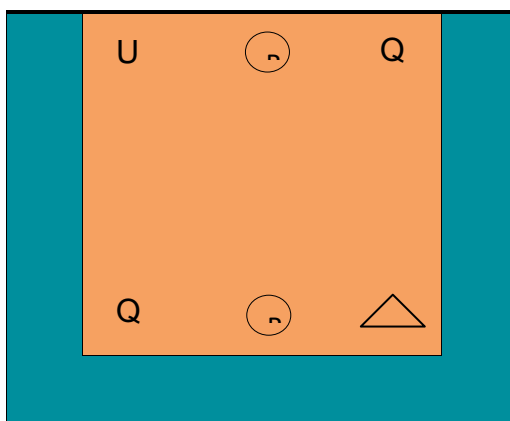
Figure 6

2. THE OFFENCE NUMBERING SYSTEM DEFINES PLAYER'S ROLES / POSITIONS

The roles and positions of the players are defined by the offence numbering system:
i.e. 3-3 system:
- 1st number indicates primary spikers
- 2nd number indicates primary setters

Therefore, in a 3-3 we have 3 primary spikers and 3 primary setters.

We have the following basic systems:
- 3-3 (3 spikers, 3 setters)
- 4-2 (4 spikers, 2 setters)
- 5-1 (5 spikers, 1 setter)
- 6-2 (6 spikers, 2 setters/hitters)

There are advanced modifications derived from the basic systems.

The three most common systems of offence are the 4-2, 5-1 and 6-2.
- 4-2 offence: It utilizes 4 hitters and 2 setters. There are always2 hitters and 1 setter at the net. This is a simple and easy system to use and it minimizes error and confusion.

- 5-1 offence: It utilizes 5 hitters and 1 setter. It contains elements from the 4-2 and 6-2 systems, depending on the setter's position (front row or back row). It has the advantage of one player running the team offence.

- 6-2 offence: It utilizes 4 hitters and 2 setters with attacking skills. The setter in the back row assumes the responsibility of running the offence. The setter in the front row joins the other two spikers to form a three-hitter attack system. This system allows for maximum variation on offence but requires a high level of team coordination.

We can also define offenses as having either penetrating or non-penetrating setters.

- Non-penetrating: 3-3 and 4-2
- Penetrating: 5-1 and 6-2

Switching:
The act of players changing positions within their line (front or back) to achieve some tactical or player specialization advantage. (i.e. The setter who begins in position 4 moves to position 3 to be in a more advantageous area to receive the serve or the ace spiker who is in position 3 moves to position 4 to take advantage of attacking possibilities).

Switching occurs in all tactical phases of Volleyball from serve receive to attack by spikers, between setters and attackers after serve reception, by blockers after the serve in in transition from defence to offence and by defensive players after the serve.

Serve reception patterns and formations
Serve receive patterns are defined by their configuration and / or by the number of players involved. (5 people: "W"; 4 people: "cup", 3 people: "line", 3 people: "diamond" and 2 people.)

In basic receiving formations, we are concerned with:
- Zones of responsibilities
- Receiving
  - Relation to setter movements
  - Relation to receiving target
  - Relation to server
- Movement patterns
- Overlap zones or seams
- Court coverage
- Difficult areas to serve

Regardless of the basic system of play (3-3, 4-2, 5-1 or 6-2), the coach must consider setting up the line-up for maximum advantage.

Cuba and Argentine – 2015 Men's World League

Consideration (priority order)
- Attack balance
- Serve receive
- Blocking and spike defence
- Setting concerns

Consideration for switches
- Serve receive target area
- Offensive sophistication and goals
- Right handed vs left handed
- One vs two setters
- Team level
- Degree of specialization
- Number of switches affecting transition
- Length of rally affecting switching

Terminology and communication system
Basic numbering system for communication between setter and spiker.

Front row attack zones
Position of ball along the net
- Each zone is one meter wide beginning at the left side-line
- The centre of the courts divides zone 5
- The setter would normally be positioned in zone 6 – 7
- No determination or designation is given to depth of set from the net

Height of the ball (speed)
0 = normal high ball (4-6 meters above the net)
1 = 30 cm above the net
2 = 60 cm above the net
3 = 1 meter above the net
9 = an extremely high set: 6 meters + above the net

Communication
Put the two number together
1 – First number indicates position along the net where the ball will be directed
2 – Second number indicates height of set
Examples: 51 = A quick; 31 = B quick

The setter establishes his position between zones 6 – 7 on the net. The spikers move positions relative to the setter. Usually there is an ace spiker, one quick spiker and one all-around spiker.

3.   COMBINATION PLAY OFFENSIVE SYSTEM (MULTIPLE ATTACK SYSTEM)

We must develop a cumulative effect by continually initiating our patterns the same way every time. The goal is to force the blockers to pinch inside due to the attacker's inside moves then get the ball to the outside of the end blockers, forcing them to reach away from the court to block the ball. Another goal is to split two blockers and allow our "play set" hitter to go one on one with the blocker.

All attackers run their patterns constantly. Continuous movement in the play set roles is essential to develop the cumulative effect. Each attack approach requires very specific footwork and attack angles (generally 3 or 4 steps ending with left foot). Individual differences are possible if the desired effect is attained.

The setter will jump-set every ball. The offence and the passing are designed for this. It is the attacker's responsibility to establish the correct positional and timing relationship with the setter. It is the setter's responsibility to establish the same, correct position each time. Players must understand and be able to execute effectively, individual and team offensive tactics.

There is infinite number of combination plays:
- Crossing patterns (usually right to left movement)
- Reverse plays (usually left to right movement)
- Double quick plays (2 or more quick spikers)
- Left side plays
- Right side plays
- Centre plays

All successful combination plays involve coordination between the receiver who must accurately pass the ball to the setter target; the setter who must control the rhythm and timing of the release of the ball and select the spiker most likely to score and, most importantly; the spiker who must watch the ball when it is in the air for accurate timing. The spikers must time their approach correctly to coincide with the speed and location of the pass, the setter's contact with the ball and the approach of the other spikers.

Croatia – 2014 Women's World Championship

Back row attack

10	32 42 51	72 92
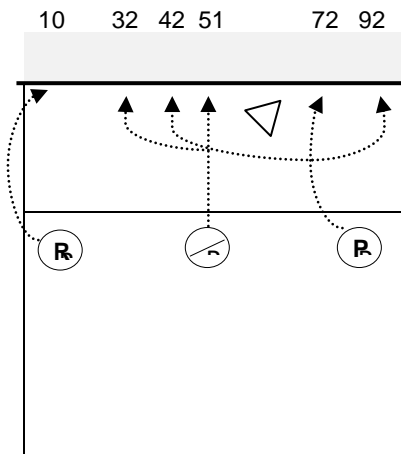
A) "51X" series gives four options to the play set spiker

10	32 31 52	72 92
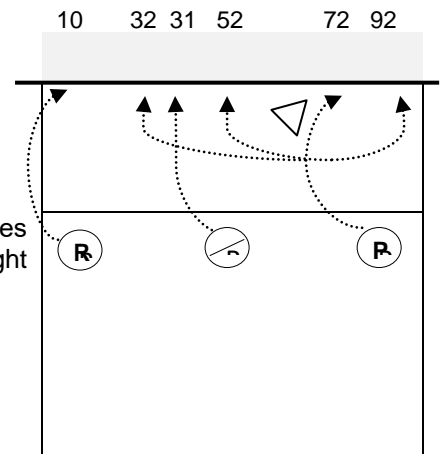
B) "31X" series isolates the right blocker

10	32 52	71 82 92
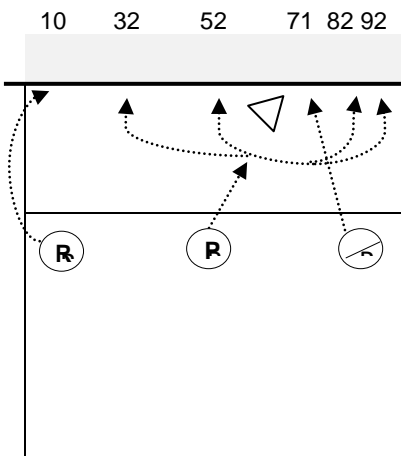
C) "71X" reverse series isolate the left side blocker

31	32/32 52	90
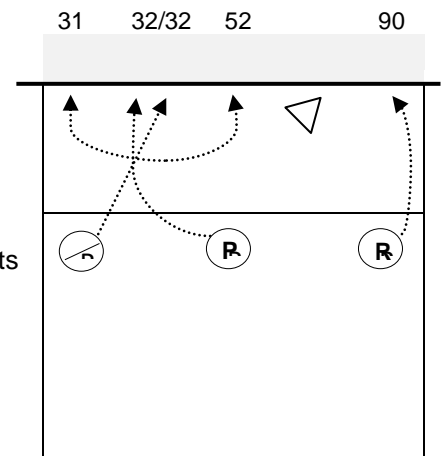
D) "31X" series isolates the rights side blocker

For the back row attack it is difficult to pinpoint the position of the back row, so 4 zones are preferred over 9 front row zones.
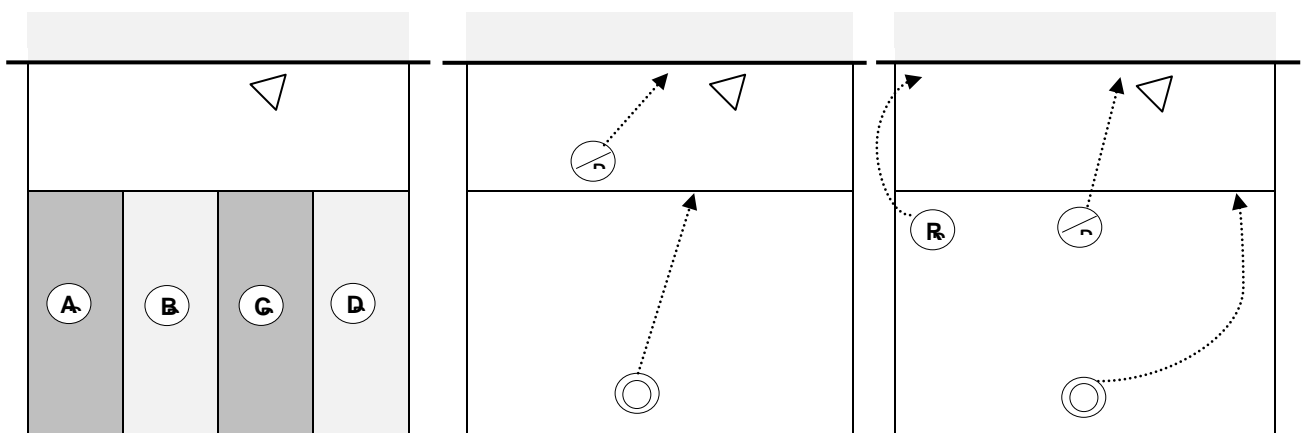
4.   TOP TEAM ANALYSIS – 2012 LONDON OLYMPIC GAMES

Technical Evaluation

For the analysis of the London 2012 Olympic Games, we have changed the basic concept for the content of our analysis compared to previous tournaments. The analysis now primarily focus on group and team tactical aspects of the playing mode in attack and blocking. Our intention has been to describe the point winning elements in a more differentiated manner and to illustrate the determining characteristics of actually successful playing concepts with a representative selection of match rallies. Selected matches of the top four teams (RUS/BRA/ITA/BUL) have been the sample for our analysis.

Considering Complex I (*First Ball Side Out)* the attacking combinations - tempos are in the focus. The typical match sequences have been divided into "setter close to the net" resp. "setter in the backcourt" and with respect to the rotations. Within the video clips, examples of successful attacking combination following a perfect serve reception are dominating (perfectly coordinated course of the combination). In addition, video sequences with planned combinations are presented which because of no perfect serve reception could not be executed as intended (transfer to a limited alternative). An extra category deals with libero actions as part of the serve reception. The participation of the other players in defensive actions can be studied with numerous combination examples.

For transition (Complex II), many successful examples for blocking actions and behaviour are presented. Here you find two categories: block with the setter of the opposing team in the backcourt and block with the setter of the opposing team close to the net (block pos. 2/3/4). The selected video clips are divided in accordance with the blocking technique (single, double block or block with three players). In the majority of the clips, the initial serve of the blocking team has been included to offer additional useful information and orientation on the planned co-operation of the serve with the strategy and tactics in blocking behaviour. However, it has to be taken into account that the details of tactical considerations within the teams remain subject to speculation for external observers who try to interpret what they can see. The specific category "serve - variable techniques" offers information and video clips on serve techniques of the players who belonged to the core team of the individual teams to support the complex considerations on the above mentioned analysing and evaluation aspects for the different teams.

We have divided the attack in Complex II (Transition) into five basic transition situations to illustrate the different aspects of the co-operation between block - defence/covering - set - counter attack. We have included a selection of long rallies as they, in a very impressive way; let us experience the power and dynamics, the emotions and technical-tactical variability of modern performance Volleyball with its permanent change between win and loss of initiative.

In the "general impressions", we have summarized selected general results of our observations of the female and male Olympic Volleyball tournaments. The "short characterization" chapters present a general team characteristic as a short version focusing on strong features and team specific characteristics of the playing mode. The major intention has been to support the targeted retrieval for video material and to initiate more individual considerations of the coaches watching the videos. Selected personal and performance data (VIS) and thoroughly selected typical match situations characterizing the playing style have formed the basis for basis for this part of our analyses.

4.1 Men's Teams

Height of the top 4 teams per player function (2012 OG)

Team/Function	RUS	BRA	ITA	BUL	Average height per player function
Liberos	188	184	183 185	185	**185**
Setters	195	190 191	200 194	202 196	**195**
Receiver-attackers	205 196 202 197	190 192 194 201	196 195 202	191 200	**197**
Opposites	202 218	198 212	202	200 206	**205**
Middle blockers	203 210 218	203 209	202 204	204 206 208	**206**
Average of country	**203**	**197**	**196**	**200**	

Tallest players in the top three teams of the 2012 Olympic Games
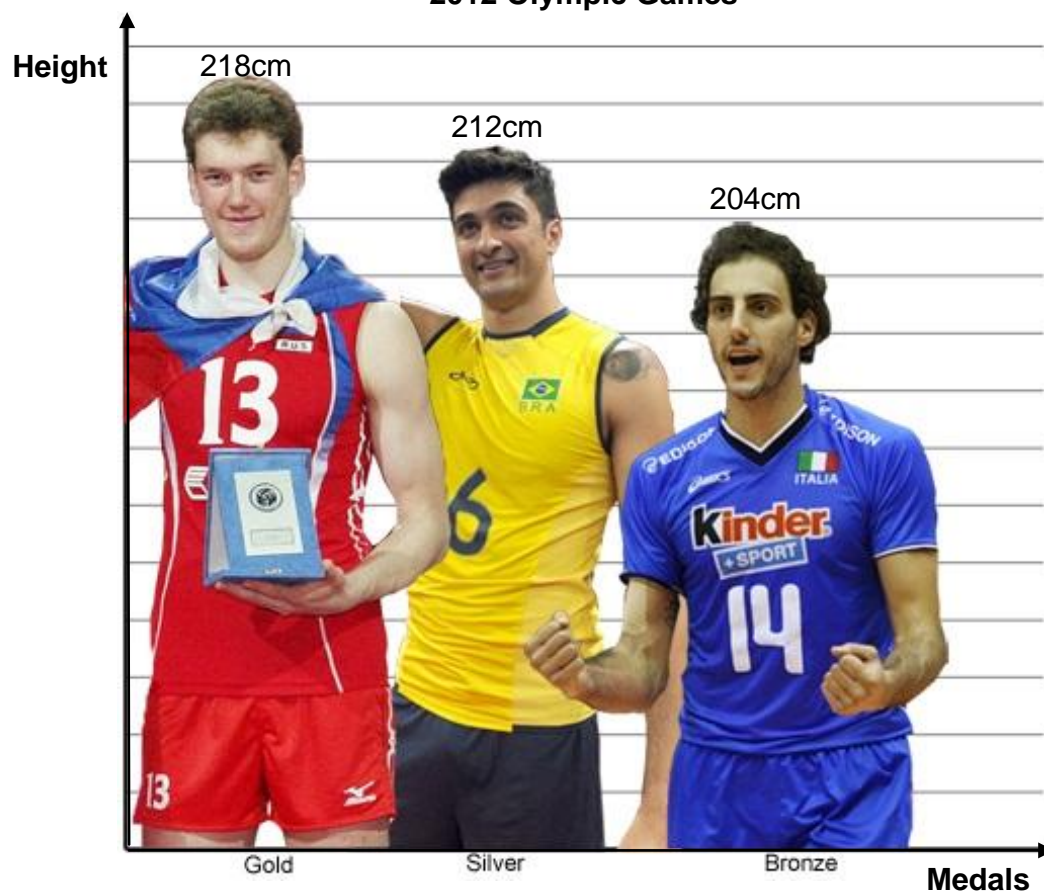
Height of the men teams (longitudinal section 1968-2012)

	1968 OG	1972 OG	1976 OG	1980 OG	1984 OG	1988 OG	1992 OG	1996 OG	2000 OG	2004 OG	2005 WL	2006 WCH	2007 WC	2008 OG	2010 WCH	2012 OG
Winner	187.7	190.0	189.0	194.2	193.5	194.8	195.6	201.6	196.8	194.5	194.4	194.4	194.3	200.4	197.9	200.8
Maximum	188.8	191.2	193.0	195.0	196.2	199.8	200.9	202.3	201.1	202.3	199.4	201.6	200.4	200.4	200.4	200.8

Winner   Maximum
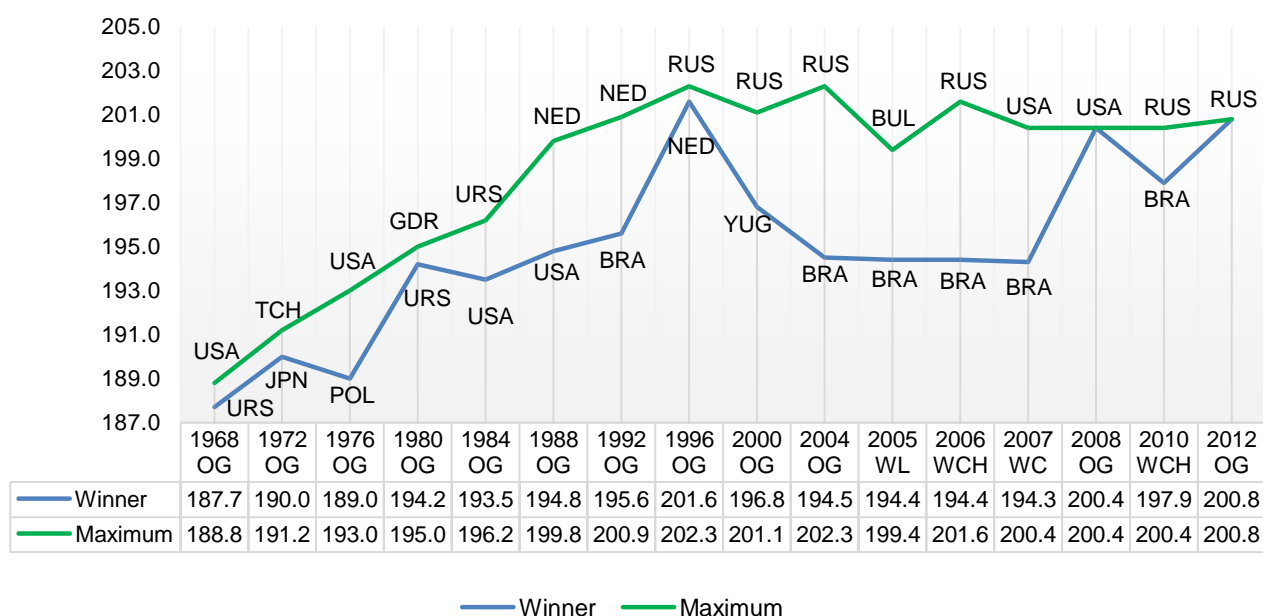
Conclusions:

- Height plays a role, but the average height is different for each player function. Volleyball at the highest level is ideally suited for players of different heights. For men the range is between 183 cm to 218 cm. On the lower level, there is an even greater spread of these figures visible.
- The common theory that Volleyball is a sport exclusively "for tall people" is not correct.
- Only selecting the tallest players seems in any case not a wise option.
- These height figures are indicative for selecting talents for top Volleyball but at which age?

Height of the top 3 teams per player function (2014 WCH)

Team/ Function	POL	BRA	GER	Average height per player function
Liberos	184 188	188 192	182 185	**186**
Setters	196 200	190 190	196 203	**195**
Middle blockers	201 205 211	203 204	205 207 210 211	**206**
Wing Spikers	194 198	190 196 198 199	193 197 203 204	**197**
Average of country	**197**	**195**	**199**	

Tallest players in the top three teams of the 2014 Men's World Championship
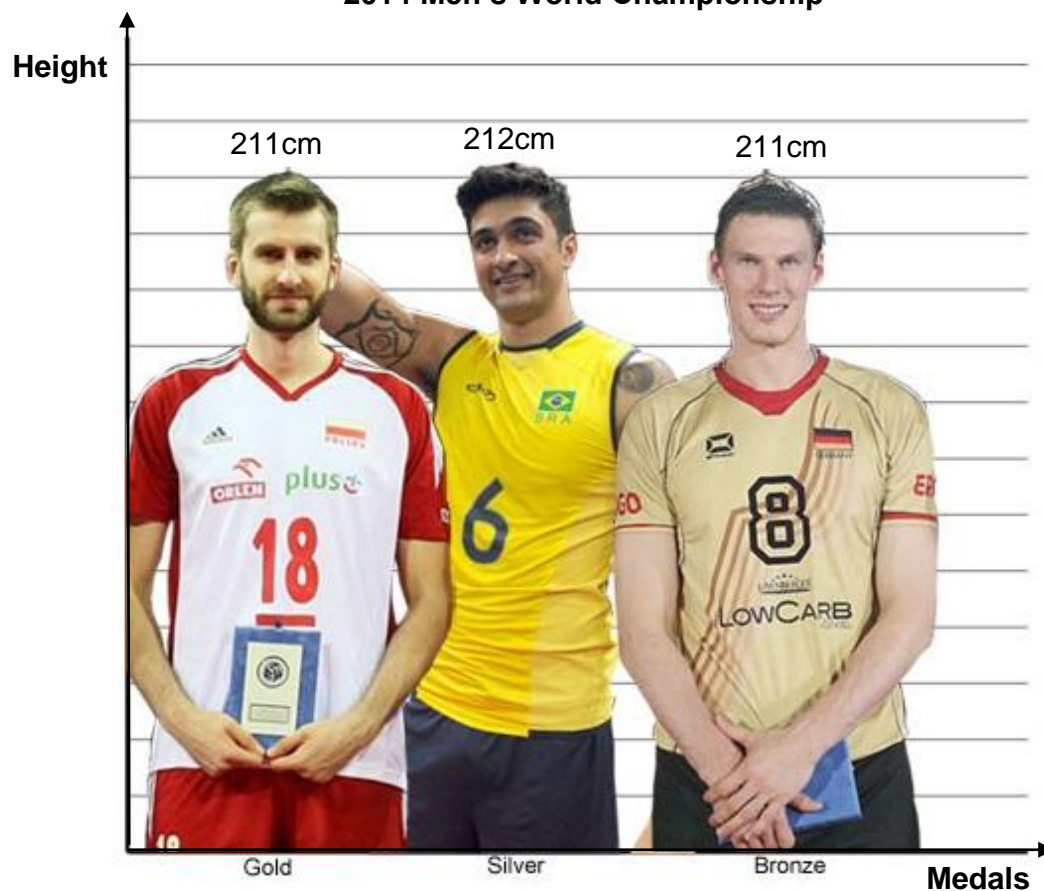
4.2   Women's Teams

Height of the top 4 teams per player function (2012 OG)

Team/ Function	BRA	USA	JPN	KOR	Average height per player function
Liberos	169	167	159	168	**166**
Setters	181 172	173 170	159	175 180	**173**
Receiver-attackers	186 179	186 188	173 175	192 186	**183**
Opposites	185	193	185	185	**187**
Middle blockers	196 193	188 191	184 186	190 183	**189**
Average of country	**183**	**182**	**174**	**182**	

Tallest players in the top three teams of the 2012 Olympic Games
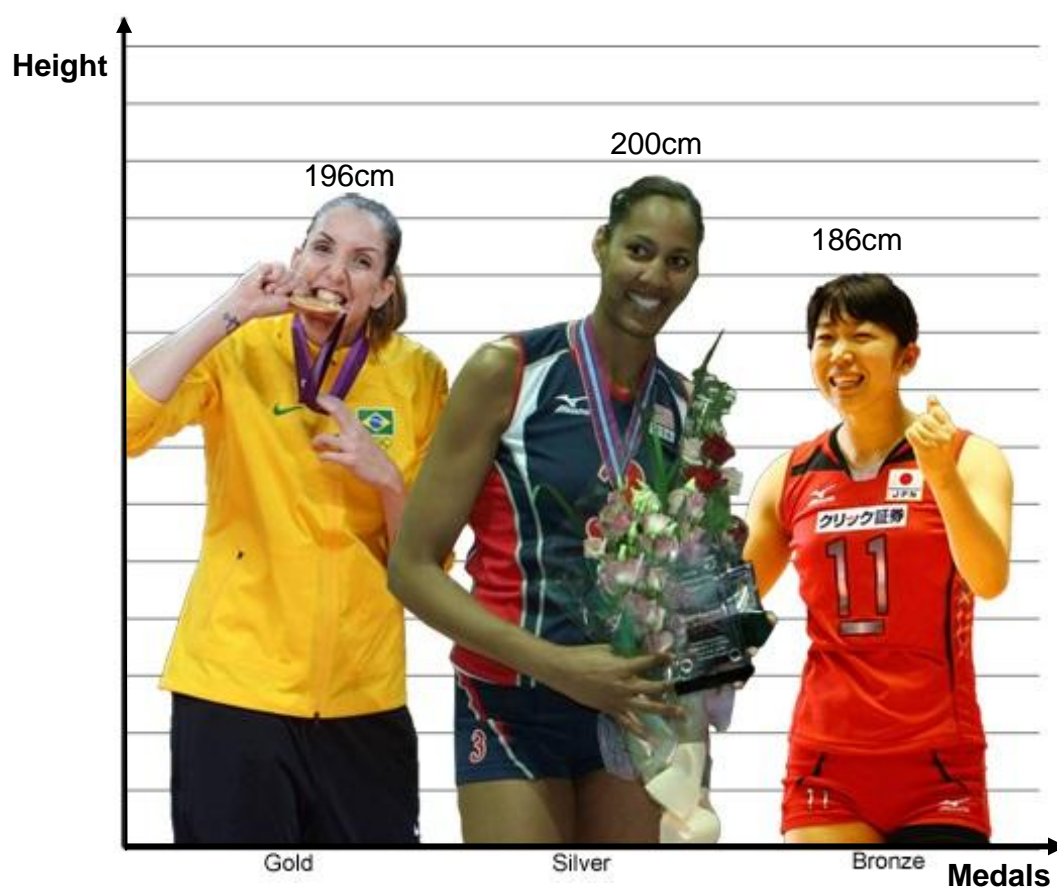
Height of the women teams (longitudinal section 1984-2012)

	1968 OG	1972 OG	1976 OG	1980 OG	1984 OG	1988 OG	1992 OG	1996 OG	2000 OG	2004 OG	2006 WCH	2007 WC	2008 OG	2010 WCH	2012 OG
Winner					178.5	183.5	180.7	181.2	180.8	183.8	189.0	180.3	183.8	188.1	183.1
Maximum					181.9	183.5	185.4	186.5	185.5	188.5	189.0	185.3	189.9	188.1	188.3
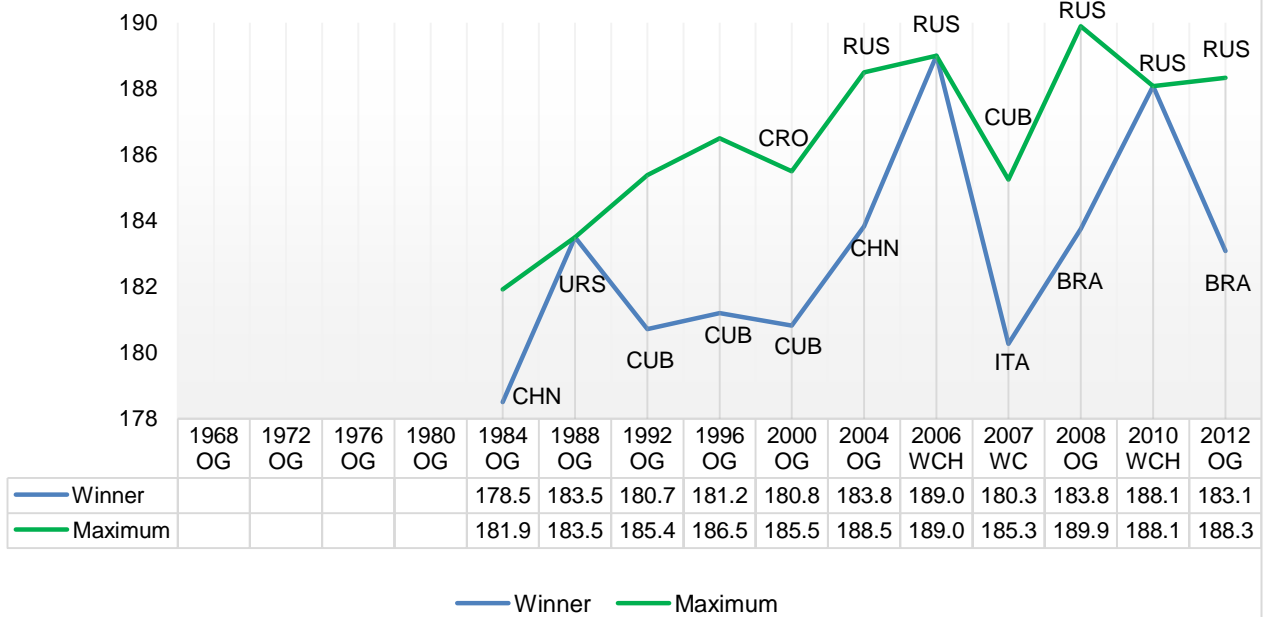
Height of the top 3 teams per player function (2014 WCH)

Team/ Function	USA	CHN	BRA	Average height per player function
Liberos	178 167	180	170	**173**
Setters	184 170	182 178	184 181	**179**
Wing Spikers	193 188 185	195 188 168	186 183 179 176	**184**
Middle blockers	191 188 188	199 195	196 193 185	**191**
Average of country	**183**	**185**	**183**	

**Tallest players in the top three teams of the
2014 Women's World Championship**
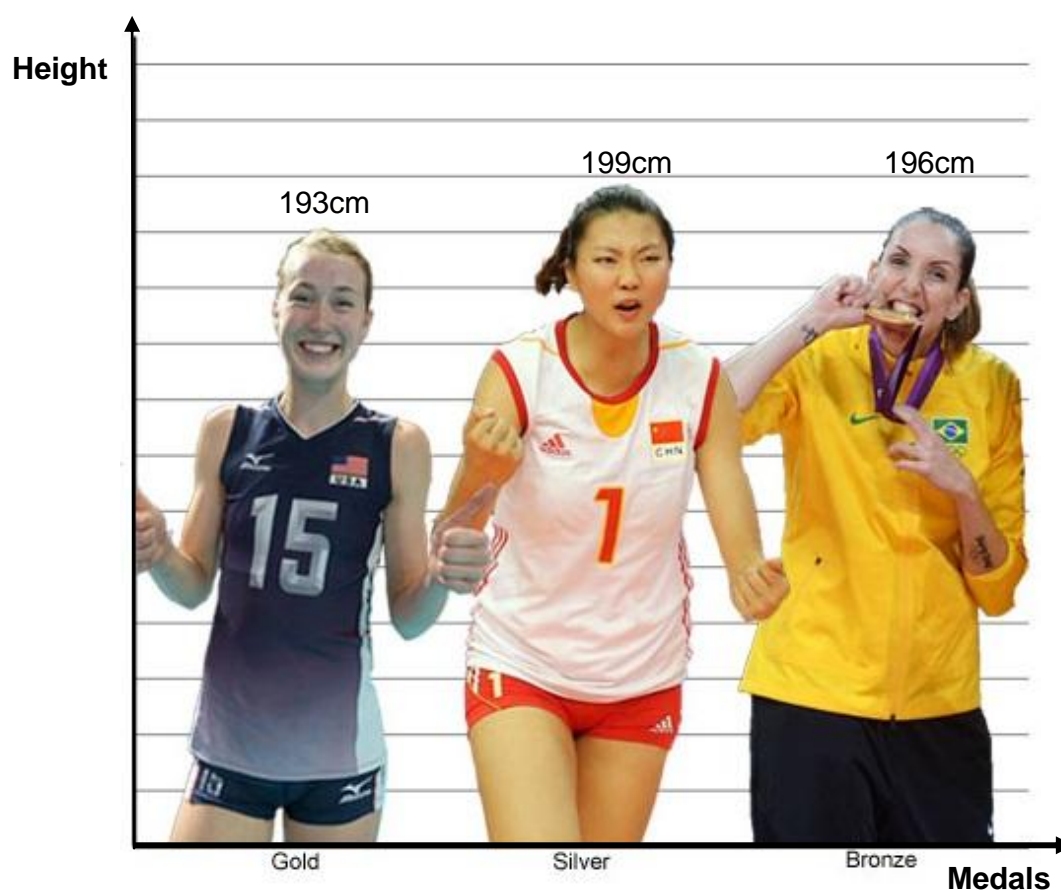
Chapter V.
Coaching Aspects

The success of a practice is determined by the behaviour of the players, their efforts, enthusiasm, fatigue level and general mental state. Drills do not make a practice effective, players' behaviour does.

1. MANAGEMENT AND COACHING OF A TEAM

1.1 Understand his influence on the team and individually on players.

It is extremely important that the coach knows the person the players see in him. Once the coach clearly understands his image in the players' eyes can he be the most effective in using his personality as a motivating tool. The coach sets the tempo and the mood to reinforce desired behaviours. It is important to design drills around the behaviour expected through body language, use of voice and types of drills (coach or player centred).

To develop an understanding of his image, the coach should ask the players to evaluate the behaviour of the coaching stuff, have a trusted colleague observe practices and chart the coach's behaviour and record practices. Video is the best mirror; the coach can see exactly what his players see.

1.2 Teach players how to behave in various practice situations.

During the first few training sessions, the coach must teach the players the expected mental and emotional behaviours and reinforce them as well. It is every coach's dream to have players with positive, supportive attitude who understand and appreciate the need for quality production on trainings, work hard and encourage their teammates. In one word; coachable players. Seldom is a team loaded with coachable athletes. Good athletes are often egocentric, selfish, moody and resistive to authority. Therefore, the coach's greatest challenge is to turn a mix of wide-ranging personalities to a cohesive unit. A strong team is developed by a coach who conducts practices consistently and his ability to prepare his players to work.

A player's attitude can be developed through:

1) Their motivation (it is important that the coach understands the player's history and be aware what motivates them)
2) The coach's expectations and the application of specific standards (the coach should be consistent in his demands; whatever guidelines are established for training, they must always be followed.)
3) Peer pressure (it can alter the behaviour of players both in positive and negative ways)

Head Coach Jenny Lang Ping (CHN) instructs the players – 2014 Women's World Championship

1.3   Be sensitive to the daily emotional changes of the players.

It is very difficult to demonstrate consistency in this sense. It is practically impossible to appear fair in all players' eyes. They often feel the coach is unfair comparing to how he is with the other players. All players must understand that the coach's perception of fair is what counts.

Players should be treated individually, as they are all different. Some respond favourably to harsh, critical treatment while others need to be handled gently to have their enthusiasm renewed. The coach needs to know which attitude to use to get the maximum out of each athlete.

In order to get to know the players, the coach should:

1) Have players keep journals.
2) Have them set quarterly goals.
3) Get to know them informally, and meet with them individually once a month.
4) Observe the players how they interact with their peers.

1.4.   Be creative and flexible.

A coach must outline each practice considering the limitations of the facilities, equipment, time and players. A coach must focus on what he and the team can do and not worry about what they cannot.

Even though drills found in books are valuable, the best drills in practice are the ones the coach creates. They should reflect the coach's and the team's personality. It is important that both coach and team are comfortable with the training environment and feel possessive of their style.

A coach should be able to adjust to the needs, strengths and weaknesses of the players. Experiment, modify, adapt. If something does not work, change it. If the practice is bogging down, put in an exciting, up-tempo drill; if it is too tiring and the quality is fading, easy up. Do not stick to a plan just because it is the plan.

Conclusion:

Organising and running practice is more than listing drills in a logical order and having players run through them. Optimally, practice is blending skill development with the desired behaviour required in competition. This blend is the team personality. The coach uses his own personality, verbal and non-verbal communication skills and knowledge of his players to create meaningful drills and practices to produce the best team.

2. THE COACH AS THE MATCH MANAGER

The real work of a coach does not begin with passing the first line-up to the umpire and it does not end with the last rally of the match. Management of the team in connection with the match begins on the first day of training when the coach starts to prepare his team to reach specific goals. The known goal could be long-term, (successful participation in a long-lasting competition, in continental or world championships) or short-term (to win an important international match, next round of domestic competition, etc.).

The coach develops, manages and controls the process of how to achieve the goal. Coaching includes the following stages:

1) Preparation of the team for the match.
2) Managing the team during the game.
3) Match analysis and evaluation.

Head Coach Solobodan Kovac (IRI) instructs the players – 2014 Men's World Championship

Proper management of the team in all three stages requires knowledge of team tactics, physical and psychological abilities (his team and the opponent's) and interpersonal relations. The coach comes with data about tactics and strategy of Volleyball, psychology and sociology. A perfect knowledge of the rules of the game is necessary for coaching effectiveness.

67

3. THE PREPARATION OF THE TEAM FOR THE MATCH

The basis of team preparation for the match consists of systematically planned and managed training to gain and maintain player performance.

Results of the match depend upon various important factors. They can be classified in three groups:

1) Match conditions (time of the day for the match, gym size, lights, ceiling height, behaviour of spectators, method of officiating, the competition system and schedule, etc.).
2) Quality (level) of the opposing team(s).
3) Quality (level) of your own team.

Match conditions should be known early enough to have enough time for adaptation. Acclimatizing is mostly important for tournaments played abroad under different conditions (time difference, temperature, officiating methods). It is a good idea to provide for practical preparation as close as possible to match conditions (modelling).

3.1. Scouting

Scouting the opposing team should be done in advance, as this will help in creating the game plan. Data acquired from scouting should be as detailed as possible. Use of it determines the length of time the team will take to digest this knowledge and learn the necessary techniques and tactics to overcome their opponent. Knowledge of the weaknesses and the winning strategies of the rival team are of no help without the ability to use it in game situations (e.g. a new defensive formation, which could be useful in the next weak match, cannot be learned and used successfully after one week's training).

The scouting report about the opponent should include information such as:

1) Composition of the team (play system 6-2 or 5-1 or other, first line-up and possible substitutes, key players in offence and defence, and team spirit).
2) Team Formations
   Serving (type of serves, serving tactic, switches after serve).
   Serve reception (formations in various rotational orders, combinations with 2, 3, 4 or 5 players in reception formation, position of receivers, strong and weak receivers).
   Field defence (court coverage, weak areas).
   Attack (mostly used offensive combinations, preferably all combinations used in various rotational orders, combinations on serve reception and transition play).
   Blocking (used blocking tactic as man-to-man blocking, zone blocking or time sequence blocking, switching of blockers).
3) Individual technique and tactics
   Evaluation of players' skills and the pattern most often used in each skill (the best/weakest receiver, attacker, blocker, directions of attack, types of sets, etc.).
4) General team philosophy and psychology
   (Physical condition, fighting abilities, leader on the court)

5) Opponent's coach

(Coaching style, use of substitutions and time-outs, coach's influence on the team during the game)

The acquired information about the opponent and coach's knowledge of his team are sources for the formulation of the game plan. The effective game plan should be short, concise and it must maximize strong points of the team and minimize weaknesses (for the opposing team vice-versa). Principal points of the game plan should be discussed with the players and the determined tactics must be practiced and possibly modified during the training period.

3.2. Game Plan

The game plan may include the following items:

- Anticipation of the match result made in comparison with abilities of both teams.
- The first line-up for both possible cases, i.e., for the first serve or reception.
- Choice of substitutes and reserve players for the respective positions.
- Proposed offensive combinations and defensive formations.
- Determination of game rhythms.
- Probable (prepared) changes of tactics.
- Psychological warfare (behaviour of the team, reactions to opponents' expected behaviour, fighting spirit, etc.).

Let us assume a one-week training period in the main season, three training sessions per week. The first training session is used to perfect technical and tactical skills. The second session is to practice individual and team skills. The third training session is used to test the game plan in the real game (selected line-up against a team of substitutes or against a team playing a style similar to the future opponent).

The game flow should be discussed with the players before this training session.

Poland team before training session for the Final – 2014 Men's World Championship

4.   MANAGING THE TEAM JUST PRIOR TO, AND DURING THE MATCH

4.1. Arrival

The team should arrive at the court a minimum of one and a half hours prior to the match. Players should familiarize themselves with the court, lights, and surroundings (walk around, make mental notes).

4.2. Meeting before the match

After getting into uniforms, a short meeting of the team should be conducted by the coach. Highlights of the game plan should be previewed (briefly) and players should be encouraged to do their best. The importance of the match should be made clear.

4.3. Warm-up

According to the protocol proceedings before the match, (introductions, national anthems, official training time on the court) warm-ups should be scheduled and all players aware of method and content. The coach can give some tips at the end of meeting before the match. Begin with stretching after brief running; players perform the usual "battery" of drills. After warm-up (running a short distance, jumps, starts), the players warm up with the ball according to their roles for the match. They should practice the skills they are proficient in and use in the match.

No new skills or techniques should be practiced in warm-up as errors could psychologically demoralize players. The players finish with serving and serve reception. Specialists on reception are allowed to use more time than other players (e.g., setter in play system 5-1 does not take part in reception at all).

The coach evaluates the status of each player during this time, stimulating low activity players and calming down the highly activated ones.

Iran and Russia during warm-up – 2014 Men's World Championship

4.4. Choice of serve or end

The coach and the team captain should evaluate both sides of the court and decide on a coin toss. Generally, the serve should be selected (only in the case of clear advantage or disadvantage offered by one side, is the end preferred).

There is a different situation before the fifth set since the change of the Rules in the 1988 Congress introducing the tiebreak. Most of the teams can easily make a side-out after service reception, which now means a point in the fifth set. Therefore, the choice of the end could be preferable in this situation, if there is no server available who can start the rally with an efficient (scoring) serve.

4.5. General principles of guiding the team during the game

1) The game plan should be carefully evaluated from the beginning of the match to be sure that it works. Early reading of the opposing team's tactical plan can help a lot. The coach has to find out how the starting players carry out the game plan and their performance (assistant-coach or special observers can supply necessary information from match analysis or from simple statistics).

2) Fighting spirit is very important. A match does not end until the last point is scored and it can be won with any score. The coach has to believe that his team can win and he must support fighting for each ball in the game. Motivation for the weaker team in a match of two teams of different levels could be to win a set or to reach a certain number of points.

3) Critical points in the set could be overcome by changes of game rhythm or tactics. There are certain points in the set (psychological barriers - usually 3-4, 8-9 and 11-12 points), that we should try to pass first and then continue quickly (leading the score), or prolong (the opponent is ahead) and get back by delaying the game or changing tactics. Changes in the rhythm or continuing with the successful one will often help to win a close match. "Speed-up" can be accomplished by using quick attack combinations, second time attack and keeping interruptions of the game to a minimum. "Slow-down" can be accomplished by using high sets, keeping three contacts, using the entire time in interruptions of the game and asking for substitutions and time-outs.

4) The coach can do little during the game to affect the result. Many things should be done earlier in preparation and planning including the planning of substitutions and use of time-outs. The coach has a maximum of eight "steps" he can use directly in a set (six substitutions and two time-outs). He must concentrate on using them properly. His bad behaviour on the bench (shouting, complaining or losing faith in his team) will not only prevent him from leading the team, but it will negatively influence team morale and concentration. Instructions are allowed from the bench. However, the coach should not use this possibility too often, but should remain calm and in control of his temper.

Head Coach Camillo Placi (BUL) Serbia v Bulgaria warm-up – 2014 Men's World League

5) Special tactics should be applied towards the end of the match in the fifth set/tie-break. When both teams are close and one team is ahead 14:13 and serving, then a risky service should be executed. There is a greater probability of marking a point by a successful attack after service reception. Three successive successful attacks, after service reception, will win the whole match in any case. The team will reach 17 first in spite of the results of rallies that the team starts with serve or otherwise the match will finish with an ace service sooner.

4.6. Regulation of the team play

The coach has three kinds of options during the game:

1) Time-outs
2) Substitutions
3) Intervals between sets

4.6.1 The use of time-outs

There are four reasons for a time-out in a set. The opponent's time-outs should be taken advantage of to inform the team of expected changes in the rival's tactics, to encourage the players to keep going and to keep the team ahead (not giving an opportunity to interrupt the sequence of points). The Golden Rule says: "The team must not make an error in service after the rival's time-out."

Time-outs last 30 seconds only and they should be used wisely. It is necessary for all players to quickly meet the coach at the side-line. The coach must be constructive and concise. He must communicate (from prepared notes) the source of errors. Quarrels and discussions among players have no place during the time-outs. A personal approach to each player in conjunction with his personality is of great importance.

At the end of time-out, the coach shows confidence in the team and re-establishes their fighting spirit and the will to win.

A time-out is needed when:

- The opponent has scored three or four points consecutively and there is a need to break his rhythm.
- The team is confused or some players repeat the same tactical errors.
- The coach wants to direct a close tactic, e.g., where to serve, what kind of attack seems to be most useful, where to block.
- The coach intends to change tactics due to the opponent's successful tactical plan.
- The players have given up and they need to be encouraged.
- The players need a rest for mental recovery after a very long (tough) rally.

4.6.2   The use of substitutions

The coach requests substitutions by considering the following aspects:

- Strengthening offence, defence or change the psychic climate on the court with a specialised player.
- Replacing a failing player who does not fulfil the game plan, makes many errors, who displays an unsportsmanlike behaviour or is upsetting the interpersonal relations among the players.
- Giving the reserve players a chance to play without risking the successful match result.
- Interrupting the game in order to give instructions to the team (through the substitute) or to break the rhythm of the game (instead of time-out).

The substitute must be warmed up, ready to play and must know his task (e.g., where to switch by the net, his role in the field defence). All reserve players are obliged to be in contact with the coach (or assistant coach) in order to act on his tips at once. The substitute passes on information from the coach to the team.

Substitutions for the purpose of strengthening offence or defence should respect specialization of players and the play system being used by the team. We can use specialists for serving, receiving, blocking, attacking or field retrieving. Sometimes an experienced player strengthens the fighting spirit from a psychological point of view. All specialists should be specifically trained in their roles and have already been used for this purpose several times in friendly matches.

The play system being used by the team influences the possibility and tactics of substitutions substantially. The "old fashioned" substitution of an agile setter to strengthen the field defence is not valid in the play system at all. The specialized setter is mostly excluded from the field defence. He does not contact the first ball from the opponent and he does not receive the serve at all. The change from the 5-1 play system to the 6-2 does not mean one more setter in the team only; it will affect defensive formation for service reception used normally in this rotational order. The use of double substitution in a 5-1 play system (a new setter into position I and a new universal player into position IV) is questionable. These changes affect the tasks of other players in defence and offence and must be practiced many times before the match.

4.6.3   The use of intervals between the sets

There are three minutes between sets that the coach can use to review the previous set and discuss with players the tactics to be used in the next part of the game. The results from match analysis or notices from the assistant coach can be used to improve the rotational order or starting line-up in respect to the performance in the last set or to the opponent's line-up. All players should be fully confident of winning the next set before the game starts.

Head Coach Lang Ping (CHN) instructs the players during timeout – 2015 Women's World Cup

5.   MATCH EVALUATION

The coach (assistant coach or anybody supporting the team, including reserve players) makes notes about the match to help him determine the causes of the last defeat or success. The evaluation should be objective, critical and consist of the following points.

- Success of the game plan and its positive and negative qualities
- Fulfilling a part of the game plan with each player and the whole team
- Evaluation of the players' performance and behaviour during the match
- Conclusions for training or following competitions
- The use of statistical game analysis makes objectivity of evaluation possible. The data about the player's actions (quantity and quality) in the game could be collected by special observers, the assistant coach or by players on the bench. Data can be

obtained by analysis of films or video recordings after the match too. (See Chapter 16 "Evaluation of Performance: of Players during Matches" for more information on match analysis)

All this information must be correctly interpreted and completed using the coach's commentary and intuition.

A useful source of information is the international score sheet. The coach should be familiar with the data and method of score sheet recording. A simple programme on a personal computer can create the data as score-flow with the "best" and the "worst" line-up (meaning a line-up where we lost or gained maximum points) and how many points were scored by each rotation (player on serve), etc.

The coach should call a meeting, in a quiet place, of the entire team after the match. He must have results and interpretations of the statistical game analysis available. It is not good to discuss the match directly after the game. The players should have a clear picture of the game and objective data ready. Nevertheless, immediately after the game, the coach should say a few words to keep the team "on the ground" after victory, and if they have lost, to remind the players that they are "not as bad" as they feel.

The most advantageous time for organising such post game meetings may be the next training session after the match (combined with relaxation). The players should speak first and express their opinion about the match. The coach gives his interpretation later and concludes with the main reasons for victory or defeat. At the end of the meeting, the resulting conclusions should be specified for training and the next match. (Notes prepared in advance by the players as well as by the coach and assistants are very useful.)

Generally, a coach needs a lot of experience and knowledge from the viewpoint of a team manager and as a team coach. He needs plenty of time to achieve a high level of performance from his team. Self-criticism of his own work and the ability to learn from all possible sources is the way for him to advance.

Head Coach Lang Ping (CHN) next to Xia Dingo (CHN) crying after victory– 2015 Women's World Cup

Chapter VI.
Psychological Preparation in Volleyball

INTRODUCTION

Psychology enters Volleyball through two kinds of application. The first is a partial application analysing different psychic processes, states, and personalities of athletes. The second one is a general application concerning the whole field of training and competition. Such general applications are known under different terms: psychology of training, psychology of coaching, psychosomatic training etc.

Here we will be using a system called "Psychological Preparation of the Athlete." It is regarded as a sub-system of the training system. It should be used by the coaches during the training season.

Let us briefly go through the system of psychological preparation.

1.   PSYCHOLOGICAL PREPARATION

Psychological preparation is an integral part of the training system. However, it cannot substitute for any other part of the training. Psychological preparation is directed towards an increase in the player's psychic resistance or strength, as well as towards the ability to realize they gain capacity of performance through optimal self-confidence. Psychological preparation considers the painstaking daily workouts and is objectively based on the current level of the performance. Psychological information is presented to coaches who are responsible for training, as well as the welfare of the players. In the coach – player interaction psychological preparation logically progresses as follows: self-training, perfection, self-perfection, education and self-education.

The following principles of psychological preparation will be discussed:

1) Modelling
2) Variation and gradation of stress
3) Regulation of psychic tensions
4) Individualization and socialization

These are deduced from neuro-physiological and psychological theories and their mutual correlation to adaptation and learning, and the practice of training and competition.

Inna Matveyeva (KAZ) – 2014 Women's World Championship

1.1 Modelling

Modelling is based on theories of classical and instrumental conditioning; and its role in active adaptation is to stress in conflict situations. The device of model training and its variants are useful in the creation of a sufficient store of patterns for efficient and flexible solutions of problems arising during a competition. The actual mission of model training lies in reducing the differences between training and competition. In this way, the prerequisites are developed to resist the different kinds of stress in competition. We try to anticipate competitive conditions to help avoid failure in performance caused by an insufficient level of adaptation to psychic stressors such as interval stress, shock stress, stress resulting from an unsatisfactory or excessive quantity of information, etc.

In model training, we simulate the outer, natural conditions (time, place, climate and situations) of the coming competitions, including the social atmosphere. Later we simulate tactical and strategic variants of the expected types of opponent offence and defence; and finally, the optimal mental state of players with respect to the intervening stressors. Mostly this concerns overcoming different mental barriers and partial frustrations, which have been conditioned by earlier experiences. For example, we recommend modelling and coping with various handicaps and aggravations of individual training tasks through verbal and situational maintenance of their importance and the necessity of successful accomplishment at a specific time.

The effectiveness of model training depends on the adequate analysis of the expected conditions and situations of the coming event, and on a creative application of the devised models in training.

The advantage of modelling is in the creation of directed concentration during mental stress - a psychosomatic, integrated pre-disposition for a flexible decision by the player with the intention of achieving top performance in a conflict situation. Moreover, modelling constitutes an important nonverbal means of using psychology within the training that a coach is able to master. Model training becomes, in this respect, an effective counterbalance for excessive "talking to" or coach-athlete interaction.

In conclusion, we should point out a relatively less frequently used reciprocal relationship between training and competition: training as competition and competition as training. If the coach makes adequate use of this evident reciprocity and gradually builds up to the most important competition of the season, he obtains natural and very effective models of mental stressors, the absence of which makes training incomplete.

1.2   Variation and Gradation of Stress

Variation and gradation of stress is based on S-R theories of learning, especially on the phased progress of automation and the conditions of effective transfer. The purpose of gradation of physical and mental stress lies in the process of permanent habituation and de-habituation of stimuli, in close relationship with dependent and independent variables of performance, i.e. conditions, the athlete's personality and stress tolerance, etc.

As a rule, gradation of stress must be parallel with those variables to which the approaching date of competition belongs.

The stressing peaks are increased in the micro cycles to achieve a macro cyclic progressive improvement line. The gradation should maintain an optimum of homeostatic regulation in an individual, which is appropriate to his initial dispositional constellation.

Variation in physical and mental stress is directed, above all, through the development of effective responses to the variable phenomena of actual situations in competitions. Elements of training and competition are identified and emphasized through a situational variation of stress; this belongs to one of the basic conditions for effectiveness of a positive transfer. A derived effect of variation of stress is in the prevention of emotional deprivation of the everyday training stereotype (boredom) as it makes training more emotional.

Synthetic training, in which the competitor covers the whole racing distance at full speed, brings about an adequate adaptation of psychosomatic functions and also helps to create the final pattern: the competitor's performance level and possible reserves.

Effectiveness of gradation and variation may be increased by means of different combinations of overstressed training, non-stereotyped intervals, handicap training, and synthetic sections of the task.

1.3   Regulation of Mental Tensions

The regulation of mental tensions is based on the concept of "arousal effect." This effect results in non-specific and specific neurohumoral mobilization and the invigorating of the individual. The theory of activation levels seeks a unified explanation of different motivational and emotional processes as well as an understanding of their changing influence on actual psycho-physiological effects in the individual.

The level of mental tensions is coherent with the level of realized performance. This dependence, as it is known, is not linear; it takes the shape of an inverted U-curve, which means that relatively optimal tensions are connected with relatively maximal performances.

The regulation of mental tensions toward their optimum constitutes the focal, practical problem of psychological influence on the player. Such regulation is, however, very difficult. The origin of actual mental tensions is complicated, complex, dynamic and very

autonomous. Their progress is individual and they are exposed to the influence of many intervening variables: known and unknown, manifest and concealed, principal and partial, etc. The source of these variables lies in the outer and inner life of man, including his intimate, public, work, and sport life.

The complexity of actual mental tensions and their influences on performance is a problem not only because of their intensity, but also of their timing to a fixed moment at the start of competition. From the point of view of intensity and timing, it is possible to classify different types of inconvenient mental tensions (excessively high or low, premature or delayed). The optimal mental tension results from the coordination of peripheral, vegetative and central mental adaptation mechanisms.

This regulative coordination is conditioned through hereditary features as well as through learning ("the competitor's experience"). In most situations, the optimum of intensity and the timing of mental tension becomes a compound of a well-planned training programme. However, in distressful conflict situations, the functional unity of mental tension and programme can be broken down.

The great importance of optimal, timely and functional mental tensions for performance, along with the irrationality of their origin and progress, frequently encourages empirical, intuitive, and sometimes even magical solutions (superstition).

Professionally and scientifically based approaches have recently begun to develop. Practically applicable means leading directly and indirectly to optimization of actual mental states and their tensions may be classified by different criteria. We select the following divisions based on their primary effects: biological, psychopharmacological, physiological, psychological means.

Head Coach Juan Carlos Gala Rodriguez (CUB) – 2014 Women's World Championship

1.4 Psychological Means

Psychological means constitute a relatively large complex or direct regulative and auto regulative influence on motivation and mental states that can have a significant effect on performance. The problem is to restore an optimum of dynamic forces within the athlete in compliance with the standards of society and the ethics of sport.

In this group, we can list the following means: programming of performance, conception of condition, reduction of responsibility, verbalization, "magic", complementary activities, ideomotor training and mental training. These classifications are not based on any particular level of psychotherapeutic theories or concepts. They proceed from the relationship between performance and the educative influence of the coach, as well as the self-educative activity of the athlete; and represent a typology of general problems that appear in practice.

1.5 Individualization

The principle of individualization originates from inter-individual differences and intra-individual changes, and is based on personality theories which point out the multidimensional uniqueness of every man. Individualization is directed against over generalized scientific education of training and stereotyped, schematic progress. This is widely recognized but is very seldom put into practice.

Here we should point out briefly that the collaboration of the player and the coach constitutes the psychological basis of individualization. Both have to learn to know each other and themselves as well. The self-recognition of the player should be characterized by professional self-examination, while in his recognition of the player; the coach should aim at external and educational diagnostics. For this, it is possible to use various techniques such as daily entries in a logbook which so far serves for registration of training loads and results. There are almost no records of psychic phenomena in athletes' logbooks. Even a record of feelings before a start could be helpful for an individualized optimization of tensions, if the player is able to identify states which, as a rule, precede his good performances. The coach can also judge from such records what kind of behaviour corresponds with good results. Diary records can be supplemented by quantifying self-observational and self-rating scales of feelings and behaviour. It is possible to learn a great deal from mutual talks and discussions about the player's condition and his relationship to his training and competition or even from talks with parents, coach, fellow workers, etc.

Individualization concerns the ability of the coach not only to select the most suitable training devices, but also to point out those social roles which correspond to educational and training goals, and which facilitate a multi-dimensional communication with the athlete's personality.

1.6 Socialization

The principle of socialization originates from the phenomenon of sport interactions, especially the social contradictions that can be part of competition and practice. The term "sport fight" symbolizes and characterizes this interaction and its different levels (nature-society), poles (individual-group), aims (education-performance), etc.

Social effectiveness in a sport group is based on a balance of mutual competition and cooperation inside the group. If competition prevails, then hostile relationships increase and mutual tolerance, cohesion, identification, etc. decrease. If cooperation prevails, then it helps to create friendly relations between players, but it also decreases their mutual demands, criticisms, etc.

Friendly and unfriendly relationships may be of other origin. In terms of group effectiveness, it is necessary to take into account primary competition and cooperation, which directly influence the group atmosphere in training and contests. Cooperation without competition and competition with cooperation are only undesirable extremes which do not directly threaten the efficiency of a group, but which may gradually influence it unfavourably.

The control of balance between competition and cooperation is in the hands of the coach and depends on his style of guiding the group. A relatively objective attitude toward all group members in evaluations, observations, support, etc." helps to create this balance; any one-sided and subjective factor impairs this balance.

It is also important in keeping an atmosphere of competition to maintain and consider the aspirations of young players seeking group membership. Every member of the team has to fight for his membership by daily effort for performance improvement and by respecting valid group standards. To maintain good cooperation, it is helpful to delegate, equitably, various duties in the group. Do not allow such roles as "stars" or "newcomers" to influence mutual help, self-sacrifice, etc.

Turkey – 2014 Women's World Championship

Volleyball is a type of sport characterized by maximal effort and close interaction by teamwork and deep cohesion. The term "teamwork" universally connotes cooperation on the part of a number of individuals working toward a common goal. Cooperation exists in all walks of life and is an integral part of every success.

Perhaps the greatest reward to be derived from membership in a team is the development of lasting friendships. These friendships are the natural result of the interaction taking place within a team composed of individuals unselfishly helping each other to accomplish personal goals designed to enhance the total team picture.

The development of team cohesion is one of the most difficult tasks facing a coach. He must first have players available who are willing to sacrifice, cooperate, and work hard. To have a truly cohesive group, each individual must be willing to lose themselves within the group, not to the degree of being satisfied with being a second-stringer, but to the degree of placing the welfare of the team higher than their own personal goals. They can continue to work diligently toward their goal of becoming a first stringer but not at the expense of the team, and they should not have the feeling of animosity if they fail to achieve their personal goal.

According to Tutko, before true team cohesion can exist, these conditions should prevail:

1) Mutual respect
The players and the coach must appreciate the value of each individual to the team. This can be accomplished only after each player understands the difficulties of the other.

2) Effective communication
Each team member must be willing to communicate and work toward understanding others, as well as helping others to understand him. Since communication is a two-way street, it must begin with the efforts of each player.

3) A feeling of importance
The genuine feeling that the player is a member of the team and that his feelings are recognized must be present. He should know that he will be recognized for whatever sacrifice he makes and that he will be supported by the other players and the coach.

4) Common goals
There should be a common belief in or an acceptance of the team philosophy and the plans they must follow to achieve their goals.

5) Fair treatment
Every player needs to feel that he is being treated as fairly as possible and that he is being given an opportunity to display and develop his talents to the maximum. Every athlete needs to feel that he is being given an equal opportunity in the first team or to play an important and particular role as substitute or reserve player on the bench or in training, and that he is being provided with a fair opportunity to star when the situation presents itself.

Selfie time (RUS) – 2015 Women's Grand Prix

2.1.2   Lecture

This usually involves a general rather than a specific concept and has a broader scope than the direct order, e.g. new rules, nutrition, hygiene.

2.1.3   Demonstrations

This involves action, a demonstration of some type of physical behaviour by the coach as an example of how the player should perform.

2.1.4   Analysis

Films, charts, graphs and diagrams may be used by the coach as he breaks the idea down to its fundamental units and then builds it back up to see how it succeeds or fails.

2.2   Getting information

Good coaches will seek information (feedback) from players or from the team in general on areas or subjects about which they are in doubt.

The following approaches are useful:

2.2.1   Suggestion

The purpose is to get players to offer specific suggestions, to communicate feelings or ideas on specific situations important for the team.

2.2.2. Discussion

It is broader than suggestion. This form of communication requires responses from two or more persons who exchange information or clarify points of view.

Communication, i.e., information giving and information getting, can be realized in different ways, e.g. firm - supportive - fatherly ~ friendly – withdrawn, using also humour, excitement, anger or sarcasm.

Each coach has their own style of communication, but they should think about these factors: Does it work? How does it work? Moreover, will a change in my style be needed?

Head Coach Manabe Masayoshi (JPN) – 2014 Women's World Championship

Coaches should also provide their team with some sort of information, which will help the players, assess them as a person. This lets them know what to expect. At the beginning of the season, they might tell the players that they will be very demanding because it is their objective to have a well-conditioned team. Coaches might point out that they are hard working and they expect their team to be the same way.

Coaches should remember that players need them after a loss. They should first assess their feelings immediately after a loss. If the coach is angry and inclined to take it out on the team or on individuals, he should bite his tongue - they will be "down" enough already. Later, through personal conversation, discussion, and using films and statistics, the coach can start to correct the things that went wrong.

Should the coach be unable to restrain angry feelings, it is best to get them out in the open and have a team meeting immediately after the competition - not to punish the team but to help the coach release some tension in a straight-forward and honest way. Coaches, who hold their feelings back, often let their anger out later in a more destructive way, such as with insults and sarcasm.

Getting it out in the open can turn the coach's anger into something positive. The coach might tell the team that he is angry on their behalf because he knows they are capable of performing better and that they can excel. In this way, the players feel supported rather than humiliated. To humiliate a player or a team is destructive.

If the coach is angry at one player alone, he should not blast him in front of the team. Alone, and later, is best.

Finally, coaches should remember to keep their instructions simple during a competition or training. Complicated communications merely confuse players and may be not understood during the excitement before the competition.

Head Coach Slobodan Kovac (IRI) – 2015 Men's World Cup

Chapter VII.
Psychological Qualities of Volleyball Players

1.   PSYCHOLOGICAL QUALITIES REQUIRED OF VOLLEYBALL PLAYERS

What are the principal psychological qualities a good Volleyball player should possess? There are two aspects to this question:

1) He must possess or attain the mental or psychological qualities needed for a player to master Volleyball techniques and tactics. These include a sense of space and time, a good sense of sight and motion - perception consciousness; a sense or feeling for the ball; powers of attention or concentration with ability of assignation; movement memory; operational thinking; and so forth;

2) The player must have those more complex mental or psychological states and qualities related to winning or losing contests. Such as the player's self-confidence, mood, willpower or determination, capacity for independent thinking (athletic-spirit or sports resourcefulness), etc.

Let us study the latter aspect - the mental condition or psychology of players during the actual combat or competition - what psychological or mental qualities are required of players and how these qualities can be improved by training.

1.1   Steady, Stable, High-spirited Mood

The mood is the intense expression of inner layers. Regulating and adjusting functions, as reflected in steady, stable experience guiding and maintaining behaviour, eliminating obstacles. Positive mood can raise and strengthen the capacity for activity and exercise. This is because when a positive mood is heightened, internal secretions tend to increase, blood pressure rises, the blood sugar count and the oxygen in the blood increases, muscles become tenser, thus making the whole body organism ready for action.

Korea – 2014 Women's World Grand Prix

Players in Volleyball competitions face intense, violent opposition and confrontation. The games requires athletes to bounce, spring and jump vigorously, run or sprint fast, pounce and dip boldly, spike and kill, block and defend, receive and retrieve. If the player is in a stable, high-spirited mood, all these techniques and actions can be carried out successfully in combat, as well as in training; sometimes even surpassing training levels. On the other hand, the player is feeling low, the athlete's organism will be in a passive condition, thereby decreasing his capacity for activity, exercise and manoeuvring, resulting, in weak spikes, low bounces, springs or jumps, slow running and movements, faults and failures in blocking, as well as in other defensive actions. When in luck, points are won; but when out of luck, the game is lost even before it is finished. The score may go wildly up and down beyond all expectations and completely out of proportion.

Canada – 2014 Men's World Championship

Volleyball is a team game. Each individual player is responsible for a certain area of the court and has a specific job to do. There should not be too many substitutions in each set. Therefore, even if only one member of the team is evidently in a low, bad and unsteady mood, it will mean that a certain area or a certain link in the chain will show a flaw. This will seriously affect the team's overall play and score.

1.2   Indomitable Fighting Spirit

A fighting spirit or will is mainly expressed in the ability to overcome internal or external difficulties in active engagements. Volleyball players in particular need such qualities as resolution or decisiveness, willpower or stamina, as well as self-control or self-restraint. Coach Yuan Wei Min once told Captain Zhang Yang-Fang: "When spiking during a match, once you feel irresolute, you hesitate and waver, then your running movement will be tardy and slow-paced. In such a situation, you will not be daring enough to execute pre-meditated tactical plays, nor will these be successful if you do them half-heartedly."

The shortest time for a Volleyball match may be 45 minutes or so, and the longest closely contested match will take more than two hours. The number of jumps, arm swings, digs, falls, and so forth may exceed 1,000; each player may perform 5 to 6 powerful actions in each rally. Energy consumption is great, so the game requires that players possess endurance and stamina, that they be unafraid of fatigue, and always have a fight-to-the-finish spirit. Without such qualities of strong will and stamina, achieving good scores would be difficult if not impossible.

In important, closely contested games, scores can see-saw and the team may often trail behind the opponent. In such circumstances, patience and perseverance are required of the players, and rashness and impatience are to be avoided. The cheers and jeers of fans, wrong whistles or calls of umpires or referees, unfamiliarity with the court and balls can all influence or de-stabilize the mood or spirit of the players. All such common conditions demand a highly self-controlled and self-restrained mind in each competitor to overcome the negative influence of these outside stimuli.

1.3 Confidence and Determination to Win

Only by being self-confident can one overcome difficulties without wavering. With self-confidence and will, one's aspiration to win increases. For example, during one China-USA Gold Medal game China's star player, Lang Ping's experience adequately spoke for the importance of self-confidence. She said, "As soon as the game started we went all out and fought like hell! (Not her exact words, of course). Our opponents were leading us 8:4. Nevertheless, we were not worried. We fought hard, chased point by point and eventually even won the first set by 15:8! However, we lost the second set by only two points. Still we were full of confidence. Finally, we won the match 3-2. We would certainly have lost this important match if we had lost confidence and become passive."

What we call "must win-conviction" does not mean under-estimating the opponent and becoming careless or unrealistically optimistic. Look at your opponent as a forward advancing team in their best form and condition, and adopt due strategic and tactical measures to deal with their merits or advantage points, so that even with changed and changing situations there are ways of prevailing. However, if there is a wide gap in strength, and you are clearly much weaker, then the thing to do is to give your best, without fear of your opponent, fighting hard for each ball and each point. This is also an expression of confidence - a "play-to-win" belief. Sometimes surprises, even miracles, happen. When the gap between two teams is narrow or when you are slightly weaker than your opponent, self-confidence usually plays a key role to success.

Azerbaijan – 2014 Women's World Championship

1.4   Quick, Sharp and In-depth Thinking Power

Situations during a Volleyball contest change quickly and suddenly, demanding not only a battle of prowess in the physical sense but also a battle of wits. Each player must possess a cool and sharp brain, capable of independent responsive thinking, capable of pinpointing where the fault lies, and capable of identifying ways of reversing the adverse situation.

Players should also be able to recognize factors for winning points and to extend a winning streak. A good player should be able to spot or discern quickly the tactical intentions of the opponent, as well as to reach tactical understanding with teammates quickly. Since only two timeout calls are allowed in each set for the coach to give tactical tips, most of the adjustments during a game are made by the players themselves. Hence, it is essential that each player is capable of independent thinking and initiation to meet ever-shifting exigencies.

As an example, Zhang Yun Fang is only 1.74m tall. How has she managed to rank as one of the best women spikers in the world? The answer may be sought in her own statement: "Others are tall, but I am fast; others rely on force, I rely on variation." She worked hard on these two bases, "speed" and "variation". In addition, she used her head most diligently during competitions.

1.5   Counter-balance of psychological qualities of in-court players

During a game, the temperament and disposition of the contestants should be somewhat balanced, with the "rigid and unyielding" offsetting the "soft and flexible"; with the "hard and firm" counteracting the "mild and pliable".

Russia and Japan– 2015 Men's World Cup

The playing captain should be of superior mental or psychological calibre. If all six players are known of "fierce and violent temperament", "with the courage of tigers", then, when the game is progressing to their disadvantage, they are likely to become rash and impatient, and take unnecessary untimely risks or chances. If all six are "too careful and overcautious", then they may not be able to "break through".

At the crucial moment, "hands become cold and soft". Therefore, with qualities of mildness tempering firmness, with flexibility compensating for rigidity, the challenges of difficult complex phases of the game may be better dealt with, resulting in stability in the whole team's mental or psychological posture through mutual restraint and complementing.

2. TRAINING TO IMPROVE THE PSYCHOLOGICAL QUALITIES OF PLAYERS

Superior psychological qualities encompass an understanding of the theoretical concepts of such qualities, and a strong desire to train and cultivate them. These qualities are finally expressed in the player's habitual behaviour.

Achieving and furthering such superior qualities needs a comprehensive process with the common functioning of the basic elements. Specifically, for example, a superior will or willpower includes an understanding of both the internalization and extension of the concept of will or willpower, and recognition of the significance of such willpower in sports competitions.

It should also include an aspiration to train to become strong willed, as well as to give a demonstration in contest of such strong will as habitual behaviour. Psychological training must be based on quality formation. To achieve the best results, it should be carried out in coordination with other programmes.

Psychological training in substance embodies:

2.1 Cultivate and arouse motives and motivation for sports

Motivation implies the inherent reason to spur people to action in order to attain a certain objective. The fuller the motivation, the greater and longer lasting the enthusiasm and initiation of the athletes, the stronger and more determined will be the will, the higher the mood or fighting spirit. Normally, all athletes have a certain motivation for going into sports, but this still needs to be prodded and cultivated. Low motivation must be guided and led to higher, nobler levels. Short-term, transient motives should be led to longer-range permanent motives. For instance:

Training and competing for the sake of realizing the team's fighting target, schedule or programme and longer plan. For a national team, the latter plan may mean winning such and such world championships or gold medals. For provincial and special municipality teams, the long-term objective may be reaching certain national rankings and so forth.

2.2 Cultivate a sense of collective honour, achievement, success and commitment

An athlete is a representative of a team or collective. Individual behaviour and actions are closely bound to the whole group. In addition, the victories and defeats of the group, its' rise and fall, deeply affect the individual member. Therefore, the individual must look upon the glory or disgrace of the group as his own. Those who are indifferent to whether they become champions or not are athletes who fail to perform their duties. An athlete must strive hard even if and when there is only a glimpse of hope for triumph. An athlete is part of a trained and organised team. Even with inevitable defeat glaring in the face, players must "clench their teeth" in organised resistance. To be utterly routed without putting up a good fight is poor sport and impermissible.

Kazakhstan – 2014 Women's World Championship

2.3 Education in dialectics

In Volleyball games, pairs of contradictions are often reflected in the consciousness of the players. Properly and correctly understanding, and dealing with these sets of contradictions will play a most helpful role in cultivating players' will, fighting spirit and mood.

2.3.1 Building up a viewpoint of the mutual transformation of strength and weakness as relative factors or conditions.

There is no such thing as absolute strength or absolute weakness. Where there is a "spear" there is a "shield". Where there is an offensive weapon, there is a defensive one. However tight the defence is, there are also openings and chances to take advantage of. However strong the opponent is, there are also weak links in the chain. The weakest "enemy" also has his strong points or special skills.

Technical and physical strength is, of course, the basic factor in winning or losing a Volleyball game. However, psychological factors, good strategic and tactical application also play important roles. Psychological factors are frequently the crucial conditions or causes that transform strength into weakness and vice versa. Full confidence and excellent fighting spirit could turn weakness into strength. On the contrary, low morale, lack of enthusiasm and inability to brace up might very well turn strength into weakness. Although usually it is the stronger and better team that wins, occasions are not rare when a weaker team beats a stronger one.

When your score lags behind, it does not mean that you are already beaten. When you are leading and way ahead in points, you still may not eventually win the match. Recognizing that strength and weakness may be mutually transformable, you will maintain a steady and clear head when you are "with the wind" (leading), and when you are "against the wind" (losing) you can still look forward to the dawn of victory. Thus, psychologically, you can withstand the pressure either way.

2.3.2   Establishing a correct attitude towards victory or defeat.

Different attitudes towards winning or losing may produce different moods with different accompanying side effects. A proper attitude towards victory or defeat is one of the factors that can help to stabilize the mood. Winning or leading should be regarded as temporary or transient, and relative to the situation. To win consistently, thoroughly or completely needs the maintenance of a cool, clear and stable frame of mind. If defeated, summarize the experience and draw lessons, so that a comeback may be staged next time.

2.3.3   All-round and progressive appraisal of opponent and oneself

Faith, confidence or belief in oneself without the slightest doubt constitutes one's behavioural guideline. Confidence means an ample "belief-in-oneself" state of mind. The faith and confidence of Volleyball athletes is built on the basis of full recognition of one's strengths and capabilities, and of a deep understanding of one's special skills and techniques and technical playing form or style. Self-confidence does not at all mean blind optimism; it should be a scientific inference. Searching for reasons for victory may be done from two angles: relative stability and transforming probability. Avoid facing problems in a fixed unchanging manner. Have a clear picture of the current prevailing conditions or circumstances, as well as an image underlying potentialities for the future. Not only must one know oneself under the general existing situation, but also see the changes as a result of the impact of outside forces. Learn how to analyse the merits and deficiencies of both "opponent and oneself', thus attaining a state of psychological preparedness.

Germany – 2014 Men's World Championship

2.4 Cultivating Good Psychological or Mental Habits

Outstanding athletes almost all have a "self-encouraging", "self-reminding" maxim in contests. They use these "maxims" or "axioms" to maintain a cool, steady mood and a determined fighting spirit or will. Many outstanding athletes, when leading in a game, are able to take advantage of the lead to press on without interruption until the finish. During a see-saw they will not become rash or impatient, when trailing behind they will stay cool and calm, strive steadily to catch up; and they will not feel nervous and "soft" (in hand and foot). When the referee happens to make a wrong decision, they are not angry or excited but remain calm.

If the playing court is poor and not to their liking they can quickly adapt themselves to it. Thus, they are in a position to give a normal show of their playing skills. Sometimes they can even be much better than expected, always maintaining top playing form. The reason for this is that they have built up a good foundation in psychological training in practice seasons, but most of all, they have a simple maxim to go by. Mental or psychological training should help athletes to summarize and adopt a set of working formulae, creeds or tenets as a habitual model for action, for self-encouraging, self-consoling, and self-assessing, self-restricting, self-motivating and self-mobilizing.

2.5 "High-level, Strict Demand" Training Programme

Only through strict demand can the nerve be excited, the spirit aroused, the body placed in an aggressive posture, and the individual meet the challenge of the tense environment. Only by a "high level criterion" can the mind or spirit be trained to achieve a strong determined willpower in the midst and process of conquering various kinds of difficulties. Achieving a target easily, without meeting difficulties or challenges, is not only unhelpful in mastering high-class techniques or skills, but also ineffective to produce good, desirable psychological assets.

2.6 Mental or psychological adjustment or coordination training

This is a method whereby, through self-hinting or self-suggestion, one train to relax, to remain in a state of calm and composure, to imagine emotions or manoeuvres, to idealize and to fancy, concentrating, etc. Such an exercise will be good for eliminating fatigue, storing up a maximum amount of pre-match energy and preventing pre-game excitement or nervousness. Such an exercise may be done after a session of practice in techniques, tactics and scrimmage; or done prior to a formal game. This method of training is much used in international Volleyball circles in recent years.

2.7 Memory and thought training

This is to train athletes to be resourceful. The following exercises may be carried out:

1) Try to memorize the names, facial features, special skills, collective tactics, etc. of your opposing teams and team members.
2) Understand and memorize your own team's combat formations, teamwork, and tactics and so on.

3) During the contest, speedily discover the opponent's strategic intentions; find out major reasons for point winning or losing on your own, as well as the opponent's part.

Daily training methods for promoting psychological qualities:

1) Theoretical study and research
2) This is the most useful to establish a theoretical conception of what superior psychological qualities are.
3) Watch video-tape recordings of games and matches
4) These are good opportunities to develop the players' capacity to analyse, to judge and assess situations. They also offer a good way of observing and experiencing the role of psychological factors during competitions. The choice of which games and opponents to watch, pre-briefing and post-analytical discussion is very important.
5) Setting-up models or examples
6) Volleyball teams may do well to make use of outstanding athletes in Volleyball, as well as in other sports as examples or models to educate and teach teammates.
7) Simulated matches

The psychological pressure on players in formal competitions and that in training or practice scrimmages are quite different. How to make the latter situation approach the former in practice is the key to success in the training process. An effective way to make psychological training approach contest reality is to set up conditions similar to actual the combat. The more realistic is the scene, the better is the result. The following pattern may be used:

Colombia, pre-game preparation – 2015 Women's World Grand Prix

Before a major tournament or regular series of matches, small prize-awarding championship schedules may be arranged. Other training sessions may also be held:

1) long-period, great effort and endurance-demanding practice (2 or 3 times exceeding normal match-time)
2) more-than-official 25-point-set games (30 or 35 points for each set)
3) deuce-set system of games (23:23, 24:24, etc.)
4) a chasing or pursuing score system of practice games (0:6, 0:8, 9: 13. 10: 14)
5) a game in which the side who first gains a lead of 5 points in a set, is awarded another 2 to 4 points, to demand more effort for the down-side to catch up
6) one-person block games
7) games with an unequal number of players
8) practice games under noisy and disturbing spectator conditions; practice games under poor lighting, court or field, or playing-ball conditions
9) practice games scheduled at the most unaccustomed and unsuitable time of day or night
10) games with poor, low-level referees or umpires

3. OVERALL ARRANGEMENT OF PSYCHOLOGICAL TRAINING

The training of Volleyball players' mental or psychological qualities may generally be staged in three periods.

3.1 Normal "peacetime" or "no-tournament" period of training:

During this period, parallel with daily skills, tactics practices and games for instructional purposes, the training is focused on cultivating the players' motivation. Dialectics education and other theoretical conceptions of superior qualities are supplemented by other psychological training.

3.2 Pre-Tournament Collective Camp-style Training period.

During this period, the emphasis is on the following:

3.2.1 Compulsory training - According to individual weakness in mentality, personal character and temperament; proceed with specific training aiming at solving the specific problems. In the case of the weak-willed, weak-minded with apparent fear of, or aversion to hardship or strenuous work; the remedy is to impose training to strengthen willpower. For those with fickle, unstable moods (sometimes over joyous, sometimes sulky and angry), causing inconsistent performances (sometimes way up, sometimes way down), the thing to do is to increase mood training. As for those who are dull, slow and not inclined to use their brain, the idea is to reinforce training in intelligence or power of thinking.

Training, pre-tournament – 2015 Men's World Cup

3.2.2 Simulate training - Take the best tactical formations or teamwork, the best individual special skills of opponent teams as targets, and look for a friendly team or special-skilled players to simulate those special skills and teamwork for practice sessions. Such simulated practice training will greatly improve your confidence, fast understanding and mastery of the pattern of play of your opponents.

3.2.3 Suitable or Adaptable Training - Playing and practising on the tournament site and competing with the host team or with other opponents will be helpful in getting familiar with the surroundings, weather and ground or court conditions.

3.3   Prior and During Contest Period

During this period, the main objective is to stimulate or arouse a sense or feeling of honour and a sense of responsibility or commitment in the players. To arouse their going-all-out fighting spirit, thereby creating a normal state of highly energetic and enthusiastic fighting form. On the other hand, over-excitement and nervousness should be avoided. In the course of this stage, more psychological adjustment or regulation training sessions should be arranged.

Poland – 2014 Men's World Championship

Chapter VIII.
Team Building in Volleyball

As a coach, you need to have a lot of knowledge and experience. It gives you the possibility of doing the right things at the right moment.

In this contribution, a concise overview is provided of what is known about the structure of sporting groups. Here, the most important question is whether performance is the cause or the consequence of the cohesion in the group.

Also examined is the course of the life of the sporting group, a process that runs from its birth to its (inevitable) death. The death of the sporting group is postponed by admitting new blood and by getting rid of "dead wood". For this reason, the sporting group is a dynamic system. Besides this dynamism, in the longer term, the sporting group undergoes changes in the shorter term, for example, when with the same personnel composition of the group, a certain performance is worked towards (tournament/series of matches). In other words, the structure of the group is actually constantly subject to change - it is indeed impossible for a group (and its management) to rest on its laurels. Despite this, this account is intended primarily for the coach as the leader of the sporting group.

1.   SPORTING GROUP DEFINED

A group is collection of people (consisting of at least two persons) who execute a task together with a mutual serving of interest.

A group cannot be considered as the simple sum of the separate composite qualities. It is therefore barely possible to forecast the performance of basketball, football, or Volleyball teams based on the capabilities of the individual players. A group must be considered as, at least, different to the sum of the composite parts. Sometimes the group performs better than expected, but much more often, a lesser performance is provided. RUSSEL (1993) talks of the situation that 2 and 2 is equal to 3 (2 + 2 =3). It means that the group can more easily perform badly than any member of the group on their own. This became obvious from an examination whereby a tug-of-war example was used. People in a group often have the tendency to conceal themselves somewhat, to make less of an effort than possible. This probably results from the thought that it is impossible to see whether everyone is doing his best.

According to a research with swimmers, poor time results were achieved in relays, when the individual results were not shown, only the group time results. As the group becomes larger, the situation of the individual "loafing" is increasingly obvious (CARRON 1980).

2.   A LOVE/HATE RELATIONSHIP BETWEEN COHESION AND PERFORMANCE?

Would the situation of people "concealing" themselves arise less quickly if the members of the group were friends? Or more generally formulated is a team of friends the ultimate group for achieving optimal performances? If team members are friends, does it make the team better?
Investigations by LENK (1970) in rowing, McGrath (1962) in shooting, and LANDERSILUESCHEN (1974) in bowling can prove that cohesion in these teams is not

important to achieve high performance. Nevertheless, the conclusion may not be drawn that in all team sports. Mutual rivalry leads to better performances.

If a survey were ever made asking what subject has received the most attention within social-psychological research into sporting groups, the relationship between group cohesion and performance would easily come out on the top. The activities at the start of the seventies (not least Lenk's rowing research) have led to considerable series of investigations. One of the most important results is that for the determination of the effect of group cohesion on the sporting performance, the type of task must be taken into consideration.

3. BRANCHES OF SPORT AND SPORTING TASKS

Branches of sports indeed differ to the extent that players directly depend on each other for the execution of their task or not.

An overview of the tasks of sporting groups, divided in the dimension "mutual dependence with task execution".

Task	Sporting Example
• Independent task (no mutual dependence)	• gymnastics, archery, rifle shooting, athletics, bowling, fencing, judo, tennis, golf
• Dependence with simultaneous activity	• Bobsleigh, rowing, canoeing, synchronized swimming, team time trials (cycling), trampolining (synchronised)
• Pro-actively/reactively dependent tasks (dependence as action or reaction)	• action: pitcher - catcher (baseball) pitcher - batsman (cricket/baseball) reaction: batsman - fielders (baseball)
• Interactively dependent tasks (strong mutual dependence)	• handball, water polo, hockey or ice hockey, basketball, VOLLEYBALL, netball, football)

Based on the division of sports into branches as classified above, the relationship between group cohesion and performance can be much more conveniently presented. It is indeed clear that with "independent tasks" cooperation is barely required during the execution of

the task, so group cohesion can also hardly be relevant here - this also appeared from a research into learn performances for rifle shooting and bowling (see above).

Nor in the category of "co-actively dependent tasks" does group cohesion play an important role. As far as necessary cooperation is concerned, this can be obtained by standardisation: the mutual agreement of rules, schedules, or routines. This applies, for example, for couples or groups of people who are occupied with figure skating, trampolining or rhythmic gymnastics.

The above mentioned research concerning rowing clearly illustrates that group cohesion is not necessary for optimal sporting performance.

For sports involving "proactively-reactively dependent tasks", group cohesion seems just as unnecessary. Agreements made beforehand appear sufficient to provide effective actions during the competition.

The provisional conclusion can be that the relationship between sporting performance and group cohesion appears, by no means, critical for the three categories mentioned above - competitors certainly do not have to be friends to be able to perform well within the sporting group in these sports. In other words, group cohesion is not a condition of good performance.

The provisional conclusion does not apply, however, when "interactively dependent tasks" are involved. Here, group cohesion seems decisive. In such sporting tasks, effective actions are indeed determined by the mutual adaptation of the group members. In these sporting tasks, group cohesion is absolutely necessary, because the loss of effectiveness leads to reduced productivity. The interaction between the group members is of essential importance here (CARRON 1988).

To summarise:

Mutual rivalry between group members is not harmful, if it is the case that tasks are performed independently of each other and/or alongside each other. For tasks where players are mutually dependent on each other for a successful result, rivalry must be considered damaging.

4.   SUCCESS LEADS TO COHESION

France players celebrate as they win the gold medal – 2015 Men's World League

Cohesion and fraternity within the group is a situation in which the group members work together, involving and supporting each other in the execution of a task. Cohesion, as the mutual force of attraction (or group closeness, group feeling, or feeling of solidarity), is therefore considered the glue or cement in the group.

The question posed here is whether performance (the successful execution of the task) leads to cohesion within the group, or the other way around (cohesion leads to performance). Investigations made by CARRON (1988) show that performance leads to group cohesion rather than group cohesion leading to performance!

However, that was not where we started: the original question was whether group cohesion is necessary for a good group performance. CARRON (1988) summarises some effects of group cohesion:

In a group operating as a unit (one that is cohesive), there is generally a clearer orientation to achieving the group's objective. There is greater stability concerning the members (little dropout) and one is in a better position to master the consequences of negative events. This resistance to breaking up the group (resistance to disruption) cannot be sufficiently emphasised: the group usually becomes internally much closer, to be able to act more strongly as a unit against the external competitor/opponent.

It is therefore important for many reasons, not least for performance in the longer term, not to underestimate the importance of group cohesion. The coach certainly has a function of supervisor of the cohesion.

A number of indications from practical experience can be fixed.

It is important:

1) that the mutual agreements and objectives of the team are stressed
2) that old wounds are not opened
3) that an atmosphere of security prevails
4) that from the group norm, the individual adapts him self
5) that the positive aspects are emphasised, and that negative aspects and/or fears/ emotions are not pushed aside, but a manner is sought to cope with them

5. THE PROCESS OF TEAM BUILDING

For branches of sports like Volleyball, where the task presupposes strong mutual dependence, group cohesion is a relevant subject as far as the performance is concerned! *Group cohesion, however, does not appear to be a static and stable phenomenon,* it is a dynamic process. As each individual sport-player undergoes development, each group accordingly undergoes a development process, or in other words, its own course of life. The term "team building" is often currently used to indicate the procedure by which a group is formed.

Each group goes through a number of stages during its life. The changes that occur can be described by several models:
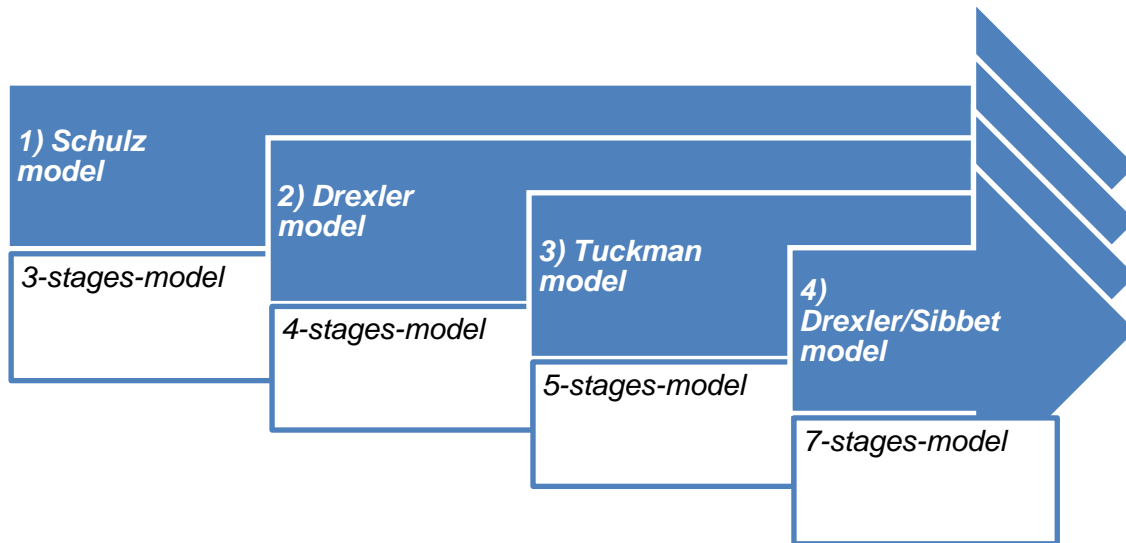
5.1   3 Stages model of Team building (SCHULZ)

The author differentiates three stages in the process of team building. The first stage he named "inclusion" and characterised it with the question: "Am I a part of this group?" In the second stage named "control", the central idea is "What will be my role and status?" The third stage is called "affection". Here the question is: "Will I get the emotional satisfaction I want from this group?"

5.2   4 Stages Model of Team building (DREXLER, GIBB, and WEISBORD)

In the first stage, you have to have found orientation with your own position ("Why am I here?"). In the second stage, confrontation with the other team members happens ("Who are you? And what will you ask of me?"). In the third stage, the players orient themselves about the common task ("What are we doing?"). And in the fourth stage, the solution of the task is really ("How will we do it?")

5.3   5 Stages Model of Team building (TUCKMAN)

In the first stage ("forming"), there is orientation to each other and to the task (the forming of the group). The group members "feel each other out". The group leader (the coach) is the person in the driver's seat.

The second stage is "storming" the search for a consensus within the group there is the testing of each other's limits. There is therefore tension, polarisation, and conflict: who has the "power?" This period is necessary for further growth. The group members have the opportunity of really getting to know each other via "arguments" and "harsh words", to mutually establish who has "control" and "status".

In the third stage ("norming") there is the solution of the conflicts which arose in the previous stage and are thrown "into the group" (reaching a consensus). The good conclusion of this aspect is necessary for the acquisition of (at least) respect or (better) appreciation of each other's qualities.

The fourth stage in the life of the group is "performing" - the group members literally learn to live with each other in the previous stages and now reap the harvest of the knowledge and experience accordingly gained: now acting and demonstration is involved. The group knows what is expected of each other, the roles and functions are known and the structure of the group is stable. Everything is ready to direct the bundled energy towards achieving the performance desired: the group is ripe for production.

The third and fourth phases are of great importance to the coach - listening and looking at how the group members arrange their mutual relationships (temporarily or otherwise).

He gains insight into the great variety in the "nature of the beast" within the group. In this context, it is a good thing to pause briefly on the fact that, in general, two leadership roles are encountered within a group: the **task leader** and the **social-emotional leader**. These roles are usually encountered in different people. In terms of the traditional family, the task leader is the father figure and the social-emotional leader is the mother figure. Both roles are necessary within a group. Although the task leader must be considered the key figure (a sporting group is indeed a task-oriented group), the role of the social-emotional-leader must not be underestimated. It is clear that the coach is seen as the task leader. Sometimes the social-emotional-oriented leadership role is easy to fill in the position of "manager", although a medic or paramedic can also assume this role. Most important is that it is clear who is to play these roles in the coaching team of a sporting group, this both for the coaching team and the sport players. Obviously, both roles need each other, and cooperation here must also be the point of departure because of the mutual dependence.

Performance building pyramid
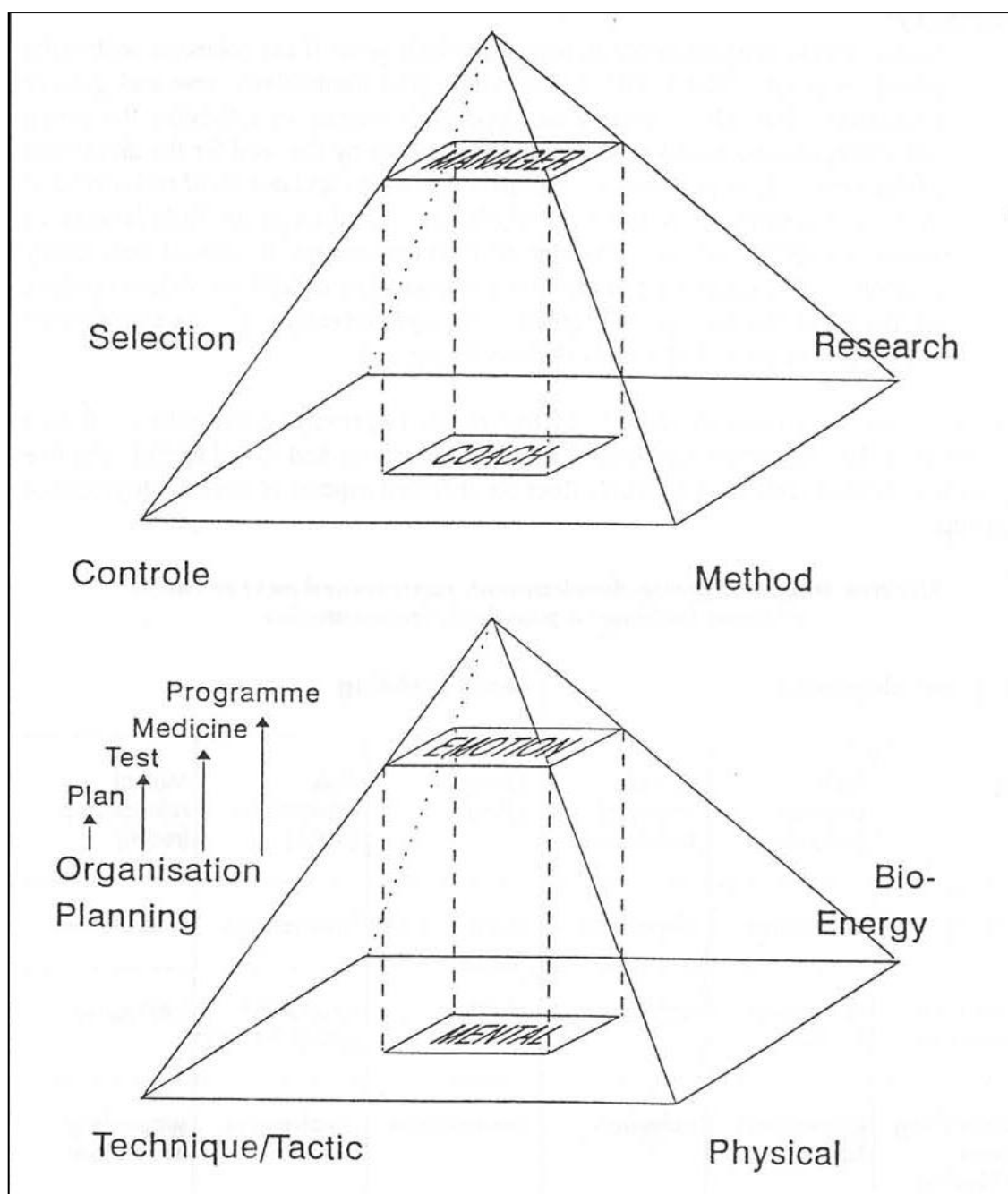
For each group, the fifth stage nevertheless remains a threat: that of the ending of the group ("adjourning"), the dispersion. In the strictest sense of the term, the end of the group can only be spoken of if actual dissolution takes place (compare the closing down of sports associations). The ending of the group does not have to be interpreted so drastically - going to play at a lower level often leads to the change of the organisation around the group, so that the ending of the group can also be referred to here. Actually, each change in the personnel sense is a slight ending of the group, whereby it is naturally of importance to determine whether the personnel concerned are "core team members", "supporting members", or "temporary team members".

Although, without a doubt, changes of the core members of the group have the strongest repercussions; the influence of "water carriers" and those "on the bench" must not be underestimated: supporting members are only one injury away from becoming a starter. Changes in the category of temporary group members can also have effects, this concerns the staff involved with the team as e.g., manager, doctor, physiotherapist, or material-provider.

5.3.1 Summary:

A successful group succeeds in achieving their goals if the cohesion within the group is great. Some within the group give themselves new and greater objectives. For others, this causes a possible threat: in achieving the group objective, the successful group contributes to sowing the seed for the dispersion of the group. Group dynamics, the study of the ups and downs of task-oriented groups, is therefore also the study of change. Within a group, little is static or stable - energy, vitality, and the activity of groups is almost constantly changing. The leadership of the group (namely the coach), must be conscious of this from day to day: the group is always "developing" - to a gloriously successful or an unfortunately disappointing end.

A summary of the course of the life of the group is presented in table 2. It is a representation that the author has tested for many in practice and found useful - the five stages are indicated according to their effect on different aspects of the development of the group.

The five stages of group development, represented next to facets of team building: a practical representation

Group development			Team building		
Stage	Task-oriented behaviour	Social-motional behaviour	Group climate	Task orientation (result)	Mutual relationship (result)
1. forming	orientation	dependent	conscious of	involvement	acceptance
2. search for consensus	resistance hostility	Conflict	clarity	associated group feeling	belonging
3. establishing norms, achieving consensus	communication	cohesion	cooperation	involvement with task	supporting each other
4. demonstrating, performing	problem-solving	mutual dependence	productive	providing performance, synergy	pride in each other
5. adjournment, dispersion, recess	termination	no longer involved, no obligations	dispersion, separation	appreciation, recognition	satisfaction

5.4   7 Stages Model of Team performance (DREXLER/SIBBET)

Not long ago Drexler/Sibbet presented a 7-Phase-Model called Team Performance Model. They offer two groups of stages: creating and sustaining.

At the creating stages, Drexler/Sibbet differentiates four lower stages. In the first stage orientation occurs. As people/players begin a process, anything is possible and the challenge is imagining why the team should be formed.

In the second stage, trust building is the point, because people/players want to know who they are working /playing with: "What will you expect of me, what level of involvement I will risk?" **"Who are you?"**

In the third stage, *"goal and role clarification"* happens. The team turns its attention to **what** it must do. Understanding arises, as without clear goals and roles, the team will not progress very effectively.

Commitment characterises the fourth stage. At some point, discussion needs to end and decision must be made about structure concept. The team faces a major turn as it works to agree on how to proceed.

The following three stages Drexler/Sibbet call sustaining stages. The fifth stage is the stage of *implementation.* After the commitment, members turn to answering the questions involving who does **what, when,** and **where**. The time sequences of work/training now must be coached.

The sixth stage is the stage of *high performance.* If methods and techniques are mastered, a team will rise above "having to think about everything conceptually" and will be able to respond flexibly and intuitively and flexibly fast breaking conditions: synergy.

In the seventh stage, renewal happens. High performance is not a steady state, people get tired. Members change, "why continue" is what the players ask. The team must make the transition to a new process, perhaps at a deeper level of understanding, but still a new journey.

The central messages of the 7-stage-model of team performance of Drexler/Sibbet are the following elements:

1) Stage I: Orientation
2) Stage 2: Trust Building
3) Stage 3: Go all / Role Clarification
4) Stage 4: Commitment, Decision Making
5) Stage 5: Implementation
6) Stage 6: High Performance
7) Stage 7: Renewal

5.4.1   Summary

The process of team building is oriented around some essential principles. Key terms are *motivation, communication,* and *leadership.*
Every coach has to have his own philosophy, which determines the *culture of interaction* within a team. You have to *set goals* and *develop strategies* for reaching these goals. Therefore, cooperation between players is needed; the team members have to accept their mutual dependency. Role *clarification* and *responsibilities* are important for the team building process, which has to be oriented at *norms* and *values.* The coach has to take the lead and make clear decisions. Important however is the synergetic *communication* within the whole team.

Basic principles of Teambuilding

Communication	
Leadership	
Norms	Values
Role	Responsabilities
Interdependency	Cooperation
Goals	Strategy
Philosophy	Culture
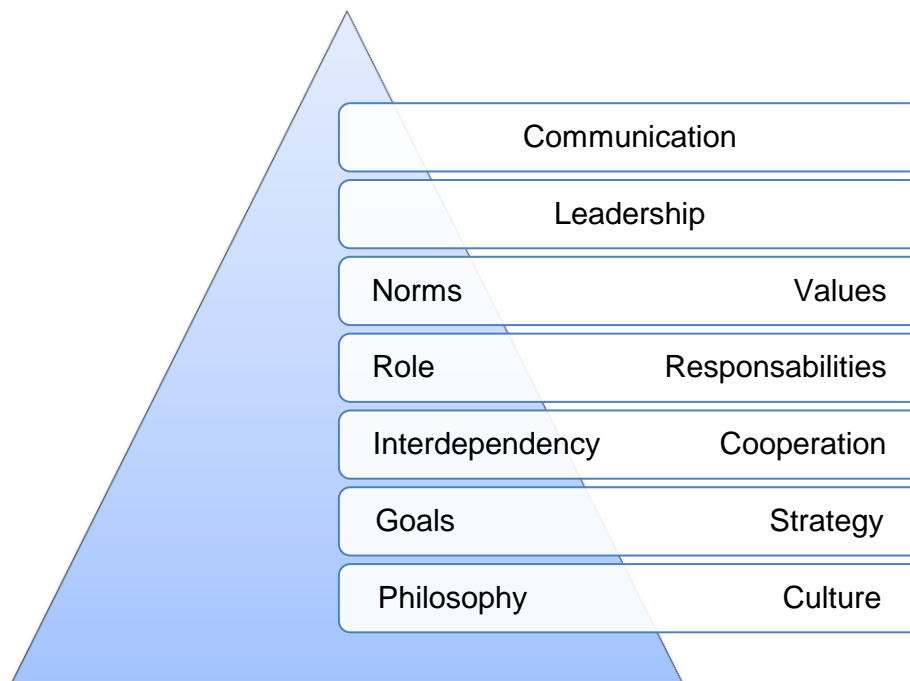
5.5   Categories of Communication

During a match, different types of communication can be noticed. Helpful are the categories of content: Orientation, stimulation, and evaluation.

Orienting means planning and coordinating interaction (what, who, when, how). Stimulating means urging partners to maintain, or increase activity. Evaluating means positive or negative messages (feedback), having no direct bearing on the activity or task at hand.

The Russian/Finnish researcher, Y. HANIN (1992), has found that communication profiles in ball games differ clearly.
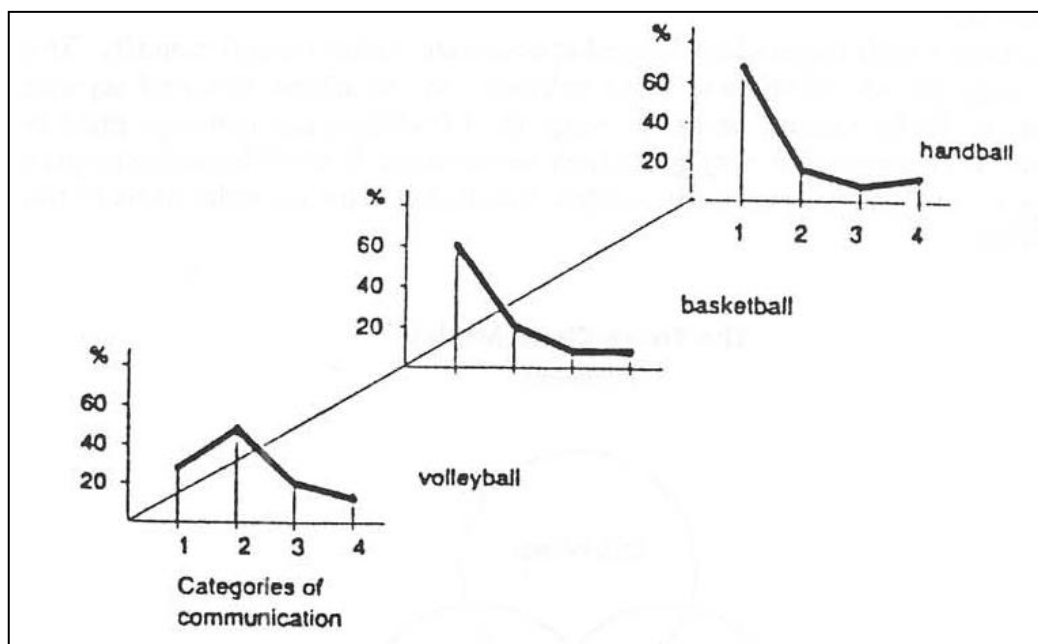
Typical communication profiles in some ball games
(1 = orienting; 2 - stimulating, 3 - positive evaluations, 4 - negative evaluations)

This is the typical communication profile of the Volleyball game maintained in Volleyball teams at different levels, but there are essential differences like HANIN (1992) demonstrated.
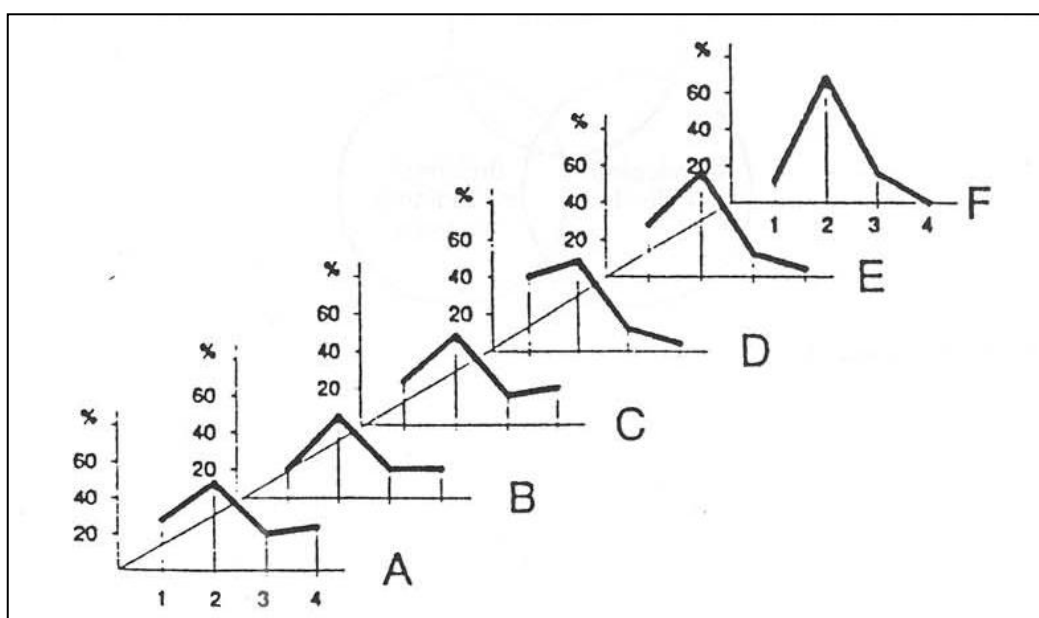
Typical Volleyball communication profiles with *teams of different level(s)*
1 = orienting; 2 = stimulating, 3 = positive evaluations, 4 = negative evaluations.
A, B = college and university, C - league A (former *USSR), D, E, F= national* teams (former *GDR, former USSR), Japan, respectively)*

5.6　Teamwork

Teams succeed if their players have learned to cooperate, and to support each other. This is a long-term process. You have to do the task perfectly. To achieve this, each separate player has to do his utmost, he has to wrap up in his team and cohesion must be developed. If cooperation is very good, high performance is possible and synergetic processes occur. The following two models summarise some essential ideas of this contribution.

Brazil – 2014 Women's World Championship

The Three-Circle Model
Teamwork
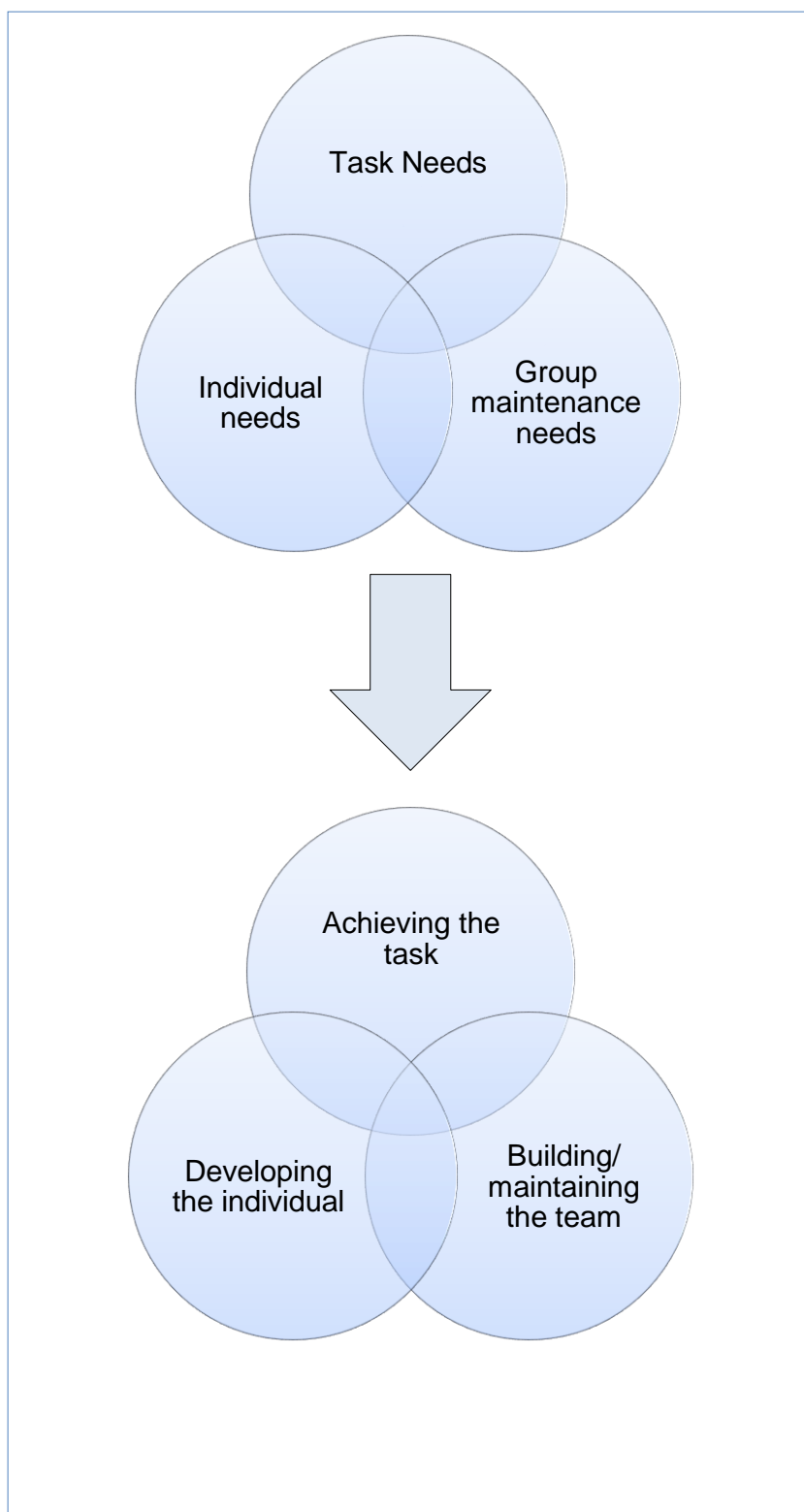
The synergy-module
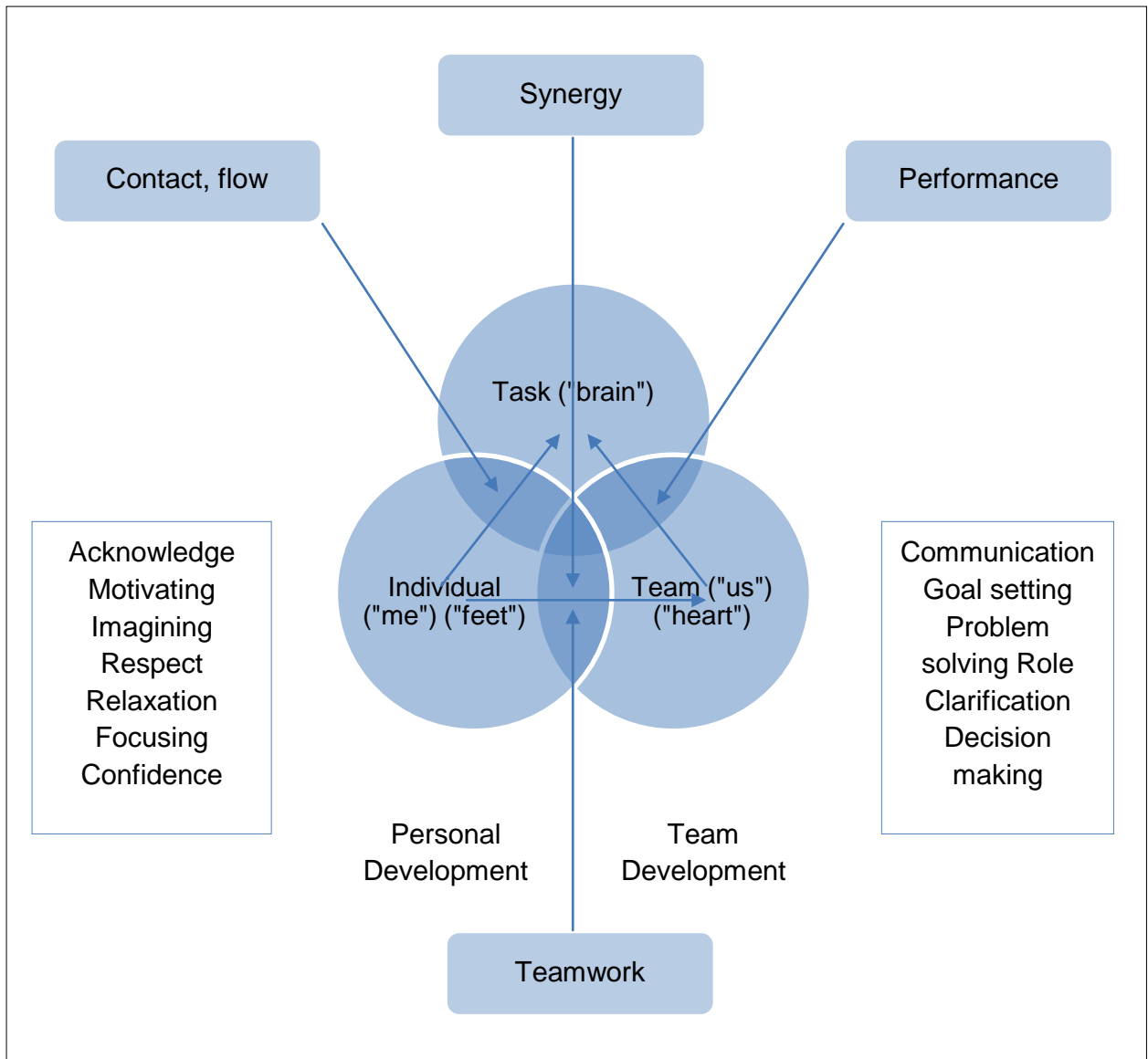
6. CONCLUSION

The spirit of a team can be described with the motto "team touch". The author likes the following language-game:

T ogether
E verybody
A chieves
M ore

T rust
O penness
U nderstanding
C onfidence
H onesty
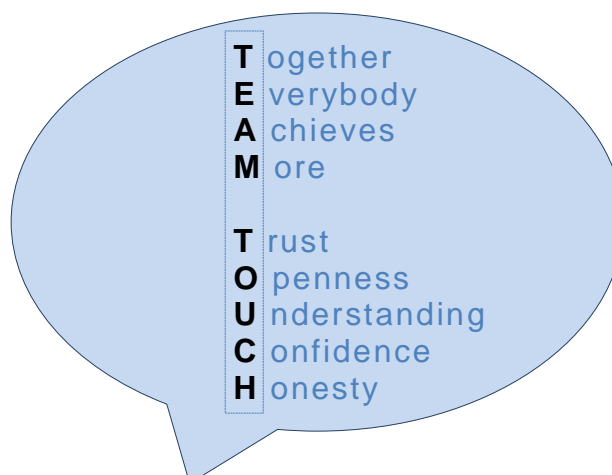
Appendix 1
Results of FIVB Competitions

Men's Olympic Tournaments

Year	Organiser	1st	2nd	3rd
1964	Tokyo (JPN)	Soviet Union	Czechoslovakia	Japan
1968	Mexico city (MEX)	Soviet Union	Japan	Czechoslovakia
1972	Munich (FRG)	Japan	East Germany	Soviet Union
1976	Montreal (CAN)	Poland	Soviet Union	Cuba
1980	Moscow (URS)	Soviet Union	Bulgaria	Romania
1984	Los Angeles (USA)	United States	Brazil	Italy
1988	Seoul (KOR)	United States	Soviet Union	Argentina
1992	Barcelona (ESP)	Brazil	Netherlands	United States
1996	Atlanta (USA)	Netherlands	Italy	Yugoslavia
2000	Sydney (AUS)	Yugoslavia	Russia	Italy
2004	Athens (GRE)	Brazil	Italy	Russia
2008	Beijing (CHN)	United States	Brazil	Russia
2012	London (ENG)	Russia	Brazil	Italy

* Union of Soviet Socialist Republics (USSR) (existed between: 1922 – 1991)

** Czechoslovakia (existed between: 1918 – 1992) today: Czech Republic; Slovakia

*** Federal Republic of Germany - West Germany (existed between:1949 – 1990)

**** German Democratic Republic - East Germany (existed between: 1949 to 1990)

***** Yugoslavia – a union of 9 socialist countries in West Balkan (existed between :1918 – 2003)

Women's Olympic Tournaments

Year	Organiser	1st	2nd	3rd
1964	Tokyo (JPN)	Japan	Soviet Union	Poland
1968	Mexico city (MEX)	Soviet Union	Japan	Poland
1972	Munich (FRG)	Soviet Union	Japan	North Korea
1976	Montreal (CAN)	Japan	Soviet Union	Korea
1980	Moscow (URS)	Soviet Union	East Germany	Bulgaria
1984	Los Angeles (USA)	China	United States	Japan
1988	Seoul (KOR)	Soviet Union	Peru	China
1992	Barcelona (ESP)	Cuba	CIS*	United States
1996	Atlanta (USA)	Cuba	China	Brazil
2000	Sydney (AUS)	Cuba	Russia	Brazil
2004	Athens (GRE)	China	Russia	Cuba
2008	Beijing (CHN)	Brazil	United States	China
2012	London (ENG)	Brazil	United States	Japan

* joint team consisting of twelve of the fifteen former Soviet republics (1992 – 2006)

Men's World Championship

Year	Organiser	1st	2nd	3rd
1949	Prague (TCH)	URS	TCH	BUL
1952	Moscow (URS)	URS	TCH	BUL
1956	Paris (FRA)	TCH	ROM	URS
1960	Rio de Janeiro (BRA)	URS	TCH	ROM
1962	Moscow (URS)	URS	TCH	ROM
1966	Prague (TCH)	TCH	ROM	URS
1970	Sofia (BUL)	GDR	BUL	JPN
1974	Mexico City (MEX)	POL	URS	JPN
1978	Rome (ITA)	URS	ITA	CUB
1982	Buenos Aires (ARG)	URS	BRA	ARG
1986	Paris (FRA)	USA	URS	BUL
1990	Rio de Janeiro (BRA)	ITA	CUB	URS
1994	Athens (GRE)	ITA	NED	USA
1998	Tokyo (JPN)	ITA	YUG	CUB
2002	Buenos Aires (ARG)	BRA	RUS	FRA
2006	Tokyo (JPN)	BRA	POL	BUL
2010	Rome (ITA)	BRA	CUB	SRB
2014	Various cities (POL)	POL	BRA	GER

Women's World Championship

Year	Organiser	1st	2nd	3rd
1952	Moscow (URS)	URS	POL	TCH
1956	Paris (FRA)	URS	ROM	POL
1960	Rio de Janeiro (BRA)	URS	JPN	TCH
1962	Moscow (URS)	JPN	URS	POL
1967	Tokyo (JPN)	JPN	USA	KOR
1970	Varna (BUL)	URS	JPN	PRK
1974	Guadalajara (MEX)	JPN	URS	KOR
1978	Leningrad (URS)	CUB	JPN	URS
1982	Lima (PER)	CHN	PER	USA
1986	Prague (TCH)	CHN	CUB	PER
1990	Beijing (CHN)	URS	CHN	USA
1994	Sao Paulo (BRA)	CUB	BRA	RUS
1998	various cities (JAP)	CUB	CHN	RUS
2002	various cities (GER)	ITA	USA	RUS
2006	various cities (JAP)	RUS	BRA	SRB&MNE*
2010	various cities (JAP)	RUS	BRA	JPN
2014	Various cities (ITA)	USA	CHN	BRA

* Serbia and Montenegro 1992 - 2006

Men's World Cup

Year	Organiser	1st	2nd	3rd
1965	various cities (POL)	URS	POL	TCH
1969	GDR	GDR	JPN	URS
1977	various cities (JPN)	URS	JPN	CUB
1981	various cities (JPN)	URS	CUB	BRA
1985	various cities (JPN)	USA	URS	TCH
1989	various cities (JPN)	CUB	ITA	URS
1991	various cities (JPN)	URS	CUB	USA
1995	various cities (JPN)	ITA	NED	BRA
1999	various cities (JPN)	RUS	CUB	ITA
2003	various cities (JPN)	BRA	ITA	SRB&MNE
2007	various cities (JPN)	BRA	RUS	BUL
2011	various cities (JPN)	RUS	POL	BRA
2015	various cities (JPN)	USA	ITA	POL

Women's World Cup

Year	Organiser	1st	2nd	3rd
1973	various cities (URU)	URS	JPN	KOR
1977	various cities (JPN)	JPN	CUB	KOR
1981	various cities (JPN)	CHN	JPN	URS
1985	various cities (JPN)	CHN	CUB	URS
1989	various cities (JPN)	CUB	URS	CHN
1991	various cities (JPN)	CUB	CHN	URS
1995	various cities (JPN)	CUB	BRA	CHN
1999	various cities (JPN)	CUB	RUS	BRA
2003	various cities (JPN)	CHN	BRA	USA
2007	various cities (JPN)	ITA	BRA	USA
2011	various cities (JPN)	ITA	USA	CHN
2015	various cities (JPN)	CHN	SRB	USA

Men's World League

Year	Organiser	1st	2nd	3rd
1990	Osaka (JPN)	ITA	NED	BRA
1991	Milan (ITA)	ITA	CUB	RUS
1992	Genova (ITA)	ITA	CUB	USA
1993	Sao Paolo (BRA)	BRA	RUS	ITA
1994	Milan (ITA)	ITA	CUB	BRA
1995	Rio de Janeiro (BRA)	ITA	BRA	CUB
1996	Rotterdam (NED)	NED	ITA	RUS
1997	Moscow (RUS)	ITA	CUB	RUS
1998	Milan (ITA)	CUB	RUS	NED
1999	Mar del Plata (ARG)	ITA	CUB	BRA
2000	Rotterdam (NED)	ITA	RUS	BRA
2001	Katowice (POL)	BRA	ITA	RUS
2002	Belo Horizonte (BRA)	RUS	BRA	YUG
2003	Madrid (SPA)	BRA	SRB&MNE	ITA
2004	Rome (ITA)	BRA	ITA	SRB&MNE
2005	Belgrade (SRB&MNE)	BRA	SRB&MNE	CUB
2006	Moscow (RUS)	BRA	FRA	RUS
2007	Katowice (POL)	BRA	RUS	USA
2008	Rio de Janeiro (BRA)	USA	SRB	RUS
2009	Belgrade (SRB)	BRA	SRB	RUS
2010	Córdoba (ARG)	BRA	RUS	SRB
2011	Gdansk/Sopot (POL)	RUS	BRA	POL
2012	Sofia (BUL)	POL	USA	CUB
2013	Mar de Plata (ARG)	RUS	BRA	ITA
2014	Florence (ITA)	USA	BRA	ITA
2015	Rio de Janeiro (BRA)	FRA	SRB	USA

Women's Grand Prix

Year	Organiser	1st	2nd	3rd
1993	Hong Kong (CHN)	CUB	CHN	RUS
1994	Shanghai (CHN)	BRA	CUB	CHN
1995	Shanghai (CHN)	USA	BRA	CUB
1996	Shanghai (CHN)	BRA	CUB	RUS
1997	Kobe (JPN)	RUS	CUB	KOR
1998	Hong Kong (CHN)	BRA	RUS	CUB
1999	Yuxi (CHN)	RUS	BRA	CHN
2000	Manila (PHI)	CUB	RUS	BRA
2001	Macao (CHN)	USA	CHN	RUS
2002	Hong Kong (CHN)	RUS	CHN	GER
2003	Andria (ITA)	CHN	RUS	USA
2004	Reggio Calabria (ITA)	BRA	ITA	USA
2005	Sendai (JPN)	BRA	ITA	CHN
2006	Reggio Calabria (ITA)	BRA	RUS	ITA
2007	Ningbo (CHN)	NED	CHN	ITA
2008	Yokohama (JPN)	BRA	CUB	ITA
2009	Tokyo (JPN)	BRA	RUS	GER
2010	Ningbo (CHN)	USA	BRA	ITA
2011	Macao (CHN)	USA	BRA	SRB
2012	Ningbo (CHN)	USA	BRA	TUR
2013	Sapporo (JPN)	BRA	CHN	SRB
2014	Tokyo (JPN)	BRA	JPN	RUS
2015	Omaha (USA)	USA	RUS	BRA

Men's U23 World Championship

Year	Organiser	1st	2nd	3rd
2015	Dubai (UAE)	RUS	TUR	ITA

Women's U23 World Championship

Year	Organiser	1st	2nd	3rd
2015	Ankara (TUR)	BRA	TUR	DOM

Men's U21 World Championship

Year	Organiser	1st	2nd	3rd
1977	Rio de Janeiro (BRA)	URS	CHN	BRA
1981	Colorado Springs (USA)	URS	BRA	KOR
1985	Milano (ITA)	URS	ITA	CUB
1987	Bahrain (BRN)	KOR	CUB	URS
1989	Athens (GRE)	URS	JPN	BRA
1991	Cairo (EGY)	BUL	ITA	URS
1993	Rosario (ARG)	BRA	ITA	TCH
1995	Johor Bahru (MAS)	RUS	BRA	ITA
1997	Manama (BRN)	POL	BRA	RUS
1999	Ubon, Ratchathani (THA)	RUS	FRA	BRA
2001	Wrocław (POL)	BRA	RUS	VEN
2003	Tehran (IRI)	POL	BRA	BUL
2005	Visakhapatnam (IND)	RUS	BRA	CUB
2007	Casablanca (MOR)	BRA	RUS	IRI
2009	Pune (IND)	BRA	CUB	ARG
2011	Rio de Janeiro / Niterói (BRA)	RUS	ARG	SRB
2013	Ankara / Izmir (TUR)	RUS	BRA	ITA
2015	various cities (MEX)	RUS	ARG	CHN

Women's U20 World Championship

Year	Organiser	1st	2nd	3rd
1977	Sao Paolo (BRA)	KOR	CHN	JPN
1981	Mexico City (MEX)	KOR	PER	JPN
1985	Milan (ITA)	CUB	JPN	CHN
1987	Seoul (KOR)	BRA	KOR	CHN
1989	Lima (PER)	BRA	CUB	JPN
1991	Brno (TCH)	URS	BRA	JPN
1993	Brasilia (BRA)	CUB	UKR	KOR
1995	Bangkok (THA)	CHN	BRA	RUS
1997	Gdansk (POL)	RUS	ITA	CHN
1999	Saskatoon (CAN)	RUS	BRA	KOR
2001	Santo Domingo (DOM)	BRA	KOR	CHN
2003	Suphanburi (THA)	BRA	CHN	POL
2005	Ankara / Istanbul (TUR)	BRA	SRB&MNE	CHN
2007	Nakhon Ratchasima (THA)	BRA	CHN	JPN
2009	Mexicali / Tijuana (MEX)	GER	DOM	BRA
2011	Lima / Trujillo (PER)	ITA	BRA	CHN
2013	Brno (CZE)	CHN	JPN	BRA
2015	various cities (PUR)	DOM	BRA	ITA

Boys' U19 World Championship

Year	Organiser	1st	2nd	3rd
1989	Dubai (UAE)	BRA	URS	BUL
1991	Porto (POR)	BRA	URS	KOR
1993	Istanbul (TUR)	BRA	JPN	KOR
1995	San Juan (PUR)	BRA	ITA	JPN
1997	Tehran (IRI)	ITA	GRE	JPN
1999	Riyadh (KSA)	RUS	VEN	POL
2001	Cairo (EGY)	BRA	IRI	RUS
2003	Suphanburi (THA)	BRA	IND	IRI
2005	Algiers / Oran (ALG)	RUS	BRA	ITA
2007	Mexicali / Tijuana (MEX)	IRI	CHN	FRA
2009	Bassano del Grappa / Jesolo (ITA)	SRB	IRI	ARG
2011	Bahía Blanca (ARG)	SRB	ESP	CUB
2013	Tijuana / Mexicali (MEX)	RUS	CHN	POL
2015	various cities (ARG)	POL	ARG	IRI

Girls' U18 World Championship

Year	Organiser	1st	2nd	3rd
1989	Curitiba (BRA)	URS	BRA	JPN
1991	Lisbon (POR)	KOR	BRA	URS
1993	Bratislava (SVK)	RUS	JPN	KOR
1995	Orleans (FRA)	JPN	RUS	ITA
1997	Chiang Mai (THA)	BRA	RUS	ITA
1999	Funchal (POR)	JPN	BRA	KOR
2001	Pula (CRO)	CHN	BRA	POL
2003	Pila (POL)	CHN	ITA	BRA
2005	Macau (CHN)	BRA	RUS	ITA
2007	Mexicali / Tijuana (MEX)	CHN	TUR	RUS
2009	Nakhon Ratchasima (THA)	BRA	SRB	BEL
2011	Ankara (TUR)	TUR	CHN	SRB
2013	Nakhon Ratchasima (THA)	CHN	USA	BRA
2015	Lima (PER)	USA	MEX	RUS

Appendix 2
Additional Resource Material

- Rules of the Game - http://www.fivb.org/EN/Refereeing-Rules/RulesOfTheGame_VB.asp
- Beach Volleyball Drill-Book - http://www.fivb.org/EN/Development/Document/FIVB_BeachVolleyball_Drill-Book/English/
- Beach Volleyball Drill-Book videos - http://www.fivb.org/EN/Development/BVB_Drill_book_videos_Menu.asp
- Technical Evaluations Video Library - http://www.fivb.org/EN/Technical-Coach/Technical_Library.asp
- 2014 Men's World Championship - http://poland2014.fivb.org/en
- 2014 Women's World Championship - http://italy2014.fivb.org/en
- 2010 Men's World Championship - http://www.fivb.org/EN/Volleyball/Competitions/WorldChampionships/2010/Men/index.asp
- 2010 Women's World Championship - http://www.fivb.org/EN/Volleyball/Competitions/WorldChampionships/2010/Women/

Contributors

Chapter II:

- Jetchev Jivko

Chapter III:

- Toshiro Endo (Daito Bunka University),
- Yoshio Koyanagi (Mukogawa Women's University)
- John Sheahan (Yamasaki Gakuin University)

Chapter VIII:

- Teambuilding in Volleyball: Peter Murphy

Technical Evaluations:

- Berthold Frohner,
- Gylton da Matta
- Abe Meiniger
- Peter Murphy
- Lorne Sawula

Technical Posters:

- Berthold Frohner
- Abe Meiniger,
- Peter Murphy
- Lorne Sawula,