

# Complex organization of high performance sports training process in para-badminton

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**1. Key organization features of training process in para-badminton**

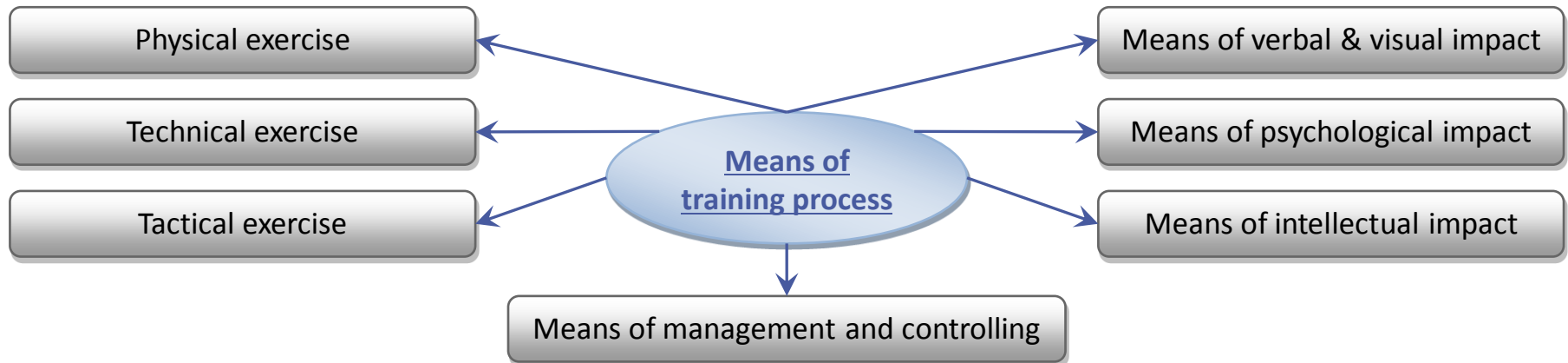
2. Complex application of control and controlling tools in achieving high performance sports results

# Goal, objectives means and principles of training process in para-badminton

**GOAL**  
To achieve the highest possible level of training  
guaranteeing the progress in attaining desired sport results

## **OBJECTIVES**

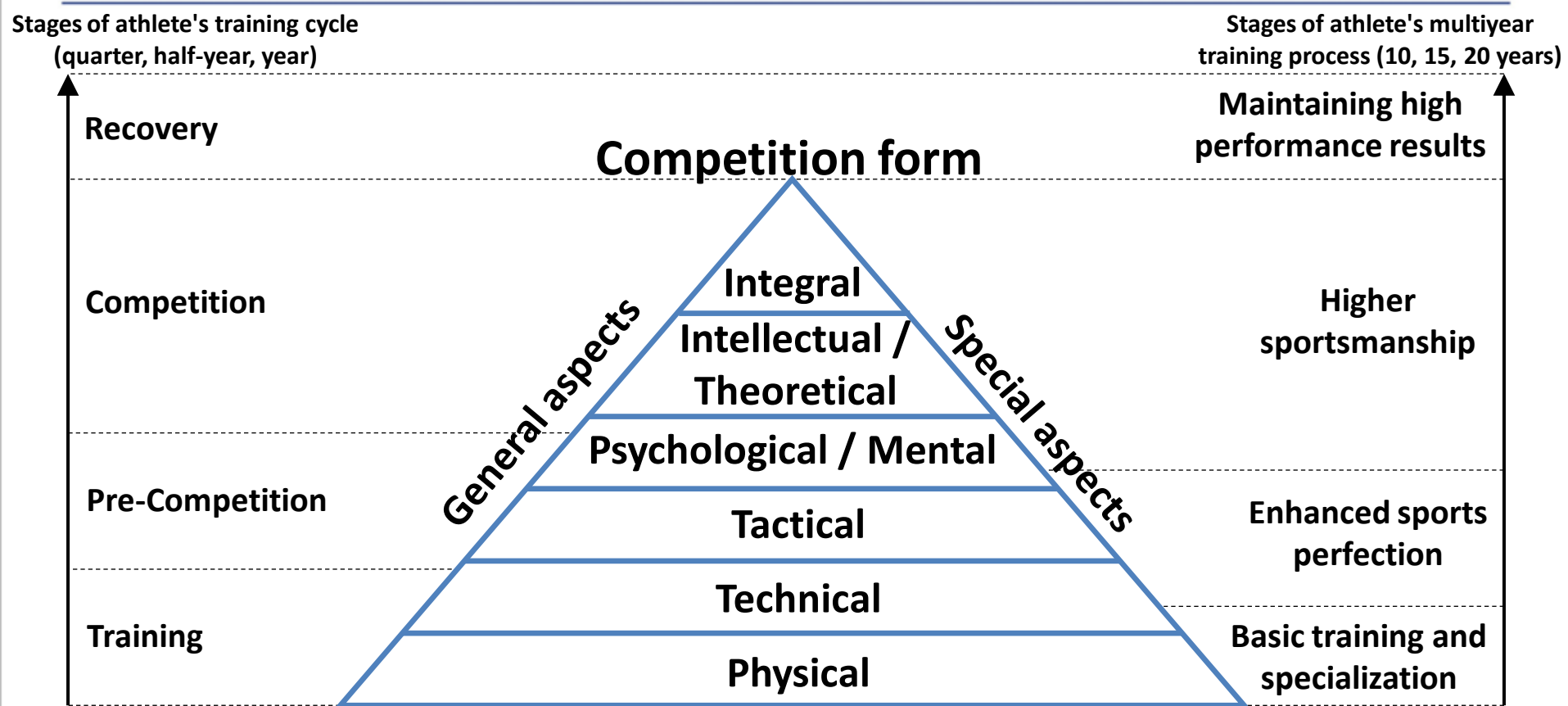
- Learning of technique and tactics in chosen sport
- Development of physical abilities and body functional systems
- Improvement of mental functions, moral, emotional-volitional, esthetic, intellectual qualities
- Acquisition of theoretical and practical knowledge in chosen sport
- Complex improvement of the ability to implement the attained level of training at significant competitions



## **PRINCIPLES**

- ✓ Unity of general and special sports training
- ✓ Continuity of training process
- ✓ Unity of gradual increase of training load and trend to maximal training load
- ✓ Waviness and flexibility of training load dynamics
- ✓ Repeatability of training process

# Basic types of athlete's sports training in para-badminton. Competition form

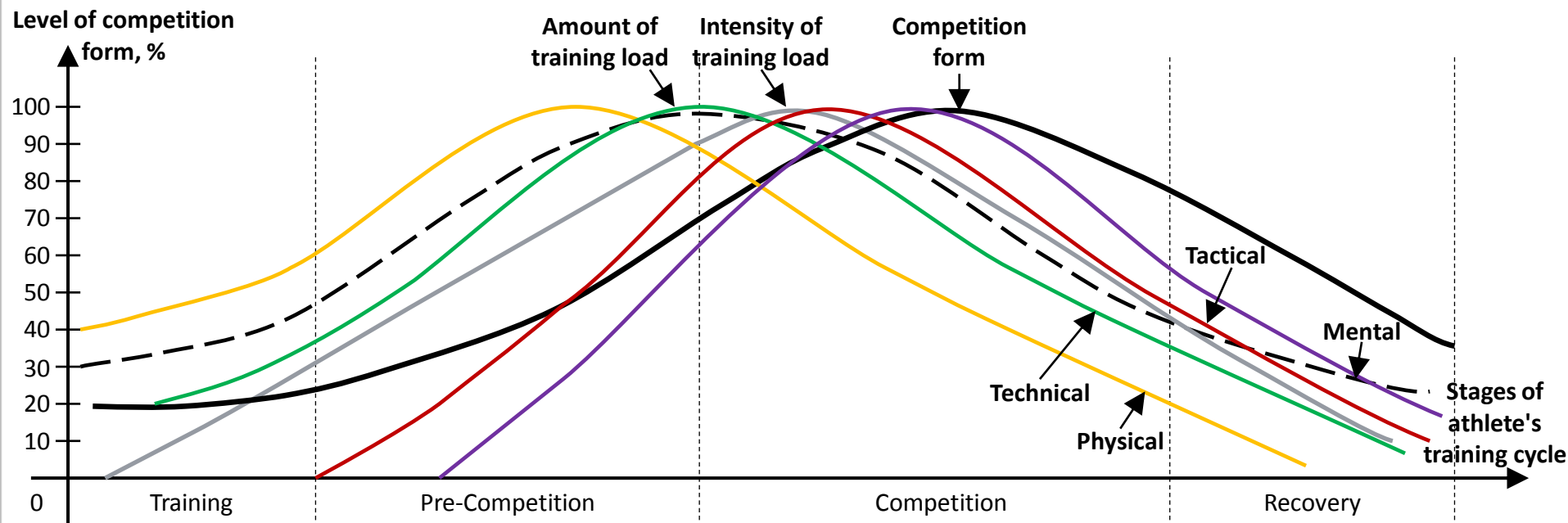


**Competition form** (sport psych. – optimal competitive condition) – condition of optimal (best) athlete's overall preparedness in achieving high performance sports results which is acquired in case of balanced complex application of main sports training types (physical, technical, tactical, psychological, intellectual) in each individual athlete's training cycle or during the whole athlete's multiyear training process.

# Competition form at the stages of athlete's training cycle. Delayed transformation effect

**Delayed transformation effect** is that dynamics of sport results (competition form) lags behind dynamics of amount of training loads and close to dynamics of intensity of training loads. So best result is observed not the moment when total amount and intensity of training loads had peak values but only after they have decreased.

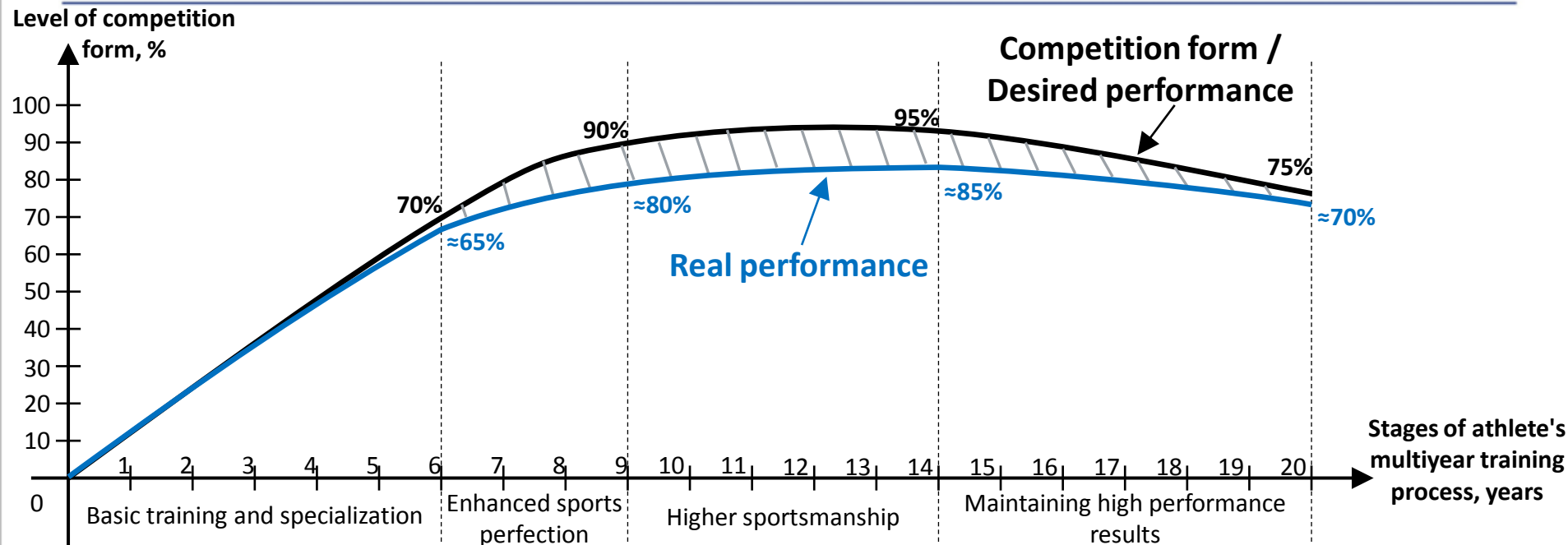
Therefore, in the course of training process, **the issue of regulating dynamics of training loads (amount and intensity)** should be put in the forefront so that their cumulative effect was transformed to the best competition form in terms of decisive starts.



The same **delayed transformation effect** is observed when the main types of athlete's sports training are sequentially carried out. The greatest delay is seen in physical aspect, the smallest – in psychological, what means that peak of mental load appears proximately with peak of competition form.

Consequently, **rational consistent planning of amount and intensity of physical, technical, tactical and mental loads** should help towards the attainment of the top competition form to the most important tournament in season.

# Competition form vs Real performance at the stages of athlete's multiyear training process



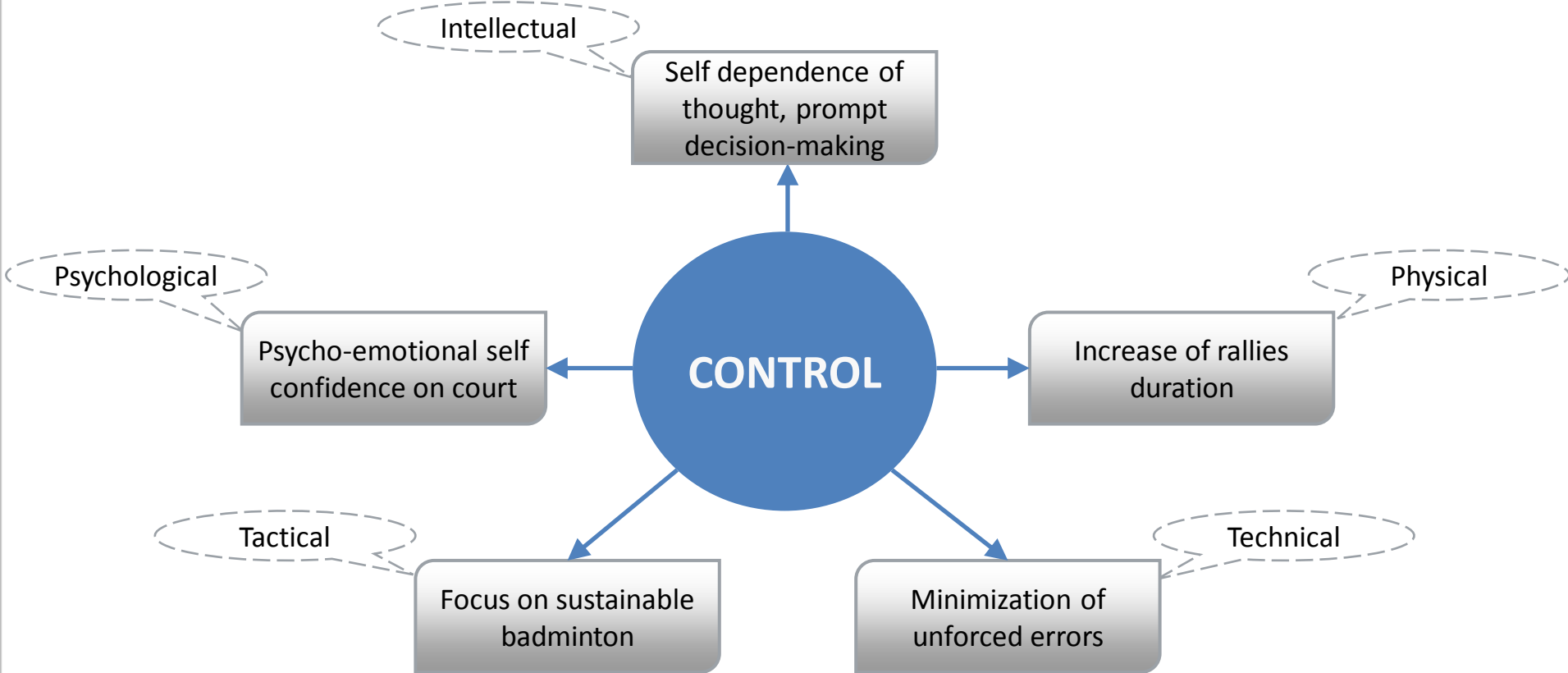
3-6	1-3	4-5	4-6	Duration, years
Complex physical and general technical trainings	Special technical, complex tactical and general mental trainings	Special mental, complex intellectual and continuous integral trainings		Focus on types of sports training
Local tournaments	Regional, National and International tournaments	Continental, World championships and Olympic games		Participation in competitions
Common interest development in para-badminton. Subject clarification of future specialization and beginning of enhanced para-badminton training	Development of high competitive loads. Athlete's training to the first competition experience	Development of maximal training and competitive loads. Planning of competitive season via meso / macro cycles. Peak competition form to the main tournament in season	Rationalization of training process oriented to save high training conditions. Gradual decline of training loads. Maintaining high performance via wide competition experience	Key features of training process

1. Key organization features of training process in para-badminton



**2. Complex application of control and controlling tools in achieving high performance sports results**

# Control and its key components in para-badminton



**Control** – ability to manage the situation effectively at the crucial moment towards reaching high performance sport results in para-badminton competitions via rational complex application of appropriate physical, technical, tactical, psychological and intellectual methodical tools of athlete's sports training.



# Methodical tools of athlete's physical training based on control conception

Type of training based on control	General aspects	Special aspects
<b>1. Physical</b>	1.1 Warm-up, stretching 1.2 Exercises aimed at all-round development of all athlete's physical qualities (strength, quickness, agility, endurance, flexibility) – e.g., run, jumps, accelerations, use of rackets, shuttles, elastic bands, machines and other secondary equipment 1.3 Cool down, stretching	1.1 Movement training: with / without racket 1.2 Exercises aimed at coordination, reaction speed and explosive reaction – e.g., use of tennis balls or other implements, juggling with one / two shuttles, «wall game», etc. 1.3 Strokes imitations: with usual / weighted racket 1.4 Exercises with high amount and intensity of training loads close to competitive – e.g., multi shuttles, etc.
<i>With growth of athlete's qualification the volume of special physical training tools is increased while the volume of general physical training tools is accordingly decreased</i>		

# Methodical tools of athlete's technical training based on control conception

Type of training based on control	General aspects	Special aspects
<b>2. Technical</b>	<p>2.1 Base technique of movements, attacking shots (drop, smash, netkill, etc.), defensive shots (clear, lift, etc.), service (short, high) and return service</p> <p>2.2 Correct racket grip for different strokes and service</p> <p>2.3 Differentiation of dynamic and static exercises</p>	<p>2.1 Differentiation of basic and complex exercises just as differentiation of one and multi shuttle exercises</p> <p>2.2 <u>Basic one shuttle exercises</u>: “half-windmill” (drop-hairpin, clear-lift, etc.); “windmill” (lift-drop-hairpin, lift-clear-drop, etc.); successive strokes to three corners from one zone (drop-hairpin-drop, clear-lift-lift, etc.), etc</p> <p>2.3 <u>Complex one shuttle exercises</u>: “windmill” with two clear shots; “windmill” with successive addition of strokes at choice; clear shots preparing right moment for attack (preferably drop), etc.</p> <p>2.4 <u>Basic multi shuttle exercises</u>: front court (two corners with different shots and center recovery, two different shots in one corner and center recovery, etc.); backcourt (same); front&amp;back court (different combinations of front&amp;back strokes – e.g., clear / drop / smash-hairpin / lift / netkill, etc.)</p> <p>2.5 <u>Complex multi shuttle exercises</u>: completion of the rally (random attack from the middle and front court); control of the defense (lift-center recovery-net defense); push for the back court (two-four clear shots-lift/hairpin), etc.</p> <p>2.6 Accuracy multi shuttle exercises: strokes from one zone to one / different corners and from different zones to one / different corners; serve and return in four corners</p> <p>2.7 Deceptive shots (front, middle, back court)</p>

*Means of verbal, visual impact and technical exercises are applied in both general and special blocks. Mostly every exercise from special block can be carried out with both directions (straight/diagonal) and both roles (driven/driving)*

# Methodical tools of athlete's tactical training based on control conception

Type of training based on control	General aspects	Special aspects
<b>3. Tactical</b>	<p>3.1 Training of mental impact on the opponent – e.g., tactical pauses, game with the weaker opponent, switching off one player from doubles, push the player with less mental strength</p> <p>3.2 Recognition of opponent's strengths and weaknesses switching one tactics to another when required – e.g., orientation on back court push, quick drops in front court, sudden game change from back to front court, unpredictable attack</p> <p>3.3 Video analysis of matches</p>	<p>3.1 Singles tactics exercises focused on development of game logic and rational game arrangement – e.g., exercise, aimed at creating front&amp;back diagonal starting with 1<sup>st</sup> fixed stroke (clear / drop, straight / diagonal) successively moving back and forth or starting with 1<sup>st</sup> variable stroke randomly moving back and forth , etc.</p> <p>3.2 Doubles tactics exercises focused on development of partners' cooperation, mutual understanding and assistance – e.g., exercise, aimed at front court assistance after attack from the back and switching half-courts if needed (the converse is also true), etc.</p> <p>3.3 Rational energy allocation during the match / competition day / whole tournament – e.g., playing match, oriented on keeping the greatest possible attention concentration from the beginning till the end; splitting set / match into stages (beg. – 0-8 pnts, mid. – 9-15 pnts, end – 16-20 pnts) whereupon conscious control of first two stages with correct speed and maximal focus at the end, etc.</p> <p>3.4 Disguise of own intentions – e.g., developing deceptive shots when attack or defense; lob to the front / middle court from deep back court aiming to attract opponent into attack; “catching-up tactics” – opponent's relaxation with successive game activation, etc.</p>
<p><i>Means of verbal, visual, mental and theoretical impact are applied in general block, while tactical exercises most closely resembling to game are mainly used in special block</i></p>		

# Methodical tools of athlete's psychological training based on control conception 1/3

Type of training based on control	General aspects	Means of impact
<b>4. Psychological</b>	4.1 Development of attention concentration and focus	Basic multi shuttle or one shuttle exercises oriented on continuous holding attention on shuttle / switching focus from shuttle to opponent, empty zones, etc. / maximum concentration preservation through the whole set / match (e.g., training different strokes with two shuttles at once)
	4.2 Development of tactical mind, memory, imagination	Complex multi shuttle or one shuttle exercises oriented on training of concrete game tactical combinations including elements of any conscious actions (e.g., doubles tactics focused on play with weaker opponent and creation of empty zones on court also using conscious unexpected strokes)
	4.3 Development the ability of self-control of emotions	Verbal instructions on easing of mental tensions; psycho-muscular training, auto-training, auto-hypnosis; different distraction methods (listening to the music, reading, talking)
	4.4 Development sense of rhythm, delicacy, space and time	Musical exercise: making every stroke on beat; exercise aimed at use of all court space with focus on center as universal starting point; exercise aimed at study of own anthropometric data (e.g., length of arms, etc.) for purposes of its rational use
	4.5 Development of main volitional powers	Exercises aimed at overcoming difficulties on competitive level of training loads; exercises aimed at creation of imaginary difficulties (e.g., handicap); additional exercises on fatigue stage
<i>General psychological block includes early pre-competition mental training during regular training process (1,5 month before competition). It is oriented on development of primary mental qualities by means of general psychological impact and all types of exercises</i>		

# Methodical tools of athlete's psychological training based on control conception 2/3

Type of training based on control	Special aspects	Means of impact
<b>4. Psycho-logical</b>	4.1 Keep “optimal competitive condition” as long as possible	Control of internal psycho-emotional background before, during and after competition; understanding of assigned tasks in particular game / tournament; understanding of self-confidence, confidence in partner, ability of taking responsibility in doubles; full abstraction from external factors (fans, illumination, covering, weather, time, etc.) and leveling sense of duty towards anyone; choose / change right mental approach depending on the opponent (“with pleasure”, “as at training”, “good performance independent of result”, etc.)
	4.2 Decrease emotional excitement level if player is in state of “start fever”	Use majority of verbal means (explanation, persuasion, approval, praise), aimed at athlete's calm, some days before competition starts; use of psycho-muscular training tools for generation of working formulas calming the athlete (“Everything is fine”, “I will get through it”, “Well done”, etc.); refocus on objects provoking positive emotions (listening to the music, reading, talking, video viewing, mobile games, etc.); refocus (before and during the match) from the event using simple intellectual tasks from various scientific areas (maths, geography, history, etc.); relaxing massage, smooth and deliberate warm-up
<i>Special psychological block includes mental training immediately before competition, during and after it. It is oriented on keeping optimal competitive condition as long as possible and such a variation of emotional excitement level which promotes attaining the highest results by means of special psychological impact and all types of exercises</i>		

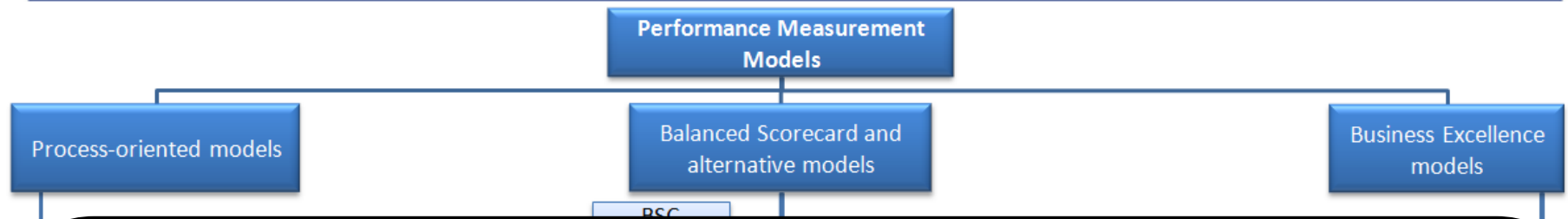
# Methodical tools of athlete's psychological training based on control conception 3/3

Type of training based on control	Special aspects	Means of impact
<b>4. Psycho-logical</b>	4.3 Increase emotional excitement level if player is in state of "start apathy"	Use of verbal means (persuasion, approval, order, etc.) aimed at increase in mental tension and attention concentration; use of psycho-muscular training tools for generation of working formulas focusing athlete's thoughts on achieving victory or good result ("Give everything for victory", "Involved on maximum", "Forward, only forward", etc.); self-massage (rubbing, tapping), intense and active warm-up using active music or other tonic tools; cold shower
	4.4 Change emotional excitement level if player is in state of "freezing because of over-excitement"	Bewared and relaxed communication with athlete aimed at decrease his mental tension; use of psycho-muscular training tools for generation of right images (previous successful performance experience, convenient and inconvenient opponents, correct technique of strokes, etc.); low-intensity warm-up; hot shower
<i>Special psychological block includes mental training immediately before competition, during and after it. It is oriented on keeping optimal competitive condition as long as possible and such a variation of emotional excitement level which promotes attaining the highest results by means of special psychological impact and all types of exercises</i>		

# Methodical tools of athlete's intellectual training based on control conception

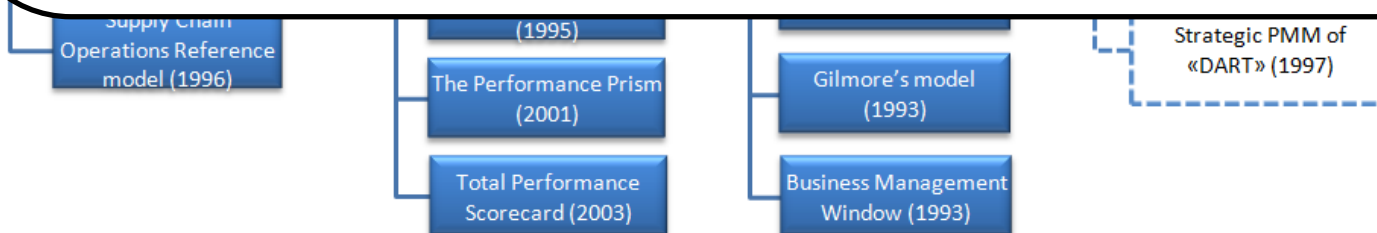
Type of training based on control	General aspects (theoretical education)	Special aspects (development of intellectual abilities)
<b>5. Intellectual</b>	<p>5.1 Worldview, motivation and ethical knowledge (e.g., understanding of public and personal sports activity essence, higher sportsmanship essence, etc.)</p> <p>5.2 Knowledge promoting education of steady motives and rules of conduct</p> <p>5.3 Knowledge making up scientific basis of athlete's training (e.g., principles and regularities of sports training, extra training factors, dietary regime, etc.)</p> <p>5.4 Sports-applicative knowledge (tournament, classification, doping regulations, etc.)</p>	<p>5.1 Development of following intellectual abilities: breadth and depth of mind; independence of thought; operational analysis of incoming information with its subsequent optimal realization; fast memorizing, preservation and reproduction of exercise; act and make decision preventively</p> <p>5.2 Using creative approach in development of new versions of movement technique, strokes technique, original tactics and psychological tools</p> <p>5.3 Development of original means of attention concentration restoration in competition terms</p>
<p><i>Complex of listed above theoretical knowledge is oriented on athlete's self-education by means of discussion, theoretical practice, self- literature and video researches, etc. Special block is oriented on development of intellectual abilities by means of intellectual impact and all types of exercises</i></p>		

# Performance measurement of training tools based on control. Classification of PMM



**Performance measurement framework** (performance measurement model – PMM) – complex evaluation system to achieve the expected results based on both application of managerial and controlling tools having the following key features:

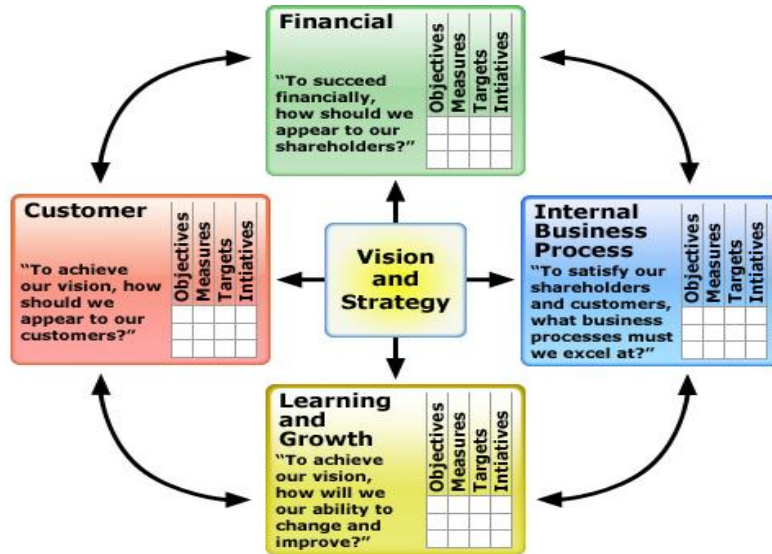
- ✓ consists of set of interrelated indicators;
- ✓ reflects all-round aspects of training activity (physical, technical, tactical, psychological, intellectual) and monitors effectiveness of its application not only at stages of athlete's training cycle during one year (operational level) but also at stages of athlete's multiyear training process during some years (strategic level);
- ✓ provides with convenient analytical information on achievement of corresponding target values of indicators;
- ✓ promotes well-timed decision making.



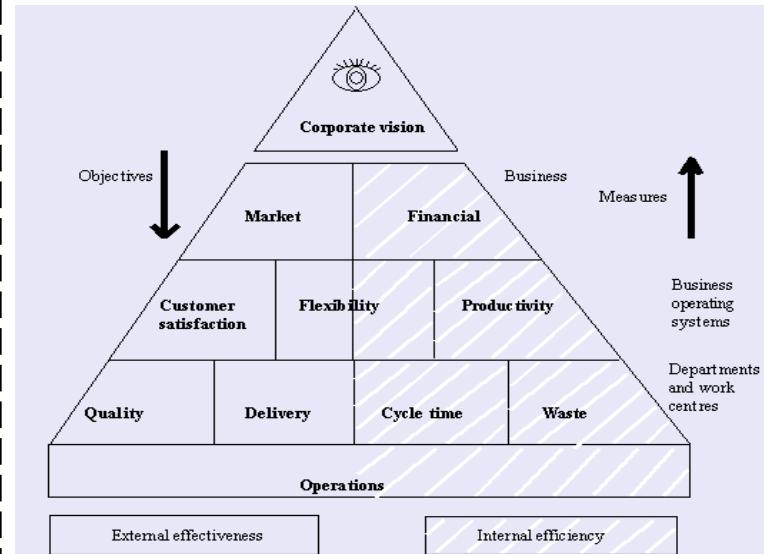


# Examples of different PMM according to presented classification

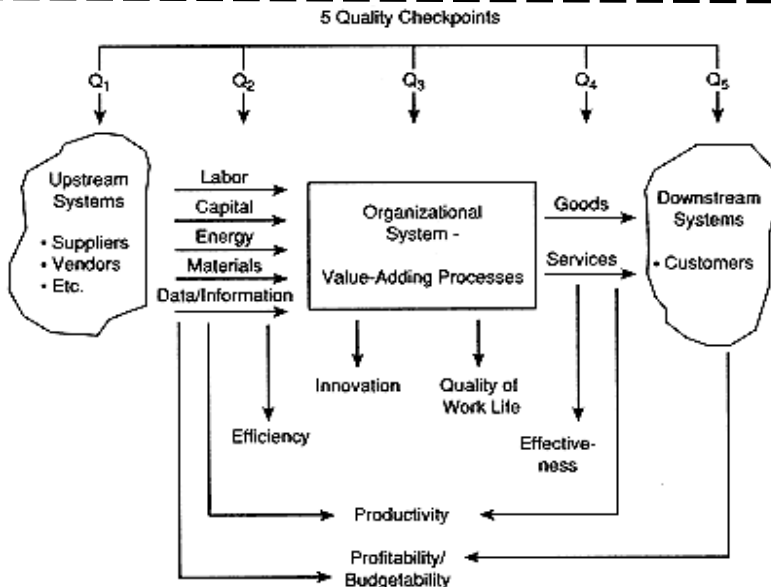
## Balanced Scorecard



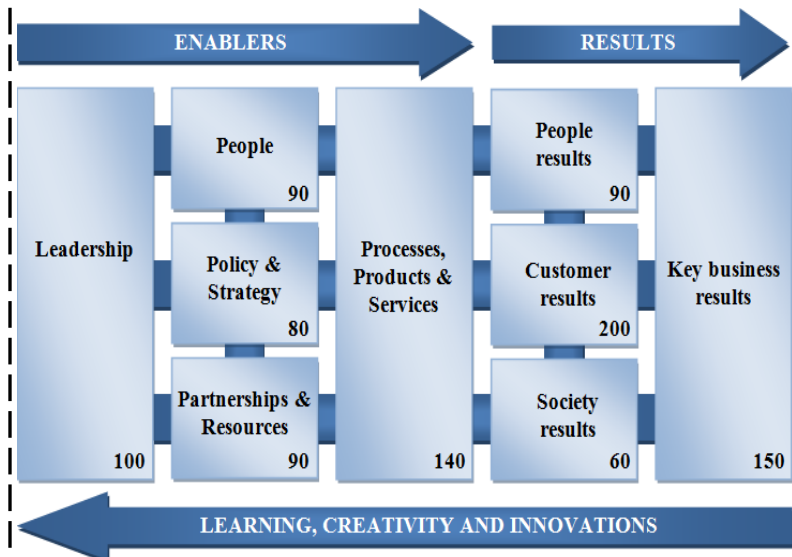
## Alternative BSC models (Performance Pyramid)



## Process-oriented models (Sink and Tuttle model)



## Business Excellence models (EFQM excellence model)



# SMART goals means SMART measures

**S**

• **SPECIFIC**

- Define the goal as much as possible with no unclear language
- **Who** is involved, **WHAT** do I want to accomplish, **WHERE** will it be done, **WHY** am I doing this – reasons, purpose, **WHICH** constraints and/or requirements do I have?

**M**

• **MEASURABLE**

- Can you track the progress and measure the outcome?
- How much, how many, how will I know when my goal is accomplished?

**A**

• **ATTAINABLE/ACHIEVABLE**

- Is the goal reasonable enough to be accomplished? How so?
- Make sure the goal is not out or reach or below standard performance.

**R**

• **RELEVANT**

- Is the goal worthwhile and will it meet your needs?
- Is each goal consistent with the other goals you have established and fits with your immediate and long term plans?

**T**

• **TIMELY**

- Your objective should include a time limit. Ex: I will complete this step by month/day/year.
- It will establish a sense of urgency and prompt you to have better time management.

✓ SMART goals should correspond with SMART measures which are needed to evaluate athlete's overall preparedness to a certain competition.

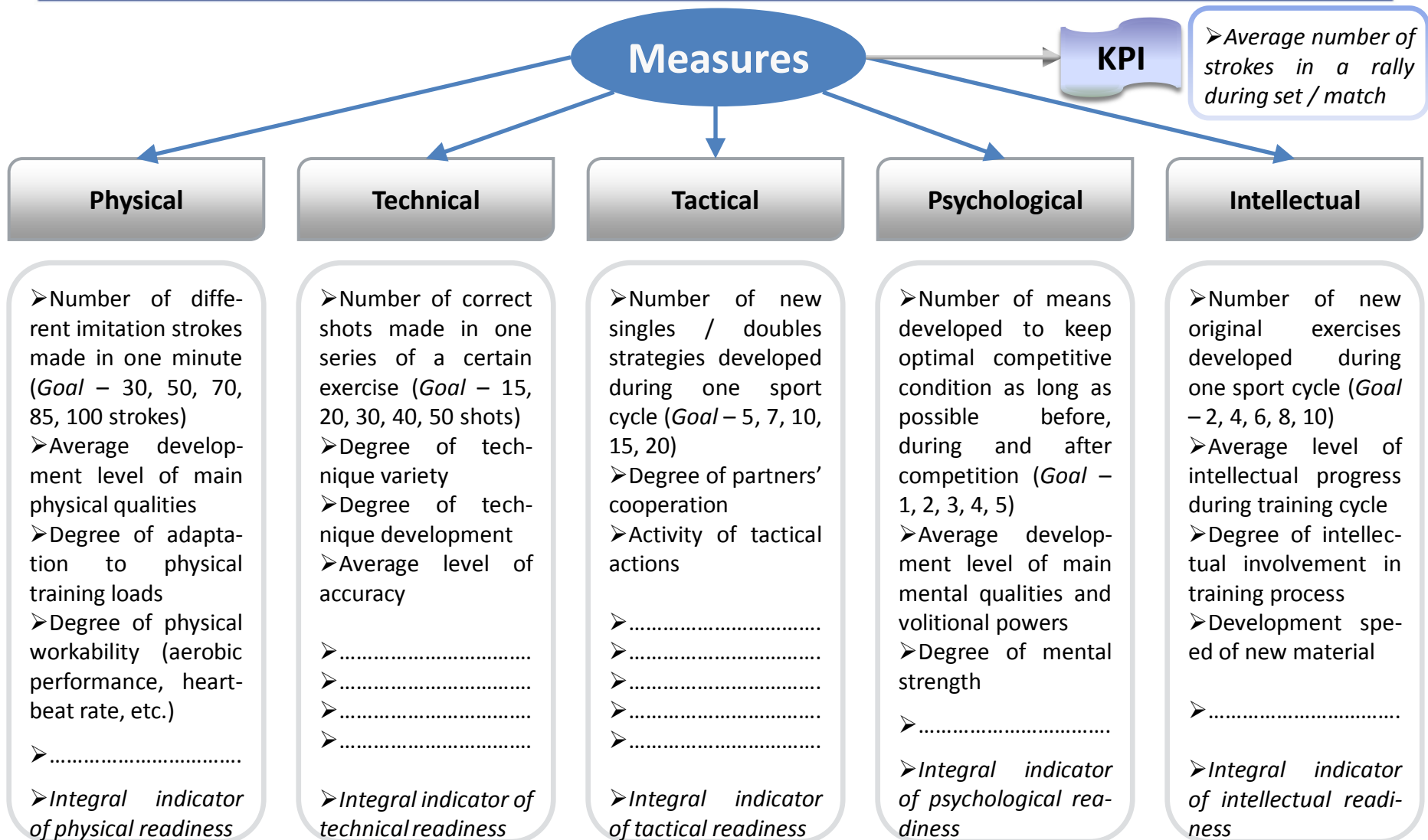
✓ Each measure is estimated for a certain period and has its target and actual value.

✓ Plan-fact analysis is actively used for performance assessment.

✓ Measures are cumulated in functional areas (types of athlete's sports training), interrelated and linked with cause and effect relations


✓ Totality of measures from different functional areas reflects overall athlete's preparedness to a certain competition in a certain period.

# Examples of performance measures of all functional areas



# Application features of athlete's overall preparedness (competition form) PMM

## Potential benefits from competent application of developed athlete's overall preparedness PMM in continuous training process:

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- ✓ Complex performance evaluation of all training activity aspects by measurement of planned and actual indicator values for a certain period of time;
  - ✓ Visual correlation between real performance results achieved at certain tournament and desired performance results based on integral estimation of key components of athlete's competition form;
  - ✓ Long-term (strategic) planning of high performance sport results via integral estimation of sports training indicators at corresponding stages of athlete's multiyear training process;
  - ✓ Short-term (operational) planning of high performance sport results via point estimation of sports training indicators at corresponding stages of athlete's training cycle during meso / macro cycles;
  - ✓ Provision of convenient analytical information by means of variance analysis promoting balanced well-timed decision making regarding optimality of amount and intensity of training loads in course of equal development of competition form, rational application of appropriate training activities during a certain period, focus on certain areas / measures / exercises, etc.
  - ✓ Consistency and correctness evaluation of selected training activity course by establishing cause and effect relations between indicators of strategic and operational levels