



**ISSF NATIONAL COACH
(FIRST LEVEL)
SPORT SCIENCE**

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SPORT SCIENCE – ISSF NATIONAL COACH (FIRST LEVEL)

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INTRODUCTION

The Sport Science contents of this book are designed for the National Coach (first level) course of the International Shooting Sport Federation (ISSF).

The Sport Science contents highlight six major areas of interest for coaches:

Chapter 1 – Motivational climate. This chapter overviews the main theoretical approaches of motivation in sport and the strategies coaches can use to create a positive and supportive motivational climate to foster individual motivation for optimal learning and performance.

Chapter 2 – Performance profiling. Identifying those technical, physical, and psychological qualities that a performer needs to improve is an initial step in the planning of a training programme. This can be conducted using a performance profiling approach in the assessment of the performer's strengths and weaknesses.

Chapter 3 – Goal setting. After completing the performance profile and establishing the areas to work on, the next step is to set clear and specific goals. This chapter covers goal setting theoretical issues and presents applied guidelines for setting goals effectively.

Chapter 4 – Communication. Effective communication between the coach and the athlete is crucial to set proper goals and achieve them. Communication skills imply the ability to communicate as well as to listen. The theoretical aspects and practical guidelines for communicating and listening effectively are provided.

Chapter 5 – Instructions and feedback for skill learning and improvement. In the coach-athlete communication process, instructions, demonstrations, and feedback are vital aspects for learning and refining motor skills. Guidelines for providing effective instructions, demonstrations, and feedback are presented.

Chapter 6 – Principles of physical training. Finally, the key principles of physical training are presented. They can be applied to improve the athlete' level of health-related fitness (i.e., cardiorespiratory endurance, muscular strength, muscular endurance, and flexibility) and sport-related fitness (i.e., strength, endurance, speed, flexibility, power, reaction time, coordination, balance, and agility).

The contents are presented throughout in a concise and, hopefully, clear and straightforward manner. To further expand and deepen knowledge in the different areas of Sport Science, the interested reader is referred to a number of suggested references placed at the end of each chapter. Coaches are strongly recommended to try not only to apply the many notions and recommendations reported here and in the literature, but also to develop their own strategies and coaching style.

CHAPTER 1 – MOTIVATIONAL CLIMATE FOR OPTIMAL LEARNING AND PERFORMANCE

OVERVIEW

How can athletes of all ages be encouraged to improve, to overcome their limits, to keep their commitment high despite the sacrifices and failures that often occur in training and in competition? When we see athletes struggling to reach the next level, we are most likely very eager to help. The opposite can also happen, for example when we feel irritated or angry because we think that athletes are disconnected or that they do not concentrate sufficiently. Either way, motivation is the central aspect and we ask ourselves how to motivate athletes or make sure they find the push to progress within themselves.

Motivation is a very abused and vague term. Our observation of daily life suggests that it could be associated with excitement, such as the pep talks of the coaches in the locker room before an event or even during competition. Some believe that it is a kind of trust, a winning attitude that directs the individual's behaviour towards improving performance. Others believe it is a personal entity, a genetically inherited trait. However, these beliefs do not take into account the complexity and richness of what motivation really is and how it can be improved.

Many theories have been proposed in psychology to explain motivation and account for its effects in determining individual mental processes and behaviours. In the sport context, three theories are dominant: attribution, achievement goal, and self-determination theories. These theories and their applications are presented below after introducing some basic concepts and a definition of motivation.

INTRODUCTION

Motivation is a fundamental component in an individual's decision to start practicing a particular sport discipline and maintain a meaningful involvement, regardless of whether

participation in sport leads to low or high achievements. Without it, even the most talented athletes are unlikely to reach their full potential.

Motivation levels and their variations depend on how athletes perceive and elaborate their experiences in the sport context. From their behaviours we can guess their level of motivation. Highly motivated athletes tend to show maximum commitment to achieve their goals, are inclined to face challenges and persist in the face of difficulties, strive to improve their current abilities and skills. On the contrary, low motivated individuals tend to disengage from the challenges and difficulties that arise during training and competition and underperform with respect to their potential.

Some people believe the level of motivation is mostly inherent in the athlete's personality characteristics, while others are persuaded that coaches have a main role in motivating their athletes. Both perspectives contain some truth, because motivation, to a certain extent, depends on the athletes' psychological dispositions and on situational dynamics of the social environments in which the athletes develop, train, and compete.

Therefore, sport motivation is a complex and multifaceted construct that depends on the interaction of personal factors and situational factors (Figure 1.1). Age and ability, stage of development, aspirations, performance strengths and weaknesses, level of motivation and commitment, time availability from work or school are among the personal factors to consider, while coaching styles, facilities, sport traditions and achievements are among the situational factors. All these factors interact with the specific technical, physical, and mental demands and the competitive structure of a sport discipline in determining individual motivation.

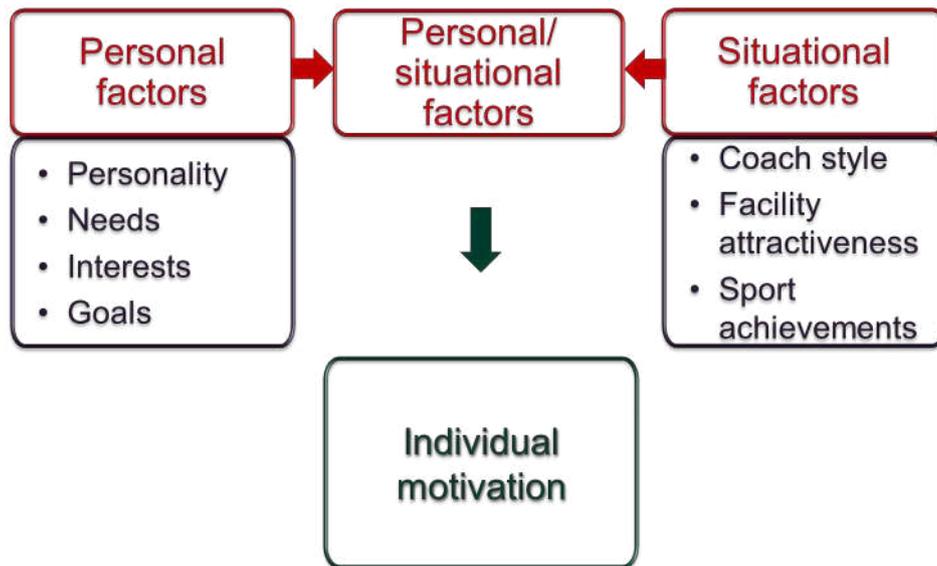


Figure 1.1. The interaction of personal factors and situational factors determines individual motivation (modified from Weinberg & Gould, 2019).

It is therefore important to understand what motivation is, which individual tendencies influence motivation, and how coaches can establish a motivational climate to support and enhance motivation in their athletes. Motivation translates in a positive and long-lasting involvement in sport, which allows athletes to enjoy their sporting experience and to fully exploit their performance potential.

DEFINING MOTIVATION

A common and straightforward definition of motivation is the direction and intensity of one's effort. The root of the word motivation is "motive", which derives from the Latin word "movere", meaning "to move". This captures the essence of motivation, the desire to move as opposed to remaining inactive. Direction of effort refers to an individual's intention to seek or be involved in certain situations. For example, young athletes may be attracted to a particular discipline because of the opportunities to make new friends, coaches may wish to participate in seminars to broaden their knowledge, and athletes may aspire to participate in competitive events to excel in their sport. Intensity of effort refers to how much effort the

individual puts forth in a situation. For instance, an athlete may attend a training session without engaging much in some of the physical activities proposed by the coach, while another athlete may engage in the same activities to improve the own physical abilities and technical skills.

Of course, direction and intensity of effort are two closely related components in motivational processes. Major motives to actively participate in sport are improving skills, having fun, being with friends, experiencing thrills and excitement, achieving success, and developing skills and fitness. Based on these motives, numerous theoretical approaches have been developed over the years, several of which are applied in the sport domain. Here we consider three influential theoretical models of motivational processes in athletes (i.e., attribution, achievement goal, and self-determination theories), together with some important applied indications stemming from these models.

ATTRIBUTION THEORY

The focus of attribution theory is on the types of attributions or causes that individuals give to explain what happened to them, for example the reasons for positive or negative outcomes. A shooter may attribute the victory in a competitive event to the own mental attitude or good preparation, while another may ascribe defeat to some misfortune over which there is no control (e.g., bullet or gun malfunctioning, adverse weather conditions). The important difference between these two examples of attribution is that in the first case the shooter's attribution is made to a personal quality (i.e., proper attitude and preparation), whereas in the second case the attribution is given to an external cause (the bullet, gun, weather). Therefore, the locus of causality can be internal (i.e., referring to stable individual characteristics) or external (i.e., referring to environmental causes of an event or outcome). People's explanations for events can also vary in stability (whether the perceived cause is relatively permanent or variable over time) and controllability (the extent to which causes are

perceived to be under the influence of the self). According to this view, individual's attributions are classified along three causal dimensions (Figure 1.2), namely, locus of control (internal or external), stability (stable or unstable), and personal control (personally controllable or uncontrollable).

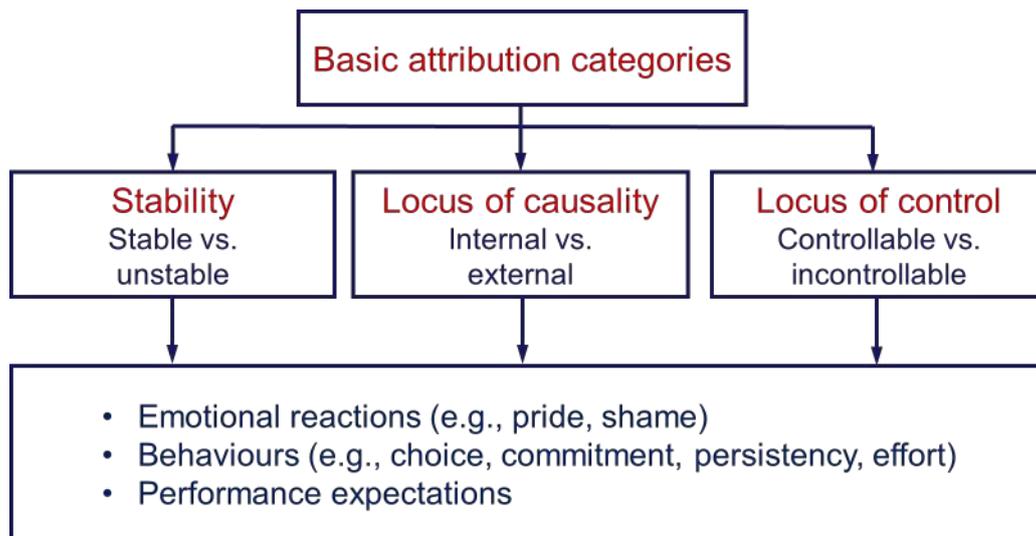


Figure 1.2. Basic attribution categories.

These attributional dimensions have been shown to predict emotional, cognitive, and behavioural responses to sporting success and failures. Successful athletes typically attribute successful outcomes to internal, stable, and controllable causes (e.g., ability, effort). This way, athletes anticipate future success and are more confident in their capacities. Conversely, performers who regularly experience failure can develop the attitude to attribute their failures to internal, stable, but uncontrollable causes. In this case, the coach can instruct the athletes to attribute their unsuccessful performance to causes that are unstable (i.e., modifiable) but within their control. For example, attributing poor performance to lack of effort or preparation stimulates the athletes to become responsible for their performance (internal cause), to acknowledge that performance is unstable and therefore can improve, and to recognize they have some control over the outcome. In any case, coaches would do well in prompting

athletes to focus on internal (rather than external) causes for both success and failure, view performance as improvable (unstable) through practice, and take responsibility (control) over their performance.

ACHIEVEMENT GOAL THEORY

Achievement goal motivation refers to the individual's efforts to master a task, develop the own talent, achieve excellence, overcome obstacles, and/or outperform others. More specifically, achievement goal theory postulates that people are motivated by different types of goals. Some people are more mastery (or task) oriented, while others are more performance (or ego) oriented depending on their own predispositions (i.e., dynamic cognitive schemas) deriving from the education process (e.g., within family) and socialization within achievement settings, such as physical education and organized sport. Mastery-oriented individuals are motivated to gain mastery of a given task, and their focus is on improving their own skills and ability over time. These people are inclined to demonstrate competence by meeting task demands, exerting effort, learning and improving. They use self-referenced criteria (i.e., personal achievement goals) to judge their progresses and abilities in comparison to their past knowledge and performance levels. For example, mastery-oriented shooters feel satisfied when they improve some specific aspects of the own technique or personal scores. They focus completely on themselves and enjoy progresses towards their goal pursuits even in challenging situations, such as when competing against more skilful shooters who stimulate them to improve their skills regardless the outcome (i.e., winning or losing). Mastery-oriented individuals have been found to display adaptive achievement behaviours in terms of focus on mastering tasks, effort exertion in practice and competition, selection of challenging tasks, persistence in the face of failure, cooperation availability, enhancement of perceived competence and self-esteem, levels of interest, and enjoyment in athletic activities.

Unlike mastery-oriented people, performance-oriented individuals are focused on performing better than others with whom they compare themselves. They usually believe that the key to success is possessing ability and manifest it in comparison with others rather than exerting effort to improve in comparison to themselves. Thus, they experience a sense of competence and feel satisfied when they are able to outperform others, attain more with equal effort, or exert less effort than others for an equal performance. When perception of ability is high, performance-oriented athletes tend to engage in the task and display adaptive achievement behaviours. However, when perception of ability is low, they tend to manifest maladaptive achievement behaviours, such as disengaging from the task and reducing effort. They also tend to display unsportsmanlike attitudes, such as cheating and intentionally aggressive sport acts.

Just as athletes vary in the type of goal orientation they adopt, the sporting environment has a fundamental impact on individual motivational orientation as a function of the emphasis placed more on mastery or performance goals. Coaches, in particular, can create a mastery motivational climate by encouraging athletes to learn, improve, work hard, develop skills, engage in challenging (but realistically attainable) tasks, and use self-referent achievement criteria in both training and competition. Within a mastery climate, mistakes are regarded as opportunities to improve. Athletes are rewarded based on the level of effort they exert, on how they communicate and cooperate with one another, and on their progression and improvement rather than on how they may rank in comparison to others. The focus is on factors (e.g., effort, improvement) that are under an individual's control. On the other hand, in a performance climate (often referred to as competitive climate), emphasis is placed on avoiding making mistakes (mistakes are punished), as well as outperforming peers and competitors, which are factors outside of an individual's control. Only best performance and top athletes are rewarded. Not surprisingly, a mastery climate leads to higher perceived

competence, self-esteem, enjoyment, intrinsic motivation, and better performance, whereas a performance climate is conducive to enhanced pressure, dysfunctional anxiety, task disengagement, extrinsic motivation (e.g., seeking external rewards), maladaptive behaviours, and burnout.

Research in sport and exercise within the achievement goal theory has used the TARGET framework to help coaches develop mastery climates and therefore enhance athletes' intrinsic motivation (Table 1.1).

Table 1.1. TARGET guidelines to establish a mastery motivational climate in sport.

Components	What to do	What to avoid
Tasks	Use varied, meaningful, and challenging tasks to facilitate involvement and interest in learning. Individualize assignments to improve perceived competence and control over the task.	Repetitive, boring, easy or too difficult, non-individualized tasks.
Authority	Give the athletes opportunities to actively participate in the learning process by involving them in decision making and monitoring their personal progresses. Promote responsibility and autonomy behaviour.	Excluding athletes from decision-making processes.
Recognition	Reward participation by recognizing individual effort, gains, and improvement rather than social comparisons.	Public recognition based on outcome and social comparison.
Grouping	Place athletes in groups to enable them to work on individual skills in a climate of cooperative learning and peer interaction.	Grouping based exclusively on ability level.
Evaluation	Involve athletes in self-evaluation procedures with a focus on effort, task mastery, and personal improvement.	Evaluation focused on outperforming others.
Timing	Match time requirements to individual needs, abilities, and skills.	Time for learning and performance fixed for everyone.

SELF-DETERMINATION THEORY

Self-determination theory is a broad conceptual framework intended to study and explain human motivation and personality. The theory focuses on how social and cultural factors facilitate or undermine people's sense of volition and initiative, and how these factors

influence well-being and the quality of performance. Within this framework, three basic psychological needs are proposed to strongly influence individual motivation: (1) autonomy—the need to be causal agents of one’s own life and actions, to experience activities as self-initiated and self-regulated, to feel in control of the own goals and behaviours; (2) competence—the need to experience mastery in performing tasks, to acquire new skills, and to be effective in executing actions; and (3) relatedness—the need to interact with others, to experience a sense of belonging to a social environment, and to feel connected to other people. Conditions supporting the individual’s experience of autonomy, competence, and relatedness promote optimal development, psychological well-being, intrinsic motivation, engagement, persistence, and enhanced performance (Figure 1.3). Not supporting or thwarting the three psychological needs would result in detrimental motivational effects (e.g., amotivation), psychological ill-being, and non-optimal functioning.

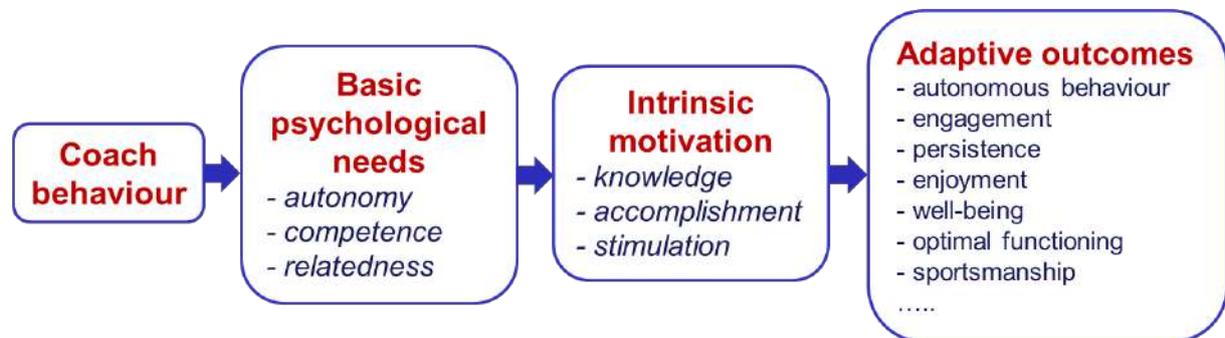


Figure 1.3. Coach behaviours that meet the athlete’s basic psychological needs increase intrinsic motivation and lead to adaptive outcomes.

In self-determination theory, motivation is described on a continuum ranging from intrinsic motivation, reflecting the spontaneous engagement in the activity for its inherent satisfactions and pleasure, to amotivation (i.e., the absence of motivation). Between the two ends of the continuum there are different forms of extrinsic motivation, which refers to the

involvement in an activity to obtain separable outcomes (e.g., receiving rewards or avoiding punishment).

Intrinsic motivation—a drive coming from within—is the most self-determined type of motivation and has been associated with a variety of positive outcomes such as autonomy, persistence, pleasant emotional states, and optimal functioning. Three forms of intrinsic motivation are towards: (1) knowledge—the desire to learn new skills and ways of performing tasks; (2) accomplishment—the desire to master the skills and pleasure of achieving a personal goal; and (3) experiencing stimulation—the feeling derived from physically experiencing a sensation inherent in a given task. Intrinsically motivated athletes engage freely in sporting activities that attract their interest, with a full sense of will and personal control.

Amotivation (i.e., lack of motivation) refers to behaviours that are not determined internally or externally. People who are not motivated to practice sports usually do not, unless they are forced to do it. For instance, parents may put pressure on their children to practice a particular sport they do not like. Extrinsic motivation lies between intrinsic motivation and amotivation, which represent the two extremes of the self-determination continuum (Figure 1.4). This type of motivation comes from external rather than internal sources, such as awards, praise, social approval, money, and other benefits or, in contrast, fear of punishment.

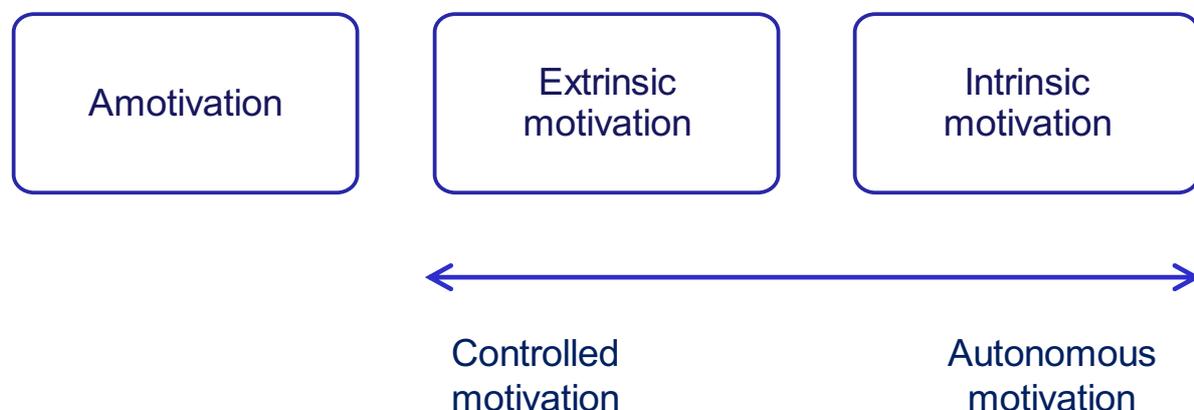


Figure 1.3. The self-determination continuum.

Intrinsic motivation is likely to happen when athletes feel that their basic psychological needs of autonomy, competence, and relatedness are supported. On the other hand, when these needs are frustrated, dysfunctional forms of external motivation (i.e., external regulation) or amotivation are often observed.

The coach plays a crucial role in supporting or thwarting the three basic psychological needs and, therefore, in determining the type of motivation of the athletes. It is therefore essential that coaches adopt interpersonal communication styles and structure activities in order to support the three basic needs. Along with the suggestions in Table 1.1, additional recommendations are provided in Table 1.2 to support the basic psychological needs of autonomy, competence, and relatedness of athletes.

Table 1.2. Guidelines to support the basic psychological needs of autonomy, competence, and relatedness of athletes.

What to do	What to avoid
Provide the athlete with as much choice as possible, although within specific limits and rules.	Coercive, pressuring, and authoritarian behaviours to impose a preconceived way of thinking and behaving to athletes.
Provide rationales for compliance with behavioural rules and for training objectives and activities.	Undisclosed reasons for behavioural rules and training tasks.
Acknowledge and respect the athlete's perspectives and feelings.	Marginalizing or ignoring athletes' contributions, opinions, and feelings.
Give opportunities to take initiatives, make decisions, and conduct independent work.	Excessive surveillance and monitoring.
Provide constructive informational feedback to promote perceptions of autonomy and competence, target behaviours under the athletes' control, and conveys high but realistic expectations.	Intimidating behaviour (e.g., screaming, physical punishment) and guilt-inducing statements.
Pay attention and provide support to athletes even when they do not comply with instructions and expectations.	Overt control, controlling statements, and criticisms inducing guilty.
Encourage a mastery-oriented approach to learning.	Social comparison and a performance-oriented approach.

Further methodological considerations to meet the psychological needs of athletes and foster intrinsic motivation are provided in next sections regarding performance profiling, goal setting, communication, instructions and feedback.

SUMMARY

Motivation is defined as the direction of effort (seeking, approaching, and being attracted to a situation) and the intensity of effort (the amount of energy invested in a situation). Motivated athletes commit themselves to achieve their goals, face challenges, persist in the face of difficulties, strive to improve their skills and abilities. The interaction of personal factors (e.g., personality, needs, interests, goals) and situational factors (e.g., coach style, facility attractiveness, sport achievements) determines individual motivation.

The main reasons for practicing sport are improving abilities and skills, having fun, meeting friends, experiencing excitement, and achieving success. Among the theoretical models of motivational processes in athletes, three are particularly important: attribution theory, achievement goal theory, and self-determination theory.

Within attribution theory, perceived causation (e.g., causes for success or failure) plays an important role in explaining behaviour. An athlete can attribute an outcome (perceived success or failure) to different causes perceived as external or internal, stable or unstable, and controllable or uncontrollable. Athletes should be encouraged to focus on internal (rather than external) causes of success and failure, see performance as improvable (unstable or modifiable) through practice, and take responsibility (control) for their performance.

Achievement goal theory assumes that athletes are motivated by different types of goals. Some athletes are more motivated to pursue a goal by the desire to master a task or a skill (mastery or task orientation), while others are more motivated by the desire to outperform others (performance or ego orientation). Mastery-oriented athletes tend to focus

more on mastering tasks, engage more in practice and competition, select challenging tasks, persist in the face of failure, and cooperate with others. They also show higher perceived competence, self-esteem, and interest, and enjoy physical activities. Coaches can create a mastery motivational climate in their sport discipline using the TARGET guidelines.

Self-determination theory describes the role of the three basic psychological needs of autonomy, competence, and relatedness in influencing motivation. Conditions supporting these three athlete's needs promote optimal development, psychological well-being, intrinsic motivation, engagement, persistence, and enhanced performance. To support the three basic psychological needs, coaches can adopt interpersonal communication styles and structure activities according to the TARGET indications and additional specific guidelines.

Suggested Readings

Bhavsar, N., Ntoumanis, N., Quested, E., Thøgersen-Ntoumani, C., & Chatzisarantis, N.

(2020). Self-determination theory. *The Routledge international encyclopedia of sport and exercise psychology: Volume 1: Theoretical and methodological concepts* (565-583). New York, NY: Routledge.

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Weinberg, R. S., & Gould, D. (2019). *Foundations of sport and exercise psychology* (7th ed.). Champaign, IL: Human Kinetics. Chapter 4.

Self-Evaluating Questions

- Why is motivation important in sport?
- How can motivation be defined?
- Summarize the central tenets of attribution theory.
- How are athletes' attributions classified according to attribution theory?
- Explain the main principles of achievement goal theory.
- What are the differences between performance-oriented athletes and mastery-oriented athletes?
- How can coaches create a mastery-oriented motivational climate?
- Describe the fundamental propositions of self-determination theory.
- Summarize the beneficial effects (i.e., adaptive outcomes) of athletes' basic psychological needs satisfaction.
- Discuss coaches' behaviours to meet the three basic psychological needs of autonomy, competence, and relatedness.
- Discuss motives for sport participation (think about your shooting discipline).
- Discuss motives for dropping out of sport (think about your shooting discipline).
- Provide practical examples on how to get your athletes to:
 - focus on internal rather than external causes for success in practice and competition;

- focus on internal rather than external causes for failure in practice and competition;
- view performance as improvable through practice;
- take responsibility (control) over their performance.

Practical Activities in the Field to Establish a Functional Motivational Climate

- Using TARGET guidelines, critically observe your behaviour or that of another coach during a training session. Note functional and dysfunctional behaviours in the appropriate spaces of the grid.

Components	Functional behaviour (what to do)	Dysfunctional behaviour (what to avoid)
<i>Tasks</i>		
<i>Authority</i>		
<i>Recognition</i>		
<i>Grouping</i>		
<i>Evaluation</i>		
<i>Timing</i>		

- Using the self-determination theory guidelines, critically observe your behaviour or that of another coach during a training session. Note functional and dysfunctional behaviours in the appropriate spaces of the grid in response to questions.

Questions	Functional behaviour (what to do)	Dysfunctional behaviour (what to avoid)
<i>Was the athlete's initiative encouraged?</i>	YES:	NO:
<i>Was the athlete involved in the decision-making process?</i>	YES:	NO:
<i>Did the athlete have the opportunity to choose their goals?</i>	YES:	NO:
<i>Was the athlete provided with a rationale for task-engagement?</i>	YES:	NO:
<i>Was the coach's behaviour non-judgemental? (i.e., no yelling or guilty inducing)</i>	YES:	NO:
<i>Was the athlete's perspective considered before offering suggestions?</i>	YES:	NO:

Power Point Presentation

Slides 1 to 15.

CHAPTER 2 – PERFORMANCE PROFILING

OVERVIEW

Performance profiling is a tool for coaches and athletes aimed at identifying the athlete's strengths and weaknesses and, based on these, to design training strategies, monitor improvements, increase motivation, and build better communication. With this method, coaches can understand how athletes evaluate themselves in the qualities necessary to be successful in their sport. This information is then used in the development of training programmes in areas where athletes feel they need to improve.

The assumption of this approach is that we can attain a better picture of the abilities, skills, and characteristics of performers if we do not impose our preconceived notions on them, but rather encourage them to think about the qualities (i.e., characteristics, attributes, or constructs) that they consider crucial in their sport.

The process involves breaking up the complexity of high-level performance into certain key qualities and then assessing performance based on these. The attributes identified typically fall into main categories: technical (and tactical in some sports), physical, and psychological.

After selecting a set of attributes, the athletes rate themselves on each. To help athletes think about their characteristics, the coach may suggest considering the qualities of the top performers in their sport. When represented graphically, this information indicates areas of perceived strength and weakness and where improvement is needed. The entire performance profiling process emphasizes the athlete's perspective and increases ownership and commitment to the intervention.

The performance profiling technique is based on two principles: (1) each athlete has a unique way of making sense of their experiences in sport, which might otherwise remain at a low level of consciousness if they do not engage in performance profiling; and (2) in order to

understand an athlete's point of view, it is essential that the coach sees things from the athlete's perspective. Coaches and athletes may tend to see things from their own perspective, because they both have a unique set of experiences.

The performance profiling technique is based on two principles: (1) each athlete has a unique way of making sense of personal experiences in sport, which could remain at a low level of consciousness if the performer does not engage in performance profiling; and (2) to understand an athlete's point of view, the coach needs to see things from the athlete's point of view. Coaches and athletes see things from their point of view because each of them has a unique set of experiences.

INTRODUCTION

The importance of performance profiling in working with athletes is that the performers can have ideas, knowledge, and perceptions of their abilities different from those of their instructors. Coaches usually establish a training programme for their athletes, and often this programme is based on aspects the coach thinks the performer must develop. Problems can arise when the perceptions that performers have about their abilities are different from those of the coach. In this case, the coach could set goals and a schedule to attain them that the performer does not agree with, thus leading to low motivation to work on objectives and schedule. Therefore, when the instructors' focus is only on areas deemed important to them but not to the athlete, performers may lose motivation, commitment, belief in the programme, and trust in the coach.

Faced with these potential differences in perceptions, performers and instructors can use performance profiling in shooting sports to do the following:

- identify the qualities the shooter needs to achieve good performance;
- identify shooter's areas of perceived strength and weakness;

- increase shooters self-awareness of their own abilities and what is required to excel in their sport;
- identify the shooter's areas that are more resistant to change and difficult to develop;
- highlight differences between the shooter's perceptions of their abilities and the coach's perception of the performer's abilities.

When coaches and athletes have this information, it is easier for them to share common and meaningful goals, and to design an effective training programme that performers are motivated and committed to.

In summary, there are a number of objectives and benefits of the performance profile process:

- developing athletes' awareness of important qualities essential for success in their sport;
- helping athletes identify their own strengths and weaknesses;
- considering performance from a joint coach and athlete perspective;
- facilitating communication between the coach and the athlete;
- helping athletes and coaches set common agreed goals;
- taking responsibility for one's own development;
- assisting in the development of training programmes aimed at improving performance;
- providing a visual display easy for reference and feedback;
- maximising the athlete's motivation and adherence to a programme;
- individualizing intervention;
- monitoring changes over time;
- helping athletes taking more responsibility for their own development;
- providing a basis for goal setting and setting new and challenging goals.

HOW TO CONDUCT A PERFORMANCE PROFILING

Performance profiling can be conducted in a few steps: (a) introducing the idea of performance profiling; (b) generating attributes; (c) rating the attributes; (d) plotting the performance profile; (e) evaluating; (f) conducting a profile by the coach; and (g) setting priorities and goals.

Introducing the Idea of Performance Profiling

If performance profiling is a new procedure for the athlete, it will be necessary to explain the process. The coach should:

- explain the performance profiling concept and procedure;
- explain the purposes and benefits of performance profiling and how the information obtained can be applied;
- emphasise that the qualities identified are no “wrong” or “right” and that the individual’s view is what is important;
- provide examples of completed performance profiles.

Generating Attributes

Performance profiling can be conducted individually or in a group situation. If more participants are involved together, it can be helpful to brainstorm the qualities needed for optimal performance first. It would be also helpful to have a leading performer to conduct the session in order to reduce any possible resistance from less willing members.

The shooter can be asked to write down the technical, physical, and mental attributes that are important to succeed in shooting. A probing question can be, “What are the technical factors you consider most important to help you achieve best performance?” The same question can be repeated considering physical and psychological factors. If some people find difficult to generate attributes, the coach can provide a list of the qualities required for shooting and allow the athletes to select those characteristics they consider relevant. The

coach could also ask them to think about experienced or high-level shooters and what attributes make them great. In general, the coach can assist the process by providing relevant suggestions, explaining that those identified are no correct/good or wrong/bad qualities, and that the whole procedure is intended to find out what athletes consider important to them.

When athletes tend to focus exclusively on areas of weakness the instructor can encourage them to also list important strengths. Novice shooters can likely choose fundamental attributes (e.g., position, sighting, breathing), while more experienced shooters can be more specific. Participants should end up with 15-20 of the most important attributes on their performance profile.

Rating the Attributes

The athletes are then asked to:

- rate themselves on a scale of 1–10 to indicate their current level of proficiency at each attribute. A rating of 10 would represent their ideal condition;
- rate how far they would realistically progress towards their ideal condition. For example, they may feel that a score of 10 is not realistic and it would be fine to get a score of 8. This way they set a realistic-ideal target out of 10 for each quality to be achieved within an established period of time (e.g., from one month to one year).

Subtracting the current ratings from the realistic-ideal ratings will result in a score for each quality. This enables the athlete to identify the most important aspects to be improved: the higher the score, the greater the shooter perceives the need to work on the attribute.

Plotting the Performance Profile

This step involves plotting attributes and scores on a grid with bars showing current levels of proficiency and different bars indicating desired levels (Figure 2.1). Alternatively, qualities can be charted using concentric circles ranging from 1 (in the centre) to 10 (at the

edge) and several radiating lines on it that resemble a target (Figure 2.2). In this kind of graphic representation, the attributes are entered at the edge of the target.

This graphical representation enables athletes and coaches to:

- highlight perceived strengths (higher scores) and weaknesses (lower scores);
- point out specific aspects perceived as important;
- identify areas resistant to change indicated by a small difference between low current rating and the realistic-ideal rating. This information is particularly important for pointing out training needs;
- identify differences in the points of view. Coaches and athletes can have different opinions about what is important or the current performance levels.

Evaluating

Once the graphic procedure is complete, the athletes should reflect on their profile and feel free to change the attributes or ratings until they are completely sure that the profile is accurate and representative of their current and ideal conditions. Once again, the coach plays an important role in stimulating reflection and improving the athlete's awareness.

Conducting a Profile by the Coach

Coaches can profile their shooters by identifying those attributes they deem important and rating the current qualities of the athletes. Although this is an optional step, it can be very useful for deepening communication and foster an open confrontation between the coach and the athlete. The coach's profile of the athlete and the athlete's profile can be compared to examine whether and where differences exist between the coach's perceptions and the shooter's perceptions of qualities and goals. The coach discusses the shooter's profile with the athlete and asks questions about why certain attributes were generated and ratings were assigned, even if the coach believes the shooter's profile is inaccurate. The coach should listen carefully to the athlete's comments and reasoning, and also share feelings and reasons

for choosing different qualities or rating them higher or lower. The advantage of this procedure is to enhance the athlete's awareness of the relevant qualities needed to improve and provide a basis for negotiation between coach and shooter on which areas to work.

Setting Priorities and Goals

Once again, the athlete should be stimulated to reflect on the performance profile and feel free to review and modify attributes or ratings. At this stage, the coach and shooter can set goals and priorities and establish a training schedule. The shooter should assess the personal profile in a consistent manner, for example every week or every month, and update the current profile whenever appropriate. The shooter should also discuss the personal profile with the coach on a regular and frequent basis. The complete performance profiling procedure can be repeated from time to time (e.g., after a few months) to adapt to individual changes and specific training needs.

SUMMARY

Performance profiling is an athlete-centred performance assessment strategy based on a personality theory that attempts to explain how an individual interprets situations and events, and therefore behaves. A main claim of the theory is that while people can interpret situations similarly, individuals are basically unique in their interpretation of events.

The predominance of performance assessment strategies dictated by the coach, which involve minimal input from the athlete, is often observed in the sporting context. In this situation, important information and knowledge of the athlete can be lost. Such practices could result in the initiation of training programmes not matching the athlete's perceptions, thereby leading to decreased athlete's interest, focus, and motivation. The performance profiling strategy was developed to overcome these problems, and to stimulate and enable athletes to actively participate in performance assessment and subsequent development. In

terms of coaching style, this method is more suited to “joining” (i.e., coach→←athlete) rather than into the “telling” (i.e., coach→athlete) of providing instructions.

In summary, the performance profiling procedure encourages athletes to reflect upon and identify the key qualities (i.e., technical, physical, and psychological) necessary to succeed in their sport. Athletes then rate themselves on those qualities to identify their strengths and weaknesses related to performance. Finally, athletes discuss their profile with their coach to undertake specific training programmes. By examining their performance in detail, athletes gain a clearer picture of their sport, abilities, and skills, and how to work to improve them. The goals set by the coach and the athlete together will enhance the motivation to improve in the agreed direction.

Research findings have provided clear evidence of the benefits of the performance profiling procedure, including improved goal setting, better coach-athlete communication, greater commitment to training and pursuing goals, and enhanced performance. Research has also shown that athletes believe profiling useful in raising their self-awareness, helping them decide what they need to work on, motivating them to improve, setting goals, monitoring and evaluating their performance, and taking more responsibility for their development.

After completing the profile and establishing in which areas to work, the next step is to undertake a structured goal setting.

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ATTRIBUTES	1	2	3	4	5	6	7	8	9	10	IDEAL	CURRENT	DIFFERENCE
TECHNICAL													
shot routine	O	O	O	O	O	O	O	O	O	O	10	7	3
	X	X	X	X	X	X	X						
preparation	O	O	O	O	O	O	O	O	O	O	10	8	2
	X	X	X	X	X	X	X	X					
hold	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
inner feeling	O	O	O	O	O	O	O	O			8	6	2
	X	X	X	X	X	X							
trigger control	O	O	O	O	O	O	O	O	O		9	8	1
	X	X	X	X	X	X	X	X					
aiming	O	O	O	O	O	O	O	O			8	7	1
	X	X	X	X	X	X	X						
timing	O	O	O	O	O	O					6	6	0
	X	X	X	X	X	X							
sighting	O	O	O	O	O	O	O	O			8	8	0
	X	X	X	X	X	X	X	X					
breathing	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
PHYSICAL													
fitness	O	O	O	O	O	O	O	O	O		9	4	5
	X	X	X	X									
stamina	O	O	O	O	O	O	O	O			8	4	4
	X	X	X	X									
cardio fitness	O	O	O	O	O	O	O	O			8	4	4
	X	X	X	X									
core stability	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
strength	O	O	O	O	O	O	O	O			8	6	2
	X	X	X	X	X	X							
breathing control	O	O	O	O	O	O	O				7	6	1
	X	X	X	X	X	X							
balance	O	O	O	O	O	O	O	O	O		9	5	4
	X	X	X	X	X								
flexibility	O	O	O	O	O	O	O	O			8	6	2
	X	X	X	X	X	X							
knee, hip stability	O	O	O	O	O	O	O	O			8	5	3
	X	X	X	X	X								
PSYCHOLOGICAL													
refocus	O	O	O	O	O	O	O	O			8	5	3
	X	X	X	X	X								
positive thinking	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
concentration	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
self-confidence	O	O	O	O	O	O	O	O	O	O	10	6	4
	X	X	X	X	X	X							
mental preparation	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
visualising	O	O	O	O	O	O	O	O	O		9	8	1
	X	X	X	X	X	X	X	X					
self-awareness	O	O	O	O	O	O	O	O			8	6	2
	X	X	X	X	X	X							
perform under pressure	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
ability to analyse	O	O	O	O	O	O	O	O	O		9	7	2
	X	X	X	X	X	X	X						
consistency	O	O	O	O	O	O	O	O	O		9	5	4
	X	X	X	X	X								

Figure 2.1. A performance profile (bar chart) for a rifle shooter (O = ideal, X = current).

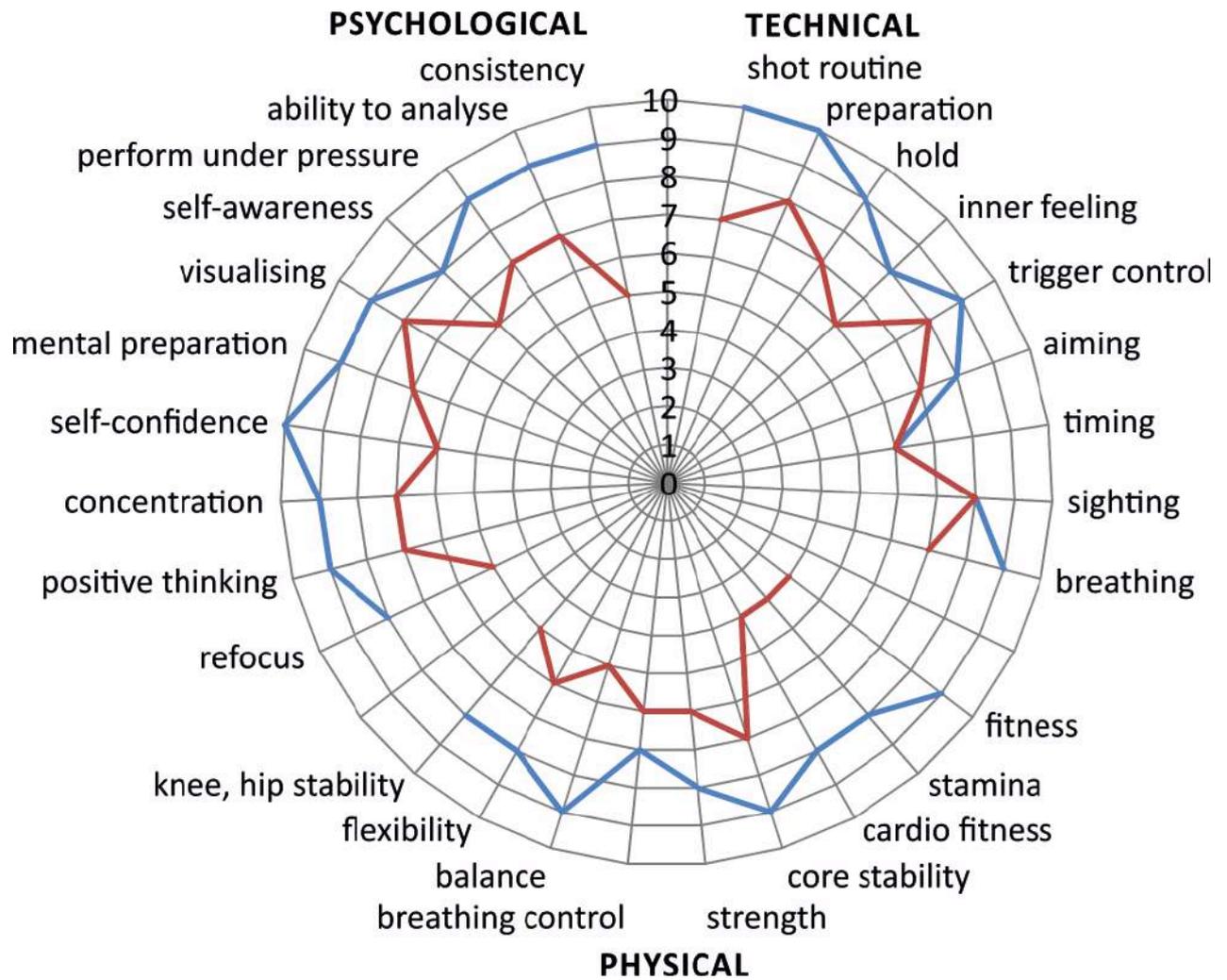


Figure 2.2. A performance profile (radial chart) for a rifle shooter (outer line = ideal, inner line = current).

Self-Evaluating Questions

- How can performance profiling be defined?
- What are the main objectives of performance profiling?
- What are the steps to conduct performance profiling?
- What is the relationship between performance profiling and goal setting?
- Discuss the origins of performance profiling.
- Discuss how performance profiling can enhance motivation.
- Describe the benefits of performance profiling.
- Describe how performance profiling may determine disagreement between the coach and the athlete.
- Describe how a coach would plan a performance profiling intervention over the course of a season for an athlete.
- Discuss why some coaches may be hesitant to conduct performance profiling with their athletes.
- What are the potential problems that coaches create if they talk too much when conducting performance profiling with athletes?

Practical Activities in the Field to Conduct a Performance Profiling Procedure

- Introduce the idea of performance profiling to your athletes.
- Ask athletes to generate attributes.
- Ask athletes to rate their identified attributes.
- Using the grid below, create a performance profile chart with one of your athletes. Identify at least five attributes in each category (i.e., technical, physical, and psychological), rate ideal performance and current performance, and calculate the difference (see Figure 2.1).

ATTRIBUTES													
TECHNICAL	1	2	3	4	5	6	7	8	9	10	IDEAL	CURRENT	DIFFERENCE
1													
2													
3													
4													
5													
PHYSICAL	1	2	3	4	5	6	7	8	9	10	IDEAL	CURRENT	DIFFERENCE
1													
2													
3													
4													
5													
PSYCHOLOGICAL	1	2	3	4	5	6	7	8	9	10	IDEAL	CURRENT	DIFFERENCE
1													
2													
3													
4													
5													

- Set priorities and goals based on the performance profile chart.

Power Point Presentation

Slides 16 to 25.

CHAPTER 3 – GOAL SETTING

OVERVIEW

We all set goals in our daily lives in many different contexts—personal, professional, health, sports, leisure, and so on. A goal refers to something a person tries to achieve consciously and deliberately. Goal setting is one of the most powerful techniques for motivating people to achieve goals, as it provides both short-term motivation and long-term vision. Many athletes spontaneously set goals to help their technical, physical, and mental preparation for performance. However, the goal setting process is not always fully understood and applied correctly. Athletes, in this case, do not set appropriate goals that allow them to maximize their performance. Therefore, athletes and coaches need to understand the goal setting process, the different types of goals, the goal setting principles, and how to implement a goal setting programme for maximum benefits.

Clearly defined, specific goals allow the athlete to measure the own progresses and be gratified in achieving goals. With goals in mind, an athlete can:

- attain better achievements;
- improve performance;
- enhance the quality of training;
- increase motivation to higher level achievements;
- be satisfied about performance outcomes;
- increase self-confidence.

Research has shown that people who use goal setting effectively:

- suffer less from stress and anxiety;
- concentrate better;
- show more self-confidence;
- perform better;

- are more satisfied with their performances.

By setting goals, evaluating performance, and monitoring personal results, athletes can better understand what they have obtained. This enhances confidence of being able to reach more difficult goals and directs attention to the next steps to be taken for future results.

INTRODUCTION

Coaches and athletes often discuss the importance of goal setting for achieving high levels of performance. They easily recognize the benefits of goal setting on both motivation and performance and are convinced of the benefits of setting goals. Coaches and athletes are generally available to set goals and do not have to be convinced that goals are important. Goals provide guidance and help stay motivated. Athletes who set goals show greater effort and continued effort over time in pursuing those goals. However, they can have difficulty establishing the right type of goals, those goals that keep them focused on the task, improve performance, and are able to enhance motivation. Many athletes set inappropriate goals or do not set goals in a systematic manner. Therefore, they often need to be educated about the goal setting process, the different types of goals, the most effective types of goals to set, and how to implement a goal setting programme to maximize goal effectiveness.

Drawing on the findings of a large amount of research on goal setting in the sport psychology and motor learning literature, the purpose here is to define and discuss the different types of objectives, understand why goal setting works, and then present some guidelines for an effective goal setting process.

DEFINITION AND TYPES OF GOALS

The term goal setting refers to attaining a specific level of proficiency on a task, usually within a specified time limit. From an applied perspective, goals can sometimes be more objective and therefore more quantifiable, like improving personal shooting scores, or more subjective and harder to quantify, like being more satisfied with the shooting technique.

Goal setting research has identified three types of goals as important in promoting effective practice. These are outcome goals, performance goals, and process goals. Each type of objective has its purpose. Therefore, to achieve the desired behaviours, it is essential to implement a variety of suitable strategies to attain the goals and select the appropriate type of goals.

Outcome Goals

The focus of outcome goals is on the final result, such as a final score in competition or the desired product of the practice compared to others. These objectives, therefore, are primarily related to winning and losing or attaining a specific result. Outcome goals are objectively specified measures of performance that involve comparisons with one's own performance or with the results of others. Achieving a higher shooting score than teammates, breaking a record, winning a competition, or outperforming an opponent are examples of outcome goals. Athletes do not have total control over the achievement of their results, because winning or losing depends not only on individual efforts and abilities, but also on the ability of the opponents and their level of performance.

Hence, although outcome goals provide challenging incentives, the athlete is not able to completely control this kind of objectives. The lack of control can prompt feelings of stress and debilitating anxiety in case of failure to attain the goals. For this reason, it is also important to establish performance and process goals.

Performance Goals

The focus of performance goals is on individuals' actual performance and improvements in relation to their own previous standard of execution and achievements. This type of objectives, therefore, is independent of the outcomes of others and solely under the control of the individual. For this reason, individualised performance goals set realistically (i.e., challenging but attainable) are flexible and not influenced by absolute or external

standards. Increasing the personal shooting score in a series from 90 to 92 or reducing the execution time from 20 sec to 16 sec are examples of performance goals. Athletes have control over the achievement of these types of goals because the performance of other athletes does not affect the achievement of the goal.

Process Goals

The focus of process goals is on the actions and procedures the athlete will undertake during the execution to perform correctly. They usually refer to how an athlete performs a certain activity or skill. The execution of a task at the desired level of competence, as well as meeting outcome goals, requires a person to be able to perform the task in a satisfactory manner. Process goals focus on particular aspects of task execution, which include physical, technical, and mental abilities and skills to correctly execute the movement patterns. For example, a shooter may want to stabilise the own body before execution, draw attention to important environmental cues, be consistent in the accuracy and timing of the movement, and direct visual attention to alignment during execution. Objective measures can be placed on these process goals to make them more specific. Given that they are usually related to a shooter's performance, process goals are often the focus of the goals in training. Process goals typically involve attention to specific aspects of a task and therefore require cognitive processing. They are mainly used in practice so that skills can become more automatic under competitive pressure.

Goal setting should include all three types of goals

All three types of goals—outcome, performance, and process—play a role in directing a performer's behaviour, can be effective in enhancing performance, and are important in promoting optimal achievements. Focusing on outcome goals can sustain individuals' motivation over time, keep performers eager, and provide direction for improvements that make daily practice efforts more meaningful.

On the other end, focusing on performance and process goals is important because these objectives can be entirely under the individual's control and act directing the performer's attention to the critical aspects of skill execution. Performance and process goals can be achieved by establishing intermediate and attainable sub-goals that are not too easy or difficult to obtain. This can improve short-term motivation levels by keeping performers progressing towards their ultimate outcome goals. In shooting, for example, qualifying for a national or regional event is an outcome goal, improving shooting scores from 90 to 92 is a performance goal, and slowly exhaling and holding the gun still before release is a process goal.

WHY GOAL SETTING WORKS

As just discussed, goal setting facilitates learning and performance. Outcome, performance, and process goals influence behaviours indirectly and directly. The indirect influence of goals manifests itself in beneficial effects on psychological factors, such as reduced anxiety and increased confidence. These effects on psychological factors therefore lead to better performance. On the other hand, goals directly affect performance in important ways. Goals set appropriately:

- 1) direct the individual's attention and effort towards relevant activities and information on the task being performed;
- 2) mobilise and increase the performer's effort and intensity;
- 3) increase and prolong the effort and persistence even in the face of failure, adversity, or lack of immediate progress;
- 4) foster the discovery of relevant strategies related to the task and the development of new learning strategies.

When performers set goals, their attention is directed to important elements of the skill that they might otherwise overlook. For example, when shooters set specific goals to improve

their performance, they focus on the particular skills that need to be improved, such as the position of the gun in relation to the body during the “shouldering” movement, and the smooth and controlled transition phase of the action towards the target.

Goals also mobilise efforts and increase persistence by providing incentives and feedback for performance. For example, a shooter may sometimes not like to work hard day after day, get bored with the repetitive practice routine, or find it arduous to put together efforts in an attempt to achieve difficult outcomes. However, by setting short-term goals and seeing progress towards achieving long-term goals, motivation can be maintained on a day by day basis and over time.

In addition to these more obvious functions, goal setting also has a hidden function in encouraging the development of new learning strategies. If goals are set at sufficiently challenging levels, performers may find that an adjustment of their ordinary habits and practice routines is necessary to achieve the objectives. A shooter whose goal is to improve her balance and stability may decide to increase the practice time specifically dedicated to stability during shooting and also to undertake training sessions in the gym to improve balance. Focusing on balance and stability goals, in this case, can stimulate the search for new practice strategies to attain those goals that would not otherwise be obtained. In this way, goal setting influences learning and performance by encouraging the search for task solutions, thereby empowering individuals as independent learners.

GUIDELINES FOR GOAL SETTING

How goals are established determines their effectiveness. Before setting goals, athletes should understand the level they want to reach and know the abilities and skills necessary to achieve these goals. For the coach, helping athletes identify and set goals to meet the athlete’s specific needs and desires requires sensitivity to individual differences and experience in the activity being practiced. Coaches should be aware that situational constraints and individual

differences always play a role. Therefore, coaches need to know their individual athletes to maximize effectiveness in setting goals. There are also well-established goal setting principles deriving from the scientific literature that instructors and athletes should follow to establish effective objectives. The basic principles that should be considered in the design of training goals are expressed by the acronym SMARTER:

- **S** Specific
- **M** Measurable
- **A** Action-oriented and agreed
- **R** Realistic and challenging
- **T** Time-phased
- **E** Exciting/Enjoyable
- **R** Recorded and re-evaluated

Set Specific Goals

Specific goals influence behavioural change and produce higher levels of performance on a task than general “do-your-best” goals or having no goals at all. Despite the popular belief, the suggestion to do your best is too vague to be effective and not as powerful in enhancing motivation and performance as encouraging individuals to achieve specific goals. Therefore, goals should be defined in very specific and behavioural terms. Telling people to do their best at enhancing their shooting performance is not the same as telling them to strive to improve particular components of their shooting skills.

Set Measurable Goals

Not only should goals be specific, but they should also be measurable. When athletes have a way to measure the progresses made towards achieving goals, they are also more motivated to achieve them. Measurable goals can be based on subjective scores, such as those deriving from coaches’ evaluations and self-evaluations, or on objective scores obtained by

the SCATT or a video analysis system. When measurable goals are achieved, confidence will increase, and the athlete will be motivated to set even more difficult goals. When the goals are not met, the athlete will have a basis on which to evaluate the reasons for the failure and plan appropriate actions to improve.

Set Action-oriented and Agreed Goals

As mentioned above, one of the mechanisms underlying the effectiveness of goals in improving performance is the development of relevant strategies for learning and performing. Goals should be set together with a solid series of strategies specifically identified to achieve these goals. These can include physical and psychological preparation together with technical preparation. For example, in order to be able to maintain stance and concentration for extended periods of time, the shooter must not only rely on the technique, but also develop physical fitness (i.e., core strength, flexibility, aerobic fitness) and mental skills (e.g., focus of attention, mental imagery, arousal and emotion regulation). Therefore, action-oriented strategies should include technical, physical, and psychological preparation. Some strategies should be identified and incorporated into the daily training regimen so that the shooter can actively pursue the goal of improving performance. Another way to help maintain action-oriented goals is to set both short-term and long-term goals as described below (see “Set time-phased goals”).

Another important indication is that goals should be agreed between coaches and athletes. The athletes who are involved in setting their goals feel a certain ownership in setting the goals and, consequently, are more intrinsically motivated in pursuing them. The coach should help athletes to define their goals and at the same time allow athletes to have a say in setting goals. For example, the coach can first ask the shooter what she wants to achieve in terms of goals. Then the coach can define together with the shooter which objectives are to be

prioritized, what their characteristics are, if they are realistic, their level of difficulty, and so on.

Set Realistic and Challenging Goals

Effective goals should be difficult enough to be challenging but realistic enough to be attainable. Realistic and challenging goals will help athletes strive to achieve them.

Conversely, goals that are too easy to achieve can lead to complacency, mediocrity, loss of interest, and reduced efforts, while goals that are too difficult and unrealistic can lead to frustration, loss of motivation, decreased self-confidence, and failure. So, for goals to be effective, a balance must be found between being too easy and too difficult. As a general rule, goals should be slightly beyond the immediate reach of the athletes, but not so far away that they are perceived as unattainable. Specific factors, such as the stage of the competitive season, fatigue, physical problems and the like, need to be considered when setting goals.

Set Time-phased Goals

Goals should be set to be achieved within a specific time frame. Both short-term and long-term objectives are important for an effective goal setting process. Short-term goals usually refer to near and attainable outcomes to be reached in a short period of time: a week, a month, or a few months. Long-term goals are those that are sought in a more distant future: several months, a year, or several years. To achieve these goals, a performer must work consistently and achieve a series of short-term goals along the way. When designing goals, it is important to link short-term and long-term goals together, so that athletes perceive the achievement of short-term goals as part of a progression that leads to ultimate success in achieving long-term goals.

To exemplify, one may think of a staircase with a long-term goal at the top, the current ability or skill level at the bottom, and a sequence of short term-goals linked progressively together to connect the bottom to the top of the staircase. An effective progression of goals

involves the definition of some objectives that are easy to achieve in a relatively short time and that gradually lead to more difficult and distant goals. For instance, an athlete who wants to increase the maximum weightlifting on the bench by 20 kg must distribute this weight in smaller units for several weeks. Short-term, intermediate goals provide a sense of progress and encourage individuals to continue working towards the long-term objectives. Long-term goals provide direction and motivate performer's adherence and sustained effort. If only long-term goals are established, performers can quickly become frustrated when they fail to see enough progress towards achieving the goals. If a performer is committed to achieving multiple objectives, it is necessary to establish priorities and times for each goal within a progression. Identifying priorities helps avoid feeling overwhelmed by too many goals and directs attention to the most important objectives.

Set Exciting/enjoyable Goals

In helping performers set and achieve goals, coaches should consider each individual's unique characteristics and those performance aspects that are most motivating to them. For example, the coach should know if an individual is more interested in improving performance (i.e., mastery-oriented) or achieving competitive outcomes like outperforming others (i.e., performance-oriented). Previous experience, ability level, age, motivation, and so on play an important role in setting goals. Effective coaches are sensitive to individual needs and personality differences. They take participant's previous experiences and expectations into consideration when establishing goals and emphasize setting exciting and enjoyable goals. Regardless of how accurately goals may be designed, performers will benefit from goals only if they are committed to achieving them. Coaches should therefore fully involve athletes in the goal setting process, make every effort to identify meaningful objectives, and provide constant encouragement and feedback regarding the accomplishment of those goals.

Record and Re-evaluate goals

For an effective goal setting procedure, performers should often be reminded of their process and performance goals. Goals must be written down and periodically reviewed and re-evaluated as needed. Writing down specific goals gives them more power, helps avoid confusion, and channels the individual's energy in a specific direction. Written goals should be clearly visible and accessible. A visible list of goals acts as a constant reminder of what needs to be accomplished. Recording goals and visualizing them in such a way that invites the performer to review them frequently is an effective method to allow the examination, reevaluation, and monitoring of progresses. A number of tips have been put forward for this, such as writing goals on cards to reread them before training, keeping a list of goals in plain sight, listing goals in training logs, and recording when specific short-term goals are achieved. No one technique is better than another. Coaches and athletes can find additional methods that work best for them in specific situations.

GOAL ACHIEVEMENT STRATEGIES

In setting goals, athletes and coaches should also identify strategies for achieving them. Examples of key questions that need to be answered are "How can we achieve these goals that we have set? What can be done specifically to achieve them? How many workouts will it take? How long will the exercises take?" Strategies should be flexible to allow performers to adapt to new situations as needed or find better ways to achieve goals.

An effective goal setting strategy comprises three phases:

- a) **preparation and planning.** The first step is to assess the athlete's abilities, skills, and needs and identify the areas (i.e., technical, physical, and psychological) that need to be improved (see the Performance profiling procedure);

- b) **education and acquisition.** In the second step, the coach instructs athletes on the most effective ways to set goals and discuss information and principles on goal setting with them (see the aforementioned guidelines);
- c) **implementation and evaluation.** Once the goals have been set, the next step is to adopt adequate practice methods to achieve them, and systematically assess and re-evaluate goals. It is imperative that a regular and systematic method of evaluating and tracking progress in achieving goals is part of the overall goal setting programme. Monitoring progress towards goals on charts or other records provided to the performer is an effective method amongst others that can be implemented. A key aspect is that performers are able to attain short-term intermediate goals, as well as discern progress towards long-term goals.

Regardless of how goals can be designed, performers will only benefit if they commit to achieving them. Coaches should therefore fully involve the performers in the goal setting process and provide constant encouragement and feedback regarding goal achievement.

An important recommendation is to limit the number of goals set, especially initially. A common mistake is setting too many goals too early. In their desire to improve, both coaches and athletes may set an unrealistically high number of goals. Too many goals easily lead the athlete to dissipate energy and divert attention, making monitoring of specific goals almost impossible. It is therefore recommended to initially set one or two short-term objectives and then gradually add other objectives. Such a strategy makes it more likely that athletes will initially acquire several short-term goals, which in turn will increase enthusiasm and support motivation. Once the performers have gained experience, they can set multiple or simultaneous goals.

SUMMARY

Goal setting is one of the most effective techniques for enhancing motivation and performance. Most coaches and athletes set goals routinely, but unfortunately, these objectives are not usually set in such a way that they are maximally effective. It is therefore important to keep in mind the different types of goals and the basic principles of goal setting described above when preparing a goal setting programme. A misconception is that the mere fact that one sets goals would automatically make them effective. Goal setting is rather a comprehensive process based on several principles and comprising systematic steps. Its implementation requires regular effort by coaches and athletes. The acronym SMARTER reminds some important goal setting principles, which if used consistently and systematically can help improve the athlete's performance, satisfaction, enjoyment, and intrinsic motivation. Goal setting principles can be effectively applied using a three-step strategy which includes preparation and planning, education and acquisition, and implementation and evaluation.

Suggested Readings

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Self-Evaluating Questions

- What is meant by goal setting?
- Explain why goal setting works.
- What is the difference between outcome, performance, and process goals?
- What are the different advantages of outcome, performance, and process goals?
- What are the main characteristics of effective goals?
- How can coaches effectively involve athletes in setting goal?
- How can goal achievement strategies be applied?
- Provide examples of outcome, performance, and process goals in a training session.
- Provide examples of outcome, performance, and process goals for a competition.
- Provide examples of short-term and long-term goals.
- Discuss measurement and recording procedures to monitor goals over time.
- Choose three of the principles of goal setting that you think are most important to enhancing performance and explain why.
- Discuss how you apply a goal setting programme with your athletes.

Practical Activities in the Field to Set Goals

- Discuss the goal setting procedure with your athletes.
- Ask athletes to identify technical goals.
- Ask athletes to identify physical goals.

- Ask athletes to identify mental goals.
- Set priorities based on identified goals.
- Establish a goal achievement strategy.
- Using the following goal-setting form, ask one of your athletes to identify outcome, performance, and process goals, the dates on which these goals should be achieved, the possible barriers that could prevent the achievement of the goals, and the possible solutions.

OUTCOME GOALS	DATE TO BE ACHIEVED
1	
2	
3	
PERFORMANCE GOALS	DATE TO BE ACHIEVED
1	
2	
3	
PROCESS GOALS	DATE TO BE ACHIEVED
1	
2	
3	
BARRIERS	POSSIBLE SOLUTIONS
1	
2	
3	

Power Point Presentation

Slides 26 to 32.

CHAPTER 4 – COMMUNICATION

OVERVIEW

The ability to communicate effectively is one of the key aspects of achieving success in any area of human endeavour. Communication implies the ability not only to transmit ideas, but also to listen, identify a common vision and shared values, and focus on resources to achieve goals.

Successful coaches provide the vision the athletes will commit to and the instructions necessary to translate that vision into reality. The essence of coaching is sharing experiences, teaching, and motivating. Hard work and commitment are dedicated to helping athletes develop knowledge and skills and therefore to improve. Effective communication is vital in this process. Coaches should communicate clearly, honestly, and directly. Empathy, consistency, and responsiveness to individual differences are essential for the development of a good coach–athlete relationship. However, coaches tend to communicate in a way that is most natural for them without paying attention to whether their communication is good or bad and regardless of the athlete’s perspective. The importance of the individual point of view is contained in the quote by the French philosopher Blaise Pascal: “People are better persuaded by the reasons which they have themselves discovered than by those that come into the mind of others” (Pascal, 1670/1958). Communicating effectively should provide the tools to make it happen.

In order to build and maintain an effective communication system, coaches must understand the fundamentals of sending, receiving, and interpreting messages. It is also important that coaches become aware of and pay attention to their usual communication patterns. This process can be facilitated by evaluating the individual style of communication using a checklist of verbal and nonverbal behaviours (see Table 4.1.). An honest assessment

of the personal communication style can help identify those areas of communication that need improvement. To be successful, coaches must develop strong communication skills.

Table 4.1. Communication skills checklist.

Think about how you communicate with your athletes. Rate how often you find yourself engaging in the following behaviours by circling the number you honestly think corresponds to each item.					
Behaviours	Almost never	Seldom	Sometimes	Usually	Almost always
1. My messages contain credible information	1	2	3	4	5
2. My messages and instructions are consistent	1	2	3	4	5
3. I use athletes' names when I talk to them	1	2	3	4	5
4. I use simple and direct messages	1	2	3	4	5
5. I focus on one thing at a time	1	2	3	4	5
6. I use understandable language	1	2	3	4	5
7. I repeat and summarize messages	1	2	3	4	5
8. I check for understanding	1	2	3	4	5
9. I use effective questioning	1	2	3	4	5
10. I use positive feedback and praise	1	2	3	4	5
11. I vary the tone, tempo, volume, rhythm of the voice	1	2	3	4	5
12. I use the opinion of athletes to generate discussion	1	2	3	4	5
13. I tell athletes what to do rather than what not to do	1	2	3	4	5
14. My nonverbal messages are compatible with my verbal messages	1	2	3	4	5
15. I listen to the athlete	1	2	3	4	5
16. I use demonstrations to enhance the verbal message	1	2	3	4	5
17. I show interest in the athlete's message	1	2	3	4	5
18. I use facial expressions appropriately	1	2	3	4	5
19. I use body gestures appropriately to enhance the message	1	2	3	4	5
20. I look the athlete in the eye when I communicate	1	2	3	4	5
Add up your responses to the 20 items. The higher the score (highest score 100), the more effective your communication skills are. However, your total score is less important than your responses to specific items. Low scores on specific items indicate that these particular aspects can be improved. To check your responses, you can get feedback from your athletes by asking them how they perceive you.					

INTRODUCTION

Communication involves sending, receiving, and interpreting messages through different channels. In every human interaction, every message has at least two types of components: informational and emotional. These components can have different effects on the interaction depending on the person and the situation. For example, communicating during a practice session can have a different impact than delivering the same message during competition.

Our main communication channels are hearing and vision. The way a message is expressed influences the manner it is received and interpreted. We communicate verbally by

speaking or writing and nonverbally by facial expressions, body language, gestures, and positioning. The way coaches communicate can be as important as the content of their message. Effective communicators are able to use multiple channels to deliver their messages.

Some coaches think that it is the athletes' responsibility to adapt to the coach's communication style, not vice versa. However, effective communication in coaching is based on developing credibility in the eyes of athletes, on trust and mutual respect. Credibility develops through honest behaviour, integrity, and openness. An effective communication system is observed in those coaches who act honestly, sincerely, and consistently, establish open lines of communication, take care of the athletes and accept them for what they are as persons.

Coaches can enhance their communication skills by establishing what they want to communicate and why (i.e., the content of the communication and the purpose). Beyond performance, they should see their athletes as people and therefore get to know them as much as possible to develop mutual understanding and respect. Finally, they need to know their communication style and try to improve it.

The verbal and nonverbal communication channels must be congruent. For instance, the coach can demonstrate interest and enthusiasm for an athlete's performance through facial expressions and tone of voice, while verbally congratulating on specific achievements. This behaviour will improve pleasant emotions and stimulate positive changes in the performer.

Listening skills also contribute strongly to communication. Effective listening implies active attention to the content, intentions, and feelings of the message that is received while acknowledging, responding, and providing adequate feedback.

Before going into more detail, we can consider 10 rules for effective communication.

Coaches should:

1. be honest;
2. not be defensive;
3. be consistent;
4. be empathetic;
5. not be sarcastic;
6. praise and criticize behaviour, not personality;
7. respect the integrity of others;
8. use positive nonverbal cues;
9. teach skills;
10. interact consistently with all team members.

After considering these rules for establishing an effective communication system, it is important to understand how to apply them when sending and receiving messages.

GUIDELINES FOR COMMUNICATING EFFECTIVELY

The following recommendations on how to communicate effectively come from working experiences with coaches and athletes and from research results.

Determine What You Want to Communicate

Many people are convinced that they know exactly what they want to say and be able to convey what they have in mind to another individual. However, transmitting ideas, opinions, and feelings is not as straightforward as one might expect. Therefore, coaches must clearly determine what they want to communicate, stick to it, and make sure that the stated purpose and the real purpose of the message are the same.

Messages communicated effectively are clear, focused on one thing at a time, and short enough not to exceed the listeners' concentration and memory storage capacities. This is

especially important for young people whose attention focus is lower than adults, or in competitive situations where emotions and stress levels can be higher than normal, making it difficult to concentrate on multiple messages.

When something needs to be changed or reinforced, the message must be delivered immediately. For example, a verbal praise to an athlete who works hard to improve should be provided at the very instant the behaviour is observed. A late approval is likely to have a lower effect. Of course, the feedback must be provided in the right time, without the interference of strong emotions and the occurrence of possible misunderstandings about what is communicated.

Understand Your Athletes

Understanding athletes means knowing their thoughts, behaviours, values, interests, goals, and feelings as much as possible. Communication is improved when athletes feel understood, appreciated, and cared for. Trying to understand the perspective of athletes comes before attempting to offer a solution to a problem or giving advice, opinions, or criticism.

Be Open, Direct, Complete, and Specific

Using straightforward communication and having the courage to tell the truth will increase trustworthiness and subsequent effectiveness in the relationship between coach and athlete. Telling the truth requires integrity and willingness to be open, direct, complete, and specific in communication to make the message fully understood.

Direct communication on performance expectations will provide athletes with clear objectives. In conflict situations, coaches must be available for confrontation, self-criticism, and constructive evaluations to resolve conflicts. A major issue during conflicts is controlling emotions to prevent anger and hostility from disrupting communication.

In addition to being open, being specific is a main component of being honest. For example, telling an athlete to be focused during competition is a rather vague message that

provides very limited information on the problem or task to focus on. Technical and specific advices are more effective in this case.

Share Your Feelings

To develop close relationships, people need to share their feelings. Messages having an emotional content attached to them tend to have higher effects on listeners. Athletes as human beings respond to emotions. Emotions should be part of communication to enrich and substantiate the information sent to the listener. However, the emotional component of communication should not be overloaded because this would prevent a clear understanding of the informational component.

Strong emotions can tend to reduce the individual's ability to objectively perceive other people's reality and behaviour, feelings, and intentions. In a situation where strong emotions are aroused, it may be preferable to refrain from communicating until the emotional overload is over. However, when immediate feedback is needed, such as during a competition, being aware of one's emotional reactions can lead to the correct decision to moderate the way to respond and limit observations only to behaviour and not to the person.

Use Supportive Language and Empathy

Messages of support, praise, positive reinforcement, and appreciation can be conveyed by acknowledging the athletes' efforts and commitment rather than just the final outcome. When athletes perform poorly, their behaviour should not be ignored or accepted. Athletes should be responsible for their actions and coaches should call them back to the task by pointing out mistakes without attacking them. Coaches should demand excellence in terms of performance and, at the same time, support the athletes as persons. This implies that performance can be criticized but not the person. The criticisms, of course, must be constructive.

To establish effective communication, and to make sure that the athlete actively listens, the coach should avoid threats, sarcasm, negative confrontations, and judgmental words. Rather, the use of supporting statements and gestures will facilitate listening and communication. A short pause and introspection before speaking and an empathetic attitude can help convey all messages, including criticism, in a positive and supportive way. Empathy is the ability to perceive, recognize, and understand the thoughts, feelings, intentions, and behaviours of others; it is the process of connecting to others' realities to fully understand their experiences. Empathetic communication tends to create strong relationships. Empathy begins with listening and is an important requirement for effective communication.

Behave Consistently

Behaving congruently with an internalized set of values is at the basis of an individual's self-esteem. People feel better about themselves when they behave consistently with what is meaningful and important to them. Furthermore, trust between people develops when their behaviours are consistent with their stated intentions. Coaches who take actions that violate their stated intentions easily lose credibility in the eyes of their athletes. For example, coaches who preach punctuality but do not sanction anyone who arrives late for training, or themselves arrive late, are not trustworthy. Coaches' attitudes and behaviours must be consistent with what they say. The personal example creates trust and improves communication between people.

Be Consistent with Your Nonverbal Messages

Verbal and nonverbal behaviour must be consistent. When an athlete makes a mistake, saying that everything is fine with facial expressions of disappointment tends to generate confusion and ineffective communication. Nonverbal behaviours can communicate interest and attention. These include standing nearby the other person, facing each other, keeping eye contact, and demonstrating consistent facial expressions and body gestures. In addition, the

sound of the voice can strengthen or greatly reduce verbal communication. Voice characteristics include pitch level (high or low), speed, volume, rhythm, and articulation. It is known that from 50 to 70% of the communication is nonverbal. This implies that athletes pay more attention to how coaches communicate than to the actual content of their message.

Reinforce with Repetition

The repetition of key elements of communication tends to strengthen understanding and storage of the message in memory. Repetition increases the likelihood of information being remembered. Messages can be strengthened by using additional communication channels, for example by showing a picture or a video clip while explaining how to perform a skill. In learning or performing a skill, a good way to reinforce a message and test understanding is to use verbal explanation combined with visual information (e.g., charts, diagrams, pictures, videos) and then request the athlete to repeat verbally before executing. Asking athletes to explain what they listened and to express the message in their own words reveals their level of understanding.

Keep Separate Positive and Negative Messages

“Your position was good, but you should work harder on your timing” is an example of a sentence with a double and contradictory message that contains both acceptance and rejection. In this type of feedback, the use of “but” increases the chance that only the second part of the message will be listened to and interpreted negatively (“you have to work harder”). It is much better to keep the two sentences separate: “Your position was good! Now you should work more on your timing”. This tends to improve understanding of the message and motivation to work on what is suggested.

Deliver Constructive Criticism

There are times when criticism is needed, although we generally want to be positive. A major problem for coaches is to analyse performance and to provide constructive and

supportive criticism. As noted previously, constructive feedback involves criticizing behaviour rather than the person. Coaches who tease or humiliate the athletes create three problems: (1) they compromise interpersonal relationships by making athletes feel intimidated, hurt, and angry; (2) they reduce athletes' confidence in their abilities and skills; and (3) they fuel defensive reactions by pushing athletes to react emotionally or causing psychological disengagement from the coach and the task. The result is that both the communication system and the performance break down.

A very good method of expressing constructive criticism is known as "the sandwich approach". It consists of three sequential steps:

- 1) ***A positive statement.*** The coach, using the athlete's name, begins with appropriate positive phrases, such as "good effort, Jeff", "nice try, Helen".
- 2) ***Future-oriented instructions.*** The coach tells the athlete what to do next, such as "bend your knees slightly while you are preparing", "now keep your focus on the front sight" and explain the reasons for doing that. The focus of these instructions is on what to do (i.e., the correct actions) rather than on what to avoid (i.e., the mistakes).
- 3) ***A compliment.*** After having provided the corrective instruction, the coach gives general encouragement, such as "Helen, I really appreciate your efforts and good attitude."

In this procedure, the "meat" of the sandwich (future-oriented instructions) are placed between the "slices of bread" (positive and encouraging statements). Positive statements must be honest, authentic, and related to the current situation. They may involve recognition of the athlete's psychological attitudes deployed to improve (e.g., effort, persistence) or to execute the task. When the problem is low engagement, the coach can start with a positive statement about the skill. When the problem is a poor execution technique, the coach can start with a positive affirmation about effort or perseverance. If both effort and technique are lacking, the

coach must use sensitivity and knowledge to find something positive in the athlete. This strategy increases the probability that the message is received correctly and that athletes see their interactions with the coach in a positive way.

GUIDELINES FOR LISTENING EFFECTIVELY

Active listening is one of the most important communication skills. Listening actively involves attending to the main and supporting ideas, recognizing the content of what is communicated, responding consistently, providing appropriate feedback, and paying attention to the full communication of the speaker. Active listening also involves nonverbal communication, such as establishing direct eye contact and nodding to confirm that the speaker has been understood. In essence, the listener shows attention to the content and meaning of the message and the feelings of the sender.

Be Aware of the Barriers to Active Listening

Mere auditory reception of verbal information does not mean good listening. In fact, hearing and listening are different. Hearing is simply receiving sounds, while listening is an active process. Simply listening to a conversation is very different from fully understanding the message that the transmitter intends to send. It can be frustrating for the speaker when a receiver hears but does not listen. Here are some of the habits that interfere with active listening:

- Listening without really paying attention.
- Thinking about what to say while the other person is talking.
- Listening only to those parts of the message that attract interest at the time.
- Ignoring the content of a message that is disturbing or deemed irrelevant.
- Listening only to gather information to criticize the speaker.

Being aware of these barriers to active listening can help avoid their use.

Be Prepared to Listen

Active listening can be challenging and demanding. Like a good performance in sport, effective listening requires energy and preparation. It is therefore recommended to be prepared by anticipating the content of the conversations, especially those that can be draining and potentially stressful because involving confrontations and conflict resolution. In this case, it is better, whenever possible, to postpone the confrontation to be mentally prepared and with the energy necessary to manage possible conflicts in a positive way. This is also a good strategy for taking the time to gather information about the other person and the arguments that could be the subject of controversy. Anticipating the content and the uncomfortable emotional reactions likely provoked in a stressful conversation can help manage the situation and improve communication.

Use Supportive Listening Behaviours

Supportive behaviours convey to the sender the idea that the message is recognized, understood and valued. Effective supportive behaviour when listening has several identifiable features:

- It describes the other's behaviour rather than trying to evaluate or attack the individual. The emphasis switches from judging the other's behaviour (e.g., "You are not focused today") to describing the experience ("I would like to see you more focused on the task as you are able to do").
- It is spontaneous, not calculating or manipulative, and focuses on immediate thoughts and feelings. The emphasis switches from following a premeditated plan ("We are going to have some problems with your performance) to honest communication in the here and now ("I am concerned about your performance today").

- It is empathetic and accepts the other person's feelings. The emphasis switches from treating the other person in a neutral and detached way ("I do not understand your reactions to mistakes") to communicative understanding ("I can understand your disappointment when making mistakes").
- It focuses on staying open to new ideas, perspectives, and the possibilities for change. The emphasis switches from attacking "This is my way to training. You can either accept or leave" to supportive messages ("I have found this method effective. We can see if it works. If not, we can change it").

Supportive listening behaviours also involve nonverbal behaviours, such as nodding the head and making direct eye contact.

Use Confirming Listening Behaviours

Part of effective communication is also to convey the feeling of being involved in the conversation and understanding the message we receive even if we disagree. The use of confirming listening behaviours together with supportive behaviours reinforce the others' perception we are paying attention to what we are told, we understand the meaning, and openly accept the confrontation.

Paraphrasing thoughts and reflecting feelings are particularly useful techniques. Paraphrasing thoughts means putting the other's thoughts into our own words, while reflecting feelings means identifying a feeling that the other person is experiencing. For example, an athlete may declare: "I am so furious, I don't see any improvement". The coach can paraphrase and reflect as follows: "You don't see improvements despite your constant efforts and commitment. I can understand that you feel angry". Paraphrasing thoughts and reflecting feelings facilitate an open conversation and keep the flow of conversation alive by considering the other person's point of view.

A warning about using “Why?” in the questions. The use of “Why?” it is not always appropriate and recommendable because it can be perceived as a request for rationalization and, consequently, it can transmit negative feelings of judgment that induce defensive responses. For example, an athlete might say, “I am very aware of the other shooters around me as I compete”. A question like “Why are you aware of others around you?” requires the athlete to rationalize why he or she is aware of others in that situation. More appropriate questions could be: “Can you tell me more about the situation?”, “What reactions do you have in perceiving others as you compete?”, “What is the impact on your performance?” This will help the coach and athlete focus the dialogue on a specific experience and get more insight about the experience itself.

Ask Questions

Good questions generate awareness and responsibility. The most frequently asked questions are intended to obtain information about the activity, for example to solve a problem, or to find out if the performer has the information necessary to manage the task. The answers provided by the performer can indicate to the coach the line to follow with the subsequent questions, while at the same time allowing the coach to monitor whether the performer is following a productive path or is in line with the objectives to be pursued.

Open questions that require descriptive answers are much more effective for generating awareness and responsibility than closed questions that lead to yes or no answers. The most effective questions start with words that try to quantify or collect facts, such as “what”, “when”, “who”, “how much”, “how many”. The “why” is discouraged because it often involves criticism and evokes defence. Questions should start broadly and then progressively focus on the details, thus maintaining the performer’s attention and interest.

Here are some examples of questions that can be useful in coaching. Of course, questions must be asked in an authentic way.

- “What else?” (or plain silence) when used at the end of most answers tends to evoke more.
- “Does it work for you?”
- “What do you suggest to do”?
- “What strategies are you using?”
- “Is this useful?”
- “When do you want to apply this strategy/technique”?
- “What is the hardest/most challenging part of this for you?”
- “What advice would you give to a friend in your situation?”
- “Imagine having a conversation with a high-level shooter you know or think of. What would he or she tell you to do? “
- “Where would you go after this?”
- “What would you gain/lose by doing this?”

Figure 4.1 illustrates a useful strategy for guiding the sequence of questions in a conversation, while Table 4.2 contains a summary of guidelines and suggestions for effective communication.

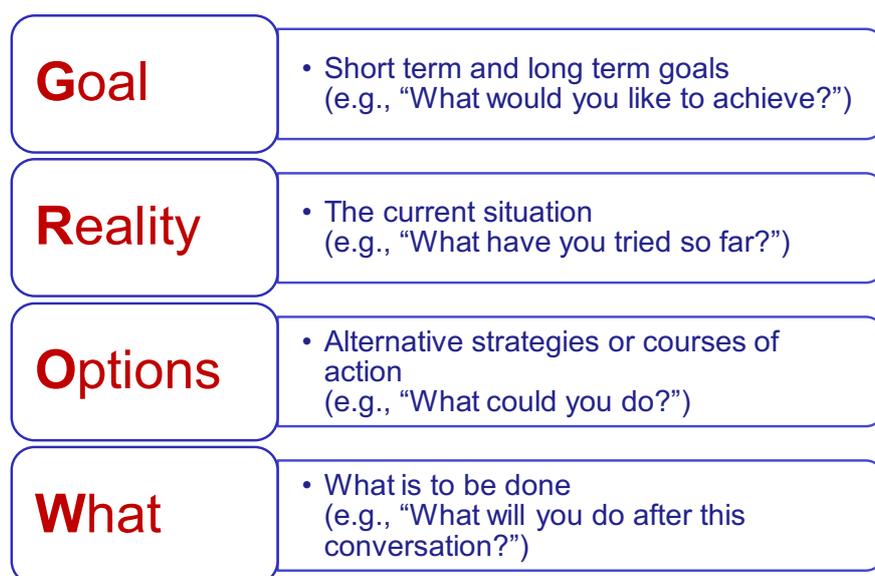


Figure 4.1. The GROW model of communication (modified from Whitmore, 2009).

Table 4.2. Guidelines and tips for effective communication.

Guidelines
<ul style="list-style-type: none"> • Communication is a two-way process, as it implies a shared understanding between two or more individuals. • Coach-athlete communication involves at least four integrated issues: “what” the athlete must do and “why”, “how”, and “when” should do it. • Communication arises from a coach-athlete relationship based on respect and trust. • Coaches should acknowledge an athlete’s strengths, achievements, and efforts. • The appropriate use of nonverbal cues (e.g., hand and body movement, tone of voice, and gestures) can greatly improve communication. • Coaches should genuinely “care” about their athlete as human beings. • All the ideas, theories, techniques and knowledge that the coach possesses must be made relevant, practical, and meaningful for the individual. • Coaches should communicate honestly with their athletes even though the message may not be perceived or received in a positive way. The challenge for the coach is to communicate in a respectful and sensitive way. • Be a good listener. Listen to what an athlete communicates and suggests. • Take the time to get to know each individual. • Take a case-by-case approach. Not only is each athlete different from another, but the same athlete can react to a similar situation in different ways over time. • Be aware of what you bring to each situation (e.g., your beliefs, experiences, and goals). • Be aware that you create a “coaching atmosphere” in which the focus on success can be to win/perform better than others or improve the everyone’s performance. This should be personalized for each individual and continuously monitored. • Discuss regularly with your athletes how things are going or if there are issues to deal with. • Use positive terminology. For example, talk about staying focused on the task, being determined or being able to perform correctly instead of failing or making mistakes. • Keep it simple using words and terms understood by the listener and be concise when communicating. • Use nonverbal cues to adequately complement the message you want to convey. • Explain the reasons for what you are doing and what you ask your athletes to do. • Clearly communicate your expectations (i.e., what you expect and do not expect) from those you are working with. • Use questions to understand an athlete’s feelings, opinions, difficulties, and level of understanding. • Use paraphrases to show an athlete that you understand what he or she is saying (the use of paraphrases involves the interpretation or reformulation of a message using similar or different words while keeping the content of the message intact). • Give short, simple, constructive, and direct feedback. • Take a positive approach when communicating using praise, encouragement, support, and reinforcement. • Encourage questions to verify that messages are received correctly, to stimulate problem solving, and to develop autonomy. • Identify your communication style and work to improve it. You can learn a lot by studying the communication style of successful coaches in your field. However, you need to be yourself and feel comfortable with your communication style, while being aware that you can improve it.

SUMMARY

Communication plays a vital role on the path of learning and improvement. Given its importance in leading to positive results, coaches should be motivated to improve it. Effective communication, both verbal and nonverbal, requires work and commitment. There are numerous recommendations and tips to improve communication, such as developing trust, taking the time necessary to clarify a situation, conveying clear and coherent messages, using an assertive mode based on knowledge and experience (and not aggressive), showing empathy, and transmitting confidence in the athlete's skills and potential. Basically, coaches must communicate with their athletes with sensitivity, respect, and honesty. It takes time to get to know the performers both as athletes and as individuals, take care of them, listen to them and then reflect on how to establish an effective communication process. It should be remembered that there are different "coaching styles" but all "good coaches" are effective communicators.

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Self-Evaluating Questions

- Describe the communication process.
- Discuss why communication is an important tool for a coach.
- Describe how to send messages effectively.
- Describe how to receive messages effectively.
- Discuss the main guidelines for communicating effectively.
- Give some examples of verbal and nonverbal communication in sport.
- Describe main confirming behaviours.
- Explain why it is important to ask questions.
- What factors interfere with effective communication processes in sport?
- As a coach, what are some things you would do to improve your communication with athletes?
- Why are active listening and empathy such important skills for a coach to develop?
- What are some things you could do to become a better listener?
- Provide examples of effective verbal communication in a training session.
- Discuss some important verbal and nonverbal communication behaviours in a training session.
- Provide examples of effective verbal and nonverbal communication in a competition.
- Ask some questions to improve your athletes' awareness and responsibility.
- Describe a conversation with your athlete in a training session aimed at addressing some problems that arose in a recent competition.

Practical Activities in the Field to Communicate Effectively

- Explain to your athletes why communication is important.
- Explain to your athletes how to send messages effectively.
- Explain to your athletes how to receive messages effectively.
- Ask a series of questions to your athletes that can make them think about how to improve a specific component of their shooting technique.
- Use the “sandwich approach” with your athletes to correct or improve a specific shooting technique.
- Use the GROW communication model with your athletes to correct or improve a specific shooting technique.
- Discuss with one of your athletes a specific aspect of a technical execution to be improved. Then use both verbal and nonverbal information to guide your athlete to improve technical execution in a training session. After the session, think about how you have communicated with your athlete and rate yourself using the following communication skills checklist (see also Table 4.1).

Behaviours	Almost never					Almost always
	1	2	3	4	5	
1. My messages contained credible information	1	2	3	4	5	
2. My messages and instructions were consistent	1	2	3	4	5	
3. I used athlete' name when I talked to him/her	1	2	3	4	5	
4. I used simple and direct messages	1	2	3	4	5	
5. I focused on one thing at a time	1	2	3	4	5	
6. I used understandable language	1	2	3	4	5	
7. I repeated and summarized messages	1	2	3	4	5	
8. I checked for understanding	1	2	3	4	5	
9. I used effective questioning	1	2	3	4	5	
10. I used positive feedback and praise	1	2	3	4	5	
11. I varied the tone, tempo, volume, rhythm of the voice	1	2	3	4	5	
12. I used the athlete's opinion to generate discussion	1	2	3	4	5	
13. I told the athlete what to do rather than what not to do	1	2	3	4	5	
14. My nonverbal messages were compatible with my verbal messages	1	2	3	4	5	
15. I listened to the athlete	1	2	3	4	5	
16. I used demonstrations to enhance the verbal message	1	2	3	4	5	
17. I showed interest in the athlete's message	1	2	3	4	5	
18. I used facial expressions appropriately	1	2	3	4	5	
19. I used body gestures appropriately to enhance the message	1	2	3	4	5	
20. I looked the athlete in the eye when I communicated	1	2	3	4	5	

Add up your responses to the 20 items. The higher the score (highest score 100), the more effective your communication skills were. Remember that your total score is less important than your responses to specific items. Low scores on specific items indicate that these particular aspects can be improved. To check your responses, you can get feedback from your athletes by asking them how they perceived you.

Power Point Presentation

Slides 33 to 48.

CHAPTER 5 – INSTRUCTIONS AND FEEDBACK FOR SKILL LEARNING AND IMPROVEMENT

OVERVIEW

Instructions and feedback are critical aspects of the communication process between athlete and coach. In educational and training settings, teachers and coaches very often provide their performers with both verbal and visual instructions and feedback to help them perform tasks and learn motor skills. Verbal instructions and visual information are particularly necessary when performers have to acquire and refine complex motor skills. To this end, it is important to understand how to provide effective instructions and demonstrations in order to offer athletes the best opportunities for learning and improving skills.

Both verbal instructions and visual information (i.e., demonstrations, videos, pictures) convey information to the performer about the objectives, technical skills, and adequate execution procedures necessary to perform the task. They are usually delivered before the practice starts, as well as recurrently during a practice session, and are based on the performer's specific needs and learning phase. The coach can also provide task-specific information on the consequences of practice attempts (i.e., feedback) either during or after trials in order to correct performance errors or support proper execution.

INTRODUCTION

Good teaching practice requires knowledge of the most effective methods of providing instructions and demonstrations based on scientific and practical evidence. In general, the coach must be able to present information clearly and concisely, make sure of the understanding of the performers, and provide adequate information and feedback. As discussed in the previous chapter on communication, it is also important that coaches are aware of the nonverbal information they are communicating and ensure that they are not

misinterpreted by their performers. It is important to remember that the way a coach communicates can affect motivation, confidence, concentration, anxiety levels, feelings, behaviours, and ultimately skill acquisition.

VERBAL INSTRUCTIONS

Verbal instructions are intended to convey important information about both general and specific aspects of skill performance. In particular, verbal instructions are used to facilitate the understanding of performance requirements and objectives, direct attention to important aspects of performance, improve confidence, promote learning, correct mistakes, and reinforce correct behaviour.

Effective verbal instructions involve much more than just “telling a story”. The instructions must be adapted to the specific needs of the performers, their understanding and level of competence, the task and the situation. Experienced coaches recognize the needs of athletes in the various stages of skill development, from beginner to expert level, and provide instructions appropriate to the level of development. In doing so, coaches must take into account some relevant aspects related to verbal instructions. These include (1) the amount of information transmitted, (2) the accuracy of the information provided, and (3) the use of verbal cues.

Amount of Information

As stated above, effective coaches take into account of the performer’s needs and developmental stages. It is important to consider that performers have a limited capacity to understand and assimilate information for task execution, especially if they are beginners. It is widely recognized that humans have a limited capacity regarding the amount of information that can be stored in short-term memory. As a consequence, individuals can pay attention to and elaborate a limited amount of information in a context at a given time. Their ability to process information is easily overwhelmed if too much information is presented. In practicing

a new motor skill, performers must keep in mind many aspects of the action to be executed. These include, among others, the general goal of the action, the patterning and coordination of muscular forces, the timing that involve multiple joints, the environmental features to be attended to, the balance and posture of the body. This situation is even more complicated if we consider that the performer needs to split the attention between actual performance and the directions of the coach on how to perform. Providing a large amount of information can easily cause confusion, disorientation, and loss of confidence. Therefore, it is highly recommended that the instructions are short and go straight to the point, to allow performers to focus attention on one or two relevant aspects of their performance at a time. In the early stages of learning, coaches should provide the basic information needed to execute a new skill. As learners progress, the instructions can include more information, become more detailed, and be directed towards refinement of the basic movement patterns.

Precision of Information

Unclear information or instructions that are inadequate to the learner's level of developmental can easily lead to confusion. Descriptions that may seem clear to coaches because of their experience with a skill can confuse beginners who need more precise movement descriptions. For example, asking a beginner to "align" may be the correct instruction for a given situation, but the shooter may not understand what needs to be done. The information may appear too vague and overly generalized to those who do not have sufficient experience to respond correctly. On the other hand, they may reliably interpret the instruction to "point the aiming elements of the pistol into the centre of the aiming area, on the target".

Whenever possible, instructions for beginners should also be quantitatively meaningful, such as "step out one foot" rather than "step out a little", "hold your position three seconds after the shot" rather than "hold your position a few seconds after the shot". In

these examples, the first way of stating the instruction clearly conveys to learners what the coach means, whereas the second way of formulating the instruction could be interpreted differently.

Instructions can also provide learners with information about the bodily perceptions they might experience when executing the skill, such as “you should feel your leg muscles relaxed while you assume a comfortable position”. This type of instructions increases the awareness of beginners and facilitates the improvement of their skills.

Verbal Cues

Verbal cues are words or short sentences that direct the learner’s attention to some critical feature of the environment (“look at the target”) or to the movement pattern of the skill being performed (e.g., the full instruction “move your eyes first and then the gun” can be shortened to “eyes and gun”). Verbal cues can convey relevant information for both beginning and advanced performers, while limiting the attentional demands placed on them. Well-conceived and well-presented verbal cues have a significant impact on the amount and quality of learning that occurs during practice. When designing effective verbal cues, coaches should consider four aspects of these instructions. Verbal cues should be:

- ***Focused on critical features of skill performance.*** Verbal cues should convey important instructional information in a short and concise way, without overloading the limited attentional capacity of learners. Designing verbal cues involves a critical and careful analysis of the skill to be acquired and the most important characteristics necessary for its correct execution. This analysis will lead to the identification of those characteristics of a skill that will be priorities in the learning process.
- ***Stated briefly.*** Verbal cues are intended to convey an immediately understandable and clear impression of the action to be performed. They should consist of succinct statements that clearly direct the learner’s attention to the action or environmental

characteristics without unnecessary mental elaboration. Words that communicate a type of action are often useful (e.g., push, pull, hit, twist, aim, align, press, hold).

- **Limited to those most needed in function of the learning stage.** The number of cues used at any one point in the stages of learning should be limited to the most relevant ones. In the initial stage of learning, two or three cues may be enough. Multiple cues can cause confusion in the learner, especially if the cues pertain to the same action or environmental characteristic. It is important to remember that one of the advantages of verbal cues is to focus the individual's attention on those characteristics of a skill that require attention and practice at that precise moment. As learners progress, additional cues can be added to focus their attention on new aspects of the skill.
- **Repeated frequently.** The repetition of the same verbal cues during practice helps the learner form an association between the cue and the required action or environmental features. This association will reinforce the intended correct response. When strong associations are formed, coaches can gradually reduce the frequency of verbal cues and encourage learners to use the cues themselves.

In summary, verbal cues should convey critical, developmentally appropriate, and succinct information. They should be limited in number and repeated frequently in the early stages of learning. Some guidelines are summarized in Table 5.1.

Table 5.1. Guidelines for using effective verbal cues.

- | |
|--|
| <ul style="list-style-type: none">• Cues should clearly direct the learner's attention to the critical aspects of a skill or of environmental factors• Cues should contain only a few words• Cues should contain "action words" that indicate what a performer must accomplish• Cues should be precise and include quantitative information when appropriate• Additional cues can be added as learning progresses• Learners should be encouraged to repeat cues sub-verbally when they execute• Cues should be repeated frequently, especially in the early stages of learning |
|--|

VISUAL INFORMATION

Together with verbal instructions, visual information is very frequently used to conveying information to performers. Motor skills often require complex patterns of coordinated movements of the limbs and body. It is very difficult to adequately convey to the performers an idea on how to perform skills simply by using words. Visual information is easy to understand and reflects the natural human tendency to show someone how skills are performed rather than to verbally explaining them. There are various forms of visual information. These include, pictures of appropriate actions, video clips of successful performance, and demonstrations (often referred to as modelling) provided by the coach, a skilled person, or a peer. However, visual information should not replace but supplement verbal information. A combination of instructions and demonstrations is generally more effective. Verbal instructions, in fact, are limited in their capacity to convey complex information about skills, but an advantage is their ability to direct the performer's attention towards critical aspects of the skill that is performed.

Visual information plays a main role in helping learners get a mental picture of the basic movement patterns of a new skill. Much of motor learning comes from the individual's attempts to reproduce actions seen. A considerable amount of learning, especially that which occurs in the early stages of practice, is the result of observing and imitating the actions of others (i.e., modelling). Coaches can take advantage of this phenomenon when providing teaching assistance. Like verbal instructions, modelling must meet the needs of individuals, their ability to understand, their skill level, as well as the situational demands. Understanding what constitutes effective demonstrations is essential for effectively communicating information about skill practice. The main guidelines for effective practice are provided below, although not all guideline can be followed in every situation.

Use Novices for Demonstration

The use of novices for demonstration can be just as effective, and in some cases more effective, than demonstrations performed by experts. A peer who is learning skills can be an effective model for demonstrations. It is not important that the model is an unqualified peer, a coach, or an experienced athlete. The important thing is that the model's behaviour shows some of the essential characteristics of the skill. A novice model also shows attempts made to explore and accomplish the task. Moreover, a novice model can highlight useful strategies employed during the learning process that are no longer necessary for an expert who has reached an advanced stage of learning. From this point of view, learners should be encouraged to think about the task and find the best ways to accomplish it rather than simply imitating a model's behaviour.

Supply Learners with the Model's Feedback

Observers should receive corrective feedback from the coach while observing a model. An important aspect of modelling is that the observer is able to see the execution of the model, receive feedback, make corrections, and try solutions on the task to be performed. In this way, observers are encouraged to engage in active problem-solving activities, rather than just observing movement patterns, and therefore can decide whether it is better to apply the same strategy to perform the task or choose a different one.

Use Models Similar to Observers

When learners observe models that share important similarities with them, such as the level of learning, age, and gender, they learn better than when they observe a model that differs from them. Observers can more easily understand what to do to perform the task when they see similar models successfully involved in the activity.

Use Members of a Group as Learning Models

Group members can be asked to observe one of their peers executing the task while the coach provides feedback. This method allows the coach to highlight important features of

the activity in progress and to correct errors. The model who demonstrates in front of the group should be rewarded for those aspects of the skill properly executed and for the individual contribution for the benefit of other participants.

Use Peer Teaching

An effective method of implementing learning model demonstrations is to pair learners. One learner practices a skill for a number of trials while the other partner observes. After a number of practice trials, the pair alternates roles. The observer should be provided with a checklist of key aspects of the skill being performed. The observer then pays attention to these key aspects and gives feedback to the partner. With this method, the observer benefits from engaging in problem-solving activities while observing the demonstration, while the executing partner benefits from the corrective feedback. Coaches can arrange pairs according to skill level to enhance the similarity of the learning model to the observer. The coach can then provide feedback.

Mix Novice and Expert Demonstrations

Despite the benefits of using beginners for demonstration, experts allow a straightforward identification of the correct movement patterns. The advantages of both types of models (e.g., novices and experts) can be achieved by mixing demonstrations of novel and expert models. For example, in the initial learning phase, the coach or an experienced model can provide learners with a global perspective of a skill. The use of a novice model can subsequently stimulate those cognitive processes important for learning. Intermittent use of expert demonstrations at this stage can strengthen the correct technique.

Provide Demonstrations Before and During Practice

Demonstrations should be provided before practice and throughout practice. Observing the skill before actual practice allows the learner to understand the fundamental requirements of movement patterns. Demonstrations should then continue during practice.

Demonstrations, indeed, play an important role at every stage of learning. If the skill is complex, basic movement patterns should be demonstrated and practiced at first. Then, other elements of the skill can be added gradually until the entire skill is practised. As performers progress through the stages of learning, they derive different types of information from observing movement patterns.

Use Effective View Angles

Performers must be arranged in space in such a way as to have effective observation angles for demonstrations. They need not only to clearly see the demonstrations, but also to clearly listen to the instructions and feedback that the coach provides them during the demonstration. Some arrangements, such having participants in circle with the model in the middle, are often ineffective because some participants may not be able to see important aspects of the demonstration, or listen to the coach's feedback, or view critical elements from an optimal perspective. Good arrangements in space allow all performers to clearly see the model from the same perspective, view the relevant aspects of the demonstration, and listen to the instructions and feedback provided to them.

Use the Correct Speed

In providing demonstrations, a question that arises is whether the ability should be shown in slow motion or at the correct speed at which it is executed. For complex skills or early learning stages, the observer may have difficulty in perceiving and reproducing skills accurately and effectively. A good strategy in these cases is first to show the skill and request the execution in slow motion, and then to observe and execute the skill at the correct speed. It is recommended that the performer observe and then perform the skill at real and correct speed as soon as possible.

FEEDBACK

Extrinsic feedback (also referred to as augmented feedback) can be defined as the sensory information provided by an external source (usually the coach), while intrinsic feedback is the sensory information that normally occurs and the performer receives when performing the action. What is of interest here is the extrinsic feedback provided by the coach in verbal or visual form, as discussed above, in order to correct errors, reward appropriate behaviours, and improve performance. This type of feedback is important, because it provides performers with information about correcting errors, thus strengthening correct execution and at the same time increasing motivation. Feedback can focus on two types of information:

- 1) ***Knowledge of results***, which is information regarding the outcome of an action. It is usually provided after the action has been completed and indicates the degree to which the performer has achieved the desired movement outcome.
- 2) ***Knowledge of performance***, which is information about the quality of the movement itself, such as displacement, speed, acceleration, accuracy.

Although knowledge of results is an important source of feedback, learners can often obtain information on the outcome of the movement without the assistance of the coach. This is less true for knowledge of performance. Beginners, in particular, are usually not able to judge the quality of their movements, and therefore need help from the coach. Even experienced performers, nevertheless, need feedback from the coach to refine and improve the quality and effectiveness of their skills. The following are some guidelines for the use of reinforcements and instructional feedback.

Use Constructive Feedback

The use of constructive rewards and feedback is recommended. Rewards, when appropriate (e.g., “well done”, “excellent”, “good shot”), tend to energize learners, increase their motivation, and strengthen correct performance. Along with rewards, performers require

informative feedback to know if they are executing the skill correctly. Feedback should point out the correct actions required to perform, such as “Place your head in a natural and comfortable position”, “Exert a slow, soft, and consistent pressure on the trigger”. The coach has also to tell the performers the reason why they executed a skill with a certain level of proficiency. For example, a good performance can be underlined by saying “That was a good shot. You seemed comfortable in your position and in good balance.”

Reward Successful Approximations

Learning difficult or new skills inevitably involves making mistakes. Developing proficiency in mastering a skill takes time and effort, which can be somewhat frustrating for the learner. Rewarding small improvements and approximations to the desired performance is therefore useful to support the motivation of the individual and provide guidance on what to do next.

Reward Performance

Many coaches tend to emphasize the final outcome of performance, such as winning or achieving good scores in competition. As explained in Chapter 1, the final outcome (e.g., outperforming others) is often out of the athlete’s control (i.e., the others’ performance is not controllable). In addition, achieving good results involves mastering and performing the skill correctly. It is therefore important that the coach focuses on the individual’s performance rather than the final outcome. To do this, the evaluation of successful performance must be based on an individual’s actual levels of proficiency rather than group standards or external criteria.

Reward Effort

The individual’s effort must be recognized as an important component of performance. Effort and commitment are under personal control. When participants know they are recognized for trying hard in the attempt to learn and improve, instead of being

criticized for their unskilled execution, they do not bother to perform poorly and feel stimulated to improve.

Use Questioning

It is strongly recommended that coaches ask athletes to generate their feedback. Questions can focus on the whole action, such as “How was your shooting action?”, “How could you execute more effectively?”, or on specific parts, like, “What was your movement to the target?”, “What did you notice during follow through?” This encourages performers to think about their skills and evaluate their feedback in relation to performance and outcome rather than relying solely on coach feedback.

Use Appropriate Timing and Frequency

During the early stages of learning, the desired responses (i.e., the correct execution of the task) should be reinforced immediately and often. Frequent feedback serves as a motivator and also provides learners with information about the quality of their action. However, in the later stages of learning, when the skill has been sufficiently mastered and performed in a stable manner, intermittent reinforcement is more effective. This is because too frequent feedback can cause dependency. Feedback after every trial can be used as a kind of “crutch”. When the “crutch” is removed, it often happens that the learner is no longer able to perform correctly. Participants who do not receive feedback at each performance attempt are forced to analyse the action on their own and engage in problem-solving activities rather than relying solely on the coach’s feedback. The result is more effective and long-lasting learning.

A way coaches can reduce the dependency effects of feedback is to gradually reduce the frequency of feedback they give. With this approach, at the beginning of learning a new skill the coach provides feedback to the learner after most attempts. The learner is facilitated in achieving the desired goal and in experiencing the feelings related to the execution of the correct action. When the learner reaches a satisfactory level of proficiency, the coach can

gradually reduce the frequency of feedback (this is referred to as the “fading” approach) and then decide to intervene when the action does not fall within some acceptable parameters of correctness (this is referred to as the “bandwidth” approach).

The ultimate goal is to help performers take more ownership of their learning process by developing their ability to detect and correct errors on their own, and to execute a certain task without the need for extrinsic feedback.

SUMMARY

Coaches should be aware of their instructional behaviours when working with athletes, and the effects of such behaviours on learning and improving skills. Coaches should also be knowledgeable of a range of effective communication strategies, and at the same time be able to apply and adapt such strategies to take into account both individual and group needs. The way coaches provide instructions and feedback, both verbally and visually, has a significant impact on athletes’ performance. A lot of information is provided verbally. Some key aspects are related to the amount and precision of the information transmitted and the use of verbal cues. Visual information is also a key component in coaches’ communication and should be provided throughout the learning stages (from the beginning to the most advanced stages) in combination with verbal instructions.

The coach is also required to give feedback to the performer in order to correct errors, strengthen good performance, and increase motivation. Feedback should be simple, clear, concise, constructive, and focused on performance improvements and individual efforts rather than on final outcomes. Appropriate use of questions and feedback enables performers to develop problem-solving capabilities while reducing reliance on external guidance.

Suggested Readings

Edwards, W. H. (2011). *Motor learning and control: From theory to practice*. Belmont, CA: Wadsworth, Cengage Learning. Chapters 10 & 12.

- Magill, R. A., & Anderson, D. I. (2017). Motor learning and control: Concepts and applications (11th ed.). New York, NY: McGraw-Hill. Chapters 14 & 15.
- Schmidt, R. A., & Lee, T. D. (2020). Motor learning and performance: From principles to application (6th ed.). Champaign, IL: Human Kinetics. Chapters 10 & 11.
- Weinberg, R. S., & Gould, D. (2019). Foundations of sport and exercise psychology (7th ed.). Champaign, IL: Human Kinetics. Chapter 7.

Self-Evaluating Questions

- What are the advantages of verbal instructions?
- What are the limits of verbal instructions?
- What are the advantages of visual information?
- What are the limits of visual information?
- What are examples of verbal cues?
- Describe the role of verbal instructions and visual information in the acquisition of motor skills.
- Discuss why verbal instructions should generally be short, concise, and limited.
- Provide examples of verbal cues and discuss how they should be developed most effectively.
- List the main characteristics that a model should have to effectively demonstrate a motor skill.
- Discuss the main guidelines for providing effective verbal instructions.
- Discuss the main guidelines for providing effective visual information.
- Consider the main guidelines for providing effective feedback.
- In addition to rewarding an athlete's performance outcome (success), what other behaviours should be rewarded?

- Discuss ways in which you can provide your athletes with important information about shooting technique during a training session.
- Provide examples of effective verbal instructions for learning a shooting skill.
- Explain how to combine verbal instructions and visual information to learn a shooting skill.
- Identify a flaw in your shooters' technique and ask them a series of questions to make them think about how to improve.

Practical Activities in the Field to Provide Effective Instructions and Feedback

- Describe to your athletes a main component of the shooting technique using verbal instructions.
- Use visual information to make your athletes perform a main component of the shooting technique.
- Ask your athletes to use verbal cues to check their shooting performance.
- Identify the main flaws in your athletes' shooting technique and give them feedback.
- Ask questions to encourage your shooters to think about their performance and how to correct specific mistakes.
- Using verbal instruction, visual information, and feedback/error correction guidelines, critically observe your behaviour or that of another coach during a training session.
Note functional and dysfunctional behaviours in the appropriate spaces of the grid.

	Functional behaviour (what to do)	Dysfunctional behaviour (what to avoid)
<i>Verbal instructions</i>		
• amount		
• precision		
• verbal cues		
• other		
<i>Visual information</i>		
• models		
• angles		
• speed		
• other		
<i>Feedback and error correction</i>		
• knowledge of results/performance		
• rewards		
• questioning		
• timing		
• frequency		
• other		

Power Point Presentation

Slides 49 to 59.

CHAPTER 6 – PRINCIPLES OF PHYSICAL TRAINING

OVERVIEW

The most important survival feature of the human body is its adaptability. In fact, humans have adapted to live and work at high altitudes, temperatures below zero, and other extreme conditions by developing and improving physiological and morphological adaptive characteristics. High altitude inhabitants, for example, have more red blood cells than those living at sea level. Coaches and athletes benefit and take advantage of the adaptability of the body to improve sport performance.

To be effective, physical training programmes must be goal oriented. As previously discussed, the goal setting process involves collaboration between the coach and athlete and involves consideration of the age, previous experience and performance level, current fitness level, and future aspirations of the individual athlete. In addition to setting goals, there are several fundamental principles on which all forms of physical training are based, whether they are aimed at elite athletes or people looking for fitness and health. These are summarized in the acronym AID-SPORT: Adaptability, Individual Differences, Specificity, Progression, Overload, Recovery, and Tedium.

INTRODUCTION

The principles of physical training are implemented to improve the athlete's levels of health- and sport-related fitness. Health-related components of fitness include cardiorespiratory endurance, muscular strength, muscular endurance, and flexibility. Sports practice requires a good level of cardiovascular and respiratory efficiency, which involves the heart, lungs, and bloodstream. Indeed, much of the fuel required by the working muscles comes from the bloodstream. Its regular functioning allows the organism to adapt to training loads and improve. Sport-related components of fitness include strength, endurance, speed,

flexibility, power, reaction time, coordination, balance, and agility. Here are definitions of some key terms:

- *Health-related fitness.* Physical capacities that contribute to health: cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition.
- *Cardiorespiratory endurance.* The body's ability to perform prolonged dynamic exercises, involving large muscles, at moderate to high intensity levels.
- *Muscular strength.* The amount of force a muscle can produce with a single maximum effort.
- *Muscular endurance.* The ability of a muscle to contract or contract repeatedly over a long period of time.
- *Speed.* The ability to perform a movement in a short period of time.
- *Flexibility.* The ability to move the joints through their full range of motion.
- *Power.* The ability to exert force rapidly, based on a combination of strength and speed.
- *Reaction and movement time.* The ability to respond and react quickly to a stimulus.
- *Coordination.* The ability to perform motor tasks accurately and smoothly using body movements and the senses.
- *Balance.* The ability to maintain equilibrium while moving or while standing still.
- *Agility.* The ability to change the position of the body quickly and accurately.

A complete training programme must embrace all the above elements. However, not all elements can receive equal emphasis throughout the training cycle. Many factors determine the type of training programme and the importance placed on each element. These include the age and sport maturity level of athletes, their current fitness status, and the events athlete is preparing for. Although these elements are considered discrete entities, they are closely related.

Generally, the training cycles last about three weeks, with a recovery week including lower intensity activities before starting the next cycle. The acquisition of skills should not be emphasized during a high intensity training cycle, but should be reserved for periods of lower volume and intensity. The gains achieved during high intensity training periods can be maintained with a moderate level of work. Therefore, through periodization, some elements can be maintained with less work, while other elements are emphasized.

Several guidelines for improving and maintaining general fitness levels have been proposed for children/adolescents and adults. Key guidelines for school-aged children and adolescents aged 6 to 17 years recommend that young people should do 60 minutes or more of moderate to vigorous physical activity each day, with a focus on three types of activities: aerobic, muscle strengthening, and bone strengthening.

Aerobic activities are those in which people move rhythmically involving large muscles for an extended period of time. Running, hopping, skipping, jumping rope, swimming, dancing, and bicycling are all examples of aerobic activities. These activities increase cardiorespiratory fitness.

Muscle strengthening activities involve more muscles than those normally involved in daily activities. These activities can be unstructured and part of play, such as playing on playground equipment, climbing trees, and playing tug-of-war, or they can be structured, like lifting weights or working with resistance bands.

Bone strengthening activities produce forces on the bones of the body that promotes bone growth and strength. This force is commonly produced by impact with the ground. Examples of these activities are running, jumping rope, and playing basketball, volleyball or other sports. Bone strengthening activities can also be aerobic and muscle strengthening.

Key general fitness guidelines to achieve substantial health benefits in adults recommend doing at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) per

week of moderate intensity, or 75 minutes (1 hour and 15 minutes) 150 minutes (2 hours and 30 minutes) per week of vigorous-intensity aerobic physical activity (e.g., running, brisk walking, cycling, playing basketball or other sports, dancing, and swimming) or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week. Additional health benefits are achieved by engaging in physical activity beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity per week. Adults should also perform muscle strengthening activities of moderate or greater intensity and involving all major muscle groups on 2 or more days a week, as these activities result in additional health benefits.

MAIN PRINCIPLES OF PHYSICAL TRAINING

Physical training principles are a set of basic guidelines intended to maximize the athlete's full potential. These principles apply to all sports and all levels of activity and must be included in a personal training programme designed to enhance performance by developing the appropriate energy sources, increasing muscle structures, and improving neuro-muscular ability patterns. By adhering to training principles, the shooter can achieve physical training goals more efficiently. The goal of physical training is to produce long-term changes and improvements in the functioning of the body.

Physical exercises must be performed regularly, both during the preparation period between shooting seasons and during the period in which the shooter is preparing for competitions. Physical conditioning is a gradual process and the results will not be immediately evident. As the shooter's physical condition improves, the number of repetitions and the physical load can be gradually increased.

The physical training principles presented here are intended to guide coaches in developing a personalized plan for healthy athletes whose goal is to improve physical fitness and health. An exercise programme that includes aerobics, resistance, flexibility, and

neuromotor training is essential for improving and maintaining physical fitness and health. The good way to apply the principles is to have a plan that includes an established exercise and recovery programme, goals to be achieved, and checkpoints along the way. The main principles of physical training are summarized here in the acronym AID-SPORT:

- *A*daptability to *I*ndividual Differences
- *S*pecificity
- *P*rogression
- *O*verload – Frequency, Intensity, Time, Type
- *R*ecovery
- *T*edium

Adaptability to Individual Differences

In response to a progressive increase in training demands, the body responds through adaptation. This process requires additional sources of energy and nutrition. Adaptation to training occurs gradually, over long periods of time. A too short training load will not provide adequate stimulus for adaptation responses to occur. Additionally, efforts to speed up the process can lead to injury, illness, or overtraining. An effective training programme should be adjusted in intensity and duration to allow the body to tolerate increases in workload and further adaptations.

It should be remembered that individuals are different, have different bodily and physiological constitutions, tolerate training in different ways, and adapt to training loads at different speeds. Consequently, training must be adapted to individual differences including gender, individual fitness levels, and goals to be achieved.

Specificity

The energy pathways, muscle fibres, and neuromuscular responses adapt specifically to the type of training to which they are subjected. For example, strength training has little

effect on endurance and, conversely, endurance training activates aerobic pathways with little effect on speed or strength. Therefore, the training programmes should be specific to a particular sport. The principle applies to muscle groups, movement patterns, and the type of muscle contraction. However, a well-balanced training programme should contain a variety of elements (aerobic, anaerobic, speed, strength, flexibility, neuromotor stimuli) and involve all major muscle groups in order to prevent imbalances and avoid injury.

Progression

Through training, the body adapts to higher loads than those needed to carry out normal daily activities. Regular training stimuli are needed to allow for adaptation and maintenance of adaptation. Training loads need to be increased gradually to allow the organism to adapt and avoid injury. By varying the type of activity, the frequency, the intensity, and the volume of the training load, the organism adapts to training demands. Shooters who begin training with a low fitness level can progress fairly quickly in the early stages. However, to achieve stable effects, it is recommended to progress through a gradual increase in the training load level over several weeks or months. Without adequate and repeated training bouts, fitness levels remain low or regress to pre-training levels. Regression of training effects (reversibility) can occur during prolonged stops, as usually happens at the end of the competitive season. This is the moment when participation in other forms of physical activity constitutes a valid investment to safeguard against loss of physical fitness.

Overload

The overload principle is probably the most important principle of training. In a nutshell, this principle means that the organism adapts to the workload placed on it. For example, the body will react to weightlifting sessions through physiological changes that will allow the athlete to manage the physical stress imposed by the load. The same adaptation occurs in cardiovascular resistance training involving the heart, lungs, and muscles. This is

how performers become stronger and more resistant and increase their fitness level. The progressive increase in the training load, alternating with the rest and recovery phases, acts by increasing adaptation and performance. Through continuous and gradual increases, it is possible to obtain gains in strength, endurance, and other physical abilities that underlie performance.

The amount of overload required to maintain or improve a specific level of fitness for a particular fitness component is determined by four dimensions, represented by the acronym FITT:

- *Frequency* — how often
- *Intensity* — how hard
- *Time* — how long (duration)
- *Type* — kind of training

Frequency. Fitness development requires regular exercise. The optimal training frequency can be expressed in number of days a week. It is a function of the physical skills to be developed and the fitness goals of the performer. For most people, 3 to 5 days per week of moderate and vigorous intensity exercises (cardiorespiratory endurance activities such as running, cycling, and swimming), combined with strength and flexibility, are appropriate for a programme aim to achieve and maintain health and fitness.

Recovery time is also fundamental and depends on factors such as fitness levels, age, and intensity of training. Intense workouts should be spaced out during the week to allow for sufficient recovery time. On the other hand, exercise can take place every day if the programme includes moderate intensity workouts.

Intensity. Fitness benefits occur when persons exercise more intensely than their normal level of activity. The appropriate exercise intensity varies in relation to each fitness component. To develop cardiorespiratory resistance, for example, individuals must increase

their heart rate above normal. To develop muscle strength, persons must lift a heavier weight than normal, and to develop flexibility, the muscles must be stretched beyond their normal length.

There is a positive dose response that leads to health and fitness benefits from increasing exercise intensity. According to the principle of training overload, a work intensity below the minimum threshold will not be sufficient to cause changes in physiological parameters such as increased maximum volume of oxygen consumed per unit of time. However, in order to be effective, the minimum intensity threshold varies depending on the current level of cardiorespiratory capacity of the individual and other factors such as age, health status, physiological differences, genetic characteristics, and habitual physical activity.

Time (Duration). Fitness benefits occur when persons exercise for relatively long periods of time even within a single training session. For example, 20–60 minutes of cardiorespiratory endurance activity is recommended. For high intensity exercises, such as running, 20–30 minutes of activity are appropriate. For moderate intensity exercises, such as walking, it may take 45–60 minutes.

To develop muscle strength, muscle endurance, and flexibility, similar amounts of time are appropriate, but these exercises are most commonly organized in terms of a specific number of repetitions of particular exercises. For resistance training, for example, a programme may include one or more sets of 8–12 repetitions of 8–10 different exercises involving the main muscle groups.

Type. The type of exercise depends on which fitness component should be developed and on personal fitness goals. To develop cardiorespiratory endurance, the performer needs to engage in continuous activities involving large-muscle groups, such as walking, jogging, cycling, or swimming. Resistance exercises develop muscular strength and endurance, while stretching exercises develop flexibility.

Recovery

The organism adapts to specific training stimuli over time (e.g., three or more weeks) until a plateau is reached. To progress with training loads and stimulate new gains without risking injury or overtraining, it is necessary to organize training sequences alternating with recovery periods. Recovery is therefore essential. To enable recovery, training sessions must alternate between heavy, light, and moderate. It is also necessary to consider the duration of the rest intervals between the exercises and the series according to the intensity of the training, the objectives, the level of fitness, and the targeted energy systems to train.

A key concept underlying the application of training stimuli is the adaptation syndrome. The initial response to a training stimulus is marked by a reduced performance capacity caused by accumulated fatigue, muscle soreness, muscle stiffness, and reduced energy reserves. During this phase, the adaptive responses of the organism are initiated. If the training load is structured appropriately, adaptive responses occur. The individual's energy reserves and performance return to the initial level or, as a result of training, they rise to a higher level (supercompensation). However, if the training load is excessive or applied incorrectly, performance will decrease due to excessive loss of energy, high fatigue and the consequent inability of the athlete to tolerate the stress of training. If this situation occurs, there is a high potential for overtraining.

The ability to obtain adaptive responses, and therefore to improve physical preparation, largely depends on the correct application of training loads and their modulation by alternating physical loads and recovery. Therefore, the goal of developing physical fitness and reducing cumulative fatigue depends on a correct periodization of training in which load and recovery are integrated.

Tedium

Sometimes athletes show little enthusiasm during training since the activities can be experienced as repetitive and boring. Consequently, athletes seem to be little interested in the task that is proposed to them or less committed to completing it. One way to prevent boredom and mental fatigue and to engage athletes more is to vary the content of the proposed activities, the working method, and the intensity and duration of the training programme. A training programme experienced as interesting and attractive tends to improve motivation, involvement, and commitment in the task.

ORGANIZING A TRAINING SESSION

The three basic components of each training session are the warm-up, the conditioning or technical phase (this is the main phase of the practice) and the cool-down. Workouts should always start with some warm-up exercises so that the body is better prepared to face the challenges that will be presented by the next main phase. Workouts should also end with cool-down exercises, which allow the athlete to return to resting levels after the main phase.

Warm-up and cool-down phases are the periods of metabolic and cardiorespiratory adaptation from rest to exercise and from exercise to rest, respectively. The most appropriate types of warm-up and cool-down are activities similar to the conditioning activities (in sessions focused on physical conditioning), performed at approximately 50% of the stimulus intensity. Adequate warm-up can improve performance and reduce the risk of injury. Cool-down also reduces the risk of injury and helps eliminate metabolic waste from skeletal muscles.

Stretching

Stretching exercises are often a key component of warm-up and cool-down and are essential for improving flexibility. There are many benefits in improving flexibility. These include reduced muscle tension and increased relaxation, smooth movement and better

coordination, wide range of movement, injury prevention, enhanced body awareness, improved blood circulation and air exchange, reduced muscle viscosity which facilitates muscle contractions, and reduced pain from exercise.

Appendix 1 contains examples of stretching exercises aimed at improving flexibility.

Several guidelines should be kept in mind when performing stretching:

- Warm up before stretching. The increase in body temperature facilitates the process of extending and stretching the muscles and connective tissue around the muscles.
- Determine the posture or position to be achieved and assume a position and alignment of the appropriate body segments before stretching.
- Do proper breathing. Inhale through your nose and exhale through pursed lips during stretching.
- Progress slowly, in a comfortable position, from a relaxation phase to a deep stretching phase. You should feel a slight tension right in the desired area.
- Hold the final position progressively reached for 30-90 seconds and take deep breaths.
- Exhale and feel the muscles being stretched relaxed and softened in order to obtain an additional range of movement.
- Continue to focus on breathing when the slight discomfort caused by stretching increases.
- Repeat the inhale–exhale–stretch cycle until the end of the exercise.
- Do not bounce or spring while stretching.
- Do not force a stretch while holding the breath.
- Increase stretching amplitude during exhalation to attain full-body relaxation.
- Slowly regain your initial posture and allow your muscles to return to their natural extension.

Core Strength

Core strength refers to the abdominal and back muscles and their ability to support the spine and keep the body stable and balanced. Core stability is important in sports, especially in shooting sports.

Performing core stabilization exercises helps shooters develop better posture and balance as well as prevent injury. Examples of core stabilization exercises are provided in *Appendix 2*.

One of the best techniques for developing core stability is Pilates. The exercises contained in Appendix 2 can be performed using the Pilates method. Here are some basic principles:

- *Breathing*. Most Pilates exercises are coordinated with the breath. Breathing deeply allows to create the proper flow and precision of each movement.
- *Centering*. This is fundamental for all Pilates exercises. Centering can be accomplished by contracting the stomach muscles, pulling them towards the spine.
- *Controlling*. Each exercise is performed with full muscle control. Having control of body movements improves body awareness.
- *Being precise*. Precision is at the basis of every movement. Each exercise involves positioning and relative alignment with respect to other parts of the body.
- *Stabilizing movements*. Stabilizing movements involves keeping one part of the body still while another is working. Stabilizing the lower back so as not to lift the hips while lifting the legs is an example of stability.

SUMMARY

Along with technical and mental preparation, good shooting performance involves goal-oriented physical preparation. To be effective, physical training programmes must adhere to several fundamental principles contained in the acronym AID-SPORT (i.e.,

Adaptability, Individual Differences, Specificity, Progression, Overload, Recovery, and Tedium).

One of the key principles of training is overload. This means that when athletes adapt to existing training loads they have to work harder to improve. The amount of overload required to maintain or improve fitness level is determined by four dimensions represented by the acronym FITT (Frequency, Intensity, Time, and Type).

The principles of training are applied to enhance the athletes' level of health-related fitness (i.e., cardiorespiratory endurance, muscular strength, muscular endurance, and flexibility) and sport-related fitness (i.e., strength, endurance, speed, flexibility, power, reaction time, coordination, balance, and agility).

Flexibility and core strength are of particular importance in shooting sports. Several examples of exercises aimed at improving flexibility and core strength are contained in Appendices 1 and 2.

Suggested Readings

American College of Sports Medicine (2018). ACSM's guidelines for exercise testing and prescription (10th ed.). Philadelphia, PA: Wolters Kluwer Health.

Bompa, T. O., & Buzzichelli, C. A. (2019). Periodization training for sports: Theory and methodology of training (6th ed.). Champaign, IL: Human Kinetics.

Bushman, B. (Ed.). (2017). ACSM's complete guide to fitness & health (2nd ed). Champaign, IL: Human Kinetics.

Isacowitz, R., & Clippinger, K. (2020). Pilates anatomy (2nd ed.). Champaign, IL: Human Kinetics.

McGuigan, M. (2017). Monitoring training and performance in athletes. Champaign, IL: Human Kinetics.

Nelson, A. G., Kokkonen, J. (2021). *Stretching anatomy* (3rd ed.). Champaign IL: Human Kinetics.

U.S. Department of Health and Human Services (2018). *Physical activity guidelines for Americans* (2nd ed.). Washington, DC: U.S. Department of Health and Human Services.

Self-Evaluating Questions

- What are the components of fitness related to health and sport?
- Why is the training load principle so important in sport?
- What is the relationship between core strength and balance in shooting?
- What does the FITT acronym mean?
- What does the AID-SPORT acronym stand for?
- Provide a definition of some key terms related to physical fitness (e.g., cardiorespiratory endurance, muscular strength, muscular endurance, flexibility).
- Discuss how to apply the overload principle in training.
- Describe the basic components of a training session.
- Describe the main guidelines for improving and maintaining fitness levels in children and adolescents.
- Describe the main guidelines for improving and maintaining fitness levels in adults.
- Explain the beneficial effects of cardiorespiratory endurance, muscular strength, and muscular endurance in shooting.
- Describe the benefits deriving from stretching exercises.
- Discuss some main guidelines to follow when performing stretching.
- Discuss the advantages of improving coordination and balance in shooting.
- Describe the benefits deriving from core strength.
- Discuss some main guidelines to follow when performing Pilates.

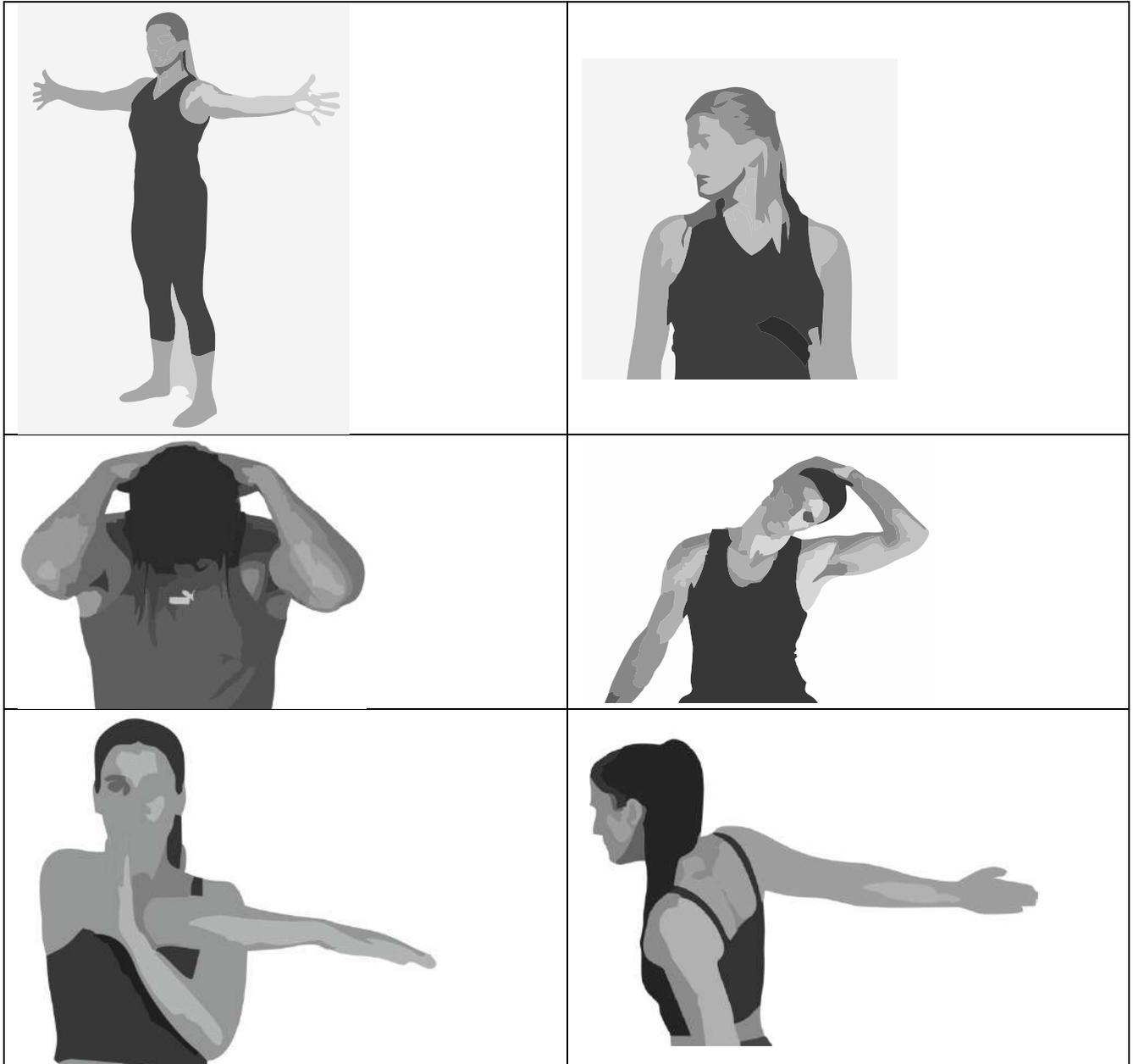
Practical Activities in the Field to Apply the Principles of Physical Training

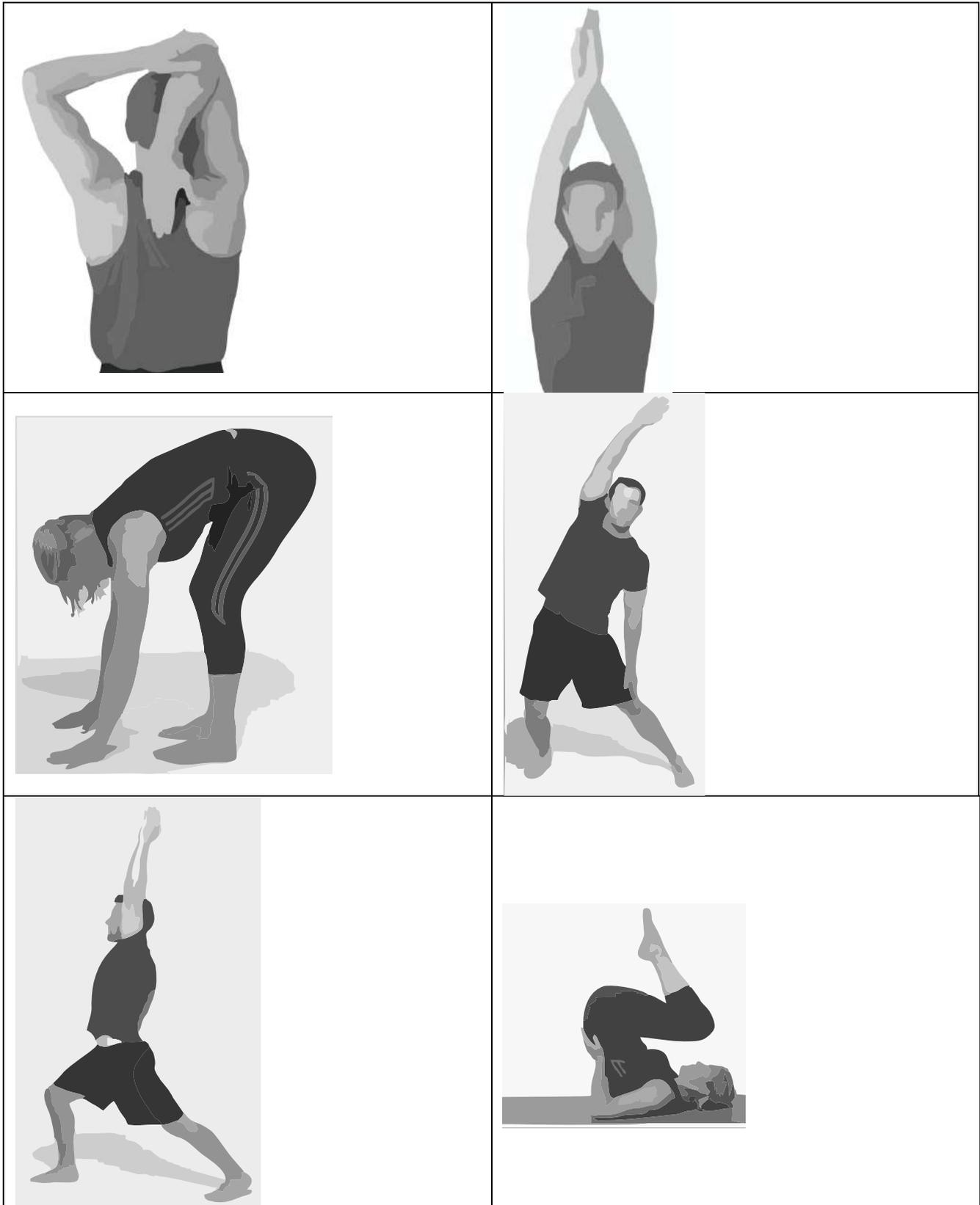
- Involve your athletes in a series of stretching exercises to improve their range of motion.
- Organize a training session to improve cardiorespiratory endurance, muscular strength, and muscular endurance of shooters.
- Provide examples of warm-up and cool-down exercises to use before and after a shooting session.
- Organize a training session aimed at improving the coordination and balance of the shooters.

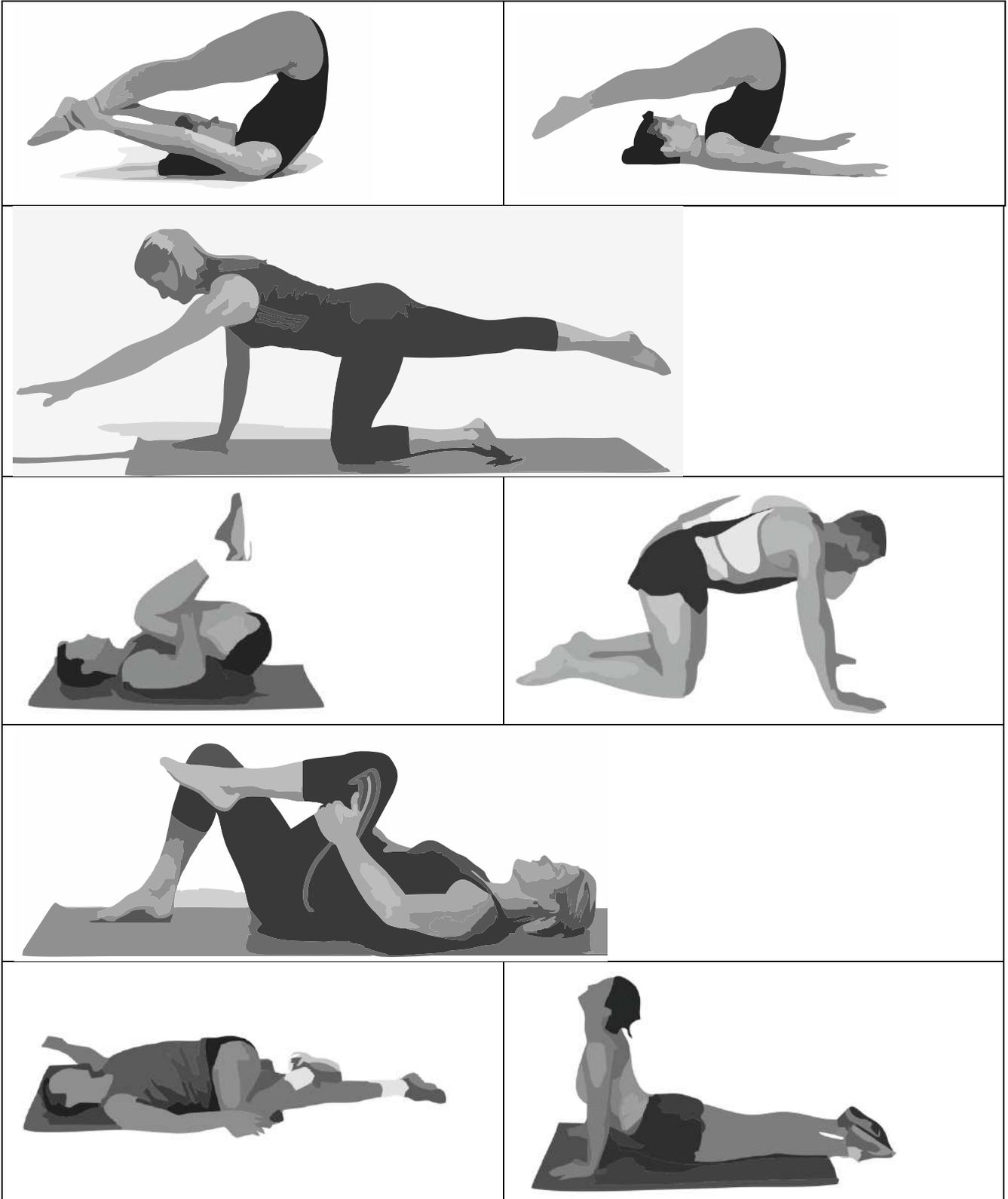
Power Point Presentation

Slides 60 to 75.

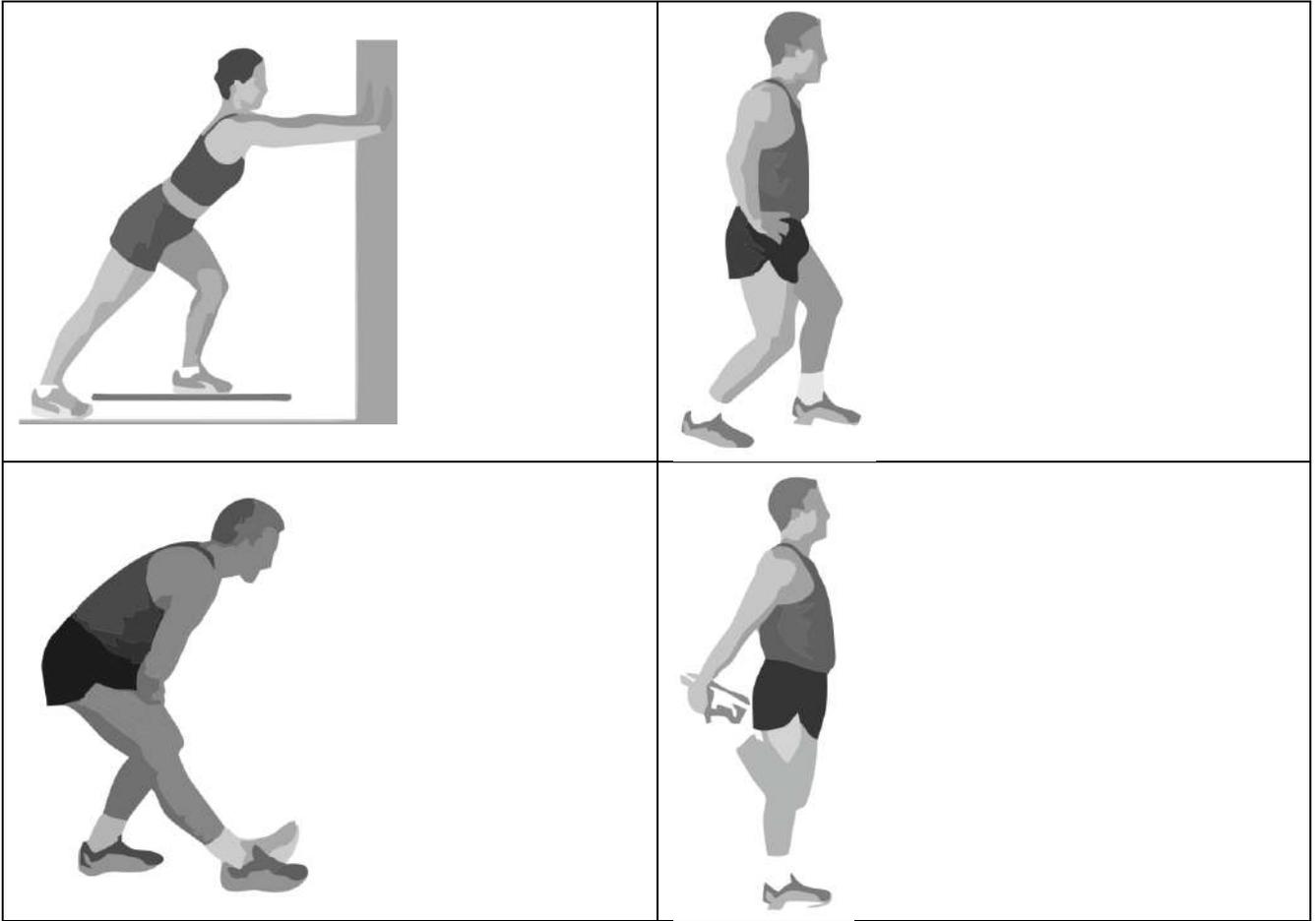
APPENDIX 1. STRETCHING EXERCISES











APPENDIX 2. CORE STABILIZATION EXERCISES

