Routledge Handbook of Applied Sport Psychology
A comprehensive guide for students and practitioners
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Publication details
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Published online on: 13 Oct 2010

How to cite :- Ronnie Lidor. 13 Oct 2010, Pre-performance routines from: Routledge Handbook of Applied Sport Psychology, A comprehensive guide for students and practitioners Routledge
Accessed on: 20 Jul 2023
Pre-performance routines

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Skilled athletes who regularly perform sporting acts such as shooting free throws in basketball, swinging in golf, and serving in tennis or volleyball demonstrate a consistent use of behavioral routines prior to performance. It seems that they attempt to repeat the same patterns of behavior each time they perform; they don’t try to vary these routines, but perform them as fixed rituals. For example, when looking at mega-star athletes such as Cristiano Ronaldo, Kobe Bryant, or Serena Williams, one can observe that they all use some kind of well-established preparatory routine before performing their respective sporting acts – the 11-meter penalty kick in soccer, the free throw in basketball, and the serve in tennis. Scientific and anecdotal evidence suggests that preparatory routines can help performers attain better achievements, if they practise the routines consistently.

The purpose of this chapter is threefold: first, to briefly review the experimental, observational, and anecdotal evidence supporting the use of pre-performance routines in self-paced tasks; second, to present the instructional foundations of a three-phase model for teaching pre-performance routines, including two practical examples of how to use this model; and third, to provide practical tips for sport psychology consultants who work with athletes on developing pre-performance routines.

Pre-performance routines: definition and settings

A pre-performance routine has been defined as a set of physical and psychological behaviors that is used prior to the performance of self-paced events (Lidor & Mayan, 2005). This set is typically composed of motor, cognitive, and emotional behaviors that are regularly performed immediately before the execution of self-paced tasks. The resulting routine is part of an athlete’s repertoire when preparing to perform.

Self-paced events are those that take place in relatively stable and predictable settings, where adequate time is given to prepare for their execution (Lidor, 2007). Examples of these events are golf strokes, a penalty kick in football, and diving (springboard or platform). Table 56.1 presents a number of self-paced sport tasks in which performers are provided with short-duration time intervals (e.g., 3–20 s, according to the rules of a given sport),
to prepare themselves for these acts. In these events, performers know in advance what they are going to do, how they are going to do it, and how much time they have to prepare. They activate a ritual of physical and psychological behaviors, or what is termed in this chapter a “pre-performance routine.”

### The use of pre-performance routines in self-paced tasks: scientific and anecdotal support

The usefulness of pre-performance routines in self-paced tasks has been indicated in scientific investigations as well as in anecdotal reports from elite performers, leading coaches, and sport psychology consultants.

#### Scientific support

Scientific evidence suggests that pre-performance routines are an effective means of promoting physical and psychological readiness prior to the execution of self-paced sport skills (Lidor, 2007; Lidor & Mayan, 2005). Data supporting the use of preparatory routines have emerged from two types of studies: observational and experimental. In observational studies, researchers observe performers’ overt patterns of behaviors in natural settings, such as when athletes are preparing themselves for self-paced tasks in actual competitions or games (Thomas & Nelson, 2005). In this type of study, the observer (i.e., the researcher) can accurately and authentically describe behaviors that those skilled athletes exhibit before they perform self-paced tasks. In experimental studies, the researcher can manipulate conditions or treatments that have the potential to enhance behavior (Thomas & Nelson, 2005). In the case of pre-performance routines, one of the objectives of researchers has been to examine the influence of a given physical/psychological routine on sport performance.

#### Observational studies

In one typical observational study, Crews and Boutcher (1987) looked at pre-shot routines for two shots in golf – the full swing and putting – in 12 tour players of the Ladies Professional Golf Association. They found that all the players were consistent in their

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### Table 56.1 Self-paced skills and the time periods allowed for preparation.

<table>
<thead>
<tr>
<th>Self-paced skills</th>
<th>Official preparation time (sec)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free-throw shot (basketball)</td>
<td>5</td>
<td>International Basketball Federation (2008)</td>
</tr>
<tr>
<td>7-meter throw (handball)</td>
<td>3</td>
<td>International Handball Federation (2005)</td>
</tr>
<tr>
<td>Serve (volleyball)</td>
<td>8</td>
<td>Fédération Internationale de Volleyball (2004)</td>
</tr>
<tr>
<td>Serve (tennis)</td>
<td>20 before the first serve; No preparation time available before the second serve. The server should serve without delay.</td>
<td>International Tennis Federation (2008)</td>
</tr>
</tbody>
</table>
PRE-PERFORMANCE ROUTINES

pre-shot behaviors and the time they used to prepare themselves for the strokes. Some of
the patterns of behaviors observed prior to each stroke included: standing behind the
ball, setting the club behind the ball with one glance at the target, and setting the feet.
The authors also found that the more successful golfers used longer periods of time in
preparing for the strokes. Precise information on athletes’ patterns of behaviors before
performing other self-paced tasks can be found in studies on free-throw shots in basketball
(Wrisberg & Pein, 1992), serving in volleyball (Lidor & Mayan, 2005, Study 1), and
kicking in rugby (Jackson, 2003).

Two conclusions can be made based on the observational data collected in the studies
on pre-performance routines. First, skilled performers maintain a consistent set of physical
(e.g., positioning, setting the body/body parts, holding the ball/club/racquet, dribbling)
and psychological (e.g., external attentional focus, imagery, self-talk) routines during
the preparation time provided to them for a given self-paced act. Second, although different
performers in a given self-paced act use different routines, a number of physical and
psychological behaviors are common among performers.

Experimental studies

Experimental studies have examined the effectiveness of pre-performance routines in
self-paced events such as free throws in basketball (e.g., Southard & Miracle, 1993),
strokes in golf (e.g., Beauchamp, Halliwel, Fournier, & Koestner, R., 1996), and serves in
volleyball (Lidor & Mayan, 2005, Study 2). Two manipulations were typically performed in
these studies: manipulations of the regular routines used by the performers (mainly physical
routines), and manipulations of imposing psychological routines (e.g., focusing attention,
imagery, relaxation) on athletes. When examining the results of the experimental studies on
preparatory routines, two main observations can be made. First, imposed pre-performance
routines such as external focusing-attention, imagery, and relaxation can facilitate accuracy
of self-paced tasks. Second, maintaining a consistent sequence of pre-performance routines
can result in improved levels of proficiency.

Anecdotal support

Additional support for the use of task-pertinent pre-performance routines can be found in
anecdotal evidence. Elite athletes, experienced coaches, and sport psychology consultants
have all developed pre-performance routines for self-paced tasks. For example, Larry Bird,
the basketball legend and former NBA coach, advised his beginning and advanced
basketball players to follow a six-step routine when preparing themselves for a free-throw
shot (Bird, 1986). Among the steps in his routine were: getting ready (i.e., feeling relaxed
and confident when going to the line), getting set (i.e., being in balance at the line),
and aiming (i.e., concentrating on the target). For the same skill, the combined efforts of a
sport psychology consultant and another leading college basketball coach resulted in the
establishment of a six-step routine composed of both physical and psychological elements
(Burke & Brown, 2003). Among the physical routines were getting into position at the
line, taking a deep breath while holding the ball, and staring at the rim. Examples of the
psychological routines were using quick imagery and counting each dribble performed
before the shot.

For the swing in golf, Coop and Fields (1993) developed a pre-shot routine consisting of
five steps including signaling entrance to the concentration zone, choosing an intermediate
target on the intended line of the shot, and providing a cue or thought that would allow the player to give up voluntary control of the swing and shift to involuntary action.

For another self-paced task, serving in tennis, Yandell (1999) developed a pre-shot visualization technique focusing on four core serving elements: the ready position, the racket drop, the contact point, and the finish position. Servers create images of these elements to build effective physical and mental models of these patterns of movements. Loehr (1990), who observed elite tennis players’ patterns of behavior between points, proposed another pre-performance routine for serving in tennis. According to his observations, servers should use visualization and relaxation techniques to ready themselves psychologically for the serve, as well as for maintaining a physical routine such as bouncing the ball a minimum of two or three times prior to the serve, and pausing just after the last bounce.

Based on this anecdotal evidence we can conclude that practitioners recommend using physical and psychological routines prior to the execution of self-paced sport tasks. Their practical recommendations are in line with most of the findings from observational and experimental studies; namely, that performers could benefit from developing a consistent set of behaviors, and that this set should match their needs and preferences.

Benefits of the use of task-pertinent pre-performance routines

There are a number of explanations for the benefits obtained through the use of task-pertinent preparatory routines. First, performers are able to establish plans of action before they perform their self-paced tasks. They can plan in their minds what needs to be done, how it should be done, and how long it will take them to do it. In essence, pre-performance routines serve as a last-minute preparation for the act. Second, performers can stay focused and overcome external distractions (e.g., noise generated by the audience) and negative internal thoughts (e.g., “I am going to miss this shot”; Moran, 1996). In this respect, the process of focusing attention is enhanced. Third, performers feel in control over what they are doing (Lidor, 2007). They feel that by performing their systematic physical and psychological routines they will be ready to perform and can achieve their best.

Three-phase model for teaching pre-performance routines

Based on empirical inquiries and anecdotal evidence, some of which have been reviewed in this chapter, I am proposing a three-phase model for teaching pre-performance routines. The model contains the following phases: preliminary preparatory instructions (Phase 1), task-specific preparatory instructions (Phase 2), and preparatory instructions for the real-life self-paced event (Phase 3). Detailed information on this model can be found in Lidor (2007).

Phase 1: preliminary preparatory instructions

The objective of Phase 1 is to expose learners to basic fundamentals of both physical and psychological preparatory routines associated with self-paced tasks. It should be explained to learners that preparatory routines are integral to self-paced tasks. The verbal instructions given to the learners, combined with a set of actual demonstrations (i.e., modeling) of the task, should convince them that the routines need to be an integral part of the task. In this phase, learners are provided with various opportunities for practising different routines.
They are told what the typical routines are that can be performed before the task, and are provided with the instructional opportunities to practise all of them. They need to experience different physical and psychological routines to be able to select the most appropriate ones for them. Phase 1 of the model reflects a collaborative instructional process. For example, one of the instructional objectives of sport psychology consultants is to determine which routines the athletes prefer to use, and what they actually think about the new routines they are trying to adopt. The perceptions and thoughts of the learners about what might be the most effective routines for them should be considered in the initial phase of the preparatory instructions.

During this phase of learning, emphasis should be made on the psychological routines (e.g., focusing attention, imagery, self-talk) that the learners perform prior to the self-paced event. The physical preparatory routines can be naturally integrated into the specific learned task, for example dribbling before serving in volleyball (Lidor & Mayan, 2005), or dribbling before shooting free throws in basketball (Lidor, 2009). Nevertheless, this “natural fit” may not be the case with psychological routines: learners may have difficulty integrating psychological skills into the learning process if they are not explicitly taught how to do so (Sinclair & Sinclair, 1994). Therefore, learners should not be only instructed how to apply psychological routines such as imagery and external focusing/attention, but must also be provided with enough time to practise these routines so that they will be able to select the ones most appropriate for their own use.

**Phase 2: task-specific preparatory instructions**

The objective of this phase is to enable learners to adopt a consistent set of physical and psychological routines that best reflect their individual needs and preferences. After practising and experiencing different physical and psychological routines during Phase 1, in Phase 2 learners should select one set of physical and psychological routines that will be performed each time they ready themselves for a specific self-paced event. Athletes should feel comfortable in performing their selected set of routines; they should feel that this set is an integral part of the learned/performed self-paced task.

Sport psychology consultants can motivate learners to adopt a set of preparatory routines by sharing with them those routines that skilled athletes regularly perform. They can run videos of well-known athletes who are preparing themselves for self-paced acts, and discuss what the most salient physical elements are that these athletes consistently use in their routines. Instructors in this phase can also use findings from observational studies examining the use of physical routines in skilled performers (e.g., Lidor & Mayan, 2005, Study 1). As in Phase 1, emphasis is placed on adopting a consistent set of psychological routines prior to the execution of the self-paced task. These routines should be practised repeatedly until the athletes feel comfortable using them in real self-paced events, namely those that occur in competitions and games.

**Phase 3: preparatory instructions for the real-life self-paced event**

The objective of this phase is to enable athletes to practise their selected preparatory routines in settings that reflect the actual real-life self-paced events they may potentially face in competitions and games. In this phase, the routines are practised while taking into account two situational conditions: time constraints and external distractions. In most self-paced events, performers face time constraints when preparing themselves for the act.
For example, according to the rules of international basketball, players standing on the free-throw line are allowed 5 seconds to prepare themselves for the free-throw shot after receiving the ball from the official (International Basketball Federation, 2008). While practising preparatory routines before self-paced tasks, learners should ensure that the physical and psychological routines they have selected can be performed within the allowed preparatory time intervals.

In this phase, learners should also practise their routines under distracting conditions, such as loud crowd noises. Whereas in Phases 1 and 2 the athletes practise the routines under relatively relaxed learning conditions, in Phase 3 they are taught to use the routines in more challenging situations. For example, in real-life ball games, players who are preparing themselves for self-paced events are typically faced with external distractions from players on the opposing team (e.g., “trash talk,” hostile verbal behavior), as well as noise generated by the crowd. Practising the routines under challenging conditions should help learners effectively transfer them to real-life events, particularly if the training situations are similar to the ones they will face in actual competitions.

**Applying the teaching model to sport skills**

I have selected two self-paced sport skills, shooting free throws in basketball and performing a golf stroke from a tee, to demonstrate the use of the proposed model in teaching pre-performance routines. The reason these skills were selected is that there is a considerable amount of scientific and anecdotal support for the effectiveness of the physical and psychological routines accompanying these skills.

**Shooting free throws in basketball**

Pre-performance instructions are given for each phase. In each phase, instructions are given separately for developing the physical and psychological components of the routines.

**Phase 1: preliminary preparatory instructions**

The objective of this phase is to help learners practise those behaviors that they may use while standing at the free-throw line and preparing themselves for the shooting act. Learners should experience various physical and psychological behaviors before selecting one set of behaviors that they will use consistently prior to each shooting attempt. Nevertheless, for shooters to effectively perform the proposed physical and psychological routines, they can start using them from the moment they know that they are going to make a free-throw shot (e.g., after the player has been fouled). Lidor (2006) found that approximately 19 seconds (unofficial pre-performance time) were available to adult and youth basketball players before the ball was actually handed to them by the referee. During this interval, players went to the free-throw shooting area, and while waiting at the shooting line they bent their knees, wiped their hands with a towel, and adjusted their shorts and tops. When standing at the free-throw line shooters also used this unofficial pre-performance time to imagine themselves performing the shot, focus attention at the rim, and verbalize selected cue words, such as “calm” and “focus.” Appropriate use of the unofficial pre-performance interval can create a longer period of time for preparation, and therefore benefit those performers who may need additional time for readying themselves for the free-throw shot.
Physical routines

While at the free-throw line, learners should:

- search for the most comfortable area facing the rim;
- decide on the most comfortable readying position;
- dribble the ball while standing at their preferred position: the number of dribbles should be varied – 2 dribbles, 3 dribbles, 4 dribbles – according to the number that is most comfortable for the player;
- hold the ball while inhaling deeply and exhaling slowly: The time of holding should be varied – 1 s, 2 s;
- spin the ball with the hands; time of spinning should be varied – 1 s, 2 s – shoot the ball at the basket.

Psychological routines

While standing at the free-throw line, learners should:

- search for the most appropriate area at the front of the rim for an external focus of attention;
- image themselves shooting the ball while focusing attention at the front area of the rim;
- decide on verbal cues to be used before each shot; athletes should experience the use of different words, or short sentences, which they would feel comfortable verbalizing while preparing themselves for the shot.

Phase 2: task-specific preparatory instructions

The objective of this phase is to enable learners to establish a consistent set of physical and psychological routines that they will perform before each free-throw attempt. After experiencing different routines in Phase 1, one routine composed of both physical (e.g., dribbling the ball four times consecutively, holding the ball for two seconds) and psychological (e.g., imagining a successful shot for two seconds, verbalizing the word “high”) behaviors should be selected. Learners should be aware of the established order of both the physical and psychological components in the routines they use. They should also use structured self-reflection for assessing the contribution of the selected routines to their shooting performance. Emphasis should be made on consistent use of the selected routine, regardless of the outcome of the shot.

Phase 3: preparatory instructions for the real-life self-paced event

The objective of this phase is to enable learners to practise the established routines under challenging conditions. In this phase the periods of time used by shooters prior to each free-throw attempt after they receive the ball from the referee should be measured, to ensure that they do not use more time for preparation than the time intervals allowed according to the rules of the game (i.e., 5 s). In addition, shooting attempts should be made under distracting conditions, such as noise generated by a tape recorder located about 2-3 m from the shooter, or verbal interference made by the sport psychology consultant or teammates (e.g., “you are...
going to miss the shot,” “think what happens if you miss this shot”). As in Phase 2, emphasis should be made on consistent use of the routines before each shooting act.

**Performing a golf stroke from the tee**

Pre-performance instructions are given for each phase, and for the physical and psychological routines separately in each phase.

**Phase 1: preliminary preparatory instructions**

The objective of this phase, as in the basketball free-throw example, is to enable golfers to practise those behaviors that they may use while standing behind/beside the tee (ball) and preparing themselves for the stroke act. Learners perform various physical and psychological behaviors before selecting one set of behaviors they will regularly use prior to each tee shot.

**Physical routines**

While standing behind/beside the tee (ball), learners should:

- search for the most appropriate distance from the ball;
- select the most comfortable readying position behind/beside the ball;
- set the feet;
- set the club;
- set the grip;
- perform a number of continuous practice swings – 1 swing, 2 swings, or 3 swings, according to the number that is most comfortable for the player;
- inhale deeply and exhale slowly (take a deep diaphragmatic breath);
- swing the club to contact the ball.

**Psychological routines**

While standing behind/beside the ball, learners should:

- look at the target;
- imagine themselves hitting the ball while at the same time glancing at the target;
- decide on verbal cues (e.g., “I am ready,” “distance,” “go”) to be used before each stroke.

**Phase 2: task-specific preparatory instructions**

The objective of this phase is to enable learners to develop a fixed set of physical and psychological routines they will use prior to each stroke. A developed routine may be composed of physical components such as one comfortable readying position and a fixed number of continuous practice swings, and psychological components such as looking at the target and imagining a successful stroke.
Phase 3: preparatory instructions for the real-life self-paced event

In this phase, learners practise their established golf routines under challenging conditions. For example, routines should be performed while playing on different courses and at different distances from the target. As in Phase 2, emphasis should be made on consistent use of the routines, regardless of the outcome of the stroke.

The routines proposed for free-throw shots in basketball and strokes in golf reflect both scientific and anecdotal evidence. These routines illustrate a few physical and psychological behaviors that can be used effectively by performers readying themselves for self-paced events. Performers can develop other task-pertinent routines according to their needs and preferences. They should spend time not only on developing their routines, but also on practising them repeatedly so that they will become an integral part of the self-paced task. The three-phase model proposed in this chapter can help performers plan effective learning environments for pre-performance routines. A number of practical suggestions for teaching routines are given in Box 56.1.

Box 56.1

Practical suggestions for teaching pre-performance routines

- Effective pre-performance routines should be composed of both physical and psychological components. Practice should be devoted to both components.
- Physical routines (e.g., positioning, dribbling, holding the ball) are perceived as an integral part of the self-paced skill. These routines can be presented to the learner as part of the physical and technical foundations associated with the task.
- Instructional effort should be made to develop task-pertinent psychological routines. Routines such as an external focus of attention, imagery, or self-talk should be presented at early phases of learning, and integrated naturally into the physical routines (e.g., focusing attention at the rim while dribbling the ball before shooting a free-throw shot).
- Athletes should experience various physical and psychological routines at early phases of learning before selecting one fixed routine.
- Instructors should encourage learners to use the physical and psychological routines demonstrated by skilled performers, but these routines should be modified according to the learners’ own preferences.
- Athletes should practise their selected routines not only under relaxed learning conditions (Phases 1 and 2 of the proposed model), but also under distracting conditions (Phase 3) that reflect actual competition and game situations.

References


