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INVESTIGATING PSYCHOLOGICAL PREPARATION IN SHORT DISTANCE RUNNERS

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Abstract

Psychological preparation may help sprinters express their physical capacity under competitive pressure, but its effectiveness requires assessment through both psychological measures and objective race outcomes. This narrative review examines evidence on attentional focus, self-talk, race planning, imagery, and competitive anxiety, with emphasis on the 100 m and implications for the 200 m and 400 m. Seven peer-reviewed publications were selected for their relevance to sprint performance, psychological assessment, or intervention evaluation. Sprint experiments support testing concise, task-relevant cues, while broader sport research suggests potential benefits of mental skills training. However, small samples, differences in expertise, and sensitivity to study quality limit generalization. A prospective framework is proposed that combines repeated anxiety and confidence assessments with electronic timing and an individualized training programme. The central recommendation is to evaluate psychological preparation as a measurable, practiced component of sprint training. Its value should be judged by reproducible performance changes and athletes' responses rather than by a universal ideal level of confidence or arousal.

Keywords: sprinting; psychological preparation; competitive anxiety; attentional focus; self-talk; mental skills training.

Introduction

Sprint performance creates a demanding setting for studying psychological preparation because athletes must execute a familiar movement sequence rapidly after the starting signal. Preparatory thoughts, responses to pressure, and the focus of coaching instructions are therefore relevant research variables. Nevertheless, psychological readiness cannot be inferred from finishing position alone: physical conditioning, technical skill, fatigue, and environmental conditions also influence the result. An assessment should connect an athlete's reported experience with specific, observable features of performance.

This paper defines psychological preparation as the deliberate development and use of skills that regulate attention, thoughts, and emotional responses before and during competition. Psychological readiness denotes the athlete's state at a particular performance opportunity. Distinguishing these concepts allows researchers to examine whether repeated preparation changes readiness and whether those changes coincide with more effective race execution. The objective is to synthesize relevant evidence and formulate a feasible approach for studying these relationships in trained sprinters.

Review approach

A focused narrative review used targeted searches of indexed research records and journal websites for sprinting, psychological preparation, attentional focus, self-talk, and competitive anxiety. Selection prioritized sprint experiments, a validated assessment instrument, and quantitative intervention reviews. Findings were compared by population, task, outcome, and design limitations. This is a selective synthesis, not a systematic review or a report of newly collected athlete data.

Evidence on psychological preparation

Attentional focus and sprint starts

Porter et al. (2015) examined 20 m sprinting in 84 college-aged volunteers without prior sprint training. Their counterbalanced experiment found an advantage for external attentional instructions over internal or control instructions. External focus directs attention toward the intended movement effect, whereas internal focus directs it toward body movements. This supports a practical hypothesis

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about coaching language, although findings in inexperienced participants cannot establish the same benefit in elite competition.

Kovacs et al. (2018) studied 12 collegiate track sprinters and found shorter rear-foot reaction and premotor response times with an external focus. Motor reaction time did not differ across conditions. The pattern is consistent with an effect on movement preparation rather than a demonstrated change in muscle contraction processes. The measured starting response must also be distinguished from complete race performance; improving one component does not guarantee an equivalent improvement in the final time.

Li et al. (2022) pooled six studies involving 166 participants and reported a small advantage of external over internal focus for sprint performance (Hedges' g = 0.279, 95% confidence interval 0.088 to 0.470). The high-skill subgroup did not show a statistically significant effect, but the difference between skill subgroups was also not significant. Consequently, the evidence does not justify claiming that experienced sprinters cannot benefit. It supports individualized testing while acknowledging uncertainty about expertise and competition transfer.

Self talk and race planning

A race plan can organize attention around a few practiced cues. In a multiple-baseline study of 12 elite sprinters, Mallett and Hanrahan (1997) reported improved 100 m performance and consistency after introducing a cognitive race plan. The small sample and possible environmental, effort, and practice influences limit causal interpretation. The study nevertheless provides a directly relevant basis for investigating whether a brief cue sequence helps athletes reproduce their intended execution.

Across sports, Hatzigeorgiadis et al. (2011) found a moderate average effect of self-talk interventions in a meta-analysis of 32 studies. Effects varied with task characteristics, and interventions that included self-talk practice were more effective than those without such training. For sprinters, this suggests rehearsing a small number of personally meaningful phrases during normal sessions. Examples such as "push the track away" or "through the line" are proposed coaching options, not universally validated instructions.

Imagery and emotional regulation

Reinebo et al. (2024) reviewed 111 studies of competitive athletes. Their syntheses suggested benefits from psychological skills training, mindfulness and acceptance approaches, and imagery. However, effects were no longer statistically significant after excluding non-randomized studies and subjective performance outcomes. These findings support further testing rather than assured performance claims. A sprinter's imagery practice could rehearse the starting sequence and a response to delays, while emotional regulation could help the athlete return attention to the task.

Proposed framework for empirical study

A prospective study should recruit trained adult sprinters and specify one primary event, preferably the 100 m. The 200 m and 400 m should be analysed separately. Repeated baseline testing would precede random allocation to usual training plus a psychological programme or an attention-matched comparison. Sample size should follow an a priori calculation based on a practically meaningful time difference and measurement variability.

Assessment of readiness and performance

The Revised Competitive State Anxiety Inventory-2 (CSAI-2R) provides separate measures of cognitive anxiety, somatic anxiety, and self-confidence. Cox et al. (2003) developed and validated its 17-item structure. These subscales should be analysed separately rather than collapsed into an unsupported overall readiness score. Researchers should use an appropriate validated language version, follow its scoring guidance, and obtain any required permission. An Uzbek translation would

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require cultural adaptation and psychometric evaluation before equivalent measurement could be assumed.

Assessment should occur at a consistent interval before equivalent trials, outside the immediate start sequence. Fully automatic race timing should provide the primary outcome, with start response and early acceleration recorded as secondary outcomes when suitable equipment is available. Sleep, recent training load, warm-up, footwear, weather, and wind should be documented or standardized. A brief post-race interview can clarify whether the athlete used the intended strategy and what disrupted its use.

Intervention and implementation

A six-week programme is proposed as a practical research schedule, not an established optimal dose. During weeks one and two, the athlete and coach would identify pressure situations, agree on a process goal, and test one attentional cue. Weeks three and four would integrate short imagery rehearsals and practiced self-talk into sprint sessions. Weeks five and six would rehearse the same routine during competition simulations that include realistic waiting periods and distractions. Brief session records would document adherence, perceived usefulness, and unwanted effects.

The athlete would select a routine with the coach and a qualified sport psychology practitioner where available. A candidate sequence combines a check of current tension, a familiar regulating action, and a single task cue before the starting commands. The routine should preserve readiness for explosive effort; the study should not assume that the lowest anxiety score represents the best performance state.

Analysis and research safeguards

The primary analysis should estimate the between-group difference in change in electronically timed performance, using a repeated-measures model that accounts for observations nested within athletes. Confidence intervals, individual trajectories, adherence, and missing observations should accompany average effects. Timing reliability and typical trial variation should inform interpretation of small changes. Anxiety-performance associations would remain correlational unless the design supports a causal explanation. A follow-up assessment could test whether any improvement persists after supervised practice ends.

Ethics approval and informed consent would precede recruitment. Withdrawal without selection consequences and confidential psychological responses should be guaranteed. Outcomes and analyses should be preregistered. The present paper reports no original participant data.

Discussion and conclusion

The reviewed evidence supports studying psychological preparation alongside technical and physical training. The clearest sprint-specific question concerns how practiced cues influence preparation and execution. Researchers should also examine whether athletes can use these cues under pressure and whether reported confidence or anxiety changes correspond to objective performance. Findings from short acceleration tests require confirmation over the athlete's full competitive distance.

The proposed contribution is an integrated evaluation approach linking validated psychological assessment, race-phase observations, and repeated electronic timing. For coaches, the immediate application is to test a simple routine in training, record its use, and review its effects with the athlete. For researchers, the priority is adequately powered, preregistered studies with objective outcomes. Psychological preparation is a promising training component, but its effectiveness and suitable form should be established for the athlete and event concerned.

Limitations

This selective narrative review may omit relevant studies and does not provide a new pooled estimate. Several sprint experiments use small samples or inexperienced participants, and evidence

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from other sports is indirect. Women, different competitive levels, and the 200 m and 400 m require explicit consideration in future sampling. The proposed programme and study framework remain to be evaluated; they are recommendations for research rather than demonstrated results.

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