

Run Time and Perceived Performance Influenced by External Feedback in Endurance Athletes

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ABSTRACT

Purpose: Research on the impact of frequency of encouragement for run training has never been explored. To give insight into coaching methods for practices and competitions, knowing how much to encourage athletes is important. The purpose of this study was to gain insight into which amount of encouragement provides the most influence on running performance during training sessions for endurance runners. **Methods:** Twenty-three participants (8 males, 15 females) age 18-27 years (20.3 ± 1.8) performed two-mile runs on three occasions on an indoor track, separated by a rest period of at least one full day. The three conditions were: no verbal encouragement, minimal verbal encouragement (every 400 m), or maximal verbal encouragement (every 50 m). **Results:** Maximal encouragement resulted in faster run time (16.39 ± 2.0 minutes) than no encouragement (16.87 ± 2.4) ($p < .05$). Results for the minimal encouragement trial were not significantly different from maximal or no encouragement. Perceived performance, using a Subjective Exercise Experience Scale, Rating of Perceived Exertion, and an open-ended survey, was not significantly affected by the frequency of feedback. **Conclusion:** This study suggests that under some circumstances, running performance may improve with higher frequencies of encouragement.

PURPOSE

Encouragement has been studied in a variety of settings, but very little research has been conducted discerning whether increasing frequency of encouragement elicits improved endurance performance or perceived performance. The purpose of this study is to gain insight into which frequency of encouragement provides the most influence on running performance during training sessions for endurance runners.

INTRODUCTION

- Training is a necessity for all sports in order to prepare for competition and can be performed under differing conditions to produce a multitude of results depending on what the desired outcome may be.
- Exercise performance is affected during training by athletes' and coaches' attitudes, relative success and failures, teammate's behavior, and other psychological and physiological factors.
- Most sporting events include encouragement by spectators, coaches, and players to motivate athletes.

MEANS AND STANDARD DEVIATIONS

	N=23	N=23	N=23	F _(2,44)	P
	TRIAL NO	TRIAL MIN	TRIAL MAX		
Run Time	16.87*(±2.4)	16.77 (±2.1)	16.39*(±2.0)	4.94	.012
SEES Score	28.5 (±8.8)	28.3 (±10.6)	26.8 (±7.8)	.67	.52

METHODS

Subjects

- N=23 healthy, endurance runners consented, (15 females, 8 males) aged 20.3 ± 1.8 years (18-27).
- All subjects involved in some type of endurance exercise program at least 3 days/week for at least one hour duration with a moderate to vigorous intensity.
- Exclusion criteria included not complying to the protocol of taking a day of rest between trials and participants who were not endurance athletes.
- Participants were not given information about the major independent variable (frequency of encouragement).

Experimental Protocol

- There were three trials of a 2-mile run each separated by a day of rest.
- The participant wore a Polar Heart Rate Monitor and watch. Watch display was covered by tape so as not to affect running pace.
- Participant was instructed to complete a 400m warm up and then 16 laps at their "normal training pace".
- Researcher announced lap count completed by saying "1 lap down", "2 laps down", etc.
- Halfway through, the subject indicated RPE. Elapsed time and heart rate were recorded.
- As a cool down, the participant completed a 400m walk/jog.
- Completion of the Subjective Exercise Experience Scale (SEES, 7) questionnaire which measures psychological well-being, psychological distress, and subjective fatigue, finished testing.
- The questionnaire produces a score of 12 to 84, lower scores indicated a more positive experience and higher numbers indicated a worse experience. There were three open-ended questions as well.

Trial NO (Control)

- The only communication during the run was the lap count.

Trial MIN (400m Encouragement)

- The same researcher was present for all trials of that type. Laps completed was announced followed by the encouragement, and half of the time with the participant's name. Encouragement was given off of the script below.

1. Way to Go
2. Keep it Up
3. You're Doing Great
4. Nice Job
5. Woo Hoo
6. You Got This/It
7. Looking Good
8. Way to Work

Trial MAX (50m Encouragement)

- Four researchers administering encouragement, spaced 50m apart (on the four corners of the track) in the same order for all trials. Each researcher started at a different phrase on the above script.

SEES QUESTIONNAIRE AND SURVEY

Name _____
 Age _____
 Gender _____
 Weekly Run Mileage _____
 Average Running Pace _____ (if known)

The Subjective Exercise Experience Scale

By circling a number on the scale below following each item, please indicate the degree to which you are experiencing each feeling now, at this point in time, after exercising.

1 FEEL:	Not at all	Moderately	Very much
1. Great	1 2 3 4 5 6 7		
2. Awful	1 2 3 4 5 6 7		
3. Drained	1 2 3 4 5 6 7		
4. Positive	1 2 3 4 5 6 7		
5. Crummy	1 2 3 4 5 6 7		
6. Exhausted	1 2 3 4 5 6 7		
7. Strange	1 2 3 4 5 6 7		
8. Discouraged	1 2 3 4 5 6 7		
9. Fatigued	1 2 3 4 5 6 7		
10. Terrific	1 2 3 4 5 6 7		
11. Miserable	1 2 3 4 5 6 7		
12. Tired	1 2 3 4 5 6 7		

Follow-up Questions:
 Did you enjoy your run today? Why/Why not?
 Describe your performance. How did you feel about your performance today?
 What could have made it better? What could have made it worse?
 Overall, how is your day going today?

(1): Worst day possible
 (3): Worse than normal
 (5): Normal/Average
 (7): Better than normal
 (10): Best day possible

1 2 3 4 5 6 7 8 9 10

RESULTS

Performance

- Run time was significantly faster in TRIAL MAX than TRIAL NO ($p < .05$).
- Run time TRIAL MAX vs. TRIAL MIN approached significance ($p = .055$).
- Twelve of 23 subjects increased average speed during TRIAL MAX.

Perceived Performance

- SEES scores ranged from 14-57.
- TRIAL MAX produced better SEES scores, though not significantly.
- In TRIAL MAX, fewer participants mentioned not enjoying their experience (13%).
- Nine out of the 23 participants specifically mentioned the encouragement from the facilitators as helpful during TRIAL MAX.

SUMMARY AND CONCLUSIONS

- Encouragement may be utilized to improve performance during training. Increase in frequency of motivation can improve exercise performance.
- Future studies might include a greater variety of frequencies of motivation, different methods of study (running distance, different sports and physical activities, questionnaires), increase sample size, and different populations.
- Applications of these findings include coaching styles for training, continued motivation for the athlete to participate in the sport.
- If an athlete has a positive training experience, this will hopefully result in improved performance during a competition.

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