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Impact of Mental Toughness Programme on Recovery Stress among Male Long Distance Runners

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Abstract

Long-distance running, or endurance running, is a form of continuous running over distances of at least three kilometres. Physiologically, it is largely aerobic in nature and requires stamina as well as mental strength. The aim of this study was to determine the impact of mental toughness program on recovery stress among Long distance runners. To achieve the purpose of the study, twenty male Long distance runners have been randomly selected from various colleges in and around Sivagangai district, Tamil Nadu state, India. The age of subjects ranged from 17 to 29 years. The subjects had past experience of at least three years in Long distance runners and only those who represented their respective college teams were taken as subjects. The subjects were randomly divided into two equal groups of ten each such as experimental group and control groups. The mental toughness group participated in the mental toughness programme for 8 weeks, 3 days a week, one session per day. The control group maintained their daily routine activities and no special training was given. To find out the difference between the two groups paired't' test was used. The results of the study showed that there was significant differences exist between mental toughness training group and control group. And also mental toughness training group showed significant decrease on recovery stress level compared to control group.

Keywords: Long distance runners, mental toughness, recovery stress.

Introduction

'Mental toughness' is probably one of the most used but least understood terms used by sporting communities globally and, in particular, by their media. Loehr, (1986) was perhaps the first to popularise the term and he contended that at least 50% of superior athletic performance could be attributable to mental factors. Currently, within both scientific and coaching communities, mental toughness is now regarded as one of the most important psychological factors associated with achieving performance excellence in any sport. In order to be mentally tough on the race, one must have talent and be in peak physical condition. Once technical skills have to be sharp. It is also important to recognize that the physical, emotional and mental sides affect each other. Mental toughness training allows players to tap into emotional and mental resources that keep play at its prime as often and consistently as possible.

Loehr, (1994) is a noted sport psychologist who has worked with many top athletes over the last twenty years. He suggests the following definition for toughness: "Toughness is the ability to consistently perform toward the upper range of your talent and skill regardless of competitive circumstances". Toughness is not about having a "killer instinct" or being mean or cold. Loehr describes four emotional markers of mental toughness. Emotional Flexibility - The ability to handle different situations in a balanced or no defensive manner. Emotional flexibility also speaks to the skill of drawing on a wide range. Emotional Responsiveness - You are emotionally engaged in the competitive situation, not withdrawn. Emotional Resiliency - Being able to handle setbacks and recovering quickly from them. Like other aspects of mental toughness, these skills can be learned. It is not something genetic. For some players it comes more easily than for others. In general, to play at this level, you probably already have many of these skills. However, for many players, there is often room for improvement. By being mentally tough, you can bring all your talent and skill to life consistently. Being able to use your emotional life effectively will help you perform at your prime more consistently. The use of thinking skills, imagery, confidence building and other skills described later can be powerful techniques in reaching a high level of mental toughness.

Endurance performance is mentally tough; the best athletes can push themselves to sustain physical fatigue and remain psychologically positive over long distances and durations. But according to PP contributor Andy Lane, this doesn't happen by chance; endurance athletes can train the mind to develop emotional control. The medical community is still much undecided as to whether the benefits outweigh the risks of long. distance

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running. While more studies are needed, physicians typically consider a runner's age, size, and body mechanics before advising patients regarding long distance running. Almost anyone who has been properly trained, is well-nourished, wears with suitable footwear, and is not injured can complete a marathon. The human body is marvellously designed to adapt to the physical stresses of long distance running. However, before training for their first marathon, runners must understand the risks and then carefully determine for themselves whether the benefits outweigh the risks. (Rose and Gamble, 2006)

Thus, stress is understood as the total of organic adaptation reactions, which had the aim to maintain or re-establish the inner and/or outer balance. From the psychological point of view, stress is related to the activation of the cognitive functions and is generally understood as a psychological demand or mental activity Noce et al (2002). Recovery is a process through which the psychological consequences concerning stress, caused by previous activities, are balanced and the functional capacity restored (Renzland et al, 1988). It is a physiological, psychological and social process, and some of these systems can be trained while others are recovering (Simola et al, 2007). One of the most used variables in the monitoring of sports training programs, especially in high load phases is the stress and recovery perception through the recovery-stress questionnaire for athletes (RESTQ-Sport) (Maestu et al 2006). This variable has been mainly used in studies which investigate the correlation between different training loads and their effect on the psychological status in athletes of different sports modalities (Kellmann et al, 1999). Thus, the aim of the present study was to find out the impact of mental toughness of recovery stress among Long distance runners.

Methods

To achieve the purpose of the study, twenty *Long distance runners* have been randomly selected from various colleges in and around Sivagangai district Tamil Nadu state, India. The age of subjects ranged from 17 to 29 years. The subjects had past experience of at least three years in Long distance running and only those who represented their respective college teams were taken as subjects. The subjects were randomly divided into two equal groups of ten each such as mental toughness group and control groups. The experimental group participated in the mental toughness programme for 8 weeks, 3 days a week, one session per day. The control group maintained their daily routine activities and no special training was given. To find out the difference between the two groups paired't' test was used.

Instrument

The questionnaire (RESTQ-Sport-76), developed by Kellmann and Kallus (2001), validated in the Portuguese language by Costa and (2005), is composed of 76 items organized in 19 scales, out of which 12 are general scales and seven scales specific to the sport (Noce 2008). These 19 scales are organized in four big dimensions (general stress, general recovery, stress in sports and recovery in sports) (Noce et al, 2008). The dimensions evaluate potentially stressing and recovery events within and outside the sports environment (Hooper and Mackinnon et al, 1995). The items of the instrument were answered using a Likert scale of seven points, which ranges from 0-never to 6-always (Likert, 1932). The stress and recovery levels of the team were grouped according to the large dimensions of the instrument. The "General Stress" dimension refers to the perception of the athletes under stressing conditions outside the sports environment, and the "Stress in Sports" dimension involves more specific conditions of the sports life of the athlete. The "General Recovery" dimension refers to the daily recovery strategies of the extra-sports environment and the "Recovery in Sports" dimension is related to the perception of the control and recovery specific strategies of the demands in sports.

Mental Toughness Program

1. **Create a mental map for the course**
   - Use landmarks to trigger a mental reaction
   - Break the race down and choose your focus/attitude for each piece
   - Have a focus plan for pain and exhaustion
2. **Watch your self-talk**
   - Be your own biggest fan-cheer yourself on.
   - Don't say anything to yourself you wouldn't let anyone else get away with
   - Change negatives to positives (pain=working hard)
3. **Have tricks to keep you focused**
   - Simplify the race (left, right, left, right…)
   - Stay in the present (don't worry about how much you still have left)
   - Music
   - Counting
4. **Remember that confidence is a choice**
   - Preparation and trust are the keys to confidence
   - "Flag the Minefield"
   - Acting the way you want to feel creates those feelings
   - Focus on what you control
5. **Use pre-race imagery**
   - Picture yourself in the event during training runs
   - Imagine what you want to look like as you run (posture, body language, smile)
   - Imagine your plan for dealing with obstacles (laces, people, start…)
   - Picture yourself successfully battling pain/exhaustion

- Imagine yourself crossing the finish line successfully

6. Use in-race imagery

- Mentally breaking through the wall
- Sunshine pulling away the pain
- Rocky

A typical list may look as follows:

- Running as far as the race distance.
- Running further than the race distance.
- Complete an interval workout at—or faster than—race pace.
- Running half the race distance in another race or workout at—or faster than—race pace, and feel good about it.
- Get to the race with plenty of time to prepare.
- Start the race on pace and feeling comfortable.
- Hit the splits along the way.
- Cross the finish line under goal race pace.

Results

Table 1
Summary of 't' ratio on recovery stress of experimental and control groups

S.No	Variables	Group	Pre-Test Mean	Post –Test Mean	MD	SD (±)	σ DM	't' Ratio
General Stress								
1	General stress	MTG	2.26	2.08	0.17	0.10	0.03	5.46*
		CG	2.25	2.25	0.002	0.006	0.001	1.25
2	Emotional stress	MTG	2.84	2.74	0.09	0.04	0.01	7.31*
		CG	2.08	2.085	0.001	0.01	0.003	0.45
3	Social stress	MTG	1.67	1.55	0.11	0.09	0.02	4.01*
		CG	1.66	1.67	0.008	0.03	0.01	0.81
4	conflicts/pressure	MTG	2.74	2.59	0.15	0.09	0.03	5.14*
		CG	2.73	2.74	0.01	0.03	0.009	1.06
5	Fatigue	MTG	3.35	3.20	0.14	0.10	0.03	4.44*
		CG	3.35	3.34	0.01	0.02	0.008	1.37
6	Energy loss	MTG	1.54	1.47	0.06	0.03	0.01	6.08*
		CG	1.54	1.53	0.01	0.03	0.009	1.30
7	Somatic complaints	MTG	3.03	2.89	0.14	0.12	0.03	3.69*
		CG	2.99	2.97	0.01	0.02	0.007	2.11
Stress in Sports								
8	Disorders in the intervals	MTG	3.04	2.82	0.22	0.12	0.04	5.47*
		CG	3.04	3.03	0.01	0.03	0.009	1.21
9	Emotional exhaustion	MTG	1.73	1.41	0.31	0.17	0.05	5.68*
		CG	1.72	1.73	0.01	0.02	0.009	1.33
10	Injuries	MTG	2.82	2.70	0.11	0.09	0.02	3.93*
		CG	2.82	2.81	0.004	0.01	0.005	0.81
General recovery								
11	Success	MTG	3.21	3.51	0.30	0.31	0.10	3.01*
		CG	3.18	3.19	0.007	0.01	0.003	2.10
12	Social recovery	MTG	3.63	3.78	0.15	0.10	0.03	4.70*
		CG	3.61	3.63	0.02	0.03	0.01	1.77
13	Physical recovery	MTG	3.33	3.14	0.19	0.03	0.01	18.15
		CG	3.31	3.32	0.008	0.006	0.002	1.44
14	General Wellness	MTG	4.36	4.57	0.21	0.06	0.02	9.99*

		CG	4.36	4.37	0.009	0.01	0.005	1.85
15	Sleep quality	MTG	4.55	4.70	0.14	0.07	0.02	6.01*
		CG	4.54	4.55	0.007	0.01	0.005	1.29
Recovery in sports								
16	To be fit	MTG	3.15	2.95	0.19	0.05	0.01	12.40*
		CG	3.15	3.15	0.0009	0.03	0.01	0.08
17	Personal acceptance	MTG	3.75	3.94	0.18	0.03	0.01	15.27*
		CG	3.76	3.76	0.005	0.008	0.002	1.93
18	Self-efficacy	MTG	2.94	2.71	0.23	0.10	0.03	6.66*
		CG	2.71	2.71	0.002	0.005	0.001	1.23
19	Self-regulation	MTG	3.74	3.90	0.15	0.03	0.01	12.75*
		CG	3.76	3.75	0.006	0.08	0.02	0.26

MTG = Mental toughness group CG = Control group

An examination of table 1 indicates that the obtained‘ ‘t’ ratio for experimental group were 5.46, 7.31, 4.01, 5.14, 4.44, 6.08, 3.69, 5.47, 5.68, 3.93, 3.01, 4.70, 18.14, 9.99, 6.01, 12.40, 15.27, 6.66 and 12.75 for general stress, emotional stress, social stress, conflicts/pressure, fatigue, energy loss, somatic complaints, disorders in the intervals, emotional exhaustion, injuries, success, social recovery, physical recovery, general wellness, sleep quality, to be fit, personal acceptance, self-efficacy, self-regulation. The obtained ‘t’ ratios were found to be greater than the required table value of 2.26 at 0.05 level of significance for 1, 9 degrees of freedom. Hence it was found to be significant. The obtained ‘t’ ratios for control group were 1.25, 0.45, 0.81, 1.06, 1.37, 1.30, 2.11, 1.21, 1.33, 0.81, 2.10, 1.77, 1.44, 1.85, 1.29, 0.08, 1.93, 1.23 and 0.26 for general stress, emotional stress, social stress, conflicts/pressure, fatigue, energy loss, somatic complaints, disorders in the intervals, emotional exhaustion, injuries, success, social recovery, physical recovery, general wellness, sleep quality, to be fit, personal acceptance, self-efficacy, self-regulation. The obtained ‘t’ ratios were found to be lesser than the required table value of 2.26 at 0.05 level of significance for 1, 9 degrees of freedom. Hence it was found to be insignificant. The results of this study showed that the control group was statistically insignificant.

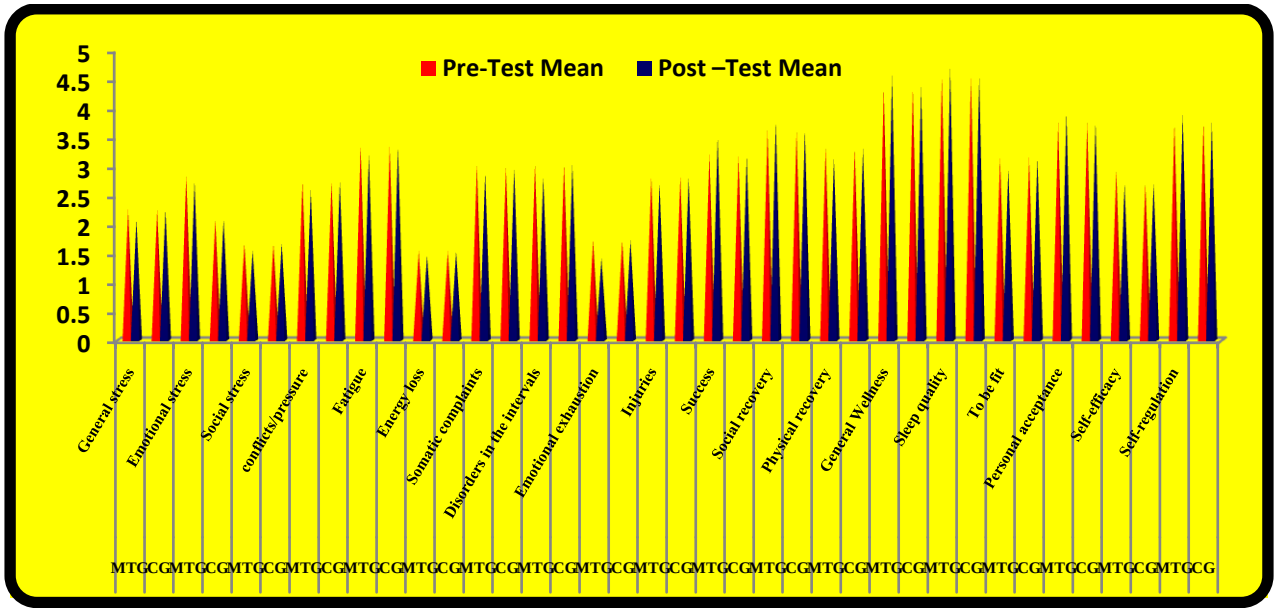

Figure I
The pre and post test mean values of recovery stress of both experimental and control groups

Discussion of findings

The results of the study indicate that the experimental group *Long distance runners* showed significant decrease on general stress, emotional stress, social stress, conflicts/pressure, fatigue, energy loss, somatic complaints, and disorders in the intervals, emotional exhaustion and injuries levels and increase on success, social recovery, physical recovery, and general wellness, sleep quality, to be fit, personal acceptance, self-efficacy, and self-regulation levels. The control group did not show significant improvement in recovery stress. The past studies of recovery stress reveal Abdelbaky, F.M. (2012), Franco et al (2011) and Noce et al (2008).

Conclusions

From the analysis of data, the following conclusions were drawn.

1. The experimental group *Long distance runners* showed significant decrease on general stress, emotional stress, social stress, conflicts/pressure, fatigue, energy loss, somatic complaints, and disorders in the intervals, emotional exhaustion and injuries levels and increase on success, social recovery, physical recovery, and general wellness, sleep quality, to be fit, personal acceptance, self-efficacy, and self-regulation levels.
2. The control group *Long distance runners* did not show significant improvement of recovery stress.

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