



Changes in mood states during the preparation period of the world's top junior tennis player

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ITF Coaching and Sport Science Review 2015; 65 (23): 28-31

ABSTRACT

Conditioning preparation plays a key role in tennis. However, conditioning is usually marked by a fairly large training volume. Early identification of youth tennis players with serious emotional disorders is critical for avoiding overtraining. In the present study we investigated the changes in mood states during the preparation period of a top junior tennis player. The Brunel Mood Scale, consisting of 6 subscales with a 5-point rating scale to assess levels of mood states was used at 8 PM each night, and then again the following morning (8 AM). It can be concluded that specific mood factors increase and decrease in accordance with alterations in training intensity and period of the day.

Key words: emotions, intensity, training, assessment
Received: 19 December 2014
Accepted: 25 January 2015
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INTRODUCTION

On-court tennis training and match play involves prolonged, physically demanding activities that push the body to its limits resulting in substantial elevation of physiological and perceptual strain and reduced contractile function. Tennis players are expected to be in optimal condition for a large number of tournaments during the year, and there is no time for the “long” preparation period (Duffield, Murphy, et al., 2014). That’s why all the measurements that provide a quick performance feedback are very beneficial. Early identification of youth tennis players with serious emotional disorders is critical for avoiding overtraining. Emotions are shown to have great influence on an athlete’s performance. Extensive research into the role of anxiety in sport performance has already been conducted. Still, there are a wide range of emotional states that have not been reviewed to the same extent. Mood states are different from specific emotions in that they are more enduring and less intense feeling states, but their effect on sports performance is thought to be substantial (Hagger and Chatzisarantis, 2005). Fewer studies to date have focused on mood states among tennis players. This study therefore investigates the changes in mood states during the preparation period of a top junior tennis player.

METHODS AND PROCEDURES

The subject in this study is an elite junior female player who was the number one ranked junior in the world at the time this study was conducted (ITF Ranking list, July, 2014). Her parents gave consent in accordance with the requirements of the Declaration of Helsinki. The subject

had the following characteristics: age, 17; body mass index, 21.83; body height, 174cm, ranking on the ITF world junior list, 1. The study was performed during her summer off-season (July 14 – Aug 3 2014). The preparation period was marked by a fairly large amount of conditioning trainings (i.e., jogging, endurance, tennis, strength and power trainings) (Table 1).

	Week 1	Week 2	Week 3
Technical and tactical training	0 min 0 sessions	500 min 6 sessions	450 min 5 sessions
Neuromuscular training	525 mins 5 sessions	600 min 6 sessions	180 min 2 sessions
Endurance training	315 mins 4 sessions	210 min 4 sessions	180 4 sessions
Number of training sessions	9	16	11
Number of matches	0	2	4

Table 1. The 3-weeks preparation period summary.

The 24 items Brunel Mood Scale, comprise the following six mood subscales: tension, depression, anger, vigor, fatigue and confusion. Each subscale contains four items. A 5-point rating scale to assess levels of mood states was used at 8 PM each night, and then again the following

Day	Tension AM	Depression AM	Anger AM	Vigor AM	Fatigue AM	Confusion AM	Tension PM	Depression PM	Anger PM	Vigor PM	Fatigue PM	Confusion PM	Training	Duration	RPE
1	45	48	61	53	57	60	53	48	48	63	54	46	Jogging Strength/Power Endurance	3 105 80	6 6 9
2	48	44	55	53	54	53	53	48	51	58	54	60	Jogging Strength/Power Endurance	30 100 60	6.5 7 5
3	53	56	58	53	47	60	50	48	58	58	50	60	Jogging Strength/Power	30 90	4 7.5
4	53	48	55	58	50	53	48	52	55	53	54	46	Jogging Strength/Power Endurance	30 120 100	6 8 9
5	45	48	55	51	59	50	48	48	55	56	57	53	Jogging Strength/Power Endurance	30 110 75	7 8.5 8.5
6													Day Off		
7	53	44	55	48	54	57	50	48	61	51	62	53	Jogging Strength/Power Tennis Endurance	30 110 80 30	6.5 8.5 6 10
8	48	44	55	48	62	50	50	48	55	51	62	46	Jogging Tennis Strength / Power	25 100 100	7 7 7.5
9	48	48	55	53	54	57	48	52	58	48	57	53	Jogging Endurance Strength/Power Tennis	25 60 100 60	6 9.25 8 7
10	48	48	58	43	62	57	56	63	65	43	64	64	Jogging Strength/Power Tennis	30 100 75	7 7.5 7.5
11	53	44	55	53	50	53	56	63	65	43	64	64	Jogging Strength/Power Tennis Endurance	30 80 80 90	6.5 8 7.5 9.5
12	48	52	55	43	64	57	56	63	65	43	64	64	Jogging Strength/Power Tennis Endurance	25 110 85 30	8 9 9 10
13													Day off		
14	45	44	55	51	54	53	56	60	51	46	57	60	Tennis Endurance	60 20	8 8.5
15	50	52	55	48	52	60	50	48	51	51	54	57	Summer Cup		
16	50	48	58	46	57	50	50	48	51	51	62	53	Summer Cup		
17	50	48	58	42	62	57	56	48	55	46	64	64	Summer Cup		
18	53	48	55	48	52	60	56	63	65	43	64	64	Summer Cup		
19	50	56	58	43	67	57	56	48	55	46	64	64	Summer Cup		

Table 2. Changes in mood states during the 3-weeks preparation period.

feel right now?" respondent indicated whether she experienced such feelings on a 5-point scale (0 = not at all, 1 = a little, 2 = moderately, 3 = quite a bit, 4 = extremely). When responses from the four items in each subscale are summed, a subscale score in the range 0-16 is obtained. Raw scores were converted to standard scores (T-scores) (Terry, 2000).

RESULTS

The specific mood factors increase and decrease in accordance with alterations in training intensity and period of the day. There are more negative moods recorded towards the end of the preparation period. Trends show that the athlete experiences a more positive mood in the morning while showing tendency to have a more negative mood in the evening. Negative moods with the presence of tension, depression, anger and fatigue are more present at the end of the day which is filled with jogging, strength and power, tennis and endurance sessions than in the morning before all of these activities. Fatigue seems to be very high and constant during the whole preparation period. Interestingly, the effect of a negative mood seems to be more present in the period with the matches (Table 2).

DISCUSSION

The preparation period of a top junior player provided a unique opportunity to evaluate mood changes that occur during prolonged high intensity activities. The objective of this study was to investigate the changes in mood states during the preparation period of a top junior tennis player. As a result, the magnitude of the increased training volume influenced and affected changes in the young tennis player's mood. There are many examples of athletes who perform at optimal levels during training but are unable to repeat those same peak levels of performance when competing. Usually it is said that emotions are something that distinguishes those who are able to show their best when needed and those who can't. Our emotions are always present while we are doing something, so there is no doubt that they can have an effect in sports as well. The literature suggests that there is a significant correlation between mood states and training intensity. It was suggested also that mood changes tracking may be used to indicate those athletes predisposed to the condition long before symptoms of poor performance and prolonged fatigue are observed (Pierce, 2002). Morgan and colleagues have demonstrated the efficacy of monitoring mood state changes in response to training volume as a marker for overtraining among endurance athletes (Morgan, Brown, et al., 1987). Previous research has suggested that sub-scores of Fatigue and Vigor may show changes relatively early during high training volume, while Tension, Depression and Anger seem to respond to chronic high training volume (Morgan, Costill, et al., 1988; O'Connor, Morgan, et al., 1991). Our finding shows that Fatigue changed relatively early during high training volume but Vigor stayed constant. Tension, Depression, and Anger

seem to respond to chronic high training volume especially in the evening. Progressive increases in training load are routinely imposed in endurance training programs and are believed to be effective in achieving optimal conditioning among athletes. It is also well documented, however, that the stress of overtraining may lead to the development of "staleness" (Hooper, MacKinnon, et al., 1997; Pierce, 2002). While symptoms may vary across individuals, staleness is generally characterised by a delay in recovery from training sessions as well as decreased performance during training or competition (Ryan, 1983). Recognition of physiological or psychological factors contributing to the development of staleness, therefore, would be of particular value for those administering training routines. This type of mood changes tracking using the Brunel Mood Scale could be very beneficial for fitness and tennis coaches for avoiding symptoms of decreased performance, staleness or overtraining. It is, however, also worth pointing out that sample size in this case study is too small to produce a clear picture but measuring these changes during the preparation period is worthwhile and beneficial.

CONCLUSION

Tennis today requires a tennis player to have a very high level of readiness. At the same time, one must be aware that the stress of overtraining may lead to the development of "staleness." The Brunel Mood Scale could be a very beneficial tool to track mood states of young players especially during high intensity sessions. Additional studies are needed to identify interventions that can increase performance with the ultimate goal of achieving healthier athletes.

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