

Mental stress before judo competition. Detection and control

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Summary

A few days before the start in important competitions, judokas start to anticipate the challenge of sport competition. When the start is closer, most of the competitors experience accumulation of stress. Depending on the mental stress, the body may send signals called somatic stress which makes the body release maximum energy. According to the majority of athletes and coaches, pre-start stress is a definitely negative phenomenon as it impairs the ability of optimal performance.

In order to identify the intensity of stress and its attempt to control, apply a variety of detection methods and techniques. The current work discusses some ways to assess and control this phenomenon.

Introduction

A few days before the start in important competitions, judokas start to anticipate the challenge of sport competition. When the start is closer, most of the competitors experience accumulation of stress. Depending on the mental stress, the body may send signals called somatic stress which makes the body release maximum energy. According to the majority of athletes and coaches, pre-start stress is a definitely negative phenomenon as it impairs the ability of optimal performance. Failures during competitions are often explained by excessive stress and the errors committed during the first fight as well as neglected opportunities and too low results for the competitor's potential and the coach's expectation are believed to be associated with stress. The adverse effects of pre-start stress result not only from excessive excitation, but also are due to negative emotions, from uncertainty and anxiety to even panic. This may result from a low self-esteem and overestimating the rival's potential. In such cases, the competitor thinks before the fight how to avoid failure, at least at the beginning, instead of thinking positively and planning adequate tactics. Thus, we can see that the attitude to competition itself affects the competitor's behaviour, in this case – taking optimum advantage of their potential, which does not guarantee success if the rival is better prepared (physically and technically).

The so called negative thinking reduces the probability of success. This has been confirmed by the study of the mental state (moods) in competitors involved in various sport disci-

plines using Profile Mood State (POMS) questionnaire. POMS questionnaire is used to measure the intensity of several components of general mood, including anger, tension, fatigue and depression. The first two components are believed to be positive and desirable. High intensity of these components suggests that the competitor will be positively motivated to fight, which will translate into offensive fighting style. The three remaining components define negative mood features, typical for fear, anxiety, pessimism and in extreme cases – for catastrophist attitudes. The prevalence of negative emotions over positive ones is responsible for excessive defensive and/or passive behaviour during the first fight. Passiveness, however, may also indicate fatigue at the end of one day event when the competitor was involved in several exhausting fights. While studying accumulating levels of positive stress, responsible for the increase in controlled aggressiveness and vigour, as well as negative stress which reduces the probability of success, one should consider not only the intensity of these factors, but also their time course. If the competitor becomes tense too early before the competition (2-3 days), the adverse physiological changes, e.g. decrease in blood testosterone level (in male competitors) contribute to the decrease in vigour, mood deterioration and the night sleep before the start is disturbed.

Using POMS questionnaire for mood assessment in combat sports allows anticipating the fight result with high probability. It turned out that taekwondo [1] and karate [2] competitors with worse moods usually lost the fight. Other authors showed that using the somatic and mental anxiety question-

naire in taekwondo competitors enables to predict the fight result in 63% of the subjects [3]. This finding was further confirmed by the study carried out in rock climbers starting in competition [4]. Given these data, the results of the psychological study conducted by Obmiński et al. [5] among young (16-17 years old) boxers are surprising. Personality profile, encompassing relatively constant features, was studied in neutral conditions in the Institute of Sport, not before competition. No differences were found between the competitors who succeeded and those who did not succeed. Possibly, personality questionnaire is of a lower diagnostic value for mental state assessment than POMS questionnaire evaluating temporary mood.

There is no Polish version of POMS and the questionnaire for anxiety assessment in athletes before fights. The increasingly rarely used Spielberger anxiety scale is inadequate for competitors. Thus, in our practice, we try other methods of mental state assessment before the fight. We should remember that the study should not disturb the competitor during warm up and relaxation before the start; thus, the research tool must be easy and it should not distract the subject's attention. In one of the studies on World Cup competitors, following the pattern used by other authors, we used visual analogue scale (VAS) for assessment of physical tension as presented below.

The subjects had to mark their excitation with a cross on the vertical scale. Next, they similarly assessed their sleep quality during the night before the start.

Among the two subjects, competitor x1 was less excited before the start and his sleep was deeper. This competitor also obtained a better result as he was less emotionally exhausted. The study did not last longer than 30 seconds. Nevertheless, it required earlier guidance, since not everyone can accurately analyse and describe their mental state.

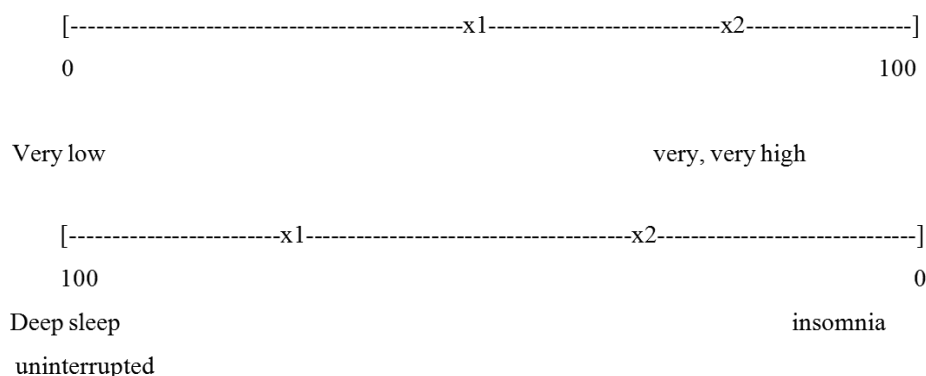
Other approach of studying the signs of excessive stress was used in female judo competitors, immediately before the fight, after accepting the hypothesis that sustained and negative emotional states may impair visual perception, maximal hand strength and the quality of information processing. The competitors were first tested in neutral conditions, during the training camp and next, before the warm up for the first tournament fight. In 3 among 11 subjects, a substantial worsening of relative test results was noted (>20%), in 5 subjects the

changes were slight (within the limits of natural biological fluctuations – <8%) and in 4 subjects the results were better than during the camp study (>10%).

The above mentioned physiological changes, resulting from mental stress during competitions, were used for evaluation of mental stress intensity during marksmanship competition. The sport does not require effort, but it significantly stimulates central nervous system. The study found the increase in the level of the so called stress hormones, namely cortisone and testosterone in blood and the values correlated with the reported sensation of stress [6]. Among other physiological methods of detecting the extent of fight anticipation, the measurements of pulse rate and arterial blood pressure are reliable.

The simple methods of pre-start stress detection include discrete observation of the competitors' behaviour by the coach. Studies show that strong emotions, particularly fear, change the face expression [7]. Analysis of emotion expression than could be seen on the competitors' faces during the Olympics in Athens (2004) showed that the way of expressing joy and happiness is similar in different cultures and corresponds to face expression [8]. It is worth considering whether and to what extent the expression of coach's emotions may affect the competitor's mood and well being before the fight. The results obtained during the Olympics in 2004 initiated the study on the effect of the suit colour on the result. The study found that in team games, the competitors dressed in red suits won 54.9% of all matches [9]. This prompted the suggestion that red colour stimulates behaviours connected with dominance which facilitates success [10,11]. Judokas are dressed only in blue or white, but none of these colours affected the results obtained in Athens in 2004 [12].

Stress control before competitions does not aim at total elimination of stress (which is impossible), but at maintaining such stress levels that allow the competitors taking best possible advantage of their potential. Thus, excessive excitation interferes with optimal task performance while insufficient excitation results in insufficient psychophysical mobilization that may be manifested by impairment of psychomotor abilities. Determining adequate stimulation levels requires a series of trials and errors. To achieve the desired goal, the competitor, the coach, the psychologist and the physiologist have to cooperate. Realistic determination of the objectives is also essential.



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