

## Investigation of Underlying Psychological Factors in Elite Table Tennis Players

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**Abstract:** The importance of psychological factors in successful sports performance has been acknowledged both academically and anecdotally. Yet the amount of time that coaches and athletes actually spend on mental practice as compared to physical practice belies its significance. A key component in developing a foundation for psychological intervention programs is to understand the psychological status of athletes. The purpose of this investigation was thus to identify the psychological factors that influence the performance of elite table tennis players in Taiwan. Participants were 130 elite table tennis players (Mean age = 18.73, Mean sport years = 10.01, Males = 84, Females = 46), who were recruited during the National Squad Try Out. Two questionnaires designed by the authors were utilized for data collection: a Demographic Information Sheet and a Table Tennis Player Psychological Skills Questionnaire. Descriptive statistics were computed for data analysis.

The results indicated that

- “Lacking Confidence”, “Overstress”, and “Unable to Cope with Opponent’s Tactics”, were the top three psychological factors which interfered with the player’s performance during competition.
- “Dwelling on early mistakes”, “Focusing too much on competition outcome”, and “Focusing too much on body mechanics and movements”, were the top three barriers that prevented players from focusing their attention during competition.
- “Worrying about opponent’s ability”, “Perceived low skill”, and “Poor performance before competition” were the top three causes of “Lacking confidence”.
- “Fear in unable to achieve specific goal”, “Too strong desire to win”, and “Expectation of significant others” were the top three causes of “Overstress”.
- “Muscle tensed up”, “Poor technique”, and “Applying inappropriate tactic” were the top three causes of “Unable to cope with opponent’s tactics”.
- “Not feeling good physically”, “No goals”, and “This competition is not important to me” were the top three causes of “Lack of Desire to Win”.
- “Non-optimal condition in training”, “Non-optimal mental preparation and readiness”, and “Don’t know how to prepare” were the top three causes of “Poor pre-competitive mental preparation”.
- “Understand coach’s instruction but can’t do it technically”, “Unable to hear coach’s instruction and mind blank during competition”, and “Unable to understand coach’s instruction” were the top three causes of “Problems in following coach’s instruction”.

**Keywords:** Table tennis, Psychological factors, Psychological skill training

### 1. Purpose

- To rank the importance of the psychological factors affecting the performance of elite table tennis players in Taiwan.
- To understand the reasons affecting psychological factors that influence the performance of elite table tennis players in Taiwan.

### 2. Methods

#### Participant

Participants were 130 elite table tennis players (Mean age = 18.73, Mean sport years = 10.01, Males = 84, Females = 46), who were recruited during the National Squad Try Out.

#### Questionnaire

The Psychological Skills Questionnaire for Table Tennis Player designed by the authors of this study was administered to study participants. Although a few items were added to meet the purposes of the study, the items of this questionnaire were mainly based on the questionnaire used by the Sport Science Committee of the International Table Tennis Federation during the 2007 World Championship.

#### Procedure

- Ask for coaches’ agreement to allow their players to participate in this study.
- Bring questionnaires to the competition venue.
- Instruct players on how to fill out the questionnaire.

- d) Answer questions raised during filling out of the questionnaire.
- e) Check questionnaire for missing data.
- f) Ask players to refill the questionnaire if necessary.

**3. Results**

Table 1 shows the importance of the psychological factors that influence table tennis performance.

Table 2 shows the reasons that influence the important psychological factors.

**Data Analysis and Statistical Work**

Descriptive statistics were used.

Table 1. Importance of the psychological factors that influence table tennis performance

Importance by order	Psychological factors that influence performance
1	Lack of confidence
2	Overstress
3	Unable to cope with opponent’s tactics
4	Inability to focus during competition
5	Poor pre-competitive mental preparation
6	Lack of desire to win
7	Problems in following coach’s instruction
8	Other

Table 2. Reasons that influence the important psychological factors

Psychological factors that influence performance	Reasons that affect the psychological factors
Lack of confidence	1)Worry about opponent’s ability, 2) Perceived low skill, 3)Poor performance at previous competition
Overstress	1)Fear of failure to achieve specific goal, 2)Too strong of desire to win, 3)Expectation of significant others
Inability to cope with opponent’s tactics	1)Muscle tensed up, 2)Poor technique, 3)Applying inappropriate tactic
Inability to focus during competition	1) Dwelling on earlier mistakes, 2) Focusing too much on competition outcome, 3)Focusing too much on bodily mechanics and movements
Poor pre-competitive mental preparation	1)Sub-optimal condition in training, 2)Non-optimal mental preparation and readiness, 3)Don't know how to prepare
Lack of desire to win	1)Not feeling good physically, 2)No goals, 3)This competition is not important to me
Problems in following coach’s instruction	1)Understand coach’s instruction but can’t do it technically, 2)Unable to hear coach’s instruction and mind blank during competition, 3)Unable to understand coach’s instruction
Other	Luck, injury, thinking too much...

come from “Worrying about opponent’s ability”,

**4. Discussion and conclusion**

The purpose of this investigation was to identify the psychological factors that influence the performance of elite table tennis players and to understand the reasons which influence the important psychological factors of elite table tennis players in Taiwan. “Lacking confidence”, “Overstress”, and “Inability to cope with opponent’s tactics” are ranked as the top three psychological factors that interfere with the player’s performance during competition. This result is consistent with that of Jhuang (2004). Many table tennis players are plagued by low confidence. Sources of low confidence

“Perceived low skill”, and “Poor performance at previous competition”. Gathering and analysis of the opponent’s technical and tactical information should help to ameliorate undue worrying. Findings from past studies have revealed that coach’s behavior is related to the player’s mental reaction during interaction. (Smith, Smoll, & Curtis, 1979 ; Smith, & Smoll, 1990). Providing challenging but achievable goals and positive feedback especially during adverse condition are useful ways to boost the player’s confidence.

“Overstress” is ranked second on the list of the psychological factors which interfered with the player’s performance during competition. Hollenbeck & Brief (1987) suggested that individual differences in goal orientation affect athlete’s stress. People with high motivation will set higher goals and bring stress to themselves. In addition, too much focus on the outcome of competition and the expectations of significant others also generate overstress.

Even the high-skilled player sometimes finds it difficult to effectively cope with changes in their opponent’s strategy. It happens frequently when a table tennis player with low self-confidence is playing against a better opponent. Physically, the perception of anxiety exerts influence on muscular contraction coordination. Mentally, anxiety also interferes with appropriate focus of attention and other cognitive processes. Inappropriate muscular contraction and poor mental function greatly reduces the player’s ability to cope effectively to the opponent’s tactic change. The provision of mental training is thus imperative in helping players manage anxiety and rectify this problem. However, from the results of the survey, adequate training on the execution of different tactics is also important. Providing simulations with a variety of tactics could prove useful, especially to high level players.

The participants of this study were elite table tennis players in Taiwan, therefore generalization and application of these findings to players with lower skill levels or in other countries should be treated cautiously. Nevertheless, the findings of this study clearly indicates that in order to reach optimal performance, coaches and sport scientists should focus on the development of athletes’ self-confidence, stress management, and coping skills, in addition to physical conditioning and technical training. Psychological programs should be integrated into the daily training routine. Although the current study focuses on table tennis players, the role of coaches on the development of athlete’s psychological strength should not be underestimated. Athletes learn skills, including psychological skill, mainly from coaches. Coaches also provide feedback that strongly affects the athlete’s motivation and confidence. Future studies should look into factors that related to the coach’s role in the development of athletes’ psychological skills.

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