

## **The Role of Personal Characteristics of the Table Tennis Player in Providing Efficiency and Stability During Competitions**

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In 1988 table tennis was included in the programme of the Olympic Games for the first time. The success of this innovation contributed to the growing popularity and social status of table tennis.

At the same time, it has to be admitted that the theoretical and methodological foundations of training in table tennis have not yet been sufficiently developed. Thus, for example, the analysis of the psychological and pedagogical aspects of the sportsmen's activities in table tennis is very often confined to general advice on how to prepare for a competition and to stating an important role of psychological factors in attaining a good result.

However, the increasingly individualized approach to the strategy, tactics and techniques of table tennis, which at the moment belongs to the leading tendencies in the sport, requires a high degree of differentiation between sportsmen when planning and supervising their training. The differentiation should be based on a careful study of their personal characteristics which can be used as psychological regulators directly influencing the level of efficiency and stability during the game.

The requirements stated above have prompted a research aimed at, through its scientific method, helping prepare highly qualified table tennis players. The new methods should pay more attention to the players' personal characters and to the specific nature of their activity.

The theoretical and methodological basis of this research is the "personality-activity" approach developed by the Soviet psychologists (notably, by L.Rubinstein and A.N.Leontiev).

When applied to sports, this concept presents the sportsman's personality and his performance as a unity where the communicative, emotional, volitional, cognitive and other psychological characteristics are brought into connection with the principal objective characteristics of the competition as a process, the most important of those being efficiency and stability.

This paper takes the "personality-activity" concept as its basis. It consists of the following parts:

1. A psychological description of "activity" in table tennis;
2. Objective requirements set before the "acting person" (the sportsman) and his personality;

3. Results yielded by a research of personal characteristics of highly qualified sportsmen; the analysis of these data from the point of view of requirements stated in item 2. In the final section of the paper some practical applications of the information obtained are briefly discussed.

### **1. A Psychological Description of Activity in Table Tennis**

To be able to control a player's training process, it is necessary to realize the specific character of table tennis as a form of activity. That would make it possible to define a desired structure of the player's motivations, together with his personal features and the operational factors, since all those elements are indispensable to effective control.

Motivation in table tennis is strongly determined by the fact that it is a popular and widely-spread sport. It is also influenced by the length of time spent by the player in the sport as well as by the combination of the achievement motivation with other motives.

Table tennis is an Olympic sport, one of the most widely-spread in the world. This means that it occupies an important place in society and that, in its turn, suggests that table tennis players may have "business/commercial motivations".

Typical features of "activity" in table tennis include continuous assessment of results on several levels at once and a dynamic character of purpose-setting and-achieving. This signifies that the achievement motivation is constantly and actively present. Table tennis has a creative cognitive dimension since it is a sport with a wide range of technical-tactical and psycho-pedagogical objectives. This means that the sportsman is always intent on acquiring new specialized information and on training their physical abilities.

Technico-tactical peculiarities of a sport call for corresponding qualities in a player's personality. Table tennis is multi-coordinated activity in a highly variable context. The indeterminate nature of the game environment is enhanced by rigid time limits and low predictability of the opponent's actions. Thus, the tasks faced by the player in the course of a game are very complex and keep changing all the time. The score is extremely mobile, the successful and unsuccessful phases follow one another rapidly, often there is a need for an energetic attack of a risky play at a crucial moment; all this creates a highly emotional background against which the players have to act.

One of the features specific to table tennis is that the players experience a pre-start condition before every exchange, which puts them under a great stress. The permanent ongoing competition does not allow the players to relax, demanding an instant reading of the opponent's mind every time a player tries to hit the ball back. The game is full of conflict and psychological tension. The players' desire to guess the opponent's intentions without revealing their own manifests itself in their constant struggle to take over the initiative. A sportsman's activity in table tennis is characterized by the complexity of coordination techniques, a fast tempo, the accumulative/explosive quality of physical effort, high precision, and a wide scope for attack which usually expands all over the playing area.

The above-named conditions and characteristics have influenced the development of the following tendencies in contemporary table tennis:

- a dynamic, predominantly attack and counterattack type of contest. Diversification of playing styles; a conscious tactical use of various techniques;
- a growing role of strategy and tactics; combinations become the chief structural element of the game, the number of complex and unexpected situations increases. An increase in the speed, accuracy and stability of techniques and tactical devices;
- more individualized strategies, tactics and techniques, giving expression to the stronger traits of a player's personality, his specific physical and psychological qualities;
- a growing importance of techniques that can be used in different situations with a maximum strength-saving effect. Technico-tactical actions become more complicated and less predictable by the opponent;

-- an increased stability during competitions which shows itself in the constantly high levels of efficiency throughout long and tense games with different opponents, in different environments and with stress factors highly active.

On the basis of the psycho-pedagogical description of table tennis discussed above, it is possible to work out list of requirements, the fulfillment of which guarantees a player good results. These requirements include:

A. High achievement motivation, closely connected with a broad range of social motives. The strong and lasting character of the motivation.

B. Highly developed specialized qualities:

-- relevant emotional and willpower factors;

-- logical thinking, prompt reaction, adequate predictive ability, intuition;

-- communicative abilities requisite in table tennis as a sport combining individual and team performance.

C. Technical skill, based on the perfect functioning of the psycho-motor system; a type of nervous system suitable for the sport, and a purpose-conscious physical training.

These requirements have been a starting-point for our research which aimed at singling out a set of personal characteristics typical of a table tennis player.

The hypothesis was that the objective needs of a given type of activity mould a sportsman's personality into a certain type, with efficiency and stability as the central characteristics of his performance. Efficiency is here understood as a degree of realization by the player of his composite potential (physical, psychological, and technico-tactical) in correspondence with his individual character and up-to date demands of his sport.

Stability in competition, as defined by V. Plakhtenko and Yu. Bludov, is a systemic integral quality of a sportsman enabling him to perform effectively under stressful conditions at important competitions for considerable periods of time.

## 2. Methods and Structure of Research

To see how justified our hypothesis was, we tested a group of highly qualified sportsmen, 15 Masters of Sport and World Class Masters of Sport in table tennis.

The aim of our testing was to find out which personal qualities determine the players' efficiency and stability. We used the standard 16-factor Personality Questionnaire developed by R. Cattell and MR-Method by O. Dashkevich. At the same time, we observed, recorded and analyzed their performance in competitions. The criteria used in the analysis were those of activeness, effectiveness and reliability of the technico-tactical actions. These criteria reflect most fully the current tendencies in the game, as well as directly determine the standard of performance. All those data were classified into two groups, "efficiency" and "stability". The method of correlative analysis was used for statistic processing of competition results and of the psychodiagnostic information. Organizing the facts into two groups enabled us to explore the correlations between the players' personalities and their performance, and also to arrange the information into a neat and practicable system. As a result, personal characteristics which determine the efficiency and stability of a player during a game have been singled out.

## 3. Analysis of the Testing Results

As a result of our research, we have managed to find out the personal features of table tennis players which are significant in the competition process in that particular sport.

It should be pointed out that more than a half of R. Cattell's Personality Factors have proved to be relevant to the sporting activity in question. According to our initial hypothesis, a sportsman's personal qualities are molded under the influence of the environment in which his activity is taking place and represent the degree of his adequacy for his chosen sport. Therefore, a wide spectrum of personality factors means, firstly,

that table tennis is a complex, multi-aspect sport and, secondly, that it belongs to the sports with a practical value because it helps develop a diversified personality.

Table

Personality Factors That Determine Efficiency and Stability of Performance in Table Tennis

Efficiency factors points

C(+0.62)	6-8
G(+0.77)	7-9
E(+0.52)	5-6
L(+0.52)	8-10
N(+0.64)	6-7
O(-0.62)	6-7
Q <sub>2</sub> (-0.70)	3-4
Q <sub>3</sub> (+0.53)	8-10
F <sub>1</sub> (+0.52)	6-7

Stability factors points

B(+0.54)	7-9
C(+0.50)	6-8
G(+0.65)	7-9
E(+0.61)	5-6
H(-0.59)	3-4
I(+0.56)	7-9
Q <sub>2</sub> (-0.50)	3-4

Note to the Table: The order of the date on significant personality factors is as follows: personality factor, the correlation quotient with a plus or minus sign, an index of the optimum level of development.

The analysis of the data obtained (see Table) shows that some personal qualities are important both for the efficiency and stability of performance in table tennis (factors C, G, E, Q<sub>2</sub>). The reason for that is a close logical and actual interconnection of the two groups of characteristics which between them describe the competition activity of sportsman in its entirety. There can be no doubt that, to achieve a success, a player must possess the traits of character "responsible" for both the efficiency and the stability. Those are:

-- G factor: high morale, sense of duty. It reflects the necessary connection between the achievement motivation and "business motivation", combining the will power characteristics with the motivation factors;

-- E factor: independence, inclination to dominate. A willpower factor, very typical of the current tendencies in table tennis where initiative and persistence are a must at all levels and stages of the competition;

-- C factor: emotional balance. This personal feature is vital both when the long-term line of conduct is being planned and when an immediate decision is being made;

-- Q<sub>2</sub> factor: collective thinking. Table tennis is at the same time an individual and a team sport; therefore, we regard this factor as important for the joint problem-solving in training and competing alike.

The personal characteristics that are related to stability only or just efficiency, emphasize the specific nature of the sport. This means that in some situations only one of the two may play a decisive role, and should predominate.

Among the stability factors, those specific characteristics are:

-- B factor: abstract thinking. The reason why this quality is so important is that stability calls for a detailed analysis of the situation, a multidimensional evaluation of external and internal factors in their interplay, and an ability to predict the results of one's actions. The extent to which this quality is developed is no less important during training sessions because it is indicative of the sportsman's capacity for learning and his determination;

-- H factor: caution;

-- I factor: quick response. The main condition of stability is the power of keeping the developments in control for a long time, which can only be achieved if the player has a clear picture of the changes in the morale and behavior of his opponent, as well as in his

general environment.

Efficiency in table tennis is connected with the following personal characteristics:

-- L factor: rival mentality, high self-assessment, orientation towards success. The principle of active play is central in achieving efficiency: it presupposes a constant fight for initiative, together with deliberately creating conflict situations. The player keeps orienting himself towards victory and is confident of success;

-- Q<sub>3</sub> factor: activeness, resolution, ability to grasp the leadership. Efficiency means first and foremost an active approach, i.e., dominating the game through one's own tactical line, being in firm control of the opponent's intentions and attacking rather than acting on the defensive;

-- F1 factor: extroversion, social adaptability. Efficiency is largely determined by the extent to which the sportsman's potential is actually realized. Extroverts are more active, their reactions are more spontaneous; these qualities naturally contribute to dynamic play. Also, extrovert types find it easier to relieve the tension of the struggle through their sociability;

-- N factor: sagacity, adaptable and precise mind. Efficiency presupposes an ability to promptly assess the situation, to foresee the opponent's intentions and to build up one's own tactics on the basis of this assessment.

When giving a general description of a highly efficient and stable player's personality, we think fit to point out that his specific characteristics manifest themselves in three spheres: the communicative, the intellectual and the emotional/volitional.

The twofold (individual/team) nature of table tennis presupposes a great importance of the players' communicative ability which reflects, on the one hand, a high level of competitiveness and on the other, the contact-making ability of the sportsmen within the same team.

From the point of view of intellectual qualities, table tennis players have a good logical thinking, prompt response, persistence. As a rule, they are both analytical and inclined to experiment; ready to grasp new tendencies in the sport and to develop them.

Table tennis players develop in the course of their activity a certain set of emotional and volitional characteristics. Those include a relatively strong alarm mechanism, high responsiveness, emotional stability, an adequate control over their feelings and actions, and a sense of duty and discipline.

Sportsmen of this type display the following features of behavior: active, attacking manner of playing, diversified and economical techniques, creative use of combinations, analytical thinking, the ability to maintain a high level of performance under increasing strain, accuracy of prediction, and a stable performance throughout the whole competition period.

Besides the positive characteristics described above, some negative manifestations should be mentioned, resulting from certain personal qualities of the sportsmen.

Thus, for instance, in some cases the players can grow too anxious, which affects their efficiency and stability as well as diminishes their initiative. Indecision as one of the player's personal qualities, may lead to an unjustified loss of initiative during the game, the inability to play innovatively under stress and to realize his strategic plan of the game.

During pre-competition training sessions, serious attention should be given to lessening the effect of the players' undesirable personal traits on their performance. In particular, the modeling method can be useful.

The results of this research can be practically applied when selecting sportsmen, as well as for optimizing their performance during training and competition sessions.

The choice of players will be more effective if the following questions are answered:

-- which personal qualities are significant for a table tennis player;

-- what is the optimum model level those relevant qualities should reach in their development;

-- what is the correspondence between the "model" and the actual development of the relevant traits in a player.

### **Conclusions:**

1. As a result of our research, the following personal characteristics have been singled out as relevant for optimizing table tennis performance:

-- the qualities connected with the twofold (individual/team) nature of table tennis, its conflict ("aggressive") character and multidimensional tactics (Factors E, L, H, N, Q<sub>2</sub> and F according to R. Cattell);

-- the characteristics associated with the wide range of technico-tactical and psychological objectives which can only be achieved through prompt reaction, logical thinking and creative vision ( B factor);

-- the features connected with the strong emotional tension in table tennis, the great psychological strain of competition, and the highly mobile balance of the players' morale and behavior (Personality factors C, I, O, G, Q<sub>3</sub> ).

2. The analysis of competitive activities in table tennis has yielded two groups of data representing efficiency and stability as two main constituents of this particular sport. A study of actual correlations has demonstrated how certain personal characteristics influence the player's efficiency and stability. Efficiency is determined by C, G, E, L, N, O, Q<sub>2</sub> and F<sub>1</sub> factors. Those factors indicate a highly active behavior on the part of the player, his policy of taking over the initiative, an orientation towards success combined with adequate self-assessment, as well as tactical and psychological domination -- all of which are indispensable to a player at every stage of the game.

Stability of performance presupposes an active presence of B, C, G, E, H, I and Q<sub>3</sub> factor. Those qualities are "responsible " for the abstract logical analysis of the situation by the player, immediate response to the changes in his opponent's morale and behavior, an all-round assessment of the interplay of internal and external factors. They provide a basis for the player's changing tactics and help to maintain high efficiency of performance for a long time.

3. The results of this research can be used for selecting sportsmen, as well as for optimizing their performance during the training and competition sessions.