

The mental image in high level table tennis

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Abstract: this article will stress how elite table tennis athletes in general have been well educated on the physical aspects of training but are often undereducated on the mental aspects. This imbalance has often resulted in some very frustrated athletes who, after devoting tremendous amounts of time physically training their bodies, achieve only mediocre results in competition. They are not obtaining their maximum potential because although they spent months or years physically training their bodies they devoted only seconds preparing the mental aspects in table tennis. It's ironic that many fail to see the inequity. Today sports psychologists, coaches, and athletes are realizing that training the mind and body together is essential for optimal results. It is imperative to emphasize that the athlete's mental state is just as adaptable to training as his or her physical skills. Utilizing both to maximal effectiveness will result in the highest level of performance.

To achieve optimal results the emotional and mental skills must be trained and developed just as the physical skills. In the last analysis the will to win is just as crucial as the skill to win. To train or program the mind in athletics is a detailed variable process that must be learned and then faithfully followed. Athletes must practice mental training just as they practice physical skills.

Keywords: motivation, positive thinking, mental training.

1. INTRODUCTION

Compared to many sports table tennis is not primarily about physical strength or brute force; it is about a game of skill that combines physical and mental aspects. Winning depends upon mental strength as well as technical physical skill. In the final analysis, the will to win is often more crucial than the skill to win. It has been said that what is going on between the ears often has the final say on what appears on the scoreboard. Success is determined by a well-balanced combination of brawn and brain.

Athletes in general have been well educated on the physical aspects of training but undereducated on the mental aspects. This has resulted in some very frustrated athletes who put in tremendous amounts of time training their bodies but achieve only mediocre results in competition. They fail to reach their maximum potential. They spend months or years training their bodies to perform well but only seconds preparing their heads. The irony is that many fail to see the inequity. The mind is a powerful tool. Not enough coaches or athletes take the time or effort to utilize it. It is a physiological fact that the mind directs the body. Today sports psychologists, coaches, and athletes are beginning to realize this truth and are placing more emphasis on the mental aspects in sports [1-2]. Many coaches and athletes are becoming convinced that often the physical mistakes made during competition are a result of psychological factors and the athlete's mental state is just as susceptible to training as his/her physical skills. Psychological stimuli from within or without the body may affect the athlete's physical reaction and effectiveness.

Human thought is a complex, sophisticated, amazing, and ongoing process. It cannot be ignored when considering success in sports. With practice athletes can learn to control their emotional and biological level just as they can improve physical skill. Utilizing both effectively will result in higher levels of performance.

The mind and the body work as a unit and cannot be separated into distinct entities. Whatever affects one, affects the other. Optimal achievements will be obtained only if the body and mind are educated, programmed, or trained. The mental aspect is more important than most athletes realize. To achieve optimal results the emotional and mental skills must be trained and developed just as the physical skills.

The winner is not necessarily the one with the greatest physical strength or agility. Often, a player's motivation, determination, concentration, and confidence decide the winner or loser. Of two equally skilled players or teams the one with the superior mental attitude is more likely to win. An athlete must not only battle an opponent, he/she must also conquer complexities and conflicts in his/her own mind. He/she must confront such obstacles as self-doubt, nervousness, lapses of concentration, and similar abstraction which prevent optimal performance. He/she must learn "selective attention."

We have come to associate physical athletic training with hard work, long hours, sweat, pain, or even exhaustion. On the other hand training the mind is neither measurable nor as easy as it sounds. Training or programming the mind for athletics is a detailed individualized process that must be learned and then faithfully followed. Sports psychology is not a quick fix.

Athletes have to stick with and practice a mental training program just as they practice physical skills.

Mental training is beneficial provided the athlete is interested, enthusiastic, and aggressive about the challenge. As in physical training, changes in performance may not occur overnight. Initially the learning process may produce almost imperceptible changes. This training should be performed in association with the physical training. As with physical training, mental training is not effective on a haphazard basis but should be practiced almost daily. Unlike physical training, mental training must be individualized to complement the athlete's unique personality and may be abused if it is not individualized. For example, some athletes may have to learn to become relaxed and less tense prior to a match; others may have to learn to do just the reverse.

Preparing yourself mentally for what you want your body to accomplish will dramatically increase the likelihood of success. Mental training, once accepted and applied, is the next great step forward in improving athletic performance.

Techniques found effective in the mental training of athletes include:

- Motivation
- Positive and negative coaching techniques
- Goal achievement
- Self – imagery or visualization
- Cybernetic training
- Biofeedback
- Hypnosis

These are not the only techniques, but are the ones we have found very effective if properly utilized.

2. TECHNIQUES

2.1 Motivation

Motivation can be classified into two forms. One is of external or extrinsic origin, and the other of internal or intrinsic origin. Technically, all motivation is self-motivation.

Extrinsic or external motivation

All coaches are familiar with external motivation. For example, some athletes need a carrot or a stick approach to get motivated. If the athlete does what is expected, he/she is rewarded. Consequently if he/she doesn't do what is expected he/she is punished. The reward to achieve desirable results or skills in athletes may be psychological or materialistic. A psychological reward could merely be a pat on the back, a smile for a job well done, verbal praise or even just a friendly approving nod. Materialistic awards could vary from just another star on the amateur player's helmet to a financial award for every completed pass, every touchdown.

In the United States it is not uncommon for players on football or basketball world championship teams to earn \$50,000 to \$1,000,000 or more as bonuses for a successful season. These incentive clauses are written into their contracts.

The negative or stick approach to motivation is an attempt to eliminate unsatisfactory physical or mental reactions in athletes through the use of criticism or punishment. An example would be making an errant athlete run laps around the field or assessing a fine for some physical or mental lapse or error. Combining the positive and negative approach may be preferred by some coaches. In general a positive approach is preferable. It creates a more enjoyable climate for sports activity instead of an atmosphere of prevailing fear that a negative approach tends to precipitate. In either instance the coach should be flexible depending upon the psychological background of the individual athlete. And above all the coach should be sincere and consistent.

It is understandable and quite easy for a coach to praise a player who has just made an outstanding play. But a coach should also reward a player who tired his/her best even though he/she did not make the play. Perhaps the second player deserves praise even more. It is important for coaches to reward effort as much as results. If you do so and look for positive things you'll eventually see them increase. A really successful coach is one who helps every player reach his/her full potential. A coach should give corrective instructions in an encouraging manner, emphasizing the improvement which will result if the athlete follows your instruction. Don't give corrections in a harsh or hostile manner and avoid punitive instruction. It's apt to yield frustration, resentment, and fear. Criticism promotes fear of failure, the athlete's worst enemy and the primary cause for "choking" under pressure. Emphasizing the positive results of following your suggestions will help motivate athletes.

Psychologists associated with sports programs recommend three steps to the positive approach: compliments, future-oriented instruction, and positive statements. These simple ingredients can be very productive in motivating athletes to improve. For example, let's assume you're coaching a table tennis player. His opponent gives him a topspin return and your player hits the ball clear over the opposite end of the table without striking the table. A negative coaching approach would be to criticize your player. "What's the matter? Didn't you see he gave you topspin? Don't be so stupid?"

A positive approach would be to give a compliment. "That's the way to hustle! You're moving your feet really well." Give a future-oriented instruction. "Just keep practicing and watch your opponent's stroke and it'll come naturally. You can become an excellent player."

Intrinsic or internal motivation

Internal or intrinsic motivation is the most desirable and effective of all. It is in this field that sports psychologists

can be most helpful. People with intrinsic motivation are average people but they were challenged. They get a dream, they set a goal. They became positive and believed they could do it.

Challenge

Any person entering sports is immediately challenged. In both team and individual sports the athlete is challenged by an opponent. Competition is not only important, it is necessary in all aspects of life not just sports. You have to be willing to compete in life; it is a fact of human existence. Without a challenge, no one discovers the true potential we each possess. We all have a vast reservoir of untapped talent. Your capacity is only determined by challenge.

Set a goal

You are what you go for. Your goals and your dreams determine the limits of your success. The greater your goal, the greater your success and ultimate potential in achieving it.

It is important that we make some sort of commitment to what we would like to achieve in our life, as well as in sports. Mentally program yourself to accomplish a goal. Concentrate all your efforts on achieving your goal and don't lose track of the end result you're seeking. If you plan ahead you're already ahead of your competition. Be prepared to try again if you fail the first time. No one achieves a goal or greatness without initially going through some failure. Never, never give up, regardless of the obstacles you face. People with a high degree of motivation can endure an awful lot to achieve their goals in all aspects of life including sports.

Our success mechanism operates on three principles. First, it needs a goal. Second, it must have an image of that goal being achieved. Third, it must be permitted to act.

Remember that the subconscious is a goal-striving mechanism. Without a goal it doesn't run. Without a goal things will happen to us instead of making things happen. Set goals you wish to achieve.

Goals must be realistic, but high enough to create challenge. To be most effective they must be our own goals, not those imposed upon us by others. They can be team, individual, or both. They can be short or long-term. Long-term goals are reached by the accomplishments of several short-term goals. Make them specific but obtainable. Once the goals are set we must constantly remind ourselves of them.

When training, practice with intensity. Practice seriously and stress yourself during practice as you will be stressed later in competition.

When you enter the table tennis room say: "Today I'm going to do my very best." Do each stroke as if a big match depended upon it. Then you won't "freeze" or "choke" in tournaments. Your best today may not be your best tomorrow – strive for perfection and improvement. During

play concentrate on the present point – don't start thinking of winning or losing.

Become positive

Become positive and believe you can do it. You are what you do. What you do, determines your success. Your thoughts must become your actions to achieve your goal.

Change a negative attitude into a positive attitude. The slightest lean towards the positive is leaning towards success or victory. Try to understand why something is unsuccessful and turn it into a positive force. Change a weakness into a power. Center your life in the positive. Think positive, believe positive, and strive for a positive attitude. Believe you have the power to achieve your goals. Believe you can do it. Believe in yourself and give that extra effort to accomplish it. Set higher and higher goals and create challenges. Realize the importance of coming back after a temporary failure or setback.

In life, as in sports, you must believe in yourself and take pride in your job or sport. You will not discover pride until you discover it in yourself. It's important that athletes develop a positive self-image and positive evaluation of themselves. For instance, if you don't think you can win you probably won't. Thinking you'll win doesn't guarantee that you will but at least you have a better chance to do so. You must overcome yourself before you can overcome others. Occasionally you will have an athlete say that if he/she doesn't think he/she can win it relieves the nervousness and pressure about winning and he/she does much better in a match. Psychotherapy is not a science; it is an art that has to be individualized.

Four other techniques have been found tremendously effective in the mental training of athletes: visualization, psycho-cybernetics, biofeedback, and hypnosis. They sound like separate entities but basically they are intrinsically entwined. For instance self-imagery or visualization is a basic concept utilized in hypnotherapy. There is nothing mystical about any of these techniques.

2.2 Visualization

You are all familiar with visualization. It is noted that people with high esteem are effective visualizers while those with low esteem are not. That is one reason why I emphasized earlier the importance of confidence. An example of the effectiveness of visualization is the following experiment.

A group of basketball players was divided into three groups.

1. The first group just played free-lance basketball practice.
2. Members of the second group were instructed to sit down and just mentally practice doing repeated free throws or foul shots.

3. The third group of individuals actually practiced doing repeated free throws.

It was found that the second group did not quite as well as the third group but far better than the first group.

We repeated the same experiment with three groups of individuals and obtained similar results. We then added an additional group who while visualized doing a foul shot, also actually went to the foul line and performed the physical motions of bouncing a non-existent ball three times on the floor, then projecting the non-existent ball toward the anterior rim of the basket or to a designated spot on the backboard. This group achieved results between the second and third previous groups.

In table tennis, in addition to just vividly visualizing a particular stroke, it is advantageous to physically perform the stroke, without a racket or ball. It's fascinating and instructive to observe a matador mentally and physically simulating taunting and challenging a non-existent bull with his non-existent capote prior to actually entering the bull ring to face the fierce bull.

In table tennis players learn to visualize doing particular strokes e.g. topspin, loop, lob, etc... and it actually becomes easier for them to actually perform them.

The same parts of the brain are activated by imagining an athletic performance as actually doing it. Therefore, visualizing yourself performing the various strokes in table tennis is very effective but make them vivid and realistic as possible. This aspect has been well-publicized and accepted in our sport.

2.3 Cybernetics

Cybernetics is the science of communication and control theory that is primarily related to the comparative study of the parasympathetic and sympathetic subconscious neural system that governs smooth muscle activity.

Selective attention leads to athletic success. Psycho-cybernetics is the psychology of mental steering and training the mind to focus for extended period of time on a chosen goal and thereby eliminating extraneous factors. With this selective attention an athlete can mentally block out taunts from a hostile crowd such as disparaging comments about the athlete's physiognomy, his/her race etc. A few athletes prefer to do the reverse and use such derogatory comments as an added incentive to win. It is an individualized process and what works for you may not work for the next person.

Yoga is one example of the cybernetic techniques utilized to obtain these results. Yoga, as used in sports, is not a religion or cult [3-4]. Yoga is a mind and body discipline developed in India 2,000 years ago which focuses on conscious breathing, calm state of mind, and deep stages of relaxation. Such mediation can lower the heart rate, blood pressure, the respiratory rate, decrease

stress, and increase muscular strength, flexibility, improve balance, and relaxation. After adequately learning yoga techniques an athlete can, prior to a match, utilize this cybernetic ability to obtain relaxation and "selective attention." Similarly during the actual match a trained athlete can also obtain beneficial results despite stressful conditions using visualization, biofeedback, and hypnotic training. A person's blood pressure, pulse, and respiratory rate are lower in a sitting position than in a standing position, and hence they become more relaxed. That is why boxers and basketball players sit down in a chair between rounds or during time outs. Table tennis players should take advantage of this physiological fact and sit down between games. In sports, the goal of practicing yoga is primarily psychological. It can be utilized in achieving positive thinking and a positive mental state. Athletes can focus on the positive physical and mental feats of yoga rather any spiritual aspects.

Yoga is now being used in hospitals for the treatment of many disorders such as muscular dystrophy. A few high schools are now having a yoga course although there is some opposition because of the religious connotation.

Many professional athletes including golfers, such as Tiger Woods, attribute some of their success to yoga exercises.

An interesting side note is that yoga organizations have petitioned the International Olympic Committee to have yoga accepted as an Olympic sport. The yoga competition would be judged by the five mandatory positions which require strength, coordination, and flexibility in the body.

2.4 Biofeedback

Biofeedback is a process that uses instrumentation to give an athlete immediate continuous signals of change in their body [5]. It is gaining popularity very rapidly in sports psychology to decrease stress, anxiety, and muscular tension during competition. The mental ability to focus and concentrate elevates the result in sports performance. Biofeedback is therefore a well-accepted therapeutic modality. Numerous electronic devices can be utilized in biofeedback therapy. The development of computer instrumentation allows a cybernetic log between the body and the device. With modern biofeedback the body's abnormal electronics can be modified.

The object of biofeedback is to increase the voluntary control over physiological processes that are otherwise outside conscious awareness, using information about them in the form of an external signal.

It is a non-invasive method of training the brain to work more efficiently and ability to self-regulate.

Devices can be used in biofeedback to document and record changes in respiration, blood pressure, pulse rate, skin temperature, surface EMG, and other physical functions. Rarely electromyography (EMG) involving conscious voluntary striated skeletal muscles, innervated

by somatic nerves, is utilized in biofeedback. In the more advanced procedures such as neurofeedback and electroencephography, electrode leads can be placed on the scalp to measure activity of the brain. This information can be fed to a computer and shows on a computer screen. Such information obtained can be used to influence the efficiency and effectiveness of performance.

Many Olympic and professional athletes have credited biofeedback training as a key factor in their success by increasing their ability to focus under stress giving them the edge they need to win.

Anxiety and stress can cause many athletes to “choke” or “freeze” in clutch situations. By learning to alter their mental and physical state with a few simple relaxation techniques they perform better. Biofeedback devices are excellent tools for achieving such results.

2.5 Hypnotherapy

Hypnosis has been increasingly recognized and accepted as an effective modality in sports [6]. Hypnosis is a fascinating topic often clouded and distorted by misconceptions, mysticism, and neglect. Hypnosis for entertainment and amusement has no more relationship to hypnosis in sports than astrology to astronomy; nevertheless the very word hypnosis conveys obsolete prejudices, taboos, and misconceptions to many individuals.

Hypnosis applied in athletics has proven highly successful in carefully selected cases. The era of superstition and incredulity towards hypnosis in sports is gradually being eroded by an awareness of its therapeutic values.

Hypnosis is but one of several techniques that are effective in the mental training of athletes. Hypnotherapy can effectively neutralize adverse stimuli of extrinsic or intrinsic nature.

Through hypnosis athletes can learn to control their emotional level and they can mentally block-out adverse emotional stimuli just as effectively as through physical training they can improve their physical skills.

Appraisal of the individual patient is important in selecting athletes for hypnotherapy. The athlete must have confidence in the hypnotist. Hypnosis in sports is a cooperative undertaking between both the hypnotist and the athlete. A basic knowledge of applied psychology and psychotherapy is essential for the hypnotist and the athlete must have an earnest motivation to improve.

During hypnosis the athlete is not asleep but is aware of their surroundings in a detached way and more receptive to acceptable suggestions [7]. All hypnosis is actually self-hypnosis and we have all experienced it. A hypnotized person will not accept any idea or suggestion that is against their morality, religion, etc. The higher the intelligence, the easier it is to do the hypnosis.

Since the subconscious mind is really the driving force behind most of our beliefs it therefore makes sense that a technique which elicits change at the subconscious level can be highly effective. Hypnosis is such a technique.

Hypnosis can help athlete overcome issues of self-doubt which may prevent him/her from progressing to a higher level of performance. Visualization and certain aspects of yoga are actually forms of self-hypnosis.

Hypnosis is not a panacea, but often a valuable technique in athletics.

The three basic techniques primarily used with hypnosis are:

1. Direct suggestion
2. Symptom substitution
3. Hypnoanalysis

Direct suggestion

Suggestions given in a hypnotic trance are far more effective than suggestions given in the conscious state. For example, let's assume you go to your dentist and he says “I am not going to use Novocain or any anesthetic while I am drilling one tooth and extracting another so you will feel some discomfort and pain but I am sure you will be able to tolerate it.” In the average patient the chances of that working is quite slim. In contrast, the ability to produce anesthesia by hypnotic suggestion alone has gained great notoriety. Pain is not actually abolished but the emotional reaction to pain is altered. Were it not so time consuming in certain patients and if all patients could be hypnotized deeply enough, it would be the ideal anesthetic. Brain surgery, thyroidectomies, hysterectomies, tooth extractions, etc. have all been done with direct suggestion alone in a hypnotic trance.

So too has direct suggestion been proven in athletics. In many instances it is used primarily to obtain physical and mental relaxation and to relieve tension and stress.

Symptom substitution

One method of reconditioning or re-educating the subconscious through hypnosis is replacing one habit pattern with another more constructive pattern. The new pattern must be logical enough to destroy the earlier pattern in the patient's mind. In symptom substitution some undesirable mental or physical outlet is replaced with a more acceptable one.

Hypnoanalysis

In this procedure hypnosis is combined with an analytic method of psychotherapy. Hypnoanalysis attempts to change the structure of a patient's mind, to alter his/her view of things, and to improve his/her motivations. Each of us is a maze of conflicting desires and impulses which subconsciously influence our actions. Repressed fear, hate, love, anxiety, anger, painful experiences, frustrations, etc. may consciously be forgotten but forever remain in the subconscious where they are capable of

producing conflicts which may manifest themselves in functional disturbances. Obscure underlying conflicts, repressed anxieties, attitudes and impulses which have existed as suppressed underlying causes of neurotic behavior may come to the surface in one or two sessions. Conscious awareness of such underlying suppressed causes may completely disintegrate undesirable behavior characteristics.

Side addendum

Advice to senior player: find an activity that gives you pleasure and that is good for your mental and physical well-being. Forget about always winning. Focus on friendship, relaxation, enjoyment, and health. Such a lifetime ideal sport is table tennis.

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