

# TennisPro<sup>®</sup>



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Cover *Marc McLean, PTR Instructor,*  
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Contents *PTR UK member Johnny Abosi*



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photo Jim Egerton

## Chess A Practice Court for the Mind

In 600 AD, two competitors went to war on a 64 square surface. 1,250 years later, two competitors started a different war, challenging each other on a much larger surface, combining physical strength and endurance, using racquets, a ball and an obstacle like a net.

*To be a championship tennis player, you need the mind of a chess master and the endurance of a marathon runner.*

-Jack Kramer

*Playing on clay is like playing chess.*

-Jose Higuera

Tennis and chess have been exchanging metaphors and analogies for quite some time. Do these have any basis, other than to describe the battle that is raging on the tennis court as an intellectual struggle on a chessboard? A little bit of investigation reveals tennis and chess are relatives after all. They can learn from each other with chess becoming a practice court for the mind.

by Jim Egerton

*PTR Certified with a background in corporate training, Jim has played competitive tennis and chess for more than 40 years. A professional speaker with an MBA from Illinois Institute of Technology, he is a popular presenter at conferences and seminars. He is the founder of Chess-Now Ltd. ([www.chess-now.com](http://www.chess-now.com)), a training organization that uses chess to help his clients practice strategic thinking in business, sports and education. As the Mental Skills Coach at the Wheaton Sport Center, Jim is responsible for integrating the games of tennis and chess.*

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### Connecting Tennis and Chess with Game Theory

It's not enough to put two games together and say they are related. An attempt might be two competitors boxing in a ring and playing chess at the same time. Call it chessboxing. No, this isn't a joke. It's happening in Europe where competitors box for two minutes, play chess for 10 minutes, and this goes on until someone is knocked out or checkmated. Entertaining, but where is the science?

The science that glues chess and tennis together is the Science of Strategy called Game Theory. It's a branch of mathematics made popular in the movie *A Beautiful Mind*. Winning or losing is all about the decision making that went on during the contest. Game Theory helps determine the best choices (strategies) one can make to accomplish the task of winning the game. If your decisions are based on optimal strategies, you have better winning chances.

Three major components of any game are players, strategies and pay-offs. Players make decisions, strategies specify which decisions to make given the situation they are facing, and the payoff is the reward or loss suffered from following that strategy. The best strategy is the one that offers the best payoff or chance of winning. Chess and tennis are both individual competitions, therefore the nature of the struggle is similar, making it easier to compare the two games. Characteristics shared by tennis and chess are: Zero Sum Game, Perfect Knowledge, Visible Opponents, Pattern Recognition, Unlimited Uncertainty and Sequential Moves.

**A Zero Sum Game** means that both competitors are vying for the same objective (to win the match). Their actions/choices affect each other, such that as one person gets closer to winning, the other is closer to losing. If I'm up a set, you are down a set. It's a tug-of-war.

**Perfect Knowledge** means both players know everything. Everything is visible and there is no external luck like dice or a card. Each player knows all the rules and nothing is left to chance. Player A knows the rules, Player B knows the rules. A knows that B knows the rules and vice versa. In tennis, if you don't like where a shot you hit is going to land, you cannot pull another ball out of your pocket and hit that one instead. It's not in the rules.

**Visible Opponents** right across from each other are trying to accomplish the same objective of winning the game. Just being able to see your opponent's body language, at times, can tell you all you need to know. In golf, your opponent may be five holes behind you, and without glancing at the scoreboard, you have no idea how they stand. Golfers tend to play the course and later see what happened.

**Pattern Recognition** is heavily involved in both games. The thousands of hours we spend on the courts with our students is building up their awareness of recognizing patterns. Rallies go crosscourt, a short ball leads to an approach shot, a lob generates an overhead, etc. In chess, pattern recognition is generally what determines the better player. S/he has seen more positions before and therefore, knows how to proceed.

**Unlimited Uncertainty** means you cannot know for sure what your opponent is going to do, because there are so many possibilities to consider. In chess, there are  $10^{20}$  possible moves in a game. You cannot be prepared for each of them. At the start of the game, there are 20 possible White moves (called openings) and 20 Black moves (called

defenses). So after one move in chess, 400 things could have occurred. And it escalates to where, after four moves, 315 billion positions could arise.

In tennis, tracking where balls are landing on the court is an important tool. An analyst covering a match often looks at the patterns (especially the serves) of the ball placements. Each shot lands in a unique spot. Plus, the display does not show that each shot has a different spin, speed, distance, height and direction. When each variable is included in the equation, a practical number approaches infinity, making each shot essentially unique. An argument could be made that a tennis shot is more uncertain than every move in a chess game.

**Sequential Moves** means that, unlike the game of rock, paper, scissors, (an example of a simultaneous game where both players make decisions and actions at the same time), our games are sequential, where players take turns making their actions. Your choices/strategies cannot be determined until your opponent has finished making their move/shot. Once the situation is clarified, then you can proceed.

In tennis, even after your opponent is done making their shot, you don't always know what to do. Uncertainty and waiting your turn can lead to a poor shot. In the 2009 Wimbledon final, Andy Roddick missed a volley in the second set tie-breaker when he was leading 6-5. Andy's serve forced a weak return and he hit an aggressive approach shot to Roger Federer's forehand. Roger's reply was a miss-hit that went high to Andy's backhand, but Andy hesitated. Should he play it? Let it go and land out? Hesitation from uncertainty caused his volley to land wide. When an opponent makes a mistake and you do not take advantage of it, you will often hear an analyst say, "Boy would he like that shot back."

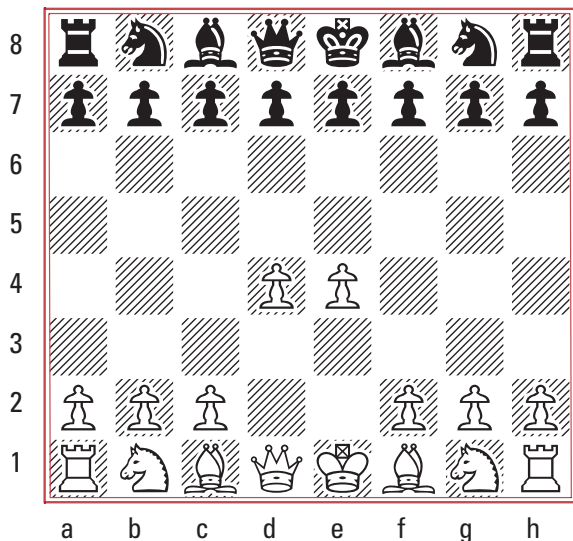
In chess, sometimes your opponent's move is a complicated sacrifice that you don't have the time or desire to analyze completely. Often, you go with your gut instinct and accept or decline the material. Since chess games are recorded, it is possible to replay the game later to determine if the player made the correct decision. In Roddick's case, we will never know.

### Playing for the Center of the Board and Center of the Court

Many of the strategies used in both games are generated from the fact that a chessboard and a tennis court are four sided shapes with similar geometric properties. The diagonal from a1 to h8 (see Diagram 1) is the longest on the chessboard and on the tennis court. Grandmasters love to have their Bishops on this diagonal, because of its length and the fact it runs right through the center. With a ruler, we can demonstrate that the diagonal is longer than each of the sides. It's the Pythagorean Theorem where  $a^2 + b^2 = c^2$ . So, the longest distance (safest shot with most room for error) is crosscourt where the net is at the lowest point. This is much easier to demonstrate on a chessboard than a 78' tennis court, but the principle is the same in both.

At the beginning of a chess game (opening), players try to occupy or control the center of the board to make their pieces more effective. Hence, the two most popular opening moves, and what is considered the best practice, are to move the Pawns up two squares in front of the King or Queen and get two people up to the net as soon as possible (Diagram 1).

Diagram 1



In tennis we try to get to the net, create a barricade, and control the center, so we can cut off any crosscourt shots that typically come that way. All the chess pieces (except the Rook) get better when they come toward the center of the board. Don't our options expand when we occupy the center of the court?



Let's check in with our Knight to see where it should be positioned. Its unique 2+1 movement means the worst place for it to be is in the corner where it can only go to two squares (see Diagram 2A). When it is on the edge, it cannot do things off the board. In chess, we say that a Knight on the rim is dim. Is it any wonder that we tell our tennis players to hit their approach shots low, deep and into the corner? Why? Our opponent, just like any chess piece (except the Rook), is less effective from there.

When the Knight gets to its optimal position, it can go to eight squares as shown in Diagram 2B. From its original square on g1, if it goes to f3, that is the best position in one move. And when the Knight is joined by his teammate, which moves from b1 to c3, look at what they can cover (Diagram 2C).

The Knights form an impressive doubles formation in tennis, completely covering the center of the court where nothing will break through without paying a price, exactly what we want our doubles team to accomplish. In just two moves, White has all of those squares covered.

Diagram 2A

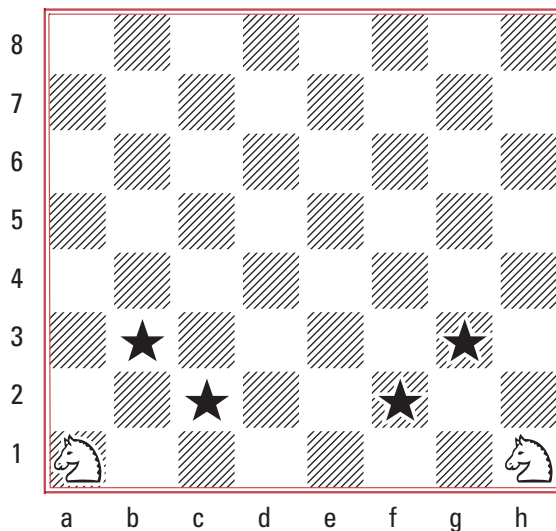


Diagram 2B

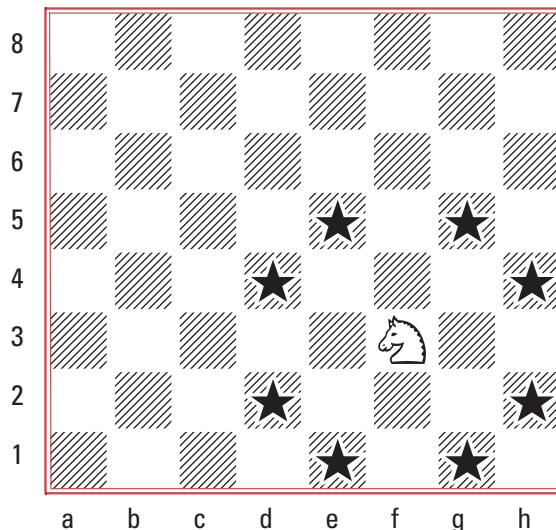
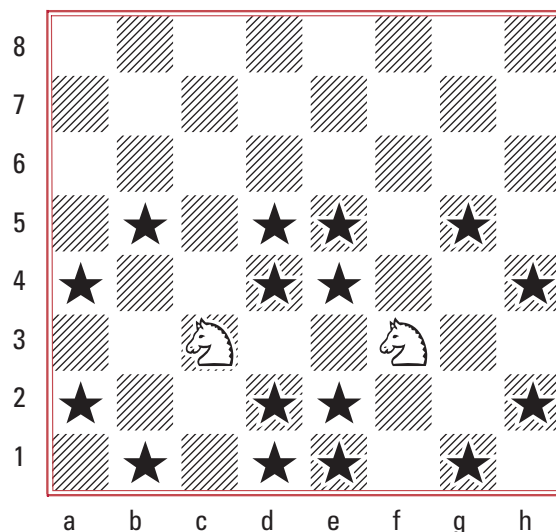


Diagram 2C



(continued on Page 20)



### Thinking in Combinations

So the basis of the games is similar, the surfaces and strategies are alike, but how does that help our players become better? Use a mini-practice court to improve their thinking. Chess can help tennis players learn to think in combinations, which is the equivalent of maneuvering our opponent around the court. Instead of just thinking one shot ahead, players will visualize two or three shots ahead using several tactics during the rally.

Chess has been played for 1,400 years and has developed a name for everything associated with playing the game. Every strategy, tactic, formation, maneuver, opening, defense, etc., has a name that makes it easier to teach. We can use these same names to clarify what is happening in tennis.

Let's look at a chess game in progress and see how a combination happens. (*The assumption is you know how the chess pieces move*). Then we will see how these exact same tactics are combined in a well known tennis point.

In the following diagrams, White has a commanding position in the center of the board with two Pawns, a Knight and two Bishops actively on duty. (For chess players, the moves were: 1. e4, g6; 2. d4, Bg7; 3. Be3, c5; 4. Nc3, Qb6; 5. Nd5, Qc6; 6. Bb5) The last play by White was to move the Bishop to b5 to attack Black's Queen, the most powerful, hence valuable, piece on the board. This is serious. Black must deal with the threat, because if he lets the Bishop capture his Queen, the game is essentially lost. So why doesn't Black just capture the Bishop for free with the Queen since nobody is protecting it? See Diagram 3A.

White is using a decoy tactic, attempting to attract his opponent's Queen onto a bad square. If Black's Queen captures the Bishop on b5 the bishop leaves the board and Black's Queen is now on b5. But that allows White's Knight access to c7, which will lead to another tactic called a Double Attack (fork) on the King (check) and the Queen, again winning White the game. See Diagram 3B. This is the type of pattern we want our tennis players to see and use on the court. If I do that (serve wide), my opponent will hit a defensive return and I can put away a winning volley by getting to the net.

Diagram 3A

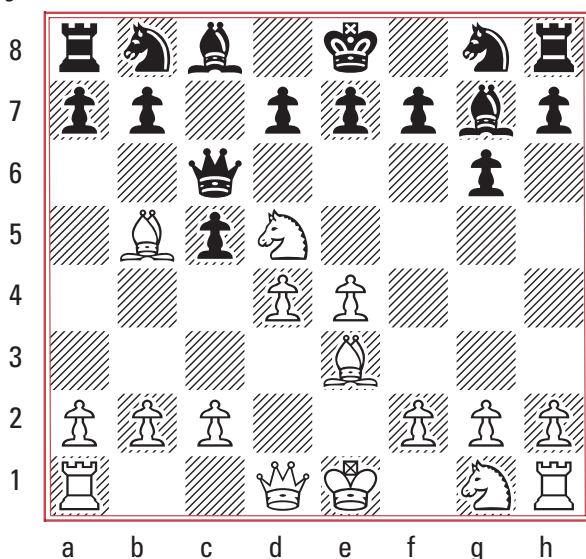
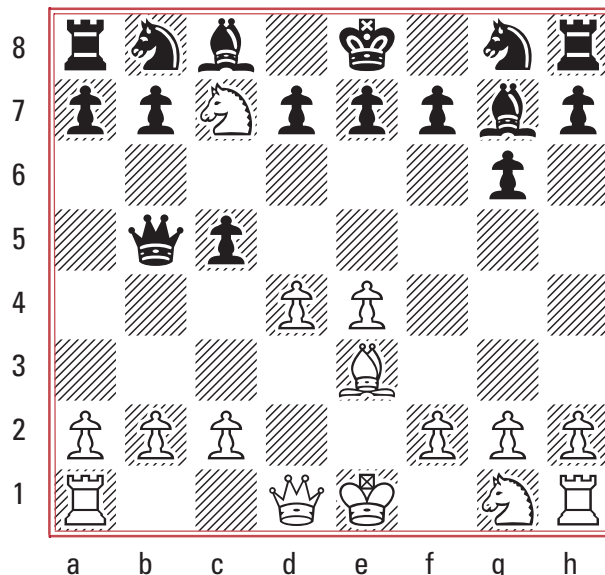


Diagram 3B



Here are a few more tactics before we move on to our tennis point:

A **Pin** is when an opponent's piece cannot move, because the King would be exposed to check, or does not want to move, because a valuable piece would be exposed. Like a basketball player with glue on his shoes is not really helping the team.

A **Clearance** tactic is when a chess piece is traded, sacrificed or driven off the board, because another piece can accomplish something if they are no longer in the way.

A **Decoy** is an attempt to attract an opponent's piece to a bad square.

A **Double Attack/Fork** attacks multiple areas of the board at the same time.

A **Desperado** tactic is when a player is going to lose a piece and probably the game, so they take anything they can for it, maybe a Pawn for a Bishop.

The **Initiative** in chess is the same as being in control of the point in tennis.

Now let's look at these tactics come to life in a well documented tennis point. Visit [www.youtube.com/watch?v=37qyvTRVus8](http://www.youtube.com/watch?v=37qyvTRVus8) (or search "Federer between the legs shot") to watch Roger Federer hit the now famous shot against Novak Djokovic at the 2009 US Open. Watch the video to see how these chess/tennis tactics created the combination.

Novak (N) is serving, so he has control of the point (**Initiative**) and hits a solid serve. Roger (R) returns down the middle without much pace. N makes an aggressive shot (offense), hitting a forehand deep to R's backhand, driving R back off the court (**Clearance**). R's return lands mid court without pace.

Seeing R is off the court, N hits a drop shot (**Decoy**), attracting R to a bad spot in the corner up at the net. R gets to the drop shot, but has

left two areas of the court wide open (**Double Attack**) - back over his head and the entire ad court. N answers with a backhand lob that attacks an open area over R's head (**Fork**). R races back to retrieve the lob, but realizes there is no angle to play a typical shot. N centers himself at the net with a meager split step. Not wanting to lose the point, R goes (**Desperado**), hitting the ball between his legs! Completely stunned, N doesn't want to or can't move for the ball (**Pinned**), and the shot of the year is in the books.

### Chess Can Help Coaches

Acquiring and using even a limited knowledge of chess with our students can also help us as coaches when we work on the court. Chess concepts can help our students:

- Understand the significance of planning
- Improve decision making through questioning
- Learn to anticipate potential moves
- Recognize and implement patterns of play
- Acquire and demonstrate an application of patience

### Conclusion

Many of us already have enough chess knowledge to start using these concepts. Many of our students may already play chess and know how chess pieces move.

One implementation idea is to acquire some lawn size chess pieces to use as targets for hitting crosscourt shots (Bishops), down the line shots (Rooks) or lobs that jump over things (Knights). These are available online at megachess.com

For a prematch warm up, play several quick games loaded with tactics to get students' minds thinking about combinations. Use chess as a team building activity where members of the same team play against each other and share their knowledge. My recommendation is to get good enough to play speed chess (5 minute games) with a clock, exercising rapid paced thinking of a tennis point on the chessboard. Any way you look at it, combining chess and tennis is a really good move!

## PTR Spring TennisFest



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# Member News



**Debbie Lloyd** (*green shirt*) coached the Bishop Guertin Girls Tennis Team in Nashua, New Hampshire to an undefeated season, and to win the Class L (D1) State Championships, upsetting the defending champions in the final. Debbie's was the only New Hampshire team to finish the season undefeated.



**Siobhan Belloli** and her SCATA Tennis Academy summer campers took a fun road trip from Indiana, to play Bluegrass Yacht and Country Club in Tennessee. SCATA's summer camp had visitors enrolled from Coach B's *Pros of the Caribbean* programs. The players came from Anguilla.



**Chris Samuel**, the new Manager for Aces Tennis in Renton, Washington, coached the winning 18s team that advanced to USTA JTT National Championship in Surprise, Arizona. This is the second year in a row Chris coached a team that made it to the Nationals. Her 14s Intermediate team placed third in 2009.



**Nic Askew**, Director of the Southeast Tennis & Learning Center, with his kids in August, meeting President Barack Obama while participating in Let's Move Tennis Clinic at the White House. The President encouraged players to keep being active. He shook most of their hands and chatted before he exited.



On August 5, **Jeff Nerenberg** celebrated the last day of summer at Camp Gan Izzy in Riverdale, New York. All the campers were new to tennis, but by the end of summer were hitting for prizes. The camp is for Orthodox Jewish children, many of whom wear long sleeves and dresses, even in the summer heat. Jeff is also celebrating the 36th anniversary of his tennis academy, the longest running independently owned and operated academy in New York City.

On December 1, Bob and Mike Bryan, whose dad and coach is PTR Pro, **Wayne Bryan**, will highlight the Condor Capital Charity Open at Courtside Racquet Club in Lebanon, New Jersey. **Bruce Levine** is General Manager of Courtside. The fundraising Pro-Am will benefit the Justin Gimelstob Children's Fund that supports children's organizations in New Jersey and New York.



**Jim Egerton** conducted tennis clinics during the 111th US Open Chess Tournament in California. Here is Jim (*center*) with two players, Dan Lucas, Editor of *Chess Life* Magazine and Tristan Kaonohi, a USTA player from Hawaii.



Thanks to our members who helped **Iñaki Balzola** run the PTR Speed Tennis at Arthur Ashe Kids Day. **Debra Broadus, Helen Fischer, David Hong, Adam Jasick, Carol MacLennan, Rita Marsella, Precious Morgan, Ernie Quarles, Shirley Roach, Ed Rubin, Eric Rubin** and **Siobhan Belloli**.



On July 6, more than 70 players enjoyed four clay court clinics at Spotswood Country Club in Harrisonburg, Virginia, a precursor to the first City Clay Court Championships. PTR members, **Kelsey Westwood, Chad Reed, Luke Jensen, John Raker, A.J. McClung** and **Megan Hunter**, helped make it a successful event.