

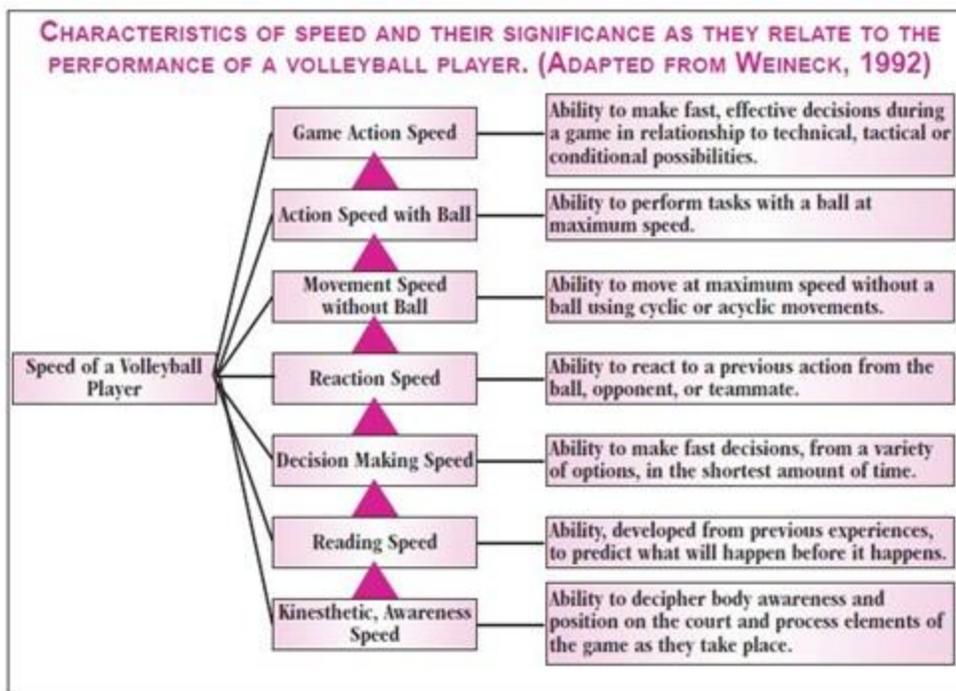
# 7 Speeds of Volleyball

By John Kessel, USA Volleyball Director of Sport Development

The concept of 7-speeds is based on the work of soccer researcher and author Jurgen Weineck in the following reference: *Optimales Fussballtraining. Teil 1: Das Konditionstraining des Fussballspielers.* Perimed spitta Medezinische Verlagsesellschaft mbh, Nuernberg, 1992.

Soccer speed, as referred to in Germany, can be defined as the ability to react to a stimulus in the least amount of time through cyclic (pattered) or acyclic (random) movements with limited resistance. In other words, soccer speed is a complex mixture of psychophysical components. These components include perception, anticipation, decision making, reactions, moving at maximum speed without a ball, actions with a ball and reading the game. All of these components are interrelated and have a significant influence on the speed of soccer players. John Kessel has taken the 7-speeds of soccer and adapted them to volleyball in a unique and understandable way.

Figure one has been adapted from the work of Jurgen Weineck and made volleyball specific. Each speed has its own unique characteristics and training adaptations. It is my opinion that the application and training of these speeds will lead to winning volleyball matches. [Ed.]



Before we review the seven speeds of volleyball we need to understand some foundational observations as to how volleyball coaches coach volleyball. These observations will assist in developing the concept of the seven speeds of volleyball.

A coach's practice time is when he talks among his colleagues, attends seminars, reads literature, etc., all with the anticipated outcome of improving his coaching abilities. Practice time in the gym is the coach's competition time. The transfer of knowledge is the true victory for a coach because when



he goes to the actual match he is almost on vacation. Yes, he has to call a timeout or two and recommend tactical changes be made; however, with what is involved in the match from a player's skill or conditioning point of view, the coach has no control. As they say, you can't attempt tactically what you can't do technically. If the players can't do it technically by the time your practice is over, then you can't put it in as a tactic until the players can get to that level. During practice is the time to transfer the knowledge in your head, which is why I view practice time with the players as the 'game' a coach must 'win.'

I also think the vast majority of kids have a very clear understanding of the techniques that most coaches are requesting of them. The mistakes you see on the court are errors of reading, anticipation, judging and timing. That is where the problems are. The players don't have problems because they can't perform the techniques; it's because they are in the wrong place at the wrong time. I've played a lot of one-on-six games and the kids are always fascinated by how you can beat them 15-2 when there is just one of you. It's due to a large amount of anticipation and my ability to read talent and skills that has developed over time.

If we agree that anticipation and reading are important, then the next area I feel coaches need to focus on is using the net. The net is a regulatory stimulus. To be a good server or receiver, it's mandatory that the ball comes from over the net, and yet we most often start practices in pairs, passing the ball back and forth in front of it, never seeing the ball come over the net. The net is something the players have to spike over, and yet we spend time playing pepper with the player's feet on the ground. We get very good at slicing and dicing and keeping the ball in play, playing pepper.

The coaches say, "It teaches ball control," but the thing that's missing is the regulatory stimuli of the net. It's something that you have to clear every time you wish to win a point with a spike. You also need to jump in the right place and time, something not taught in regular pepper. I'm teaching seventh and eighth graders this year and have eliminated two traditional areas in our practices. One is pairing up. As the players pass back and forth, they never have to decide whose ball it is. It always belongs to one person or the other 100 percent of the time. When you watch the kids play during a game, especially at this level, a decision is made as to whose ball it is about every third contact. The first place this happens is in passing. The players are confident that the ball should go to the setter, but if it's a bad pass, everyone on the team is wondering, "Is the ball mine or yours?" Even after the set there is that moment of indecision as to whose it is. It happens for almost every hit, it's an adventure. Partner passing never teaches decision-making skills.

Another thing I realized is that all passing has to take place on the court. We scored a lot of points not only by getting the ball over the net, but because a lot of our kids let the ball go out when it is out. They were able to read the path of the ball over the net. This teaches what I call court sense. Kinetic sense as to what's going on, on the court. This is only taught when you practice on the court with some team-sized situation; even if it is only three or four of the whole team covering the court. This is why a lot of our practice is done playing queen of the court, it provides players the regulatory stimuli of the net and the lines.

## THE 7-SPEEDS OF VOLLEYBALL

With the above concepts in mind, we can now look at the 7-speeds of volleyball that should address beginner-level problems as well as situations for the more advanced players.

### Kinesthetic Awareness Speed

**Kinesthetic awareness speed relates to an athlete's** ability to determine where her body is in relation to space and awareness of her position on the court, and to quickly relate this information to the game.



One thing unique to volleyball is that the moment the ball is served, the court measures nine by 18 meters (except in top level Beach where it is eight by 16 meters), but as soon as the ball is hit, the court becomes the entire planet earth! If you wanted to chase the ball all over the earth to make a successful dig, you could do it if you were fast enough.

In a more practical sense, the size of the free area on center courts for high school to Olympic level, for both indoor and beach, is often far more space than the court itself. That is one of the unusual kinesthetic perceptions in our sport.

Every team, be it club, high school, college, etc., has various court layouts in relation to the stands, spectators, ceiling heights, and so forth. There are also various court surfaces that affect kinesthetic awareness. In the past you would have a large number of lines on the court. Now that there is Sport Court, awareness is enhanced because the court is basically two toned. The play area is one color and the free space, as it's called, is a different color.

In volleyball, play continues as long as the ball doesn't touch the ground, even if an athlete steps out of bounds. Out doesn't exist until you hit a wall or a bleacher. These wall and bleacher configurations are different at every location. For example, ceiling height doesn't matter in soccer, but in volleyball it's a consideration. At the level we play, if the ball hits the rafters and goes over, we play on. We just can't bank shot it over. This creates a whole new kinesthetic awareness situation for young players. There are unique situations that develop in a volleyball game for which one can't really be trained, they just have to be experienced.

Another factor of kinesthetic awareness in relation to body position is that in volleyball, I estimate players spend 50 to 60 percent of their time looking up. This creates a unique challenge for them to be aware of where they are in relation to the boundary lines. A method to determine if a ball is out of play was invented by Jim Coleman. He first used fishing poles, which are now the ever-present red and white antenna.

On the other hand, soccer players are looking down or straight ahead most of the time, and they can stop with the ball. Volleyball speed is faster than the speed of any other sport for a number of reasons. Not only is it the most crowded sport, but also 12 players are positioned on a 9 by 18 meter play area and the ball moves incredibly fast in that same small space. All this is performed in a game where it's against the rules to hold onto the ball. Players can't pause, kick and spin like a soccer player, or receive a pass, hold the ball, dribble and then shoot like a basketball player. Our speed is vastly more pronounced because we can't hold the ball. As a result, the players have to anticipate way ahead of what is going on.

Another challenge to awareness speed is the net. It's placed in the middle of the court with the stipulation that you can't touch it. You can leap at the three-meter line with no problem. But you may be in trouble at one meter because all of a sudden the net, a barrier, is there. The problem is that you are looking up.

One thing I've noticed is that when kids are practicing without the ball, they are looking at the net. They will learn where the net is, then jump up and not hit the net. When the ball is NOT there, their head is flat, eyes looking at the floor (for footwork) or the net (to not touch it). When they get an actual set with the ball in the air, which is game-like, they are looking way up in the air as the ball is falling down. They can't see the net, so they have to process the kinesthetic awareness as to where the net is because they can't touch it. You can't see it, but you have to know where it is. A common error in practice is looking at the net all the time. This doesn't build kinesthetic awareness speed.

Volleyball is played at varying degrees of ball and player heights, all in a relatively small space. A player may be towering over the net or the kill and a second later an opponent may be flat on the



ground for a pancake dig. The challenge of knowing where you are in relation to the court and the net at game speed takes an incredible amount of practice under game situations.

### Reading Speed

Reading speed is the ability to predict what will happen before it happens; a skill acquired through previous experiences. Reading speed has to be gained through experience with one major qualification, the experience must be game like. This is where many volleyball coaches err because they think that there will be a drill transfer to reading speed. This is why Monarch of the court plays a key role. It provides a sense of what is going to happen in a game flow.

Spikes and digs provide the ultimate speed of reading. A player jumps to spike the ball at over a 100 kilometers an hour as a player on the other side reads the situation to make the dig, from a distance as short as three or four meters away.

In the way our sport is played, most of the kids watch the ball when it is set. They watch it go up in the air and watch it come down to the person who is getting ready to put it away. Rather than spike it, the player touches the ball for a tip. At that moment the gym resounds with the word, "TIP." This happens after the ball leaves the fingers. But if you can train your kids not to watch the ball but to watch the hitter as the player runs in, you start to pick up clues through anticipation and reading as to how they jump, full power or medium power? Are they off balance? Is the ball drifting behind them? From their body language, are they leaning back? These things all add up to where the opponent is in relation to the ball. Also to consider in reading speed is what happened in previous contacts.

Let's say the player got blocked during the previous play in a similar situation. The fact that they just got blocked increases the chances that the ball may be tipped. The percentage of this is not 100, but it's not zero either. The knowledge of the game and body language of the opponents can help predict the possibility of a tip before it happens. Coaches can relate to this. They can usually predict a tip before their players because they are watching the players as the play unfolds.

But what do coaches do to train for defense of tips? They stand in front of the net and fling balls over the net into the corners of the court as a drill. This lacks game-like reading and anticipation. Players are reading how the coach is throwing the ball with a 100 percent chance of a tip and not learning from a game-like situation. In a game, a tip may occur one out of every eight hits over the net and its just clearing the net, not going to the corner. How can you develop reading speed with the tip drill?

All of these clues occur as play continues. Here's another consideration, the first thing you have to worry about is the setter. S/he may put it over on the second hit. From there the opponents have a selection of five possibilities to whom to feed the ball. What we teach the players is to look at the setter and decipher the tendencies of that setter by reading the pass as it comes in, predict where the setter is going and predict the outcome.

**In playing defense you have 'commit blocking' and 'read blocking.'** Commit blocking means that you stop reading what the setter is doing and commit to a player. Read blocking means that everybody who is blocking looks at the setter and tries to figure out where the ball is going, hoping to guess right. With five possibilities you then have to decide which player is going to take the hit based on what the setter did with the ball and the history of what has happened before. You have to read and get into position to make the block.

### Decision Making Speed

This speed is the ability to make fast decisions from a variety of options in the shortest amount of time. Like the two speeds preceding it, this speed only develops through game-like training. Great players



make good decisions by getting into a neutral position. That comes from the two speeds before. I need to jump to be in the right place at the right time. If the players can do this they are in neutral position. They have all the options available to them. If they can't, then the options become limited and the ball starts to control where the players can hit.

A case in point, jumping to hit the ball. It takes a long time to learn to jump at the right place, at the right time. Coaches get in the way of this by throwing balls in one place or letting the players see lots of machine sets. They don't provide the random variety that the players will see during a game. Passers make decisions based on what the opponents are doing. They take their position before the ball is contacted. The setter and hitter are making decisions based on getting into neutral. If the players are in neutral as they take off in a jump, the set may be drifting farther back than anticipated.

The players may not be able to achieve what is their maximum height but instead they jump so that the ball is in front of the hitting shoulder in a solid spot. The players can hit down the line, angle, cut and tip every option available. However, if a right-hander lets the ball drift way over to the left shoulder, s/he can't hit to the right very well. This is why I say that the ball controls the player. It takes away the decision because the player is not in neutral. What both less experienced and top level teams do is reduce the height of the set and reduce the height of the pass so that those two contacts allow the third hit to be even faster, giving the opponents less time to read. Coaches of younger players tend to ask for a very high set ball, 'so the hitters have time to move to it.' When in trouble, players tend to set the ball really high.

Lower sets take more speed to run successfully, thus the offense runs faster. That's why they are mostly used by higher-level teams. Also, great teams have the ability to kill the ball from higher sets from the left side. This is what gave our girls a run to the gold medal match in this year's worlds. Winning the silver was great, but I think we would have won it all if one of our top outside hitters had not sustained an eye injury the day before the finals.

The setter position is where these great, fast decisions are made. They make the determination as to where the ball is to be set, in the setter's slot or from any place on the court if the setter is fast and reads well enough to get to even bad passes. Too many teams aren't able to have their setter setting from awkward positions on the court, and in some instances not having the setter make the set. A setter's first decision is whether or not to make the set or call for help. Then s/he must make the ball hit-able and make the right choice of hitters from the five options. Setters are making these decisions as they run up to the ball.

Jump setting is done as a decision is made by jumping to make the set. This also speeds up the offense because the ball can't rainbow down due to the setter going up to meet it at a high point, which shortens the time the opponents are given to read. As with hitters, the setter, no matter if setting from the ground or from a jump, is setting from a neutral position and keeping all options open. Some setters even lower their position closer to the floor so they provide the time a late quick hitter needs to get up into the air, the setter compensates for the hitter. A lot of the speed depends on height of the set and how fast the offense is run.

## Reaction Speed

This speed is the ability to react to a previous action from the ball, an opponent or a teammate. Thus far, the speeds we have discussed and their development have had a lot to do with playing experience. We have looked at the where we are at on the court (kinesthetic speed), the second before the ball is touched (reading speed), and finally as the ball is touched (decision making speed). Now we are taking about speed after the ball has been touched. Reaction is partly inherent since some people just naturally react faster. It's the speed of muscle firing. Some of it can come through speed of movement training and learning to be quicker, such as being able to move the hands faster.



Another part of it is reacting to where the ball is going based on the results of the first three speeds. This may be something that is instinctive and cannot be conditioned. Reading tells me where to go to react, and you can improve at this. But the act of reacting fast is a talent. You can condition your muscles to be stronger and, therefore, react faster but this is about all you can practice.

### Movement Speed Without a Ball

This speed is defined as the ability to move at maximum speed without a ball using cyclic (patterned) and acyclic (random) movements.

When watching a match, you see that one person is touching the ball. The other 11 players are doing something else; getting ready to react. They are all moving to adjust to where the ball goes. As soon as a teammate touches the ball, it's either a perfect pass or not. If it's perfect the players move in a pattern, something they have practiced to get ready for the next step. If the pass is not perfect, they are all moving someplace else based on the next contact by the setter.

At the lower levels, many teams choose to hit the ball over on the first hit. This tactic often beats an opponent that works on hitting the ball three times before hitting over the net. The reason is that when **you hit three times, the chances of an imperfect hit are three times greater than the "one hit offense."** But, as the three hit team works together and starts to adjust on a consistent basis, they easily beat the one hit teams. It's easier to anticipate and move into position knowing that the ball will be coming back over on the first hit. On a world-class level there isn't one team that hits over on the first hit; therefore, you are reading something different all the time. You are reading and moving as a result of where the ball is being passed.

At the beginner level, a mistake often made in practice is that once the ball is served, the server will stand and watch the ball. What should take place is that the server runs to her position on the court **as part of helping cover the court equally. I use a "W" position with my beginner team. This gives good** coverage all over the court, helping the players get ready for the ball hit back over the net. If we are playing a three hit team, you first worry about the setter dumping the ball over on two, but the primary worry is which of the five hitters will be hitting the ball over the net. So here the team is always moving in anticipation of making the play, and covers the court in a different pattern.

Here's an example I experienced with my medium-level team. As the ball is served, two of my players are at the three-meter line ready for an over pass, while three of my players are at the net getting ready for a block and also an overpass that they can spike. Once they see that none of these first things will happen, they then get ready for a dump by the setter. While they are worried about a dump by the setter, they are also watching the people who are running and getting ready to spike. From there we react by getting ready for a block. This is the essence of movement speed without the ball, it becomes a game of cat and mouse. On our side, we are trying to put our best blocker on their hitter, while they in turn are trying to put their best hitter on our weakest blocker. This creates a constant pattern of movement, back and forth. The same thing happens on the floor. We put our best digger where most of the balls go.

Based on this example, we see errors being made by coaches. One of my pet peeves is the game of pepper. In pepper, the better you get, the LESS you move. The reality is that if you are a defender or an attacker, the better you get, the MORE you move. You want the players to move more and more to work on this important speed, but in pepper, you move less and less. Great defenders move forward and backward as well as along the court, but pepper only teaches standing still.

### Action Speed with the Ball and Game Action Speed

I consider these two final speeds of volleyball together. Action speed with the ball is defined as the



ability to perform a task with the ball at a maximum speed. This speed and game action speed (ability to make fast, effective decisions during a game in relation to technical, tactical or conditional possibilities) are a result of everything we have leading up to them—the whole time we train in a game-like way. The point is that while the players can do a lot of running without the ball to increase speed of movement so they can make decisions, they can also move more powerfully to a position either to the left or right, forward, backward, lower or higher. Players can also train to jump higher. Having done this, it is now important to use these improved athletic skills in gamelike training as much as possible.

There are times when you'll train off the court. What should be done here is make it as game-like as possible. For example, in a warmup, the other team is going 5v5 or 3v3 and are spiking and we are off the court. What I do is serve the ball over an imaginary net. It travels to a passer who then passes it a distance that is game-like. The distance and circumstances are as realistic as we can make it. We are doing things at game speed and all that's missing are the lines and net. Since my players know their own kinesthetic awareness enough, it helps them play as though there is a net and lines, and the habits being formed will be correct in a game.

Another poor coaching example is when people are setting in triangles. We aren't getting much out of this as far as anticipation and kinesthetic awareness, but we are off the court. The mistake that is made is the sets are done as counterclockwise front sets. In a game, the flow of the ball if it's a front set, is going counterclockwise. The ball goes to the left. If you are going to make the ball go clockwise, somebody in the game must back set the ball. So you don't want to stand there and front set every ball. Thus, one of the three sets in the triangle should be a back set. This is a better way of learning the flow of the game.

We try to do everything we can with a court, net and ball even if the number of players is less than six a side. Two versus two, or doubles, teaches all the speed we just presented and maximizes some of the distances that have to be covered. There is still that decision point of is the ball mine or yours? If you normally play 6v6, a more specific game would be 3v3, where the decisions are more specific.

It all goes back to game speed. I do this in two ways. If a player makes a mistake I will say, "Show me without the ball what the technique is." If she does it correctly, then I know the kid can do it. In a game then they have a choice, look perfect without the ball being touched or touching it someplace wrong while looking "right," or look imperfect and touch the ball in the right place (on the hands or forearms normally). This tells me that I want to spend the majority of my time with the ball at game action speed. The reason you can do a skill without a ball and fall apart with a ball is simply lack of experience with a ball at game action speed.

It is interesting to see that players struggle for a while with a higher level of volleyball; for example, moving from junior varsity to high school, high school to college, and college to the international level. What is different? The ball is going faster, the opponent has more and faster decision making capabilities and there is more information to disseminate in a shorter period of time.

So, the problem is how to get better faster to make these competitive jumps to higher levels. The answer for girls is simply to play with boys. With the girls I've seen move up the ranks, many of them played coed volleyball or with and against their brothers. How do guys get better? Play against older guys. Rod Wilde, one of the best setters and diggers I've seen, played for his dad's double-A team at the age of ten. He was digging balls with double-A opponents at the age of 10. What happened when he went to play at a higher level? With all that experience and game speed, he did great. Laurel Brassey, one of the best USA National Team diggers ever, played NCAA men's volleyball. Misty May, our current best digger, played coed doubles with her dad.

This is a way of overloading players in a very game action specific way, it teaches going faster. The game teaches the game. I'm amazed to hear coaches come home after a tournament that played a pool of four and say, "We did well in the first match but we caught our stride on the second. If we only



served the last two in on the third match we would have been in the playoffs. They really started to get it." I respond with, "How come you aren't getting the same speed and quickness out of your practices? Look at what just happened. You played in a pool of four, three matches. Each match lasted 45 minutes. You were on the court for two hours and 15 minutes and you saw quantum leaps in understanding. Why aren't you getting the same thing in your two-hour practices?" **The answer is they are doing too many non-game speed like activities, the kind of stuff that doesn't transfer.**

We need to get out of the old traditions of the sport. We don't want to win gold medals at wall passing, but gold medals at volleyball.