

Sports Photography

by Rob Miracle for photo.net

We have all at one time or another been captivated by sports images. It may be Kirk Gibson's World Series Homerun, and the image of him running the bases, overcoming the pain he was in or an image of high flying Michael Jordan slam dunking a basketball with his tongue out. We have all been captured in the moment of human drama. We all like a good action [photo](#) and, in particular, if your kids play sports, you want to remember them in their toils.

Quality sports shots are somewhat difficult to come by. Most people have limited access to events to photograph them. The further away you are from the event, the harder it becomes to capture the event in a pleasing manner. Sports are an event where crowd control is important, not only for the crowd's safety, but for the players also. There is nothing more frightening than to be on the sidelines of a football game, focused on a play in the field, when out of the blue a 250 pound line backer drives a player into your legs or a foul ball comes crashing at your \$8,000 [lens](#)!

Location, Location, Location!

You can only photograph things you can see. The closer you are to someone, the better you can see them. Sports are no different. You have to get as close to what you are shooting as you can. Typically, for a photographer with a press pass, you can get to the sidelines or other similar locations. You generally will not be permitted on the playing field. Depending on the sport, you most likely will be limited to designated locations. For instance, at most Division I football games, the media cannot shoot between the two 35 yard markers. For most people, the situation is even worse. You probably don't have press access and are stuck in the stands for your shots. Get as close a possible. Even if you make it to the sidelines, you will be jostling for space with many other [photographers](#), both still and video who have worked hard to get there and have the same job to do that you have.

You also have to be familiar with the sport to be able to capture the moment. This means knowing where to position yourself for the best action. This is critical because of angular momentum that will be discussed in the section on freezing action. Not only does it matter with the subject, but the background. Look at what is going to be behind your subject. While we will try to minimize the impact that a background has, it will still be unavoidable. So you need to position your self where the background is the most pleasing.

The Decisive Moment

Sports and Action photography is all about timing. Its about reacting. Its about being in the right place at the right time and its about execute. These are all qualities of the athlete and those of the photographer as well. Each sport has predictable and unpredictable moments. Under "Knowing your Sport", you will learn about these moments for individual sports. For instance, in basketball, you will have opportunities to photograph layups, jump shots, free throws, etc. Understanding the timing

of these predictable actions allows you to capture the peak moment, when the action is most dramatic.

By knowing these moments you can anticipate the action. This helps in two ways, one it helps you with focus which will be discussed in a later segment, and secondly it helps you snap the shutter at the right time. The saying goes "If you see the action you missed it." This basically means if you wait for the soccer player to head the ball then press the shutter release, the ball most likely will be sailing out of the frame. You have to push the button before the action so that the mirror has time to flip out of the way and the shutter open and close. There is a delay between the image hitting your optical nerve and the shutter closing. You have to, through experience, learn what that time is and adjust for it.

Required Equipment

Most sports are shot on 35mm cameras because of their portability. While some photographers have captured great sports moments with other format cameras, we will concentrate our efforts on the 35mm arena which is the most commonly used gear.

"Its not the equipment but the photographer who makes the picture" is generally a true statement. However with sports and action photography, having the wrong equipment means not getting the shots you want or need. This relates back to the section on location. The further away, the longer the lens is needed to capture the same image in the frame. Different sports require different lens lengths. For instance, basketball is generally shot from the baseline or sideline near the baseline. You generally can get good results with an 85mm lens in this situation. However, by the time the players are at mid court, you need a 135mm to capture them. If they are playing under the far goal, a 200-300mm lens is needed to fill the frame well, yet for shooting a soccer game, a 300-400mm lens is needed for just about anything useful.

Generally, for a 35mm camera, each 100mm in lens focal length gets you about 10 yards (9 meters) in coverage. This coverage means that on a vertical format photo, a normal human will fill the frame fairly well. Thus, if you are shooting American Football from the 30 yard line with a [300mm](#) lens, you will be able to get tight shots in an arc from the goal line to mid-field to the other 40 yard marker. As players get closer, your lens may be too long. Many photographers will carry two bodies with two different length lenses for this reason.

Lens speed is also a critical factor. The faster the lens, the faster the shutter speed you can use, which as the lens grows longer, this becomes even more important. This will be covered in the freezing action section in more depth. If you look at the sidelines of any Division 1 college football game or an NFL football game, you will see people with really big lenses. These range from 300mm to 600mm or longer and even then, they may have a 1.4X converter or 2X converter on. You need fast shutter speeds to freeze action with long lenses. Every F Stop you give up requires a faster film or less freezing potential.

Most consumer grade long lenses and zooms have variable apertures, but most are F5.6 at the long end of the lens. F5.6 is good for outdoor day time shots, but becomes very inhibiting for night games and indoor action. Most people use lenses that are F2.8 or faster. These lenses are very

expensive. A 400mm F2.8 sells for over \$8000 US. They are also very heavy and bulky. Using a monopod is a life saver with these big lenses.

Besides these long lenses, you need a camera that can drive them. Today, most new cameras are auto focus. Auto focus makes this easier on us, but the AF systems are not fool proof. Luckily, many sports lend themselves well to manual focus, so sometimes you can get a bargain on a manual version of a lens to use on a manual camera and still get good photos. However AF comes in handy for a few sports. Hockey and Soccer involve many subject to camera distance changes. Motion is less predictable and these sports are some what harder to manual focus. Football, Basketball, and Baseball are quite easy to manual focus.

You may also need a flash with a high output. I personally do not recommend a flash at any sporting event. I find the results unpleasing. However the new modern flash systems produce great results. Some sporting events like gymnastics and others are no-flash events. It is best to talk to an event official (referee, coach, etc.) before using your flash. Flashes will be covered more in the section on lighting.

Other equipment which can come in handy are remote triggers. These allow you to mount a camera where you cannot be during the game and remotely triggering it, recovering it after the event. Basketball and Horse Racing are two good examples of sports where great photos come from someone who never sees the viewfinder while they are shooting. Pictures of NBA stars slam dunking the basketball taken above the rim or the winner of the horse race thundering by are done remotely.

[Editor's note: Among digital cameras available in April 2001, the most suitable cheap camera is the Olympus E-10. A working sports photographer would use a Nikon D1, Canon D30, or one of the Kodak/Nikon or Kodak/Canon professional bodies. Where to buy all of this exotic stuff? Your neighborhood camera shop won't have it. Check out the photo.net recommended retailers.]

Depth of Field -- Isolating the subject.

Most all dramatic sports photos are shot with the lens wide open or one stop from wide open. This is done for two reasons. First you need all the shutter speed you can get, which means shooting wide open, but just as important, it has to do with isolating the subject. As the aperture on a lens opens up, less and less of the photo is in focus. The longer the lens, the more dramatic the change. The larger the distance between the subject and the background the more out of focus the background will come. If you use a long lens and a fast aperture, then your subject will stand out and the background elements will have less impact on your photo.

Reducing background noise is an important goal in many photographs, sports action or not. In studio or landscape settings, you have time to control the elements that make up the picture. Action photography is a "grab it now" type of shooting and you live with the background that is there. If you open up the lens to its maximum, you will find your subjects standing out and becoming memorable.

When you are shooting sports, in particular football and soccer, keep in mind that plays shot on the far side of the field are closer to the background than shots on the near side of the field. Thus if you are shooting a soccer player moving the ball down field and the player passes in front of the bench when you snap the shot, you will have a very distracting background. It may be hard to separate the player and ball from the background noise. Fences, signs, poles, bleachers, stands, and people on the far sideline can really mess up a good shot. Even though you might be shooting wide open, the background will be too prominent in these shots. Should they be avoided? If you have better shots, don't use it. However, it may be your best shot. Shoot it, just be aware that distracting backgrounds are more problematic on shots on the far side of the field.

Focus

An out of focus shot is pretty useless. There isn't much you can do with them other than throw them away. So achieving crisp focus should be a goal of every one. Today's AF cameras do a very good job of focusing, and focusing quickly. AF has really made a lot of photographers lazy. I used to manual focus everything, but now that I have an AF system with [AF lenses](#), I let it do my work for me.

However, many times, manual focus works better. To understand this, you need to know how auto focus works. The camera takes a series of measurements across its AF sensors. It looks for contrasting lines. It moves the lens until these lines achieve the maximum sharpness. These sensors are located in the viewfinder of the camera. Different camera models have different sensor configurations and different capabilities. These sensors either are a simple spot meter in the center of the view finder. A line of three sensors that run across the viewfinder. Or a cross which run side to side and top to bottom. Generally, these sensors do not cover the full range of the view finder and your view finder will have markings showing where the AF sensors are.

If you are following a football player as he runs down the side lines, or a horse as it heads over a water jump, you start by pointing the camera at the subject. If you have a spot AF sensor, you have to be dead on the subject or you will find a focused background and a blurry subject. Wide horizontal sensors will allow you to lead your subject a little bit or allow you to compose shots that are off center. However, when you turn the camera to shoot a vertically framed shot, your sensors now run up and down. There are two things to be aware of here. First the AF is now vertical, thus your subject now has to be in the middle of the frame again, just like the spot sensor. Depending on the AF sensors in your camera, they may not focus on horizontal lines as well as vertical and you may find the AF less than responsive. However, you are shooting vertical sports, like volleyball, shooting vertically works pretty well.

Depending on your composition, many sports photos are shot vertically. Humans are vertical people and if you are trying to get a good shot of your favorite baseball player cranking a home run, you want to turn the camera to a vertical format. Luckily, baseball lends itself well to a small AF sensor for pitchers pitching and batters batting.

Some of the high end cameras have a cross pattern of AF sensors and they are generally selectable. By using a sensor array in this format, you have good vertical and horizontal sensor patterns regardless of which way you hold the camera.

For those times where AF isn't working well, or if you have a manual focus camera, you need to understand how to focus. There are two primary means of focusing a camera: Follow focus and Zone Focus. Follow focus is where you keep your camera on your subject, rotating the focus collar attempting to keep the subject in focus. This works very well on side to side movement, where the camera to subject distance is not changing rapidly. You might use this method for football, auto racing, or other events where you turn side to side following the action. This requires practice to get down. A good way to practice is to go out to the street and follow focus cars as they drive past.

The second method is called zone focus. Here you expect the action to take place at a particular place, at the goal mouth on a hockey rink, or at the jump point on a long jump event at a track meet. You can focus on the area you want to be sharp and when the subject moves into the zone, you then take the photo. This is timing related. You need to practice the timing on this as well. Both of these methods allowed photographers to capture fantastic photos before the invention of auto focus and will continue to into the future. Even if you have an AF system, you should learn to follow focus and zone focus because there may be times where your AF isn't available (low light, low contrast situations for instance) and you need to be able to come back with the shot.

Composition

Faces

"Give me faces" or "I want to see faces" is a common cry from the photo editor because that is the cry he gets from his bosses. The face is the primary source of emotion in a shot and that emotion is what makes or breaks a shot. Shots of the subjects backside just don't cut it. Don't waste the film on a back shot unless you can see part of their face. When shooting a sport you need to be aware of the players locations. For instance, in basketball, if shooting from a side line, you only shoot people taking jump shots from the top of the key around the backside away from you. Any one taking a jump shot on your side of the court will be a shot of their back side. If you can't see their face, leave it on the cutting room floor.

Some sports, faces are hard to deal with. Football, Hockey, and Baseball tend to be difficult to catch faces depending on the level of play. Youth hockey for instance involves face cages on the helmets. Football at all levels of play involve face cages. Baseball caps create harsh shadows across faces. The easy solution is to use a fill flash to try to get past these barriers, however, flashes are generally not friendly for sports due to limited range and the possible distraction. Still its best to get the cage in the shot because the face will show through better than the back of the helmet.

Vertical/Horizontal

There are two ways to hold a 35mm camera that effects the composition. This was discussed somewhat in the focus section regarding the AF sensors. You can hold the camera in the traditional way where the long side of the film is horizontal to the ground. This is a horizontal or landscape format. If you turn the camera so that the long side of the film is perpendicular to the ground, you are now shooting vertical or portrait format.

Many modern cameras have an additional release that allows you to hold a camera in a traditional manner (left hand under the lens, right hand along the right side of the body) as opposed to the old way of shooting vertically (left hand under the lens, right hand on top of the camera since the

camera was rotated 90 degrees left). These vertical releases have been a wonder for sports photography since it allows the camera to be held in a more stable fashion.

Why would you want to do this? Think about the shape of humans. They are taller than they are wide. To fill the frame with a person playing a sport, they fit the frame better while holding the camera vertically. Even in a tight head shot, it fits better vertically. A lot of sports shots, in particular if it is of an individual is shot vertically. Horizontal shots are used more showing conflict.

Individual vs. Conflict.

The vertical vs. horizontal decision needs to be made based on your desired goal in capturing the scene. If you are highlighting an individual, you should shoot vertical. A majority of photo opportunities in basketball and baseball come from individual efforts.

However, there are times where you want to show the conflict in the scene, for instance two hockey players fighting for a puck along the dasher boards, or a soccer player being pursued by the defense. To capture these multiple people, you typically will have to shoot horizontal. You should make a conscious decision before you fire the frame as to your goals in capturing the shot.

Rule of Thirds

There is a common photograph rule called "The Rule of Thirds", which says that if you divide the frame into a thirds vertically and horizontally and place the subject where the lines intersect, the resulting photo is more interesting. Camera manufacturers don't believe in this because their AF sensors are centered in the camera.

For Sports photography, following the Rule of Thirds in principle is a good idea. That is lead your subject into the frame. If you are shooting a football player running left to right, leave more room on the right side than the left to imply that he is going somewhere. Shooting the player leaving the frame is poor composition. If you are shooting a tight "portrait" style shot, have the subjects head on a "Rule of Thirds" line. If you fill the frame, you should be in pretty good shape, just leave some space on the frame in the direction the player is facing.

Framing

Depending on how you get your photo output, you should be aware that many cameras do not show the full frame. Because of this many labs "enlarge" standard [prints](#) to approximate what you see in your viewfinder. If your camera shows the full frame, like many high end cameras do, and you fill the frame with a person, the 4X6 coming from the lab will in all probably crop part of the frame in a way you do not like. I cannot count the number of times a soccer ball has been cropped out due to this enlarging factor.

If you scan from the negative for your publication, you have more control in capturing the whole frame. Get to know your output methods, lab habits, etc. If you find you are losing parts of your frame, don't fill the frame as tight.

Know your Sport, Know your Players

Each sport is different in the techniques used to capture the moment. Each sport has a limited number of unique shots. You can only shoot so many basketball games before you start feeling like, "been there, done that". Each sport also has opportunities to get "safeties" . A safety is a shot that is easy to get and will give you something to publish if you fail to get good action. For instance, I was shooting a baseball game. In the visitors at bat in the second inning, the skies opened up and it started raining. I had time to shoot the home team in the field and at bat once. Realizing the pending weather, I concentrated on getting some simple usable shots instead of waiting on some excitement at a base, like a steal. Safeties include things like batters batting, pitchers pitching, basketball players shooting free throws, the quarterback under center. Take times when the action is slow to get some good tight shots to use in case no good action materializes. Shoot your safeties first, concentrate on action later. You always want to come back with something.

Its also important to spend some time at an event and not rush the assignment. Many photographers are under intense deadlines and cannot devote enough time to their sporting events and it shows in their work. I expect one usable shot every 20 frames. I like to shoot at least 72 (2 -36's) per event and I can come out with several usable shots and some fantastic ones. If you go to a soccer game and shoot a 12 exposure roll, don't expect much.

Its very important to know the sport you are covering. You have to know the coach and their coaching style. You have to understand some basic fundamentals of the game or you will become very frustrated. For instance, in football, if its 3rd down and 1 yard to go, don't expect a pass, but point the camera at the full back. In most likelihood, he will be getting the ball, unless its late in the game and they have to pass. Or don't wait on a steal at 2nd base with 2 outs. Coaches hate making the last out of the inning on the base paths.

You also need to know players and their habits. Some players are full of emotion and tend to display their pattered moves. For instance at a local high school girls soccer match, I got a dramatic sequence of a player doing a cartwheel throw in. I knew it was coming and I was prepared for her move when she got the ball.

Knowing your sport goes beyond the rules and players. Know your coaches and what tends to make them emotional. Get fan shots or cheerleader shots with their emotion. A co-worker once told me "even a blind pig gets an acorn once in a while". Any photographer will eventually get the "action" shot, but sometimes you need that crying cheerleader after a loss, or fans in costumes going nuts to completely tell the story. The game goes beyond the boundries of the field and the rule book.

Baseball

Baseball is one of the hardest sports to shoot. The action is unpredictable. You wait and wait and then when you are half asleep, something happens. Much of the field is out of range of normal zoom and telephoto lenses. Depending on the level of your sport, you will need long lenses. For most regulation fields (90 feet between bases, 350+ feet to the wall), you need 400mm or longer if you are shooting from the dugouts. It lets you shoot all the infield positions reasonably tight from the dugout/press area. The near base can be gotten with a 200-300mm lens. If you are shooting little league, you can get away with a 200-300mm lens because of the smaller fields unless you are trying to catch the outfield. Night baseball is too poorly lit and you need professional long telephotos to capture good images here.

Your safeties in baseball consist of the pitcher, throwing the ball, the batters batting, the catcher catching or getting a sign from the dugout. After these shots, the game becomes a little less predictable. When a batter hits the ball to an infielder, you have to find the play, aim the camera, focus, and fire. Generally its too late. What you have to do is kinda keep the camera pointed at the short stop or the second baseman. Keep the camera near your face, but you need to watch the play. In particular, if you are standing where you can see the batter's stomach, you are in risk of getting hit by a foul ball. If you see the batters back, you will rarely see a foul ball. Once you have an idea of where the play is going, you can adjust, focus and fire. If you are shooting from the first base dugout, 3rd and Short Stop should be about the same distance away, so you can zone focus here. Likewise, from the third base dugout, 2nd and 1st are about the same distance.

Once runners get on base, spend a few batters focused on an open base in front of the runner. Thus if a runner is on first and no one is on second or third, there is a good chance for a play at second base. It could be a steal or a double play. If no one is on, concentrate on first base. If multiple people are on, concentrate on either the fielders or on home plate. You have to wait and be patient. Baseball games are long and you will opportunities. Make sure to get your safeties. If you get into a pitching dual, your safeties may only be shots of the pitchers.

Basketball

Unlike baseball, basketball is the easiest sport to shoot. Action is contained in a 100 foot x 50 foot area. There are two objects (the nets) where the action always heads. Basketball is a game of limited shots though. You can shoot jump shots, lay ups, free throws, blocks, dribbling, and defense. Zone focus works well in basketball. You know lay ups are going to happen close to the net, so focus on the net and wait on the action to come to you. Your focusing techniques will vary somewhat if you are on the side line or base line. If you are on the baseline, zone focus is the best method. If you are along the side, you can follow focus. Your safeties are free throws and players dribbling or looking to pass. At these times action is minimal and you can get some good tight shots of players.

Basketball (and other gym sports) is probably the worst lighting situation you will get into, however, you can get away with much slower shutter speeds. When a player drives for a lay up or takes a jump shot, they almost pause at the top of their jump. This is the peak of the action and the shot should be taken then. Since they have stopped moving for a millisecond, that is the best time to freeze them. Once you have these shots under your belt, you can then start working on emotion shots, blocks, and other action which may not come along as often.

Generally you can get away with anywhere between a 50mm and 135mm lens with 85-105 being optimal. This lets you cover out to about mid court. If you want to shoot shots under the far basket, you will need a longer lens. However a fast lens, like an 85mm F1.4 is an excellent choice for most of your basketball action shots.

Football

Football is also an easy sport to shoot but may be one of the most equipment intense sports. Most of the time, you will be shooting at night and fast glass is required. Motion is predictable and a student of the game can almost predict the plays to allow you to get ready. Knowing your sports allows you to know if its a passing situation or running situation so you know where to focus your attention.

For instance, in a football game, if it is 3rd down with 1 yard to go, you can be pretty comfortable that a running play is coming. So get your lens pointed at the backfield and get ready.

Football affords the fewest safeties. You can get the QB getting ready to pass or the coach on the side lines. However, the action shots are plenty. You will get opportunities to photograph the quarterback throwing the ball and running backs running the ball. Make sure you get these shots. Then you can go hunting pass plays to the receivers.

If you have freedom of movement, you want to set up 5-10 yards down field from the play. That way you get the QB and running backs coming at you. If you are stuck in photo zones between the goal line and the 35 yard marker, you will be limited to shooting plays that occur in that area. Big glass is important to football. If you have freedom of movement, a 300mm F2.8 is the ideal lens. However if you are restricted, you either need a 2x on the 300mm or a 600mm to reach plays on the far end of the field. If you are patient or shooting youth league, you can get away with an 80-200 zoom. You will have to wait on more plays to come your way. You wont get much in the middle or far side of the field.

Since football movement is up and down the field and most photographers shoot from a side line, football is a follow focus sport. It is a pretty easy sport to follow focus because the subject to camera distance changes constantly, so once you start focusing, you should be able to time your turning the focus ring with their movement.

Soccer and Hockey

Auto focus was invented with soccer and hockey in mind. These two sports involve rapid changes in direction. The subject to camera distance changes so fast, its hard to follow focus because in an instant, the play is heading another direction. Zone focusing is a bit more applicable, except there is no guarantee the play will enter your focus zone. AF solves this problem because it tracks the play better than you. These two sports alone are the reason I moved from manual cameras to auto focus.

Soccer is a game where you need long lenses. Generally, you have good access to the side lines. At the major league and college level, there may be some limits, but they probably are not as tight as football because the number of players on the sidelines is much less. You will typically shoot from the touch (or side) lines, though you can get some real good shots from behind the net or along the goal line. The lens of choice for Soccer is a 400mm F2.8 or longer. Many pro soccer photographers will have two cameras. One with the long lens mounted and a second with an 80-200mm zoom. This gives me some flexibility in composition while giving me the length needed to capture this large field game. If play gets close, they can switch bodies and go to the shorter lens.

Soccer is a good game to get some dynamic and exciting photos. Your safeties include players dribbling the ball and throw ins. Get these shots and then work on catching headers, traps, corner kicks, and goalie saves. Soccer headers require the most accurate guessing on timing. The ball will be out of the frame quickly. It takes a lot of practice to capture these.

Hockey, while similar to soccer in its unpredictable movement, has an advantage of being played in a smaller contained area. An 80-200mm lens is good for shooting hockey regardless of where the play is. To get shots on the far end of the rink, up to 300mm may be needed. Hockey however has

some quirks that you need to be aware of. Frequently you are limited to shooting through the glass which limits the angles you can shoot or through chain link fence for outdoor roller hockey. Some arenas you are limited to one location and have a small hole to shoot through and you most likely will be competing with other photographers for this real estate.

The ice or deck wrecks havoc with your camera's meter. You will need to overexpose by at least one stop in ice rinks to get white ice. This takes away from your available shutter speed. Your safeties includes faceoffs, and players skating with the puck/ball. Good shots can be had of the goalies, though many of your shots will be of players on the rink.

Volleyball

Volleyball is a rarely covered event, with beach volleyball getting more press than the traditional gym based variety. Volleyball can yield some rich, colorful and dramatic shots given the need and desire to take them. Your access in volleyball venues will vary drastically. For instance, during a high school game, you may be permitted to shoot along the sidelines, or not far behind the end lines. As the level of competition goes up, you will be moved further and further back. In beach volleyball, you probably will not be permitted in the sand pit at all. So pack a long lens and some sun block (for the beach game).

Volleyball shots are tricky to use auto focus on. If you are shooting from behind the lines towards the net, the AF could trigger on the net, the back of the opposing players, the back wall, or just about any point in between. It is best to use a vertical sensor for this sport since people are going up and down and there is little side to side movement. For manual focus, you want to zone focus. From behind the end line, most all action at the net will be at the same distance from you, so focus on an area just a little behind the net and leave it there.

For shots along the side lines, it is best to shoot at an angle to capture the faces. These are the best times to capture digs and diving players as you should have a fairly un-obscured view of all the players. Traditionally, volleyball follows the "Bump Set Spike" ritual. Learn who the diggers, setter, and hitters are. Then take your time working on a shot of the individual skill you want to capture. Your setter will be easy to track and get shots of. Digging is a bit tricky since it can come from anywhere on a given half of the court, be a low or high dig, involve a dive or other less than predictable motion. Hitters/blockers are fairly easy to capture since that area of play is somewhat limited.

Your safeties are the player serving and the setters since they are fairly easy to capture. Next work on your hitters/blockers followed by digs.

Golf

Golf is a fairly easy game to shoot as far as action goes, but it is one of the toughest because of the nature of the game. That is you can get good action shots if you can get there at all. Consider the following. Golf is a long distance, one direction game. It is played over a course of thousands of yards in a somewhat straight path and it is played from hole to hole. Secondly, it is a quiet game where the slightest distraction is not allowed. Finally, for your safety, your access to swing areas is limited.

The first problem is addressed by one of two methods. First, you can camp at one location, such as a tee box or a green on one hole and shoot multiple people as they pass you. Or alternatively, you can with the permission of the course, use a cart and follow individual golfers. Cart paths are narrow and heading against the grain is difficult. Ideally, you will learn the course and find a spot where you can shoot both green play and a tee box with minimal movement.

Even at 400mm, you may not get close enough for good tight shots. Longer lenses are almost a must for capturing competitive golf. If you are shooting recreational golf, say your beer buddies, you can get closer and a lens in the 200mm range will suffice. Any focus method will work since the players are basically standing still. Golf, in particular at the pro level is very sound sensitive. Turn off the AF (you don't need it any way) and go to a silent manual focus. If you have silent AF lenses, such as the Canon USM or the Nikon AF-S lenses, then you can AF. Some events may require you to use a sound blimp around the camera if your shutter/motor are distracting to the golfers.

There are a few main golf shots, in most all cases, they are individual shots. The primary action golf shots include a shot during the back-swing, a shot near impact of the ball, a shot after the follow-through with the golfer looking for the ball or any time during a putt (but be quiet). However, there are a lot of opportunities for safeties in golf. Any shot of a golfer studying the course, be it looking at the scorecard, messing with the golf bag, talking to the caddie, or lining up a putt are easy shots to get. These are times where the firing of the shutter will be more tolerated. Also, shots after the follow-through are considered safe shots. The action is paused and you know its going to happen so getting them is somewhat easier.

Don't forget that a lot of good golf shots, and other sports for that matter do not involve play at all. One of my personal favorite golf shots was of a greens keeper changing the pins.

Track and Field

Track and Field meets are a lot of fun to shoot. You get a lot of variety of shots, multiple opportunities to shoot most participants and events and there generally is a lot of emotion displayed during a track meet. The most difficult things about track meets are logistical.

Access can be restricted depending on the level of play that is being photographed. At a high school meet, there is little in the way of restrictions. Just stay out of the participants way, or out of the way of projectiles like shot puts and discus and you are okay. As you climb the ladder, access gets tighter and tighter. Even at NCAA Division I level meets, the access is still pretty good. Pro level, Olympic, or Major Events will be more tightly controlled due to the size of the event and the amount of media present. Access will be restricted to particular shooting areas.

Logistically, track meets are hard to cover because multiple events are going on at once. If media movement is controlled, you may only get to shoot one or two events. But at a more relaxed meet, you will have more freedom to scoot from event to event. Because of time, multiple heats/attempts and so on, the track will generally be filled with races while the inside of the track contains the field events.

There are no specific safety shots in a track meet, but the individual events are fairly easy since almost all movement is predictable. Track events all move one direction. Shooting the finish, or turns provides the most dramatic events. For the hurdles, it is pretty easy to time the players as they peak over the hurdles. Relays, with the baton passing is probably the hardest part to capture because the runner taking the baton may obscure the runner handing it off. Use follow focus to catch runners and they move past, or zone focus if you are working on the finish line.

Field events, like wise are very predictable. Events like the high jump, long jump, and pole vault involve participants running towards an object, and then jumping over it. This is a zone focus heaven. Use a little depth of field (F5.6 or so) and focus on the bar for the high jump and pole vault and fire as they start up and over. You should catch them at the peak as they hurdle over the event. If you didn't get that run, don't worry, each player generally takes two or three shots and there are multiple players.

The Long jump, and its cousin, the triple-jump are pretty easy. They are also zone focus events. If you are at the end of the pit, focus just a few feet into the pit and fire when they hit the board and begin their jump. After a few jumps, you should have a feel for when they peak at their jump and will nail a few really good jumps. If you have to shoot from the side, you still zone focus over the middle of the pit, track the runner as they head down the track and fire when they go airborne.

The throwing and hurling events are likewise easy to shoot. The players have to stay within a confined space, so zone focus and you will do well. Try to catch them when their face is towards you and when their emotion is at its best or just after the throw.

If you have good access, you can get some great shots with an 80-200mm lens. If you are restricted you may need a 400mm or longer, but in most cases you can get away with smaller lenses.

Gymnastics and Figure Skating

Gymnastics, as a rule, is a no flash event. While a flash may be tolerated at a basketball game, or a night football or baseball game, its generally a no-no for gymnastics. The participants are easily distracted and the slightest hesitation can cause serious injury. The bad thing is most gymnastics happen in poorly lit situations. Lighting will be covered later.

Like Track and Field, gymnastics is a series of events with individuals performing. The events go on simultaneous to each other and depending on the level of the meet, your access may be limited to minimize distractions. With the exception of the floor program, most of the gymnastics events are kept in a small area which makes focusing easy and the movements are predictable. Even with the vault, your object is to catch the vault itself or the landing. So you will probably want to zone focus most of the events. The floor exercise will require follow focus or auto focus. Your lens choice will vary too much by access, but like other indoor sports you want the fastest glass available.

Events like the balance beam, rings, parallel bars, and the uneven bars provide several opportunities to capture the athletes in artistic, athletic, and emotional poses where capturing the moment is somewhat easier. The vault and floor exercises require more timing to get good shots. However, for the floor exercises, its about emotion anyway, so catching the cute smiles and ballet style poses is critical to telling the story more than catching someone in a tumbling pass.

Figure Skating combines the problems of gymnastics with the problems of hockey. You are limited by your access to off ice and you have to compensate for the white surface. Lighting isn't as good as a hockey game. Frequently, the lighting is spot lights, so knowing stage lighting is important. The programs can be predictable and are generally published before the event so you know when the triple jumps are coming. Lens length is determined by proximity to the surface but again, you want the fastest glass possible. Autofocus is a good idea for Figure Skating, though some success with follow and zone focusing can be achieved.

Motorsports and Racing Events

These sports are generally fairly easy to photograph. They generally occur during the daytime and you can get away with longer slower lenses. AF isn't quite as important because the action occurs in a very predictable fashion. You can follow or zone focus easy enough. Safety shots are the participants racing past you. The challenge for racing sports is to show motion which will be covered shortly. You don't want your Formula 1 car looking like it is sitting still. Also much more importantly, there is a lot to the game other than the cars or horses running around the track. The pits/paddock afford some of the best shots. Be ready for an accident. They can happen at any time.

The biggest problem with racing sports is the distance from the track. You only have the participants for a brief time on each lap and in the case of the ponies, you only get them for one lap (per race). You will need big lenses in almost all circumstances for the race itself. Your shorter lenses work well for crowd and off track shots.

Freezing Action Shots

So far, we have discussed each event and they types of shots to be taken. Safeties generally are taken at times where the action is minimal, and we don't have to concentrate as much on freezing the action. But what sells, and what the viewers want to see are people suspended in mid-air. They want to see the crisp ball laying just off the receivers finger tips. To do that, we must freeze the action.

Freezing the action requires fast shutter speeds. Most modern, high end 35mm SLRs have a top shutter speed of 1/8000th of a second. Except for a speeding bullet, this is about fast enough to catch anything you or I are likely to shoot, even an Indy car blasting around the track at 230mph.

But it isn't that simple. Lets first discuss a standard photographic rule of thumb, which is the minimal speed for hand-holding a lens. The minimal shutter speed for hand holding a lens is 1 divided by the focal length of the lens. Thus a 50mm lens should not be hand held any slower than 1/50th of a second. A 300mm lens should not be hand held at less than 1/300th of a second. If your camera does not have shutter speeds between say 1/250 and 1/500, then you round up. So for a 300mm lens, your minimal hand hold speed may be 1/500th of a second. The more proficient you get, the more likely you are to be able to cheat by one shutter speed. A monopod is the preferred way for action photographers to gain additional steadiness. It can generally buy you one to two shutter speeds of hand holding.

Not only has it become more difficult to hand hold these lenses, it becomes harder to freeze the action as well. The lenses get heavier and harder to hold. Your breathing and heart beating and

muscle strain are enough to cause still objects hard to capture. Longer lenses not only magnify the scene, they magnify the apparent movement. If a runner passes through the viewfinder with a 50mm lens attached in one second, then at 500mm, the same person moving at the same speed will pass in 1/10th of a second.

Generally, to freeze action, you need at least two full shutter speeds if not more faster than the hand hold speed. So for our 300mm lens, you will need at least 1/1200 to 1/2400 to freeze action with this lens (rounding up, that's 1/2000-1/4000th of a second). Even at these speeds, you may have to follow side to side movement, called panning to have the movement crisp when you expose the film. Lets say you are shooting a car racing event. Even at high shutter speeds, if you hold the camera still and wait on the car, you will capture a blur. By matching the movement of the subject with the movement of the lens, you minimize the relative motion between the two.

For subjects coming to you or heading away, their apparent movement isn't as great. Many people make up some of the action freezing by getting things coming toward them.

Film is critical in freezing action. Each increase in film speed gets you one more shutter speed. So if you shoot an event with ISO 100 film and the best you can get is 1/500th of a second, switching to an ISO 400 film gets you to 1/2000th which may be enough to freeze the action. Going to ISO 1600, will take you to 1/8000th of a second.

Adding high shutter speeds, fast films, monopods, panning, or shooting objects as they come toward you, and capturing action at its peak will let you freeze fantastic shots.

Giving the illusion of movement.

Many new action photographers worry about freezing action, trying to get the crispest shots possible. Even veteran photographers will try for crisp shots, but they are not afraid to allow some blurring.

Stop and think about it for a minute. A baseball pitcher throws the ball, the batter swings the bat. Your eyes don't freeze the action precisely, so why should your pictures. A blurring bat, or an elongated ball leaving a blurry arm imply movement. As long as most of the body and the face is crisp a little motion in the hands, feet, and projectiles is acceptable and in many cases desired. This is another little cheat in not having that fast of a shutter speed.

Some times, we slow the shutter speed down intentionally to amplify the movement. We have all seen shots of runners where the background is a blur their arms and legs are a blur, but their body and head are fairly well focused. Combining panning, slower shutter speeds, and predictable movement and you can capture some very dramatic pictures showing all kinds of movement.

These types of shots require patients, work, and a lot of experimenting. Don't hesitate, when at an event to experiment with different techniques . . . after you get your safeties and your primary shots.

Lighting and Film

Lighting conditions are the single worst bane to sports photographers. There simply are no good lighting conditions. During the day, under bright sun, there are harsh shadows and it creates shots that have too much contrast. Morning and late afternoon shots are somewhat better if you can get the light behind you, but you still end up with some rough shadow conditions. Overcast skies drops the light level too low for using really long lenses or the shots don't have popping color.

As the sun sets, or if you move indoors, the lighting is generally enough to let the players see the ball coming at them. No two facilities are lit the same. You will find situations where little league fields are better lit than college fields. You will find that different arenas and stadiums have different color balance lights. Some facilities will even have bulbs of different color balance which makes some shots unprintable.

Most modern pro arenas have fairly decent lighting and the color balance is pretty good. Professional teams need lots of media coverage and after years of complaining, they have created decent lighting for the media to use.

Critical to the sports and action photographer is the choice of film. By now, you should understand the relationship of film speed to aperture to shutter speed. As light goes down, shutters slow down, apertures open up, and film speed increases.

Most indoor sports events either require the resources of Sports Illustrated to mount strobes in the ceiling, which are not distracting to players as a strobe blasting in their face, or require using high speed film. Most indoor sports are shot at ISO 1600 with fast (F2.8 or faster) lenses .

Under these conditions, you can get away with 200mm or less in lens. That means you need to get a shutter speed of around 1/400th to be able reasonably freeze the body while allowing limited motion in the extremities. However a lot of time, the available shutter speed will be less than that. You do the best you can. You can increase film speed, which will increase grain and contrast to compensate. You can buy faster lenses, like a 200mm F2.0 or an 85mm F1.4. You can switch to a shorter lens to lessen the impact of motion. Remember, you can freeze action well at 1/250 with an 85mm lens but can barely hand hold a 200mm lens at the same speed.

Color slide film is limited in film speed. Most high speed color slide film has the grain of an ISO 3200 print film. Depending on your use, grain may not be too bad. Most newspapers use low line count screens for their half tones, and a lot of grain will be hidden in the half tones. Most high speed films are not very sharp and lack color saturation.

Let's take a couple of common films that are used by sports photographers: Fuji 800 and Fuji 1600. If you shoot Fuji 800 at 1600 and push process it (over develop it to make up for underexposing it). You will increase grain and lose some shadow detail. However Fuji 800 under these conditions still provides more pleasing shots than Fuji 1600 rated and developed normally. Even pushed to 3200, Fuji 800 provides good results.

Not all films are designed for push processing. Most color C-41 based films develop their layers at different rates and the normal 3 minute, 15 second development time is the amount of developing where all layers come out right. Overdeveloping can cause uncorrectable color shifts. Some films

are produced with push processing in mind, like the Kodak Extapress line of films. Fuji doesn't say one way or another about Fuji SuperG 800, however many press photographers use this film and push it all the time.

Pushing film is a common process. Most places that develop slide film (process E-6) or Black and White will push film upon request. However color print film (process C-41) is a different story. Most locations will have a lab that will do it, but most mini-labs will not. Either the operators are not trained on changing the time, the management does not want them to forget and then ruin future films when they forget to reset the machine, or the machine just isn't capable of using different times. You may have to search to find a lab to push C-41.

Of course, you could soup your own. Processing film is a seminar in itself, but if you are scanning the negatives for production, you rarely need prints anyway, so the equipment necessary to develop film is minimal.

Emotion

Shots that lack emotion are ho-hum. They lack energy. They lack story telling ability. If there is no emotion, then there is little desire to view it. Most tight action shots of players will be emotional. Regardless of level, these players, when they are exerting themselves, exhibit emotion. From the little tee-ball player messing with her hair and her helmet, to the strain of a pole vaulter working to get over the cross bar, there is plenty of emotion to be found in sports. You will, from experience be able to edit out the shots that lack emotion and do not tell the story. But it requires shooting and shooting.

You should also look for emotion from other sources. As years of ABC's Wide World of Sports told us . . . The thrill of victory and the agony of defeat. Make sure to save film to shoot the players after their events. Or during their events, don't always focus on the ball, but on the emotion after the big 360 degree slam dunk. Don't forget to look for emotion in the coaches and the fans. A lot of the best shots come from the crowd.

Where to Start

This seminar contains a lot of hints and it talks about a lot of high level gear and access. It's important to understand that not every photographer will be able to take this information and expect to step onto the hard wood at Chicago Stadium, sit in the press gallery and expect to capture Grade A shots of Dennis Rodman in his antics. To get to that level, you have to have a proven sports portfolio and work for an agency who can get you access.

Before you get to that level, you have to shoot a lot of minor sporting events. The best place to start is your local youth leagues. Early in my career, I got broken in on high school sports, but through my experience there, I got to shoot for my college papers and year books. That allowed me access to shoot NCAA Division I sports early on. But I would not have had that opportunity without having developed a portfolio from my early days of shooting.

Local youth leagues provide you great access and opportunities to use smaller lenses to capture shots. As your portfolio develops, you can approach shooting at higher levels. You can get a lot of practice and experience here which is valuable when going to "The Show".

Today, I am back shooting for a small town paper and the highest level of sports that I have reasonable access to is high school. Even though I have been to "The Show", I still enjoy getting pictures of 5 year olds when they catch their first ball or score their first goal.

You may however get opportunities to shoot pro games from a fan's perspective. Depending on your location in the arena, you can get some reasonably good shots. Take your long lens and some high speed film and make the most of it. In these situations, freezing action isn't as important as being able to hand hold the lens. The players will be at such a distance that their movement will be like a person closer to you with a normal lens on. As long as you have enough shutter speed to get a steady shot you should be able to get memorable shots.

Summary

One final note. Don't rush your action assignments. Spend some time, and expect to burn some film. Only through practice and looking at the results and going back to it will you get the timing and skills needed to one day capture world class shots.

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