

Digital Photography Now

Why Take Photographs?

Way back in kindergarten you learned about sharing. But kindergarten was about sharing your candy or your toys or some such unimportant thing.

Photography is much more important. Photography is about sharing an experience or an idea.

Imagine if you had never seen an elephant. I could talk all day long about what an elephant looks like, how big he is and what color. But in the end you still probably wouldn't have any idea what I was talking about. But if I were to show you a photo of an elephant you would say, "so THAT's an elephant!"

There are six billion people on this rock we call Earth and these six billion people **speak** hundreds of different languages, dialects and accents.

But all six billion of us **see** in the same language.

I can't tell a person in Swaziland what my home looks like. But I can show him a picture and he will immediately know exactly what my home looks like. Photography is a cross-cultural, cross-language, cross-time medium.

Think about it; Because somebody bothered to take a photograph you have seen:

•**Places you have never been**

- The ocean floor
- The planets Mars, Jupiter and Saturn
- The great pyramids of Egypt
- The South Pole

•**Things that happened before you were born**

- The explosion of the dirigible Hindenberg
- The assassination of JFK
- The flight of the Wright Brother's airplane

•**People who died before you were born**

- Elvis Presley
- Babe Ruth
- Adolf Hitler
- Confederate Soldiers
- Maybe your great Grandparents

Much of the information you have about your world comes to you because someone bothered to photograph it.

But now consider the things which someone didn't photograph.

For instance, I only knew my grandfather as an old man. But I am told that he was at one time in his life a wrestler in a traveling circus. I would give almost anything to have a photo of my grandfather, in his prime, wrestling

in a circus ring, but no such photo exists. I can only guess what his life must have been like.

My great uncle in the 1930s was a starving Okie dirt farmer who packed up his family on a Ford Model T truck and headed out Route 66 to California hoping to find work. He didn't read John Stienbeck's *Grapes of Wrath*, he *lived it*. The simplest snapshots of that incredible time in our nation's history would be very valuable today. But in the middle of that time and place, he didn't take any pictures.

At some point in the future, you and I will be dead and gone. It may very well be that all someone of the future will know of us, of our lives, of our world, is what we leave behind in our photographs.

I will not live to see my great, great grandchildren. But with a camera, I can give them the opportunity to see me. To see how and where and the time in which I lived and worked.

They say you can never swim in the same river twice. The water in which you swam is gone. It has moved on down the river.

You can never take the same picture twice. The light in which you photographed is gone, it has moved on down the river of time.

Nothing remains the same. You do not look just like you did last week, or last year. Next year you will not look like you do now.

Photography is a way of stopping time, a way to capture a place, a person, a feeling, an experience. Photography is a way of sharing that with someone else, a way of sharing your life with others.

You live in a world of extremes, of amazing beauty and incredible ugliness.

I don't live in the same world you live in. But with a camera and a little skill you can share your world with me and other people in other worlds. You can share your life and your world and your time with others.

In the previous century it took a talented, skilled technician to make a picture. For most of the last two hundred years it has taken a photographer that knew how to really work his cameras to make those pictures.

But now, with this generation and the incredible image making tools at your fingertips, images and ideas are easier to create and share than ever before.

I can't wait to see what is going to happen. Let's get started.

Digital Photography **Now**

How to: Shoot a ball game

This information can be applied to about any game using any form of ball or puck: including but not limited to football, baseball, basketball soccer, hockey, tennis, lacrosse and marbles.

1st Piece of Advice: Shoot the Action. I don't need to tell you this. You already know this; good sports photography is action shots.

The good news is that ball games are easier to shoot than a lot of sporting events, like races, because all the action will be centered around the ball. If you keep your eye/camera on the ball, you won't be far from the action. That's usually the modus operandi, continually follow the ball with your camera, shooting the action surrounding it.

2nd Piece of Advice: Be near the action.
To shoot the action, you have to be near the action.

You cannot get good pictures from the stands. If you want to get good action shots of any kind of ball game you are going to have to get out of your comfy stadium seats and get as close as you can to the field. Until the umpire/ referee says, "IF I HAVE TO TELL YOU ONE MORE TIME TO GET OFF THE FIELD I'M GONNA THROW YOU OUT!", you're not close enough.

Just because you have a telephoto lens doesn't mean you can stay in your comfort zone up in the stands.

Look at professional sports photographers: some of those guys are running 1200mm telephotos, but are they in the stands? NO. They are as close to the field as they can get. They periodically expect to get run over. They are that close, because that's where the good pictures are.

Get close. If your pictures are not good enough, you're not close enough.

3rd Piece of Advice: Forget the flash.
Ball fields or courts are big places. Your flash won't reach that far, will annoy the hell out of the players,



make ugly pictures. Shoot sport stuff with available light. That can mean high ISOs, fast lenses, weird color, grainy or noisy pictures.

4th Piece of Advice: Match ISO to the lighting conditions.

To shoot sports action, match ISO to lighting conditions on the court.

This table shows a sport, my personal pick of ISO, and the resulting f.stop/shutter speed I usually shoot these with. While other pros may choose otherwise, this should give you adequately fast shutter speeds, while

keeping as much depth of field possible.

We need the faster shutter speeds for two reasons: first to freeze action, the second to minimize camera shake while hand-holding long lenses.

Most of the time a tripod will not work; it's just too slow to keep up with things. A

mono-pod is more flexible, but not as steady. Action photography is almost always hand held. Exceptions would be a long lens trained on a static location, such as a 600mm on a tripod or clamped to a rail continuously aimed at the batter or the goalie's box.

If this area is of serious interest to you, you need to think about faster lenses (read: more MONEY). Many people today buy zooms that can only open to f/5.6

SPORT PHOTOGRAPHY EXPOSURE SETTINGS			
SPORT	SUGGESTED ISO	SHUTTER SPEED	F./STOP
Outdoor Day (baseball, football, soccer).	200-400	1/500 and above	F. 16
Indoor (basketball, hockey, indoor soccer)	800	1/125	F. 2.8
Outdoor Night (football, baseball, soccer).	1600-3200	1/125	F. 2.8

or so. Most sports photographers wouldn't be caught dead with a lens slower than f.2.8. But beware, fast lens are expensive. To go from a f3.5 to a f.2.8--a difference of only half a stop--adds an additional \$1000. to the price tag a Nikon 18-35mm zoom.

5th Piece of Advice: Shoot Lots.

Bring several high capacity memory cards. Expect to have many rejects. This is sort of a percentages deal. The more you shoot, the better chance you have of catching that dynamite shot that makes the whole thing worthwhile.

6th Piece of Advice: Anticipate the Moment.

Think about it. If you wait for the CRACK! of the bat striking the baseball before you push the shutter button, you will miss the shot. By that time, the ball is already soaring over the pitcher.

To take a photo of a batter actually striking the ball you have to push the shutter a fraction of a second before the batter swings. Of course at the time you have to push the button, you don't know if the batter is going to hit the ball, or even swing for it.

A pro will shoot one or more frames of each and every pitch, not knowing which will be fence-clearing home runs and which will be just balls or strikes.

7th Piece of Advice: Look for the drama.

Much of good sports photography is not just the physical action, but the human drama, the emotional angle that everyone can relate to whether they are fans of that particular sport or not. A shot showing the grimace, the fear, the desperation, the super-human effort, the pain, the thrill of victory!, the agony of defeat...is worth much more than any shot of athletes being athletic.

ON ASSIGNMENT; SHOOT A SPORTING EVENT.

You will be expected to get permission to shoot, including a press pass if that's required. Arrive prior to the event, shoot any pregame, the game itself, the fans, the human interest element, the aftermath, etc. Edit the work and present the "keepers" for evaluation.

Basic Studio Lighting

This information is meant to be the **beginning** of your journey into studio portrait lighting, not the **end**. This is a good place to start, but if you stop here, creativity, originality, variety, artistic expression, will all go out the window.

But we've got to start somewhere, so here goes.

Along with a subject, a reasonable studio space where we can control all the lights and windows and a camera on a tripod we will need:

- a handheld light meter.
- four studio lights
- four light stands.

The set up

To begin, we'll put the subject on a chair or stool (this way they won't be moving around and messing up our lighting) about 10 feet from the back wall of the studio, approximately in the middle of your background or seamless paper if that's what you are using.

With our subject in place we'll position our lights in relation to that subject.

Light # 1. The Main

The first light we'll set will be the **Main Light**. Put it securely on a light stand, point it at the subject. Place the stand/light about 45 degrees left of center, about the same distance from the subject as the camera. Raise the light to about a foot above the subject's eye level. Turn it on.

Now that you've got the main light **on** and reasonably in position, turn the room lights **off**, close any blinds or drapes covering windows. We don't want any light that we aren't in complete control of. This is a simple step that many newbies overlook and as a result their studio

photos are always compromised.

Don't worry about anything else right now, but just look at how this main light is falling on your subject. Adjust the height or position of the light to suit your taste.

Basic Exposure Metering

Set your digital camera to it's lowest ISO setting.

Set your handheld light meter's ISO to match the ISO you just set on the camera.

Meter this main light using a handheld incident meter(see page 78).For any type of continuous light source, use the ambient light setting. If you are using flash, set the meter to read the flash, using either the Cord setting or the No Cord setting.

Place the meter right next to your subject's face and point it toward the camera. Make sure your body doesn't block the light, and push the button to meter the light.

We would like an aperture reading to be about f.8.

If we need a larger aperture, say f.4 or f.2.8, we may not have enough depth of field, resulting in a photo with the eyes sharp but the nose and ears soft(not good)

If we need a smaller aperture (f.16, f 22), we may have too much d.o.f. We typically want the background to be slightly out of focus, to be a little soft and fuzzy so it won't be distracting. This also hides wrinkles or blemishes in the background itself.

Adjust the power of the light, or move it closer or farther away from your subject, until you meter about f.8. at the subject.



Light #2. The Fill

With a darkened room and only the Main light on, the shadow side of the subject, the background and everything else will be pretty much lost in darkness.

Your eyes will adjust to the darkness and see detail in the shadows, but as you remember from our discussion on range, the camera doesn't have the dynamic range your eyes do. What looks dim to your eyes will photograph as completely dark, colorless, detailless and featureless.

Therefore, we need to bring the light levels in the shadows up to where we will have the detail in the shadows we want.

The light used to fill the shadows is called the Fill light. Set the second light the same height as the first, the same distance from the subject, but on the opposite side of the camera, about 45 degrees to the right.

Lighting Ratios

Turn the fill light **on**, then turn the main **off**. Meter the fill light. If the fill light meters the same (let's say f.8) as the main, then the lighting ratio is **one-to-one**. The fill light is the same as the main.

Generally speaking, that's not what we want. With both sides of the face equally lit there are almost no shadows or modelling of the contours of the face. Plenty of detail, nothing lost in the shadows...but it's not very interesting. For our discussion here, adjust the power of the fill light, or move it closer or farther away from the subject, until the meter reads one f. stop **larger** on the fill light than on the main light.

So if the Main light metered f./ 8....adjust the fill light so it meters f./5.6

The fill is now adjusted to one-half the power of the main. Half as much light is falling on the shadow side as on the hi-light side, a lighting ratio of **Two-to-One**.

Let's say that again.

Remember that a one stop difference doubles or halves the amount of light.

Setting the fill light so it requires one stop larger than the main to get the same exposure means the fill light is half as bright as the main. Thus the ratio of light provided by the main to the fill is two to one.

The hi-light side of the face will be the "correct" or normal exposure or brightness. The shadow side will be darker than normal brightness since it is receiving only half as much light as the hi-light side.

The lighting ratio, determined by the proportion of fill to main light, is important to the tone of your portrait.

A lower ratio, where the fill is even less, may be more dramatic, or moody or sexy or mysterious or ominous.

But eventually a point is reached where low fill and no fill registers the same in the image. That point is when the fill meters about four stops less than the main.

A higher ratio, where the fill is even closer in power to the main may be more cheery, show more detail, be brighter, etc. It's all in what you want to portray.

Turn on both lights, make a test shot. Adjust to taste.

Light #3; Background light.

Now that we have the hi-light and shadow right where we want it on the subject, we need to bring the background up into the range where detail will record.

Set a third light on a low stand, about even to or below

the subject, pointing up to cast light on the background. Turn the Main and Fill lights off and meter that light by putting the meter right on the background.

If the background meters:

- the **same f. stop** as the Main light, the background will be the **same brightness** as the subject.
- a smaller f.stop than the Main light, the background will be brighter than the subject.
- a larger f. stop than the Main light, the background will be darker than the subject.

Generally speaking, we prefer backgrounds slightly darker than the main subject. This makes the subject appear "in the light".

This means with one medium gray background, you could "overlight" it about two stops so it would photograph as a white background, or "underlight" it about three or four stops to appear as a black background.

You could take a blue background and by varying the amount of light on it, make it a lite blue background or a dark blue background.

Light #4; the Hair light

Those three lights may be all we need for a perfectly satisfying studio portrait.

But othertimes, we may have a dark-haired subject whose hair disappears against a dark background. Or a very light haired person whose hair blends into the light background too much.

In these instances we can take a fourth light and aim it directly on the hair itself.

Place the fourth light and stand behind the subject(between the subject and background) off to one side, considerably above the subject.

Point the hair light directly at the subject's hair. Right at the back of their head. You may need a snoot or grid over the light, or to adjust barn-doors so it doesn't fire directly into the camera lense, creating lens flare. You want to limit the light to only the hair.

Adjust this light, so it meters about one stop smaller than the main. In our hypothetical f./8 case, the hair light should meter about f. /11.

Since this light meters smaller than the main, the hair will be brighter than the rest of the scene. Aimed correctly, a hair light can make the hair glow like a halo for a very classy portrait.

That's classic studio portrait lighting in a nutshell. Almost anyone will photograph well under these conditions.

Have fun, but don't stay here. There is whole world of cool, hot, hip, wow lighting techniques just waiting for you to get the basics down pat.

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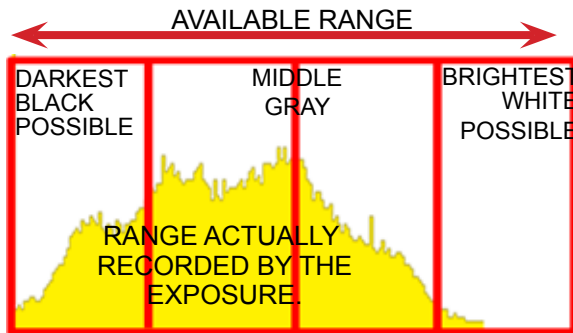
Reading Histograms

You may have seen this strange looking graph while scrolling around the LCD on the back of your camera. What in the world is that for?

This is a histogram. Its a graph showing how the camera is recording the brightness values of your image. That definition may not have made a whole lot of sense to you, but read on.

We've talked about the range problem several times before. The CCD in your camera can only record a narrow range of brightness.

The histogram shows us how the tones captured by an exposure fit (or don't fit) within the range of tones available.



Of the available range the far right edge is the brightest white the CCD can record. Anything brighter can't record any brighter. It's off the scale and outside the range the camera can record.

The far left is the darkest black, anything darker won't record any darker. It's off the scale.

The yellow "mountain" displays the brightness tones actually captured during the exposure.

This particular histogram shows us that these exposure settings (f./stop and shutter speed) produced a histogram with lots of good mid tones and a good deep black.

But notice there is no height of yellow in the right fourth of the graph. This means our exposure has almost no tones recording in the upper fourth of the possible brightness range. That means no pure clean whites, not even some off whites, nothing above light gray.

Our image will appear too dark. Its underexposed.

If we open up a stop (letting in more light) the entire mountain will move to the right.



If we open up too much, part of the mountain will shift past the brightest white we can hold and detail in those areas of the image will be lost.

Our image will appear too light. Its over exposed.

Ideally, all of the range of tones in our scene will fit within the range our camera is capable of capturing. At least in theory, the best exposure we can get will span as much as possible of the available brightness range without any of the mountain extending past the left edge or right edge. No detail lost in the highlights, None lost in the shadow.

With some scenes you may simply have more brightness range than the camera can handle, no matter which exposure settings you use. By using the histogram you can see whether it's the highlights or shadows that you are going to lose, and how much.

You may have a light source, such as the sun, in the scene. It's okay to let that part of the image slide off the graph. There is no detail to be had in the sun anyway.

You can't always achieve this "perfect exposure" using just f./stop and shutter speed. You may need to fill in the shadows with a flash or reflector(bringing those tones back onto the graph). Or tone down the light on a hot spot (bringing those tones back into the graph). This is what is great about a studio; you have complete control over the light and so can bring all tones within the brightness range the camera can handle.

Image editing programs have a function called "levels" where you actually adjust the way the program distributes the captured brightness range.

By adjusting levels you don't actually spread the mountain out, but you move the black and white points in until what was actually captured becomes the blackest black and whitest white.

See if your camera can display histograms. Learn to read'em and work'em. They will make you a better photographer.