

# Controlling Motion

Effective use of shutter speed for creative photography

Exposures in photography are made up of three components, aperture, shutter speed and ISO. All three must be in balance for a correct exposure. If not, over or under exposure will occur and image quality will suffer.

In this lesson we want to explore reasons for setting shutter speed first, and then using the aperture and ISO at whatever setting is needed for a correct exposure. The primary reason that we would select our shutter speed first is for control of motion in our image.

Motion in a photograph can happen for a number of reasons, of which two we want to discuss here. The first reason is camera shake. Anytime we hand hold our camera, we need to be aware of how slow our shutter speed is. If it is too slow, then we risk having the image blurred due to our inability to hold the camera still during the exposure. Camera shake results oftentimes in a double image, or also commonly referred to as ghosting.

Camera shake can be prevented by shooting at shutter speeds faster than the inverse of the lens length. For instance, if using a 100mm lens, then shooting faster than 1/100 second would prevent camera shake. Because of this restriction, I generally use a tripod. I do not want to be limited as to what I can do with my camera because I cannot hold steady enough. If I need a slower shutter speed for an image, I want to be able to use it! My tripod is a necessity for my photography.

Beyond preventing mistakes in exposure, there are creative reasons to select specific shutter speeds. When photographing moving sub-



*With a shutter speed of 3.2 seconds, The motion of the waves are smoothed out and the illusion of movement is captured. Notice the effect that the moving water has on the partially submersed rocks in the center of the frame.*

jects we may want to show the motion in our still photograph. Other times we may want to completely stop the motion and have clear, sharp images. As the photographer, this decision is yours.

## Stopping Motion

When wanting to arrest the motion of a moving subject in a photograph, simply use a fast shutter speed. How fast? That depends on the speed of the subject. A child walking up a path can most likely be stopped with a 1/125 second shutter speed while a running back sprinting toward the goal line in a high school football game would require 1/1000 second or faster to completely stop the motion. Experimentation is the best way to determine what speed is needed. Remember that when using a fast shutter speed, you must compensate by using a larger aperture opening to prevent under exposure.

One question that seems to arise frequently when teaching this concept in a classroom is “What if I can’t get 1/1000 second shutter speed when my aperture is wide open due to the low light level?”



*A shutter speed of 1/640 second stops the ball carrier in his tracks.*



*In this image of Bayhorse Creek, a 6/10 second shutter speed was used to create the soft, silky look of the water as it flows over the rocky riverbed.*

The answer is to change your ISO setting. Remember that the exposure is made up of aperture, shutter speed and ISO. I like to keep the ISO as low as possible due to the increase in digital noise that occurs at high ISO's, but if needed, and when shooting sporting events it nearly always is, I do raise it. In fact, the football picture shown here is at an ISO rating of 3200.

## Motion Blur

While oftentimes we want to stop the motion, there are times that showing the motion with a little bit of blur will create a feeling of motion in our images. There are two techniques that we should learn relating to creating a feeling of motion in our photographs. Both involve using a slow shutter speed. The first technique would be to hold the camera steady, preferably secured on a tripod and allowing the subject to blur as it moves in the frame. I use this technique when photographing motion in the environment, such as with moving water in a stream or the oceans waves as they approach

the shore. The second is moving the camera with the subject as it moves through the image frame. This is referred to as panning. When panning, it is advantageous to use a longer lens as this will exaggerate the motion. When panning, the objective is to maintain subject sharpness by panning at the same rate as the moving object and the resulting image will have a horizontal blur of the background. It is an interesting

effect that takes a lot of practice to master.

## Assignment

For this assignment, you will shoot images which both show motion as well as stop motion. In your Best 20 folder I want to see ten photographs of each. In order to get ten good images of each you need to shoot much more. This is a concept that you need to practice so that you understand the principle of shutter speed selection and how it can be used for creative purposes.

After shooting and downloading your images, you will select one image that shows motion and one that stops motion, edit them in Photoshop and prepare them for printing. Save them to the proper assignments folder on the server.

For extra credit, see if you can intentionally use camera shake in a creative way to create motion from a still subject. To accomplish this, you will need to use a very slow shutter speed. Accidents and mistakes while shooting other images don't count. Do this intentionally and predict what the final image will look like.



*An example of camera shake being used to create an impressionistic look.*