Tips for Low-Light Action Photography

The number 1 question I've been asked this year has involved photographing moving subjects in low light such as indoor sporting events and stage performances. Many people are frustrated by the blurry shots they are getting. Last season I photographed a high school basketball game. With my camera set to ISO 1600 and my aperture set to f/2.8 I was getting a shutter speed of 1/100. That shutter speed is pretty marginal for action but I came away with some good shots. Still, what's a person to do if they don't own an f/2.8 lens or have a camera with an ISO setting higher than 1600? This has caused me to think of ways to push the envelope so I offer these suggestions. Generally speaking, the best suggestions in terms of best results are listed first, but many of these involve spending money so if you're not in a position to spend the money, keep reading for ideas that will improve your results with the equipment you have. You may find that you need to use multiple techniques from the list below.

- ISO - If shooting with film, buy a high ISO film. You should be able to find ISO 1000 and possibly higher-speed film. You can get Kodak B&W film in ISO 3200. High-speed film will produce a grainy looking picture, but it may be preferable to a blurry one. If shooting digital, increase your ISO setting. Many, but not all, digital cameras will go as high as ISO 1600 and some will go higher. Shooting at a high ISO will increase the digital noise in your picture. If using a flash, increasing your ISO will increase the flashes effective range.
- Flash - If your goal is to freeze action in low light, a flash is very helpful, but you must be in range. The built-in flash on your camera may have a maximum range as short as 10 feet and probably less than 30 feet. A good external flash will reach much farther, but you still must work within the flashes range. This may not be an option, though, as many events will not allow flashes because they can distract the participants and interfere with video recordings, etc.
- Fast Lens - A lens with a large maximum aperture will give you the ability to achieve faster shutter speeds without a flash. Telephoto zoom lenses come with apertures as large as f/2.8 throughout the entire zoom range. If you still need faster shutter speeds or you're looking for a little less expensive option you can find fixed focal length lenses with apertures ranging from f/1.2 to f/2.8. The maximum apertures available will depend on focal length and your camera brand. If you buy a fixed focal length lens, make sure you can get within a workable distance from your subject for that lens.
- Tripod - Slow shutter speeds can result in blur from camera shake as well as subject movement. A sturdy tripod will significantly reduce or eliminate camera shake and may result in better photos but this will do nothing to stop blur from subject movement.
- IS or VR - Like a tripod, image stabilization or vibration reduction will reduce or eliminate blur from camera shake.

- Zooming - Most zoom lenses have a variable maximum aperture. When you zoom to the longer focal length, the effective aperture gets smaller. Something like f/4-5.6 is common. With such a lens the aperture value is f/4 at the short end of the zoom range and f/5.6 at the long end. With this lens you could get a shutter speed twice as fast by getting close enough to your subject to use the short end of your zoom lens and take advantage of the f/4 setting.
- Panning - Follow the motion of your subject. Make sure you continue to follow as you depress the shutter and through the exposure. With some practice you can get some cool shots with your subject, or least important parts of your subject, sharp and the background blurred.
- Direction - Subjects moving across the frame require a faster shutter speed than subjects moving toward or away from the camera. If you are unable to achieve an adequate shutter speed for your subject when moving across the frame, try positioning yourself so you have opportunities to photograph your subject when moving toward you.
- Peak - Many moving subjects such as ball players and dancers will often change direction at some point. For instance, when a basketball player jumps, there is an instant when the upward motion stops just before the downward motion begins. Try to anticipate that moment and trip the shutter at that instant -- a slower shutter speed will be needed to freeze the reduced motion.
- Pushing - Some films can be pushed one or two stops with acceptable results. You can increase your shutter speed by deliberately underexposing the image. You should shoot the whole roll this way and then ask your lab to push process the film for best results. With print film or digital you may be able to adjust the exposure enough on individual pictures when printing or editing. Keep in mind that these techniques will generally result in more grain/noise or a muddier looking picture.

For more low-light information visit: http://edu-observatory.org/cfs/DP2/Week2.html.

Canon 85mm F1.2 - $1,800
Canon 85mm F1.8 - $350
Canon 135mm F2 - $900
Canon 135mm F2.8 - $280
Canon 70-200mm F2.8 IS - $1,700
Canon 70-200mm F2.8 - $1,150
Nikkor 85mm F1.4 - $1,050
Nikkor 135mm F2 - $1,070
Nikkor 70-200mm F2.8 VR - $1,650
Nikkor 80-200mm F2.8 - $950