Cell Phone Camera Tricks for

Physics of Sports

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**What is Shutter Speed (denoted as ‘S.’ in some cameras)**

Shutter Speed is the length of time for which the shutter in the camera is open to expose the image sensor. The shutter speed is denoted in seconds or fractions of a second, e.g. 2 sec, 10 sec, 1/50 sec, 1/250 sec, etc. A faster shutter speed can be used to freeze the subject in your frame, whereas slow shutter speed can be used to capture the subject in motion or a long exposure shot. Using the shutter speed of 1/500 sec or faster, you can freeze the movement of a fast moving subject such as a sportsman or a bird/animal [Ref 1].

**What is ISO?**

ISO is the sensitivity of your camera to the available light. This means that the lower the ISO number, more light the camera sensor requires to correctly expose the photo. Similarly, the higher the ISO number, less light the camera sensor requires to correctly expose the photo.

Lower ISO number = More light required = You will have to use lower shutter speed  = Less grains

Higher ISO number = Less light required = You will have to use faster shutter speed = More grains [Ref 1].

White Balance WB

White balance (WB) is the process of removing unrealistic color casts, so that objects which appear white in person are rendered white in your photo. Proper camera white balance has to take into account the "color temperature" of a light source, which refers to the relative warmth or coolness of white light. Our eyes are very good at judging what is white under different light sources, but digital cameras often have great difficulty with auto white balance (AWB) — and can create unsightly blue, orange, or even green color casts. Understanding digital white balance can help you avoid these color casts, thereby improving your photos under a wider range of lighting conditions, [Ref 3]

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Exposure Value EV

In photography, exposure value (EV) is a number that represents a combination of a camera's shutter speed and f-number, such that all combinations that yield the same exposure have the same EV (for any fixed scene luminance), [Ref 2].

**References:**

[1] <http://www.the-photography-blogger.com/mobile-camera-manual-mode/>

[2] <https://en.wikipedia.org/wiki/Exposure_value>

[3] <https://www.cambridgeincolour.com/tutorials/white-balance.htm>