

MELBOURN & DISTRICT PHOTOGRAPHIC CLUB

Getting off Auto

Exposure

Exposure is controlled primarily through the 2 variables of:

- Aperture (how wide the lens is open)
- Shutter Speed (the duration the shutter is open)

Not letting enough light fall onto the Sensor will result in underexposure. Allowing too much light to fall onto the sensor will result in overexposure.

So, the wider the lens is open, the faster the shutter speed needs to be

The narrower the lens is open, the slower the shutter speed needs to be

1/250th sec at f2.8



1/20th sec at f11



What do you notice about these 2 photos?

- Narrow depth of field when f number is small (i.e. f2.8)
- When f number is large (f11) , depth of field is very wide
- Water is frozen at fast shutter speeds (1/250th)
- Water is blurred with slow shutter speeds (1/20th)

Unless you get off auto, your camera will decide which settings to use and for great photos, YOU should be deciding the depth of field you want (i.e. do you want to throw a background out of focus?), or do you want to freeze or blur action. There is a simple choice to make dependent on the sort of shot you are taking.....

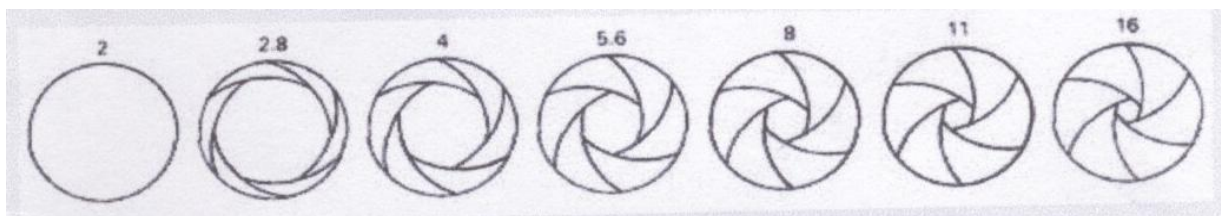
Is controlling depth of field more important than shutter speed (if it is you should use Aperture Priority)? Is freezing or blurring action more important than controlling depth of field (if it is you should use Shutter Priority).

Aperture Priority (A on Nikon, Av on Canon, A on Lumix)

Choose Aperture Priority Mode when you want to control depth of field (DoF). With a small f number (large aperture) you will create a shallow DoF. Use for portraits, people photos, or when you want a blurred background (ideally choose a large aperture like f2.8 or f1.8 or the largest aperture your lens will allow). **Choosing Aperture priority means you choose the aperture and the camera automatically sets the shutter speed to give a correct exposure.**

For landscapes, you generally want an infinite depth of field so a large f number (small aperture) will be chosen. This would also apply to group portraits for instance.

Large Aperture ← → Small Aperture



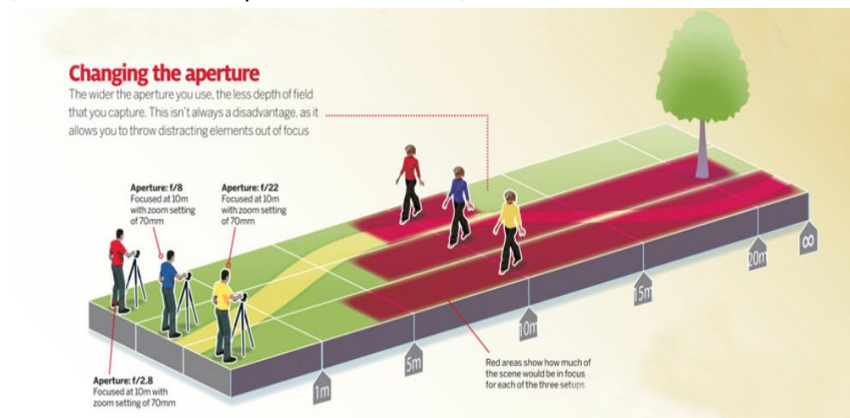
f4.5 for 1/400th sec



f11 for 1/40th sec



The Depth of Field (DoF) is the area in front of and behind a focused subject in a photograph and extends from 1/3rd in front of the point of focus to 2/3rds behind it.



Shutter priority: (S on Nikon, Tv on Canon, S on Lumix)

Choose Shutter Mode when top priority is controlling motion, either freezing or blurring it. So freezing for subjects like sports or action or wildlife/moving people will need a faster shutter speed such as 1/500th or faster depending on the subject. Subjects like flowing water, waterfalls, or panning a moving subject will require a slower shutter speed like 1/15th for panning and 1-5 seconds for flowing water. **Choosing Shutter priority means you choose the shutter speed and the camera automatically sets the aperture to give a correct exposure.**

0.8 sec at f16



1/4000th at f7.1



HOWEVER, 2 things often conspire against us.....

1) With your chosen aperture (perhaps a small aperture for wide DoF for a landscape), the camera chooses a slow shutter speed, too slow to hand-hold.....Options:

- a. Use a Tripod
- b. Increase the ISO

Always keep an eye on your shutter speed. Rule of thumb:

Do not hand-hold a shot if the speed is slower than the reciprocal of the focal length of the lens	
10mm lens	Do not hand hold at slower speeds than 1/10th sec
50mm lens	Do not hand hold at slower speeds than 1/50th sec
200mm lens	Do not hand hold at slower speeds than 1/200th sec

2) With your chosen shutter speed (perhaps a very fast speed to freeze action), there's not enough light to allow a good exposure

- a. Increase the ISO

ISO

Simply a way of changing the sensitivity of your sensor. However, always use the lowest possible ISO as the higher the ISO, the more the digital noise. [Never have ISO set to Auto on your camera].

If you are photographing in good light (e.g., on a bright sunny day), aim to use an ISO setting of 100 or 200. If you are shooting indoors (without a flash) or the weather is very dull you may need to use ISO 400 or higher.

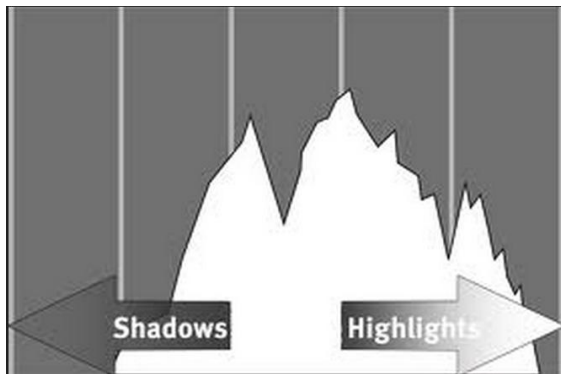
Effects of ISO - All these will give the same exposure....

1/200th sec at f11 at ISO 100	1/100th sec at f11 at ISO 200	1/50th sec at f11 at ISO 400
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What do you do when the camera gets it wrong?

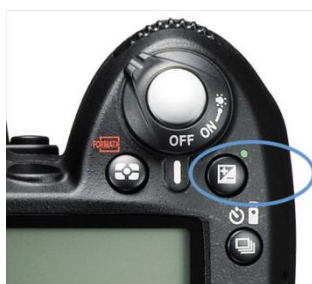
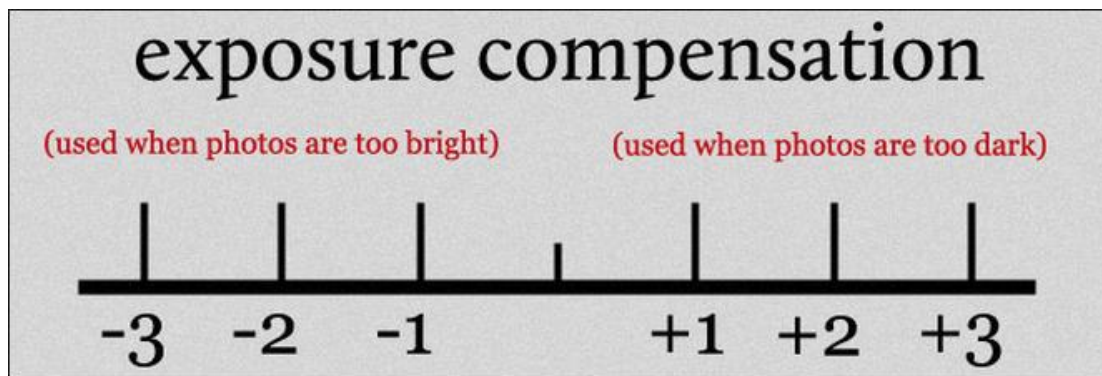
The light meters in digital cameras are not perfect and can often be fooled. How to avoid taking a shot and then walking off only to find out that the exposure was wrong when you get home:

- Always review your image when you have taken it
- Always check your histogram to ensure the image isn't over or under-exposed and highlights and shadows are not clipped



If auto-exposure is clipping shadows or highlights, use Exposure Compensation

- If the image is too exposed to the right (i.e., overexposed), dial in negative exposure
- If the image is too exposed to the left (i.e., underexposed), dial in positive exposure



Other Tools

Canon have a very good camera simulator to help you to understand the effects of changing camera settings:

<http://www.canonoutsideofauto.ca/play/>