

Photo Tips:

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Get Your Focus Right



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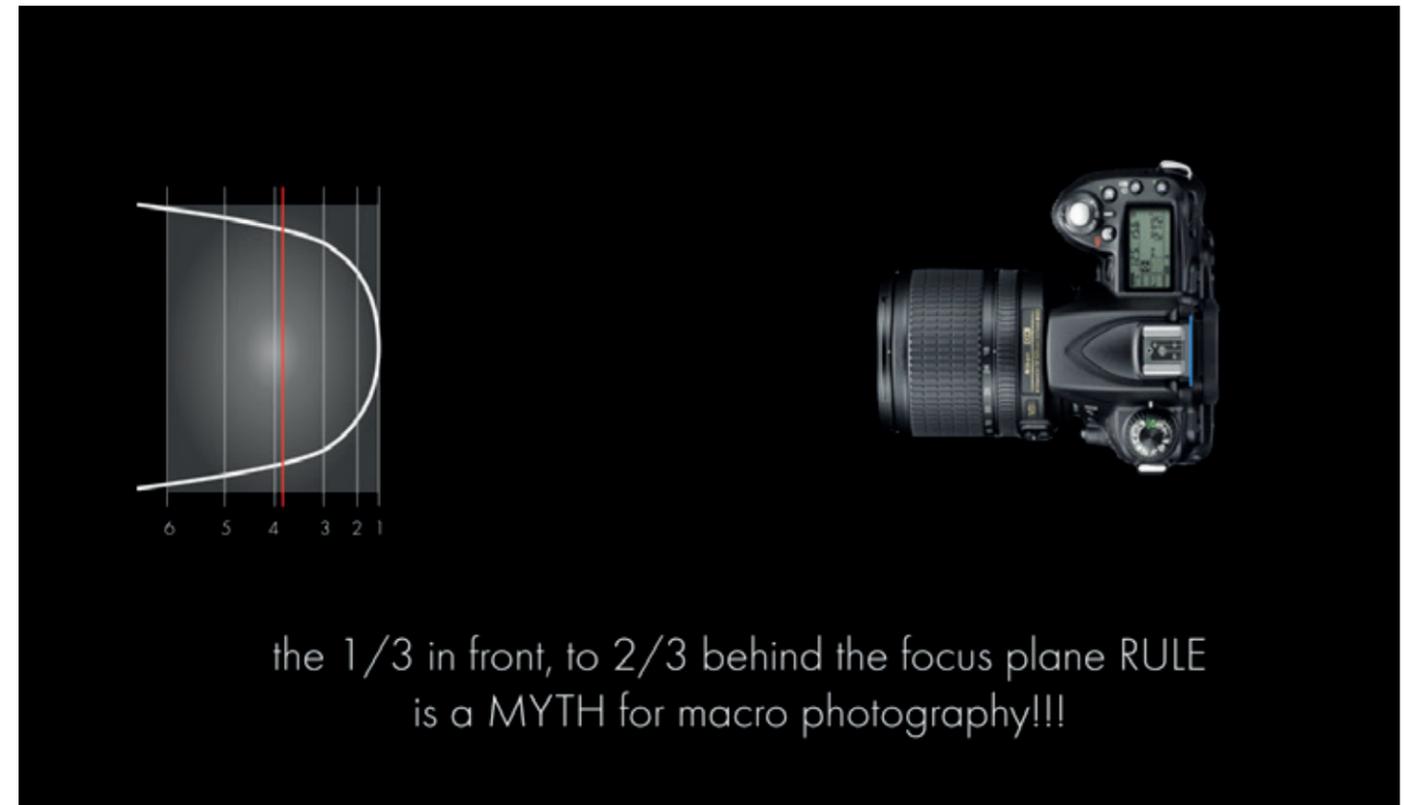


Fig. 1: In dental photography, depth of field is around 50% in front and 50% behind the subject.

INTRODUCTION

Digital cameras present photographers with an ever-increasing array of automatic and semi-automatic shooting modes. Most of these center around different ways to expose your shots – however, many cameras also give options for different focusing modes (auto, continuous focusing for moving subjects and manual). It's no wonder then that many photographers never make use of their camera and lens' ability to focus manually.

In macro and close-up photography situations, depth of field tends to become very shallow, so having control of your point of focus is very important. Manual focusing puts the control completely in your hands when shooting in this very precise setting. In order to get macro subjects really in focus, a complete depth of field is very important. The way to do that is to use a small aperture (at least f/25) and a dedicated macro lens to get close enough to your subject.

DEPTH OF FIELD

The optical phenomenon known as depth of field (DOF), is the distance about the plane of focus (POF) where objects appear acceptably sharp in an image. When you focus on something, the area of acceptably sharp focus is both in front and behind the subject on which you focus. It varies depending on camera type, aperture and focusing distance. The oft-cited rule that 1/3 of the DOF is in front of the subject and 2/3 is beyond (a 1:2 ratio) is only true when the subject distance is 1/3 of the hyperfocal distance. But as you adjust the focus the total depth of field and the ratio between that portion in focus in front of and behind the subject drastically changes. In dental photography, when using a DX-format DSLR camera with a 105 mm macro lens, an F-stop of f/25 with 40 cm distance to your subject, you will have a total depth of field of 1.09 cm with 0.54 cm (= 49%) in front and 0.55 cm (= 51%) behind the subject (source: depth-of-field calculator at <http://dofmaster.com/dofjs.html>) (Fig. 1).

HOW TO GET YOUR FOCUS RIGHT

How should the above concepts and rules be applied in daily work? Intraoral photographs are typically taken whilst the patient is in the dental chair as this simplifies the positioning of the patient and photographer for some of the standard views. Make sure to keep the lens set to manual focus and keep the same distance for given views. Using manual focus will ensure that photos taken at different stages of treatment can be easily compared to show progress.

CALIBRATING THE DIOPTRER OF YOUR CAMERA

Not all eyes are equal. For those without "normal" 20/20 vision, this may be a problem when you look through a camera's viewfinder – either optical or electronic. What you see might be blurry even when the camera's lens is in focus. Therefore, most camera's viewfinders have a diopter adjustment. The diopter adjustment allows you to



Fig. 2: Diopter adjustment wheel on a Nikon DSLR

customize the viewfinder so that you can see a clear, focused image inside the viewfinder without using eyeglasses or contact lenses to correct your vision.

Depending on the camera's diopter adjustment design, the wheel or slide can easily get knocked out of position. So, if you peer into a blurry viewfinder, don't panic – it might just be your diopter.

Different viewfinders have different adjustments, but there is likely a small wheel or slide close to the viewfinder (sometimes labeled with a + and -) that allows you to adjust the view (Fig. 2).

HOW TO ADJUST MY DIOPTER SETTINGS

Set your camera to auto focus and focus on some printed text by pressing the shutter

button half way down. When the camera has focused, you should see a sharp image in your viewfinder. If the image does not look sharp, turn the wheel or slide until it goes back out of focus. Then, work back toward focus and stop. The reason to turn or slide past the focus is to ensure that you have made the adjustment far enough and not ended up short of true focus. After this you can change your camera to manual focus, knowing that you are focusing correctly.

PROTOCOL TO GET YOUR FOCUS RIGHT EVERY TIME

By following some simple steps you can get repeatable results at a higher level. Here are some important points you need to follow.

Camera settings

Even if you are sure you have set up your camera correctly it's important to check the settings on a regular basis. If you have a camera that allows custom settings to be saved, do so to avoid unwanted changes in your settings.

The hold

Good technique begins with the way you hold the camera. This is at the core of every shot. The bulk of your grip comes from the right hand (camera ergonomics assume every photographer is right-handed). Hold the camera with your right hand and support its weight with that hand. Your finger should rest on the shutter release with no pressure. The left hand should be positioned under the camera to steady it further and share the weight of the rig. Your left thumb and forefinger should be free to adjust the focus



Fig. 3: The correct hold of the camera using right and left hand



Fig. 4: Tuck your left elbow in to your left side to use it as a "tripod"



Fig. 5: Correct position of patient and photographer at "eye level"



Fig. 6: Distance and magnification are displayed on the lens

on your lens (Fig. 3). Use your left elbow as a "tripod" to stabilize your camera (Fig. 4).

Position your subject and yourself

Both the position of the patient and the camera are important to get your images sharp and clear. First you need to find a comfortable position in front of the patient, holding your camera correctly and stabilizing it with your elbow as described above. Use your chair to adjust the position of your patient to bring him or her to eye level. Ask the patient to adjust the position of his/her

head in order to allow a straight line of view to your subject (Fig. 5).

Pre-focus to be more efficient

According to the image you want to take, you might adjust your focus before starting focusing. Good macro lenses have a window on the lens showing you the distance and the magnification ratio (Fig. 6). A full-smile shot for example is known as a 1:2 magnification shot. If you use a DSLR with a DX sensor this becomes 1:3 because of the crop factor.

Take your shot without wasting time

Don't spend too much time when taking photographs. The longer you take, the more uncertainty and tremor enter the equation.

Check your results immediately

Your camera should have "image preview" turned on. After taking a photograph, the result is displayed immediately on the screen of your camera. Check the result and delete the image if it's out of focus or not framed correctly.