



## The Solar Eclipse and Your Eyes By Carl Tubbs, MD

On August 21<sup>st</sup> of this year, the US will experience a solar eclipse, which will be partial in the Denver area, but total in parts of Wyoming and Nebraska, as the shadow of the moon follows a path along the Earth across the United States. During this beautiful event the sky darkens, one might see many stars, and birds and animals might think its bed time. There are specific ways to watch the eclipse of 2017 and maintain good eye health, but even a brief exposure to a partial solar eclipse can cause permanent untreatable central blindness by cooking the back of the eye (retina), so please be very careful!

If you want to view the eclipse using your eyes, you will need to use "eclipse glasses" or solar filters that are undamaged and comply with ISO 12312-2. *NASA has reported that bogus eyewear is being distributed, so check carefully!* When using such a filter, first check for any damage such as scratches or pinholes; if you see damage, do not use that filter. Be sure to cover your eyes fully with a shade or your eclipse glasses as you begin and as you end your viewing sessions. Such glasses are great to use as you view the sun and then take them off to look around your location to see how the landscape and sky away from the sun change. Dark sunglasses and homemade filters are not safe.

The only time one may remove protective eyewear is in TOTALITY, which lasts only about 2 minutes and will NOT occur in Denver. If you are in an area where you want to observe the brief total eclipse without eyewear, be sure to be in a group that has expert astronomers, or heliologists, on site to tell you when this viewing technique is relatively safe.

If you have a camera, binoculars or a telescope, you will also need to use special solar filters. Remember that viewing the eclipse through the camera viewfinder, telescope or even finder scope can cause vision loss. Of course, viewing your camera screen display or computer display is fine. Be careful not to burn out your camera sensor. Talk with an accomplished astronomer if you have questions as to how to photograph the eclipse to get the best images.

If you would rather not watch the eclipse directly, there are several other venues for experiencing the event. Some people will use a pinhole or one side of a binocular to project an image of the sun on a white sheet of paper, and you can look directly at the image on the paper (like a pinhole camera). NASA will be filming the broadcasting the event live, and will scramble 2 chase jets to perform extended data collection on the sun and Venus.

If you are out and about during the day, make sure to stay hydrated and wear sun screen!

Further information may be found at the following websites:

**American Astronomical Society:** [www.aas.org](http://www.aas.org)

**NASA Eclipse Website:** <https://eclipse.gsfc.nasa.gov/eclipse.html>

**National Eclipse Safety Website** <http://nationaleclipse.com/safety.html>