Dear Mr. Parker,

Certainly by now, you’ve read some of fans’ tweets of the Buffalo Bills versus New York Jets game:

- The Jet’s all-green and Buffalo’s all-red duds is a visual nightmare for those of us afflicted by red-green color blindness – can’t follow the game at all
- I’m red & green color blind and literally can’t tell the difference between the NY Jets and Buffalo Bills
- As a color blind NFL fan, the struggle is more than real and I can’t follow this game
- Both teams are wearing white helmets - doesn’t help the color situation at all

It’s easy to understand how this oversight occurred given that the vast majority of football fans have normal color vision and saw the Bills’ and Jets’ uniforms just as you intended. But for red-green color-deficient football fans, it was another story. On behalf of the American Optometric Association (AOA), let me offer any assistance I can to assist the NFL going forward to ensure all fans can enjoy future events.

The AOA represents approximately 33,000 doctors of optometry and optometry students. Doctors of optometry serve patients in nearly 6,500 communities across the country and in 3,500 of those communities are the only eye doctors.

Many of the patients served watch or participate in sports in some form or another. Doctors of optometry play a key role in the care of patients with color deficiencies, too, and many of our members are even experts in sports training as it relates to vision, color deficiencies and contrast sensitivities related to sports performance.

A recent estimate by the National Eye Institute reports that 10 million Americans—the vast majority of them men—suffer from color blindness. As many as 8 percent of men and 0.5 percent of women have the common form of red-green color blindness. Men are much more likely to be colorblind than women because common colorblindness is an X-linked genetic problem and men have only one X gene to rely on. Inherited color blindness can be present at birth, begin in childhood, or not appear until the adult years.

There are three main kinds of color blindness. Red-green color blindness is the most common, followed by blue-green color blindness. A complete absence of color vision—total color blindness—is rare. The most common red-green color blindness made it especially difficult for these fans to view the Jets-Bills game.

Having a color vision deficiency means the perception of colors is different from what most of us see. The most severe forms of these deficiencies are referred to as color blindness. People with color blindness aren’t aware of differences among colors that are obvious to the rest of us.
People who don’t have the more severe types of color blindness may not even be aware of their condition unless they’re tested.

Other color vision changes can occur and are not inherited. Blue-yellow color vision deficits are common in aging patients with cataracts, reducing the ability to judge pastel colors, and some color vision deficits are more apparent in different lighting conditions.

Some specific diseases that can cause color deficits are:

- diabetes
- glaucoma
- macular degeneration
- Alzheimer’s disease
- Parkinson's disease
- multiple sclerosis
- chronic alcoholism
- leukemia
- sickle cell anemia

Other causes for color vision deficiency include:

- Medications - certain medications such as drugs used to treat heart problems, high blood pressure, infections, nervous disorders and psychological problems can affect color vision.
- Chemical exposure - contact with certain chemicals such as fertilizers and styrene have been known to cause loss of color vision.

There is no cure for color blindness. However, people with red-green color blindness may be able to use a special set of lenses to help them perceive colors more accurately. These lenses can only be used outdoors under bright lighting conditions. Visual aids have also been developed to help people cope with color blindness. There are iPhone and iPad apps, for example, that help people with color blindness discriminate among colors. Some of these apps allow users to snap a photo and tap it anywhere on the image to see the color of that area.

Nike and the NFL can help all sports fans follow their favorite teams better by choosing the appropriate uniform colors, accent colors and contrasting helmet colors. The AOA stands ready to assist. For more information about color vision deficits, please visit our website at aoa.org or contact us directly for assistance with uniform color and contrast selection.

Sincerely,
Steven A. Loomis, O.D.
AOA President

cc: Mr. Roger Goodell, Commissioner, National Football League