

Does a Digital Acuity Chart Help That Much?

If you've been following technology in the eye care field over the past several years, you have certainly seen the explosion of digital acuity charts in the marketplace. There are many reasons why these have swelled in popularity, but a client asked me recently a very pointed question. "Does a digital acuity chart really help that much?"

Having used a digital visual acuity testing system for nearly fifteen years, I don't even have to think about the short answer, which is a resounding "YES." I would never dream of practicing without this technology. Justifying my answer took a little more thought. I had to ask myself "why?" Not having to replace projector bulbs is nice, but does this really justify investing in the technology? As I worked through the pros and cons in my mind, there were two key factors that make this technology a "must have" for your practice: Speed of refraction and the ability to randomize letters.

Probably the biggest benefit to using a digital visual acuity testing system is the savings in time that can be realized. On first blush, it might be hard to imagine that simply using a digital acuity chart could save much time. To look closely at this question, first think about how many different charts you project during a typical exam sequence. You may start with several lines of decreasing size to gauge initial acuity, then perhaps an astigmatic clock dial, followed by a Jackson cross cylinder target, and finally a display to measure best corrected acuity. Repeat this sequence for the fellow eye, then add binocular or monocular balance and binocular best corrected acuity. If you're so inclined, you may explore phorias, and if you're concerned about over plussing a hyperope, you might even use binocular red-green testing to leave your patient "one click in the green". Each time you reach over to adjust the letter size or display a single line or column of letters it takes several seconds. Add up those seconds over the course of your exam, and you have several minutes. Add those minutes up during a busy day, and you might have 20 to 30 minutes... easily enough time to complete another exam, possibly two. Add those exams up over the week or year and you're talking about some serious cash flow. It reminds me of the truism, "Watch your pennies and the dollars will take care of themselves."

Some may argue that this capability can be had in many of the automated projectors that are available from several different manufacturers. While automated (non-computerized) projectors have long had the capability of programmed sequences, their capabilities are somewhat limited. Although there is much greater flexibility with these systems, they still are limited by a very basic concern: they use a fixed slide. As such, they are greatly limited in the second most important benefit of a computerized system: randomization.

Randomization of letters has the obvious benefit of avoiding patient memorization to give a more reliable measure of visual acuity. But this also adds to the patient experience as well their confidence in our ability to achieve the best possible refraction for them. For those of us who spent a significant amount of time using traditional projectors, it was common to hear patients say "I think this looks better, but I memorized that line so I can't really tell." Patients want to be confident not only in your ability to perform the visual exam, but also in their ability to do their part. Preventing memorization is key to the patient experience in this regard.

There are some subtle nuances to how randomization can be an even more powerful tool to improve your refractions. The two basic approaches to randomization are true random presentation and pseudo-random presentation. At first glance it might appear that a truly random approach would be better all around. I would argue that this is not the case. Truly random letters will prevent your patient from memorizing the sequence of letters, but you will not be able to memorize them either. Pseudo-random presentation, by contrast, will generally cycle through three different sets of letters. Your patients will not be able to memorize the letters as you change them for each eye and for binocular testing. Over time, however, you will memorize each of these sets of letters and not have to look at the screen to see if your patient is reading the letters correctly or not.

On top of decreased exam time and the benefits of randomization strategies, there are also the added benefits of being able to refract with the lights on and never having to change projector bulbs.

The cost of investing in this technology can be very reasonable, with affordable all-in-one solutions, or software only versions to install on your own computer. Truly the cost of the system is negligible with respect to the benefits to your practice. After using a digital visual acuity testing system for a few days, I would be very surprised if you didn't agree that you "would never dream of practicing without it."

I would add one word of caution for those who are resistant to adopting this technology. I am certain that the "wow" factor of this technology will eventually fade, and those that are still using a traditional projector will face uncomfortable comments from patients who might say "I thought these projectors had all been replaced by computers." (I just pray that you don't also raise their chair with a manual footpump!)

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