See the hit, save the brain gameplan at cautious UC

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Joseph Clark, a UC professor of neurology, talks with a student-athlete before a Dynavision D2 drill at the Lindner Center. The drill is designed to improve peripheral vision in order to help avoid concussions.

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NFL players sustained 152 concussions during this year's regular season, including 11 for the two Super Bowl teams. The league itself is still staggering under the weight of a proposed $765 million concussion lawsuit settlement, which a judge says is probably inadequate to cover the projected 20,000 former players affected.

Meanwhile, a 2012 study showed the concussion rate doubling among three different Division I college football programs.

Against that disturbing backdrop, the results of a concussion prevention program at the University of Cincinnati are nothing short of remarkable.

Since 2006, UC's football concussion rate has dropped by 80 percent. From 2006 to 2009, UC players sustained an average of 8.75 concussions per year. From 2010 on, the number dropped to just 1.3.

The answer wasn't new helmets, new tackling techniques or even new coaching. At its simplest, it's about players seeing what's about to hit them.

What lies at the heart of many concussions is a blindside – an athlete taking a hard shot for which he wasn't prepared. The heart of UC's concussion prevention program is training that helps athletes strengthen their peripheral vision, then trust what they see.

"They've all played football for years, and so they know how to prepare to take a hit, but the force you don't see is the one that's going to get you," says Dr. Jon Divine, head team physician. "With this training, they can potentially see the hit that comes from the side."

Vision training, as it's called, has been around for decades, used to train Air Force pilots, rehabilitate stroke victims and improve athletic performance. UC is the first to apply it to concussion prevention.

It does so by use of the Dynavision D2, a flat 7-foot by 5.5-foot panel with a spreading, circular design of 64 buttons that randomly light up and to which athletes must react. The device can simultaneously flash math problems or verbal commands to accelerate decision-making and improve multitasking.

As they smack flashing buttons, the Bearcats are improving eye-hand coordination, timing, anticipation, depth perception and peripheral vision. It's fun. It's also potentially brain-saving.

Even a slight improvement in timing, for example, can mean seeing an approaching opponent more quickly and preparing the whole body to absorb the hit. That can prevent the whiplash that slams a floating brain against the skull, causing a concussion.

With 8.4 concussions per week in the NFL and 10,000 concussions in NCAA sports each year – 10 percent of all college football players sustain a brain injury – any drop in concussions is heartening news. An 80 percent reduction is jaw-dropping.

"We didn't report the data in the beginning not because we didn't believe it, but because we wanted to be sure," says Dr. Joseph Clark, a professor of neurology. "We're sure now, after four years."

With other colleges clamoring for UC's findings, Divine and Clark are especially eager to share the approach with area high-school programs.

Studies analyzed last year by the National Academy of Sciences showed high-school players are at the highest risk for concussion – nearly twice that of college players – although they have little access to trainers and a lower standard of medical care.

Sparing them blindsides means saving their brains. It could also mean saving their sport.

"We need to move away from the fear-mongering," Clark says. "There are things we can do to make football safer – and we're working very hard to do that. This is prevention.

"And prevention's working." ■