Computers latest technology to train players' brains

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Muscles can be toned, endurance can be refined, leadership qualities can be taught. But how do you train a hockey player's brain? Can a coach work the areas of a player's brain responsible for awareness and intuition?

The Israeli Air Force, of all people, has the answer.

More specifically, the answer comes from Applied Cognitive Engineering, or ACE, an Israeli technology company that has worked with the Israelis and the U.S. Air Force, as well as NASA and the American military's Defense Advanced Research Projects Agency. Originally used to train fighter pilots, ACE's IntelliGym is now being adopted by more and more hockey coaches.

The cognitive training system develops players' awareness and ability to make fast-paced decisions and has already made its mark on the hockey world in just three years.

"We had no idea what to expect. It kind of looked like a video game. Sure enough, you could see how it related to hockey and increased your awareness and knowledge," said Michael Cornell, a junior defenseman and alternate captain at the University of Maine, whose team used the IntelliGym last season. "I think it was one of those things where it became almost second nature. I read this play differently because of the tools I've been using. It helped develop a high level of awareness for me."

In the sports world, IntellyGym was first harnessed by a number of big-time basketball coaches, including Hall-of-Famer Hubie Brown, who now sits on ACE's advisory board. When the team behind the IntelliGym noticed the incredible speed and action of hockey, they saw another area where they could provide a vital training tool.

"We were asking coaches how they train athletes to make the right decisions," said Danny Dankner, ACE's chief operating officer. "For many of them, they thought being a smart player was a born trait. Either you were born that way or not. But, just like training your muscles, everyone can train their brain fundamentals. The percentage of improvement for pilots in on -air performance was tens of percent on average. If you want to train situational alertness and read-and-react skills and pattern recognition, these are skills that are harder to train."

While other schools, including the United States Air Force Academy, have adopted IntelliGym in their hockey programs, the greatest results so far have been with the United States' National Development Team Program. In perhaps the greatest testament to the merits of the program, last summer's draft boasted an impressive 16 selections who had trained with the IntelliGym, including top picks J.T. Miller, Connor Murphy, and Tyler Biggs.

But the number of NHL prospects is not the only statistic ACE boasts in touting the efficiency of its program.

Since adopting the IntelliGym, the United States national Under-18 team has gone from winning 29 percent of its games to a whopping 70 percent. Because the U.S. program has only used the IntelliGym for three years, the sample size for these statistics is rather small. But in the world of hockey, it's championships that are the ultimate metric. And considering the U.S. U-18 team is a three-time world champion and the U-17 and U-18 teams have combined to win 10 of their last 13 tournaments, the results seem to be indisputable.

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"Before I got here, I was at a festival in the summer and the guys from Israel were there meeting with different coaches. That did give me interest in their research," said former NHLer and current U.S. national U-18 coach Danton Cole. "The cognitive element where you instinctively do something can give you the edge between making it and not making it. This [IntelliGym] is something that can help you be better at that. Every time you do a little better, it adjusts and makes it harder and makes you better."

The sample size is small and more results are likely needed to prove IntelliGym's true value, but Dankner sees other, potentially greater, long-term benefits of his interface.

"We realized if you train the players' skills and they are more aware of their surroundings and have better working memory, you are less prone to be injured while playing hockey. It's injury prevention because you are more aware of what is going on around you," said Dankner. "Injuries happen when you are hit and not ready. If you know your surroundings better, you are less likely to be hit.

"Looking at the medical records, we found a 25 percent decline in injuries related to being hit on the ice, like concussions. This is a small sample, but I think we have an interesting thing we will research shortly."

The pool of data may be shallow right now, but Dankner believes his system may not just develop a better hockey player, but a safer hockey player as well.