

SCIENTIFIC AMERICAN™

Could chess-boxing defuse aggression in Arizona and beyond?

By **Andrea Kuszewski** | January 10, 2011 |

Teleportation, cloaks of invisibility, smell-o-vision, 3D printing, and even holograms, were all ideas first imagined in science fiction—and now are real products and technologies in various stages of development by scientists. While this is common in fields like experimental physics, it isn't as often that cognitive neuroscience and applied psychology score insights from this fantasy genre.



Chess-boxing, a hybrid sport combining chess and boxing, made its first appearance in the pages of a 1992 sci-fi graphic novel by **Enki Bilal**, *Froid Equator*, or *Cold Equator*. Combining what is described as the number-one physical sport and the number-one thinking sport into one completely new hybrid, chess boxing was meant to be the ultimate test of body and mind.

In 2003, Dutch artist Iepe Rubingh wanted to give that idea life. He saw the potential for an incredibly challenging new sport that would require physical strength and agility, superior problem solving skills, and above all, unbelievable mental discipline and control. No longer just a sci-fi fantasy, chess-boxing is now one of the newest sport fads in Europe, quickly gaining popularity in the U.K. and the U.S.

The most awesome thing about chess-boxing—no, not the sci-fi roots, or the extreme physical skill and mental prowess necessary for dominance—is the brain-changing potential of the sport itself. The specific elements of chess-boxing—the nature of the execution of play as well as the training involved, have some exciting implications for

the future of aggression management and preventative treatment of maladaptive behaviors.

The ability to control aggression, emerging from a boxing ring? This may seem unlikely, given that chess-boxing is a contact sport, but let me explain.

Chess-boxing, the New Extreme Sport

Chess-boxing is divided into eleven short, rapidly rotating rounds—six four-minute rounds of speed chess, alternated with five three-minute rounds of boxing. Winning is achieved by KO, checkmate, or in the case of a draw, points determine the winner.

The idea of performing at such a high physical level (boxing) as well as a high mental level (chess) seems arduous enough. But it isn't just the physical effort plus the mental effort of the two sports combined that makes it especially daunting—it's the constant alternating back and forth between the two that's the real challenge.

What is it about the alternating rounds that make this so intensely demanding? Interestingly, the answer lies largely in **emotion regulation**. The strength of a world-class boxer, and the high rank of a chess player are of no use if a player lacks the one all-important skill—his ability to effectively regulate his emotions in order to maintain cognitive control.

The Challenge of Task-Switching

Any chess-boxer will tell you that the most difficult part of the sport is the moment you switch to the next round. Yes, the boxing is physically taxing, and chess takes extreme concentration, but it's the **task-switching** that poses the biggest challenge. Here's why:

During the boxing round, you need to anticipate your opponent's moves, plan your offensive/defensive strategy, exert physical force, while simultaneously blocking strikes. Naturally, you'll feel a rush of adrenaline; your heart starts racing, and your emotional arousal spikes. After three minutes, however, when you hear that ding signifying the end of the round, you need to *immediately* let go of all of that emotion—and sit down to a four minute round of chess. Fail to do this right away and you've set yourself up to be conquered. If you're too jazzed up from the boxing round, you won't be able to concentrate on your next chess move—so by the time you get in that chair facing the chessboard, you need to be ready to roll.

To be able to do this effectively takes a *tremendous* amount of **cognitive control**. You need to have intense focus during the boxing round, then let go of that and completely focus on the chess, then go back to complete focus on the boxing, all at lightning speed. The key to doing this without exhausting yourself to the point of physical and mental collapse is to **keep your emotions low and controlled** to begin with, never raising them above a certain threshold. If you are able to maintain a low level of emotional arousal, the task-switching is much easier, you can focus better on each separate task (less cognitive energy spent down-regulating your emotions, more spent on the executive functioning), and you maintain a better level of cognitive control—putting you in a better position to defeat your opponent.

So why is emotion so important?

What Emotion Means For Behavior

Emotion regulation helps you to navigate your environment in order to meet the demands of that situation. This explains why having control over your emotions is so important in each individual task, and in maintenance of behavior overall. According to the book [Emotion Regulation and Psychopathology: A Transdiagnostic Approach to Etiology and Treatment](#) (2009):

"Emotions function to **interpret** ongoing cognitive processes or behavior, **redirects** attention to stimuli relevant to the preservation of goal-directed states, and **trigger action tendencies** in service of these goals."

In other words, your emotional state helps you to make sense of what is going on and choose the appropriate corresponding behaviors to engage in. It's that state of arousal—high, low, happy, sad— that will determine how your brain responds in individual situations. For example, if you're extremely nervous or upset, you will interpret an ambiguous situation much different than you would if you were calm. Additionally, if you are in a heightened arousal state (that is, too high for what that situation demands*), it's going to interfere with how well you are able to focus on a cognitive activity. Imagine what it would be like to get into a heated argument with someone, right before you sit down to take an important exam. How do you think it would affect your performance?

The Benefit of Pre-Learning Emotional Control

Take that example I just mentioned—getting into a fight right before your exam. If you've ever been in a situation like this, you know how difficult it is to focus when your emotions are through the roof. So now imagine that you were presented with the same situation, and instead of getting into an argument, you were able to maintain your cool, discuss the problem calmly, and never get yourself worked up emotionally. I bet you would have a significantly easier time with that exam, given your calmer state.

Now what if I said we can actually train ourselves to maintain our cool when presented with emotionally charged situations—even *before* they happen?

Many behavior modification techniques involve practicing scenarios, reinforcing the desired response, or using **suppression** or **reappraisal** in order to shape behavior in response to a problematic situation. This type of behavioral training is used during or after the targeted situation to help a person develop new behaviors to replace maladaptive ones, such as learning to stop and count to ten before responding in an argument.

These types of behavioral techniques have their success, but [researchers \(pdf\)](#) have found that when you shape the emotional response *before* the situation occurs, instead of modifying it afterward, there is a significantly higher success rate for change, and there are fewer negative side effects (increased heart rate, higher stress-response). In other words, when the emotion regulation becomes **automatic**, the person doesn't feel as many negative effects as, say, someone who is actively trying to suppress a response.

To be in the presence of a stressful situation and have your emotions appropriately

regulate automatically, prior to any negative response, is obviously the goal here. We want to be able to stand in the presence of adversity and take it on with a clear and purposeful mission, maintaining a level head. So how do we learn these Jedi mind tricks?

And the *big* question is: can chess-boxing be that training medium to teach automatic emotion regulation? Sure it can!

Let's sum up what we now know about emotion regulation, put that together with some things we already know about behavior and learning in general, then tie it all in to chess-boxing.

* When our emotions get too high, and we are unable to effectively down-regulate, cognition suffers. We may misinterpret situations, perform dismally, or make poor decisions.

* Emotion regulation that occurs automatically—a prior learned response to stressful situations—results in higher success at regulating behavior, with the fewest negative side effects.

* Recent [research](#) has shown that early exposure to *mild* stress—then working through strategies to manage that stress—can help to build not only resilience, but better emotion regulation later in life, via strengthening of neural connections in the brain. This means if kids are taught from an early age to manage their emotional response to stress, they are more likely to be a well-adjusted adult.

* This also means that it is **possible to train your brain to better regulate emotions**, by engaging in activities that challenge you to maintain that low level of arousal. Over time, your ability to do this quickly and automatically improves.

* [Research](#) centered on treatment of psychological disorders has shown that teaching regulation of emotions to match the given environment can have a **preventative effect** on future displays of dysfunctional behavior. For example, if a person presents with manic episodes, teaching that person to regulate those extreme emotions (in the pre-learning, automatic method) can reduce the occurrence of those symptoms in the future. This is seen as a promising preventative treatment for mental disorders, or at least for some of the symptoms.

* The element of chess-boxing that makes it so challenging is the **task-switching**—from adrenaline-pumping physical activity to intense cognitive activity, in short bursts—all while maintaining a **low level of emotional arousal**. Because you don't have the luxury of time to allow yourself to calm down naturally, you need to keep yourself from getting overly excited in the first place.

* Therefore, it follows that in order to be a good chess-boxer, you need to be able to master automatic emotion regulation, and training in this sport will help to strengthen that skill.

The Exciting Part

Now that we have *all* of this information about the benefits of emotion regulation, how it can be trained and achieved—what does this imply about future innovative methods of preventative treatment for problematic behavior?

Let's look at one example that is especially dear to me: anti-bullying strategies. As a behavior therapist working in schools, I've been witness to and participated in quite a few different types of anti-bullying programs. Each program varies in its exact content, but generally, they all seem to focus on how to *react* to bullying—either in reporting it to a teacher, or in responding to the bully him/herself. These are all good things to teach—don't get me wrong.

But what if we could target problem behavior before it even emerged?

Combination sports like chess-boxing—ones that involve **rapid switching between physical, adrenaline-producing activities, and intense cognitive tasks**, are ideal for training in emotion regulation. It may seem that an activity like boxing would promote aggression, but on the contrary—when combined with chess, utilizing short, alternating rounds, there is no time for aggression to build—otherwise you lose the game. If you train kids on how to control their emotional behavior or their aggression *before* they lash out at another child, then build on those patterns of successful behavior, you are one step ahead of the problem instead of chasing it down. Not to mention, early intervention of any behavior problems almost always means a higher rate of success in the long term.

Granted, very young children probably aren't the ones who should be engaging in chess-boxing specifically (I see it more appropriate for adolescents and young adults), but any physical sport combined with alternating cognitive tasks, utilizing these same principles, would be just as great. Couldn't you see Kickball-Math, or Obstacle Course-Scavenger Hunts?

Rather than using a "band-aid approach" to address some of these issues, such as childhood aggression and bullying, let's use this scientific knowledge to come up with some innovative new solutions. By being a little creative, we could not only get kids enthusiastically involved in their own mental well-being, but it might actually be a more effective way to treat behavior and aggression problems before they begin.

Is chess-boxing the only solution for producing well-adjusted, emotionally stable adults? No, but it's a fun place to start. I, for one, am willing to fight a little for a better future. Are you?

Addendum: In light of the tragic [events](#) that transpired in Arizona on January 8, I wanted to add some additional thoughts, to reinforce just how important this issue of emotion regulation is.

To see such acts of violence committed at the hands of a 22-year-old young man is heartbreaking and unacceptable. If we target behaviors like aggression when children are still developing, they have a much greater chance of growing up into the kinds of adults who are better able to control their emotions, and less likely to give way to aggressive behavior. Research is showing that early treatment of emotion regulation can have a profound effect on minimizing the symptoms of mental disorders. If there is a chance that people with schizophrenia will be better able to manage their behaviors through emotion training, isn't it worth it to give it a try? We need to be spending our energy working on solutions that *prevent* these types of tragedies, rather than running around after the fact, trying to fix the damage that has already been done. Waiting until adulthood is too late. I believe we can change our children's future for the better—let's put science to use and make it a reality.

Notes:

*Research has shown that heightened arousal can help to motivate us to perform better at certain activities, but here we are speaking of a mismatch between how much arousal a person is experiencing, and the optimal level of arousal for that specific circumstance.

Image Source: [Wikimedia Commons](#)

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[The Future of Emotion Research in the Study of Psychopathology](#) By Ann Kring



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