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The Positive Impact of Physical Fitness on Emotional Fitness

Can physical fitness improve your emotional fitness?

By Dr. Brooke R. Envick and Rick Martinez

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Health-science experts claim that the combination of proper nutrition and physical exercise will improve your emotional well-being (1-6). In other words, improved physical fitness can lead to improved emotional fitness.

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Emotional fitness is defined as the state wherein the mind is capable of staying away from negative thoughts and can focus on creative and constructive tasks. Being emotionally fit is the key to success in all aspects of life. Negative emotions such as anger, anxiety, sadness and distress can prevent success and drain the energy needed to be productive in your daily routine and activities.

It stands to reason that improving your physical fitness can make you a happier and more productive person, not only in the gym but also in everyday life. We decided to see for ourselves by conducting a study with our own members at Alamo CrossFit, owned and operated by Rick Martinez. As such, the subjects were CrossFitters with varying experience levels rather than average people who had never experienced the program, but we wanted to see the results of the study and decide what, if anything, we could conclude.

We initiated a program called the "10-in-10 Challenge," which prescribed the Paleo Diet and multiple CrossFit workouts each week for seven weeks. Over 60 people signed up to participate. From those who signed up, we randomly selected a small sample to partake in a revolutionary pre and post assessment to determine if, in fact, improved physical fitness has a positive impact on one's emotional fitness.

To measure subjects' emotions, we utilized a computer software program called Emogram to capture both pre- and post-program measures. Alamo CrossFit member Brooke R. Envick, Ph.D., a trained and licensed Emogram administrator, conducted all the emotional assessments.

Emogram: The Measurement Tool

Emogram uses non-linear systems theory to analyze the 11 basic emotions and their interactions, as well as to track the dynamic changes in emotions over time. Among other applications, it has been used to measure and manage the emotions of disaster-response workers, interpret emotional dynamics in counseling, improve organizational climate and decision-making in businesses, and determine purchase intent after consumers are exposed to products, services and advertising. This study is the first time Emogram has been used in the realm of health and fitness.

Emogram measures emotions by presenting a series of photographs that precisely depict each emotion (Figure 1). Individuals respond to the photographs, indicating a level of agreement with each photo in relation to the "target." A target is a specific event, person, situation or other object that becomes the focus of the assessment. The 11 emotions and abbreviated descriptions are provided in Table 1.

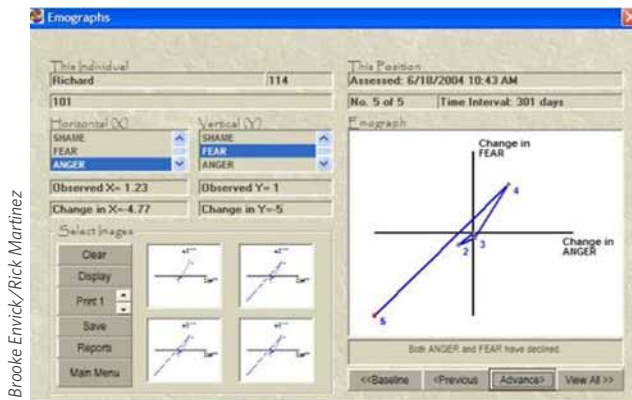
Basic Emotion	Description in Relation to the Target
Happiness	I am progressing in the right direction in relation to the target.
Interest	I am willing to seek out new information about the target.
Surprise	I am willing to take in new information regarding the target.
Disgust	I see the target as distasteful or aversive.
Contempt	I blame the target for how I feel.
Anger	I intend to act out against the target.
Fear	I want to retreat from the target.
Anxiety	I have unsure feelings or lack of knowledge about the target.
Shame	I am personally flawed or have shortcomings in relation to the target.
Distress	I need help with the target.
Sadness	I have feelings of loss in relation to the target.



Brooke Envick/Rick Martinez

Figure 1: Measuring emotions through Emogram.

Non-linear systems theory is used to analyze the interactions between the emotions, which allows the depiction of incremental evolution and dynamic interactions of all the emotions (Figure 2). These methods have been well established and documented in peer-reviewed academic articles published by the developers and users in numerous applications and settings (7-11).



Brooke Envick/Rick Martinez

Figure 2: Analyzing emotions with Emogram.

Our Application: The 10-in-10 Challenge

Alamo CrossFit's 10-in-10 Challenge consisted of the Paleo Diet and multiple CrossFit workouts each week for seven weeks. The Paleo Diet is based on lean meats, vegetables (especially greens), nuts, seeds, some fruit, little starch and no sugar. High-glycemic carbohydrates are forbidden. They include all grains, bread, potatoes, sweets, sodas and most processed carbohydrates. Processing can include bleaching, baking, grinding and refining.

CrossFit is a strength and conditioning program that is, by design, broad, general and inclusive. In essence, it is functional fitness that includes basic human movements such as lifting, pushing, pulling, jumping, squatting and running in various combinations, resulting in fast-paced, intense workouts called "WODs" (workouts of the day). It offers universal scalability, making it the perfect application for any committed individual regardless of experience.

In our challenge, 14 subjects were randomly selected to take part in the Emogram study. In doing so, they were to consider how their dietary habits and exercise routine affected the following factors (the aforementioned "target" material):

1. How they look.
2. How they feel physically.
3. How well they perform while exercising.

A pre-challenge assessment was performed on the subjects. Then they all attended an hour-long seminar that explained the challenge, which consisted of following the Paleo Diet and conducting several CrossFit workouts each week for seven weeks. At the end of the seven weeks, another assessment was performed. The pre- and post-assessment target material was identical (how you look, physically feel and perform during exercise).

Seven subjects (of the original 14) completed the entire challenge, meaning they took the initial assessment, attended the seminar, committed to the challenge for the full seven weeks and took the second assessment. These subjects were demographically diverse and varied in their pre-challenge fitness levels, dietary habits, exercise routines and knowledge of the Paleo Diet. For example, one had attended the CrossFit nutrition class eight months prior and had already been following the

prescribed diet. Another had never even heard of the Paleo Diet until this program began. Some participants had been doing CrossFit workouts for well over one year, while others had only begun a couple of months prior to the challenge.

The Extraordinary Results

For those who completed the full seven-week challenge (seven Emogram subjects plus another 30-plus participants who just did the Paleo Diet and CrossFit workouts), every single person realized a positive physical transformation. Most people lost at least 10 lb., and some even reported a weight loss of 20 lb. or more. Several people also noted decreases in clothing size and said they had to purchase new clothes.

Physical performance in the CrossFit workouts increased almost across the board. Participants reported personal records for various exercises. For example, one male achieved a back squat record of 205 lb., and one female achieved a record power snatch of 85 lb. Not only did people get stronger, but they also got faster at certain exercises. One participant set a personal record of 7:09 on a WOD called DT (5 rounds for time of 12 deadlifts, 9 hang power cleans and 6 push jerks, all at 155 lb.).

The physical-fitness transformation was quite evident in everyone who completed the 10-in-10 Challenge—but what about the seven subjects who participated in the Emogram study to determine whether physical fitness impacts emotional fitness? The results are profound.

The emotional quality score improved in all seven subjects. Emotional quality (EQ) is the overall measure of one's emotional state, and it ranges from -100 to +100. One subject's EQ score rose dramatically from a pre-challenge score of -20.00 to a post-challenge score of +63.92. Another subject's EQ score rose from -29.76 to +18.97.

On the individual measure of each emotion, the highest possible score is a 6.00 and the lowest possible score is a 1.00. Every subject's "happiness" score increased to a level between 5.00 and 6.00. Before the challenge, most subjects had scores in the 1.50-3.50 range. The phase-plane diagram in Figure 3 provides a visual representation that "happiness" has increased for the group while "sadness" has declined.

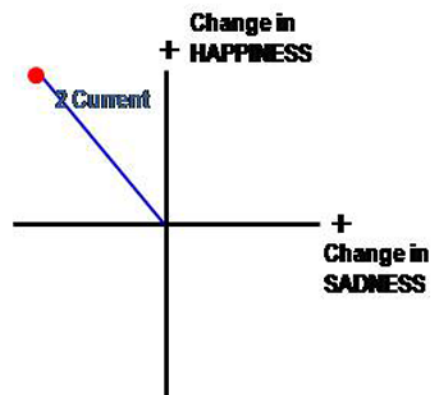


Figure 3

The increase in group happiness and decline of sadness.

As a group, every single negative emotion decreased. Subjects felt less sadness, disgust, shame, fear, anxiety, anger, contempt and distress in the assessments performed after the 10-in-10 Challenge. We saw dramatic drops in individual scores on these negative emotions. For example, one subject's score on "disgust" went from 5.23 to 1.00. Another's "sadness" score dropped from 5.29 to 2.00, and another saw a decrease from 4.05 to 1.47. Individual "distress" levels decreased for every subject, with one going from 3.29 to 1.23. Figure 4 illustrates that both "fear" and "anger" decreased, and Figure 5 illustrates the decline of both "distress" and "anxiety."

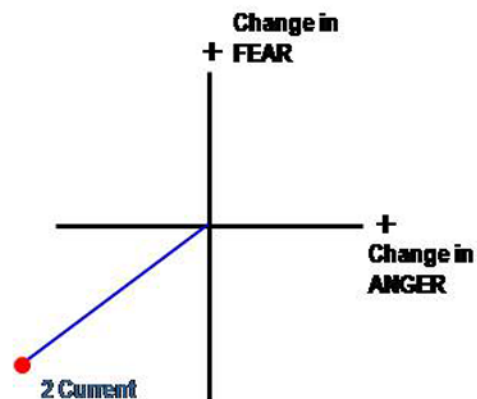


Figure 4

The decline of group fear and anger.

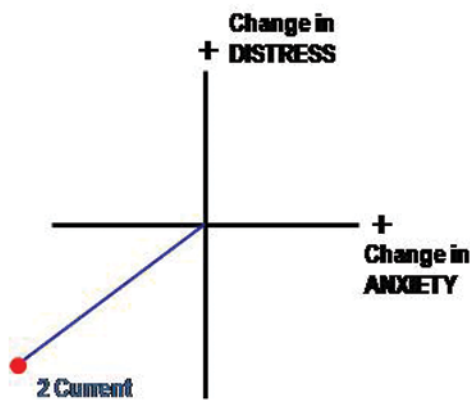


Figure 5

The decline of group distress and anxiety.

Perhaps the most meaningful results are found in the post-challenge essays, as each person was asked to write about his or her experience and results. One wrote, "I used to feel powerless about what my body looked like, my strength and my body image. This challenge empowered me and showed me I absolutely have the ability to impact the way I look, feel and perform. It got me started on a path that I will continue for the rest of my life." Her emotional quality score went from 27.79 to 50.14.

Another person wrote, "As far as numbers go, I am very happy with the results. I've lost 13 pounds, my waist shrank 2½ inches, and my gains in the gym are too numerous to list. But honestly what I'm most proud of is that fact that I know I can sustain this lifestyle indefinitely." His post-challenge scores on disgust, contempt, distress and sadness bottomed out at 1.00 (lowest score possible), meaning these negative emotions were eliminated from his life regarding his perception of how he looks, physically feels and performs in the gym.

Another wrote, "I am fit and getting more fit every day. I am stronger and even set some personal records in my workouts. I feel amazing, and I have a belief in myself that I've never had before." Her post-challenge scores on disgust, contempt, anger and sadness were at the lowest level possible (1.00).

Everyone also seemed to place a high value on remaining committed to the Paleo Diet and CrossFit workouts. One person wrote, "Even though the seven-week challenge

is over, I will continue to incorporate the Paleo diet in my lifestyle along with Crossfit workouts." This person started the challenge already quite fit; however, her EQ score improved by over 10 points.

Another wrote, "I am committing to this for life, not just for myself but to serve as a role model and information source for my family and friends. The irony of commitment is that it is deeply liberating! I realize now that if I commit to the Paleo diet and CrossFit workouts forever, the payoff will allow me to experience and enjoy all that life has to offer."

Happier, Healthier CrossFitters?

From our small study, we got consistent results: every single participant who finished the seven-week 10-in-10 Challenge at Alamo CrossFit achieved a positive physical transformation, and every subject who participated in the full study realized a vastly improved emotional state as measured by the Emogram test. We like to call this state "emotional fitness."

The ripple effects of moving individuals into better physical and emotional states are far-reaching. We truly believe the positive physical and emotional impact of a CrossFit and Paleo Diet lifestyle creates better athletes, more productive employees, more engaged parents, happier spouses and a healthier society overall. Our study certainly supports this belief, and we hope it will inspire others to gather more data and, more importantly, start training harder and eating better.



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About the Authors



Brooke R. Envick has a Ph.D. and is a professor of management, director of the Meadows Center for Entrepreneurial Studies, and director of the Entrepreneur Scholars Program at St. Mary's University. She specializes her teaching in entrepreneurship, leadership and small-business management. Brooke has received 11 teaching awards, including the Outstanding Educator Award for Innovative and Creative Teaching from the Academy of Educational Leadership. She has published over 20 peer-reviewed journal articles in 10 different entrepreneurship and business-management journals and has received 13 distinguished-research awards at national and international conferences. She has also served as a start-up and small-business growth consultant for several entrepreneurial firms. Brooke holds a CrossFit Nutrition certification.



Rick Martinez is the owner of **Alamo CrossFit** in San Antonio, Texas. He graduated from the University of the Incarnate Word in San Antonio, Texas, with a degree in nursing. He has been a registered nurse since 1995 and has worked in a variety of health-care settings, primarily in the emergency room and trauma settings in Texas and around the country. Rick finished active duty as an Army nurse serving at Walter Reed Army Medical Center in Washington, D.C., taking care of America's finest wounded warriors. Rick holds the following certifications: CrossFit Level 1, CrossFit Basic Barbell, CrossFit Running and Endurance, CrossFit Nutrition and CrossFit Rowing Foundations.