

# How Immersion Connects Your Heart to Your Brain

The science behind Value Measurement is well established and proven by outside laboratories, the United States government, and many customer deployments.

Here we break it down so you can see how it works.

**immersion**  
Measure Value.

[GetImmersion.com](http://GetImmersion.com)



# 20 Years of Published Science to Make it Look Easy.



Our founding team has spent much of the last 20 years measuring brain activity to predict when an experience will provoke an action.

Our research established the neurochemicals oxytocin and dopamine as key signals that the brain values an experience & that the experience will motivate actions -- thereby affecting people's decisions.

Many studies have since confirmed oxytocin's role in motivating social behaviors such as trustworthiness, generosity, and charitable giving. At the same time, we measured the effect of adrenocorticotrophic hormone (ACTH) on the heart, to infer the brain's dopamine response.

The team measured both the central and peripheral nervous systems simultaneously at high frequency to establish the relationship between these two signals. Once we understood the correlation, we used synthetic oxytocin for drug infusion studies to trace out the pathways of this neurochemical in the body and ensure they

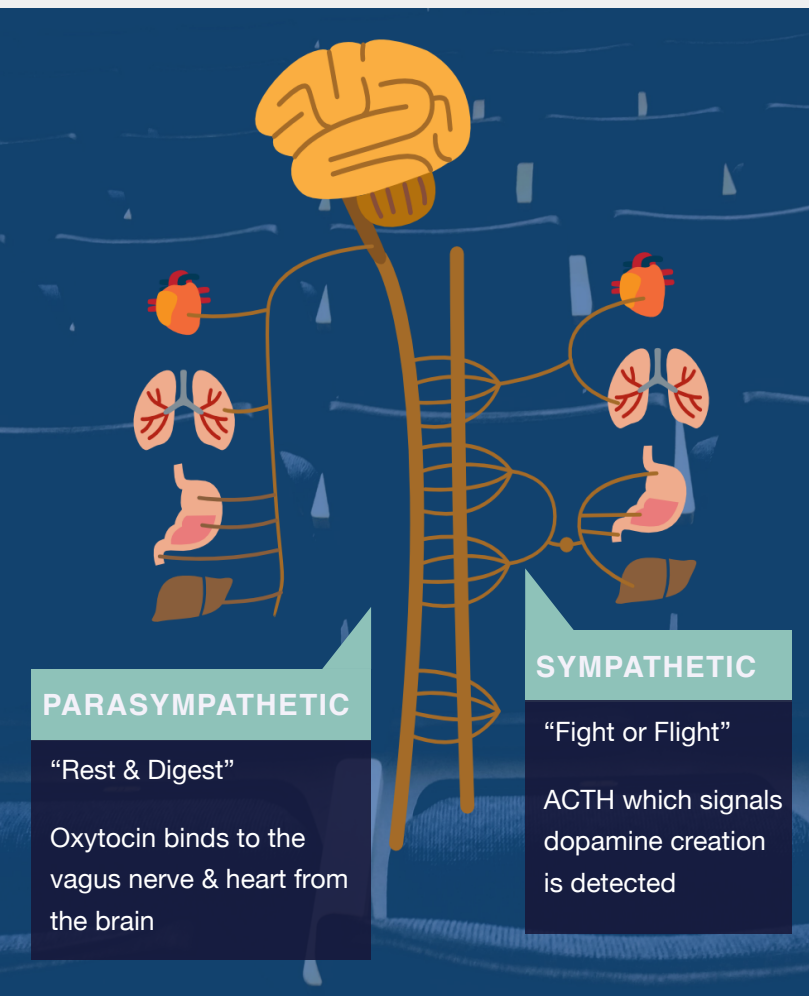
influenced behaviors.

By using medical grade sensors to capture these peripheral signals every second, we identified subtle changes in the body that together signaled neurologic value—and most importantly, predicted behavior. In combining the many small and subtle signals we measured in a unique and proprietary way, we have optimized our platform for maximum predictive accuracy. Now, we can measure subtle changes in the rhythms of the heart to infer the real-time neurologic value of any experience.

Lastly, we found that we could use the photoplethysmography (PPG) sensors found in common wearable devices like an Apple Watch to capture enough data second-by-second to eliminate the need for expensive medical equipment.

Immersion measures what people's brains value, anywhere & any time, using the smartwatches people wear everyday.

# The Brain...



## ...the Heart

In the bloodstream, oxytocin binds to the vagus nerve and heart, thereby subtly changing the heart's rhythms.<sup>7,8,9</sup>

There is a significant concentration of oxytocin receptors in the heart, and many studies have shown the role of oxytocin on cardiac modulation.<sup>10,11</sup>

Immersion measures what people's brains love & can predict human action as a result. We know that your brain is directly connected to your heart.

Our research, along with many others, has now shown the connection between oxytocin and social behaviors like trustworthiness, generosity, and charitable giving.<sup>1,2,3,4</sup>

Science has confirmed a unique relationship between the brain and the heart.<sup>5,6</sup>

As we each experience the world, i.e. watching a movie, TV show, training, or working with a team, the brain makes and releases oxytocin both into the brain and via the pituitary gland into the bloodstream. This release happens simultaneously, which is why a change in oxytocin in blood reflects the activity of oxytocin in the brain.

Immersion is unique in our ability to identify and measure these subtle changes, enabling us to measure in-the-moment neurologic value people get out of an experience as it unfolds.

20+ years of peer-reviewed research and dozens of success stories show Immersion measures what people value—and as a result, what they will do.

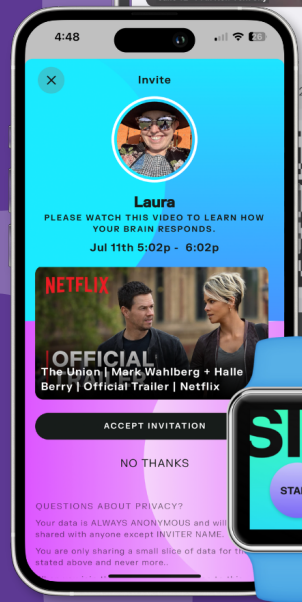
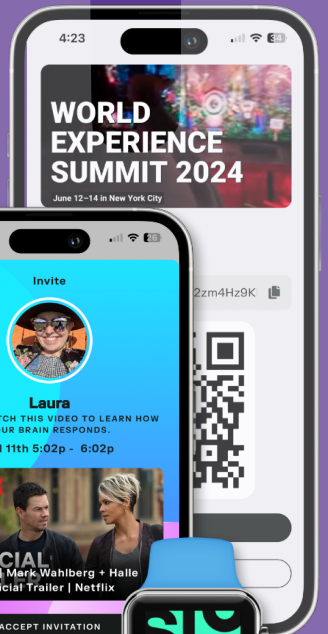
1) Zak, Stanton, Ahmadi, 2007  
2) Zak, Kurzban, Matzner, 2005  
3) Barraza & Zak, 2009  
4) Barraza, McCullough, Ahmadi, Zak, 2011  
5) Porges, 2001  
6) Thayer & Lane, 2009

7) Kemp Quintana et al., 2012  
8) Norman, Cacioppo, et al., 2011  
9) Barraza, Terris, et al., 2015  
10) Jurek & Neumann, 2018  
11) Gutkowska & Jakowski, 2012

MUNITY  
E NEXT  
TER!



TO TRY!



**immersion**

Measure Value.

[GetImmersion.com](https://GetImmersion.com)