



New Wearable's Vibrations Help Your Body Combat Stress

Apollo Neuroscience is using polycarbonate for its biocompatibility and durability

By Robert Grace

Feeling stressed? A fledgling Pittsburgh firm has an app for that. Actually, Apollo Neuroscience Inc. has much more than an app. It has a newly developed wearable device that it claims can empower you “to get better sleep, feel more relaxed, and have more energy by actively enhancing the body’s resilience to stress.”

Kathryn Fantauzzi, the company’s chief executive officer and cofounder, said in an interview at the recent CES 2020 show in Las Vegas that Apollo is perhaps the first wearable to use gentle vibration waves to improve your recovery from stress. Managed from an app, the device has seven modes, ranging from those designed to calm you down to those calculated to re-energize you by helping to restore the body to its natural equilibrium. The various programs, Fantauzzi said, help

the user do everything from increase energy and accelerate recovery to deepen relaxation and promote sleep.

But don’t just take her word for it. After five years of research, university trials and 2,000 real-world tests that included double-blind, random, placebo-controlled trials, Apollo

The device features a body made from a PC/polyester blend, an aluminum strap clip, and neoprene strap.



has shown legitimate, positive results. Users saw up to 25 percent improved performance in eight out of 10 subjects, according to Dr. David Rabin, the board-certified psychiatrist and neuroscientist who cofounded the firm with Fantauzzi, his wife.

The Apollo technology, whose gentle vibration waves signal safety to the body and improve heart rate variability (HRV)—a key metric of health and recovery—all through the sense of touch, originally stemmed from Rabin’s research with physician and neuroscientist colleagues at the University of Pittsburgh.

Apollo is directly worn on the wrist or ankle, meaning it needs to be able to withstand exposure to everyday products such as detergents, lotions, and perfumes, as well as drops and daily wear and tear. The device’s developers chose to use Covestro LLC’s Makroblend® M525 PC/polyester blend for its ability to deliver durability and chemical resistance at a light weight. Apollo was featured on Covestro’s booth at CES.

Apollo Chief Operating Officer John Maholtz—a former



CEO Kathryn Fantauzzi, shown here at CES 2020, describes Apollo as “the first ever clinically validated wearable that actively helps your body adapt to stress, facilitating focus, sleep, energy, and more.”

senior design engineer for the Polymers Division of Bayer Corp. (now Covestro)—describes Makroblend as a high-impact strength, chemically resistant engineering thermoplastic that provides long-life protection of the electronic components that it houses. He said they chose to use the material for the device’s waterproof pod “because of its property profile that includes high toughness (even at low temperatures); good chemical resistance to solvents and cleaning agents; reduced susceptibility to stress cracking; and low moisture uptake. Makroblend resins also offer rigidity with a high tensile modulus.”



Dr. David Rabin leveraged his music background and his work with patients suffering from conditions such as PTSD to develop the Apollo wearable.

Developed in conjunction with Pittsburgh-based Bally Design, the device also consists of a customizable aluminum clip, and a soft, detachable band made of neoprene, with polyester overlays, that Maholtz said offers a comfortable fit with robust retention. It has a Velcro closure.

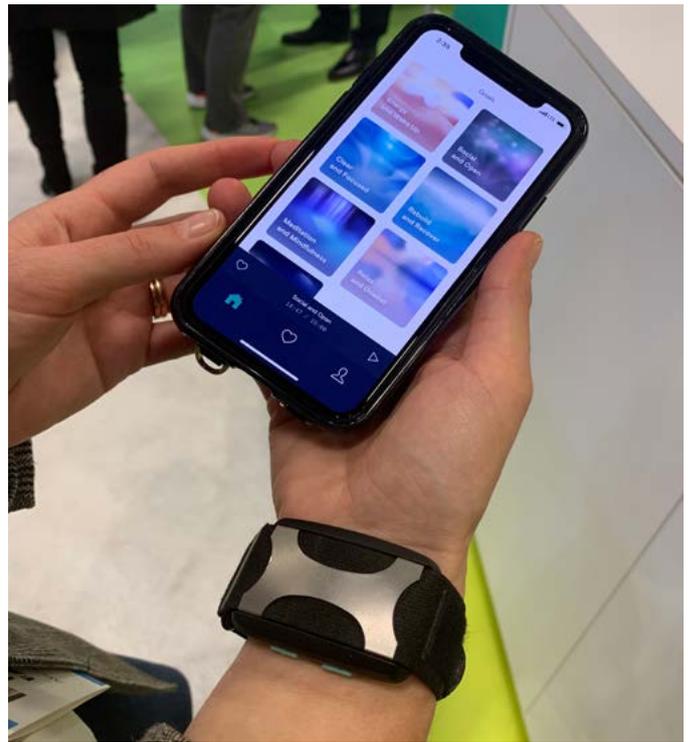
The two onboard buttons used to operate the Apollo are molded from polycarbonate with a silicone backing material for structural integrity.

The strap clip underlying metal is stainless steel and is offered with two different surface finishes, Maholtz noted. One finish is a plating with a material from the platinum metal group that offers additional benefits such as improving corrosion and wear resistance. The other surface finish currently offered is a Cerakote coating. Cerakote is a ceramic-based finish that enhances a number of physical performance properties, including abrasion/wear resistance, corrosion resistance, chemical resistance, impact strength, and hardness.

The user contact surfaces of the external Apollo system components will be tested to meet the requirements for biocompatibility of surface devices per the ISO 10993 standard for products in contact with intact skin for prolonged exposure. “However,” Maholtz noted, “this testing is most likely a formality as all skin contact components were manufactured in materials with a prior history of use for skin contact.”

Rabin’s background is in working with patients (including many military veterans) with treatment-resistant conditions such as post-traumatic stress disorder (PTSD), depression, and substance-abuse issues. In his work, he found that when patients were in a calm, safe environment their physiological markers of stress improved, their mood got better, and they were better able to focus and manage their symptoms.

Rabin—who received both his PhD in neuroscience and M.D. in medicine from Albany Medical College—also is a musician who plays trumpet and piano, and he said music served as a sort of therapy for him. He wondered why that was, and



The Apollo features seven different modes—from calming to energizing—all controlled via an app.

said in an interview at CES that gentle vibrations at certain “touch” frequencies (generally from a fraction of 1 Hz to 200 Hz) replicate the patterns of meditation. “The body,” he explained, “recognizes the signal of safety and sends a signal to the mind, which calms the body.”

In a testimonial on Apollo’s website, Amy Edgar, a family nurse practitioner and founder of the Children’s Integrated Center for Success, stated: “Since we started introducing the Apollo wearable to children during therapy sessions, we have seen a significant impact on children’s behavior. Children using the Apollo in the therapeutic setting report feeling ‘calm.’ Clinicians report that children are more engaged and are less hyperactive during therapy when using the Apollo wearable.”

The company is offering the Apollo at a retail price of \$349.99, Rabin said. For more details, go to: <https://shop.apolloneuro.com>.

ABOUT THE AUTHOR

Robert Grace is a writer, editor and marketing communications professional who has been active in B2B journalism since 1980. He was founding editor of and worked for 25 years at *Plastics News*, serving as editorial director, associate publisher and conference director. He is now both editor of SPE’s *Journal of Blow Molding* and a regular contributor to various outlets. A long-time member of the Industrial Designers Society of America, he runs his own firm, RC Grace LLC, in Daytona Beach, Fla., and can be contacted at bob@rcgrace.com.

