

TACTICAL READINESS:

TRAINING, NEUROPLASTICITY

AND PERFORMANCE

BY RICHARD H. CARMONA

For decades, tactical teams have lived by one rule: When the call comes, there is no time to think, only to act. The key to survival and mission success has always been repetitive, realistic training. Immediate-action drills must be performed until they become automatic, leaving no margin for hesitation under extreme threat.

Today, modern neuroscience validates what tactical operators have known for years: repetition reprograms the brain. Through the science of neuroplasticity, we now understand how training reshapes neural networks, enhances performance and sustains readiness.

Training as an epigenetic input

Training is not just about muscle memory; it's about rewiring the brain. Every drill serves as an epigenetic input — an environmental influence that changes how genes express themselves. Genes act like your body's software, updated by repeated experience and practice. Over time, these inputs strengthen neural pathways, making critical skills instantaneous under pressure. When training lapses, those pathways weaken, just as muscles atrophy without use.

The role of neuroplasticity

Neuroplasticity is the brain's ability to remodel itself throughout life. The more new things we learn, the more new neural networks and connections are formed. Immediate-action drills engrain patterns of recognition and response that can be recalled in milliseconds. This adaptability explains why even veteran operators must train constantly — to maintain optimal readiness.

The programs available through the partnership of POSIT Science and the NTOA take advantage of this very science. By applying the principles of neuroplasticity, these initiatives help optimize tactical performance, sharpen decision-making and enhance operator safety — ensuring our teams always are ready for the unpredictable.

Failure to train is not neutral; it is regression.

Diet, fuel and performance

The brain requires the right substrate to optimize learning. Good nutrition supports memory formation and network growth. Poor diets high in processed foods, sugar, fat or salt compromise performance and recovery. Just as a tactical athlete trains the body, the brain must be fueled to achieve peak performance.

Lessons for tactical teams

Whether on the battlefield, in the ER or in a SWAT operation, the lesson is the same:

- Train relentlessly: Repetition builds survival pathways.
- Fuel wisely: Nutrition underpins performance.
- Never stop learning: The brain, like muscle, atrophies without use.

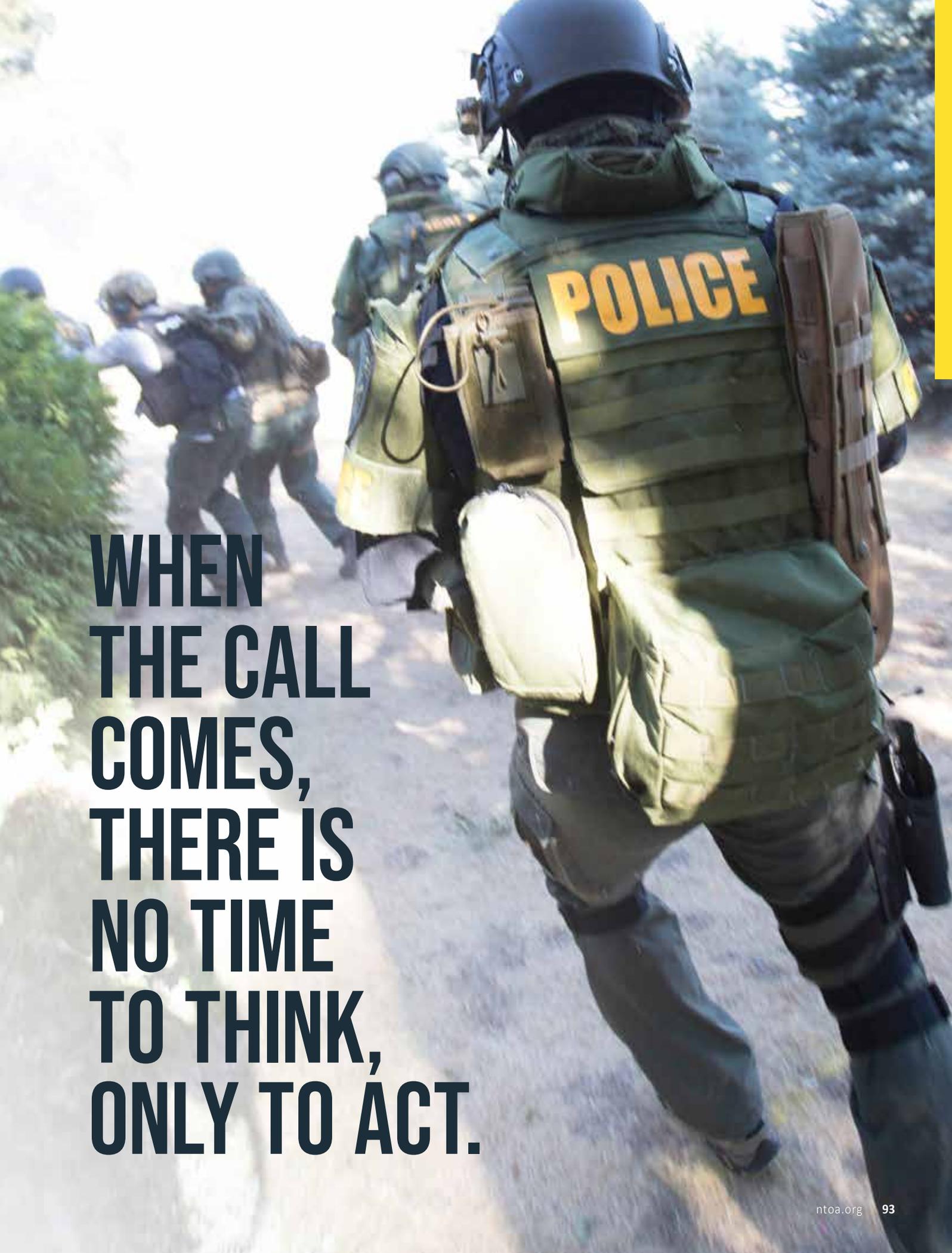
After more than 50 years in special forces, trauma surgery and tactical operations, I can affirm: When the stakes are life and death, success always comes back to preparation.

Closing thoughts

Training is not just preparation — it is transformation. Every repetition changes the brain, hardwires performance and ensures readiness when hesitation is not an option. For the tactical operator, neuroplasticity confirms what we have always known: “The only easy day was yesterday.”

About the author

VADM (Ret.) Richard H. Carmona, MD, MPH, FACS, served as the 17th Surgeon General of the United States and is a U.S. Army Special Forces veteran with experience in both peace and combat operations. A retired deputy sheriff and SWAT team leader with the Pima County Sheriff's Department, he also serves as the NTOA's TEMS Section chief emeritus. In 2025, Dr. Carmona was inducted into the NTOA Hall of Honor in recognition of his extraordinary service and leadership.



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