

STRESS INOCULATION TRAINING IN TACTICAL STRENGTH AND CONDITIONING

Most jobs come with some stress; but perhaps none more so than those that can be experienced in tactical occupations such as firefighting, law enforcement, and military. In these tactical jobs, demands are fast-paced and job tasks can be physically and psychologically intense. Adding to these demands, very complex situations may arise on-the-job where failure can yield catastrophic consequences (14,29). People may perform poorly under these conditions: in a tough situation they might panic, lose focus, get paralyzed, or burn out over the long term. Yet not everyone breaks down under pressure. Both individuals and teams vary in how they perform under these high-stress conditions (9,20,25,26,27). Therefore, it is paramount to train tactical athletes to perform better under stress.

HUMANS OVER HARDWARE

Some tactical organizations may focus more on quantitative improvements (e.g., upgrading weapons, technology, or other hardware; or simply adding more personnel) than on qualitative improvements (e.g., improving the resilience, robustness, and job task effectiveness of people). For example, purchasing more expensive cars would not create excellent drivers. In other words, human operators are more important than the nature of the equipment they use (17). In addition, it is a lot easier, cheaper, and more efficient to train people to do a better job than it is to develop weapons or technology of comparable effectiveness (28). As the first Special Operations Forces (SOF) Truth states, “humans are more important than hardware,” (31).

STRESS INOCULATION TRAINING

One training methodology used to enhance performance under stress is known as stress inoculation training (SIT). SIT is composed of three stages:

1. **Stage one:** Conceptual education
2. **Stage two:** Skills acquisition and consolidation
3. **Stage three:** Application and follow-through

SIT is therefore less a set of specific tasks than a set of general principles (23). The most familiar versions of SIT used in military training are drills designed to improve water confidence, such as drownproofing. In this case, trainees have their feet and hands bound behind their back and get into a deep swimming pool. Then, they must swim, bob from the bottom of the pool to the surface for breaths of air, and perform a variety of maneuvers. As described in the Air Force Pararescue plan of instruction for indoctrination training, these drills “build the student’s strength and endurance; ability to follow critical instructions with emphasis on attention to details and situational awareness; ability to work

through crisis and high levels of stress in the water,” (30). This specific exercise has several goals (30):

- To help students recognize and understand their own natural stress responses
- To help them learn to control these responses when they emerge
- To gradually increase the level of difficulty and challenge
- To do this in a controlled, relatively safe training environment before exposing students to real-life, more dangerous situations

In tactical training, it is assumed that stress will degrade thinking and reasoning so students are trained to respond automatically and correctly, using thousands of repetitions to engrain the right behavior patterns. For example, from the first day a tactical athlete handles a weapon, they will learn to never place their finger on the trigger until they have made a conscious decision to fire. This rule is rigidly enforced during training so that it can be followed reliably and automatically under real-world stress.

TRAINING PERFORMANCE UNDER STRESS

Efficient training to perform in stressful situations has four requirements (21):

1. Trainees must learn and become familiar with the stressors that could be part of a given situation, such as the mental and physical impacts of extreme fatigue
2. Those stressors must be progressive and cumulative—difficult enough to challenge the trainee, but not overwhelming
3. Each stage of training should prevent or manage the build-up of anxiety
4. Each training activity should develop the required technical skills (such as movement quality and positioning or control of stress responses) and not interfere with the development of those skills

For instance, a beginner tactical athlete learning to handle a weapon must first learn the fundamental skills (like finger-off-trigger) in a low-stress, slow-paced environment before applying them in a high-stress, fast-paced situation. SIT only works when individuals can first perform the target tasks in a non-stressed environment. If tasks are too complicated or the learning environment is too stressful, trainees will have a very

difficult time attempting to learn the skills. Additionally, they may get frustrated, lose confidence, or quit (21). The strategic application of non-stressed skill acquisition, familiarization with relevant stressors and their effects, and then, training in conditions that successively approximate real-world conditions is known as phased training (1,15,21).

PHYSICAL FITNESS AND SIT

Along with specific skills training, successful tactical training and operational effectiveness requires physical fitness training. Physical fitness not only creates a foundation for task performance, it also builds two key qualities: resilience and toughness. Resilience is the ability to successfully tolerate and recover from traumatic or stressful events. It includes a range of physical, behavioral, social, and psychological factors (22,24). Toughness describes a range of psychological and physiological processes that enhance performance under stress (8,25,26). In general, individuals who are tough can usually choose their responses and activate performance under intense stress, deploy those responses only when needed, and quickly calm down once the stressful situation is over.

As with other aspects of training, the principles of SIT can be applied to building physical fitness. First, physical training should never be needlessly complicated or difficult, especially in the early stages. Initially, programs should focus on building skills in non-stressful situations and work towards helping the tactical athlete to reliably perform those skills under increasingly stressful situations. Over time, tactical athletes can do progressively more complex and difficult things.

THREE PHASES OF MOTOR LEARNING

Motor learning occurs in three phases (1,21). These phases are not distinct; but rather, they are more like a continuum.

THE COGNITIVE PHASE

A simple example to show this is to look at the process of learning how to type. At first, most people do the “hunt and peck” method. This usually makes the person have to think about and remember where to find specific keys. The typing is generally very slow and the cognitive process takes up most of a person’s attention. At the cognitive phase, most individuals are making a lot of mistakes and are unable to manage more than one or two simple tasks at a time (3,5).

THE ASSOCIATIVE PHASE

In the associative phase, individuals can typically type entire words and sentences. At the advent of working proprioceptively, individuals start to reduce mistakes and feel rather than think about where the letters are located (16). In this phase, individuals start getting faster, more consistent, and more accurate. They are able to string the individual steps together into larger chunks, which reduces the demand on the working memory and attention. Motor memories at this phase are fragile immediately

after learning, but become more robust as they are consolidated over time (4). This phase ends with perceived mastery of the movement (16,25).

THE AUTONOMOUS PHASE

In the autonomous phase, a person should be able to type automatically, quickly, accurately, and perhaps even while paying attention to something else. They do not have to consciously think, they can just “do,” (13,16). An interesting shift happens at this phase: while asking beginners to be conscious of their movements helps them to improve, asking experts to pay attention to their movements makes them worse. This is because expert movement is now intuitive, “in the body,” and made up of an integrated, subconscious sequence that processes faster than conscious thought (2). People can still learn and refine their technique, but gains are slower and more difficult (13).

Interestingly, at this final phase, more effort or repetition does not necessarily improve skill. Without targeted coaching or skill development, people get as good as they need to be, and no more. Once a person learns to type emails reliably, they are not likely to get any faster or more accurate. In the same vein, once someone learns to parallel park well enough to pass their driver’s license test, they are probably not going to become an elite stunt driver even if they drive for several more decades. In fact, it is more likely that eventually their performance will degrade (7,11). At some point, older typists or drivers will probably get worse, not better.

This leveling-off is known as hypothesis of predictive adaptive response (par), or tolerance (13,18). People reach the level required to meet the basic requirements. Then, unless they are pushed or trained to get better, their level generally remains the same—well below what they could potentially achieve.

THE ART AND SCIENCE OF TACTICAL TRAINING

Tactical athletes need to be good at their job, and ideally, always improving or at least maintaining a high level of performance. This means participating in ongoing training and targeted skills coaching. It also depends on the individual’s performance: the more an individual succeeds, the more motivated and able they will be to keep succeeding. Conversely, consistent failure will increase anxiety, decrease confidence, and degrade skills performance (6). In other words, without change or intervention, success breeds success and failure breeds failure.

Thus, a tactical facilitator should design training so that tactical athletes can learn, be appropriately challenged by, and ultimately succeed at increasingly complex or stressful tasks. As the skills are built and consolidated, they become increasingly proficient and, more importantly, reliable (13,15,23,27). To build expert performance and mastery, tactical athletes must also spend time in the first and second phases of motor learning, rather than relaxing too easily or often in the third phase (12).

DEPTH OVER BREADTH

Bruce Lee once famously said that he was not afraid of the man who had practiced 10,000 different kicks once, he was afraid of the man who practiced one kick 10,000 times. In tactical skills training, depth is better than breadth. Better performers spend more time on deliberate, conscious, targeted practice of fundamental skills rather than just “going through the motions,” (10). In the gym, this could be the difference between doing a lunge mindlessly and doing one with attention applied to the quality of a particular component of the movement, such as the position of the pelvis, spine, and femur throughout the motion.

The more training time spent in the cognitive and associative stages, the higher the baseline of performance will be once the skills are performed in the autonomous stage. This is where SIT can be applied to physical training, within the context of phased training.

PHASE 1: CONCEPTUAL EDUCATION

In the conceptual education phase of SIT, the tactical athlete can be educated about performance standards and what to expect during training, both cognitively and physiologically. Athletes can be taught the types of skills and concepts used in various special operations units to optimize performance under stress. This can include control of autonomic arousal, confidence-building, and basic mental skills such as the link between performance and psychological states, goal-setting, attention control, visualization, self-talk, and compartmentalization (30).

PHASE 2: SKILLS ACQUISITION AND CONSOLIDATION

In the skills acquisition and consolidation phase of SIT, the primary skills involve physiological and cognitive control of (and familiarization with) stress responses, as well as “overlearning” of motor patterns in order to automate them at a high level of proficiency. This is where depth of movement quality is developed.

PHASE 3: APPLICATION AND FOLLOW-THROUGH

In the application and follow-through stage, tactical athletes learn to apply the motor patterns and mental skills previously learned under increasing stress and complexity. This can be performed through changing motor pattern complexity (e.g., a goblet squat moving to a barbell front squat), program complexity, and physiological stress in the form of increased intensity, volume, and density. During this stage, it is important to retain the qualitative factors learned in the previous two stages (such as managing the stress response). Remember, without conscious, deliberate attention towards motor skill refinement in this stage, performance will degrade over time.

BALANCE CHALLENGE AND SUCCESS

As with all the stages, deliberate practice and creating successful outcomes are essential. The goal here is always to perform movements and skills properly and confidently, rather than creating situations where the tactical athlete breaks down. There is no limit to the level of performance that the tactical athlete can

attain, as long as the performance is built on quality. There is no use in training to do something at a faster rate if it is done poorly.

In addition to providing ongoing feedback, tactical facilitators should always carefully observe where and when fatigue or psychological stress begins to degrade performance. If a tactical athlete is unable to maintain good mechanics and mental composure under fatigue and heavy loading, then the tactical facilitator should intervene immediately to change or regress the exercise to a level that permits successful performance and positive skill acquisition. The art of coaching using SIT principles is to keep athletes in their “zone of optimal challenge.” In other words, this involves working at the edge of their skill level to produce the best training effect possible, all while not pushing into the limits of fatigue or psychological stress that then degrade skills and habits.

CONCLUSION

A tactical facilitator’s job is to develop physical capacities, the motor patterns that drive them, and the psychological resilience and toughness that produce those capacities and patterns reliably. The physical training of tactical athletes should be designed to make all fundamental physiological processes easily and autonomously support their physical training and performance. When these pieces are combined, it may create resilient, tough, and physically fit tactical athletes who are built to succeed under stress.

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