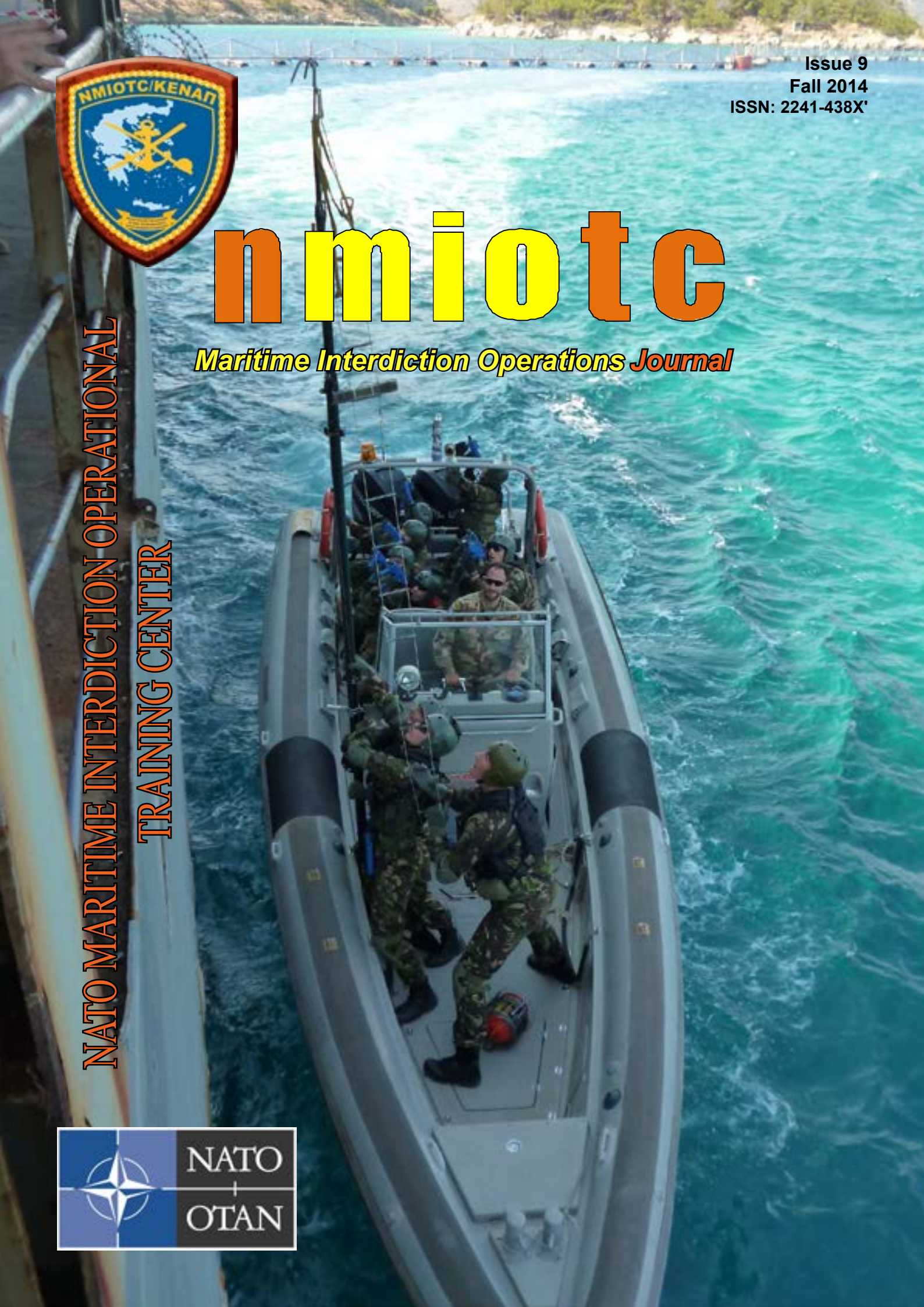
Issue 9
Fall 2014
ISSN: 2241-438X'

nmiotc

Maritime Interdiction Operations Journal

NATO MARITIME INTERDICTION OPERATIONAL TRAINING CENTER



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Maritime Close Combat

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Engineer

Introduction

Of the tactics and strategies of warfare, close combat refers to a physical confrontation between two or more persons that may involve armed or unarmed fighting, lethal and non-lethal methods, or simple escape and de-escalation of the confrontation, excluding the actual discharge of firearms. Unarmed techniques involve those applied with, or against a person or persons using, natural weapons (hands, fingers, elbows, knees, feet, teeth, etc). Armed techniques involve those applied with, or against a person or using, classical blunt and edged weapons and other weapons of opportunity, including firearms used as blunt weapons.

* Kostas Dervenis is responsible for preserving and promoting Pammachon (traditional Greek close combat) under the Ministry of Culture's Hellenic Federation of Pankration Athlima, and works closely with the Hellenic Armed Forces and NMIOTC

CLOSE COMBAT TACTICS

Proficiency in close combat is one of the fundamental and most difficult building blocks for training the modern soldier. Archaeological studies have shown that the attrition rate of close-quarter clashes which characterized endemic tribal warfare throughout human history produced casualty rates of up to 60%, far in excess of those typical in modern warfare[1]. Close combat has not changed over the millennia; a Roman legionary facing his opponent in a hand-to-hand encounter was subject to the same stress and terror as the modern combatant today. This distinction provides us with an opportunity for study, as the historical and archaeological records offer abundant material and evidence of the techniques chosen as most effective in close combat.

Close combat on the ocean makes its own particular demands: seawater and waves make for unsure footing, and freedom of movement is restricted to that offered by hulls, bulkheads, walkways, and cramped compartments. Boats and skiffs present unique challenges, and require specific methods of stability, motion, and security. In addition, ships today are almost by default fabricated from steel and other metal alloys; as a result, the possibility of collateral damage increases exponentially in many circumstances, and extreme care must be taken to prevent outcomes that could unwittingly injure or kill due to unwanted impact. In short, the environment inherent to maritime close combat is one the military operator must adapt to, much like any marine professional, whether fisherman or captain of a merchant vessel.

Once again, however, the historicity of maritime close combat offers an abundance of material that can be evaluated for the resolution or termination of a potential threat. Applicable techniques and tactics used in the 16th-18th centuries to counter piracy and other maritime threats have been carefully reviewed in relation to modern-day needs and scenarios, and the results applied to the method outlined in this article.

Moreover, one of the underlying principles used in developing the method of close combat described herein is that military personnel "must use the same type of movement and the same tactics, whether the practitioner is armed or unarmed, armored or unarmored, whether battling alone or in a group, fighting one opponent or many, whether on the battlefield itself, or in a civil disturbance"[2]. Under stress, combatants will revert to their training, and thus such training must be applicable under all circumstances. This same philosophy can and must extend to every environment encountered, and thankfully what is directly applicable to the maritime environment is typically applicable to the confines of urban battle as well.

Soldiers are by definition "violence professionals;" it is therefore crucial that military personnel begin their tenure by understanding the drivers and processes involved in the escalation of force in the human animal. Moreover, different levels of force may be required in environments where conflict may rapidly change from non-lethal to lethal, or simply dissipates over a matter of hours; many military operations, such as peacekeeping missions or crew control during the inspection of a suspect vessel, may limit the use of deadly weapons. Close combat training can save the lives of both soldiers and opponents when an unexpected confrontation occurs.

Patterns of Escalation and Related Countermeasures

Military personnel involved in interdiction missions are faced with an array of violence in their task, ranging from complete compliance to lethal force. It is taken for granted that operators employing the methods outlined in this article may be responding to, or investigating, a potential threat that may represent a clear and present danger to allied States, as defined by international law and with the full authority of their mission. In addition, Homer teaches us that the sight of weapons may incite men to violence simply because of their physical presence[3]. Military personnel entering an arena bearing arms may thus appear to subjects as the manifestation of aggression regardless of their intent. Under this premise, the progression of force may be arrayed as in *Table 1*[4].

Level		Description	Actions
1		Compliant	Verbal Commands
2		Resistant (Passive)	Verbal de-escalation, Physical de-escalation, Physical relocation, Non-Lethal close combat techniques.
3		Resistant (Active)	Non Lethal and submission close combat techniques, Physical de-escalation, Verbal de-escalation
4		Assaultive (Bodily Harm)	Submission close combat techniques, Physical de-escalation, Verbal de-escalation
5		Combative (Deadly force)	Lethal close comat techniques

Table 1. The Progression of Force

1 Lawrence H. Keeley, *War Before Civilization: the Myth of the Peaceful Savage* (Oxford University Press, 1996).
2. Kostas Dervenis, presentation to NATO Maritime Interdiction Operational Training Centre, 21/2/2014.
3. αυτός γάρ οφέλκεται άνδρα σίδηρος - *steel itself draws men to violence,* Homer, the Odyssey, Book 19.
4. Paraphrased from Close Combat, U.S. Marine Corps, (MCRP) 3-02B, 1999.

Today we are aware that the neurophysiology involved in the progression of force follows distinct patterns. Neuroscientist Dr. Paul D. MacLean put forth a sophisticated hierarchical theory known as the “triune brain,” based on the assumption that the human brain actually integrates three different layers, and that each layer represents a specific evolutionary level ("triune" comes from Latin, tri + unus (one), and means "three in one")[5]. MacLean’s three-brain model links the differences in behavior from each major functional area to the evolution of animal life, arguing that the brain effectively has three parts that are representative of their stage of evolution: the reptilian or old brain, the emotional centre or "limbic" (“old mammalian”) brain, and the neocortex or "neomammalian brain". The lack of similar chemistry and anatomy of these three evolutionary formations often gives rise to communicative conflicts between the systems (MacLean, 1977), and these conflicts are important in understanding escalation and the type of violence military personnel will be faced with under specific circumstances.

The reptilian complex, the oldest of the three, includes the brainstem and the cerebellum; this center is activated in cases of pure survival, of lethal close combat. The limbic brain emerged in the first mammals (MacLean coined the term from the Latin "limbus" or girdle, because its components were wrapped around the brain stem). Its main structures are the hippocampus, the amygdala, fornix, and the hypothalamus; the limbic brain is involved with what has been termed “social violence” and statistically does not end in death, but takes place with the goal of establishing hierarchy within the pack[6]. Finally, the two large cerebral hemispheres of the human brain (the neocortex) are responsible for the development of language, abstract thought, imagination, consciousness, science, culture, and civilization – as well as tactical planning for combat, weapons design, and strategic concealment.

5. MacLean, P.D., *The Triune Brain in Evolution: Role in Paleocerebral Functions,* Springer; 1990 edition
6. Miller, Rory, *Facing Violence: Preparing for the Unexpected,* YMAA Publication Center (2011)

CLOSE COMBAT TACTICS

The triune brain theory is based on experimental data that seems to accurately reflect the stages involved in the escalation of violence[7]. However, the method of close combat outlined in this article goes one step beyond to utilize a “Quadrune Brain” model that contains Dr. McLean’s three main centers, but also includes the autonomic nervous system as a separate entity. The autonomic nervous system comprises the sympathetic, parasympathetic, and enteric nervous systems, each of which have been found to have distinct effects in combat. The enteric nervous system is of particular interest, is capable of autonomous functions such as the coordination of reflexes, and can and does operate independently of the brain and the spinal cord. For this reason it was described as a "second brain" by its discoverer, and may in fact provide the “gut feeling” all experienced military personnel come to trust[8].

In accord with the above, and to address the escalation of violence outlined in the “Progression of Force” diagram, training for military personnel is delivered in compartmentalized modules that target specific applications. Thus, our instructional method has distinct units for non-lethal combatives (centering on escape, movement, avoidance, and minimal physical injury to opponents), submission combatives (centering on controlling resisting adversaries who may offer injurious but less-than-lethal violence), and finally lethal combatives (centering on actual close combat and rapid termination of the adversary). Each of these modules corresponds to a particular brain center: during non-lethal combatives, the neocortex is usually dominant; in submission combatives, the opponent’s limbic system enters into play; while for lethal combatives the oldest part of our nervous system, the reptilian brain, is dominant.

Main Tactical Principles

Influenced by combat sports such as mixed martial arts, many close combat methods popular today advocate a “ferocious” response to the arbitrary attack, in conjunction with repetitive direct blows and minimal use of tactics; violence against violence and force against force in other words. Much effort is expended on increasing the endurance, strength, flexibility, speed, skill, etc, of the practitioner. History teaches us, however, that veteran soldiers are calm in battle, and that they utilize targeted attacks that expend a minimum amount of energy and resources. Why would anyone consider that hand-to-hand combat is somehow different?

While not belittling or disregarding the importance of increasing a soldier's capabilities for military operations, if ferocity, endurance, and strength alone guaranteed survival, then the dominant species on the planet would have been the cave bear, not homo sapiens.

The cave bear (Ursus spelaeus) was a species of bear that lived in Europe and became extinct about 27,000 years ago. It is likely that primitive man drove these bears to extinction. How did mankind face off against an angry predator roughly ten times his weight and with far greater ferocity, endurance, strength, etc, within the limiting confines of a cave using Stone Age weapons? It is here, in our most primitive past, that we must seek for the basis of our close combat method. Moreover, professionals engaged in maritime interdiction in particular must adapt to the degree of violence they will encounter; reliance on a “ferocious response” may be completely inappropriate for the situation at hand. The main principles of our method are thus based on the following criteria:

1. Self-protection

Great white sharks are ambush predators; their attack flows from a secure position outside the line of sight of their prey and then proceeds with single devastating impact. Having bitten their quarry, however, they will then back off and allow the animal to exsanguinate and weaken before consuming it.

There is a simple, sound reason for this: there are no hospitals in Nature. Despite being an apex predator of the seas and having no natural predators, the great white protects itself first and foremost. Military personnel must follow similar principles. Lethal combat has two central identifying criteria: all variables cannot be predicted with surety, and no living animal, including man, will submit to lethal force without trying to damage its attacker as much as possible in the process.

Let us provide some common examples of things to avoid. A "boxer's fracture" is a fracture of the fourth and/or fifth metacarpal bones from striking an object with a closed fist (typically a human skull). Boxer's fractures represent over one half of all metacarpal injuries, and males are nearly fifty percent more likely to sustain fracture from a punch than females[9]. A boxer's fracture in combat could result in the operator being unable to properly aim and fire his weapon, placing his entire squad at risk, and the statistical probability of occurrence increases with each punch thrown.

The same lesson must be applied to every part of our anatomy. Eyes can be severely damaged by fingers clawing in desperation. Groins and necks can (and have) been bitten through; the human jaw and teeth retain the capacity to slice through muscle and flesh. Although the human skull is relatively lightly built, Australian scientists found that our jaws are at least 40 percent more efficient than those of the chimp, gorilla and orangutan[10].

As a result, all tactics and techniques

7. Wiest, Gerald, *Neural and Mental Hierarchies,* Front. Psychol., 26 November 2012 | doi: 10.3389/ fpsyg. 2012.00516
8. Gershon, Michael, *The Second Brain,* Harper Collins, NY, 1998
9. Jeanmonod, R. K., Jeanmonod, D., Damewood, S., Perry, C., Powers, M., and Lazansky, V. 2011. Punch injuries: Insights into intentional closed fist injuries. Western Journal of Emergency Medicine 12(1).
10. Stephen Wroe, Senior Research Fellow, University of New South Wales, Sydney, Australia, *Proceedings of the Royal Society.*

employed in close combat must, by definition, leave no weak points vulnerable to attack. Military personnel must operate from the standpoint that their foe is armed, that hidden weapons and natural weapons can and will be deployed, that tactical errors will occur, and that no opening in the process of threat negation can or will be permitted.

2. Avoiding hubris

Military failures resulting from the fatal flaw of hubris have profound costs, and combatant commanders must maintain a continuous effort to detect and prevent hubris in the course of tactical decisions.

The first line of defense against the perils of hubris is an understanding of its very existence as part of the larger context of human character. Early Greek civilization originally viewed hubris as a grave act centered on self-gratification, such as Icarus flying too close to the sun. In the course of military training, soldiers are encouraged to think of themselves as "elite," "better than," etc, because only by retaining that mental image will they eventually reach a point where their capabilities reflect the ideals they are striving for. But in close combat, it is important that the soldier not overestimate these same capabilities.

Let us take another lesson from nature. Wolves hunting in the wild are very careful to choose the most nutritious food source available that is most easily obtained without danger to themselves. Despite being apex predators, they will always attack the weakest prey at the most opportune time, in such a fashion as to prevent exposure to that animal's defenses. In short, the wolf lacks hubris.

Military personnel must become like the wolf, knowing that they are powerful and maintaining that power through constant exercise, but fully respecting their prey and its capacity to injure them.

3. Maintaining breath, stance, and mental calm

Animals respond to threats in complex ways. The acute stress response is a physiological reaction that occurs in response to an attack.

In human beings, the reaction begins in the sympathetic nervous system. Side effects can include increased heart rate and rapid breathing, tunnel vision, bladder relaxation, shaking, dilated pupils, a cessation of the digestive process, and hearing loss. None of these are desirable in the midst of a military operation.

The parasympathetic nervous system works in opposition to return the body to homeostasis after fight or flight. Therefore augmentation of parasympathetic functions is a primary tool for the operator to "balance out" the burst of energy brought into being by the sympathetic nervous system under stress. The operator can support this function and preserve a state of calm by maintaining a proper upright spine and utilizing deep breathing.

To counteract the effects of the fight-or flight response, military personnel must:

a. Roll their coccyx forward so that the lumbar vertebrae are "stretched out," as if attempting to "straighten" the lumbar curvature. The same motion is simultaneously applied to the cervical vertebrae, with the chin pulling inwards, the crown of the skull moving "upwards," and the cervical curvature once again attempting to "straighten."

b. Employ diaphragmatic breathing or deep abdominal breathing, marked by expansion of the abdomen rather than the chest when breathing. This type of breathing will allow greater amounts of oxygen to enter the lungs and bloodstream using slower breathing rates. Moreover, if the operator is wearing anti-ballistic armor such as a plate carrier, this method will allow for much more relaxed breathing and movement overall[11].

If correctly employing these two methods, the operator will find that he can begin to place physiological responses, normally exclusively associated with the autonomic nervous system, under his conscious control. Agnostic researchers and repeated laboratory testing have, over the past thirty years, established that such capabilities lie within our potential[12].

The operator must employ the above in conjunction with a balanced, centered stance in which the hips bear the weight of equipment and arms. He must learn to move smoothly so that wave motion and confined quarters do not limit his mobility or effectiveness on ships and boats. In short, he must move as if wearing medieval armor on the battlefield. Our method incorporates distinct drills and techniques through which this type of movement can be learned.

Each of the course modules (non-lethal combatives, submission combatives, and lethal combatives) relate to a particular brain center that is typically activated with regard to the progression of force. During social violence, for example, it is the limbic system that typically holds sway and submission of the opponent that is the ultimate goal. Students are taught methods by which the neocortex, limbic system, and reptilian complex are kept in constant balance.

4. Incapacitating the opponent's foundation/disabling structure

Great white sharks immobilize northern elephant seals with a large bite to the hindquarters (which is the main source of the seal's mobility) and wait for the seal to bleed to death before returning to devour their prey. Wolves attack their prey in a similar manner. The pack attacks its quarry as a unit, tearing at its hindquarters and legs from the rear until it falls to the ground, whereupon the wolves proceed to immobilize and then safely devour it.

During close combat, the human body is capable of sustaining incredible amounts of damage. The only safe way for the soldier to engage a threat is to prevent counter-tactics by incapacitating the opponent's foundation and disabling his structure.

In practical terms, this could mean simply breaking and controlling an opponent's balance prior to the execution of a particular technique, controlling the opponent's head, injuring an aggressor's legs to disable his capacity to stand, disabling the delivery system of a particular weapon (severely injuring an elbow for example will prevent use of a knife in that particular hand; breaking the collarbone will prevent an aggressor from lifting the related arm, etc), disabling sensory input (striking the eardrums or the eyes), and similar tactics. The methodology through which the operator employs any particular close combat technique or tactic on an aggressor should follow this sequence: 1) Displacement of the potential threat, 2) Arrest of the delivery system, 3) Incapacitation of the Foundation, 4) Disablement of the Structure, 5) Execution.

5. Attacking the opponent's central nervous system

Contrary to popular belief, individuals engaged in lethal combat can sustain severely damaging wounds and still continue to fight on, even successfully delivering lethal force against their opponents. Subject to the empowering boost of the hormones delivered during the acute stress response, police officers and criminals alike have been shot

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Figure 1. Melee and natural weapons used in hand-to-hand combat [14]

in the chest (and heart) and gone on to terminate their foes (sometimes before expiring themselves). This is why the previous step (disabling the opponent's foundation and structure) is all important during close combat, and, as we have seen, is the method that is unilaterally followed by all predators in nature to secure their prey. Only an attack on the brain stem itself, or secondarily, on the central nervous system, will result in immediate threat termination.

Given the physiological responses inherent to the acute stress response, for example, an aggressor may not feel pain in a particular limb or in a particular region of the body during combat. Enemy personnel have proceeded to bite into a NATO soldier's genitals after having had half their arm blown off by a grenade and one eye gouged out during hand-to-hand combat[13]. The only secure method for attacking an aggressor's central nervous system is by retaining conscious control throughout the process; this involves very deliberate choices, angles of approach, and methods of engagement. In developing our method, we learned from nature, from the practice of hunters and butchers throughout human history, and from the European record of close combat over the past three millennia.

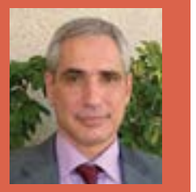
Epilogue

Combat within close quarters may include lethal and nonlethal weapons and methods depending upon the restrictions imposed by civilian law, military rules of engagement, and personal ethical codes. It may result in a one-on-one duel (unlikely) or (typically) denigrate into a melee as shown in *Figure 1* from 1905, where anything can happen at any time, and all weapons are used every time. Indeed, the term for massed close combat derives from the French mêlée (which comes from the Latin miscēre, "to mix"), and refers to groups of warriors interlocked in close combat devolving into a chaotic scenario.

11. While traditionally associated with Zen Buddhism, this method of breathing was also used by Greek hoplite warriors wearing bronze breastplates in ancient times. Bronze armour is not flexible; a soldier wearing a tight-fitting metal cuirass was obliged to "breathe with his belly."
12. 0http://www.icemanwimhof.com/science
13. U.S. Army Staff Sergeant D.B. in Fallujah, Iraq, 2004, during Operation Phantom Fury.
14. Rencontre d'Apaches et d'agents de police sur la place de la Bastille, Bibliothèque nationale de France, 1905.

CLOSE COMBAT TACTICS

In accord with the main tactical principles outlined previously, because anything can and does happen during close combat, because we cannot assume that there will be only one opponent, because we must assume that the opponent(s) is (are) carrying concealed and unconcealed weapons, because our mobility may be restricted by space and/or by the press of a crowd, and finally because we must always prepare for worst case scenarios in the course of military operations, the system of close combat we employ must be fully functional under the conditions portrayed in *Figure 1.* Moreover, we must make these conditions even more threatening by entering in the factor of armor: our opponents may be fully armored while we are not, or armor may hinder our movements but not that of our opponents. We may have to contend with the steel walkways and bulkheads of a ship pressing in upon us, or cold concrete under our feet and sharp glass at our sides in urban warfare. We may be operating on a balcony or with our back to a guardrail. Careful tactical consideration of all these parameters is what can make a method of close combat successful during maritime interdiction - or not.



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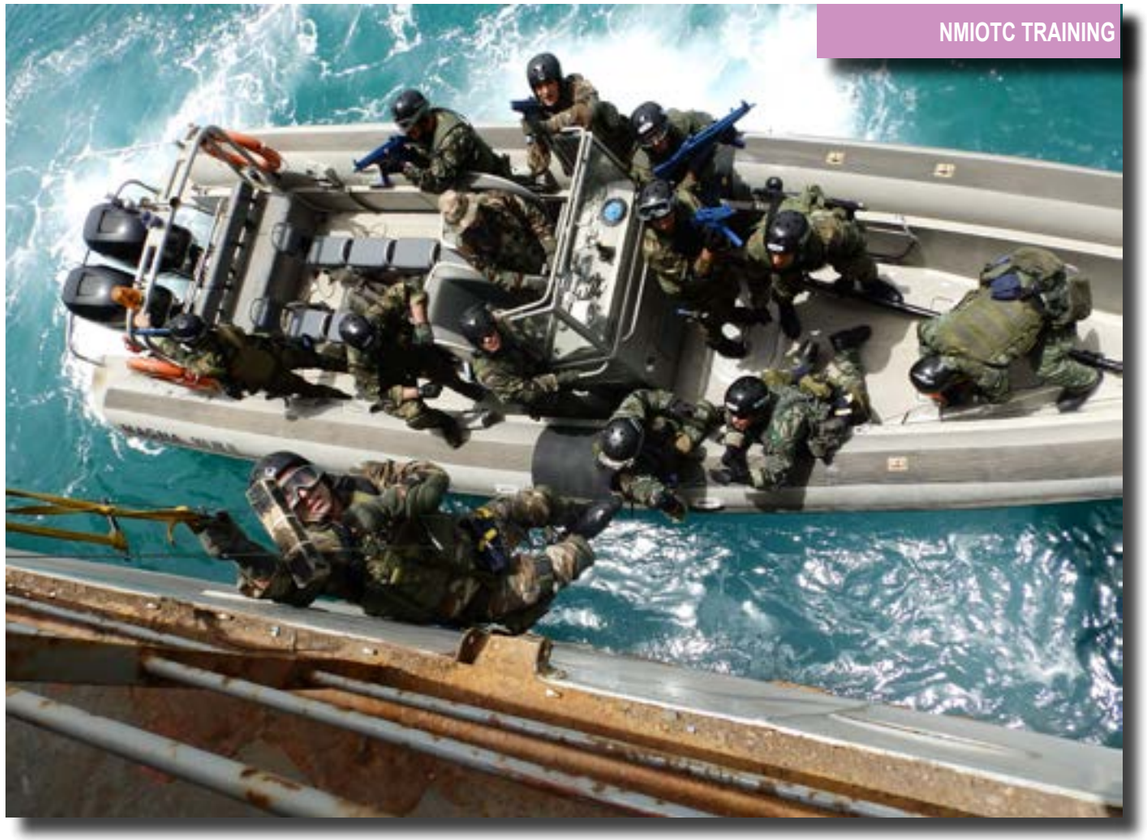

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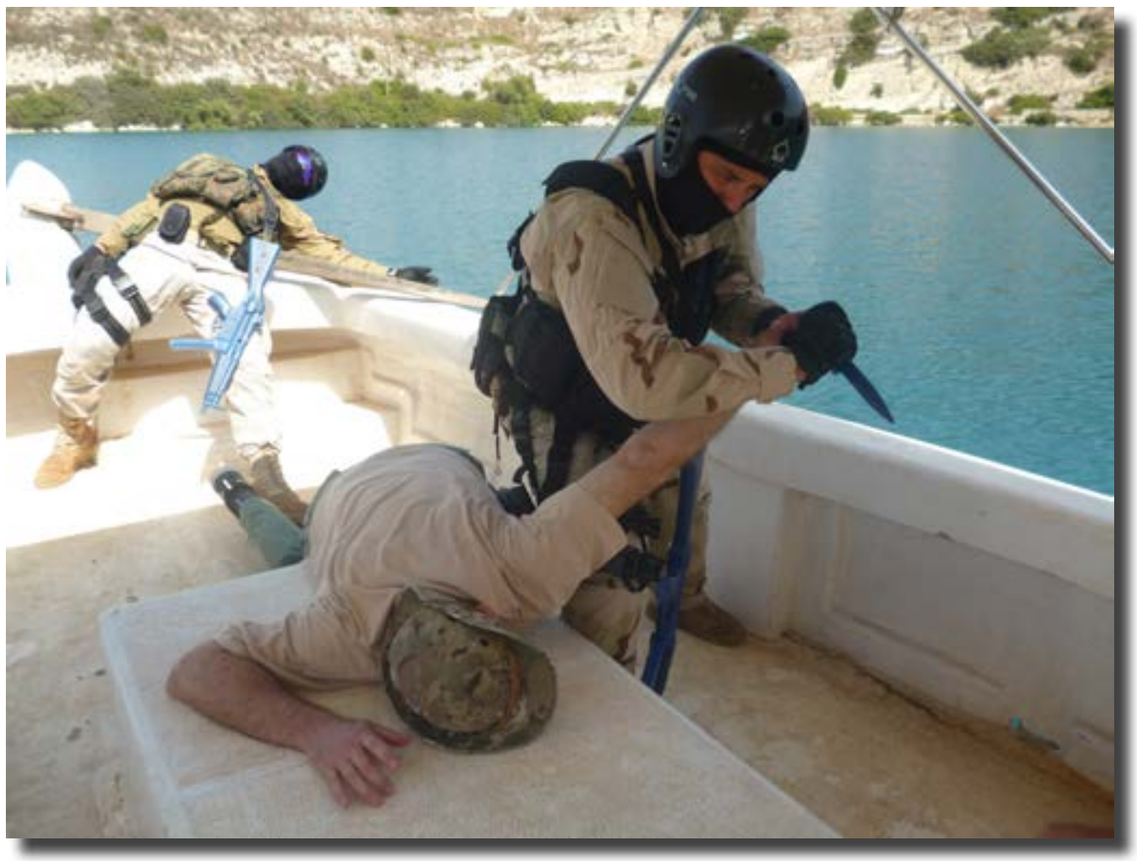

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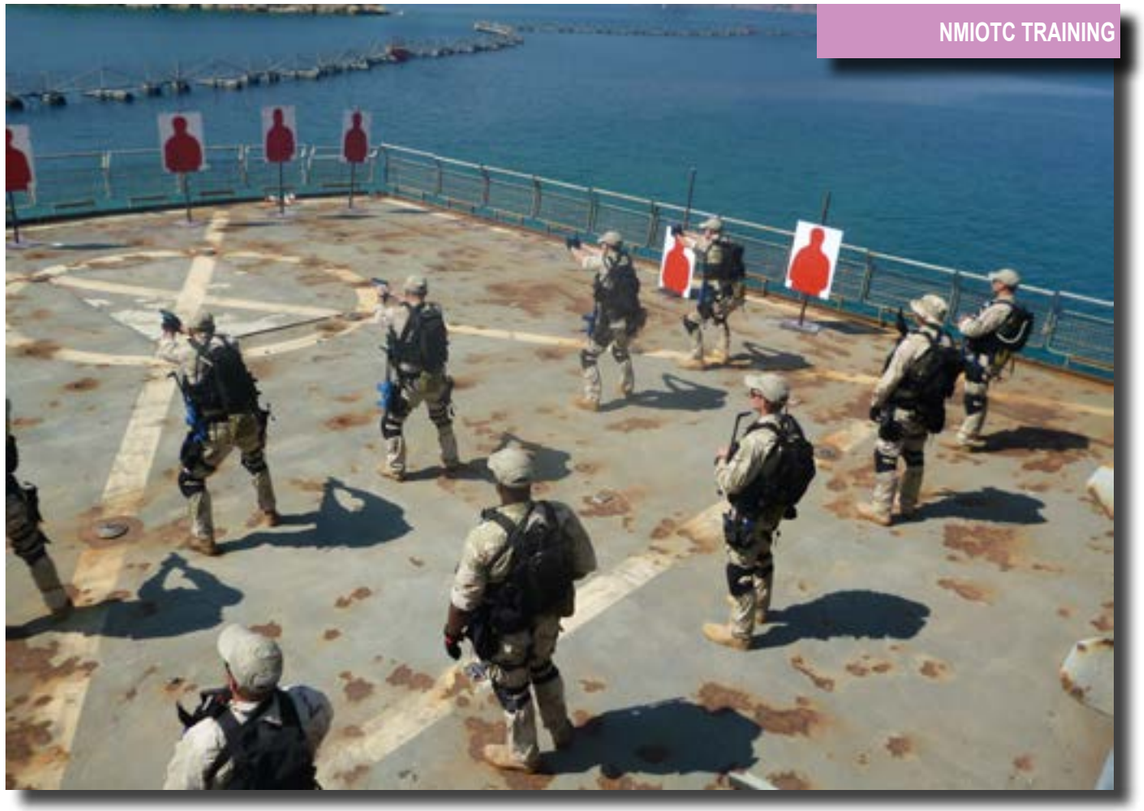

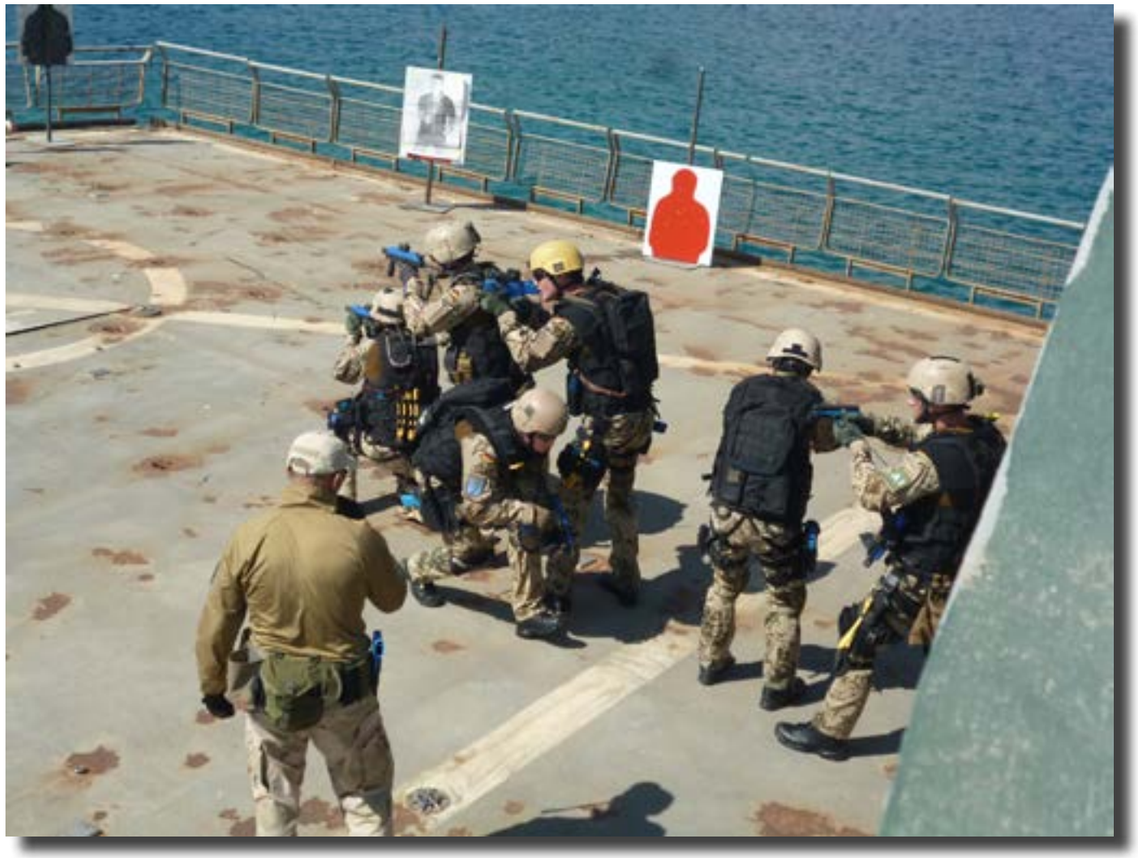

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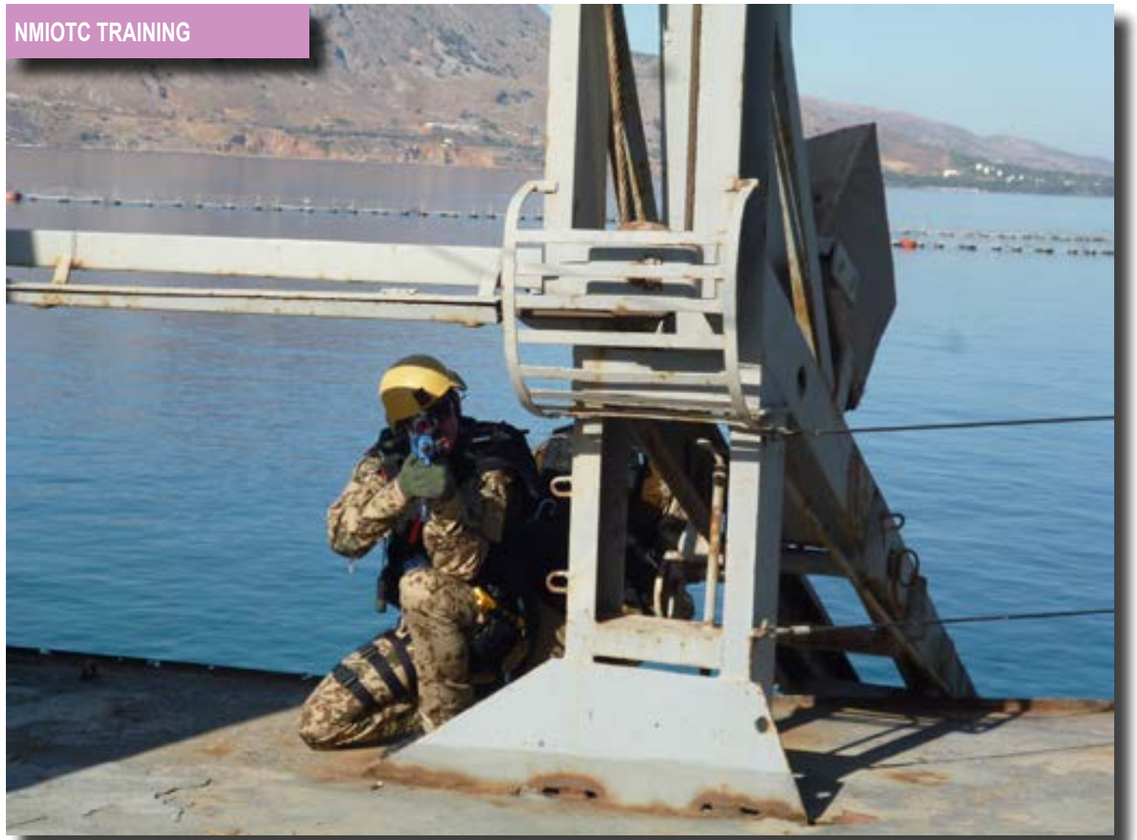

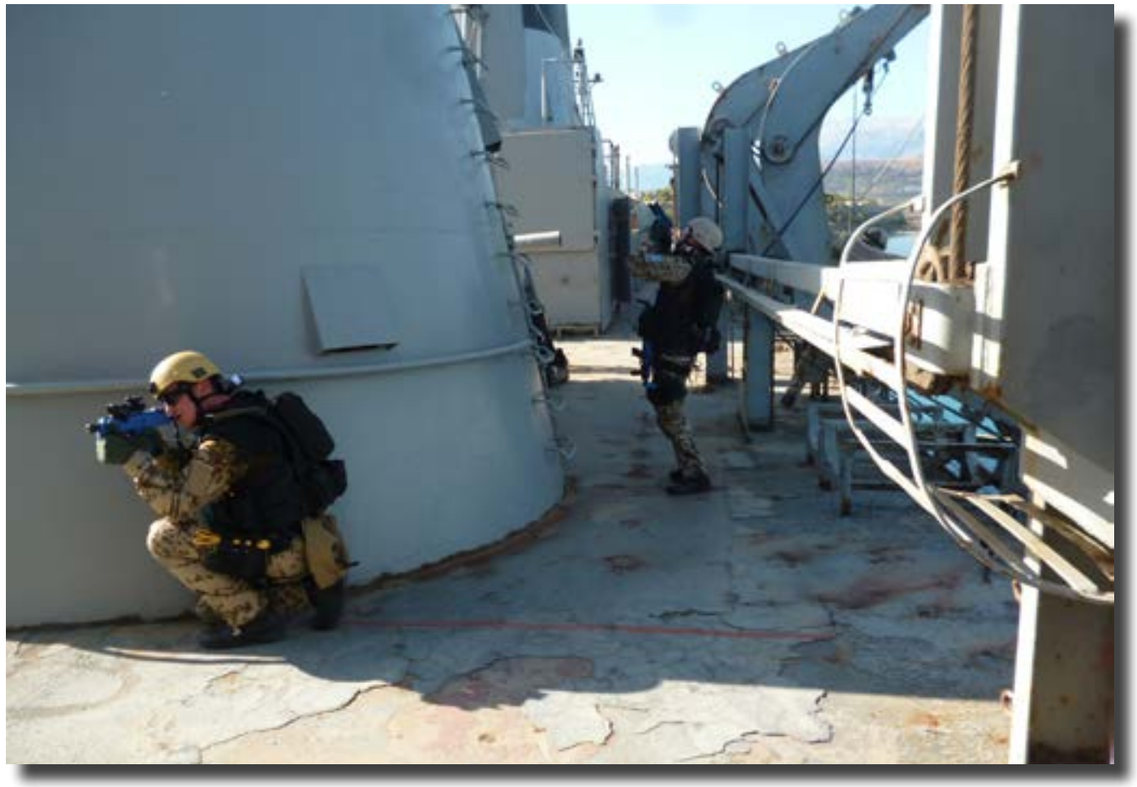

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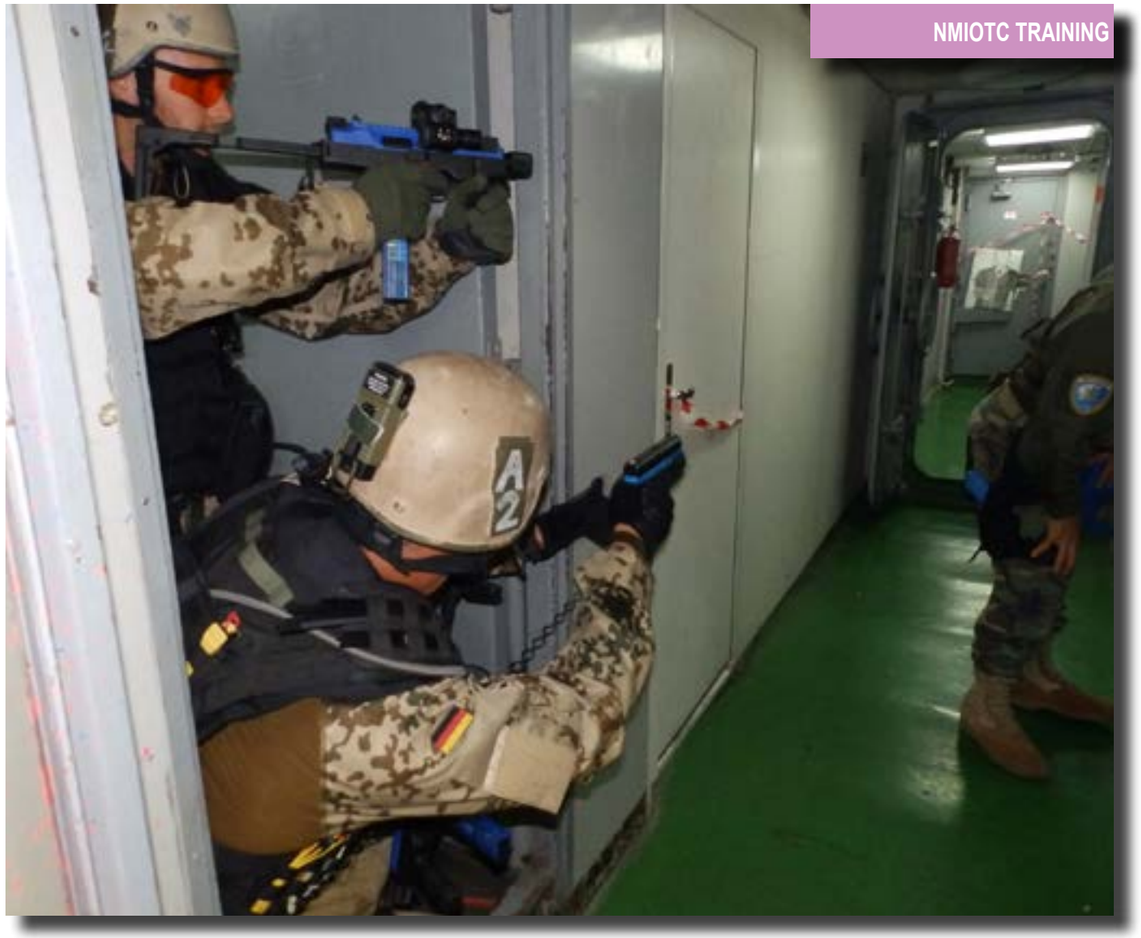

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