Neck Restraints As a Use Of Force

BRIEF HISTORY OF NECK RESTRAINTS:

The earliest recorded history specific to the use of neck restraints as a use of force/ self-defence technique was made in the 17th Century with the Chinese influence on Japanese combatives. In this period, many schools of martial arts, more specifically ju-jitsu schools, advanced the serious study of neck restraints, known collectively as ñshimewazaò.

The next major event in the development of neck restraints occurred in 1882, when the sport of judo was conceived. Literally translated as, ñgentle wayò, judo sought to move beyond mere combative techniques and into a more sport oriented context. It is noteworthy that most ñshimewazaò have been retained in judo to this day, with a distinct absence of any associated serious injury or death as a result of its application.

Today, ñshimewazaò techniques are still taught in most martial art styles, but many do not spend the time or effort needed to teach the proper application of neck restraints to prevent injury or even death.

TYPES OF NECK RESTRAINTS AND TECHNIQUES OF APPLICATION:

There are a number of names given to shimewaza techniques some of which include; Carotid control, lapel choke, C-clamp choke, chokeholds, trachea chokes, lateral vascular neck restraints, and neck restraints. For the purposes of this review I will list two types of neck restraints based upon anticipated subject response to correct application.

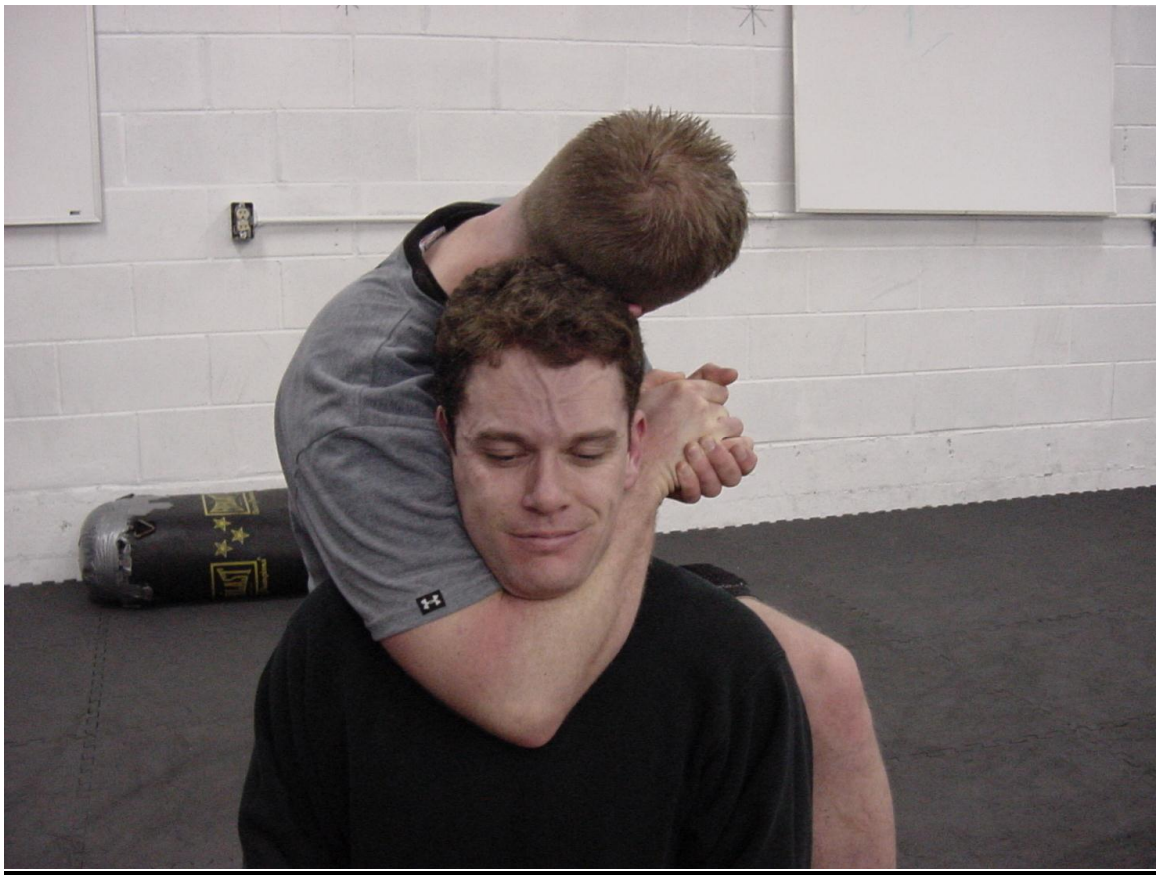
1) Respiratory Restraints:

The respiratory restraint itself is characterized by an inability to breathe or talk as a result of pressure being applied directly to the trachea, and an accompanying anxiety reaction that is common when this type of choking occurs. Unconsciousness results ultimately when the subjectôs lungs run out of oxygen because the airway is occluded. Consciousness returns immediately upon releasing the technique thus allowing oxygen back into the lungs



2) Vascular Restraints:

Unlike the respiratory restraint, unconsciousness is attained via occluding the vascular system that both supplies and drains blood from the brain. When this restraint is applied there is no pain involved, and the subject can breathe and talk. There is no anxiety reaction because there is no choking, and there is minimal discomfort to the person on whom the restraint is applied.



TYPES OF RESPIRATORY RESTRAINTS:

BAR-ARM CHOKES:

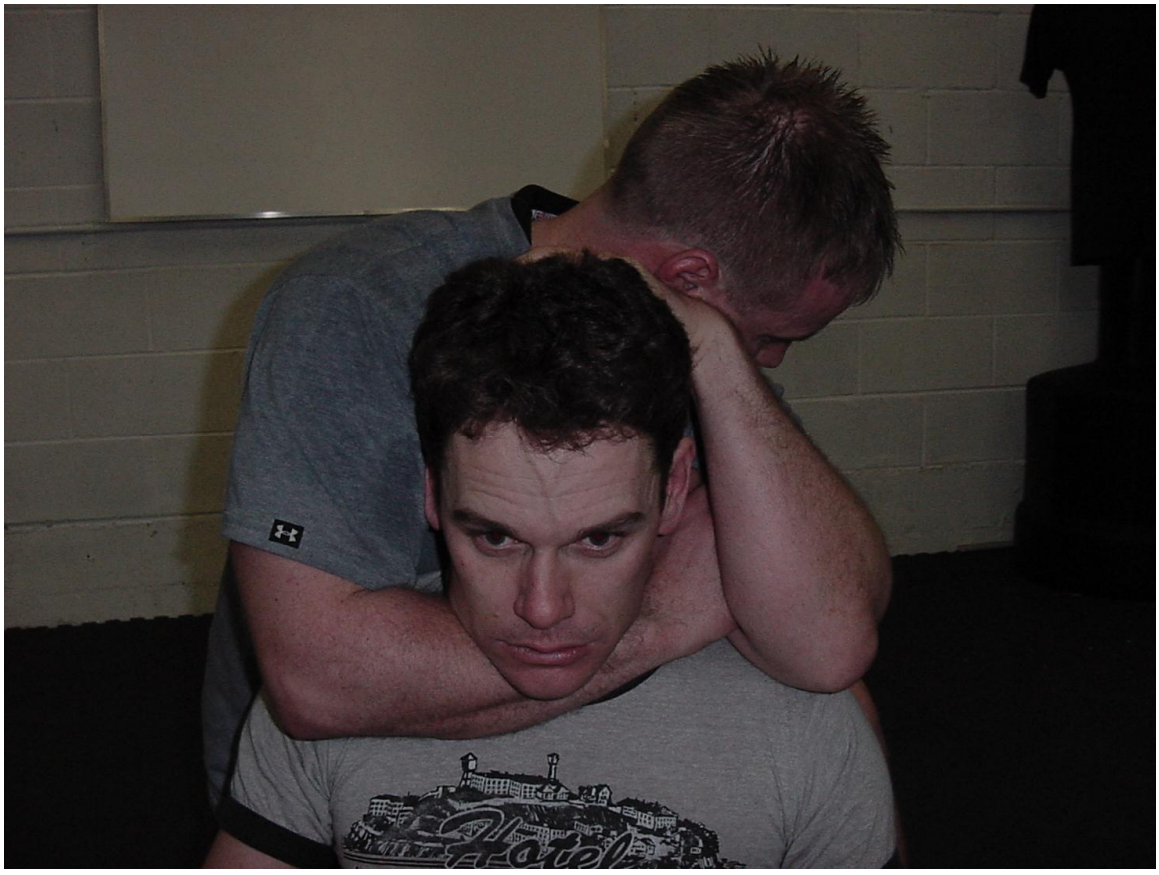
These types of neck restraints apply direct frontal application of pressure to the throat/trachea. Pressure from this restraint is usually created by a person drawing the radial surface of their forearm tight against the subjectôs throat. The intent of a bar-arm choke is to achieve subject control through either:

1. Pain compliance: when pressure is applied directly to the trachea, extreme pain is experienced, or;
2. Closure of the airway, which induces unconsciousness through suffocation.



JAPANESE CHOKE: (a.k.a. figure four choke)

Similar to the bar-arm choke, this restraint applies direct frontal application of pressure to the throat/trachea. Pressure from this restraint is usually created by a person applying the radial surface of their forearm tight against the subject throat with one arm, while simultaneously applying forward pressure to the rear of a subjects head with the opposite hand.



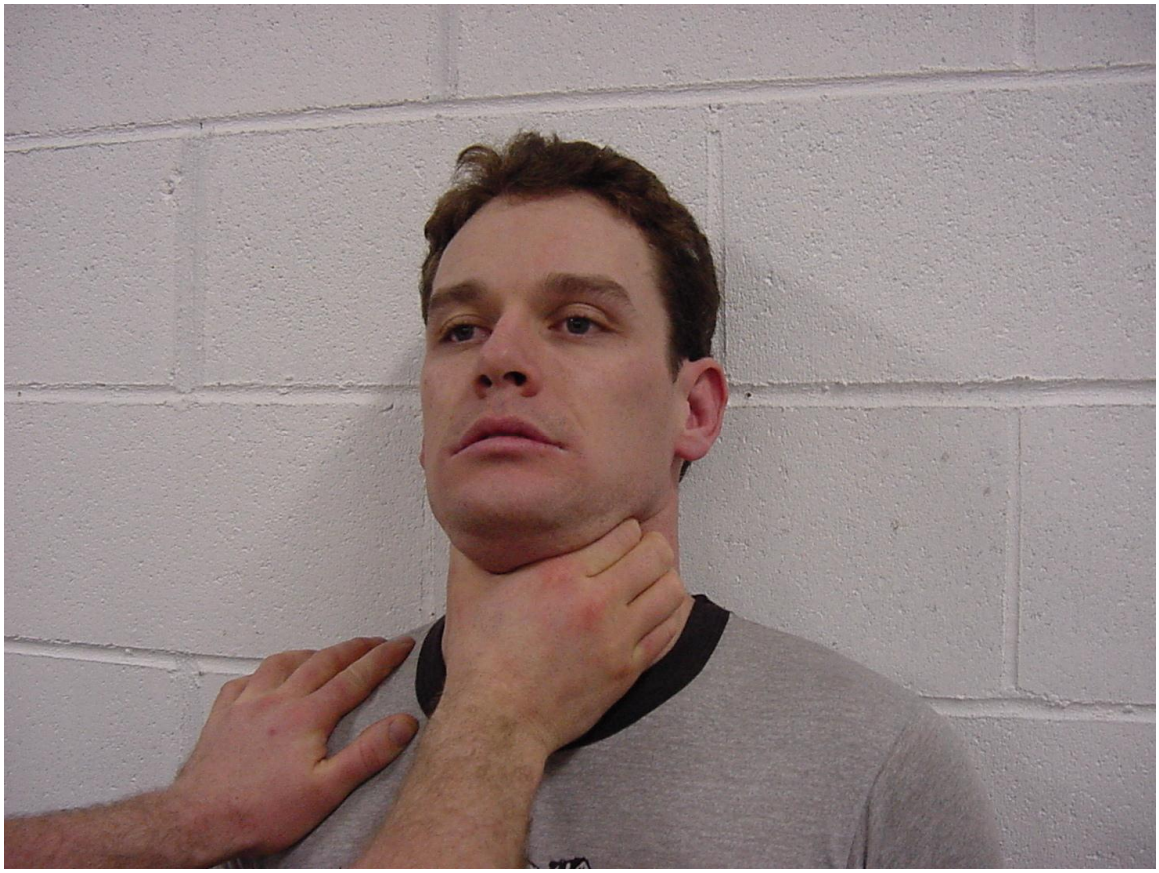
GUILLOTINE CHOKE:

Again, similar to the bar-arm choke, this restraint applies direct frontal application of pressure to the throat/trachea when a person is bent over. Pressure from this restraint is usually created by a person applying the radial surface of their forearm tight against the subjectôs throat with one arm, while simultaneously leaning backwards-utilizing body weight and leverage.



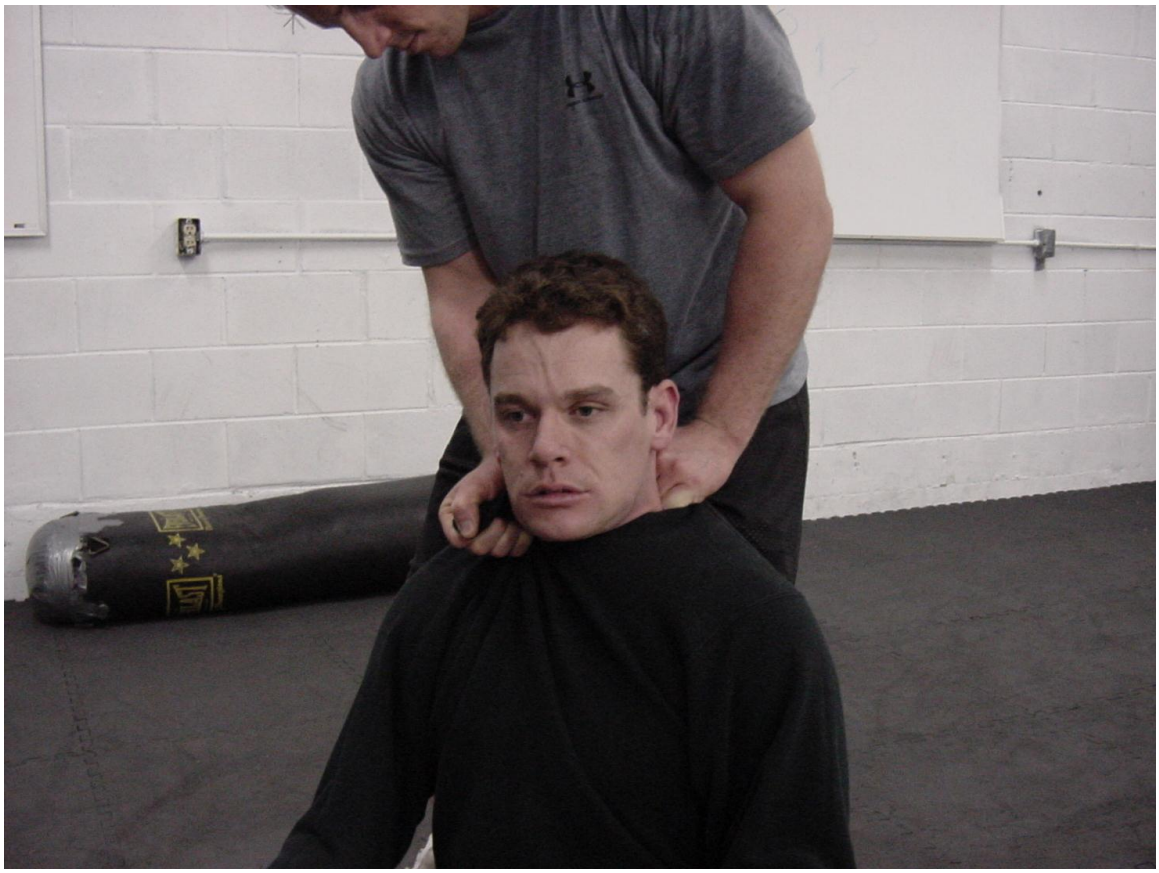
C-CLAMP CHOKES: (a.k.a. TIGER CLAW)

This technique involves grabbing a subjectôs front throat area with oneôs hand. Pressure is applied by squeezing thumb and fingers together in a pincer-like fashion. This pressure serves to close the airway and causes unconsciousness through asphyxia.



LAPEL/COLLAR CHOKES:

These types of respiratory chokes are drawn directly from judo, and apply pressure to the throat and trachea. The pressure may be applied from various surfaces of the hands, fingers, or the actual clothing that is drawn tight across the throat.



PHYSIOLOGY OF RESPIRATORY RESTRAINTS:

Unconsciousness is rendered through suffocation and severe pain. Due to the fact that pressure is applied directly to the throat, the airway is occluded thus oxygen is prevented from entering the lungs.

MEDICAL CONCERNS AND ASSOCIATED RISKS OF RESPIRATORY RESTRAINTS:

Due to the fact that unconsciousness with respect to a respiratory restraint is obtained via direct pressure to the throat and trachea, there are severe risks of injury to the laryngeal structures of the throat, which could include:

- Fractured hyoid
- Fractured thyroid cartilage
- Fractured cricoid
- Fractured trachea ring

Most deaths that have been attributed to a neck restraint have in fact been respiratory chokes, which caused damage to the above noted laryngeal structures. Once damaged tracheal swelling in not uncommon and death occurs as a result of suffocation. It should be noted that this is one reason why here in Canada all municipal police departments, as well as the Royal Canadian Mounted Police, have banned the use of respiratory restraints. To the contrary however, many martial arts and self-defence programs still teach these restraints as a ñsafeò and ñeffectiveò way to control a subject as a ñcome along holdò not understanding the dangers associated.

USE OF FORCE CONTEXT:

In my opinion, due to the clear and present risks of serious injury and even death associated with respiratory restraints, they should only be applied in a deadly force context.

TYPES OF VASCULAR RESTRAINTS:

LATERAL VASCULAR NECK RESTRAINT: (CLINICAL)

Pressure is applied to both sides of the neck with the trachea and throat being protected in the crook of the elbow. Pressure is applied by squeezing the forearm and bicep together, while pressing in and down on the elbow. No pressure is directed to the throat, and the subject can still breath and speak with only minimal discomfort.



LATERAL VASCULAR NECK RESTRAINT: (LOCKED)

Pressure application is identical to the clinical Lateral Vascular Neck Restraint mentioned above, but this restraint is locked into position with the subjectôs second arm. By locking a vascular restraint into position, it prevents it from sliding into a respiratory restraint (bar-arm choke hold), which is common during an actual physical struggle.



PHYSIOLOGY OF VASCULAR NECK RESTRAINTS:

The commonly cited effect of a vascular restraint is that the carotid arteries are occluded which reduces the flow of oxygenated blood to the brain thus causing unconsciousness. This belief is actually more of a myth than a scientific fact. Current research has found that resulting unconsciousness from a vascular neck restraint is caused by a compounding effect of a variety of different factors:

Carotid Occlusion:

The carotid arteries supply approximately 70% to 80% of blood volume to the brain, with the remaining 20% to 30% being delivered by the vertebral arteries. Current research has found that when the Carotid arteries are occluded via compression, the vertebral arteries take up the slack. It is not uncommon in some medical procedures to fully clamp off the carotid arteries under local anesthesia, with only the vertebral arteries supplying blood to the brain without unconsciousness taking place with the patient. To say that unconsciousness is as a result of stopping blood to the brain is incorrect, but Carotid occlusion does play a contributing factor.

Carotid Sinus/ Vagus Stimulation:

The carotid sinus / vagus nerve runs parallel to the common carotid arteries on either side of the neck. The function of the carotid sinus and the vagus nerve is to regulate heart rate, which affects blood pressure. As a result, stimulation of the vagus nerve/ carotid sinus can result in a decrease in heart rate. Decreasing heart rate lowers blood pressure and hence lowers the volume of oxygenated blood to the brain. The carotid sinus/ vagus nerve stimulation reflex is well understood medically, and in hypersensitive people can cause fainting with only modest pressure from even a tight shirt collar. Emergency health professionals have long used carotid sinus message to slow tachycardia in appropriate patients.

Venous Compression:

Parallel to the carotid arteries on both sides of the neck, are the Jugular veins. The Jugular veins connect to the Superior Vena-Cava system, which is the final vascular network that returns oxygen-depleted blood to the heart. Due to the fact that the Jugular veins are much thinner than the Carotid arteries, they are much more readily compressed than arteries, which is why when a vascular restraint is applied, the facial veins ñflushò red. As a result of venous compression, cranial circulation is impaired, congesting arterial flow and reducing the blood oxygen saturation.

Valsalva Maneuver Susceptibility:

Valsalva susceptibility is caused by the severe, sudden increase or decrease of intra-thoracic pressure created either by holding oneôs breath combined with diaphragm contractions, hyperventilation, or by strained exhalation. This intra-thoracic pressure impedes blood flow to and from the brain through the Superior Vena-Cava. Due to the fact that in a violent combative situation it is not uncommon for a subject to hold their breath, when a vascular restraint is applied the Valsalva maneuver may play a role in obtaining unconsciousness. High-level weight lifters experience this phenomenon quite regularly when straining, without exhalation, when attempting to lift extremely heavy weight and as a result will feel lightheaded and in some instances black out. This effect is very similar to children who hyperventilate and then purposely hold their breath to get light headed, and in some instances, pass out.

As can be appreciated, unconsciousness from a vascular neck restraint is not based upon a singular event, but rather a compounding effect as a result of the above noted factors.

MEDICAL CONCERNS AND ASSOCIATED RISKS OF VASCULAR NECK RESTRAINTS:

Unlike the respiratory restraint, risks to the laryngeal structures of the neck are extremely rare. In those cases where a vascular restraint did cause damage to the laryngeal area of the throat, it was due to the fact that the vascular restraint slipped into a respiratory restraint usually during a struggle. This is why student should be taught that when applying a vascular restraint it should be applied with 100% effort, and never as a ñcome-alongò restraint. If the vascular restraint is used as a come-along hold, there is a real danger that if the subject becomes resistive, it will slip into a respiratory restraint. This is another reason, where reasonable to do so, a vascular neck restraint should be locked into place.

Although the vascular neck restraint does not apply pressure to the laryngeal structures of the neck, there is a risk of forced manipulation of the cervical spine. The squeezing pressure of vascular neck restraints is believed to pose a low risk of injury, with the greater danger coming from unpredictable subject resistance. Dislocation, fracture, and /or spinal cord injury can result from excessive force, or from a subject using the restraint

when attempting to lift or move a subjectôs body. Again this is one reason why the locked vascular neck restraint is the preferred application. Once locked into place, the vascular neck restraint position works very similar to a cervical collar, which limits mobility of the cervical vertebra during subject resistance. When applying this restraint a subject should also be taken to a seated or grounded position, rather than a standing position, again limiting potential injury to the neck.

Another potential, but rare, effect from the application of a vascular neck restraint, is the formation of a thrombus (clot), caused by pressure to either the vertebral or carotid arteries that can result in a stroke. Those suffering from severe coronary artery disease are more prone to this type of effect.

The last medical concern associated with the application of a vascular neck restraint is directly related to medications that predispose a subject to cardiac arrhythmia, which can be triggered by the application of the restraint itself. Again a condition that is unreadable in a street application.

It should be noted that since 1882 in the sport of judo, there has never been one reported death or serious injury as a result of a vascular neck restraint application. In the sport of boxing, by comparison, there have been a number of well-publicized deaths caused by blunt trauma via a punch..

USE OF FORCE CONTEXT:

The use of a vascular neck restraint is considered to be a high-level empty hand technique (see attached force options theory). The vascular neck restraint should not be used as a come along or escort technique, but rather should only be used on a subject who is actively aggressive and needs to be immediately controlled.