

Physical Restraint and Medical Concerns

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Much controversy surrounds the relationship of physical restraint and possible injury. What is the cause – the actual position of the individual? Underlying medical conditions? Medications? Bottom line: we don't know what specifically causes these issues though many theories exist. Most likely, there is not a single causative factor; it's likely multifactorial and will take additional research and experience to determine cause.

Regardless of cause(s), simple principles can decrease the risk associated with physical restraint. The goals of this interaction are (1) to obtain control of the situation and (2) to protect the individual and officer(s) involved. We typically see better outcomes when these scenarios are quickly and effectively managed.

Over 40% of restraint-related deaths are believed to be due to asphyxiation (i.e. suffocation or the inability to breathe). Reasons for death from asphyxiation include:

- Restricting breathing mechanics (e.g. putting weight on the individual's body)
- Placing a hood or object over someone's head (e.g. spit hood)
- Restraint techniques (e.g. choke hold or Lateral Vascular Neck Restraint)

Research with healthy subjects shows that 9 out of 10 people experienced prolonged recovery time from exercise under conditions of prone (on stomach) or supine (on back) recovery positions. (Recovery in oxygen saturations and heart rate.) What may cause this?

- Restriction of movement of the thorax (i.e. lungs and respiratory muscles)
- Airway compromise
- Release of catecholamines during exercise (i.e. hormones that regulate our body functions)

The effects of such are probably stronger in individuals with medical or psychiatric issues.

Positional Asphyxia

Position asphyxia is when the body's position interferes with respiration or adequate breathing.

- Prone or supine positioning is felt to be a major factor (many in-custody deaths are associated with this position)
- Simple flexion of the head, which compromises the airway
- Neck compression, which effects blood flow to the brain
- Sitting upright; body habitus or large abdominal girth can affect the ability to breathe (e.g. ask an old fat guy to tie their shoes)

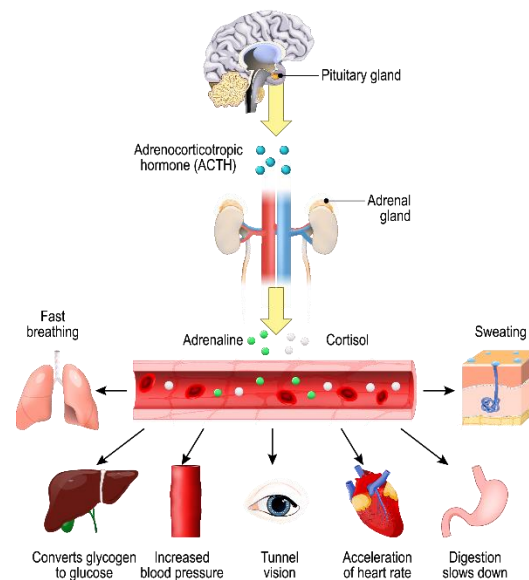
Note that, even when applied properly, restraint techniques may increase the risk of death. Fifty-seven out of sixty-three death cases reviewed had the restraint applied in accordance with policy, procedures, and/or training. Individuals will continue to struggle and increase their resistance when in these positions due to

their inability to breathe. This often results in a cascade of more force and more resistance followed by untimely death.

Catecholamine Release

Adrenal hormones (e.g. epinephrine, norepinephrine) are very strong chemical modulators of the body and sensitize the heart to abnormal rhythms, increase agitation and strength while also effecting heart rate, respirations, the ability to regulate body heat, and mental status.

STRESS RESPONSE



During a struggle and restraint, these sensations and physiologic changes would be a normal and anticipated response. It is unknown and unpredictable how these hormone releases may impact an individual(s); it is not directly related to the amount of force or duration of restraint.

Individuals with underlying conditions such as heart disease, medications, and psychiatric conditions may be more susceptible to these issues.

Medications

Medications known as sympathomimetics, or those which stimulate the body's central nervous system, can make individuals more susceptible to adverse events. Classically, we think of excited delirium, cocaine, and methamphetamines as primary factors and associated with these issues. Psychotropic medications – any drug that affects behavior mood, thoughts, or perception – are also common underlying factors. Many of the issues are similar or may cause a catecholamine release (*see above*).

A specific event called Prolonged QT Syndrome (an irregular heart rhythm that can cause a rapid disorganized heartbeat that can cause sudden death) may cause major effects and sudden cardiac death via abnormal heart rhythms. Medications or illicit drugs affect the electrical firing of the heart (ECG rhythm strip). This change in electrical activity can occur rapidly or over long periods of time and result in a lethal

cardiac arrhythmia, which may not be predicted or recognized unless cardiac monitoring is occurring at the time.

Many medications can interfere or result in behavior aspects seen in the field. For example, an overdose of a common medication like diphenhydramine (Benadryl) can result in change in mental status, rapid heart rate, prolonged QT, and death.

Optimizing Position to Minimize Complications

Multiple variables, such as body position, the influence of drugs or alcohol, obesity, underlying mental illness, or physical condition and injury, can influence the dangers of physical restraint. Techniques within The C.A.L.M. Approach™ minimize these concerns. Constant vigilance is needed to monitor, identify or pre-empt any complication.



Previous experience shows that prone or supine positioning can increase the risk of injury and/or death. This positioning should be avoided, if possible, and, once the individual is secured, they should be placed into positioning consistent with methodology taught as part of the Lateral Recovery Restraint™.

Lateral Recovery Restraint

The Lateral Recovery Restraint is similar to well-accepted medical principles employed during the emergency treatment of patients. The position within this concept:

- Is relatively comfortable
- Minimizes restrictions to breathing
- Offers the ability to visualize surroundings (which assists in de-escalating the individual)
- Minimizes stress on the heart and lungs by preventing the application of pressure to the chest, stomach, and back
- Allows for an open, clear, and maintained airway thereby allowing breathing to occur without obstruction or resistance

- Allows for drainage of vomitus without blocking airway if complications such as unconsciousness or vomiting occur

In addition, from a law enforcement perspective, the Lateral Recovery Restraint:

- Allows for effective control and management of the individual
 - Offers this control without having additional weight on the individual or requiring use of potential respiratory-restricted maneuvers, which may make the individual feel as though they're struggling to breathe, increase their resistance, and cascade into more and more force exertion.
- Provides the ability to rapidly move the individual(s) into other positions, if needed
- Allows the officer to observe surroundings and communicate with others
 - The Pit Crew approach allows a directing officer to manage the scene, monitor the individual with unobstructed views, and supports de-escalation techniques.
 - The patient's heart rate and breathing can be easily monitored, and skin color and respiratory effort can be observed.

Lateral Recovery Restraint also works well for individuals of all size. (Remember that large abdominal girth and other related factors can result in death in the prone or hog-tied position. Even sitting positions can compromise some large individuals.)

Summary:

- Avoid restraining individuals on their stomach or back
- Develop and follow department guidelines that enhance control techniques while following sound medical observation practices
- Consider underlying medical condition or medications, which may affect the individual's ability to respond
- Monitor the individual for respiratory effort, airway blockage, heartrate, skin color, changes in mental status (e.g. calm quiet individuals are not always a good sign)
- Always utilize EMS support when appropriate; relay medical information (e.g. use of drugs)
- De-escalate with physical, verbal, and positioning techniques
- Use of chemical sedation (medication administration) is a medical intervention that may be used by a trained medical professional

These events are comprised of complex legal, medical, and use-of-force issues. Violent confrontations and management of such require actions that may affect physiological responses leading to death while in custody or while using a physical restraint. The C.A.L.M. Approach provides control of the individual, de-escalation, and medical monitoring and positioning to minimize risk associated with physical restraint while allowing the officer control and the ability to react to any concerns that may develop.