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# A Comprehensive Review of the January 2007 Chan et al 'Aggressive Physical Restraint' Study Report

## and Questions That Will 'Defeat' Those Who Cite It

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[Available at <http://www.charlydmiller.com/LIB11/2007Jan225poundsChanEtAl.pdf>]

### \*"CHAN et al" Group Definition:

What I refer to as the "**Chan et al**" group began in November of 1997, when the group consisted of Chan TC, Vilke GM, Neuman TS, and Clausen JL.\* Eisele JW became included in the group in 2000.† Michalewicz BA and Kolkhorst FW joined the group sometime before May of 2005, when they participated in a study that eventually generated this January of 2007 report.‡ Levy SS apparently joined the group after this particular study was performed, but before its published report.

**Thus, at the time of this writing, what I refer to as the "Chan et al" group consists of:**

Theodore C. Chan, Gary M. Vilke, Tom S. Neuman, Jack L. Clausen, John W. Eisele, Betty A. Michalewicz, Fred W. Kolkhorst, and Susan S. Levy.

\* Chan TC, Vilke GM, Neuman T, Clausen JL. Restraint position and positional asphyxia. *Ann Emerg Med*, November 1997;30:578-586. <http://www.charlydmiller.com/LIB/1997chan01.html>

† Eisele JW, Chan TC, Vilke GM, Clausen JL. Comparison of respiratory function in the prone maximal restraint position with and without additional weight force on the back. An unpublished "paper" presented at the annual meeting of the **American Academy of Forensic Science**, in Reno, Nevada: February 21-26, 2000. <http://www.charlydmiller.com/LIB07/2000FebWeightForcePaper.pdf>

‡ Vilke GM, Michalewicz BA, Kolkhorst FW, Neuman TS, Chan TC. Does weight force during physical restraint cause respiratory compromise? A "paper" presented at the 2005 Annual Meeting of the **Society for Academic Emergency Medicine**. *Acad Emerg Med* May 2005;12(5 Supplement 1): page 16. <http://www.charlydmiller.com/LIB07/2005MayWeightForcePaper.pdf>

# A Comprehensive Review of the January 2007 Chan et al 'Aggressive Physical Restraint' Study Report and Questions That Will 'Defeat' Those Who Cite It

By Ms. Charly D. Miller  
November 27, 2007

As with all of their previous studies, the study results identified by Chan et al in their January 2007, “**Ventilatory and metabolic demands during aggressive physical restraint in healthy adults**” study report, are entirely irrelevant to the REAL-LIFE relationship between forceful-prone-restraint and restraint asphyxia deaths.

If you haven't already read the extensive 2005 Comprehensive Review I wrote of Chan et al's other studies, plz do so! It will help you understand their history of BIAS, and why Chan et al's studies still have **NEVER** produced data that can be considered relevant to REAL-LIFE restraint events.

**Miller CD. A comprehensive review of frequently misinterpreted and misrepresented restraint research. Three parts, posted in February, March, & August, 2005.**  
<http://www.charlydmiller.com/LIB05/2005ComprehensiveReview.pdf>

The study that generated Chan et al's January of 2007 report was performed sometime prior to **May of 2005**, when its basic information was offered as a “**paper-presentation**” at the 2005 Annual Meeting of the **Society for Academic Emergency Medicine**.\*

Chan et al's January 2007 report's TITLE clearly identifies the foremost reason that its information is entirely irrelevant to real-life forceful-prone-restraint situations:

**“Ventilatory and Metabolic Demands During Aggressive Physical Restraint in HEALTHY ADULTS.”**

Furthermore, within their January 2007 study report, **Chan et al** readily identified and admitted to several other (though, not ALL) of their study's “limitations” – limitations that ultimately **NEGATE** their study findings' relevance to real-life restraint situations. However, when identifying these limitations, the authors consistently demonstrated an inappropriate **BIAS** by doing everything in their power to describe them in a manner that **minimized** the perceived **importance** of each.

[In the following sections, **BOLD NAVY COLORED TEXT** indicates QUOTES from Chan et al's 2007 report.]

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\* Vilke GM, Michalewicz BA, Kolkhorst FW, Neuman TS, Chan TC. Does weight force during physical restraint cause respiratory compromise? *Acad Emerg Med* May 2005;12(5 Supplement 1): page 16.  
<http://www.charlydmiller.com/LIB06/2005newweightstudy.html>

## Clearly, this study has a number of limitations.

**(1) First, our subjects were young and generally healthy ... and had a high aerobic fitness level ... In the actual field setting, underlying medical conditions and other differences from our subject population (e.g., age, weight, etc.) might theoretically influence the outcome.**

Chan et al suggest that **age, weight**, and multiple other factors (such as diabetic disorders, seizure disorders, respiratory or cardiac diseases, drug or alcohol abuse) “**MIGHT theoretically influence the outcome**” of forceful-prone-restraint application. How many entirely healthy, young, slender individuals with “a high aerobic fitness level” are subjected to forceful-prone-restraint in real-life situations? **Almost none.**

I know of ONE healthy, young, slender (aerobically-fit) man who **would have died due to forceful-prone-restraint** had I not accidentally arrived and intervened after he entered respiratory arrest, but before his heart stopped beating.

[If you haven't read my 1998 “**Restraint Asphyxia ‘Near Death’ Case Study**,” plz do! It is of significant importance, especially when assessing the real-life applicability of every Chan et al study, including this one: <http://www.charlydmiller.com/RA/neardeath.pdf>]

Young or old, however, the individuals who have died due to forceful-prone-restraint-related asphyxia were rarely ever “healthy,” most often were overweight and certainly did not have “a high aerobic fitness level.” Thus, any study limited to healthy, slender, aerobically-fit individuals provides NO information that can legitimately be considered relative to real-life restraint asphyxia incidents.

**(2) Second, we could not reproduce all conditions during which this type of restraint method is used in the field.**

That is a grossly negligent understatement!

The ONLY real-life-like “condition” reproduced for the studies Chan et al reported in January of 2007 was that their study subjects were prone-positioned. **That's IT.** No other “conditions during which this type of restraint method is used in the field” were employed during the performance of their studies.

**(3) Data from two subjects were excluded from the study because they were psychologically unable to tolerate restraint ... we could not reproduce the psychological or other physiologic stresses associated with a field pursuit, struggle, or trauma. ... Clearly, in the field setting, individuals are unlikely to have such a choice as to whether they are restrained or not; however, it is difficult to understand how such factors might affect ventilation.**

Two study participants became *SO* profoundly “**frightened**” – simply upon first being prone-restrained (*without* any weight application or “struggle”!) – that Chan et al *excluded* them from their study. Thereafter, Chan et al reported that people who are subjected to forceful-prone-restraint in real life are “**UNLIKELY**” to have a “**CHOICE as to whether they are restrained or not**”! THEN Chan et al alleged that, “**it is difficult to understand**” how profound fear combined with excessive agitation might affect someone's ability to breathe while being forcefully-prone-restrained!

**One doesn't need to be a “scientist” to recognize the ridiculousness of those two statements.**

A person subjected to real-life application of forceful-prone-restraint has NO CHOICE about it. Their lack of choice is not merely “**unlikely**” – as suggested by Chan et al in an effort to minimize one of their admitted study limitations. Their lack of choice is entirely NONEXISTENT!

Furthermore, extreme fear and agitation cannot possibly have anything other than an ADVERSE affect on a person's ability to breathe. There is nothing “DIFFICULT” about understanding that fact.

**(4) During the trials with weight applied to the back, the weight was distributed evenly [between the posterior shoulders and mid back], unlike in a field situation in which force is applied to the back frequently with a knee that focuses the force over a smaller area.**

Application of weight that is evenly distributed over ONLY the BACK OF THE RIBCAGE – as opposed to being applied to a “SMALLER AREA” of the BACK OF THE RIBCAGE – is *NOT* one of the several factors that prohibits Chan et al’s January-2007-published study results from being considered relevant to real-life forceful-prone-restraint situations.

As I explained in September of 2005 (within a review of their 2005 paper presentation<sup>\*</sup>): “The RIBCAGE is specifically designed to PREVENT compression of the vital organs dwelling within it: the lungs, the heart, and the great blood vessels. Thus, when studying the effect of 'weight force' applied to a prone-positioned individual, if you put the weight on top of the RIBCAGE, you are NOT studying the effects of **Forceful-Prone-Restraint**. You are studying the ribcage's ability to prevent compression of the lungs, heart, and great vessels within the chest.”

During real-life forceful-prone-restraint situations, weight force application to the posterior ribcage – whether it was “evenly distributed” or focused on a “smaller area” – would result in respiratory arrest ONLY if the ribs were FRACTURED while it was applied. Yet, not a SINGLE restraint asphyxia victim’s autopsy has EVER discovered the presence of fractured ribs.

It is not posterior RIBCAGE weight-compression that most seriously interferes with a prone-restrained victim’s ability to breathe. It is POSTERIOR ABDOMINAL AREA weight-compression application that kills.<sup>†</sup>

[If you don’t already understand the validity of that statement, see my **Restraint Asphyxia – Silent Killer** article (<http://www.charlydmiller.com/LIB06/2004RASKparts1&2.pdf>) for an explanation of how posterior weight application interference with abdominal excursion rapidly defeats the major muscle of respiration – the diaphragm – and rapidly causes restraint asphyxia.]

Had Chan et al’s study employed weight application to the “lower back” area (the posterior ABDOMINAL area) while their subjects were in a prone position, the respiratory interference they measured would have been **significantly more serious** than it was. Results from a study utilizing **REALISTIC** weight placement would have provided valuable, **REALISTIC** information related to deaths associated with forceful-prone-restraint. Yet, Chan et al specifically elected NOT to apply weight to the “lower back” area of their prone-restrained study subjects.

**(5) Third, the exertion and struggle of our subjects [while in the Prone Maximal Restraint Position] was of short duration [60 seconds] [(was performed) on a voluntary basis] and also may not reflect a field situation where prolonged struggles can occur.**

Ah. Yet another study limitation Chan et al sought to **minimize** by erroneously reporting that it **“MAY NOT reflect a field situation”** involving real-life forceful-prone-restraint application.

The **voluntary** (unquantified) **60 seconds** of **“struggle”** performed by their study subjects without first being subjected to pre-restraint exertion – and without ANY WEIGHT being placed on their back – **DID NOT** reflect anything remotely resembling the exertion and struggle associated with real-life forceful-prone-restraint events.

Additionally, if their study subjects were allowed to “rock from side to side” during the **60 seconds** of unquantified **voluntary “struggle”** they performed, they were allowed to “free” their diaphragm from the interference experienced by individuals subjected to real-life forceful-prone-restraint.

<sup>\*</sup> <http://www.charlydmiller.com/LIB06/2005newweightstudy.html#review>

<sup>†</sup> <http://www.charlydmiller.com/LIB07/2006FebProneAnesthesiaStudies.html>

In fact, **I challenge Chan et al** (and others of their ilk) to cite **ONE** case study of a forceful-prone-restraint-related death that did NOT involve prolonged physically-exertive agitation (often accompanied by extremely exertive struggle with restrainers) **prior to** restraint application, **as well as** profound physical exertion **during** the forceful (weighted!) application of prone-restraint. They won't be able to do so. Because, such a case DOES NOT EXIST.

Consequently, there is no “**MAY NOT**” about the fact that the so-called “**exertion and struggle**” portion of Chan et al's study **DID NOT** – even remotely – reflect what is experienced during real-life “**Aggressive Physical Restraint**.”

**(6) A limitation “HIDDEN” (not specifically identified as such) by Chan et al:**

NONE of their study subjects were significantly OVERWEIGHT. Chan et al's study subjects had an average “**body mass index (BMI)**” of “**24.5 ± 3.4**.”

According to **The National Heart, Lung, and Blood Institute's BMI Categories** \* :

- **Underweight** = a BMI of less than 18.5
- **Normal weight** = a BMI of 18.5 to 24.9
- **Overweight** = a BMI of 25 to 29.9
- **Obesity** = a BMI of 30 or greater

Thus, in addition to ALL of their study subjects being **healthy and at least moderately active**, the vast majority of Chan et al's study subjects had a body mass index that was within a “normal weight” range. Because they were **healthy and at least moderately active**, it is entirely unlikely that even the few study subjects who were minimally “overweight” had great, big, FAT bellies!

The vast majority of restraint asphyxia victims, however, have been **OVERWEIGHT**. Furthermore, the FACT that someone with a “**large, bulbous abdomen**” (a FAT belly)<sup>†,‡</sup> will suffer difficulty breathing if prone-restrained has never been challenged by ANY study – including any of Chan et al's studies. Most importantly, studies performed by anesthesiologists (and the like) have **long** shown that mere prone-positioning of ANY person – even **without weight placed upon their back** – interferes with abdominal excursion and interferes with the ability to effectively breathe.<sup>§</sup>

Chan et al knew that restraint asphyxia victims are almost always overweight **prior to** designing their study. Yet, they elected to employ study subjects with **normal** BMIs.

**(7) Another limitation HIDDEN (not specifically identified as such) by Chan et al:**

The amount of WEIGHT employed for their study was significantly LESS than the amount of weight applied to the backs of victims subjected to real-life forceful-prone-restraint situations.

To explain the weights used for their study, Chan et al offered an opinion that **it would be safe to assume that law enforcement officers are able, and do, apply more than 22.7 kg [49.94 pounds] of force to the back of suspects placed in the PMRP, particularly if the individuals are violent**. I agree with that Chan et al opinion!

Chan et al further explained that; because they **theorized that law enforcement officials would apply less weight to the back when restraining a lighter individual**, [they] used **differing weights depending on the subject's weight**. **Subjects who weighed less than 68**

\* <http://www.nhlbisupport.com/bmi/bmicalc.htm>

† Reay DT. FBI Law Enforcement Bulletin: Suspect restraint and sudden death. May, 1996.

<http://www.charlydmiller.com/LIB/1996reayFBI.html>

‡ Reay DT. Hogtied revisited. June, 1998. <http://www.charlydmiller.com/LIB/reaysdiego.html>

§ <http://www.charlydmiller.com/LIB07/2006FebProneAnesthesiaStudies.html>

**kg [149.6 pounds] were tested with 22.7 kg [49.94 pounds] (LW [“Light Weight”]), 56.8 kg [124.96 pounds] (MW [“Medium Weight”]), and 90.9 kg [199.98 pounds] (HW [“Heavy Weight”]) while subjects weighing more than 68 kg were tested with 34.1 kg [75.02 pounds] (LW), 68.2 kg [150.04 pounds] (MW), and 102.3 kg [225.06 pounds] (HW).**

I agree that Chan et al’s theory about law enforcement officers applying less force to “light-weight” individuals is probably accurate **at the outset of restraint application**. However, once even a light-weight individual begins violently struggling with law enforcement officers – exhibiting the “superhuman strength” consistently described by those involved in ALL real-life restraint asphyxia incidents – it is far more likely than not, that law enforcement officers apply greater and greater weight force, even to “light-weight” individuals.

Most importantly, however; Chan et al entirely failed to consider the MANNER in which law enforcement officers apply ANY amount of “weight force” to the backs of prone-restrained individuals in real life situations. When applying “weight force” to the back of a prone-positioned individual’s body, an officer does so by FORCEFULLY applying his \* BODY WEIGHT to the individual’s back (most frequently by forcefully pressing his KNEE into the prone-restrained individual’s LOWER BACK)!

If one generously theorizes that only HALF of an officer’s body weight is applied during a prone restraint maneuver – an officer simply **RESTING HALF** his weight on the individual, as opposed to **forcefully applying HALF** his weight – 50 pounds is **FAR LESS** than the realistic amount of weight force any SINGLE law enforcement officer would commonly apply to someone’s back. After all, how many law enforcement officers weighing only 100-pounds are involved in these events? NONE.

Furthermore, when designing their study (and evaluating its results), Chan et al failed to consider that fact that ALL incidents of forceful-prone-restraint involve the simultaneous weight force application of **MORE THAN JUST ONE OFFICER!** At minimum, three officers are simultaneously involved during forceful-prone-restraint application. Frequently, five or more officers are simultaneously involved during forceful-prone-restraint application. Yet, the **maximum “Heavy”** weight utilized by Chan et al for this study was only 225 pounds (**102.3 kg**).

Again being “generous”; if only three officers were simultaneously applying 225 pounds of forceful-prone-restraint to an individual, that amount would translate into 75 pounds of weight force application per officer. If one theorizes that each officer is merely **RESTING HALF** of his body weight on the individual – while wearing a bullet-proof-vest and a belt bearing equipment such as handcuffs, large flash light, “night stick,” a gun, extra ammunition, and a radio – 75 pounds of weight force would represent each officer weighing no more than 150 pounds. Although there may be SOME police officers in existence who only weigh 150 pounds while wearing their uniform and entire equipment armament, I respectfully submit that such light-weight individuals represent a MINORITY of police officers.

Thus, even Chan et al’s **maximum “Heavy”** weight application was ludicrously light, and entirely irrelevant to the reality of weight force applied to an individual by three or more law enforcement officers during forceful-prone-restraint application.

**(8) Chan et al divulged that restraining their study subjects atop a gymnastic mat rather than the actual outside surface ... might theoretically** represent another “limitation” related to their study findings being considered realistic.

Their “**might theoretically**” qualification was clearly composed in an effort to minimize the importance of this admitted study limitation. And, Chan et al could probably get away with minimizing

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\* For the purpose of this review article, I am succumbing to the “historic” practice of using male pronouns when intending to indicate BOTH male and female genders.

this particular limitation. After all, use of a gymnastic mat – alone – might successfully be argued as affording too little abdominal excursion to be considered a “significant” study limitation.

**HOWEVER!** No amount of “argument” can successfully excuse or justify the **FACT THAT:** Chan et al **conspicuously neglected** to identify the entirely **NON-“theoretical”** study limitation produced when they stacked a gymnastic mat **ON TOP OF** a **THICK MATTRESS**, in order to create the surface their study subjects were placed on during performance of their so-called **“Cardiopulmonary Measurements During Maximal Struggle!”**



**FIG. 1—Illustration of a subject in the prone maximal restraint position (PMRP)**

When they stacked a gym mat on top of a thick mattress, there is **NO QUESTION** that Chan et al created a surface so soft and pliant that it allowed **FAR MORE** abdominal excursion than that allowed by the **NON-PLIANT** surfaces real-life restraint asphyxia victims most often have been (and continue to be) placed on.

Chan et al apparently stacked the gym mat atop the thick mattress in order to elevate their subjects **40 cm from the floor** – an elevation required to accommodate the device(s) they employed to measure respiratory function elements for their **SECOND** study; the one involving unquantified “struggle.”

**HOWEVER!** If Chan et al were interested in **legitimately** investigating the impact of prone restraint and struggle on cardiopulmonary function:

- Why didn’t they cause a **RIGID PLATFORM** to be constructed in order to elevate their subjects the device-required **40 cm from the floor**?
- Why did they create a surface that so obviously allowed significantly more abdominal excursion than the surfaces real life forcefully-prone-restraint victims are subjected to?
- **AND!** Why did Chan et al identify the minimal study limitation that their use of a gym mat *might* have presented, but so **CONSPICUOUSLY NEGLECT** to identify the **serious** study limitation caused when they stacked a mat on top of a mattress?!

In my opinion, the answer to those questions is entirely obvious.

Chan et al have **NEVER** been interested in **legitimately** investigating the impact of prone restraint and struggle on cardiopulmonary function.

**(9) Chan et al’s chronic tendency for being UNRELIABLE (biased) reporters is evidenced by the following FACT:** Chan et al performed **TWO distinctly different studies** of healthy individuals subjected to a prone hogtied position. But, in January of 2007, they **artistically reported** their **TWO distinctly different studies** in a manner that combined **both studies’** results into **ONE STUDY’S conclusion**.

**This study was undertaken to determine whether the use of force greater than 22.7 kg might inhibit ventilatory function such that it became a clinically important consideration in the analyses of such deaths. Moreover, we were interested in whether individuals struggling during periods of physical restraint were able to approach the limits of their ventilatory function. This study, which utilized a randomized, cross-over, controlled design, had two parts.**

What Chan et al erroneously identified as a SINGLE study's "**first part**" was the study of effects experienced by rested, entirely healthy individuals, who calmly laid down on a gymnastic mat, voluntarily allowed themselves to be prone-hogtied, and then voluntarily allowed themselves to be subjected to even application of various weights across only their posterior ribcage – **without performing ANY KIND OF "STRUGGLE" during the various weight applications.**

What Chan et al erroneously identified as a SINGLE study's "**second part**" was the study of effects experienced by rested, entirely healthy individuals, who calmly laid down on a gymnastic mat stacked atop a thick mattress, voluntarily allowed themselves to be prone-hogtied, and then voluntarily performed 60 seconds of unquantified "struggle" while in that position – **without ANY WEIGHT being placed ON TOP OF THEIR BACK.**

Clearly, Chan et al performed TWO distinctly different and separate studies – *not* ONE study with two "parts." Were they reliable (unbiased) researchers, Chan et al would have reported TWO study "conclusions": one conclusion for each of their two distinctly different studies.

By reporting the results of two distinctly different studies in a manner that suggested they could legitimately be combined into ONE STUDY's conclusion, Chan et al have – again – aptly demonstrated that they are UNRELIABLE (BIASED) researchers.

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Here is the **SINGLE CONCLUSION** Chan et al suggested should be derived from their January 2007 Report of TWO distinctly different and separate studies' results – in spite of the multiple and significant **design limitations** of **BOTH their studies**:

**In summary, this study attempted to investigate the impact of varying weight force upon the back in healthy individuals in the prone position. We recognize the differences between the laboratory setting and actual field conditions; nonetheless, we found no clinically important restriction of ventilatory reserve when subjects were placed in the PMRP or when prone with up to 90.2 [(typo?) 90.9 kg (199.98 pounds)] or 102.3 kg [225.06 pounds] of weight on their back. ... Based on these observations in healthy subjects, we conclude that PMRP and prone positioning with moderate weight force on the back do not in and of themselves restrict metabolic or ventilatory demands to any clinically important degree.**



Chan et al have demonstrated that they are **biased** study-designers and **unreliable** study reporters since the November of 1997 publication of their first restraint-related study report. \* In spite of the fact that that study yielded clear evidence of prone restraint causing detrimental effects on healthy individuals' ability to breathe, in their 1997 report Chan et al claimed that the detrimental findings were "**not clinically relevant.**"†

Their attempt to deny the importance of those detrimental findings was criticized by many individuals other than "just" ME (Ms. Charly D. Miller). In fact, it was publicly criticized (via a published letter to the Editor) by forensic pathologists Donald T. Reay and John D. Howard:‡

[Chan et al] **measured significant differences in pulmonary function test results between control and restrained individuals, but describe the changes as "not clinically relevant."** ... We agree that many factors should be considered in evaluating a case of sudden death, but urge caution in the application of clinical parameters to the situations of death in police custody that prompted these studies. As physicians ...[and as] forensic pathologists, our training and experience have routinely provided insight into the spectrum of illness, injury, and death that occurs, often quite literally, in the "street" and is not well known to clinicians. ... Applying only "clinically relevant" values to a measurement may lead to misinterpretation of findings in deaths that occur outside the clinical setting.

With their 2007 report, Chan et al have established a **HABIT** of **purposefully misrepresenting study findings** so as to promote their biased, erroneous, and entirely unsupported opinion that forceful-prone-restraint does NOT cause death.

For instance; observe the Maximal Voluntary Ventilation **measurements** ... Chan et al **presented in Table 2** of their January 2007 study report:

Position	MVV (L/min)	
	Mean ± SD	Range
Seated	156 ± 38	75–243
PMRP	128 ± 29	65–193
LW	137 ± 27	85–189
MW	122 ± 31	61–197
HW	109 ± 28	57–167

Chan et al's study subjects' **Maximal Voluntary Ventilation (MVV)** ability can clearly be seen to DIMINISH as their ability to breathe becomes more and more affected by prone positioning and the addition of (ludicrously light) amounts of weight ONLY to the back of their RIBCAGE.

**ADDITIONALLY, when considering Chan et al's Table 2, please recall that:**

- ❖ ALL of these prone and pseudo-weighted study subjects **were young and generally healthy ... and had a high aerobic fitness level.**
- ❖ NONE of them were subjected to pre-restraint PHYSICAL EXERTION.

\* Miller CD. A comprehensive review of frequently misinterpreted and misrepresented restraint research. Three parts, posted in February, March, & August, 2005.

<http://www.charlydmiller.com/LIB05/2005ComprehensiveReview.pdf>

† Chan TC, Vilke GM, Neuman T, Clausen JL. Restraint position and positional asphyxia. *Ann Emerg Med*, November 1997;30:578-586. <http://www.charlydmiller.com/LIB/1997chan01.html>

‡ Howard JD, Reay DT. Letter to the Editor RE: Restraint position and positional asphyxia. *Ann Emerg Med* July 1998; 32(1):116-117. <http://www.charlydmiller.com/LIB/reayannals.html>

- ❖ NONE of them were suffering from extreme FEAR or AGITATION.
- ❖ NONE of them had a FAT BELLY.
- ❖ NONE of them were **STRUGGLING during the various weight applications.**
- ❖ NONE of these prone-positioned study subjects were subjected to weight applied to their LOWER BACK – the POSTERIOR of their ABDOMEN – while they were comfortably resting on a gymnastic mat.

With their 2007 report, Chan et al have also established a **HABIT** of significantly re-wording study reports just prior to publication.\*

In the **2005 paper presentation's conclusion** for their study, Chan et al readily admitted that their study subjects' MVV was **decreased** by prone positioning and posterior ribcage (unrealistically-light) weight application:†

**Significant weight force in the prone position decreases MVV; however, we did not detect decreases below known clinical thresholds for abnormal pulmonary function.**

When penning their **2007 report's conclusion**, Chan et al employed significantly different terminology: **we conclude that PMRP and prone positioning with moderate weight force on the back do not in and of themselves restrict metabolic or ventilatory demands to any clinically important degree.**

Chan et al adore using phrases such as, “**not clinically relevant**” and “**no clinically important restriction**” in their published reports. Why?

Because such phrases help them disguise (hide) the FACT that **they have NEVER designed a study that yielded findings even remotely-related to real-life restraint application. Not ONE study – EVER!**

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## Questions That Will 'Defeat' Those Who Cite The 2007 (**or ANY other**) Chan et al Study

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I'm offering questions designed to “defeat” those who cite Chan et al studies because:

The Chan et al group **PROMOTES** – as well as **ACTIVELY PARTICIPATES** in – **UNETHICAL MISREPRESENTATION of their study findings!**

And, I'm heartily SICK of them getting away with it!

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\* <http://www.charlydmiller.com/LIB05/2005chasresearchreviewpart3.html>

† Vilke GM, Michalewicz BA, Kolkhorst FW, Neuman TS, Chan TC. Does weight force during physical restraint cause respiratory compromise? *Acad Emerg Med* May 2005;12(5 Supplement 1): page 16. <http://www.charlydmiller.com/LIB06/2005newweightstudy.html>

In all of their artistically-written reports, Chan et al usually pay at least **SOME** kind of **lip service** to identifying at least a **FEW** of each study's many **limitations**, as well as alleging (as they did in their January of 2007 report) that they **recognize the differences between the laboratory setting and actual field conditions**.

**HOWEVER.** When Chan et al (**and others of their ilk**) **CITE** these various study reports within "Expert" affidavits or during provision of testimony related to deaths associated with forceful restraint application, they know they'll not be subjected to "peer review!" So, they cite these studies as if their results **CAN** legitimately be applied to **REAL-LIFE SITUATIONS!**

For Instance: In the 1998 case of **Price v County of San Diego**\*, Dr. Thomas S. Neuman "**lied**" – **under oath** – when he knowingly misrepresented the November of 1997 Chan et al study report† and inferred it had **PROVEN** that real-life application of "**hogtie does not affect blood oxygen or carbon dioxide levels. In other words, the impairment is so minor that it does not lead to asphyxia, and in fact has no practical significance.**" Dr. Neuman also **lied** when he inferred that the Chan et al 1997 study report had provided "**clear data that there is no respiratory component to the** [real-life application of] **hogtie position**"!

As he **intended** it to be, Dr. Neuman's false and misleading testimony was interpreted by the court as being "evidence" that law enforcement officers' use of forceful-prone, hogtie restraint – **in a REAL-LIFE situation** – could not possibly have caused "**respiratory**" compromise, and could not possibly have "**lead to asphyxia.**"

Within my 2005 Comprehensive Review, I provided several other examples of Chan et al unethically misrepresenting their various study findings as having a legitimate relationship to real life restraint asphyxia incidents.‡

### **BOTTOM LINE:**

EVERY time ANYONE represents ANY of Chan et al's prone-restraint-related study reports as having **ANY LEGITIMATE RELATIONSHIP** to real-life restraint application, **THEY DO SO KNOWING THAT THEY ARE LYING.**

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ALL of my suggested questions are designed as YES or NO questions.

But! Since ANY "Expert" who authoritatively-cites a Chan et al study (or the like) is a biased and unethical reporter, he will NOT voluntarily answer these questions with only a **YES or NO** answer. Such an "Expert" will babble for a while, in an effort to "qualify" his answer (a desperate effort to avoid having to answer, "NO"). Let the "Expert" babble until he is finished. **Then**, ask the question **again** – this time, **requiring** a YES or NO answer.

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\* UNITED STATES DISTRICT COURT, San Diego, California: Ann PRICE et al., v. County of San Diego et al. January 8, 1998: "FINDINGS OF FACT AND CONCLUSIONS OF LAW"

<http://www.charlydmiller.com/LIB05/1998priceVsandiego.html>

† Chan TC, Vilke GM, Neuman T, Clausen JL. Restraint position and positional asphyxia. *Ann Emerg Med*, November 1997;30:578-586.

‡ <http://www.charlydmiller.com/LIB05/2005ComprehensiveReview.pdf>

If, at ANY TIME, some so-called “Expert” provides a YES or NO answer that does NOT agree with what I have indicated as the correct YES or NO answer: GIVE THE EXPERT A COPY OF THE CITED ARTICLE, AND MAKE HIM READ IT. Then, ask the question again.

If he stupidly persists in providing a FALSE ANSWER to your question, let him. Then, have YOUR Expert carefully explain how the other “Expert” LIED when providing that FALSE ANSWER.

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(1) The easiest way to defeat (refute) an “Expert” who cites ANY of the Chan et al study reports, is to ask questions specifically related to the MANY SITUATIONS a REAL-LIFE VICTIM had to suffer that NO STUDY SUBJECT has EVER had to suffer.

Did the Study Title Here conclusively demonstrate that prone restraint is entirely “SAFE” to apply to individuals who have underlying medical conditions or illnesses? [**Answer = “NO”**]

**If your Victim had a SPECIFIC MEDICAL CONDITION/ILLNESS, use her/his SPECIFIC MEDICAL CONDITION/ILLNESS when asking this question.**

For Instance:

Did the Study Title Here conclusively demonstrate that prone restraint is entirely “SAFE” to apply to individuals who have **Diabetes**? [**Answer = “NO”**]

Did the Study Title Here conclusively demonstrate that prone restraint is entirely “SAFE” to apply to individuals who have a **Seizure disorder**? [**Answer = “NO”**]

And so on.

Did the Study Title Here conclusively demonstrate that prone restraint is entirely “SAFE” to apply to individuals who have unknown traumatic injuries? [**Answer = “NO”**]

**If your Victim had a SPECIFIC TRAUMATIC INJURY, known OR unknown to those who restrained her/him, use THAT SPECIFIC TRAUMATIC INJURY when asking this question.**

Did the Study Title Here conclusively demonstrate that prone restraint is entirely “SAFE” to apply to individuals who are overweight and have **large bellies**? [**Answer = “NO”**]

Did the Study Title Here **conclusively demonstrate** that the form of restraint suffered by Victim’s Name Here **could not possibly have caused** her/his death? [**Answer = “NO”**]

Here are examples of ABBREVIATED STUDY TITLES you can use:

- The “November 1997 Restraint Position study report”  
Chan TC, Vilke GM, Neuman T, Clausen JL.  
Restraint position and positional asphyxia.  
*Ann Emerg Med*, November 1997;30:578-586.  
<http://www.charlydmiller.com/LIB/1997chan01.html>
- The “September 2004 Weighted Restraint Position study report”  
Chan TC; Neuman T; Clausen J; Eisele J; Vilke GM.  
Weight force during prone restraint and respiratory function.  
*Am J Forensic Med Pathol* 25(3):185-189, September 2004.  
<http://www.charlydmiller.com/LIB04/2004ajfmpweightstudy.pdf>

- The “January 2007 Weighted Restraint Position study report”  
Michalewicz BA, Chan TC, Vilke GM, Levy SS, Neuman TS, Kolkhorst FW.  
Ventilatory and metabolic demands during aggressive physical restraint in healthy adults.  
*J Forensic Sci*, January 2007, Vol. 52, No. 1; pgs 171-175.  
<http://www.charlydmiller.com/LIB11/2007Jan225poundsChanEtAl.pdf>

(2) To refute SPECIFIC restraint-related study report citations, you can ask OTHER (more study-specific) questions to force the “Expert” to demonstrate that he ... “ERRED” ... when he wrongly cited a study as though it provided information legitimately related to a victim’s REAL-LIFE restraint-related death.

For Instance:

Did the **November 1997 Restraint Position study report** conclusively demonstrate that **healthy** study subjects experienced a degree of “restrictive pulmonary function pattern” when placed in a prone restraint? **[Answer = “YES”]**

**Follow with:**

So, according to the November 1997 Restraint Position study report, even if Victim’s Name Here was **healthy**, she/he **would have suffered** a degree of “restrictive pulmonary function” while being forcefully placed in a prone restraint position – isn’t that true? **[Answer = “YES”]**

The studies performed for both the September 2004 and January 2007 Weighted Restraint Position reports employed weight application **only** to the back of the subject’s RIBCAGE – isn’t that true? **[Answer = “YES”]**

**Follow with:**

So, neither of the September 2004 or January 2007 Weighted Restraint Position studies employed weight application to an individual’s LOWER BACK and/or HIPS – isn’t that true? **[Answer = “YES”]**

**CONTINUE to Follow with:**

During the prone restraint position suffered by Victim’s Name Here, she/he had weight applied to her/his LOWER BACK and/or HIPS – isn’t that true? **[Answer = “YES”]**

**CONTINUE to Follow with:**

So, **neither of** the September 2004 or January 2007 Weighted Restraint Position studies provided any information that can legitimately be considered as having a **real-life** relationship to what Victim’s Name Here suffered when she/he had weight applied to her/his LOWER BACK and/or HIPS – isn’t that true? **[Answer = “YES”]**

None of the subjects who participated in either of the studies that generated the September 2004 or January 2007 Weighted Restraint Position reports performed any kind of pre-restraint EXERTION prior to having weight placed ONLY on the back of their ribcage – isn’t that true? **[Answer = “YES”]**

**Follow with:**

Victim’s Name Here engaged in a period of significantly EXERTIONAL activity prior to being subjected to weighted, forceful-prone-restraint – isn’t that true? **[Answer = “YES”]**

**CONTINUE to Follow with:**

So, **neither of** the September 2004 or January 2007 Weighted Restraint Position studies provided any information that can legitimately be considered as having a **real-life** relationship to what Victim's Name Here suffered during the weighted, forceful-prone-restraint she/he was subjected to **after** having engaged in a period of significantly EXERTIONAL activity – isn't that true? **[Answer = "YES"]**

None of the subjects who participated in either of the studies that generated the September 2004 or January 2007 Weighted Restraint Position reports performed any kind of EXERTIONAL STRUGGLE **while** they were being subjected to weight placed ONLY on the back of their ribcage – isn't that true? **[Answer = "YES"]**

**Follow with:**

Victim's Name Here engaged in a period of significant EXERTION prior to being restrained, **in addition to** engaging in significantly EXERTIONAL STRUGGLE **while** she/he was being subjected to weighted, forceful-prone-restraint – isn't that true? **[Answer = "YES"]**

**CONTINUE to Follow with:**

So, **neither of** the September 2004 or January 2007 Weighted Restraint Position studies provided any information that can legitimately be considered as having a **real-life** relationship to what Victim's Name Here suffered after having engaged in a period of pre-restraint significant EXERTION, followed by additional EXERTIONAL STRUGGLE during the time she/he was being subjected to weighted, forceful-prone-restraint – isn't that true? **[Answer = "YES"]**

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**LASTLY; Plz visit:**

Miller CD. Motion passes in June of 2006! Dr. Neuman is precluded from testifying that the prone position is "physiologically neutral" because the Chan et al studies' findings are "irrelevant" to real life situations.

**<http://www.charlydmiller.com/LIB09/2006JUN26ChanEtAIPrecluded.html>**

On August 8th, 2006, I received an Email from Joseph McManus, a Hartford, Connecticut attorney. He reported having recently won a civil suit jury trial involving the in-hospital restraint asphyxia death of Mrs. Debhora Bogazis.

**During the course of trial, we also won a victory that may be more interesting to you – namely, I was able to convince the judge to preclude Dr. Neuman from testifying that the prone position is "physiologically neutral" on the basis that his studies are irrelevant. I am told that this was the first time that he was so-precluded.**

Because it was primarily based on the information I provided in my **2005 Comprehensive Review**, Joseph kindly shared his Motion with us (the above link will take you to it).

With THIS review, I've provided MORE information to fuel YOUR Motion to PRECLUDE the Chan et al types from being able to UNETHICALLY MISINTERPRET their study findings in court.

**BTW: When YOUR motion is PASSED, PLZ SHARE IT!**

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## Review Summary

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As with ALL of their previous studies, the study results identified by Chan et al in their January 2007, "**Ventilatory and metabolic demands during aggressive physical restraint in healthy adults**" study report, are entirely IRRELEVANT to the REAL-LIFE relationship between forceful-prone-restraint and restraint asphyxia deaths.

The SAME FACTS identified by my 2005 Comprehensive Review of their earlier study reports REMAIN TRUE for Chan et al's January 2007 study report:

1. No one has ever performed a "clinical study" of the physical effects ACTUALLY experienced by individuals who are subjected to forceful-prone-restraint (or hogtie restraint) during real-life situations.
2. No one has ever performed a "clinical study" proving that no ill effects will occur when an individual is subjected to forceful-prone-restraint (or hogtie restraint) during real-life situations.
3. Unbiased medical and forensic professionals universally agree that application of forceful-prone-restraint during real-life situations (with or without hogtie) is extremely dangerous, is accompanied by a very high risk of causing "wrongful death," and should not be performed by emergency responders (or ANY others).
4. Those who persist in promoting misinterpretation and/or misrepresentation of restraint-asphyxia-related research and review articles are acting in a "morally and ethically indefensible" manner, and are demonstrating the strong likelihood that they have "personal agendas" inconsistent with a concern for preventing death.
5. It is a FACT that, **Theodore Chan et al** have demonstrated that they are quite willing to unethically misrepresent (LIE about) the research they have performed related to HEALTHY individuals being subjected to unrealistic forms of restraint.

But! They CAN be DEFEATED! Use my suggested questions, and HAVE AT THEM!

Sincerely Yours,  
Ms. Charly D. Miller