

**Extracted from Email of Dr. Marla Patel of Risk Red and Ana-Marie Jones,
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By Marla Petal, Risk RED, <http://www.riskred.org>

We simply do NOT have data on causes of deaths and injuries in various types of construction to go on. Walls may fall in, walls may fall out. Domes may stand on columns, domes may collapse. Minarets may fall etc. We NEED this kind of research as much as any kind of risk assessment data! IF anyone is ready to do this in Pakistan, China or elsewhere I am happy to provide survey forms and methods for international comparisons with California (wood frame construction and Turkey (reinforced concrete construction) - the only places for which we have data.

The main points of drop, cover and hold apply with or without anything strong to get under. #1. Drop is mostly to prevent falling injuries - but the true objective is to "Get down on your knees and Make Yourself Small" in order to be a smaller target to falling objects. Expose your back which is the strongest part of your body. This helps to avoid injuries to head, neck and thorax which cause the most severe/fatal injuries. (Fetal position is ok, but depending on your angle you can be rolling around, so better to be in a position of maximum control and mobility, which is a military crawl position on hands and knees close to the ground).

By the way there are many photos of children taking an incorrect squat position. This is inherently unstable! As soon as the shaking starts they will fall over. Please let us all replace these pictures!

#2. Cover and Hold are extra protection for head and neck. This can also be done with pillow, book, book bag, etc. - it can be done anywhere.

PLEASE PLEASE BEWARE that while the concept of a "survivable void space" (sometimes referred to as a "triangle of life" has limited value - we DO NOT have the research to KNOW where those will be found or IF the measures taken will cause more injuries than they save. In all likelihood most of those who perish never had any chance of doing anything at all. Furthermore, and sadly, in many places search and rescue will NOT reach and uncover all of the survivable voids within the 48 hour golden period for survival (or longer....). When they do they won't have medical care to survive crush injuries. So teaching this in any way is really promoting diverting mythology. Similarly running out of multistorey buildings with things debris raining down is really not an option (as you can see from the photographic evidence of heavily damaged buildings). The truer message is that it's too late when it shakes. Safe construction, non-structural mitigation... are the only real safety measures - human behavior during the shaking has limited protective value. In BOTH CALIFORNIA AND TURKEY the people who had the fewest injuries were those who REMAINED ASLEEP IN THEIR BEDS.....

For more details on what we do know from research on causes of deaths and injuries relative to the "Triangle of Life" please read the blog at www.riskred.wordpress.com

Sincerely,

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Drop, Cover and Hold On - Standing in Doorways - Triangle of Life **By Ana-Marie Jones, Executive Director, CARD - Collaborating Agencies Responding to Disasters**

After disasters, when interest in preparedness is high (and public trust is low) we find that misinformation, rumors and scams flourish. The bad news is that this can leave people confused and unable to make well-informed decisions to protect themselves, their families and their communities. The good news is that anyone can help sort through the growing collection of outdated, wrong, or misleading information.

At CARD, we encourage alternative modes of learning and thinking, and we have found it valuable to question even the most widely accepted advice. Below are some of the concepts and conversations we share in CARD classes and presentations when asked about Drop, Cover and Hold On, standing in doorways, and "Triangle of Life."

Please note that this guidance was created for audiences in the United States. Building codes, construction materials, and the typical contents of buildings varies widely from country to country. Also note that the info below does not include the advice we give for people unable to physically do any of these actions.

***About Drop, Cover and Hold On (DCH) ... CARD recommends this method ***

·*Drop*. This is done as a conscious and controlled protective action. It is far better to place yourself gently on the floor, than to have the earthquake violently throw you to the ground.

·*Cover*. Taking cover under sturdy furniture provides some immediate protection from falling debris. Almost any item can be dangerous in an earthquake. Getting hit, cut or injured by objects and debris in your immediate environment is widely considered to be the most likely threat in an earthquake.

·*Hold On*. Earthquakes can come with violent, prolonged shaking. Holding on to sturdy furniture can help stop you from being tossed around. If you are not holding on, the furniture can move away during the shaking, leaving you without protection.

Having a safe place to hide under sturdy furniture can provide some protection in other emergency conditions. This would be true in some explosions, some fire situations, as well as in some domestic violence situations, shootings and home invasions. Some self-defense courses include advice on using sturdy furniture as a protective measure.

You can preposition simple supplies under sturdy furniture. At CARD, we recommend taping whistles, LED mini-flashlights or light sticks, and basic emergency instructions under sturdy desks -- so that you'll have these supplies where you take cover.

***About Standing in Doorways...CARD does NOT recommend this ***

Standing in a doorway is unsafe during an earthquake. This practice is a perfect example of *outdated* information. When we lived in adobe structures for example, the wooden doorframe was often the most solid part of the structure, and we were told that this was the best place to be in an earthquake. With modern building codes, different construction standards, stronger materials, and lessons learned from many earthquakes, this advice is inappropriate.

Unfortunately, it takes time before we realize information is outdated, and there is often great resistance to change. It takes time, awareness and resources to develop new appropriate practices. New trainings must be created to teach new actions, and trainers must be trained to deliver the new information. Then the new, correct information and trainings must be shared with the public.

One of the true challenges is that it is very hard for people to *"unlearn"* incorrect or outdated information. Many people tune-out advice once they think they already know the correct information. Others hear the "new" advice as an additional option, rather than an important life-saving correction, unless the instructor specifically states **why** the old information is no longer accurate.

Below are some of the other items we share in CARD conversations to help people "unlearn" standing in doorways as a protective measure.

--"Standing" anywhere during an earthquake is undesirable. Again, it is far better to put yourself quickly on the floor, than to have the earthquake throw you there.

--Doorways are often pathways to exits - so putting yourself directly in the path of scared people "running for safety" can be dangerous.

--Doorways often have doors in them. These doors tend to swing and slam with the movements of the earthquake. This increases chances of finger or facial injury if the door slams.

--During an earthquake, doorways (especially those leading to the outside) open into the unknown -- where unreinforced masonry, glass shards and other hazards are often found.

There are many reasons why we believe it's the safer choice to **Drop** to the ground, take **Cover** under sturdy furniture, and **Hold On** until the shaking stops. There are many reasons why standing in doorways is dangerous and undesirable.

About the "Triangle of Life"... CARD does NOT recommend this method

The method known as the "Triangle of Life" is mainly promoted by an individual named Doug Copp. He identifies himself as being with an organization called ARTI – American Rescue Team International. His method has been shared across the United States in the form of an email. The "Triangle of Life" email states that if you Drop, Cover and Hold On in an earthquake, you'll be crushed to death.

Item #5 in the email promoting this method advises:

*"*If an earthquake happens while you are watching television and you cannot easily escape by getting out the door or window, then lie down and curl up in the fetal position next to a sofa or large chair*."*

Copp maintains that by being in this position, you will be safe when the building collapses, because the furniture (since it is dense and will not compact much) will help create a triangle-shaped void, which he calls the "Triangle of Life."

Most all of the reputable disaster response and preparation agencies dispute this method. However, this fact is not what makes me reject it. After all, CARD embraces a method and

message that differs greatly from the traditional approach.

The arguments against the "Triangle of Life" are many, including:

--Thanks to enforced building codes and higher construction standards, the complete pancake collapse of the entire building is not the most likely threat we face from earthquakes in the United States. Complete pancake collapse is actually quite rare.

--The "Triangle of Life" positioning immediately exposes you to some of the most likely and most known threats, including being hit, cut, injured or killed by the contents of the room you are in -- when objects start moving violently in an earthquake.

--While "triangles" (what professional rescuers call 'void spaces' or 'life safe voids') are found AFTER the movement stops, it is not yet possible to determine where those voids will be BEFORE the movement starts. Furniture and other objects can move great distances in a major earthquake, sometimes all the way across the room. The fact that a void space is found near where an object landed AFTER the shaking stopped, does not mean its original location was a safe space for you to put your body BEFORE the movement started.

Last year I was teaching a class in Southern California and I met a woman who identified herself as being with ARTI. She promotes the "Triangle of Life" as the method to use in response to earthquakes. I asked her if she would tell me about the method from her perspective. We had a nice long conversation over the phone.

The complete, total, pancake collapse of structures is central to their belief and their argument for promoting the method. As I recall, reports indicate that *less than* 2.5% of all buildings damaged in the massive Kocaeli/Izmit earthquake (Turkey, August 1999, 7.4) suffered complete pancake collapse. Even in heavily damaged buildings, most people were not killed -- approximately 1 in 20 overall. After hearing the explanation directly from a representative of ARTI, I am not at all moved to change my position.

Below are some links to what our traditional emergency response partners say about this issue and some of what has been posted about the controversy.

California OES response:

<http://www.cert-la.com/OES-Memo-on-DCH-Procedure.pdf>

Earthquake Country: <http://www.earthquakecountry.info/dropcoverholdon/>

USGS: <http://earthquake.usgs.gov/learning/faq.php?categoryID=6&faqID=141>

Articles about Doug Copp, the creator of the "Triangle of Life":

<http://www.abqjournal.com/terror/>

Snopes Urban Legends Page: <http://www.snopes.com/crime/warnings/triangle.asp>

Rumors, scams, hoaxes and good old-fashioned wrong information about threats and personal safety issues are costly. Losses come in the form of lost productivity, wasted dollars, increased anxiety and diminished trust – none of which can we afford.

*Here is the GREAT NEWS: Anyone can help stop outdated, incorrect or misleading information from hurting our community! *

CARD suggestions:

- 1) Seize the Teachable Moment! Even ridiculous rumors and misinformation present an opportunity to educate and motivate your audiences about safety and preparedness. Seize every chance to provide the correct information, dispel rumors, and bust scams.
- 2) Create a 'Rumors' page on your website. Post information to stop incorrect information, scams and rumors from hurting your community. Send reminders to people to check the rumors page BEFORE they pass along suspicious information.
- 3) Post rumor-busting information in a designated space, such as the snack area or mailroom bulletin board. Many people do not surf the web looking for this kind of information. At CARD, we are major promoters of Potty Poster Preparedness -- these posters are designed to share empowered safety and preparedness information with captive audiences, such as users of your restroom. Post information where people will read it.
- 4) Consider linking to sites like [www.Snopes.com](http://www.snopes.com) <<http://www.snopes.com/>>. Barbara and David Mikkelson maintain Snopes, and they debunk urban legends and rumors of many kinds. A quick visit to the site and you'll find many examples of safety and disaster related rumors, scams and misinformation. The "Triangle of Life" email is there, as well as many variations of 9/11 and Y2K fiction and falsehoods.
- 5) Search your own website and resources. Make sure you have removed any incorrect, outdated or misleading information. If you are using booklets or pamphlets or other resources that contain outdated or wrong information, consider creating correction stickers to place on the cover or over the incorrect advice.
- 6) If you have forwarded incorrect information, be super-zealous about retracting the wrong information and providing correct information in its place.
- 7) Help your audiences to be more empowered consumers and more astute readers. Some of the claims that float around are simply absurd. They get forwarded onward simply because it has some small grain of truth AND the person passed it on without thinking. Help people to think it through for themselves.

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