

# Putting the Fatality Numbers Into Perspective

by *Gerry Smedinghoff*

No doubt about it, a 50 percent increase in skydiving fatalities in 1998 is cause for serious concern.

Two questions skydivers are naturally asking themselves:

1. What does the recent increase in fatalities mean for the sport? 2. What does this alarming trend mean to me personally?

While there is no one right answer to either of these questions, skydivers should consider the actuarial perspectives on both the "hard numbers" and the "soft," personal issues. Because, like the occasional stock market crashes of the past two decades, the perspectives are prone to over-dramatization by painting dark apocalyptic scenarios. But actually they represent random fluctuations on the road of a positive trend.

**Question One:** What does the recent increase in fatalities mean for the sport?

By themselves, numbers alone are meaningless. Whenever you're dealing with numbers, you have to answer the question, "Compared to what?"

To make an appropriate comparison, you have to (1) choose an appropriate time horizon, and (2) adjust the data for exposures.

**Time Horizon:** While the 48 fatalities in 1998 represents a 50 percent increase over the 32 fatalities in 1997, skydiving data lacks actuarial credibility, i.e., there isn't enough annual data from which to draw valid conclusions.

Credibility can be achieved by considering data over several years instead of just one. Using a 10-year moving average, skydiving fatalities have steadily dropped from a high of 47 in the early 1980s to about 30 throughout the 1990s—more than a 50 percent decrease.

**Adjust for Exposures:** The failure to adjust data for exposures is the most common error in the interpretation of statistical data and probably what prompted Mark Twain's warning about "Lies, damned lies and statistics!"

The fact that 48 skydivers died in 1998 means very little unless you compare it to a meaningful exposure base such as total number of skydivers. If there are only 50 skydivers, then 48 deaths translates into a 96% annual fatality rate. But if there are 50,000 skydivers, this translates into a 0.1% (one in 1,000) fatality rate—much closer to reality.

Expanding the time horizon from one year to 10 dramatically improves the story of skydiving fatality data. Adjusting for exposures reveals an even better picture. Using "deaths per USPA member" as a measure of skydiving safety in conjunction with a 10-year moving average, fatalities have dropped from 2.5 per 1,000 members in the mid-1980s to about 1.0 per 1,000 in the late 1990s—an indisputably impressive 60% improvement.

**Question Two:** What does this alarming trend mean to me personally?

Now that we've done the math, let's get personal, because you have to adjust the data for your personal experience as well. If it seems to you that the number of skydivers you know personally who died jumping has risen to an uncomfortable level, you're correct. But—and this is something only you can decide—your observation may be as trivial as your "amazing discovery" that water runs downhill.

As noted above, people can misinterpret numerical data if they don't make the appropriate adjustments. The same applies to personal experiences: people mistakenly apply

the aggregated experiences of the "average person" to themselves or to others who are far from average. Since skydivers definitely do not represent the average, they should not compare themselves to cross-sectional surveys of the general public.

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So where should skydivers look for a perspective on their chosen lifestyle, and how should they gauge whether the general trends that affect them are getting better or worse? Since the ratio of the U.S. population to USPA members is similar to the ratio of USPA members to U.S. presidents, we'll consider the select group of recent presidents, examine how their experience deviates from the norm, and highlight what adjustments they need to make to account for their unique status.

A classic case study of faulty statistical interpretation involves the deaths of anyone who either knew John F. Kennedy or was in some way related to the investigation of his assassination. Conspiracy theorists mindlessly count the number of such people who have died, do a few sloppy calculations, and conclude that the chances of all these people dying is so remote, that they all must have been murdered by the CIA, FBI or KGB.

The next generation of conspiracy theorists are trying to make a similar case against

Bill Clinton using the same suspect logic by counting all the people who knew or worked with Bill Clinton who are now dead—as if they were mysteriously tumbling out of the sky.

Since comparable lists of mysterious deaths can be compiled for the acquaintances of most any celebrity, from Billy Graham to Oprah Winfrey, this methodology is wrought with errors. But it's also easy to fall prey to.

To get a better perspective, take a moment to step out of the realm of skydiving and consider what it's like to be president of the United States. Specifically, consider the following five variables that separate presidents from skydivers, and note how they also separate skydivers from the rest of society.

**Contacts:** Most people spend their days with a closed circle of a dozen or so coworkers who don't change on a regular basis. But when you're the president, you meet and have your picture taken with a dozen or more new people each day. Extending this concept, the more people you know, the more funerals you'll attend because you'll have more friends and acquaintances who die.

Skydiving is a group activity with random interactions, unlike golf, which confines itself to small stable groups. Golfers can play for years with the same foursome wherever they go. And you won't find the term "boogie" in a golfer's vocabulary.

With skydivers, a different set of jumpers will show up on any given weekend. And every DZ provides unique experiences of social interaction. Even without the added risk of the sport, because they have a wider circle of friends, skydivers will find themselves attending more funerals than golfers.

**Age/Experience:** By definition, the older you are, the more people you know. Simply because you've had more time to meet more people. Bill Clinton has been meeting and schmoozing with the general public for three

decades. He can fill a ballroom with over 500 people willing to pay \$1,000 a plate to eat dinner with him.

While you probably don't have such a commanding presence, your personality and avocation place you farther along the socially interactive scale than the vast majority of the population.

If you've been a skydiver for 20 years, you know a lot more skydivers than someone who has been in the sport for only two years. And it's much more likely that you'll have met someone who winds up on the annual fatality list.

Also, you attend more funerals as you grow older because (a) you have more friends and contacts, and (b) older people are more likely to die than younger people. Again, many friends = many funerals.

**Situation/Occupation:** The president of the United States is always surrounded by a host of body guards, all of whom have chosen law enforcement as a profession. Like skydivers, police officers and firefighters have deliberately chosen a high risk lifestyle. The president also spends a great deal of time with high profile power brokers such as bankers, lawyers, judges, business owners and other politicians. Since these people are generally in their 50s and 60s (how many 26-year-old CEOs are there?), they're more likely to die than the friends and contacts of the average Joe Six-Pack.

If you're a skydiver, police officer or firefighter, you're much more likely to die an early death than Joe Six-Pack. And if you're a skydiver on the weekend, and employed in a high-risk occupation during the week, then

you're "double-dipping" in the networking circles of untimely deaths. Not only do you know (too many) coworkers who have died in the line of duty Monday through Friday, but you also know (too many) skydivers who have died in the line of recreation on Saturday and Sunday.

**Memory:** If you've been married for longer than you remember (or longer than you want to admit), you've probably had the experience of going through the pictures in your wedding album and wondered, "Who is that guy? I don't remember him at all. I didn't invite him."

If not, then you've surely had the experience of meeting someone at a party, and, after a brief conversation, had someone ask you, "I'm sorry, I forgot. What was your name again?"

Presidents don't have this problem. But, to a lesser degree, skydivers don't either. It's fairly easy to forget the name of someone who you've exchanged trivial pleasantries with and chatted about the weather. It's not so easy to forget the name of a skydiver who you've dirt-dived with, ridden to altitude with, jumped with, debriefed with and bonded over beers with.

**Feedback:** When Joe Six-Pack moves and or changes jobs, there's little incentive for his coworkers and acquaintances to keep in touch with him. But if Joe Six-Pack happens to be Bill Clinton, then everyone who's ever met him comes out of the woodwork to recall "the good old days" and to ask him for a favor. With skydivers, however, the unexpected voices from the past often bring news of a fatality.

When an autoworker dies on the assembly line, the city of Detroit doesn't lower its flags to half-mast. But when a skydiver dies in action, the news is broadcast to the rest of the skydiving world, both to mourn the loss and to extract lessons from the tragedy. Like police officers, firefighters, U.S. Marines, and any other high-risk occupation: once a skydiver, always a skydiver.

To illustrate the impact of a well-developed feedback loop, I offer a personal experience.

Within a year after I left a large insurance company, five former coworkers had died, all well before their time:

- One (age 31) in a one car accident—assumed to have fallen asleep at the wheel in the early morning hours.
- One (under 30) from medical complications following relatively minor surgery.
- One (mid 30s) from cancer.
- One (age 40) committed suicide.
- One (early 50s) from a blood clot.

If it wasn't for an e-mail inadvertently forwarded to me (feedback that wasn't possible a decade ago), I would not have learned of four of these fatalities. However, there are at least 100 other people I used to work with (none of whom are skydivers or ex-presidents) who knew the five people mentioned above and are left to wonder, "This is scary! Is this a trend? Am I next?"

Putting all of this together, skydivers in general:

- Know more people because high social interaction is a basic requirement of the sport.
- Widen their circle of contacts each year

they continue to skydive.

- Have chosen to join a high risk group on the weekend, just as many more do so on their regular job during the week.
- Are more likely to remember the people they jump with because they bond with them much more intensely than common casual social interactions.

• Have a virtually error-free feedback loop. When a skydiver dies anywhere in the U.S., everyone finds out about it relatively quickly and usually in detail.

None of these factors apply to the typical accountant, butcher, cab driver, or the vast majority of the general public.

So don't judge your personal experience by the standards of the majority of people you know, because they don't apply. You have to set your own standards and make your own judgments. Like the president of the United States, you need to make appropriate adjustments for the size of your circle of contacts, your age and experience, your decision to be a skydiver, your heightened memory, and your error-free feedback loop.

Because your ongoing assessment will be highly personal and unique, no one can prove you wrong, and you can't prove to anyone else that you're right. But, *no*, it's not a conspiracy (you chose to accept the risks that come with skydiving). And, like a down day on Wall Street, while it may be bad news in the short term, the long term trend is improving.

*(Gerry Smedinghoff is an actuary and manufacturing consultant in Wheaton, Ill. He learned to skydive last summer at Skydive Virginia in Louisa.)*