

Hang Gliding Accidents - The First 20 Years

Hang gliding has been around for twenty years now. In that short period of time, the sport has matured tremendously and safety has improved dramatically. There are a number of factors involved in this improvement, and it is interesting to contemplate the fact that driving a car may be more dangerous than flying a hang glider.

While it is true that in the early days of hang gliding there was a plethora of foolish mistakes and a soaring number of fatalities which reached 40 a year by 1974. We learned rapidly by our mistakes and by 1977 had dropped our annual mortality to under 25. By 1984 we were able to reduce it to under 10 per year, where it has essentially remained for the last six years.

Statistically, hang gliding is one of the safest forms of aviation activity. The standard method of comparing fatality data is to count the number of deaths that occur per year and divide that by the number of participants. This is then converted to fatalities per 100,000 participants. With a participation figure of over 30,000, this translates into a rate of 25 to 30 fatalities per 100,000 participants. For general aviation, (small, private airplanes) the rate is 145. For sailplanes (gliders) the rate is 45. Skydiving is 25, and hang gliding is between 25 and 30 per year for the past few years. (For automobile accidents, the rate is about 28 fatalities per 100,000 participants.) So hang gliding has become a safe and respectable form of aviation.

The improvements in hang gliding safety have come about as a result of hard work on the part of many people and vigorous efforts by the USHGA and hang glider manufacturers:

- First and foremost has been the development and widespread implementation of an instructor certification program for teaching new students. This is in concert with a rating program that quantifies the skills and abilities of a particular pilot. Along with that has been the educational and information distribution role of Hang Gliding Magazine.
- There has been the formation and maturation of the Hang Glider Manufacturer Association with its glider testing and certification program. The gliders are more airworthy, a lot safer and stronger than they used to be.
- The development and universal use of helmets and parachutes. Initially the parachutes were hand thrown, and saved between 15 and 20 lives per year since their introduction in the late 70's. Now the development of rocket deployed chutes will advance and expand the benefits of parachute protection.
- The acceptance of a manufacturer and dealer test flight program to assure that each glider delivered to a pilot is ready and safe to fly.
- The growing numbers of hang glider maintenance and repair shops, where routine maintenance and replacement can be done.

These shops provide a place where used gliders can be inspected and repaired before being flown by their new owner. -The continued safety activities of local clubs and USHGA chapters in working with new pilots, disseminating information in newsletters and regulating sites, on the local level.

To be safely practiced, the launch and landing areas must possess certain features, either naturally occurring or created, so that take off and landing can be done without concern for obstructions or other attention distracting features.

The launch should face the prevailing wind direction. The slope must be fairly steep. There can be no obstructions or hindrances--either rocks, bushes, rough terrain, trees or other obstructions--in the flight path after launch. This may require some ground work, occasionally a constructed ramp, or the clearing of trees. Road access to launch and a flat clear setup area are desirable.

The landing area must ideally be large (a couple of football fields in size), flat, smooth, grassy (not too tall), and be free of obstructions--bushes, fences, pipes, buildings etc). The landing approaches should also be free of obstructions such as trees, power lines, towers and the like.

It is obvious that the local hang gliding club involvement is essential in the development, preparation, rating and regulation of a new site in order for hang gliding activities to proceed safely. There are countless examples throughout the country where this has been done, benefitting both the hang gliding community and the general public.

The safety record of the USHGA has been created and maintained by the efforts of it's members. The system is entirely voluntary and there is no governmental control or regulation. Each site in the US has been developed and is regulated by the local hang glider pilots. Their concern for safety and their ability to attain an exemplary safety record has allowed continued site use and further site development.

The USHGA is indeed proud of these accomplishment.

RISK COMPARISONS

	<u>PARTICIPANTS</u>	<u>FATALITIES PER YEAR</u>	<u>RATE PER 100,000 PARTICIPANTS</u>
Traffic Fatalities	162,850,000	46,000	28
Traffic Fatalities 15-25 year old male			50
All accidents	230,000,000	96,000	42
Power Boat Race	7,000	5	71
SCUBA	300,000	140	47
Mountaineering	60,000	30	50
Boxing	6,000	3	50
Peace Corps			42
All Terrain Vehicle			36

AIR VEHICLES

	<u>PARTICIPANTS</u>	<u>FATALITIES PER YEAR</u>	<u>RATE PER 100,000 PARTICIPANTS</u>
Air Show	1,000	5	500
Homebuilt	8,000	25	312
General Aviation	550,000	800	107 145
Sailplane	20,000	9	45
Balloon	4500	3	67
Hang gliding	25,000	Best: 5 Worst: 18 Ave.: 10	20 72 40
Skydiving	110,000	28	25

Now I remember why I never finished this when I got into it several years ago. What a mess! Last time I tried to get across that the hang gliding fatality rate data was fairly soft and how difficult it was to get good, solid numbers. Well, the data for other air vehicles, and particularly other risk sports isn't just soft; it is a virtual quagmire of quicksand.

I have put together the above table, but please recognize that it is not very accurate. Some of the data is extremely good, such as with the Soaring Society (sailplane) and with skydiving. But in other instances, the assumptions and guesses are extremely wild. From talking to actuaries at numerous insurance companies, from looking up tables and forms which supposedly show what is going on, and from phone calls to a multitude of organizations, the fact is that nobody really knows what is going on. But, it is the best I could do given the time frame.

I will continue to struggle with these and other numbers over the next six months, and I may be able to put together something a little better later on. No promises, however. But I do have a sincere interest in an honest presentation of how risky our sport is, and I think we have some reasonably good figures.

My primary concern with generating these figures, however, is that if they are to be compared to other hazardous sports and other forms of aviation, I sure would like the other sporting organizations to compute their fatality data in an honest way and use a similar approach to hang gliding such that the comparisons will indeed be accurate.

To review the hang gliding figures for a moment, you will remember last month that we presented a table whereby if you knew how many hang gliding fatalities there were, assuming the number of participants was constant, one could easily find the rate per 100,000 participants. I feel quite confident in stating that our "average" number of fatalities per year is going to be in the 8-10 range. I think we can achieve this. I don't think we can consistently be much below this level, and I think it is honest to use a number somewhere in that ballpark.

On the other hand, looking at the actual numbers (which we are obligated to do) the last two years have not been favorable. Twelve and 18 fatalities put the actual average for the past 5 years at 10 fatalities per year. In our best year, 1986, we had 5 fatalities. So far in 1989, we have had 5 fatalities and if we could finish out the year at 5, our fatality rate per 100,000 participants would be 20. That is extremely favorable and beats out most other forms of aviation, not to mention other risk sports.

I would like to see us in the 5, 6 or 7 range, particularly if we honestly increase the denominator, the number of participants, since if we persist for a few years with a highly favorable rate, we can gradually get the life insurance companies to issue us life insurance, possibly without an extra fee (rider); we can get disability insurance; and our general reputation will improve because of the hard facts.

As I stated above, the sailplane numbers are very accurate. Their statistics may, in fact, be a little better than presented, since I suspect they are counting only active pilots and members of the society and probably have not included students. The skydiving numbers are also quite accurate. Their safety has improved significantly over the last several years. They definitely count everyone who jumps out of an airplane.

Again, let me emphasize that many of the other activities presented in the table have very soft and inaccurate figures, but they were the best I could do. Again, any and all input from you, the readers, is avidly solicited.

Let me digress for a moment to reemphasize how difficult it is to get fatality rates based on number of participants. Also, the primary reason for going to other forms of denominators, that is, number of air hours, number of flights, number of times that one "does it," are almost always computed in an attempt to try to make one's particular activity look better in those cases where it doesn't look so good based on number of participants. I can, have and will compute data based on air hours, number of flights, etc., but again that information is much more difficult to obtain, and I am yet to be convinced that a flight in an airplane, a flight in a balloon, a jump out of an airplane and a hang gliding launch can be relevantly compared.

To repeat, the bottom line and the reason that I believe we should go through the hassles of trying to collect this data for hang gliding is that I think we can show that we are really doing pretty good. I think the general public needs to know that, I think the insurance actuarials need to know that, and most of all I think we need to know that.

Please forward any and all input you have so we can continue to refine and improve our numbers. Thank you.

Douglas H. Hildreth

DHH:jt
t: 10/31/89

TABLE

HANG GLIDING FATALITIES

1970	0
1971	2
1972	4
1973	9
1974	40
1975	32
1976	38
1977	24
1978	23
1979	30
1980	23
1981	21
1982	12
1983	14
1984	8
1985	9
1986	5
1987	18
1988	12
1989	6
1990	8
1991	9

Last 5 year average = 10 fatalities per year.