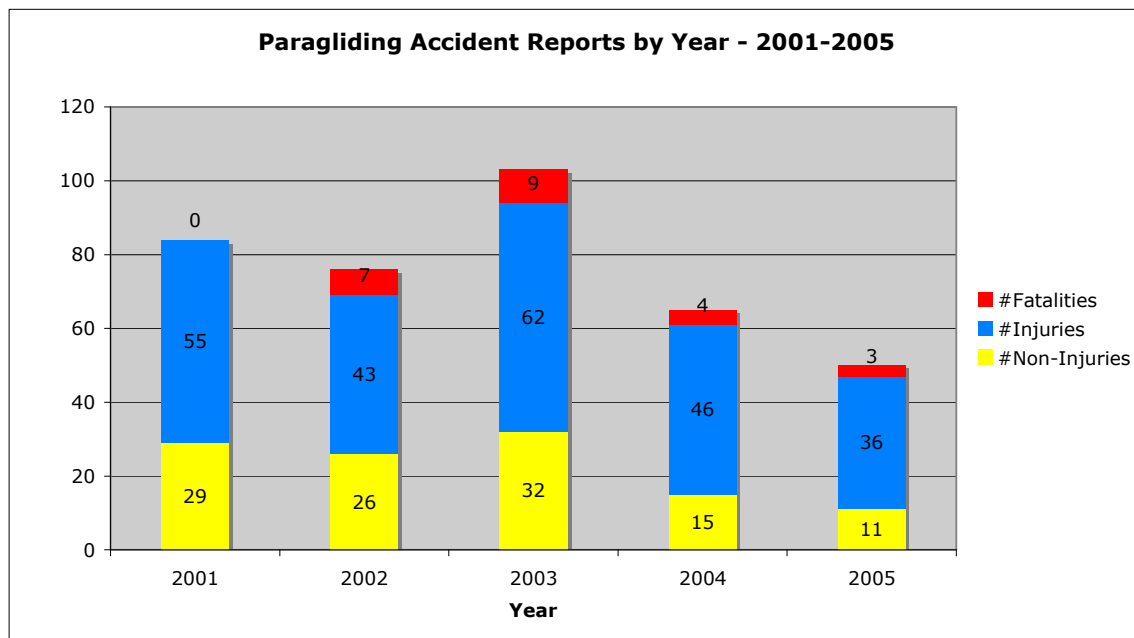


2005 U.S. Paragliding Accident Summary

by JimLittle[at]mac[dot]com

USHGA received only 50 paragliding reports in 2005, which is the lowest number of reports in the past five years. Eleven of the reports (22%) were **incidents**, which are defined as any outcome of a flight that was not intended by the pilot but did not result in an injury. Thirty-nine of the reports (78%) were for **accidents**, which are defined as any event resulting in an injury or death to the passenger or pilot.



It is important to recognize the limitations of this data. Because reporting is voluntary, many incidents and minor injury accidents don't get reported. Conversely, all fatalities and most serious injuries get reported. Therefore, these statistics tend to overestimate the severity of injuries. You can help us improve the safety of our sport by reporting every incident or accident. It takes only a few minutes to report accidents using the online form at <http://www.ushga.org/emailacc.asp>.

This year we will be analyzing the data over the past five years, looking for trends over time. By combining data across the years, I hope to provide more meaningful analysis of the factors that lead to accidents, and eliminate some of the random statistical variances that occur with voluntary reporting.

Fatalities

There were three paragliding fatalities occurring in the US in 2005. This is a slight decrease in the number from the previous few years.

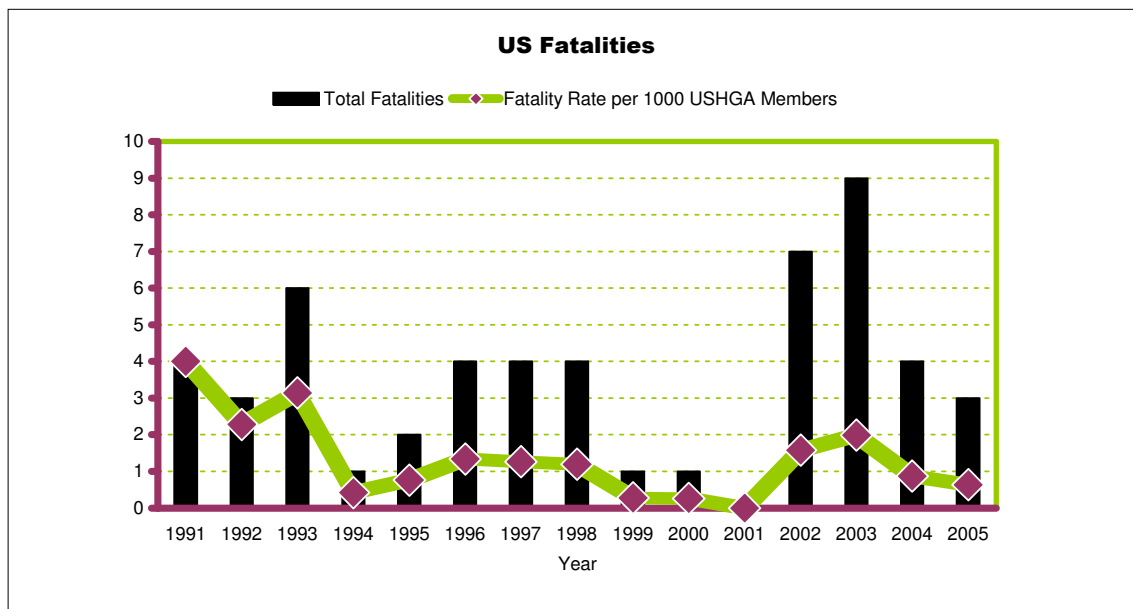
Two of the fatalities in 2005 were newer P2 pilots who were doing wingovers over the landing zone. In one of the fatalities, the pilot was doing wingovers under radio instruction from the ground. After several poorly timed wingovers, he experienced a large collapse, and entered into a steep spiral dive from about 700 feet above the ground. He impacted the ground after just three

revolutions. Pilots did not witness the second fatality, but non-pilot witnesses describe the pilot doing what sounds like wingovers and then entering a fast spiral. In a steep spiral, the rate of descent can be well over 1000 feet per minute and the rotational velocity of the pilot can exceed 60 miles per hour resulting in a high-energy impact with the ground. Neither pilot deployed their reserve.

Newer pilots in particular should recognize that poorly executed wingovers may result in large collapses and steep spiral dives. Wingovers may look easy to perform, but they are difficult to perform well. Pilots should treat all aerobatic maneuvers with respect. If you are going to learn aerobatics, it is best to learn them with a good instructor, over water, with proper rescue equipment. Performing any aerobatic maneuver over ground, even one as apparently simple as wingovers, should be done with sufficient altitude to recover from a spiral, and if that is unsuccessful to deploy your reserve.

The third fatality was a P3 pilot who impacted trees bordering on the landing zone and fell to the ground. The initiating event wasn't witnessed, but it was speculated the pilot either misjudged final glide or encountered turbulence along the tree line. One reporter described the conditions as mild at the time of the accident, but another reporter stated there were strong thermal conditions and wind.

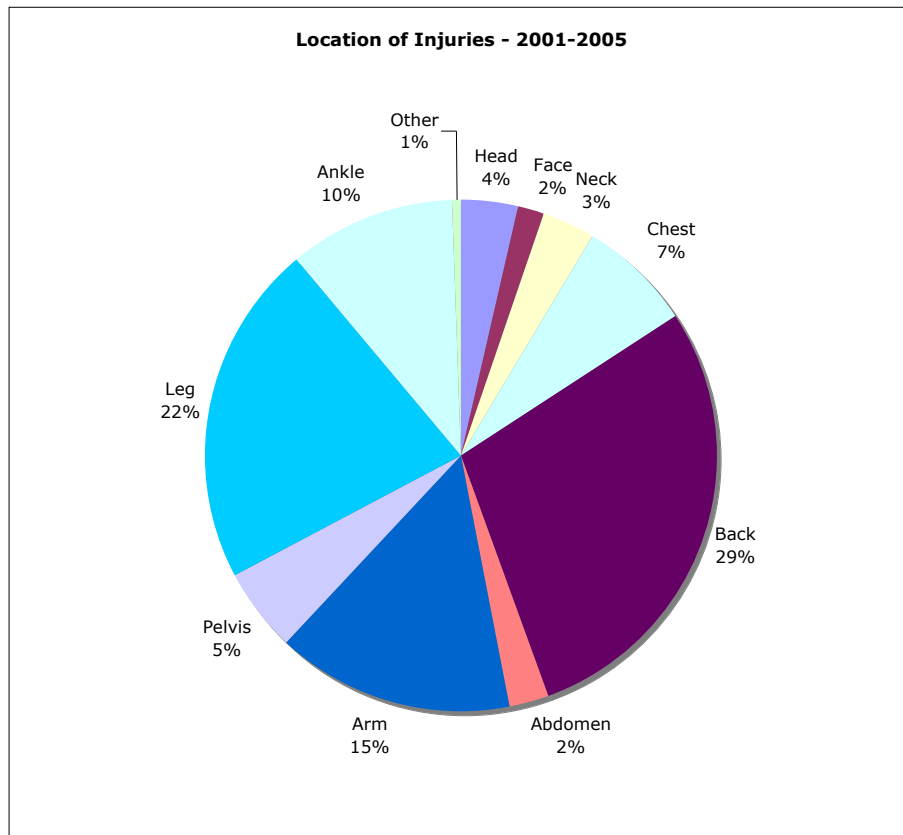
Between 1991 and 2005 there have been a total of 53 known paragliding fatalities in the United States. This includes foot and tow launched fatalities, but not powered paragliders. For calculations of accident rates, it would be helpful to know the number of active pilots, the number of flights, or the number of flight hours each year. Since that data isn't available, USHGA membership data is best available denominator to calculate accident rates. The average fatality rate per thousand USHGA members per year over this 15-year period is 1.33. In other words, each year for every 1,000 USHGA paraglider members, 1.33 paraglider pilots die in paragliding accidents. If you exclude the years 1991-1993 when paragliding equipment and training was in its infancy, the fatality rate per 1,000 members drops to 0.88.



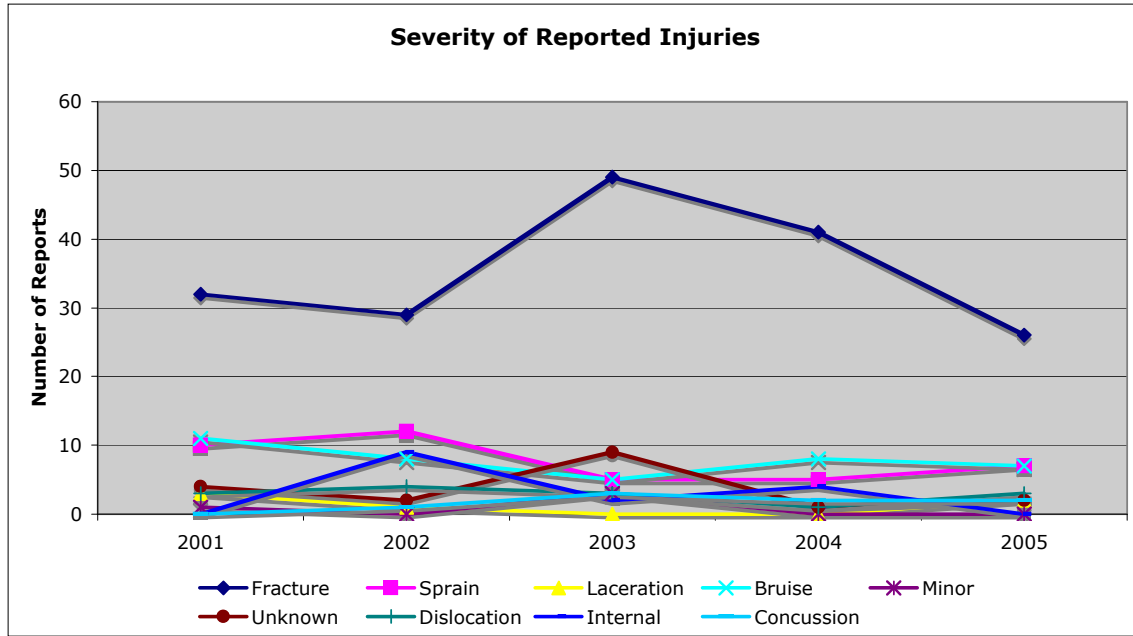
Location & Severity of Injuries

Thirty-two pilots or passengers were injured in 2005. Of these, 31 received medical treatment, and 15 were hospitalized overnight.

Over the five years from 2001-2005, injuries were distributed as shown below. Note that since many accidents involve more than one injury, the total number of injuries exceeds the number of accidents reported.

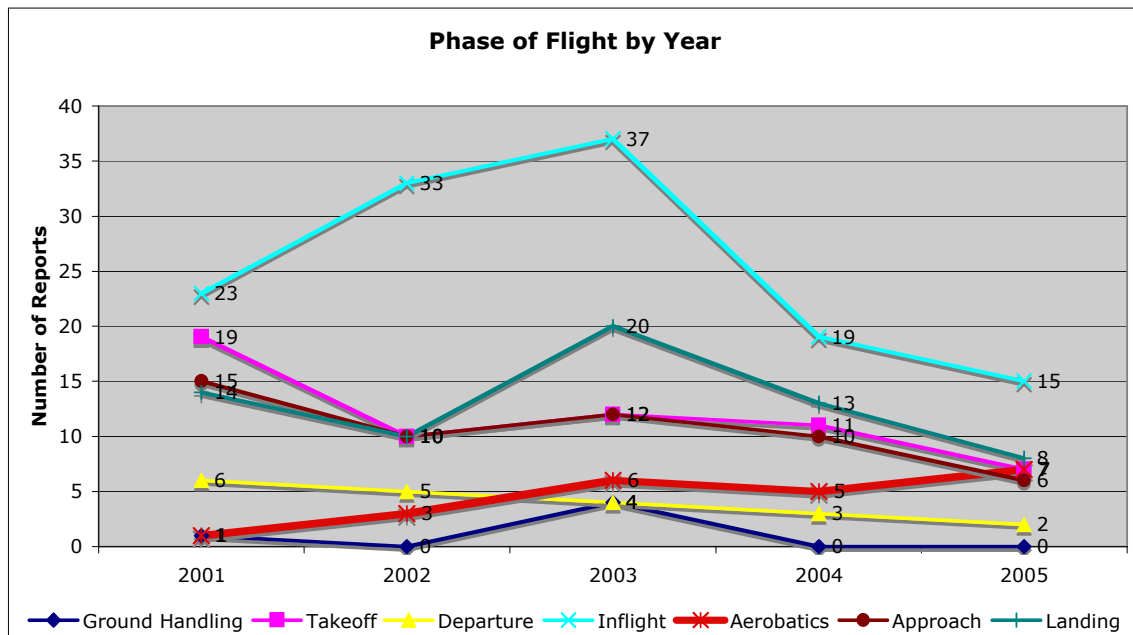


Not surprisingly, leg and ankle injuries are the most common, accounting for 104 (32%) of the reported injuries. Back injuries were the next highest category, with a total of 95 back injuries reported, or 29% of the total. Of the back injuries reported, 63 of the 95 were fractures of the vertebrae. Spine and leg fractures remain the most common causes of long-term disability for pilots.



By far, the most common injuries reported were fractures. There were 179 fractures reported from 2001-2005, which is 68% of the reported injuries. It is likely that selective reporting skews this data. Injuries less severe than a fracture are less likely to be reported, and a pilot who fractures a bone will likely list that injury, but may not report more minor bruises and lacerations from the same accident. The peak in fractures reported in 2003 is accounted for by the increased number of reports received that year.

Phase of Flight



Over the past five years, the only phase of flight that has seen a significant increase in accidents are aerobatics accidents. If you account for the diminished number of accident reports in 2004 and 2005, this trend is even more pronounced. In 2001, only one out of 81 accidents was due to aerobatics (1.2%). But in 2005, seven out of 50 accidents (14%) involved aerobatics, including two fatalities. In addition, there were two serious injuries occurring in 2005 during aerobatics training sessions over water. In both cases, the pilots impacted the water at high velocity. One pilot dislocated his shoulder, the other may have passed-out prior to impacting the water due to g-forces from the maneuvers. Attentive tow crews rescued both. Although performing aerobatics over water is safer than over ground, there are still significant risks involved and having a trained crew available in the event of emergency is essential. The spike in in-flight incidents is mostly accounted for by variation in the total number of reports received.

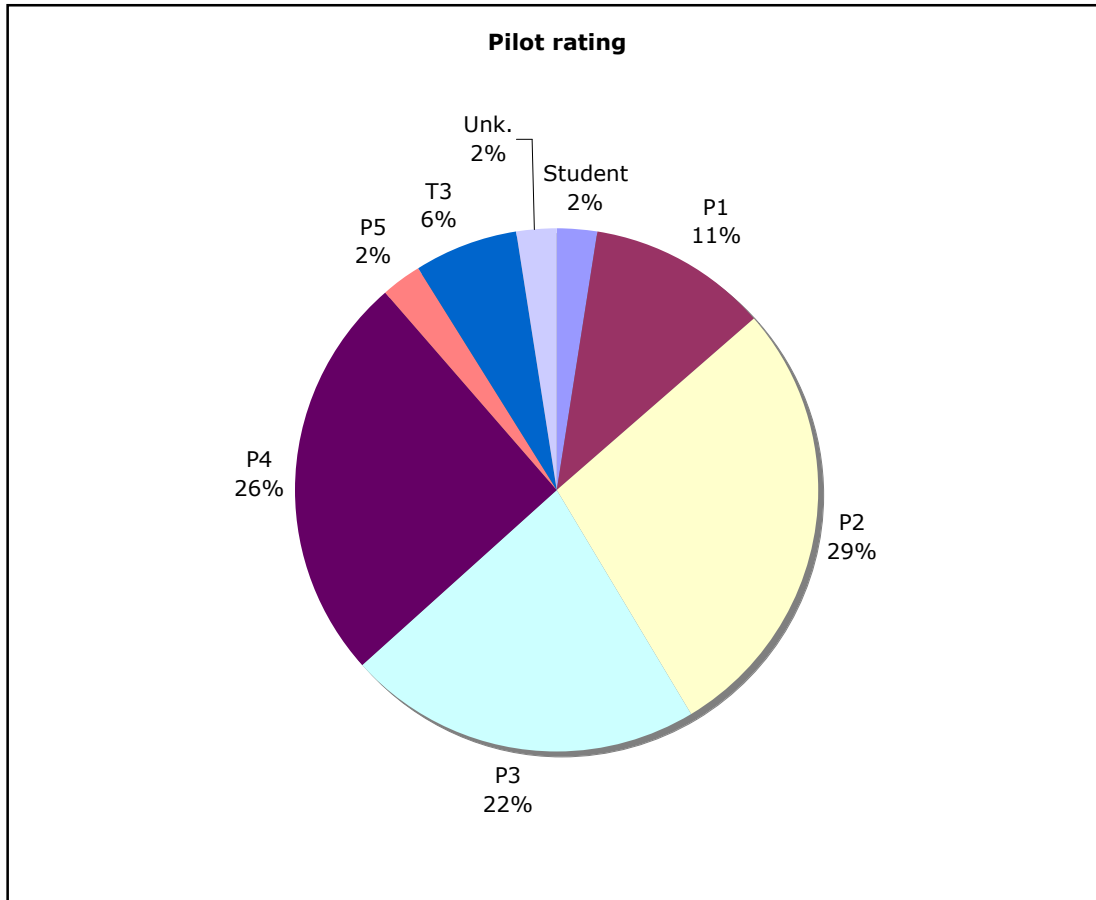
Contributing Factors

The following are the 25 most commonly cited factors contributing to accidents from 2001-2005. Keep in mind that most accidents have more than one cause.

Thermal Turbulence	69	18.25%
Strong Wind	52	13.76%
Asymmetric Deflation	48	12.70%
Too close to Ground	46	12.17%
Rotor	45	11.90%
Outside LZ	40	10.58%
Poorly Inflated Takeoff	39	10.32%
Stall	29	7.67%
Under Instruction	29	7.67%
Obstacle in LZ	28	7.41%
Spiral Dive	27	7.14%
Aerobatics	26	6.88%
Negative Spin	23	6.08%
Turning in LZ	22	5.82%
Preflight Error	18	4.76%
Blown back	18	4.76%
Hill Collision	15	3.97%
Power Lines	14	3.70%
Turning into Ridge	14	3.70%
Line Tangle	14	3.70%
Lack of pilot Currency	14	3.70%
Panic	12	3.17%
Mid-Air Collision	12	3.17%
Dragged by wind	12	3.17%
New Equipment	12	3.17%

The most commonly occurring accident scenario is an asymmetric collapse leading to a spiral while flying close to the ground during takeoff, landing, or ridge soaring. The one “predictable” thing we know about weather is that conditions are unpredictable, so pilots should always be prepared for this scenario. Providing adequate ground clearance to deploy your reserve is the best safety policy. When this isn’t possible, limit your time at low altitude.

Pilot Rating



Rating of Wing

Here are the ratings of wings from 2001-2005 for incidents and accidents. About one-third of the reports received don't include information on the wing rating or model, which is helpful data for us to have.

1	56	15%
1-2	112	30%
2	65	17%
2-3	20	5%

Reserve Deployments

From 2001-2005, there were a total of 39 reserve deployments, which is 10% of the total accidents reported in that time. Twenty-seven of these reserve deployments resulted in minor or no injuries, so reserves appear to be highly effective safety equipment if they are deployed at adequate altitude. In 2005 there were three reserve deployments reported, all were injury free.

Tandem Accidents

There were five tandem accidents in 2005, resulting in injuries of two tandem instructors and four student passengers. There were no tandem fatalities in 2005, and there has only been one known tandem fatality in the US in the past 15 years. Passengers are more likely than the instructor to be injured in tandem accidents. Since the passenger is in front of the instructor, they often fall to the ground with the instructor landing on top of the passenger. This cushions the instructor from injury, but may increase the risk to the passenger. Tandem instructors and equipment designers may want to focus some energy in figuring out how injuries to students can be prevented. Development of new safety equipment or changes to preflight briefings might improve this. Tandem flying in general is safer than solo flying because the tandem pilots are more experienced, tandem wings are generally more stable in flight, and the flights tend to occur in milder conditions where risk is lower.

It has been a gratifying and educational experience to write these reports for the past five years, but it is time for me to pass the torch! Mike Steed, an experienced pilot with a strong engineering background, has agreed to take over the accident stats job next year. I look forward to reading his articles... but **we truly need your reports** to make that happen! You can easily and quickly report online at <http://www.usnga.org/emailacc.asp>. Report your accidents and incidents, no matter how minor. We all learn from each other's mistakes.

Jim Little is a paraglider and sailplane pilot, family physician, and FAA Medical Examiner who lives in Portland, Oregon.