

**Fédération Aéronautique Internationale (FAI)  
International Parachuting Commission (IPC)**

---

**2005**

**IPC SAFETY SURVEY REPORT**



---

**IPC Technical and Safety Committee**

## CONTENTS

1	INTRODUCTION.....	2
	1.1 Aims.....	2
2	METHODS.....	2
	2.1 Information collection and preparation.....	2
	2.2 Data processing methods.....	3
	2.3 Survey problems.....	3
3	RESULTS.....	3
	3.1 Total.....	4
	3.1.1 Skydiving safety figures.....	4
	3.1.2 Primary skydiving figures 1989 – 2005.....	5
	3.1.3 Fatalities in subgroups.....	6 - 7
	3.2 Exact figures.....	8
	3.2.1 Primary skydiving figures in 17 countries.....	8
	3.2.2 Fatalities in subgroups in 17 countries.....	9
	3.3 A 43 year study from four countries.....	9
	3.3.1 The utility.....	9
	3.3.2 Finland 1963 – 2005.....	10
	3.3.3 France 1963 – 2005.....	11
	3.3.4 Norway 1963 – 2005.....	12
	3.3.5 Sweden 1963 – 2005.....	13
	3.3.6 Four countries 1963 – 2005.....	14
	3.4 Special questions.....	14
	3.4.1 Square mains and reserves on first jumps.....	14
	3.4.2 Use of AAD by skydivers.....	15
	3.4.3 Saves by AAD.....	15
	3.4.4 Female/Male fatalities.....	15
	3.4.5 Tandem Figures and Study.....	16
	3.4.6 First Jump Fatalities.....	17
	3.4.7 Comments.....	17
4	SOME CONCLUSIONS.....	17
	4.1 Equipment.....	17
	4.2 Instruction and Training.....	18
	4.3 Final figures .....	18
5	SUMMARY.....	19
6	LIST OF APPENDICES.....	19
7	APPENDICES.....	20 – 23
8	THANKS & ACKNOWLEDGEMENTS.....	23

The material in this report is for IPC use. The publication, in part or in whole, of this report, in any form, is subject to prior approval from the Chair of the IPC Technical & Safety Committee. Where information is published it must be carried in general or aggregate terms, without reference to specific countries.

## 1 INTRODUCTION

36 countries responded to the IPC Safety Survey 2005 (Appendix 2, Table 14, page 21). Responding countries for other years can be seen in that appendix.

- **Five of the countries which responded for 2004 (India, Lithuania, Romania, Slovenia and Zimbabwe) did not respond for 2005. Two countries which did not respond for 2004 did so for 2005 (New Zealand and Russia) and it is good to see these countries once again taking part in the Survey.**
- **Military jumping only takes place in Thailand and figures are not available.**
- **The questionnaire, which elicited 36 responses was sent to 74 countries. The response rate (36 in 74) was therefore 49%. While this response rate is disappointing, the degree to which parachuting occurs in many of the non-responding countries, if it occurs at all, may be very low. It has proven very difficult to meaningfully raise this response level, despite many efforts by the Technical & Safety Committee and by others who have tried to help.**
- **It is disappointing to note that some countries, even some who are quite active in parachuting and in the IPC, do not seem to have in place systems for compiling what are important statistics. This is a matter which those countries ought address, especially for their own needs.**

### 1.1 Aims

The aims of the survey were:

- 1 To collect information on the number of fatalities in skydiving worldwide in 2005.
- 2 To establish reliable and valid figures for skydiving risks during 2005.
- 3 To establish reliable and valid key figures for worldwide skydiving activity in 2005.
- 4 To establish reliable and valid risk figures based on statistics from four countries over a period of 43 years.

## 2 METHODS

### 2.1 Information collection, preparation and distribution of the report

The method used to collect the data is the same as in previous years. This work was organised by the Technical & Safety Committee.

The survey form was the same as in previous years and this is designed to allow countries, and respondents, to become familiar with the survey and with reporting. The questions on the form were the same as in previous years.

This permanent survey form facilitates the long term evaluation of skydiving safety worldwide.

The methods used to analyse figures for this report are as used in previous years.

**This report is produced for the Technical & Safety Committee of the International Parachuting Commission of the Fédération Aéronautique Internationale.**

***This 2005 Safety Report, with a Power Point presentation summary, was sent by e-mail to all FAI countries in which there is a parachuting organisation and for which the Technical & Safety Committee has a contact. The report, in CD-ROM format, will be distributed at the meeting of the International Parachuting Commission in Florence, Italy, 25 - 29 January 2007. Further copies, by e-mail, ion CD-ROM or in hard copy format, as required, are available from the Technical & Safety Committee of IPC (e-mail: [liam@goskydive.ie](mailto:liam@goskydive.ie))***

## 2.2 Data processing methods

The original figures submitted by the various countries are to be found in Appendix 1, Tables 12/13, Page 20 and are summarised in Table 1, Page 4. No changes have been made to data submitted; the figures being exactly as they have been returned by responding countries.

## 2.3 Survey Problems

The same problems were encountered with the 2005 safety Survey as in previous years.

These problems are:

- 1 The relatively low response rate – 49%
- 2 Most countries give estimates only, rather than exact figures.
- 3 Two of the 2005 respondents were new, for 2005, and five of the 2004 respondents failed to respond for 2005.  
Due to this mix in the actual respondents, and the moderate rate of response, it is not possible to give accurate overall figures for world skydiving activity in 2005. Also, direct comparison of results with previous years is not valid, due to the variation/mix in the responding countries.

**However, it should be noted that most countries with large numbers of skydivers and skydives did respond to the 2005 Safety Survey, as those countries do most years.**

**This gives a great deal of credibility to the results, due to the relative sameness in the reporting and the numbers of jumps and jumpers for each year.**

Notwithstanding the problems encountered with a survey of this kind, the survey results are of value, when used with caution, bearing the limitations in mind.

Thanks are extended to the people who collected and sent the data. A more comprehensive survey, with greater response, must continue to be pursued. All countries are again asked to please help in this gathering of information, the aim of which is to provide accurate and full data which will be of value in the areas of safety and training in skydiving.

## 3 RESULTS

The results are based on three sources of information:-

- 1 **Total of respondents with data – 36 countries.**
- 2 **Exact data – the data of 17 countries which supplied exact figures about the number of skydivers, skydives and fatalities in 2005.**
- 3 **Key figure information – the numbers of skydivers, skydives and fatalities over a period of 43 years in the four countries – Finland, France, Norway and Sweden.**

***Note – Only those countries which clearly indicated that their returns were 'exact' are included in the 'exact' data. All others are in the 'estimated' data.***

***Where any discrepancies arise it is because data is taken from the report sheets exactly as it is returned. No attempt is made to change or 'correct' figures.***

### 3.1 TOTAL

#### 3.1.1 Skydiving Safety Figures 2005

**Table 1, 2005**

COUNTRY	Numbers		Number of fatalities				Leading causes of fatalities									Validity
	jumpers	jumps	total	stud.	intern.	exp.	cutaway no res.	low cut	no/low main act.	f/fall collision	fast canopies	other landing	tandem fatalities	other cause	jumps/ jumpers	
Australia	3184	276771	4	1	1	2		2	1			1			87	ESTI
Austria	1250	45900	1	1										1	37	ESTI
Belgium	1049	68979	1		1							1			66	EXAC
Bulgaria	185	500	0												3	EXAC
Canada	16041	148187	1	1						1					9	ESTI
China (Peoples' R.)	185	24354	0												132	EXAC
Cyprus	105	3150	0												30	ESTI
Czech Rep.	3238	75654	1			1					1				23	EXAC
Denmark	3400	21990	1			1						1			6	ESTI
Estonia	400	8000	0												20	ESTI
Finland	2363	43959	0												19	EXAC
France	17971	598458	4			4				1		1		2	33	EXAC
Germany	10970	238450	5		3	2				2	2			1	22	EXAC
Greece	185	1700	0												9	ESTI
Hong Kong, China	142	485	0												3	EXAC
Hungary	656	30965	0												47	EXAC
Italy	4850	178000	0												37	ESTI
Kazakhstan	450	4300	1		1					1					10	ESTI
Kenya	70	4000	0												57	EX/ES
Luxembourg	43	701	0												16	EXAC
Netherlands	3099	75885	2			2					1			1	24	EXAC
New Zealand	967	54990	0												57	EXAC
Norway	1715	62661	0												37	EXAC
Poland	2300	37180	0												16	ESTI
Portugal	1125	21100	1		1							1			19	EX/ES
Russia	29500	345000	11	5	5	1	3	4		1	1	2			12	ESTI
Saudi Arabia	125	180	0												1	ESTI
Serbia	332	2716	0												8	ES/EX
Slovak Rep.	585	9505	1	1			1								16	EXAC
South Africa	3250	60000	1	1								1			18	ESTI
Spain	978	232408	0												238	EX/ES
Sweden	1912	89758	1			1					1				47	EXAC
Switzerland	1700	70200	0												41	ESTI
Turkey	709	9384	0												13	EXAC
United Kingdom	37000	220400	1			1				1					6	EXAC
USA	73000	2500000	27	5	7	15		4	2	1	5	5	2	8	34	ESTI
<b>TOTAL</b>	<b>36</b>	<b>225034</b>	<b>5565870</b>	<b>64</b>	<b>15</b>	<b>19</b>	<b>30</b>	<b>4</b>	<b>10</b>	<b>6</b>	<b>5</b>	<b>11</b>	<b>13</b>	<b>2</b>	<b>13</b>	

Tandems 581481 581481

See Table 18

**GRAND TOTALS 806515 6147351**

- 1 Of the ten biggest skydiving nations, in terms of skydives made in 2005, four supplied exact figures – France, Germany, Sweden and United Kingdom. Six supplied estimated figures - Australia, Canada, Italy, Russia, Spain, and the United States of America.
- 2 The survey response indicates that in 2005, **6.15 million jumps were made by 806515 jumpers** in the 36 countries which supplied data for the survey. **Note – These total figures INCLUDE TANDEMS.**
- 3 In terms of jumps per jumper in 2005, these range from 1 in Saudi Arabia to 238 in Spain. Obviously this figure is influenced greatly by the type and nature of the skydiving operations in each country.

3.1.2 Primary Skydiving Figures 1989 – 2005

Table 2, 2005

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>JUMPERS</b>																	
In 34 countries	340715																
In 32 countries		316994															
In 35 countries			245162														
In 35 countries				300586													
In 38 countries					370679												
In 40 countries						285253											
In 38 countries							322322										
In 40 countries								323300									
In 37 countries									404198								
In 33 countries										332603							
In 26 countries											335867						
In 27 countries												355405					
In 31 countries													417202				
In 33 countries														357155			
In 39 countries															402513		
In 39 countries																493250	
In 36 countries																	806515
<b>JUMPS</b>																	
In 34 countries	5564137																
In 32 countries		5189991															
In 35 countries			4848025														
In 35 countries				4591980													
In 38 countries					5267754												
In 40 countries						5064125											
In 39 countries							5562691										
In 40 countries								6013691									
In 37 countries									6843299								
In 33 countries										5596753							
In 26 countries											5594191						
In 27 countries												5750464					
In 31 countries													6872438				
In 33 countries														5769010			
In 39 countries															6335624		
In 39 countries																5332756	
In 36 countries																	6147351
<b>FATALITIES</b>																	
In 34 countries	97																
In 32 countries		70															
In 35 countries			74														
In 35 countries				59													
In 38 countries					101												
In 40 countries						70											
In 39 countries							64										
In 40 countries								76									
In 37 countries									78								
In 33 countries										72							
In 26 countries											60						
In 27 countries												63					
In 31 countries													92				
In 33 countries														73			
In 39 countries															82		
In 39 countries																53	
In 36 countries																	64
Jumps/jumper	16	16	20	15	14	18	17	19	17	17	17	16	16	16	16	11	8
Jumps/fatality	57362	74143	65514	77830	52156	72345	86917	79128	87735	77733	93236	91277	74700	79028	77263	100618	96052
Jumpers/fatality	3513	4528	3313	5094	3670	4075	5036	4254	5182	4619	5598	5641	4534	4893	4909	9307	12602

Table 2, 2005 - shows the following –

**Risk Factor 1 - Jumps per one fatality for 36 countries providing data for 2005 - 96,052**

**Risk Factor 2 - Jumpers per one fatality for 36 countries providing data for 2005 - 12,602**

***These Risk Factors are inclusive of Tandems as they are overall figures for jumping.***

It is not valid to make direct comparisons year-to-year, because of the differences in the numbers of respondents and in the mix of responding countries. Nevertheless the overall picture from year to year is of interest once this reservation is kept in mind.

3.1.3 Fatalities in Subgroups

There are no reliable figures showing how many jumps and jumpers there were in the world in 2005, in the three categories used in this survey. The figures, Jumpers and Jumps, immediately below, have been calculated from the numbers in Table 12 (Appendix 1, Page 20). The figures below are from 29 countries which had breakdowns of jumpers and jumps in the various categories. Belgian, Czech Republic, French, Kenya, New Zealand, Spanish, and USA figures cannot be used when making these calculations, as there is no breakdown in various figures from these countries. The remaining data from 29 countries - (392,647 Jumpers; 2,287,885 Jumps; 31 Fatalities) indicates that in 2005:-

**Jumpers**

**90% were Students**  
**4% were intermediates**  
**7% were Experts**

**Jumps**

**27% were made by Students**  
**19% were made by Intermediates**  
**54% were made by Experts**

It is calculated that in 2005 jumps per jumper in the three categories in the 29 countries were:-

**Student                    2 jumps per jumper**  
**Intermediate            28 jumps per jumper**  
**Expert                    48 jumps per jumper**

**Both these sets of figures INCLUDE TANDEM in the 29 countries in question**

*Please note that these figures only relate to the 29 countries where sufficient breakdown/date could be extracted to arrive at these calculations. The figures are NOT to be taken as true for all 36 countries.*

**Distribution of fatalities in 2005, in numbers and percentages in each category, showing figures also for the years 1990 to 2005 inclusive.**

**Table 3, 2005**

FATALITIES	1990	%	1991	%	1992	%	1993	%	1994	%	1995	%	1996	%	1997	%	1998	%	1999	%	2000	%	2001	%	2002	%	2003	%	2004	%	2005	%
Student	24	34	27	38	23	39	29	29	19	27	12	19	13	17	22	28	16	22	16	27	19	30	27	29	15	21	14	17	8	15	15	23
Intermediate	23	33	20	28	21	36	30	30	27	39	24	37	20	26	20	26	4	6	15	25	15	24	23	25	14	19	28	34	11	21	19	30
Expert	23	33	25	35	15	25	42	41	24	34	28	44	43	57	36	46	52	72	29	48	29	46	42	46	44	60	40	49	34	64	30	47
TOTAL	70	100	72	101	59	100	101	100	70	100	64	100	76	100	78	100	72	100	60	100	63	100	92	100	73	100	82	100	53	100	64	100

  

CAUSES	1990	%	1991	%	1992	%	1993	%	1994	%	1995	%	1996	%	1997	%	1998	%	1999	%	2000	%	2001	%	2002	%	2003	%	2004	%	2005	%
Cut-away, no res.	11	14	12	16	12	20	9	9	15	21	11	17	4	5	5	6	1	1	2	3	3	5	3	3	2	3	5	6	0	0	4	6
Cut-away, low res.	20	30	15	20	3	5	12	12	1	1	15	23	12	16	14	18	2	3	7	12	5	8	13	14	4	5	11	13	3	6	10	16
No/low main pull	12	17	18	24	11	19	20	20	13	19	16	25	13	17	18	23	14	19	9	15	7	11	12	13	12	16	11	13	3	6	6	9
Other	27	39	29	39	33	56	60	59	41	59	22	34	47	62	41	53	55	76	42	70	48	76	64	70	55	75	55	67	47	87	44	69
TOTAL	70	100	74	99	59	100	101	100	70	100	64	99	76	100	78	100	72	99	60	100	63	100	92	100	73	99	82	99	53	99	64	100

**Distribution of 'Other' Fatalities**

**Table 4, 2005**

<b><i>Other fatalities, 36 countries</i></b>	<b>Number</b>	<b>%</b>
Landing Errors	13	30%
Fast Canopies	11	25%
Equipment problems	6	14%
Freefall Collision	5	11%
Tandem	2	5%
Medical problems 1 heart attack/1 aneurysm	2	5%
Collission with aircraft	1	2%
Main/Reserve entanglement	1	2%
Cutaway from round canopy 30 metres over water	1	2%
Entanglement with surfboard	1	2%
AAD fire after low fast turns, downplane, cut away very low	1	2%
<b>TOTAL</b>	<b>44</b>	<b>100%</b>

Fatalities breakdown by percentages, against jumps made by each category, in 2005, in 29 countries only. There were 31 fatalities in these 29 countries. Please take special note of this – see note below.

<u>Category</u>	<u>% of jumpers</u>	<u>% of jumps</u>	<u>% of Fatalities</u>
Students	90%	27%	32% (10)
Intermediate Jumpers	4%	19%	35% (11)
Experts	7%	54%	32% (10)

*Note – These figures exclude Belgium, Czech Republic, France, Kenya, New Zealand, Spain and USA, as the percentage of jumps per category cannot be ascertained for these countries.*

These figures have little relevance to worldwide figures and they are of value only insofar as they show Jumpers/Jumps/Fatalities ratios for countries where data is available.

**THESE FIGURES INCLUDE TANDEMS**

**Three largest groupings into which 2005 Fatalities fall (all 36 countries – 64 fatalities)**

- 1 The largest category - 13 (20%), was 'Landing Errors'.
- 2 The second largest grouping - 11 (17%) was 'Fast Canopies'
- 3 The third largest grouping - 10 (16%) was 'Low cutaway on Main Canopy'.

**Fatalities with jumper still having serviceable equipment (all 36 countries)**

By careful estimation it appears that 72% (46 of 64) fatalities happened with the jumper having at least one good parachute on his or her back.

*For this figure some categories are discounted – e.g. medical problems, freefall collision and any occurrence where there is a doubt or where it is not clear exactly what happened.*

It also appears that 38% of the fatalities in 2005 (24 of 64) occurred after the successful deployment of the main parachute.

### 3.2 Exact Figures

#### 3.2.1 Primary Skydiving figures of 17 Countries in 2005

The number of countries that defined information for 2005 as 'exact' was 17. Some countries failed to indicate whether their figures were 'exact' or 'estimated'. In these cases the figures could not be taken as 'exact'. Where, within the same reports, some figures were 'exact' and others 'estimated', in some instances it was possible to use the figures as 'exact', while with other calculations this was not possible.

**Table 5, 2005**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Number of Jumpers</b>																
In 22 countries	143553															
In 26 countries		72198														
In 18 countries			119608													
In 13 countries				82618												
In 14 countries					86075											
In 12 countries						74641										
In 16 countries							78119									
In 15 countries								89198								
In 8 countries									76538							
In 12 countries										95216						
In 11 countries											97808					
In 10 countries												98015				
In 13 countries													106479			
In 12 countries														110097		
In 17 countries															115906	
In 17 countries																111622
<b>Number of Jumps</b>																
In 22 countries	2292146															
In 26 countries		1952213														
In 13 countries			1197311													
In 13 countries				1025791												
In 14 countries					1388851											
In 12 countries						1103272										
In 16 countries							976597									
In 15 countries								1138684								
In 8 countries									938229							
In 12 countries										1444175						
In 11 countries											1328789					
In 10 countries												1418673				
In 13 countries													1528415			
In 12 countries														1720115		
In 17 countries															1698758	
In 17 countries																1633921
<b>Number of Fatalities</b>																
In 22 countries	39															
In 26 countries		28														
In 18 countries			19													
In 13 countries				25												
In 14 countries					24											
In 12 countries						14										
In 16 countries							11									
In 15 countries								15								
In 8 countries									11							
In 12 countries										25						
In 11 countries											20					
In 10 countries												21				
In 13 countries													26			
In 12 countries														30		
In 17 countries															20	
In 17 countries																16
Jumps per jumper	16	27	10	12	16	15	12	13	12	15	14	14	14	16	15	15
Jumps per fatality	58773	69722	63016	41032	57869	78805	88782	75912	78186	57767	66439	67554	58785	57337	84938	102120
Jumpers per fatality	3681	2579	6295	3305	3586	5332	7101	5947	6378	3809	4890	4667	4095	3670	5795	6976

#### Risk factors for skydiving in 17 countries in 2005

**Risk Factor 1 - (Fatality per Jumps): 1:102,120**  
**Risk Factor 2 - (Fatality per Jumpers): 1: 6,976**

3.2.2 Fatalities in subgroups in 17 Countries, whose figures for 2005 were 'Exact'

Table 6, 2005

Year	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005	
No. Countries	22		26		18		13		14		12		14		15		8		12		11		10		13		12		17		17	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
<b>FATALITIES</b>																																
Student	16	41	11	40	8	42	8	32	8	33	4	28	4	36	4	27	5	42	6	24	8	40	5	24	7	27	4	13	3	15	1	6
Intermediate	12	31	8	30	7	37	7	28	11	46	4	28	3	27	2	13	0	0	10	40	3	15	7	33	6	23	11	37	4	20	4	25
Expert	11	28	8	30	4	21	10	40	5	21	6	43	4	36	9	60	7	58	9	36	9	45	9	43	13	50	15	50	13	65	11	69
TOTAL	39	100	27	100	19	100	25	100	24	100	14	99	11	99	15	100	12	100	25	100	20	100	21	100	26	100	30	100	20	100	16	100
<b>CAUSES</b>																																
cutaway, no res.	8	21	4	14	2	10	1	4	7	29	0	0	2	18	2	13	0	0	1	4	1	5	0	0	2	7	3	10	0	0	1	6
cutaway, low res.	8	21	8	29	1	5	4	16	1	4	3	21	2	18	3	20	0	0	5	20	3	15	1	5	0	0	2	7	2	10	0	0
no/low pull, main	8	21	6	21	2	10	3	12	1	4	6	43	3	27	3	20	1	8	3	12	3	15	6	29	3	11.5	3	10	1	5	1	6
other	15	36	10	36	14	74	17	68	15	63	5	36	4	36	7	47	11	92	16	64	13	65	14	66	21	81	22	73	17	85	14	88
TOTAL	39	100	28	100	19	100	25	100	24	100	14	100	11	99	15	100	12	100	25	100	20	100	21	100	26	100	30	100	20	100	16	100

\*There is a difference in the upper TOTAL and lower TOTAL columns for 1991.

3.3 A 43-Year Study from Four Countries.

This is a study of skydiving safety over a period of 43 years, in Finland, France, Norway and Sweden.

**Special importance is attached to this section of the report.  
The compilation of accurate data results in validity of trends and comparisons,  
due to the consistency of the reporting and the accuracy of the figures.**

3.3.1 The Utility

The figures from these four countries have been used over a long period of years because they are accurate and reliable figures in numbers of jumps, of jumpers and of fatalities. This gives the opportunity to:-

- 1 Establish authoritative figures for fatality risks in skydiving.
- 2 Give skydiving countries reliable and valid figures as reference for safety work.
- 3 Encourage countries to establish methods of collecting exact data for monitoring the safe development of skydiving.
- 4 Help eliminate 'opinion' and replace with facts and figures as a basis for debate on safety.

It is important to be able to make valid comparisons and discern trends, if and when such exist, in safety advances or disimprovements. This is best done by long-term collection of figures from the same, reliable, sources. As might be expected, the fatality rates as a ratio to jumps made, are high in the early years of this study.

The advances over time in knowledge, instruction and equipment show in the marked improvement in this rate in the more recent years of the study. The earlier years' figures still effect the long-term statistics.

There are factors which effect, over a few years, movements and trends in the whole area of safety and incidents in parachuting, e.g., changes in type of equipment in use. When any in-depth study or comparison of any periods is made, such changes and developments must be taken into account.

In addition to the 43 year figures, the last five years, 2001 to 2005, have been taken as a separate exercise. This gives an indication of trends in more recent times in the four countries – Finland, France, Norway and Sweden.

**3.3.2 Finland 1963 – 2005**

*Table 7, 2005*

Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality /Jumps	Fatality /Jumpers
1963	338	0	10	0	338	10	na	na
1964	1111	0	30	0	1449	40	na	na
1965	1515	0	50	0	2964	90	na	na
1966	2057	1	70	1	5021	160	5021	160
1967	3298	0	100	1	8319	260	8319	260
1968	3798	2	100	3	12117	360	4039	120
1969	5532	0	150	3	17649	510	5883	170
1970	9633	0	220	3	27282	730	9094	243
1971	13005	2	250	5	40287	980	8057	196
1972	9600	0	250	5	49887	1230	9977	246
1973	11000	2	280	7	60887	1510	8698	216
1974	10586	0	300	7	71473	1810	10210	259
1975	12235	0	460	7	83708	2270	11958	324
1976	13586	1	534	8	97294	2804	12162	351
1977	11127	0	544	8	108421	3348	13553	419
1978	14289	0	635	8	122710	3983	15339	498
1979	17896	0	741	8	140606	4724	17576	591
1980	23597	1	855	9	164203	5579	18245	620
1981	24151	0	999	9	188354	6578	20928	731
1982	25362	0	999	9	213716	7577	23746	842
1983	30126	0	1191	9	243842	8768	27094	974
1984	32438	3	1111	12	276280	9879	23023	823
1985	30100	0	1055	12	306380	10934	25532	911
1986	30734	0	1284	12	337114	12218	28093	1018
1987	33820	0	1309	12	370934	13527	30911	1127
1988	42599	0	1546	12	413533	15073	34461	1256
1989	49071	1	1784	13	462604	16857	35585	1297
1990	52586	0	2118	13	515190	18975	39630	1460
1991	53453	0	2025	13	568643	21000	43742	1615
1992	54732	0	2032	13	623375	23032	47952	1772
1993	64167	3	2000	16	687542	25032	42971	1565
1994	47998	1	2169	17	735540	27201	43267	1600
1995	49546	1	2431	18	785086	29632	43616	1646
1996	52980	0	3280	18	838066	32912	46559	1829
1997	56287	1	3100	19	894353	36012	47071	1895
1998	55030	0	2565	19	949383	38577	49968	2030
1999	57536	0	2708	19	1006919	41285	52996	2173
2000	49828	1	3100	20	1056747	44385	52837	2219
2001	49963	1	3056	21	1106710	47441	52700	2259
2002	56181	1	3043	22	1162891	50484	52859	2295
2003	45317	1	2771	23	1208208	53255	52531	2315
2004	45132	1	2521	24	1253340	55776	52223	2324
2005	44723	0	3127	24	1298063	58903	54086	2454
<b>TOTAL</b>	<b>1298063</b>	<b>24</b>	<b>58903</b>				<b>54086</b>	<b>2454</b>

5 YEARS - 2001 TO 2005								
Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality/ Jumps	Fatality/ Jumpers
2001	49963	1	3056	1	49963	3056	49896	3078
2002	56181	1	3043	2	106144	6099	51990	3066
2003	45317	1	2771	3	151461	8870	50322	2993
2004	45132	1	2521	4	196593	11391	49284	2898
2005	44723	0	3127	4	241316	14518	60329	3630
<b>TOTAL</b>	<b>241316</b>	<b>4</b>	<b>14518</b>				<b>60329</b>	<b>3630</b>

*In Finland the transition from round to ram-air canopies began to occur on a larger scale in 1975. All experienced jumpers were using ram-air main canopies in 1980. The transition to ram-air student canopies took place from 1986 to 1988.*

Risk Factors	1963 – 2005	2001 – 2005
Risk Factor 1	1: 54,086	1: 60,329
Risk Factor 2	1: 2,454	1: 3,630

**3.3.3. France 1963 – 2005**

**Table 8, 2005**

Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality /Jumps	Fatality /Jumpers
1963	79041	2	2140	2	79041	2140	39521	1070
1964	103005	2	2732	4	182046	4872	45512	1218
1965	109452	2	3694	6	291498	8566	48583	1428
1966	122465	1	5790	7	413963	14356	59138	2051
1967	156248	4	6964	11	570211	21320	51837	1938
1968	179861	2	7468	13	750072	28788	57698	2214
1969	204716	2	7447	15	954788	36235	63653	2416
1970	185124	2	6648	17	1139912	42883	67054	2523
1971	195073	3	7291	20	1334985	50174	66749	2509
1972	132415	5	6982	25	1467400	57156	58696	2286
1973	228660	4	7982	29	1696060	65138	58485	2246
1974	225426	2	7915	31	1921486	73053	61983	2357
1975	286467	6	8622	37	2207953	81675	59674	2207
1976	286453	3	8770	40	2494406	90445	62360	2261
1977	262893	8	9501	48	2757299	99946	57444	2082
1978	267861	8	9689	56	3025160	109635	54021	1958
1979	264280	13	10193	69	3289440	119828	47673	1737
1980	243246	7	9531	76	3532686	129359	46483	1702
1981	284848	6	10191	82	3817534	139550	46555	1702
1982	320453	5	10598	87	4137987	150148	47563	1726
1983	348268	10	18143	97	4486255	168291	46250	1735
1984	379784	13	21772	110	4866039	190063	44237	1728
1985	394213	10	20501	120	5260252	210564	43835	1755
1986	394837	7	20946	127	5655089	231510	44528	1823
1987	397250	6	21006	133	6052339	252516	45506	1899
1988	419229	8	25640	141	6471568	278156	45898	1973
1989	475601	13	30201	154	6947169	308357	45111	2002
1990	496287	4	28132	158	7443456	336489	47110	2130
1991	473460	9	25284	167	7916916	361773	47407	2166
1992	486617	7	25360	174	8403533	387133	48296	2225
1993	472777	5	30143	179	8876310	417276	49588	2331
1994	482352	8	21000	187	9358662	438276	50046	2344
1995	519571	6	21258	193	9878233	459534	51183	2381
1996	490065	7	25768	200	10368298	485302	51841	2427
1997	536872	8	28552	208	10905170	513854	52429	2470
1998	520661	7	31095	215	11425831	544949	53143	2535
1999	547853	9	32325	224	11973684	577274	53320	2577
2000	481812	6	33281	230	12455496	610555	54154	2655
2001	558257	2	35964	232	13013753	646519	56094	2787
2002	595675	8	39246	240	13609428	685765	56706	2857
2003	649793	10	42362	250	14259221	728127	57037	2913
2004	602976	6	49497	256	14862197	777624	58055	3038
2005	627291	4	46804	260	15489488	824428	59575	3171
<b>TOTAL</b>	<b>15489488</b>	<b>260</b>	<b>824428</b>				<b>58055</b>	<b>3038</b>

**5 YEARS - 2001 TO 2005**

Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality/ Jumps	Fatality/ Jumpers
2001	558257	2	35964	2	558257	35964	279129	17982
2002	595675	8	39246	10	1153932	75210	115393	7521
2003	649793	10	42362	20	1803725	117572	90186	5879
2004	602976	6	49497	26	2406701	167069	92565	6426
2005	627291	4	46804	30	3033992	213873	101133	7129
<b>TOTAL</b>	<b>3033992</b>	<b>30</b>	<b>213873</b>				<b>101133</b>	<b>7129</b>

<b>Risk Factors</b>	<b>1963 – 2005</b>	<b>2001 - 2005</b>
<b>Risk Factor 1</b>	<b>1: 58,055</b>	<b>1: 101,133</b>
<b>Risk Factor 2</b>	<b>1: 3,038</b>	<b>1: 7,129</b>

3.3.4 Norway 1963 – 2005

*Table 9, 2005*

Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality /Jumps	Fatality /Jumpers
1963	0	0	0	0	0	0	na	na
1964	198	0	149	0	198	149	na	na
1965	813	0	200	0	1011	349	na	na
1966	1235	0	256	0	2246	605	na	na
1967	895	0	277	0	3141	882	na	na
1968	998	0	245	0	4139	1127	na	na
1969	2032	1	383	1	6171	1510	6171	1510
1970	3823	0	386	1	9994	1896	9994	1896
1971	6850	0	462	1	16844	2358	16844	2358
1972	7606	0	523	1	24450	2881	24450	2881
1973	6074	1	657	2	30524	3538	15262	1769
1974	8895	0	781	2	39419	4319	19710	2160
1975	14941	1	946	3	54360	5265	18120	1755
1976	17162	2	1088	5	71522	6353	14304	1271
1977	19898	1	1211	6	91420	7564	15237	1261
1978	18468	1	1403	7	109888	8967	15698	1281
1979	19674	0	1452	7	129562	10419	18509	1488
1980	22960	3	1645	10	152522	12064	15252	1206
1981	22090	2	1564	12	174612	13628	14551	1136
1982	23602	0	1645	12	198214	15273	16518	1273
1983	25478	0	1749	12	223692	17022	18641	1419
1984	29514	1	1965	13	253206	18987	19477	1461
1985	25159	1	2160	14	278365	21147	19883	1511
1986	38293	0	2455	14	316658	23602	22618	1686
1987	44635	2	2633	16	361293	26235	22581	1640
1988	45649	1	2754	17	406942	28989	23938	1705
1989	43939	0	2992	17	450881	31981	26522	1881
1990	44228	1	3371	18	495109	35352	27506	1964
1991	40308	0	2108	18	535417	37460	29745	2081
1992	42486	3	3522	21	577903	40982	27519	1952
1993	48876	0	3482	21	626779	44464	29989	2117
1994	40816	1	3343	22	667595	47807	30345	2173
1995	44170	0	3512	22	711765	51319	32353	2333
1996	46311	1	3849	23	758076	55168	32960	2399
1997	49545	1	1533	24	807621	56701	33651	2363
1998	46836	0	1102	24	854457	57803	35602	2408
1999	47943	1	2449	25	902400	60252	36096	2410
2000	50557	2	2120	27	952957	62372	35295	2310
2001	58203	0	1946	27	1011160	64318	37450	2382
2002	62636	2	2394	29	1073796	66712	37027	2300
2003	70436	1	2270	30	1144232	68982	38141	2299
2004	63019	1	1666	31	1207251	70648	38944	2279
2005	64552	0	3606	31	1271803	74254	41026	2395
<b>TOTAL</b>	<b>1271803</b>	<b>31</b>	<b>74254</b>				<b>41026</b>	<b>2395</b>

5 YEARS - 2001 TO 2005								
Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality/ Jumps	Fatality/ Jumpers
2001	58203	0	1946	0	58203	1946		
2002	62636	2	2394	2	120839	4340	60420	2170
2003	70436	1	2270	3	191275	6610	63758	2203
2004	63019	1	1666	4	254294	8276	63574	2069
2005	64552	0	3606	4	318846	11882	79712	2971
<b>TOTAL</b>	<b>318846</b>	<b>4</b>	<b>11882</b>				<b>79712</b>	<b>2971</b>

<b>Risk Factors</b>	<b>1963 – 2005</b>	<b>2001 - 2005</b>
<b>Risk Factor 1</b>	<b>1: 41,026</b>	<b>1: 79,712</b>
<b>Risk Factor 2</b>	<b>1: 2,395</b>	<b>1: 2,971</b>

**3.3.5 Sweden 1963 - 2005**

**Table 10, 2005**

Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality /Jumps	Fatality /Jumpers
1963	879	0	220	0	879	220	na	na
1964	1526	0	277	0	2405	497	na	na
1965	1269	1	377	1	3674	874	3674	874
1966	2151	0	371	1	5825	1245	5825	1245
1967	2920	1	487	2	8745	1732	4373	866
1968	4629	0	639	2	13374	2371	6687	1186
1969	6587	0	849	2	19961	3230	9981	1615
1970	7268	0	907	2	27229	4127	13615	2064
1971	8307	3	1049	5	35536	5176	7101	1035
1972	10810	0	1061	5	46346	6237	9269	1248
1973	12748	2	1023	7	59094	7260	8442	1037
1974	13064	1	1010	8	72158	8270	9020	1034
1975	17675	1	1144	9	89833	9414	9981	1046
1976	20749	0	1586	9	110582	11000	12287	1222
1977	25326	3	2009	12	135908	13019	11326	1085
1978	26561	1	2150	13	162469	15149	12498	1165
1979	30954	1	2400	14	193423	17559	13816	1254
1980	31509	2	2441	16	224932	20000	14058	1250
1981	29775	2	2564	18	254707	22564	14150	1254
1982	30726	1	2137	19	285433	24701	15023	1300
1983	35698	2	2581	21	321131	27282	15292	1299
1984	43692	2	2681	23	364823	29963	15862	1303
1985	46208	0	2278	23	411031	32241	17871	1402
1986	52490	0	2849	23	463521	35090	20153	1526
1987	51327	1	2448	24	514848	37538	21452	1564
1988	57715	1	2436	25	572563	39974	22903	1599
1989	70475	1	2969	26	643038	42943	24732	1651
1990	77257	1	3258	27	720295	46201	26678	1711
1991	95415	0	3175	27	815710	49376	30211	1829
1992	103706	0	3635	27	919416	53011	34052	1963
1993	105497	4	3662	31	1024913	56673	33062	1828
1994	99724	2	3346	33	1124637	60019	34080	1819
1995	112512	1	3563	34	1237149	63582	36387	1870
1996	109950	1	3733	35	1347099	67315	38489	1923
1997	118437	0	3214	35	1465536	70529	41872	2015
1998	96758	1	3088	36	1562294	73617	43397	2045
1999	111454	0	2793	36	1673748	76410	46493	2123
2000	108128	0	3158	36	1781876	79568	49497	2210
2001	125465	3	3022	39	1907341	82590	48906	2118
2002	134429	1	2750	40	2041770	85340	51044	2134
2003	109004	0	2651	40	2150774	87991	53769	2200
2004	96013	0	2521	40	2246787	90512	56170	2263
2005	96206	1	6478	41	2342993	96990	57146	2366
<b>TOTAL</b>	<b>2342993</b>	<b>41</b>	<b>96990</b>				<b>57146</b>	<b>2366</b>
<b>5 YEARS - 2001 TO 2005</b>								
Year	Jumps	Fatalities	Jumpers	Account Fatalities	Account Jumps	Account Jumpers	Fatality/ Jumps	Fatality/ Jumpers
2001	125465	3	3022	3	125465	3022	41822	1007
2002	134429	1	2750	4	259894	5772	64974	1443
2003	109004	0	2651	4	368898	8423	92225	2106
2004	96013	0	2521	4	464911	10944	116228	2736
2005	96206	1	6478	5	561117	17422	112223	3484
<b>TOTAL</b>	<b>561117</b>	<b>5</b>	<b>17422</b>				<b>112223</b>	<b>3484</b>

Risk Factors	1963 – 2005	2001 - 2005
Risk Factor 1	1: 57,146	1: 112,223
Risk Factor 2	1: 2,366	1: 3,484

### 3.3.6 Four Countries - Finland, France, Norway, Sweden – 1963 to 2005

Key safety figures for the four countries, for the two periods, 1963 – 2005 and 2001 - 2005, are presented in Table 11 and Table 11A.

**Table 11, 2005**

43 Year Period 1963 - 2005					
Country	Jumps	Fatalities	Jumpers	Risk 1	Risk 2
Finland	1298063	24	58903	54086	2454
France	15489488	260	824428	58055	3038
Norway	1271803	31	74254	41026	2395
Sweden	2342993	41	96990	57146	2366
<b>TOTAL</b>	<b>20402347</b>	<b>356</b>	<b>1054575</b>	<b>57310</b>	<b>2962</b>

**Table 11A, 2005**

5 Year Period 2001 - 2005					
Country	Jumps	Fatalities	Jumpers	Risk 1	Risk 2
Finland	241316	4	14518	60329	3630
France	3033992	30	213873	101133	7129
Norway	318846	4	11882	79712	2971
Sweden	561117	5	17422	112223	3484
<b>TOTAL</b>	<b>4155271</b>	<b>43</b>	<b>257695</b>	<b>96634</b>	<b>5993</b>

### 3.4 Special Questions

The special questions, aimed at ascertaining trends, if such exist, were asked again for the 2005 survey. Responses were as follows:-

#### 3.4.1 How widely are Square Mains and Square Reserves used on first jumps?

All 36 Countries answered this question, and the following are the results.

- 1 In 19 countries (53% of 36) 50% or more of first jumps were made with both Ram-air mains and Ram-air reserves.
- 2 In 30 countries (83% of 36) 50% or more of first jumps were on Ram-air mains.
- 3 In 23 countries (64% of 36) all first time jumps were on Ram-air mains.
- 4 In 5 countries (14% of 36) 50% or more of first jumps were on Round mains.
- 5 In no countries reporting were all First Jumps made on Round main parachutes.

There seems not to be much more movement from Round to Ram-air main canopies being used for first jumps. The majority of countries now use Ram-air mains.

In a few countries while Round mains are still in use the degree of their use is very low, compared to the overall parachuting scenario in those countries.

3.4.2 What percentage of all skydivers use AAD regularly?

All 36 countries answered this question and the responses indicate that the trend towards use of AAD by all skydivers continues to grow.

**Students**

- 1 **ALL Students in 35 countries (97% of 36) used AAD.**
- 2 **In 34 countries (94% of 36) more than 75% of Students used AAD.**

**Intermediate**

Two countries did not report the percentage of Intermediate jumpers using AAD.

- 3 **ALL intermediate jumpers in 16 countries (47% of 34) used AAD.**
- 4 **In 33 countries (97% of 34) 50% or more of Intermediate jumpers used AAD. In the majority of cases the percentage use by Intermediate jumpers was in the +70% range, rather than down towards the 50% level.**
- 5 **In 34 countries (100% of 34) 39% or more of Intermediate jumpers used AAD.**

**Expert**

One country did not report the percentage of Expert jumpers using AAD.

- 6 **ALL Expert skydivers in 9 countries (26% of 35) used an AAD.**
- 7 **In 33 countries (87% of 35) 50% or more of Expert jumpers used AAD.**
- 8 **In 33 countries (87% of 35) 25% or more of Expert jumpers used AAD.**

3.4.3 How many times in 2005 the use of AAD saved jumpers' lives?

35 countries answered this question, in one way or another. One country could not supply any figures for this question and one did not answer. **From the responses it would appear that at least 65 lives were saved by the use of AAD in 2005** (if it can be assumed that an AAD firing is a life saved). Table 13, (Appendix 1, page 20) gives the responses from the various countries.

*It should also be noted that due to field servicing of AADs firings/saves may not be reported.*

*The separate 2005 AAD report should be consulted for further information on AAD saves in 2005 and previous years, along with various comments on AAD use.*

**Please note** – The differences in numbers of total saves in this Safety Report and in the AAD Report is due to the fact that the reports are extracted from separate forms. Not all of the countries which responded to the Safety Report (containing Question 4 – How many times did AAD save a jumper's life in your country?) replied to the AAD questionnaire – hence the differences in numbers.

3.4.4 Fatalities breakdown between male and female

Of the 36 responding countries 17 reported fatalities, totalling 64. See various tables, Table 1 in particular, for details.

**Of the 64 fatalities 54 (84%) were male and 10 (16%) were female.**

Previous years -

Year	Total	Male	Female	Year	Total	Male	Female
2005	64	54 (84%)	10 (16%)	1999	60	55 (92%)	5 (8%)
2004	53	44 (83%)	9 (17%)	1998	72	53 (80%)	13 (20%)
2003	82	67 (82%)	15 (18%)	1997	78	64 (83%)	13 (17%)
2002	73	?	?	1996	76	65 (86%)	11 (14%)
2001	90	75 (83%)	15 (17%)	1995	64	55 (86%)	9 (14%)
2000	63	57 (90%)	6 (10%)				

***Where there is a discrepancy in figures it arises from countries not reporting the breakdown between male/female fatalities.***

3.4.5 How many Tandem Descents were made in your country in 2005?

**Table 18, 2005**

COUNTRY	NUMBER OF TANDEMS	TANDEM FATALITIES	SOLO JUMPS	SOLO FATALITIES	TANDEM JUMPS AS % OF SOLO JUMPS
Australia	75,000	0	276,771	4	27%
Austria	2,900	0	45,900	1	6%
Belgium	5,329	0	68,979	1	8%
Bulgaria	25	0	500	0	5%
Canada	14,000	0	148,187	1	9%
China (Peoples' R.)	0	0	24,354	0	0%
Cyprus	50	0	3,150	0	2%
Czech Rep.	7,823	0	75,654	1	10%
Denmark	615	0	21,990	1	3%
Estonia	100	0	8,000	0	1%
Finland	764	0	43,959	0	2%
France	28,833	0	598,458	4	5%
Germany	22,350	0	238,450	5	9%
Greece	30	0	1,700	0	2%
Hong Kong, China	0	0	485	0	0%
Hungary	1,434	0	30,965	0	5%
Italy	2,700	0	178,000	0	2%
Kazakhstan	50	0	4,300	1	1%
Kenya	80	0	4,000	0	2%
Luxembourg	69	0	701	0	10%
Netherlands	9,330	0	75,885	2	12%
New Zealand	68,086	0	54,990	0	124%
Norway	1,891	0	62,661	0	3%
Poland	3,000	0	37,180	0	8%
Portugal	1,100	0	21,100	1	5%
Russia	4,800	0	345,000	11	1%
Saudi Arabia	120	0	180	0	67%
Serbia	0	0	2,716	0	0%
Slovak Rep.	548	0	9,505	1	6%
South Africa	6,353	0	60,000	1	11%
Spain	16,435	0	232,408	0	7%
Sweden	4,566	0	89,758	1	5%
Switzerland	6,000	0	70,200	0	9%
Turkey	100	0	9,384	0	1%
United Kingdom	24,000	0	220,400	1	11%
USA	273,000	2	2,500,000	25	11%
<b>TOTAL</b>	<b>36</b>	<b>2</b>	<b>5,565,870</b>	<b>62</b>	<b>10.4%</b>

Tandem jumps amounted to 9.5% of all jumps made in 2005.

Tandem jumps were 10.4% of all solo jumps in 2005

Tandem jumps were in the ratio of 55 to 8 against Static Line and IAD/JAD first jumps

Tandem jumps were in the ratio of 55 to 6 against AFF first jumps.

Tandem jumps were in the ratio of 55 to 14 against Static Line, IAD/JAD and AFF combined.

*(see Table 13 for these figures)*

First 140,640 were made by Static Line. IAD/JAD and AFF

Jumps 551,556 were made by Tandem

*(see Table 13 for these figures)*

There were two Tandem fatalities in 2005 (3% of 64). While it therefore may appear that Tandem jumping is safer than Solo jumping, there are very many factors to be taken into account.

These figures regarding Tandem are raised for the first time in this annual IPC Safety Report to initiate discussion about the role and future of Tandem and sport parachuting generally, as it is or may be effected by Tandem.

It is recognised that there are two aspects to Tandems – a) their use in a programme of student progression, and b) their use as a recreational sporting activity.

3.4.6 How many of the 2005 fatalities were First Jump Students?  
 3 (4.7%) of the 64 fatalities in 2005 were First Jump Students.

Previous years -

Year	Total Fatalities	First jump fatalities
2005	64	3 (4.7%)
2004	53	3 (5.7%)
2003	82	2 (2.4%)
2002	73	8 (7%)
2001	92	12 (13%)
2000	63	6 (9.5%)

3.4.7 Comments

5 of the 36 responding countries added comments. This additional information mainly helped to confirm the categories into which particular fatalities should be put.

## 4 SOME CONCLUSIONS

### 4.1 Equipment

By carefully and conservatively estimating the replies the conclusion is reached that 34 (53%) of the 64 fatalities occurred with the skydiver having at least one good parachute. For this figure of 34 the following are excluded:- Cutaway low, low or no reserve deployment (10), Equipment problems (6), Freefall Collision (5), Medical issues (2), Tandem fatalities (no details known) (2), Jumper collision with aircraft (1), Main/reserve entanglement (1), Entanglement with Skyboard (1), Low cutaway over water (1), Low AAD fire after fast turns (1) – total exclusions 30. These fatalities are excluded as in some cases not enough detail is known about the fatality and in other cases having a good parachute undeployed does not appear to have been a factor in the fatality.

Previous years –

Year	Percentage	Year	Percentage	Year	Percentage	Year	Percentage
2005	53%	2001	84%	1997	85%	1993	75%
2004	66%	2000	73%	1996	71%	1992	59%
2003	79%	1999	85%	1995	95%	1991	75%
2002	94%	1998	64%	1994	81%		

By cautious estimation it could be concluded that 10 of the fatalities (16% of 64) - Cutaway and no pull on reserve (4); No or low pull on the main (6) might have been avoided by the use of an AAD.

The category of Cutaway and low pull on reserve is not included as an AAD may not fire at a low altitude, depending on how low the cutaway is made and the vertical rate of descent.

This conclusion is based on the supposition that if main deployment or cutaway/no reserve deployment resulted in a fatality, then the jumper was not/may not have been using an AAD.

The continuing downward trend of this figure can be explained by the increased use of AAD.

Previous years –

Year	Percentage	Year	Percentage	Year	Percentage	Year	Percentage
2004	11%	2001	35%	1998	26%	1995	73%
2003	20%	2000	27%	1997	40%	1994	57%
2002	23%	1999	38%	1996	49%	1993	56%

**4.2 Instruction and reinforcement of Training**

It appears that 54 out of 64 fatalities may have been caused by human error on the part of skydivers. This 54 excludes – Equipment problems (6), Medical issues (2), Collision with aircraft – details not known (1), Main/reserve entanglement – details not known (1)

There is an element of subjectivity/estimation in arriving at this figure of 54.

54 is 84% of 64 and this is a very high percentage. This percentage is consistently high over many years and it points to the constant need to reinforce training and safety procedures at all levels in skydiving.

Previous years -

Year	Percentage	Year	Percentage	Year	Percentage	Year	Percentage
2004	79%	2001	94%	1998	68%	1995	94%
2003	77%	2000	80%	1997	88%	1994	94%
2002	90%	1999	84%	1996	92%	1993	90%

**It appears that 26 of the 64 fatalities (41%) occurred after the successful deployment of the main parachute.**

**24 fatalities (38%) were in the categories - Other Landing Errors (13), Fast Canopies (11). In 2004 Landing and Canopy Handling Issues accounted for 49% (26 of 53 fatalities).**

**WITH HUMAN ERROR BEING SUCH A MAJOR FACTOR IN SKYDIVING FATALITIES, THE ATTENTION OF ALL THOSE INVOLVED IN COACHING AND TRAINING, AT INTERNATIONAL, NATIONAL, REGIONAL AND LOCAL LEVELS MUST BE CONTINUOUSLY FOCUSED ON SAFETY TRAINING AND REINFORCEMENT OF THIS TRAINING. IT IS EVIDENT THAT CONTINUOUS ADDRESSING OF SAFETY ISSUES AT DROPZONE LEVEL MUST BE A PRIORITY FOR ALL NATIONAL PARACHUTING ORGANISATIONS. CANOPY HANDLING SKILLS MUST FEATURE PROMINENTLY.**

**4.3 Final Figures**

**The number of fatal skydiving accidents in 2005, in the 36 countries which responded to the IPC Safety Survey, was 64.**

(See Table 2, page 5, for figures for the Seventeen years 1989 – 2005, but please note that these figures are not valid for comparison with one another, due to the varied nature of the reporting over the years.)

**The number of jumps in the 36 responding countries was - 6,147,351  
The number of jumpers in the 36 responding countries was - 806,515**

*(Comparisons between years should not be made, due to the varied nature of the reporting.)*

## 5 SUMMARY

The aims of the 2005 survey were -

- 1 To collect information on the number of fatalities in skydiving in 2005. The aim was not achieved as the response was insufficient.

**There were 64 fatalities in 36 countries.**

- 2 To establish reliable and valid figures for worldwide skydiving activity in 2005. This aim was not achieved due to the limited response. From the 36 responding countries the following risk factors were determined -

<b>Risk Factor 1</b>	<b>1: 96,052</b>	<b>(Fatality per number of jumps)</b>
<b>Risk Factor 2</b>	<b>1: 12,602</b>	<b>(Fatality per number of jumpers)</b>

- 3 To establish reliable and valid figures for worldwide skydiving activity in 2005. This aim was not achieved as only 36 countries responded to the survey. Of the 36 responding countries, 17 supplied exact figures. 19 countries supplied either estimated figures or a mixture of exact and estimated figures.
- 2 To establish reliable and valid risk figures based on statistics from 4 countries over a 43 year period. This aim was achieved.

<b>Risk Factor 1</b>	<b>1: 57,310</b>	<b>(Fatality per number of jumps)</b>
<b>Risk Factor 2</b>	<b>1: 2,962</b>	<b>(Fatality per number of jumpers)</b>

## 6 LIST OF APPENDICES

- 1 Information supplied by 36 countries, Tables 12/13, Page 20
- 2 List of responding countries, 1988 to 2005, Table 14, Page 21
- 3 Data from USA, the world's largest skydiving country, for 23 years, 1983 – 2005, Table 15, Page 22
- 4 Collection sheet of exact information, Tables 16/17, Page 23

7 APPENDICES

Appendix 1, Table 12, 2005

COUNTRY	Number of jumpers in 2005				Number of jumps made in 2005				No. of fatalities in 2005				Leading causes of fatalities								
	total	students	intern.	experts	total	students	intern.	experts	total	student	intern.	expert	cutaway, no res.	low cut	no act/ low main	F/F collis	Fast canopies	other landing	tandem fatalities	other causes	
Australia	3184	1113	814	1257	276771	4452	23319	249000	4	1	1	2		2	1			1			
Austria	1250	340	377	533	45900	2603	13542	29816	1	1										1	
Belgium	1049	no breakdown			68979				no breakdown				1							1	
Bulgaria	185	80	65	40	500	120	180	200	0												
Canada	16041	14507	757	777	148187	16000	18479	113708	1	1				1							
China	185	15	40	130	24354	300	800	23254	0												
Cyprus	105	50	25	30	3150	150	1000	2000	0												
Czech Republic	3238	2000	1238	Inter/Exp	75654				no breakdown				1					1			
Denmark	3400	2000	400	1000	21990	1990	3000	16000	1			1							1		
Estonia	400	200	150	50	8000	2000	3000	3000	0												
Finland	2363	1300	500	500	43959	4309	18300	18300	0												
France	46804	31479	15328	Inter/Exp	627291	69961	557330	Inter/Exp	4			4				1			1	2	
Germany	10970	1680	2230	7060	238450	17400	43650	177400	5		3	2			2	2				1	
Greece	185	100	50	35	1700	600	550	550	0												
Hong Kong, China	142	107	25	16	485	236	178	71	0												
Hungary	656	222	148	286	30965	2477	8475	19908	0												
Italy	4850	1212	970	2668	178000	53400	17800	106800	0												
Kazakhstan	450	280	70	100	4300	1200	1200	1900	1		1			1							
Kenya	70	no breakdown			4000				no breakdown				0								
Luxembourg	43	17	27	23	701	59	301	341	0												
Netherlands	3099	1400	400	1399	75885	10597	23600	41688	2			2					1			1	
New Zealand	967	346	621	Inter/Exp	54990	3506	51484	Inter/Exp	0												
Norway	1715	553	731	431	62661	7319	20870	34472	0												
Poland	2300	900	500	900	37180	10000	9000	18180	0												
Portugal	1125	650	225	250	21100	2600	10650	7850	1		1								1		
Russia	29500	25500	2750	1250	345000	110000	98500	136500	11	5	5	1	3	4	1	1	2				
Saudi Arabia	125	18	55	80	180	205	185	350	0												
Serbia	332	132	70	130	2716	784	1091	841	0												
Slovak Republic	585	370	123	92	9505	1359	3472	4674	1	1			1								
South Africa	3250	2490	300	460	60000	10000	20000	30000	1	1									1		
Spain	978	no breakdown			232408				no breakdown				0								
Sweden	1912	483	800	700	89758	6428	30000	50000	1			1					1				
Switzerland	1700	150	300	1250	70200	17500	13175	39525	0												
Turkey	709	584	35	90	9384	2000	622	6764	0												
United Kingdom	37000	30500	2000	4500	220400	70000	40400	110000	1			1			1						
U.S.A.	73000	41000	32000	Inter/Exp	2500000	no breakdown			27	5	7	15		4	2	1	5	5	2	8	
<b>TOTAL</b>	<b>36</b>	<b>253867</b>	<b>161778</b>	<b>14937</b>	<b>26037</b>	<b>5594703</b>	<b>429555</b>	<b>425339</b>	<b>1243092</b>	<b>64</b>	<b>15</b>	<b>19</b>	<b>30</b>	<b>4</b>	<b>10</b>	<b>6</b>	<b>5</b>	<b>11</b>	<b>13</b>	<b>2</b>	<b>13</b>

Figures are exactly as supplied

Where a composite figure is given no attempt is made to break down this figure.

Appendix 1, Table 13, 2005

COUNTRY	Question 1			Question 2				Question 3			Qs. 4	2005	Question 5		Question 6	Question 7
	stat. line IAD	AFF	tandem	Round main	Sq. main	Round res	Sq. res	% of Jumper using AAD Students	Intermed.	Experts	AAD saves	Fatalities	Fatalities Male %	Fatalities Female %	Tandem Descents	First Jump Fatalities
Australia	46	870	74035	100	100	100	100	100	100	75	2	4	100		75000	
Austria	214	42	0	70	30	70	30	100	99.5	97	0	1	100		2900	
Belgium	375	2102	5329	100	100	100	100	100	100	5	1	100		5329		
Bulgaria	30	0	25	85	15	85	15	100	90	50	2	0		25		
Canada	2000	1000	13000	100	20	80	100	80	75	4	1		100	14000		
China, Peoples' Rep.	300	0	0	80	20	100	0	0	20	0	0	0		0		
Cyprus	50	20	40	100	100	100	100	100	100	0	0	0		50		
Czech Rep	1879	38	7823	20	65	80	35	100	90	90	5	1	100	7823		
Denmark	1912	103	615	100	100	100	100	100	100	2	1	100		615		
Estonia	180	0	100	10	90	80	20	100	70	70	0	0		100		
Finland	901	21	707	100	14.1	85.9	100	80	80	1	0			764		
France	19783	21345	28833	100	100	100	100	100	100	3	4	100		28833		
Germany	750	710	370	1	99	4	96	100	99	97	3	5	80	20	22350	
Greece	38	7	30	100	100	100	100	100	95	90	1	0		30		
Hong Kong, China	30	10	N/A	100	100	100	100	100	100	100	0	0		N/A		
Hungary	95	22	0	1	99	1	99	100	60	25	2	0		1434		
Italy	70	550	2000	100	100	100	100	100	100	80	0	0		2700		
Kazakhstan	600	50	40	90		10		100	100	60-70	0	1	100		50	
Kenya		10		100	100	100	100	100	100	0	0	0		80		
Luxembourg	15		69	100	100	100	100	100	100	0	0	0		69		
Netherlands	920	236	9330	8.5		91.5		100	95	75	1	2	100	9330		
New Zealand	87	259	68086	100	100	100	100	100	75	75	1	0		68086		
Norway	288	265	1891	100	100	100	100	93	93	0	0	0		1891		
Poland	400	600	3000	30	70	30	70	100	70	50	2	0		3000		
Portugal	610	40	1100	100	100	100	100	100	100	0	1	100		1100		
Russia	25000	550	4600	85	15	85	15	100	100	96	21	11	81	18	4800	
Saudi Arabia		25	150	100	100	100	100	100	99	99	0	0		120		
Serbia	132	0	0	100	100	100	100	100	40	0	0	0		0		
Slovak Republic	309	32	548	10	90	30	70	100	100	50	0	1	100		548	
South Africa	2221	271	6353	100	100	100	100	39	51	2	1		100	6353	1	
Spain	150	642	16435	100	100	100	100	100	100	1	0			16435		
Sweden	400	83	4566	100	5	95	100	100	90	6	1		100	4566		
Switzerland	320	530	6000	100	100	100	100	95	90	1	0			6000		
Turkey	572		81	100	100	100	100	100	100	0	0			100		
United Kingdom	7260	1270	23400	1	99	12	88	99	96	85	0	1	100	24000		
USA	13000	28000	273000	0	100	10	90	100	75	75	n/a	27	81	19	273000	2
<b>TOTALS</b>	<b>80937</b>	<b>59703</b>	<b>551556</b>							<b>65</b>	<b>64</b>	<b>83%</b>	<b>17%</b>	<b>581481</b>	<b>3</b>	

**Appendix 2, Table 14, 2005 Responses to Safety Surveys 1988 – 2005**

COUNTRY	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Algeria									1									
Argentina		1	1	1			1		1	1						*		
Australia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Austria	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Belarus									1	1	1	1						
Belgium		1	1	1	1	1	1	1	1	1			1	1	1	1	1	1
Brasil									1							*		
Bulgaria	1	1	1	1											1	1	1	1
Canada	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Chile	1																	
China	1	1				1	1	1		1	1	1	1			1	1	1
Croatia							1				1					1		
Cuba					1													
Cyprus					1	1								1	1	1	1	
Czechoslovakia	1	1	1	1														
Czech Republic						1	1	1	1	1	1	1	1	1	1	1	1	1
Denmark	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Estonia															1	1	1	1
Finland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
France	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GDR	1	1																
Germany	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1
Greece	1		1	1			1	1	1	1	1				1	1	1	1
Honduras				1														
Hong Kong, China				1	1		1	1									1	1
Hungary	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1
Iceland		1	1	1	1	1	1	1	1	1	1							
India				1				1	1	1					1	1	1	
Indonesia	1			1	1	1	1	1	1	1	1							
Ireland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Israel	1	1			1	1	1	1	1	1	1							
Italy	1	1			1		1	1	1	1	1						1	1
Japan	1	1	1		1	1	1	1	1			1	1	1				
Kazakhstan									1							1	1	1
Kenya						1	1	1	1	1	1	1	1	1	1	1	1	1
Korea	1		1	1										1	1			
Lithuania							1	1	1					1	1		1	
Luxembourg	1	1	1	1	1	1	1		1								1	1
Macedonia							1	1	1	1	1							
Malaysia				1		1												
Mocambique		1				1		1			1	1						
Namibia					1											1		
Netherlands	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
New Zealand	1		1	1		1								1	1	1		1
Norway	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Paraguay		1																
Poland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Peru	1				1													
Portugal							1	1	1	1	1	1	1	1	1	1	1	1
Romania			1			1		1									1	
Russia - USSR	1	1	1	1		1				1				1		1		1
Saudi Arabia																1	1	1
Serbia																		1
Serbia & Montenegro															1	1	1	
Slovak Republic					1	1	1	1	1	1	1	1	1	1	1	1	1	1
Slovenia					1	1	1								1	1	1	
South Africa		1	1	1	1	1				1			1			1	1	1
Spain		1	1	1	1	1	1	1	1	1			1	1	1	1	1	1
Sweden	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Switzerland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Thailand	1	1					1	1	1							*	*	*
Turkey	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
United Arab Emirates					1	1	1	1			1							
United Kingdom	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Uruguay						1		1	1	1	1							
United States	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Venezuela		1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Yugoslavia					1				1	1		1	1	1				
Zimbabwe	1			1										1		1	1	
<b>Totals</b>	<b>34</b>	<b>34</b>	<b>32</b>	<b>35</b>	<b>35</b>	<b>39</b>	<b>41</b>	<b>40</b>	<b>42</b>	<b>37</b>	<b>33</b>	<b>26</b>	<b>27</b>	<b>31</b>	<b>33</b>	<b>39</b>	<b>39</b>	<b>35</b>

\* Military jumping only in Thailand, no figures available.

Appendix 3, Table 15, 2005

YEAR	JUMPERS	JUMPS	FATALITIES		
			Yearly Number	Per 100,000 Jumps	Per 100,000 Jumpers
1983	101500	unknown	29		28.6
1984	100300	2373000	33	1.2	32.9
1985	102100	2329000	26	1.1	25.5
1986	105600	2246000	30	1.3	28.4
1987	108200	2289000	28	1.2	25.9
1988	110700	2297000	23	1.0	20.8
1989	111880	2352000	36	1.5	32.2
1990	115500	2400000	23	0.9	19.9
1991	121900	2440000	30	1.2	24.6
1992	136528	2600000	27	1.0	19.7
1993	140100	2756870	41	1.5	29.3
1994	140000	2750000	30	1.1	21.4
1995	140000	3000000	28	0.9	20.0
1996	145000	3250000	39	1.2	26.9
1997	145000	3250000	32	1.0	22.1
1998	145000	3250000	47	1.4	32.4
1999	145000	3250000	27	0.8	18.6
2000	145000	3300000	30	0.9	20.7
2001	145000	3000000	35	1.2	24.1
2002	145000	3000000	33	1.1	22.8
2003	145000	3000000	25	0.8	17.2
2004	335000	2520000	21	0.8	7.3
2005	346000	2773000	27	1.1	7.8

**The USA had more jumps and jumpers in 2005 than any other country.  
This table, giving risk factors for the twenty-three years 1983 – 2005 is therefore of particular interest and value, even though the numbers of jumps and jumpers for 2005 were estimated, rather than exact.  
The number of fatalities for 2005 was exact.**

**Appendix 4, Table 16, 2005**

Country	Number of skydivers in country				Number of jumps made in 2005				Fatalities			Leading causes of fatalities								
	total	students	interm.	experts	total	student	interm	experts	total	stud.	inter.	exp.	cutaway no res.	low cutaway	no act/ low main	freefall collision	fast canopies	other landing	tandem fatalities	other causes
Belgium	1049	No breakdown			68979	No Breakdown			1		1							1		
Bulgaria	185	80	65	40	500	120	180	200	0											
China	185	15	40	130	24354	300	800	23254	0											
Czech Rep.	3238	2000	1238 Inter/Exp		75654	No Breakdown			1		1						1			
Finland	2363	1300	500	500	43959	4309	18300	18300	0											
France	46804	31479	15325 Inter/exp.		627291	69961	557330 Inter/Exp		4		4				1		1		2	
Germany	10970	1680	2230	7060	238450	17400	43650	177400	5	3	2				2		2		1	
Hong Kong, China	142	107	25	16	485	236	178	71	0											
Hungary	656	222	148	286	30965	2477	8475	19908	0											
Luxembourg	43	7	13	23	701	59	301	341	0											
Netherlands	3099	1400	400	1399	75885	10597	23600	41688	2		2						1		1	
New Zealand	967	346	621 Inter/Exp		54990	3506	51484 Inter/Exp		0											
Norway	1715	553	731	431	62661	7319	20870	34472	0											
Slovak Republic	585	370	123	92	9505	1359	3472	4674	1	1		1								
Sweden	1912	483	800	700	89758	6428	30000	50000	1		1						1			
Turkey	709	584	35	90	9384	2000	622	6764	0											
UK *	37000	30500	2000	4500	220400	70000	40400	110000	1		1			1						
		Plus 17184 int.& exp. & 1049 - no breakdown				Plus 552186 int.& exp. & 144633 - no breakdown														
<b>TOTAL 17</b>	<b>111622</b>	<b>71126</b>	<b>7110</b>	<b>15267</b>	<b>1633921</b>	<b>196071</b>	<b>190848</b>	<b>487072</b>	<b>16</b>	<b>1</b>	<b>4</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>4</b>

UK\* - Breakdown figures are accurate estimates, totals are Exact figures

Belgium – No breakdown of jumpers and jumps.

Czech Republic –No breakdown of jumpers in intermediate/expert categories and no breakdown of jumps.

France – No breakdowns Intermediate and Expert jumpers and jumps.

New Zealand – NO breakdown intermediate/expert jumpers and jumps

United Kingdom – Breakdown of figures for jumpers and jumps are estimated. Totals are exact.

**Appendix 4, Table 17, 2005**

COUNTRY	First jumps done by			AAD saves	What % of First Jumps on -				% of jumpers used AAD		
	static line or IAD	AFF	tandem		Round main	Square main	Round reserve	Square reserve	Students	Interm.	Experts
Belgium	375	2102	5329	5		100		100	100	100	100
Bulgaria	30	0	25	2	85	15	85	15	100	90	50
China	300	0	0	0	80	20	100		0		20
Czech Rep.	1879	38	7823	5	20	80	65	35	100	90	90
Finland	901	21	707	1		100	14.1	85.9	100	80	80
France	19783	21345	28833	3		100		100	100	100	100
Germany	750	710	370	3	1	99	4	96	100	99	97
Hong Kong, China	30	10		0		100		100	100	100	100
Hungary	95	22	0	2	1	99	1	99	100	60	25
Luxembourg	15		69	0		100		100	100	100	100
Netherlands	920	236	9330	1	8.5	91.5	?	?	100	95	75
New Zealand	87	259	68086	1		100		100	100	75	75
Norway	288	265	1891	0		100		100	100	93	93
Slovak Republic	309	32	548	0	10	90	30	70	100	100	50
Sweden	400	83	4566	6		100	5	95	100	100	90
Turkey	572	0	81	0		100		100	100	100	100
UK	7260	1270	23400	0	1	99	12	88	99	96	85
<b>TOTAL 17</b>	<b>33994</b>	<b>26393</b>	<b>151058</b>	<b>29</b>							

UK - Round/Square use and AAD use figures are accurate estimates

## 8 THANKS AND ACKNOWLEDGEMENTS

This report was prepared by the Technical & Safety Committee of the International Parachuting Commission of Fédération Aéronautique Internationale from data supplied by 36 countries.

Sincere thanks are extended to the Technical and Safety Officers of national parachute associations, to Officers in national aviation organisations and to the IPC Delegates who provided data and who helped provide responses.

Thanks are also extended to J.D. Corcoran for his help in producing the reports and presentations on CD.

For further information or any queries on this report please contact  
Liam McNulty, Technical & Safety Committee, IPC; E-mail - [liam@goskydive.ie](mailto:liam@goskydive.ie)