

TRAFFIC SAFETY FACTS

Occupant Protection

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INTRODUCTION

Restraint devices such as seat belts are a key element of motor vehicle occupant protection systems. Each year, NHTSA conducts the National Occupant Protection Use Survey (NOPUS) that measures, among many variables, the use of seat belts by occupants age eight and older. The 2019 NOPUS reported that seat belt use was 90.7 percent among front-seat passengers, a slight increase from the 89.6 percent observed in 2018. Additionally, the 2019 survey found that seat belt use increased during both weekday rush hours and non-rush hours. Use during weekday rush hours increased from 89.3 percent in 2018 to 90.7 percent in 2019 and use during non-rush hours increased from 89.1 percent in 2018 to 90.8 percent in 2019.

Historically, road safety efforts focused on changing human behaviors to prevent crashes. The Safe System approach reframes efforts to save lives by expecting crashes to happen and focusing attention on reducing the severity of injuries when a crash occurs. By understanding the nuances of occupant protection crashes, transportation professionals can better address every aspect of crash risks and implement multiple layers of protection to ensure that everyone traveling on California roadways will go safely. Analyses presented in the occupant protection program area include fatal and serious injuries where a driver or passenger in a passenger vehicle was unrestrained. Occupant protection crashes in this report are defined as crashes where one or more occupants in a passenger vehicle was unrestrained. Under this program area, there is additional analyses that address aging road users and child passenger safety.

KEY FINDINGS

NATIONAL DATA

- Seat belt use among vehicle occupants in the western region of the U.S. increased from 92.7 percent in 2018 to 94.5 percent in 2019.
- In the United States, there were 9,466 unrestrained passenger vehicle occupants killed in traffic crashes in 2019, a 3.85 percent decrease from 9,845 in 2018 (see Figure 1).
- In 2019, of the 20,281 passenger vehicle occupants with known restraint use killed in motor vehicle traffic crashes, 9,466 or 46.7 percent were known to be unrestrained.
- In 2019, daytime restraint use was higher than nighttime; 55.2 percent of passenger vehicle occupants with known restraint use involved in a nighttime fatal crash were unrestrained compared with 39.3 percent involved in a daytime crash.
- NHTSA estimated that, among passenger vehicle occupants aged five or older involved in traffic crashes, seat belt use saved 14,955 lives in 2017. In addition, if all passenger vehicle occupants aged five or older had been wearing seat belts, an additional 2,549 lives could have been saved in 2017.
- NHTSA found that, in 2018, weekday seat belt use among motorists increased from 89.2 percent in 2018 to 90.8 percent in 2019.

Figure 1: Unrestrained Occupant Fatality Trends, Nationwide and California, 2015-2019

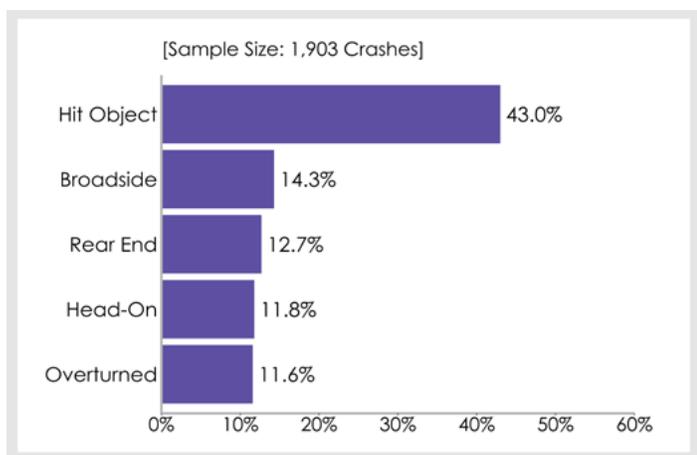


Source: FARS 2015-2019, FARS ARF 2019

CALIFORNIA DATA

- In California, there were 620 unrestrained occupants killed in traffic crashes in 2019, comprising 2.4 percent fewer fatalities than the 635 in 2018.
- In 2019, California’s front seat belt use was observed to be 96.0 percent, which was the second-highest use rate among all states.
- California’s front seat belt use rate for those aged 5 and older has been greater than 95.0 percent from 2015 to 2019.
- In 2017, seat belts saved 1,488 California passenger vehicle occupants, age five and older, involved in traffic crashes. If all vehicle occupants used seat belts, an additional 89 lives would have been saved.
- The Summer 2018 Seat Belt Usage study reported that the combined use rate for drivers and front seat passengers was 96.0 percent. This is a decrease from 96.2 percent in 2017, 96.5 percent in 2016, and 97.3 percent in 2015.

Figure 2: Top Five Crash Types for Unrestrained Occupant Fatal and Serious Injury Victims, California, 2019



Source: Provisional SWITRS 2019

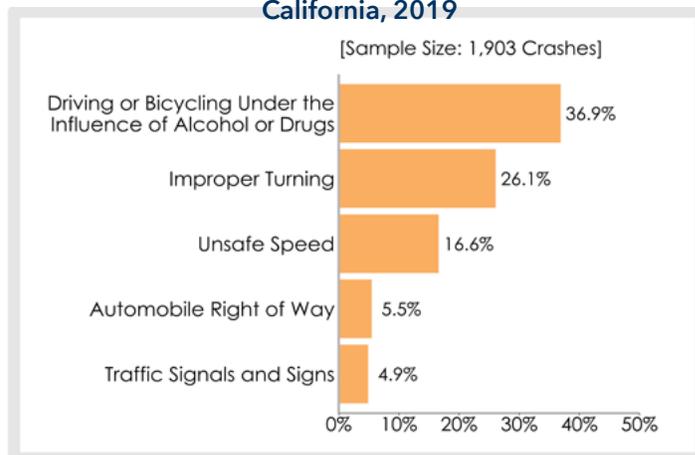
Crash Types of Unrestrained Occupant Fatal and Serious Injury Crashes

- Hit object was the most common type of crash for fatal and serious injury crashes involving unrestrained occupants at 43.0 percent of crashes followed by broadside at 14.3 percent, followed by rear end at 12.7 percent and head-on at 12.7 percent (see Figure 2).

REFERENCES

- California State University, Fresno. (Summer, 2018). Summer 2018 Seat Belt Usage Report. California Office of Traffic Safety. <https://www.ots.ca.gov/wp-content/uploads/sites/67/2018/11/2018-OTS-Restraint-Usage-Summer-Report.pdf>
- National Center for Statistics and Analysis. (2019, December). Seat belt use in 2019 – Overall Results. Traffic Safety Facts Research Note. Report No. DOT HS 812 875). National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2019, March). Lives Saved in 2017 by Restraint Use and Minimum-Drinking-Age Laws. Traffic Safety Facts Research Note. Report No. DOT HS 812 683). National Highway Traffic Safety Administration.

Figure 3: Top Five Primary Collision Factors for Unrestrained Occupant Fatal and Serious Injury Crashes, California, 2019



Source: Provisional SWITRS 2019

Primary Crash Factors of Unrestrained Occupant Fatal and Serious Injury Crashes

- The most common primary crash factors involving unrestrained occupants was driving or bicycling under the influence of drugs or alcohol at 36.9 percent, improper turning at 26.1 percent, followed by unsafe speed at 16.6 percent (see Figure 3).

Figure 4: Time and Day for Unrestrained Occupant Fatal and Serious Injury Crashes, California, 2019

	MON	TUE	WED	THU	FRI	SAT	SUN	TOTAL
Midnight-3AM	56	36	24	28	39	96	100	379 [17.8%]
3-6AM	20	26	12	24	28	42	58	210 [9.9%]
6-9AM	25	30	29	24	41	29	22	200 [9.4%]
9AM-Noon	17	23	21	18	21	29	34	163 [7.6%]
Noon-3PM	29	26	28	25	31	24	29	192 [9.0%]
3-6PM	37	32	32	35	40	41	39	256 [12.0%]
6-9PM	30	32	38	41	64	56	54	315 [14.8%]
9PM-Midnight	45	40	46	51	69	65	61	377 [17.7%]
Unknown	8	6	5	4	2	8	6	39 [1.8%]
TOTAL	267 [12.5%]	251 [11.8%]	235 [11.0%]	250 [11.7%]	335 [15.7%]	390 [18.3%]	403 [18.9%]	2,131 [100.0%]

FSI Num+% 2- 21 22- 28 29- 34 35- 44 45- 100

Source: FARS ARF 2019, Provisional SWITRS 2019

Time of Day of Unrestrained Occupant Fatal and Serious Injury Crashes

- About half (50.3 percent) of unrestrained occupant fatal and serious injuries occur between 6pm and 3am when dusk and darkness are factors. These injuries were most concentrated between midnight and 3 am on weekends, with a peak of 100 on Sunday from midnight to 3am (see Figure 4).

- National Center for Statistics and Analysis. (2020, April). Seat Belt Use in 2019–Use Rates in the States and Territories (Traffic Safety Facts Crash Stats. Report No. DOT HS 812 947). Washington, DC: National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2020, December). Overview of Motor Vehicle Crashes in 2019. (Traffic Safety Facts Research Note. Report No. DOT HS 813 060). Washington, DC: National Highway Traffic Safety Administration.
- State Traffic Safety Information (STSI). Traffic Safety Performance (Core Outcome) Measures For California. Washington, DC: National Highway Traffic Safety Administration. <https://cdan.nhtsa.gov/STSI.htm>

COUNTY TABLE: OCCUPANT PROTECTION

Figure 4: Occupant Protection Fatalities and Serious Injuries, by Number and Rate, 2019

County	Population	Fatalities	Serious Injuries	Fatal & Serious Injuries (FSI)	FSI per 100K Population
Alameda	1,668,965	16	62	78	4.67
Alpine	1,123	0	2	2	178.09
Amador	37,724	3	4	7	18.56
Butte	214,532	8	27	35	16.32
Calaveras	44,403	0	19	19	42.79
Colusa	22,045	4	5	9	40.83
Contra Costa	1,147,269	13	44	57	4.97
Del Norte	27,207	2	6	8	29.40
El Dorado	188,818	9	8	17	9.00
Fresno	1,018,437	27	42	69	6.78
Glenn	29,072	1	8	9	30.96
Humboldt	133,820	3	18	21	15.69
Imperial	188,962	6	13	19	10.05
Inyo	18,463	3	3	6	32.50
Kern	909,697	25	58	83	9.12
Kings	153,522	5	14	19	12.38
Lake	64,080	2	13	15	23.41
Lassen	28,972	1	1	2	6.90
Los Angeles	10,210,966	74	222	296	2.90
Madera	157,686	11	21	32	20.29
Marin	260,969	3	5	8	3.06
Mariposa	17,842	2	3	5	28.02
Mendocino	88,125	3	13	16	18.16
Merced	281,592	9	25	34	12.07
Modoc	9,458	1	1	2	21.15
Mono	13,585	1	2	3	22.08
Monterey	443,397	7	22	29	6.54
Napa	139,874	4	4	8	5.72
Nevada	97,808	3	10	13	13.29
Orange	3,195,197	18	48	66	2.07
Placer	394,626	9	9	18	4.56
Plumas	18,450	1	3	4	21.68
Riverside	2,428,464	53	110	163	6.71
Sacramento	1,548,760	25	52	77	4.97
San Benito	62,051	4	7	11	17.73
San Bernardino	2,176,150	73	153	226	10.38
San Diego	3,346,937	37	85	122	3.64
San Francisco	897,114	5	13	18	2.01
San Joaquin	767,935	20	57	77	10.03
San Luis Obispo	277,276	10	19	29	10.46
San Mateo	776,002	1	23	24	3.09
Santa Barbara	452,066	4	10	14	3.10
Santa Clara	1,960,932	16	31	47	2.40
Santa Cruz	272,185	3	10	13	4.78
Shasta	177,620	12	11	23	12.95
Sierra	3,127	1	2	3	95.94
Siskiyou	44,000	4	6	10	22.73
Solano	439,990	8	15	23	5.23
Sonoma	495,058	7	21	28	5.66
Stanislaus	554,212	15	29	44	7.94
Sutter	102,808	4	8	12	11.67
Tehama	65,163	4	8	12	18.41
Trinity	13,374	3	7	10	74.77
Tulare	477,731	17	33	50	10.47
Tuolumne	52,557	3	16	19	36.15
Ventura	844,213	6	29	35	4.15
Yolo	220,723	6	9	15	6.80
Yuba	78,061	5	12	17	21.78
Total	39,761,195	620	1,511	2,131	5.36

Source: FARS ARF 2019, Provisional SWITRS 2019, California Department of Finance 2020