

D. Igari, M. Shimizu, R. Fukuda. Eye movements of elderly people while riding bicycles. *Gerontechnology* 2008; 7(2):128. Many elderly people in Japan ride bicycles in their daily lives. Actually more than half of the people who died in accidents while riding bicycles are elderly. In order to decrease the number of older fatalities, this study aimed to clarify the background of each traffic accident involving elderly people by analyzing eye movements of elderly people while they are on bicycles and comparing the data with those obtained from younger people. **Method** The subjects were ten elderly persons aged between 65 and 76 (five males and five females) and ten younger persons aged between 19 and 22 (six males and four females). For safety reasons, an indoor simulation was conducted. A bicycle was set up in an upright position by using a stand. Each subject was equipped with an eye tracker (EMR 8B) and watched movies of various road scenes projected onto the white wall in front while riding on the standing bicycle. One trial consisted of four different situations; riding straight (Situation A), approaching and taking over pedestrians (Situation B), avoiding two approaching pedestrians (Situation C) and riding down a hill, turning left and running into a pedestrian (Situation D). Eye movements of subjects were recorded by EMR 8B and were compared among different situations and between two age groups. **Results and discussion** Table 1 shows the viewing rates of each age group on different parts of the visual field. Elderly people had a stronger tendency to look down than young subjects. This infers that elderly people paid too much attention to looking down and therefore less attention to what lies ahead. Table 2 shows the viewing rates of each age group on pedestrians. The data from Situation B show that elderly subjects tended to focus on the pedestrians more than young subjects and the data from Situation C shows that elderly subjects tended to focus on the pedestrian on the right, but paid not much attention to the pedestrian on the left. Overall, elderly subjects tended to focus on a single obstacle and paid less attention to other parts of the visual field. As a result, elderly people could not notice and react to incoming accident sources fast enough. It is concluded that such lack of attention towards their surroundings is the reason for the high accident rate among elderly people.

References

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Table 2: Viewing rate on pedestrians: (iv) pedestrian left (v) pedestrian right

	Situation B		Situation C	
	(iii)	(iv)	(v)	
Young subjects	45.1%	16.6%	14.4%	
Elderly subjects	50.5%	8.7%	19.1%	

Table 1: Viewing rate on different parts of the visual field: (i) looked straight ahead (ii) looked down (iii) pedestrians

	Situation A		Situation B		Situation C		Situation D	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
Young subjects	83.1%	7.6%	31.0%	5.2%	40.2%	15.0%	32.4%	2.7%
Elderly subjects	40.0%	54.8%	32.0%	3.4%	36.9%	30.0%	24.4%	21.3%