

Simulation Experiment on Ride Quality for Long Travel

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We conducted a laboratory experiment on the ride quality of passengers for long travel. A total of 113 subjects experienced a virtual Shinkansen-trip in a train ride simulator, during which they evaluated their ride every thirty minutes for up to five hours. Vibration magnitude and seat pitches (i.e., incommunities) were the experimental parameters to be manipulated. As a result, the effects of both parameters were rather positive, however, none of them was critical for the discomfort observed especially after the start-three hours or later. In contrast, subjects' dissatisfaction with the seat cushion (i.e., softness, etc.) increased as time advanced, whereas their dissatisfaction with vibration and seat pitches stayed constant. Moreover, subjects wanted to stretch their bodies, to get up from their seats, and to breathe fresh air more and more as time advanced, while they wanted to read books and to sleep less and less. Accordingly, improving the seat cushion and establishing a space for distraction would be effective to improve ride quality of passengers for long travel.