

Development of a Driving Aptitude Test Program Corresponding to the Driving Characteristics of Elderly Drivers

Hirofumi Aoki¹⁾ Kan Shimazaki^{1) 2)} Masae Kojima¹⁾ Kazumitsu Shinohara³⁾ Taketsune Kumada⁴⁾

Takahiko Kimura⁵⁾ Kazuma Ishimatsu⁶⁾ Naoko Kawano⁷⁾ Seiichi Oota⁸⁾ Kazuaki Tadokoro⁸⁾

1) Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Aichi 464-8601, Japan (E-mail: hiro.aoki@nagoya-u.jp)

2) Kindai University, 930 Nishimitani, Kinokawa City, Wakayama 649-6493, Japan

3) Osaka University, 1-2 Yamadaoka, Suita-shi, Osaka 565-0871, Japan

4) Kyoto University Yoshida-Honmachi, Sakyo-ku, Kyoto 606-8501, Japan

5) Kansai University of Welfare Sciences, 3-11-1, Kashiwabara, Osaka, 582-0026, Japan

6) Jikei University of Health Care Sciences, Graduate School of Medical Safety Management, 1-2-8 Miyahara, Yodogawa-ku, Osaka 532-0003, Japan

7) Osaka Metropolitan University, 1-1 Gakuen-cho, Nakaku, Sakai, Osaka 599-8531, Japan

8) National Agency for Automotive Safety and Victims' Aid (NASVA), 3-2-1 Kinshi-cho, Sumida-ku, Tokyo 130-0013, Japan

KEY WORDS: Elderly person, Risk recognition, Driving aptitude test, Psycho-physiological measurement [C2]

The aging of drivers in Japan is a major issue not only for general drivers but also for professional drivers such as bus, taxi, and truck drivers. In this paper, we overview the items developed for an driving aptitude test for the elderly professional drivers. In order to fill in the gaps in psycho-physiological measurements related to driving in the current driving aptitude test, several novel tasks are created for the executive function tests (trail making test (TMT) (Fig. 1), Executive function tests 1-4 (Figs. 2-5)), Clock Drawing Test (CDT, Fig. 6), Multi-stimulus Vision Tester Binocular (MVT-B, Fig. 7), Driving risk perception test (Fig. 8), and Metacognition test (Fig. 9). We are now examining the effects of aging on each task, the correlations between tasks, and the relationship with driving skill indices. We will then develop a driving aptitude assessment test battery by selecting tasks based on the task difficulty and the time required to complete the tasks.

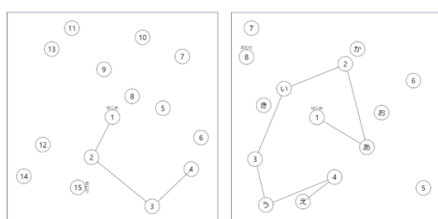


Fig. 1 Trail Making Test

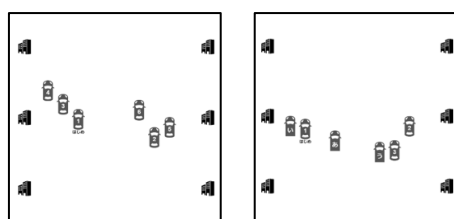


Fig.2 Executive function test 1

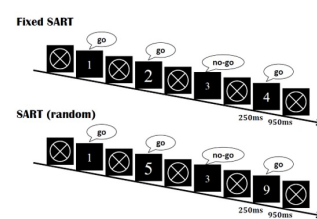


Fig. 3 Executive function test 2

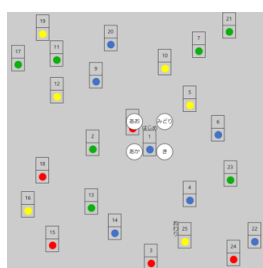


Fig. 4 Executive function test 3 (3A)

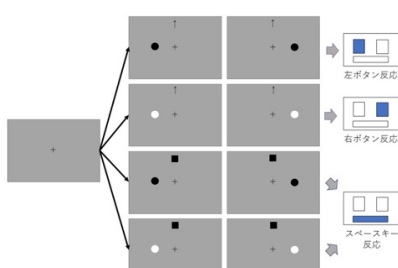


Fig. 5 Executive function test 4 (4B, 4C)

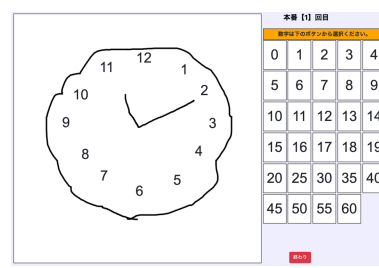


Fig. 6 Clock drawing test (CDT)

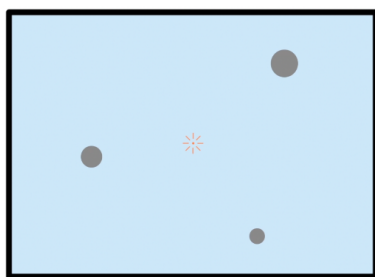


Fig. 7 Multi-stimulus Vision Tester Binocular (MVT-B)

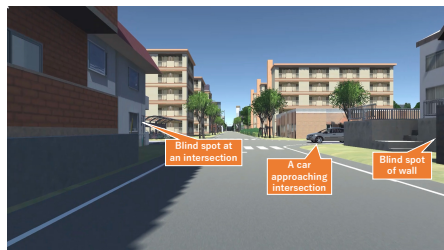


Fig. 8 Driving risk perception test

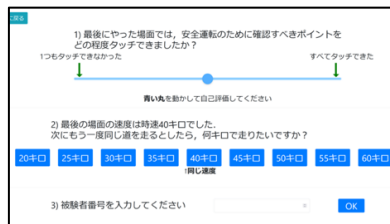


Fig. 9 Metacognition test