M. Naganuma, T. Tetsui, E. Ohkubo, R. Kimura, N. Kato. Trial of robot assisted rehabilitation using robotic pet. Gerontechnology 2008; 7(2):169. How to live well with robots is one of the key issues for active longevity not only physically but also mentally[1,2]. We tried to improve the physical and mental state of patients suffering from cerebral infarction or dementia using the commercially available robotic dog 'AIBO' (Sony make). **Experiments** Robots were driven by two modes such as an autonomous mode with AI program and a remote control mode through the wireless LAN system. In the latter case, a pen-touch control console was developed on a palm-size computer. The patients were 60-90 years old and came in contact with the robotic dog for a 30min-session under support of the intervener(s). The body state of the patient was evaluated by heartbeat, blood pressure, and salivary amylase as a stress hormone before and after the interaction. In addition, patient's eye contact, physical body points tracking, and Galvanic skin reflex (GSR) were recorded during the session[3]. **Results and discussion** The blood pressure of the patients before and after the session was measured. Except in a few cases the diastolic blood pressure was reduced more than 10% in average. We expect this to be a psychological effect since the total amount of physical exercise during the session was not so large as compared to that in their daily life. In order to compare the two driving modes of the robots, GSR measurement was applied for 7 patients from the viewpoints of the degree of sympathicotonia. HDS-Rs (Hasegawa's Dementia Scale Revised) values of the patients were less than 10. In the case of remote control, 5 cases out of 7 showed positive and the rest no change while the autonomous mode showed 2 negative and 5 no-changes. It is concluded that the remote control is more effective than the autonomous one and equivalent to a conventional rehabilitation program. We expect that stimulating nature of an 'artificial dog' contributes to this result and much better effects will be achievable if the robot is adequately controlled. We can tempt the patient to do specific exercise through the stimulation caused by the robot. The patient of the hemispatial neglect shown in Figure 1 can see but is not aware of the right-hand side space. The motion of the forehead and the top of nose are tracked and overlaid on the figure. The patient awareness stays in the left during conventional rehabilitation using ball and peg (*Figure 1 Top*). On the other hand, his awareness moves around both the left and the right by leading his interest to the right by the robot (*Figure 1 Bottom*). The cumulative moving distance of the forehead is longer by 35% in the case with robot than that without robot. **New approach** How to pull out and keep a positive attitude is an important issue for gerontology. Controlling the robot by oneself might be one of the solutions. We designed and tested the program named 'Going for a walk with a robotic dog'. The patient holds a grip connected to rein of robotic dog and follows the dog. An acceleration sensor was installed inside the grip and the patient can control the robotic dog simply by waving. A preliminary experiment in the nursing home showed promising positive reactions from the elderly.

Figure 1 Motion tracking record of patient's head during the session; Top: for the conventional session; Bottom: for the session with remotely controlled robot

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