



PARO

AN APPEALING THERAPEUTIC ROBOT FOR ELDERCARE

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As their populations get older and children number, the rising cost of eldercare is a problem that every advanced country shares. One solution—at least for people in places where real pets are not allowed—comes in the form of an intelligent therapeutic robot named PARO. Resembling a baby harp seal, PARO has gained attention both inside and outside Japan. Takanori Shibata—the chief senior researcher in the Human Technology Research Institute at the National Institute of Advanced Industrial Science and Technology, and PARO’s creator—describes why.

“I researched the relationship between humans and animals, which brings a variety of benefits to humans, including in therapy,” Shibata says. “People love and value pets, but there are some people and places that are unable to deal with live animals. Therefore, I thought a robot animal might serve a purpose.”

Whether it is at home or at an institution, caring for an elderly person who has behavioral problems—such as rejecting help, wandering off and even violence—can be quite a burden mentally on a caregiver. Decreasing such problem behavior by the elderly would naturally make caring for them easier. On this point, Shibata says: “Clinical trials have shown that using PARO makes people feel better, relieves depression, anxiety and loneliness, reduces stress, and can lead them to be more communicative. These effects create an atmosphere more conducive to care.”

Interaction with animals in what is known as “animal therapy” has been shown to have many beneficial effects. Clinical research reveals that PARO is the first instance of a therapeutic robot based on animal therapy to exhibit clearly positive results. In the United States, apart from the use of robots for physical rehabilitation, PARO is the only medical device approved for neurological therapy.

PARO has gone through clinical trials in Europe, North America and the countries in Oceania,



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- 1 PARO comes in four colors: white, gold, grey and pink
- 2 Two Japanese seniors interact with PARO
- 3 More than 70 percent of local governments in Denmark use PARO

and has been adopted for use in their eldercare institutions. In Japan, Okayama, Toyama and Kanagawa prefectures have officially started to support the use of the cuddly little robo-seal, and coverage by National Health Insurance is being considered. Denmark positively assessed PARO's therapeutic effect on elderly people with cognitive impairment after a national project conducted from 2006 to 2008. Starting from 2009, local authorities began to officially use PARO, and more than 70 percent of local governments have already adopted the little robot in their programs.

U.S. Veterans Affairs hospitals have shown that using PARO reduces the need for antipsychotic medications to reduce depression and anxiety for elderly patients with dementia and post-traumatic stress disorder. As a result, PARO was awarded government procurement status. "PARO differs from medication in that its result is immediate and there are no side effects," Shibata notes, "so the caregiver can worry less about keeping track of medicines and checking for safety."

Inside cuddly little PARO are the most advanced robotics technologies Japan makes, including sensor technology, artificial intelligence, motors and other components from more than eighty different Japanese companies. Yet anyone can safely use PARO as a companion animal robot for more than ten years without needing a technician.

With all that technology hidden inside its cute form, Shibata sees both good and bad sides to PARO occasionally being treated as a toy. "I hope that PARO will be properly understood everywhere in the world, and would like it to find a place in the medical and welfare system of every society so that more people can use it and be happier," he says.

Currently some 44 million elderly people worldwide are cognitively impaired, and their annual costs for medical and welfare services are estimated to be around sixty trillion yen. PARO is expected to lower that cost. Since the robot can be used in situations where pets are not allowed, the need for PARO and robot therapy are sure to find the acceptance that Shibata hopes they will. **17**