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### Toys with a switch: Barney, Elmo and others repaired, modified for kids with disabilities by Case engineers

#### "RePlay for Kids" group adjusts mainstream toys for kids with physical limitations

December 14, 2004 | For more information: [Laura M. Massie](#) (216)-368-4442

Kids' favorite purple dinosaur, Barney, or that cute, fuzzy red 'monster' from Sesame Street, Elmo, want all kids to be able to play with them. With the holidays approaching, some kids, however, may not be able to play with them because of physical limitations or other disabilities.



But now, because of "RePlay for Kids," a nonprofit organization in which engineering students and staff from Case Western Reserve University donate their time and expertise to repair and modify toys for children with disabilities, every child can play with their favorite toy. During the holiday season and throughout the year, engineering faculty, staff and student volunteers at Case fix the toys and assistive devices for Cleveland-area nonprofit organizations that provide medical, educational and recreational services to these children.

RePlay for Kids, the brainchild of Case biomedical engineer Bill Memberg, provides toy repair and modification services for organizations that have limited resources. These organizations often do not have the time, funding or technical knowledge to repair the devices or toys. RePlay for Kids provides these services at no cost and therefore increases the number of functioning toys and assistive devices available for kids with physical limitations.

"Young children learn through play and social interaction," said Memberg, founder and president of RePlay for Kids and a senior biomedical engineer at the Cleveland Functional Electrical Stimulation (FES) Center, a collaboration of Case, Cleveland's MetroHealth Medical Center and the Louis Stokes Cleveland Department of Veterans Affairs Medical Center. "Toys help children develop play skills and teach cause and effect relationships. Children with disabilities are no exception, yet are often unable to use mainstream toys due to limitations in their strength and coordination."

Many of the toys are donated to RePlay for Kids by the U.S. Marines' well-known "Toys for Tots" campaign.

A few companies do sell adapted toys, but the selection of toys is relatively small, Memberg explained. RePlay for Kids adapts a wide range of battery-operated toys, increasing the variety of toys available for children with disabilities.

No other organizations in the Cleveland area provide such services, Memberg said.

RePlay for Kids hosts monthly toy repair and modification workshops for volunteers, most of whom are Case students, faculty and staff, including several members of Case fraternities and sororities. In these workshops, volunteers repair or adapt as many toys and assistive devices as possible in the allotted time.

In addition, RePlay for Kids conducts seminars for parents of children with disabilities and hands-on workshops where occupational and physical therapists or other nontechnical volunteers are shown how to adapt a toy. In a recent hands-on workshop, seven volunteers without technical backgrounds were able to successfully adapt more than 20 toys in one afternoon.

An analysis of the savings to local agencies by RePlay for Kids since 1998 found that it would have cost agencies about \$34,500 to purchase replacements for the toys that were repaired or modified. Most of the toy workshops are held at facilities provided by Case at no cost to RePlay for Kids.

Several service organizations in the Cleveland area purchase and distribute specially adapted toys and other assistive devices for use by children with disabilities. Due to the limited market, the adapted toys are significantly more expensive than their mainstream counterparts. However, a mainstream toy such as Barney, Elmo or a Tonka truck can often be easily adapted by installing a cable that allows a more accessible switch to be plugged into the toy. Depending on the nature of the child's disability, the switch could be larger (and therefore easier to hit), could require less force to press, or could be activated by puffing into a tube or tilting his or her head.

"These adapted toys with alternative switches are often used to encourage children to make a certain motion as part of their physical therapy treatment," Memberg said. "A child also benefits psychologically by being able to play with mainstream toys similar to those used by their peers or siblings."

RePlay for Kids has provided services to 14 agencies. Organizations served include the Boards of Mental Retardation and Developmental Disabilities in Cuyahoga, Lake and Geauga counties in Northeast Ohio; United Cerebral Palsy of Cleveland; and the Akron Public School District.

More information is available on the RePlay for Kids web site, [www.replayforkids.org](http://www.replayforkids.org).

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