

Younger Children and Computer Ergonomics

"Like other developed countries, Australia and New Zealand have an epidemic of physical ailments, or what is popularly known as repetitive strain injury, due to computer over-use, in the adult workforce." ⁱ

"Anecdotally, physicians and rehabilitation therapists say that the average RSI patient is [getting] younger and younger" ⁱⁱ

"So far, however, there has been little interest in designing a computer keyboard, VDT, chair or table for the health and safety of children." ⁱⁱⁱ

"..Two to four hours a day at a computer is enough to put someone into a risk category." ^{iv}

"Even when confronted by an injury that has been caused by computer use, parents and children often attribute the pain to other sources, such as sport injury." ^v

"Although computer-related injuries in the workplace have cost society dearly, few resources have been devoted to studying the physical effects of computer use on children. 'It hasn't been studied yet, because it hasn't cost society any money yet.'" ^{vi}

"We know that adults who have started working with computers over the last 20 years have developed a lot of repetitive injuries," said Cheryl Bennett, an ergonomics specialist who works for Lawrence Livermore National Laboratories in Berkeley, Calif. "We don't know what's going to happen to kids over 20 years – the human race hasn't been through this before. Younger bodies are more forgiving, but could it lead to serious disabilities?" ^{vii}

"If you are going to use this technology in schools, you need to teach children how to use it," said Dr. Alan Hedge, a design and environmental analysis professor at Cornell University who has been looking at the ergonomic impact of computers on children.

"At the moment, computers are thrown on any flat surface, and you're supposed to work any way you can. It's creating very bad habits. While there is a limited base of knowledge about children and computers, there are no studies coming out saying there's no problem.

"In adults, there's a latency of up to 10 years. But if you start at 10, what happens? We've got the first generation of college students who have had the opportunity to grow up with computers, and there's a marked change. It's just horrendous to see a 19-year-old with carpal tunnel." ^{viii}

"At a meeting of the International Ergonomics Association in San Diego last summer, for example, Leon Straker, a professor at Curtin University of Technology in Perth, Australia, presented the results of research he had conducted on the effects of computer use on children.

After studying 1,404 students in 43 classrooms in Canada and Australia, he found that classroom computer stations were quite poor according to ergonomic standards. He found that 60 percent of the 314 students, 10 to 17 years old, who he studied at three schools in Australia complained of neck or lower-back pain. The students were required to use laptops, and they each spent about 17 hours per week working on them." ^{ix}

"At Cornell, one of Dr. Hedge's graduate students studied a group of children using computers in their classroom in Detroit. "She found that none of the children she was observing were using a non-risk posture," Dr. Hedge said. "And 40 percent had a high-risk posture. Had it been a company she was observing, she would have said to the employer, 'You need to make changes immediately.'" ^x

"Elementary school is the age when kids learn life skills," Ms. Tien [Diane Tien, a technology assistant at Blackwell Elementary School near Seattle] said, "and this is one of them. If we're going to support technology, we really need to grasp how it affects the body and start teaching proper habits." ^{xi}

"The clock is ticking," Dr. Hedge said. "We know there's a latency period for these injuries. Most likely, we have a three- to five-year window. But there's an ostrich mentality -- we may have to wait until children become injured and start suing to make real changes."^{xii}

"Children also have some unique needs. Here are some highlights from ergo.human.cornell.edu, a Cornell Web site that has a lot of information about proper ergonomic practices for both children and adults:

- Since children may respond more to images than to writing in learning about the ideal workstation posture, parents can try showing them "before" and "after" pictures of workstations. Or parents can post near the computer a picture showing good posture.
 - A smaller keyboard may be better for some children, and some children like to use a trackball rather than a mouse. A small mouse can be just as good. Among the small keyboards on the market, the *LittleFingers* keyboard (www.datadesktech.com) also includes a trackball."^{xiii}
-

"If you think it's hard for you to pull off that acrobatic, one-handed CTRL-Alt-F8 move on your keyboard, imagine how daunting it must be for a kid just learning the ropes of computer use. That sea of characters-with the letters all out of order!-is imposing to even the most intuitive young learner.

A need for a transitional tool is the reason for the LittleFingers keyboard from Datadesk Technologies, the world's first keyboard specially designed for children's smaller hands."^{xiv}

"The injuries that occur are lifelong injuries," said Hedge [Dr. Alan Hedge, Professor of Ergonomics at Cornell University], who added, "It's no more difficult to learn how to do something correctly than it is to learn to do something incorrectly."

At the moment, there aren't too many products on the market that can help alleviate the potential for injury. One that may provide some relief is the Little Fingers keyboard. Manufactured by Datadesk, Little Fingers is approximately 20 percent smaller than the normal adult keyboard making it ideal for youngsters or adults with small hands....

Dr. Hedge believes that the keyboard can help those with a small finger span. More important, perhaps, is the fact that it may help youngsters avoid learning bad habits that will have to be broken learn when they actually are taught typing in school."^{xv}

"A keyboard should fit you; your hand size; the reach of your fingers; and your body width.

A one-size keyboard does not fit all, says Scott Wright, president of CTD Resource Network Inc., a Los Banos, Calif., organization that helps prevent cumulative trauma disorders, or CTD.

To figure out what keyboard is best for you, try one out for an extended time in your work area to see what feels good, says George Szymkiewicz, general manager for Safe Computing, a San Jose, Calif., seller of ergonomic gear....

Another variation on the standard keyboard is the LittleFingers model from Datadesk Technologies of Bainbridge Island, Wash. It's designed for children, or adults with small hands."^{xvi}

ⁱ Alison Armstrong & Charles Casement "The Child and the Machine" (Melb: Scribe Publications, 2001) p viii

ⁱⁱ "Computer Injuries, The Next Generation" Deborah Quilter VDT News Nov/Dec '95 p 8

ⁱⁱⁱ Alison Armstrong & Charles Casement "The Child and the Machine" (Melb: Scribe Publications, 2001) p 146

^{iv} "Repetitive Strain Injury: A Computer User's Guide" Emil Pascarelli & Deborah Quilter (New York:John Wiley,1994)

^v Alison Armstrong & Charles Casement "The Child and the Machine" (Melb: Scribe Publications, 2001) p 149

^{vi} Alison Armstrong & Charles Casement "The Child and the Machine" (Melb: Scribe Publications, 2001) p 159

^{vii} "Creating a Generation of Slouchers" Sallay McGrane - New York Times - 4th January 2001

^{viii} "Creating a Generation of Slouchers" Sallay McGrane - New York Times - 4th January 2001

^{ix} "Creating a Generation of Slouchers" Sallay McGrane - New York Times - 4th January 2001

^x "Creating a Generation of Slouchers" Sallay McGrane - New York Times - 4th January 2001

^{xi} "Creating a Generation of Slouchers" Sallay McGrane - New York Times - 4th January 2001

^{xii} "Creating a Generation of Slouchers" Sallay McGrane - New York Times - 4th January 2001

^{xiii} "Taking Care; Another Reason To Sit Up Straight - Sallay McGrane - New York Times - 4th January 2001

^{xiv} "Little Fingers Keyboard" Dan Heilman - Computer User - 31 March 2000

^{xv} "Aching to Type" Richard Ryan - Staten Island Advance - 20 October 1999

^{xvi} "The Key To Computer Keyboards Is Finding The Right One For You"- Lyan Walford - Investors Business Daily - 25 January 2000