6840 Seaview Road, Sechelt, BC V0N 3A4
www.zonein.ca

Television and Videogames - Negative Impact on Student Performance

Many children struggle with learning. 30% elementary classrooms demonstrate learning difficulties. Pediatric professionals are uncovering an alarming increase in sensory and motor delays impacting children's ability to learn, whether it's printing, reading, math or simply paying attention in class. Today's children are facing challenges that professionals often find overwhelming and difficult to treat. Pediatric school based therapy case loads are soaring, and referrals by teachers and parents to General Practitioners and Pediatricians for academic based problems are taxing the medical system. Dr. Jane Hailey, Vancouver based Pediatrician reports that her colleges are uncertain how to address these academic and behavioural issues facing children today.

In looking for answers to these dilemmas, we should consider the impact that technology has had on our children's development and their ability to learn. North American children watch on average 6.5 hours of TV and videogames (TVVG) per day, with infants and toddlers watching 2.2 hours per day, resulting in physical and emotional developmental delays, attention difficulties, and poor school performance. In order to help our children, we need to go back to the basics of nature. For generations human beings have engaged in heavy work, and sensory stimulation was nature based and calming. We moved to survive; chopping wood, hauling water, plowing fields...listening, looking and smelling nature. Advances in technology and transportation have resulted in a physically sedentary human body that is bombarded with chaotic and complex sensory stimulation. While TV and computers may be compelling and interesting, burying our heads in technology is causing *sensory deprivation* and a "disconnect" from our world. Dr. Gabor Mate, MV Author of *Scattered Minds, A New Look At The Origins and Healing of Attention Deficit Disorder*, brings to light the importance of quality of "attunement" between parents and children and states, "the letters ADD may equally stand for Attunement Deficit Disorder". Dr. Mate points out that "happy interactions" between parent and child generate motivation and arousal by activating cells in the midbrain that produce endorphins, and activating cells that trigger the release of dopamine. Dr. Mate goes on to say "A relative scarcity of dopamine receptors is thought to be one of the major physiological dimensions of ADD". How well have we evolved to accommodate to these changes? Human evolution takes time, lots of time. Have we adapted as a species to accommodate to this sedentary yet frenzied existence?

While we know that watching TV results in obesity, aggression, addictions and detachment, little has been done to address this growing concern. Dr. Susan R. Johnson, Assistant Clinical Professor of Pediatrics at the University of Southern California, describes how children's developing nervous systems are adversely affected by watching TV and playing videogames. Dr. Johnson in her article *Strangers In Our Home: TV and Our Children's Minds,* states that "watching TV has been characterized as a multi-level sensory deprivation that may be stunting the growth of our children's brains. Brain size has been shown to decrease 20-30% if a child is not touched, played with or talked to". Dr. Johnson goes on to further state that watching TV weakens the eye muscles necessary for reading. Playing outside in three dimensional dynamic nature requires far more ocular movement than starring at a two dimensional static screen. Dr. Dimitri Christakis reports in his 2007 study that every one hour of TVVG watched per day increase a child's risk of ADHD by 10% by age seven. Dr. Christakis goes on to say that the brains of children who watch excessive TVVG become "hard wired" for high speed and intense sensory stimulation, which explains why many of these children say they are "bored" in school.

20% pf elementary classroom children have a greater than two year delay in printing skill, often entering high school with grossly limited ability to output. Dr. Marvin Simner, Psychologist and Professor at the University of Western Ontario, and author of *Promoting Skilled Handwriting*, states "handwriting is an essential skill despite modern technology. People present themselves to the world through their handwriting, and are inevitably judged by it". Dr. Simner goes on to say that children who experience difficulty printing, are likely to be delayed in spelling and reading as well. While newer teaching styles appear to have greater emphasis on analytical thinking, creative writing, and communication skills, printing effectively will always be necessary to accomplish higher level thinking and learning. Dr. Jan Hasbrouck, PhD., Educational Consultant with Read Naturally, states "I cannot imagine a world in which printing won't be a part of what we do. If were doing it, then we should be teaching it!"

So what exactly is TVVG use and subsequent lack of movement doing to children's developing neurological systems? Research abounds regarding the connection between lack of vestibular stimulation and learning difficulties. Tsuzuku and Kaga in 1992 found delayed motor function and learning difficulties in children who scored lower on vestibular function tests; repeated again by Deitz and Richardson in 1996 using the Pediatric Test of Sensory Interaction for Balance. The vestibular system is made up of the vestibulo-ocular and vestibulo-spinal subsystems. The role of the vestibulo-ocular system is gaze stability, coordinated ocular movements, and the development of visual spatial and perception abilities. The role of the vestibulo-spinal system is postural tone and trunk stability, bilateral integration and attaining optimal arousal states for attention and sleep. In a nut shell, if children don't move, their vestibular, proprioceptive and tactile systems do not receive adequate stimulation for optimal neurological development.

As a society of professionals, we need to work together to address how we can assist children and their parents to balance technology with exercise. Professionals with an understanding of the detrimental effects of TVVG on children's developing sensory and motor systems, need to become educators for parents and teachers. The American Academy of Pediatrics recommends no more than one to two hours per day of TV or videogames for an elementary age child. A TVVG Dependency Scale, as well as other helpful tools and supporting research can be found on www.zonein.ca/resources/tvvg.php. At home, a parent might allow one hour of "box time" (TV, videogame, computer) for one hour of heavy work (bike up hill, haul wood, dig in the garden). A school might increase vestibular and proprioceptive (resistive-type) stimulation in the classroom through desk isometrics (hand push/pull), or in the gym and during recess with tug of war, climbing ropes or carpet square races. Following education of your families could be a one week trial period of no TVVG called "Survivor Unplugged" for additional personal insight into the level of family addiction to TVVG use. Finally, creating a family schedule where each week is planned in advance will help for maintenance of TVVG reduction. Professionals may also want to consider their own personal and family level of addiction to TVVG.

While the pace of technology is accelerating, now is the time to create balance between technology and exercise. Children are the future of our planet. Through modern technology, we have unconsciously created a "virtual reality" for our children to call home, a reality devoid of connection and human interaction. TV, videogames and computers have now become the teachers of our children, not parents, resulting in an alarming increase in attachment and developmental disorders. Now is the time to plant the seed for children to learn in a new and conscious way. Teaching children to bring awareness to themselves, so they know who they are, creates a strong healthy foundation for learning. Using their energy in positive productive ways, children learn to create balance and wholeness of body, mind and spirit.

Cris Rowan has been an Occupational Therapist for 20 years, working in schools and with children as a Sensory Specialist for the past decade. Cris has recently developed two new educational programs, Zone'in and Move'in, for use in schools and at home. Zone'in is derived from Sensory Integration theory and helps children get their energy *Zone'in to Learn!* Move'in is based on Fine Motor Development theory and is designed to help children print and read by

taking them on a *Printing Adventure!* For more information please see www.zonein.ca, or contact us at info@zonein.ca or 1-888-896-6346.