











Your Therapy Source News

Digital magazine for pediatric occupational and physical therapists.

# Issue 2 - May 2009



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# **New Products**



*Mini Movement Breaks* - This download is a collection of 60+ quick sensory motor activity cards. The mini movement breaks are quick, require no equipment and can be done indoors. Most of the movement breaks can be done with one child or a group of children. It does not get any easier than this to encourage sensory motor activities in the classroom or home. Also included is a poem poster to calm down after the activity breaks. Directions and printables are included. Video tutorial available on website at www.YourTherapySource.com/minimovevideo.

Mini Movement Breaks encourage:

- gross motor skills
- proprioceptive input
- motor planning
- body awareness
- coordination skills

**LIST PRICE: \$3.99 Shipping: FREE** - once payment is made you will receive an e-mail with a link to download the book.

#### www.YourTherapySource.com/minimove



*Alphabet, Number and Shape Cards* - This download includes the materials to create a set of solid and dotted alphabet cards (3 by 5") uppercase and lowercase, numbers and shapes. The solid cards are lightly colored for the child to trace over. Twelve activity ideas are included with the cards.

#### Alphabet, Number and Shape Cards encourage:

- handwriting practice visual motor skills
- · Visual perceptual skills · fine motor skills

As with all our products, the activities are reproducible to use over and over again with all the children that you teach.

> **LIST PRICE: \$4.99 Shipping: FREE** - once payment is made you will receive an e-mail with a link to download the book.

#### www.YourTherapySource.com/alphacards

# **Opinion: Are Schools Exacerbating ADHD?**

reviously, I have discussed how important physical activity is for school children (podcast, articles and blog posts). In my opinion, physical activities are being ignored as a potential reason for decreased test scores and behavioral problems in school districts. When children are made to sit all day long they will act out, be inattentive and their minds will wander. Sedentary lessons ignore kinesthetic learners and bodily kinesthetic intelligence (Gardner's Theory of Multiple Intelligences). Let's consider if a student has ADHD and/or is a sensory seeker. This will make it even harder to pay attention and learn while having to sit still most of the day.

It appears as if this situation is getting worse instead of better. The Center on Education Policy, as part of No Child Left Behind, reported in February 2008 that schools are shifting to more instructional time on English Language Arts (ELA) and math. This of course occurs at the expense of other subjects. The report shows that schools have decreased recess time by 28% and physical education time by 35% on average.

Let's now take a look at ADHD rates. According to the Centers for Disease Control and Prevention, the rates of ADHD have increased 3% per year from 1997-2006 on average. As of 2007, 4.5 million children have been diagnosed as having ADHD. This brings us to the question of whether there a relationship between decreased physical activity time and ADHD symptoms. Some recent research helps to support the idea that sitting in school all day is detrimental to overall learning.

*Neuroscience* reports on a study of 20 children who did treadmill walking followed by cognitive testing. The results indicated that following 20 minutes of treadmill training, the children exhibited improved attention and academic performance. Research has also indicated a relationship between the amount of time spent outdoors and improved attention in children with ADHD. To view even more research regarding this topic go to <u>www.YourTherapySource.com/articles</u> and click on the *Bulk Up the Brain* article. To view a documentary on the benefits of treadmill training in a special education classroom go to <u>www.cbc.ca/national/blog/special\_feature/brain\_gains/brain\_gains\_2.html</u>.

Need activity ideas for in the classroom or group activities? Check out our Sensory Motor Activity books at <u>www.YourTherapySource.com/sensorymotordownloads</u>. For more activity ideas read *Going Outdoors to Improve Attention Span* in this issue.

References:

C.H. Hillmana,M.B. Pontifexa, L.B. Rainea, D.M. Castellia, E.E. Hallb and A.F. Kramera The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children Neuroscience Volume 159, Issue 3, 31 March 2009, Pages 1044-1054

Center on Education Policy Instructional Time in Elementary Schools A Closer Look at Changes for Specific Subjects retreived from the web on 4/1/09 at http://www.cepdc.org/\_data/n\_0001/resources/live/InstructionalTimeFeb2008.pdf

Centers for Disease Control and Prevention ADHD Data and Statistics retrieved from the web on 4/01/09 at http://www.cdc.gov/ncbdd/adhd/data.html

Taylor, A. Kuo, Sullivan COPING WITH ADD The Surprising Connection to Green Play Settings. Retreived from the web on 4/1/09 at http://www.cbf.org/site/DocServer/Coping\_with\_ADD.pdf?docID=13323

### Going Outdoors to Improve Attention Span

recent article in the *Journal of Attention Disorders* reports on how walking in a park helps to increase attention span. A small group of 17 children with ADHD participated in a study comparing walks in a park, downtown and a neighborhood. The walks in the park resulted in a significant difference in concentration as scored on the Digit Span Backwards (DSB). The article also discusses Attention Restoration Theory (ART). The basis of this theory is that interacting with nature results in a type of restoration for the body and the brain. Try to remember a recent event when you spent time outdoors in a natural environment. You walk slowly and attend to all of your visual surroundings - a bird chirping, a sunset, the green grass of Spring. When you return indoors, you feel relaxed and calm. Now try to remember a time you were outdoors in a busier environment, perhaps a city. Your attention may been focused on planning when to cross a street, avoiding cars and other city obstacles. These two environments rely on your brain to use two different types of attention - involuntary and voluntary. Concentrating on topics that interest you or something that grabs your attention involves involuntary attention. Concentrating on blocking out distractions to focus on the topic at hand involves voluntary attention (which can fatigue easily). When the brain experiences involuntary attention it allows voluntary attention to rest and recover.

The authors of this study question whether children with ADHD experience deficits in voluntary attention resulting in the fluctuating attention span that you see in children with ADHD. Therefore, the Attention Restoration Theory when applied to children with and without ADHD can perhaps be very beneficial. Walks in nature are simple to carry out on a daily basis. The "restorative" action of the walks which call upon involuntary attention can possibly help to improve voluntary attention.

With the amount of television and computer time that children are exposed to daily, more time spent outdoors is essential. Here are several ideas to encourage increased nature time for all children: 1. Take hikes and short walks in the woods. If you need a wheelchair accessible path, search state parks

for handicapped accessible trails or try bike paths that are paved.

2. Go letterboxing - Letterboxing is a great family activity for people of all ages. You can go to www.letterboxing.org for a list of clues throughout the USA. You print off the clues, walk to find them and stamp a marking in your log book.

3. Gardening - plant a garden with children. Plant seeds in pots so that all children can assist.

4. Go on scavenger hunts for outdoor materials - check out Scavenger Hunts e-book at <u>www.YourTherapySource.com/scavengerhunts</u> for ideas.

- 5. Allow children to play outdoors in dirt, mud and puddles.
- 6. Go on a bug hunt see how many different bugs you can identify
- 7. Start a nature collection including rocks, acorns, leaves or pine cones.
- 8. Go fishing, frog hunting, horseback riding or birdwatching.

9. Build a structure out of natural materials (i.e. fort, collage made out of sticks or leafs).

10. Encourage teachers and therapists to plan lessons outdoors.

Fresh air makes everyone feel healthier, relaxed and may improve attention. It is a simple way to improve concentration with no side effects (except skinned knees).

#### References:

Faber Taylor, Andrea, Kuo, Frances E. Children With Attention Deficits Concentrate Better After Walk in the Park J Atten Disord 2009 12: 402-409

Cimprich, B Attention Restoration Theory: Empirical Work and Practical Applications Retrieved from the web on 4/17/09 at

http://www.umb.no/statisk/greencare/meetings/presentations\_vienna\_2007/cimprich\_cost\_pres\_71007.pdf

These pages are not intended to provide medical advice or physician/therapist instruction. Information provided should not be used for diagnostic or training purposes. Consult a therapist or physician regarding specific diagnoses or medical advice



### Hyperbaric Oxygen and Autism

*MC Pediatrics* has published an interesting study on hyperbaric treatment for children with autism. According to the authors of this study, this is the first randomized, double blind controlled trial using hyperbaric oxygen in children with autism. The study had 62 children with autism ages 2-7 years old. The treatment group consisted of 33 children who received hyperbaric oxygen at 1.3 atmosphere (atm) and 24% oxygen. The control group was 29 children who received



slightly pressurized room air and 21% oxygen (room air oxygen rate). Both groups received treatments 2x/day for 60 minutes for 5 days/week over 4 weeks. This totalled 40 sessions. The results indicated significant improvements for the treatment group (1.3 atm with 24% oxygen) compared to the control group in the following areas:

1. Overall functioning, receptive language, social interaction and eye contact on the Physician scored Clinical Global Impression Scale

2. Overall functioning, receptive language and eye contact on the Parent scored Clinical Global Impression Scale

3. Total score, irritability, stereotypy, hyperactivity and speech on the Autism Behavior Checklist (larger differences seen in irritability)

4. Sensory/cognitive awareness on the Autism Treatment Evaluation Checklist (ATEC).

Additional results indicated that children over the age of 5 and children with lower autism severity exhibited greater improvements from the hyperbaric oxygen treatments. This study did not follow the long term benefits of the treatments.

For pediatric therapists, this information provides updated information on the potential benefits of hyperbaric oxygen for children with autism. The significant improvements in sensory/cognitive awareness is promising. Although, the ATEC section on sensory/cognitive awareness is very general. Some of the sensory/cognitive components listed on the test are: danger awareness, initiation of activity, exploration of environment, curiosity, dressing self, does drawing/ art, plays appropriately and more.

In addition, the health section on the ATEC also includes some sensory items such as sound sensitivities, food habits, hyperactive, decreased pain awareness and more. There was no difference seen on the health section of the ATEC.

Reference: Hyperbaric treatment for children with autism: a multicenter, randomized, double-blind, controlled trial Daniel A Rossignol , Lanier W Rossignol , Scott Smith , Cindy Schneider , Sally Logerquist , Anju Usman , Jim Neubrander , Eric M Madren , Gregg Hintz , Barry Grushkin and Elizabeth A Mumper BMC Pediatrics 2009, 9:21doi:10.1186/1471-2431-9-21

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### **Physical Fitness and Gross Motor Function**

*evelopmental Medicine and Child Neurology* published research on the relationship between physical fitness and Gross Motor Function Measure scores in children with cerebral palsy (45 with hemiplegia and 23 with spastic diplegia). The study results indicated no relationship between aerobic capacity and body mass index and sections D (standing) and E (walking, running and jumping) on the GMFM. There was a moderate to high correlation between short term muscle power, agility, functional muscle strength and sections D and E on the GMFM. The authors conclude that this correlation can help to guide treatment planning to improve motor capacity in children with cerebral palsy.

Again, we see that muscle power and strength correlate with function in children with cerebral palsy. Keep this in mind when working with children with cerebral palsy - increasing muscle strength can translate into improved function. Give parents simple activities to carry out during the day that will help to maximize muscle strengthening (i.e. stair climbing, heavy work chores, etc). Try making muscle strengthening fun for children. Foster games and activities that children will want to participate in instead of just basic therapeutic exercises.

Reference: OLAF VERSCHUREN, MARJOLIJN KETELAAR, JAN WILLEM GORTER, PAUL J M HELDERS, TIM TAKKEN Relation between physical fitness and gross motor capacity in children and adolescents with cerebral palsy Developmental Medicine & Child Neurology

2009 1469-8749 PN: 0012-1622 DOI: 10.1111/j.1469-8749.2009.03301.x US: http://dx.doi.org/10.1111/j.1469





# **Ideas for May**

#### May 5th - Ideas for Teacher Appreciation Day:

Depending upon the types of children that are in the classroom try some of these ideas:

• give the teacher a basket of fidgets to use in the classroom as a sign of your appreciation

• offer to host a party. If the children earn enough rewards, have a therapy party for the class. All the kids can try out equipment, games and activities. (Check with your school administrator regarding liability issues).

• have a student(s) make their footprint on a poster, banner paper or t-shirt and write "You Lead, We Follow" on it.

#### May 6th - Project ACES (All Children Exercise Simultaneously):

Project ACES was started to help celebrate in May for National Physical Fitness and Sports Month. The goal of the project is to encourage physical fitness through daily exercise and to live healthy lives. It is simple to participate. Organize the event at your school (big or small crowd). Explain the details of Project ACES. Then, EXERCISE in any way for 15-45 minutes starting at 10:00am local time. You can get more information at http://lensaunders.com/aces/aces.html

#### May 12th - Ideas for Kite Day:

• Make a kite out of a brown paper lunch bag. Decorate, punch 4 holes in corners where bag opens. Tie string and you are ready to fly it.

• Not windy enough for a kite on May 12th? Draw, decorate and cut out a kite. Tie ribbons to the end of it. Tape it onto the top of a long stick. When the child runs with it, the kite will fly!

• Print and complete our FREE activity in this digital magazine issue - Jump Up, Up and Away

Sensory Motor Activities for Spring Sensory Motor Activities for Spring has over 30 ideas and activities for Spring time fun.

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# **Hot Topics**

*Archives of Pediatrics and Adolescent Medicine* published research that indicated children who lack self regulation exhibit excessive weight gain. This was a longitudinal study of 1061 children. The children participated in self regulation tasks at ages 3 and 5 years old. They were then followed until 12 years of age with body mass index (BMI) being measured 6 times throughout that time. The children who exhibited a decrease in the ability to self regulate had the highest BMI and the most rapid weight gain.

Reference: Lori A. Francis; Elizabeth J. Susman Self-regulation and Rapid Weight Gain in Children From Age 3 to 12 Years Arch Pediatr Adolesc Med. 2009;163(4):297-302.

Here is some information on an intriguing study in *Developmental Neurorehabilitation* on children with hemiplegia and their use of upper extremity splints and assistive technology. The study reports that 56% of the children were prescribed UE splints but only 48% of those children were using the splints. In comparison, 46% of the children were prescribed assistive technology and 98% of those children were using the assistive technology provided to them. What a difference!

Reference: Russo, Remo Nunzio, Atkins, Renae, Haan, Eric, Crotty, Maria Upper limb orthoses and assistive technology utilization in children with hemiplegic cerebral palsy recruited from a population registerSN - 1751-8423 2009 Developmental Neurorehabilitation 12 (2): 92-99 URL - http://www.informaworld.com/10.1080/17518420902783223

*Brain Gym* proponents as well as some pediatric therapists have been promoting the concept that drinking water can help learning. One of the 4 components of the PACE program from *Brain Gym* is to drink water to provide energy for the brain. The current issue of *Pediatrics* reports on another benefit of water for school age children - preventing obesity. This study was done in Germany with 2950 students. The experimental group received four lessons to promote water consumption. Water fountains were installed and water consumption was measured. The results showed that the children in the water group



decreased their risk of being overweight by 31% compared to the control group. There was no difference in body mass index. The intervention group drank 1.1 more glasses of water per day than the control group.

Reference: Muckelbauer, Rebecca, Libuda, Lars, Clausen, Kerstin, Toschke, Andre Michael, Reinehr, Thomas,

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# **Assistive Technology Tips**

#### FREE - Hands FREE Camera Mouse:

<u>www.CameraMouse.org</u>. This is a free download for a mouse that works using only head movements. This is for children who can not use their hands but they do have reliable head active range of motion. For the program to work you do need a standard USB webcam, Windows Vista or Windows XP.

#### **Communication Technology on iPhone:**

Proloque2Go (www.proloquo2go.com) is a new augmentative communication application for the iPhone or the iTouch. It has picture symbols, text to speech and over 7000 vocabulary words. Currently, it is only \$149 (obviously you also need to purchase the iPhone or iTouch). What a bargain compared to a traditional augmentative communication device. Not only is the price great, it is small, fits in a pocket and cool to use. Not bad!

#### Search Engine for Visually Impaired

Did you know Google has a special search engine for the visually impaired? This was news to me. Anyway, the benefit is that it attempts to find websites that work the best with screen readers. Here is the link <u>http://labs.google.com/accessible/</u> This has potential to be a nice resource for the visually impaired, as well as auditory learners.

Now once you get to the pages, clean up the pages by reducing visual distractions such as advertising and images. <u>Paul Hami's</u> blog suggests trying TidyRead (<u>www.tidyread.com</u>) or Readability <u>www.lab.arc90.com/experiments/readability</u>). I have tried both of these and they both work differently on different sites. You will have to experiment to see what one works best for the student or for you.

#### AT and Autism

Anyone who is new to working with children with autism and assistive technology may want to check out the article *Assistive Technology for Children with Autism* written by Susan Stokes <u>www.specialed.us/autism/assist/asst10.html</u>. Need new ideas? This article also has some great suggestions for low tech, mid tech and high tech assistive technology supports.



Twitter is a great way to hear about assistive technology tips and suggestions. There is a group of special educators and therapists all over the world tweeting on this topic.

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