

Scents reduce symptoms of autism, study finds

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UC Irvine researchers have discovered that specific scents and enriched sensory activities can reduce symptoms of autism in boys ages 3-12.

“We believe that sensory enrichment can be an effective therapy for the treatment of autism, particularly among children past the toddler stage,” said Michael Leon, co-author of the study and professor of neurobiology and behavior affiliated with UC Irvine’s Center for Autism Research and Treatment.

Autism Spectrum Disorders are neurological developmental disorders that can cause social, communication and behavioral challenges. These challenges vary in severity and include a range of disorders including autistic disorder, Asperger syndrome and pervasive developmental disorder-not otherwise specified.

COMMON SYMPTOMS

Common symptoms for those with autism include issues with understanding other people’s feelings or their own, delayed speech and language development, obsessive interests, repetitive behavior, and trouble communicating thoughts or wants.

THE EXPERIMENT

UC Irvine researchers randomly selected 28 male children ages 3-12 diagnosed with autism for a six-month experiment involving various forms of autism treatment and therapy. Thirteen children were assigned to the environmental enriched-stimuli group and 15 children received standard autism treatment.

Standard autism treatment included behavior analysis, concurrent speech, occupational and social skills therapy.

Those assigned to the enriched group were exposed to multiple sensory and motor stimuli throughout the day. Parents of children in the enriched group received 34 sensory and motor enrichment exercises and a kit with various stimuli such as scented essential oils, textured materials, toys and other objects to manipulate, and a classical music CD. Children were required to engage in four to seven exercises twice a day. The average completion time was 15-30 minutes.

Children in the enriched group were exposed to four different fragrances at different times during the day. The scents of the essential oils included apple, hibiscus, lavender, lemon, sweet orange and vanilla. Parents would place one drop of oil on a cotton ball that was then placed into a glass vial. Children were encouraged to sniff the vial for one minute. Before bedtime, parents would also place a scented cotton ball in the child’s pillowcase.

“Because parents can give their child sensory enrichment using items typically available in their home, this therapy provides a low-cost option for enhancing their child’s progress,” said Cynthia Woo, an assistant project scientist of neurobiology and behavior.

THE EXERCISES

Some of the exercises included placing the child's hands or feet in water of different temperatures, blindfolding the child and having them walk across different textures, having the parent give their child a scented bath and a massage with scented oil, and having the child place coins in a piggy bank using only their reflection in a mirror.

THE RESULTS

Forty-two percent of participants in the enriched-stimuli group showed significant improvements of at least five points on the Childhood Autism Rating Scale. Only 7 percent of the control group showed significant improvements on the same scale.

About 70 percent of parents in the enriched group and 31 percent of parents in the control group reported improvement in their child over the six month study.

Although the results are encouraging, a second clinical study is currently being conducted. This study includes girls.

"We need to know whether we can optimize the treatment, whether there are subgroups of children for whom it's more effective, whether the therapy works for older or younger children, and whether it can be effective on its own," said Leon.

THE TEAM

Michael Leon, dean of biological sciences and UC Irvine professor of neurobiology and behavior.

Cynthia Woo, assistant project scientist for the department of neurobiology and behavior.

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