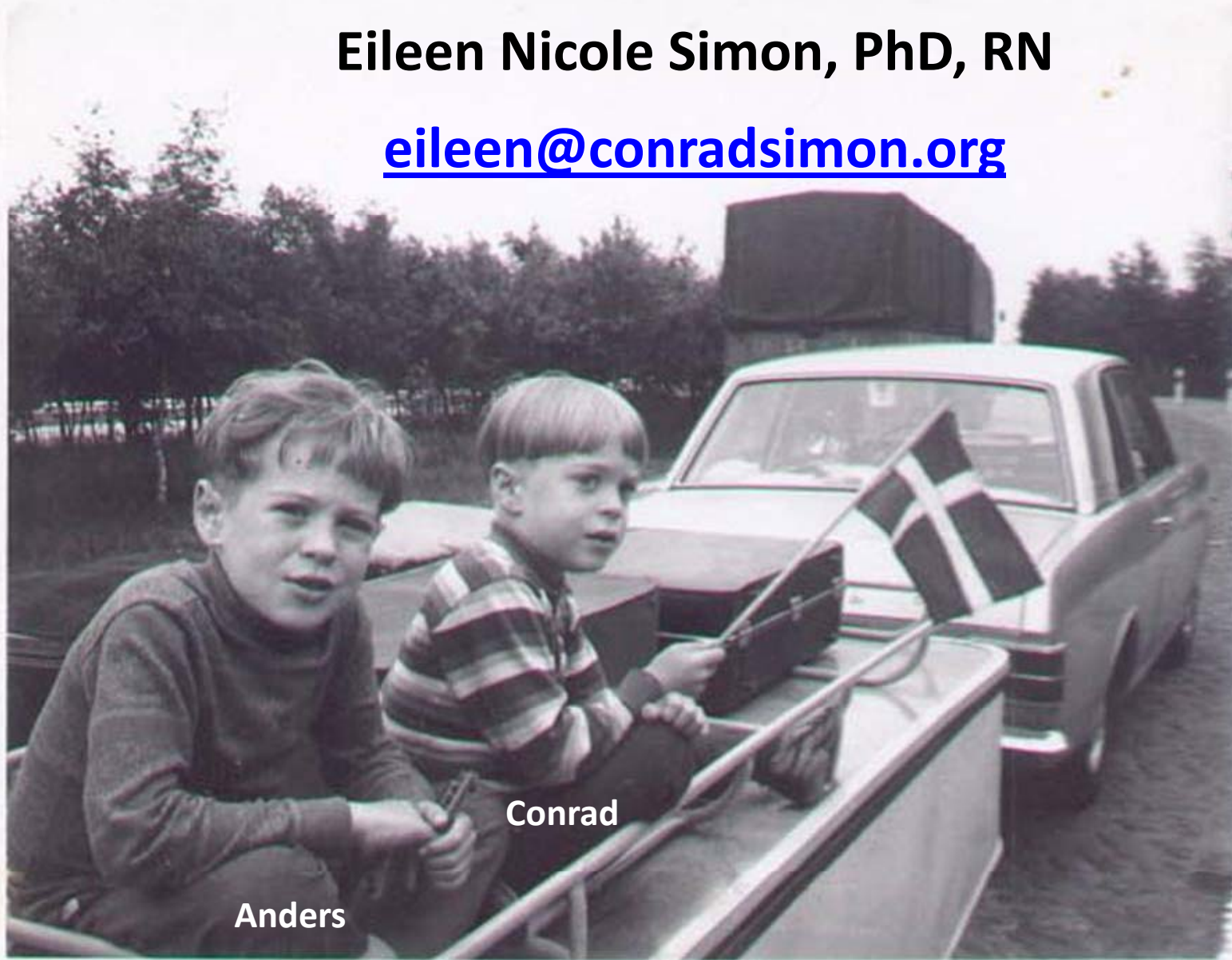


# Comments for the IACC Meeting, Nov 21, 2008

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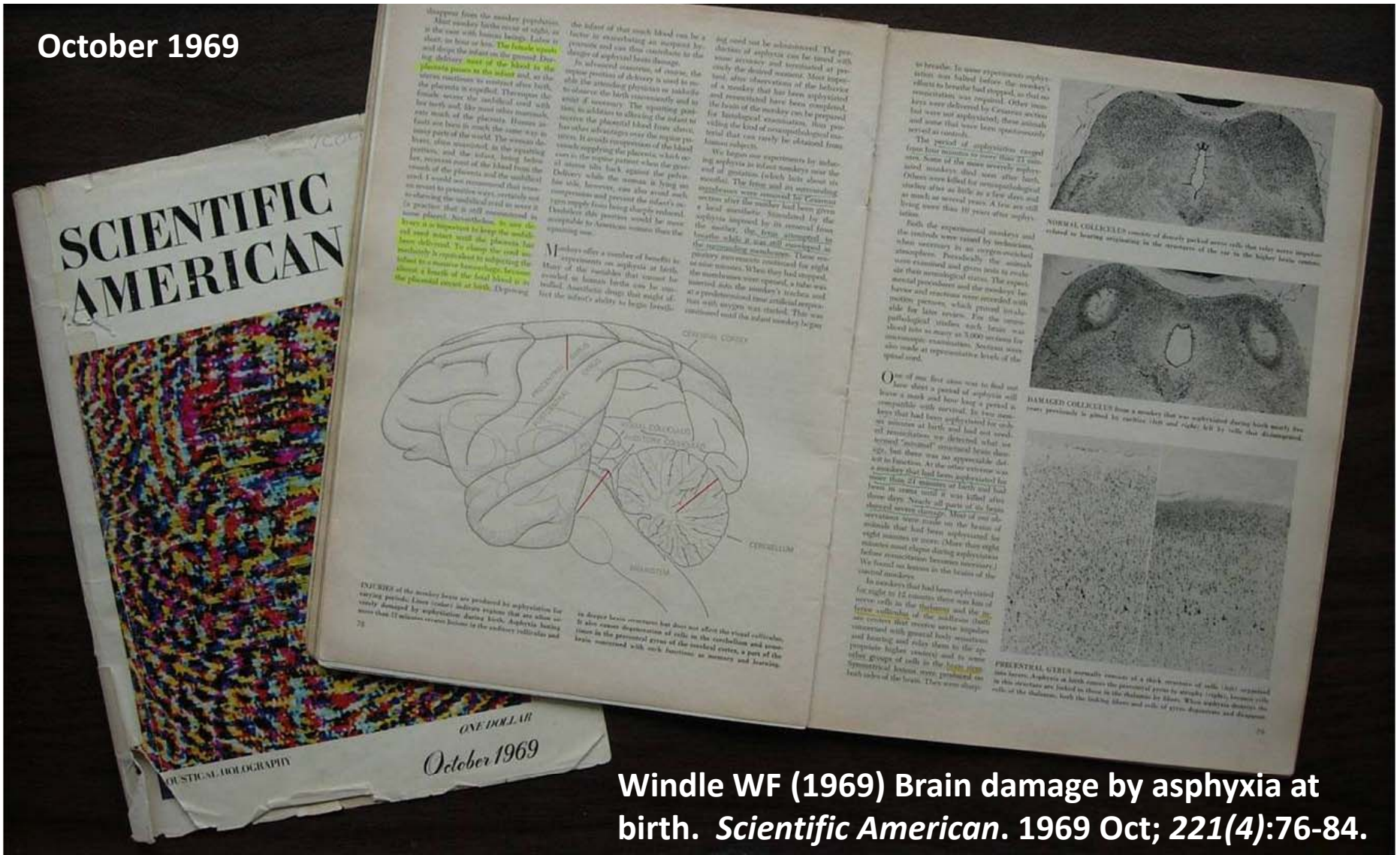
Anders

Conrad

Summer 1969

# Auditory nuclei in the midbrain are selectively damaged by a lapse in respiration of six to eight minutes at birth.

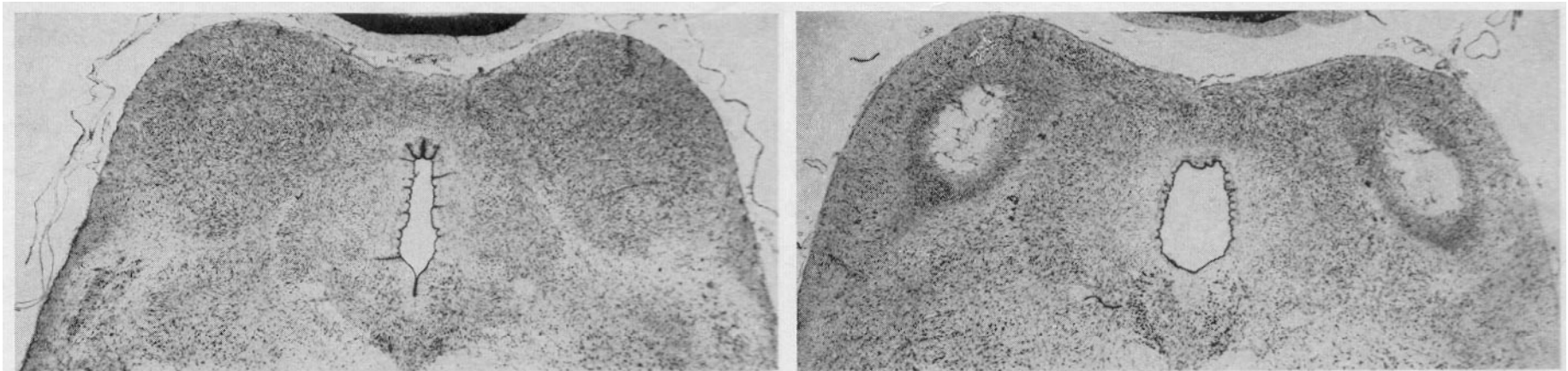
October 1969



Windle WF (1969) Brain damage by asphyxia at birth. *Scientific American*. 1969 Oct; 221(4):76-84.



**(1) The IACC research plan must include investigation of brain impairments that can result from oxygen insufficiency during birth.**  
**Auditory nuclei in the midbrain (the inferior colliculi) are selectively damaged by a lapse of respiration of six to eight minutes.**



NORMAL COLLICULUS consists of densely packed nerve cells that relay nerve impulses related to hearing originating in the structures of the ear to the higher brain centers. DAMAGED COLLICULUS from a monkey that was asphyxiated during birth nearly five years previously is pitted by cavities (left and right) left by cells that disintegrated.

**(2) The midbrain auditory system should be considered as the possible "final common pathway" affected by all causes of autism.**  
**These small nuclei in the auditory pathway have higher blood flow and metabolism than any other area of the brain.**

**The inferior colliculi are susceptible to injury or impairment by all known or suspected causes of autism.**

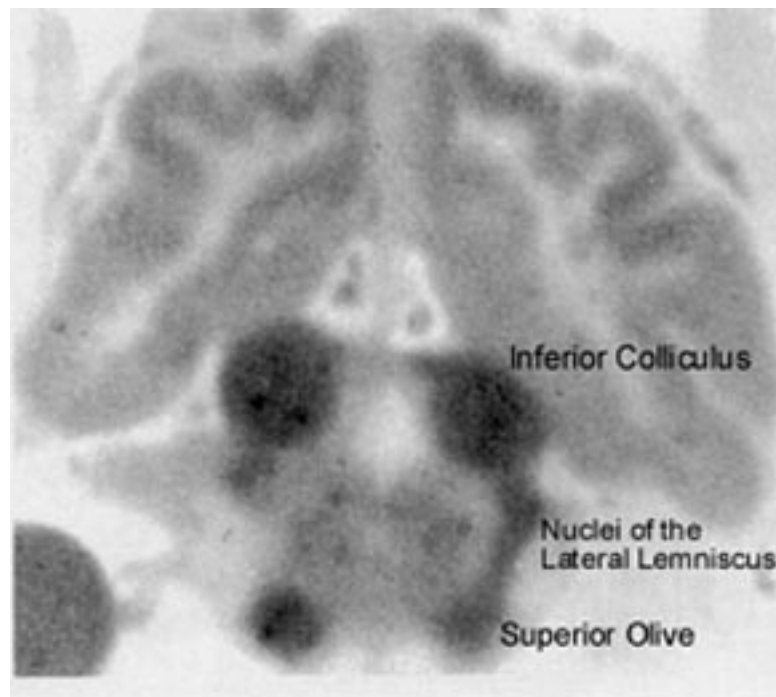
**Blood flow and metabolism are not uniform throughout the brain.**

**Nuclei of the auditory system have the highest blood flow & metabolism in the brain.**

**The auditory system is the vigilance system of the brain.**

**The auditory system is continuously active, even during sleep.**

**High metabolic needs make the auditory system vulnerable.**



From: Kety SS. Regional neurochemistry and its application to brain function. In **French, JD, ed, Frontiers in Brain Research**. New York: Columbia University Press, 1962. pp 97-120.

With permission from Columbia University Press.

**Language development depends upon intact auditory processing.**

**Loss of the ability to comprehend spoken language has been described in at least 13 case reports following injury of the inferior colliculi:**

1. Howe JR, Miller CA. **Neurology**. 1975 Mar;25(3):286-9.
2. Jani NN et al. **Neurosurgery**. 1991 Jul;29(1):106-8.
3. Nagao M et al. **Neuroradiology**. 1992;34(4):347.
4. Meyer B et al. **J Neurol Neurosurg Psychiatry**. 1996 Oct;61(4): 423-4.
5. Hu CJ et al. **Neurology** 1997 May;48 (5):1448–1451.
6. Johkura K et al. **J Neurol Sci**. 1998 Nov 26; 161(1):91-6.
7. Masuda S et al. **Ann Otol Rhinol Laryngol**. 2000 Dec;109(12 Pt 1):1107-12.
8. Vitte E et al. **Neurology** 2002 Mar 26;58(6):970–3. -- 2 cases
9. Hoistad DL, Hain TC. **Audiol Neurootol** 2003 Mar-Apr; 8(2):111-223.
10. Musiek FE et al. **J Am Acad Audiol** 2004 Feb; 15(2):133-151.
11. Pan CL et al. **Neurology**. 2004 Dec 28;63(12):2387-9.
12. Kimiskidis VK et al. **Otol Neurotol**. 2004 Mar;25(2):178-82.

**How much more serious this should be for an infant!**

# Obstetric error?

**"Immediately after the delivery of the neonate, a segment of umbilical cord should be double-clamped, divided, and placed on the delivery table pending assignment of the 5-minute Apgar score."**

## **ACOG Committee Opinion No. 348, November 2006**

ACOG Committee on Obstetric Practice. ACOG Committee Opinion No. 348, November 2006: Umbilical cord blood gas and acid-base analysis. *Obstet Gynecol.* 2006 Nov;108(5):1319-22.

**How many prospective parents are told that placental respiration is to be cut off so abruptly at birth, possibly before the first breath?**

**How many prospective parents have been encouraged to bank their baby's umbilical cord blood?**

**Vaccination after asphyxia may be double trouble.**

**Asphyxia disrupts the blood-brain-barrier, and allows bilirubin or any other substance into neurons.**

**Could autism be a variant of kernicterus?**

← The inferior colliculi

From: Lucey JF, Hibbard E, Behrman RE, Esquivel FO, Windle WF. Kernicterus in asphyxiated newborn monkeys. *Experimental Neurology* 1964 Jan; 9(1):43-58.



Simon N (1975) Echolalic speech in childhood autism. Consideration of possible underlying loci of brain damage. *Archives of General Psychiatry*. 1975 Nov;32(11):1439-46.

Simon N, Volicer L (1976) Neonatal asphyxia in the rat: greater vulnerability of males and persistent effects on brain monoamine synthesis. *Journal of Neurochemistry* 1976 May;26(5):893-900.

Anders and Conrad with mom and baby rat pups, Boston University School of Medicine, 1971.



# Feedback and/or discussion?

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**Presentation online at**

**<http://www.conradsimon.org/IACCfor21nov2008.pdf>**

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## Questions and areas of research needed:

1. What causes autism, and its recent increased prevalence?
2. How is the brain is affected?  
How do children learn to speak?  
Why do children with autism use phrase fragments?
3. Autism has many causes.  
All may impair function in the auditory system.  
Complications at birth are associated with autism.
4. Should changes in obstetric practice be questioned?  
Protocol since 1980s: immediate clamping of the umbilical cord.  
Traditional teaching: Wait for pulsations in the cord to cease.
5. How does breathing begin at birth?  
Blood transfer into the capillaries surrounding the alveoli  
Transfer of blood from the placenta, unless clamped off