

## Curriculum Vitae - Eileen E. Birch, Ph.D.

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### EDUCATION

B.A.	University of Connecticut, Storrs	1974
Ph.D.	University of California, Santa Barbara	1979

### PROFESSIONAL ORGANIZATIONS

Association for Research in Vision and Ophthalmology  
American Academy of Ophthalmology  
American Association for Pediatric Ophthalmology & Strabismus  
Sigma Xi  
Women in Ophthalmology

### PROFESSIONAL EXPERIENCE

1973 - 1974	NIH pre-doctoral Fellow, University of California, Santa Barbara, CA
1975 - 1977	Teaching Assistant, University of California, Santa Barbara, CA
1977 - 1978	Teaching Associate, University of California, Santa Barbara, CA
1979 - 1980	Postdoctoral Fellow, Massachusetts Institute of Technology, Cambridge, MA
1980 - 1982	Fight for Sight Postdoctoral Fellow (in memory of Herman M. Burian, M.D.), Massachusetts Institute of Technology, Cambridge, MA
1982 - 1984	Research Affiliate in Psychology and Brain Science, Massachusetts Institute of Technology, Cambridge, MA
1982 - 1987	Research Scientist, Anderson Vision Research Center, Retina Foundation of the Southwest, Dallas, TX
1982 - 1988	Adjunct Assistant Professor of Ophthalmology, University of Texas, Southwestern Medical Center, Dallas, TX
1988 - 1994	Adjunct Associate Professor of Ophthalmology, University of Texas Southwestern Medical Center, Dallas, TX
1987 - Present	Senior Research Scientist, Retina Foundation of the Southwest, Dallas, TX

1994 - Present Adjunct Professor of Ophthalmology, University of Texas  
Southwestern Medical Center, Dallas, TX

## PUBLICATIONS

1. Birch EE. Binocular processing of contrast. Ph.D. Dissertation, University of California, 1979.
2. Birch EE and Foley JM. The effects of duration and luminance on binocular depth mixture. *Perception*, 1979; 8:263-8.
3. Enoch JM, Birch DG, and Birch EE. Monocular light exclusion for a period of days reduces directional sensitivity of the human retina. *Science*, 1979; 206:705-9.
4. Enoch JM, Birch DG, Birch EE, and Benedetto MD. The effect of uniocular occlusion on selected visual functions. *Transactions of the Ophthalmological Society (United Kingdom)*, 1980; 99:407-12.
5. Birch DG, Birch EE, and Enoch JM. Visual sensitivity, resolution, and Rayleigh matches following monocular occlusion for one week. *Journal of the Optical Society of America*, 1980; 70:954-8.
6. Held R, Birch EE, and Gwiazda J. Stereoacuity of human infants. *Proceedings of the National Academy of Science USA*, 1980; 77:2272-4.
7. Enoch JM, Birch DG, and Birch EE. Alteration in directional sensitivity of the retina by monocular occlusion. *Vision Research*, 1980; 20:1185-90.
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14. Birch EE, Gwiazda J and Held R. The development of vergence does not account for the onset of stereopsis. *Perception*, 1983; 12:331-6.
15. Shimojo S, Birch EE, Gwiazda J, and Held R. Development of vernier acuity in infants. *Vision Research*, 1984; 24:721-8.
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- stereopsis in infants aged 1 to 6 months. *Investigative Ophthalmology and Visual Science*, 1985; 26:366-70.
17. Birch EE. Infant interocular acuity differences and binocular vision. *Vision Research*, 1985; 25:571-6.
  18. Birch EE and Stager DR. Monocular acuity and stereopsis in infantile esotropia. *Investigative Ophthalmology and Visual Science*, 1985; 26:1624-30.
  19. Stager DR and Birch EE. Preferential-looking acuity and stereopsis in infantile esotropia. *Journal of Pediatric Ophthalmology and Strabismus*, 1986 23:160-5.
  20. Birch EE, Stager DR, and Wright WW. Grating acuity development following early surgery for congenital unilateral cataract. *Archives of Ophthalmology*, 1986; 104:1783-7.
  21. Birch EE, Hale LA, Stager DR, Fuller DG, and Birch DG. Operant acuity of toddlers and developmentally delayed children with low vision. *Journal of Pediatric Ophthalmology and Strabismus*, 1987; 24:64-9.
  22. Birch EE and Birch DG. Pupillometric measures of retinal sensitivity in infants and adults with retinitis pigmentosa. *Vision Research*, 1987; 27:499-505.
  23. Birch DG, Herman WK, deFaller JM, Disbrow DT, and Birch EE. The relationship between rod perimetric thresholds and full-field rod ERGs in retinitis pigmentosa. *Investigative Ophthalmology and Visual Science*, 1987; 28:954-65.
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101. Pediatric Eye Disease Investigator Group (Writing Committee: Repka M, Beck R, Kraker R, Holmes J, Birch E, Tien S, Astle W, Cotter S). The clinical profile of moderate amblyopia in three to six year olds: experience of the Amblyopia Treatment Study 1. *Archives of Ophthalmology*, 2002, 120: 281-7.
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197. Birch E, Khoury JC, Berseth CL, Castañeda YS, Couch JM, Bean J, Tamer R, Harris CL, Mitmesser SH, Scalabrin DM. The impact of early nutrition on incidence of allergic manifestations and common respiratory illnesses in children. *Journal of Pediatrics*, 2010;156: 902-6.
198. Birch E, Carlson S, Hoffman D, Fitzgerald-Gustafson K, Fu V, Drover J, Castañeda Y, Minns L, Wheaton D, Mundy D, Marunycz J, Diersen-Schade D. The DIAMOND study: A double masked, randomized controlled clinical trial of the maturation of infant visual acuity as a function of the dietary level of docosahexaenoic acid. *American Journal of Clinical Nutrition*, in press, DOI: 10.1016/j.jpeds.2010.01.002
199. Birch E, Cheng C, Vu C, Stager D. Monocular oral reading after treatment of dense congenital unilateral cataract. *Journal of AAPOS*, in press.
200. Drover JR, Morale SE, Wang Y-Z, Stager, Sr. DR, Birch EE. Vernier acuity cards: An examination of development and evaluation of clinical/screening validity, *Optometry & Visual Science*, in press.
201. O'Connor A, Birch E, Anderson S, Draper H, and the FSOS research group. The relationship between binocular vision, visual acuity, and fine motor skills, *Optometry & Visual Science*, under revision.
202. Fu VLN, Feliuss J, Hertle R, Birch EE. Visual development of children with infantile nystagmus syndrome (INS), under revision.
203. Feliuss J, Vu CH, Wang J, Stager Jr DR, Stager Sr DR. Relation between foveation and sensory function after nystagmus surgery in children, under revision.
204. Drover JR, Hoffman DR, Castañeda Y, Morale SE, Garfield S, Wheaton DH, Birch EE. The DIAMOND study: A double masked, randomized controlled clinical trial of

cognitive development as a function of the dietary level of docosahexaenoic acid, under review.

205. Birch EE, Stager Sr DR, Wang J, O'Connor AR. Longitudinal changes in refractive error of children with infantile esotropia, under review.

206. Pineles SL, Birch EE, Talman LS, Sackel DJ, Conger A, Jacobs DA, Markowitz CE, Ying G-S, Dai Y, Maguire MG, Frohman EM, Calabresi PA, Galetta SL, Balcer LJ. One Eye or Two: the advantage and significance of binocular low-contrast acuity testing in multiple sclerosis, under review.

## RECENT ABSTRACTS

- Birch E, Cheng C, Vu C, Stager D. Monocular oral reading after treatment of dense congenital unilateral cataract. *American Association for Pediatric Ophthalmology & Strabismus*, 2009.
- Wang J, Wyatt L, Feliuss J, Stager Jr. D, Stager Sr. D, Birch E, Bedell H. Progression of with-the-rule astigmatism in children with infantile nystagmus syndrome. *American Association for Pediatric Ophthalmology & Strabismus*, 2009.
- Repka M, Kraker R, Beck R, Birch E, Cotter S, Holmes J, Hertle R, Hoover D, Klimek D, Pediatric Eye Disease Investigator Group. Treatment of severe amblyopia with atropine: Results from two randomized clinical trials. *American Association for Pediatric Ophthalmology & Strabismus*, 2009.
- Christiansen SP, Chandler DL, Holmes JM, Repka MX, Donahue S, Birch EE, Mohny BG, Bacal D, Verderber LC. Postoperative motor outcomes according to preoperative alignment stability in children with esotropia. *American Association for Pediatric Ophthalmology & Strabismus*, 2009.
- Wang J, Cheng C, Weakley D, Birch E. Risk factors for persistence of infantile anisometropia. *Association for Research in Vision & Ophthalmology*, 2009.
- Birch E, Wang J, Hatt S, O'Connor A, Drover J, Holmes J. Distance Randot® Stereotest: Normative Data and Validity. *Association for Research in Vision & Ophthalmology*, 2009.
- Repka M, Kraker R, Beck R, Birch E, Cotter S, Holmes J, Hertle R, Hoover D, Klimek D, Pediatric Eye Disease Investigator Group. Treatment of severe amblyopia with atropine: Results from two randomized clinical trials. *Association for Research in Vision & Ophthalmology*, 2009.
- Birch EE, Holmes JM. The clinical profile of amblyopia in children under 3 years of age. *American Association for Pediatric Ophthalmology & Strabismus*, 2010.
- Wang J, Spencer R, Birch EE. Foveal fine structure in children with regressed retinopathy of prematurity. *American Association for Pediatric Ophthalmology & Strabismus*, 2010.
- Subramanian V, Morale SE, Birch EE. Abnormal radial deformation hyperacuity in young children with strabismic amblyopia. *American Association for Pediatric Ophthalmology & Strabismus*, 2010.
- Subramanian V, Wang J, Berry PM, Hertle RW, Birch EE. Eye movement and optic nerve abnormalities in persistent amblyopia. *Association for Research in Vision & Ophthalmology*, 2010.
- Wang J, Spencer R, Leffler JN, Birch EE. Spectral domain OCT fine foveal structure in children with regressed retinopathy of prematurity. *Association for Research in Vision & Ophthalmology*, 2010.

Birch EE, Wang J, Felius J, Stager DR, Jr, Hertle RW. The critical period for fixation control and eye alignment in children treated for dense congenital or developmental cataracts. Association for Research in Vision & Ophthalmology, 2010.

Adams RJ, Dove CN, Drover JR, Norman BR, Birch EE, Wang Y-Z, Courage ML. Assessing eye and visual functioning in children and young adults with autism spectrum disorder. Association for Research in Vision & Ophthalmology, 2010.

## **CURRENT GRANT SUPPORT**

EY05236      *Development and Maintenance of Binocular Vision*      06/01/09 – 05/31/11

Eileen E. Birch (Principal Investigator)

The major goals of this project are to delineate the necessary and sufficient conditions for development of normal binocular vision and to evaluate the efficacy and effectiveness of treatment protocols in rehabilitating normal binocular vision in infants with congenital or early onset binocular imbalance.

Gerber Foundation

5/01/08 – 4/30/11

Eileen E. Birch (Principal Investigator)

The major goals of this grant are to investigate the critical period for treatment of bilateral cataracts and for eye movement abnormalities associated with congenital unilateral and bilateral cataracts.

Mead Johnson Nutritionals Protocol 3370-2

10/01/03– 12/31/11

Eileen E. Birch (Principal Investigator)

The major goal of this contract is to determine the essentiality of omega-3 and omega-6 long chain polyunsaturated fatty acids for normal development of the retina and brain in fullterm infants. This grant paid for the randomized trial on which the current proposal is based. These funds pay for follow-up testing of the randomized infants through 4 years of age, data analysis, and manuscript preparation.

EY11751

NIH/NICHD

Pediatric Eye Diseases Investigator Group

This is an ongoing, cooperative agreement from the National Eye Institute to support a series of multicenter clinical trials in pediatric ophthalmology, including the Amblyopia Treatment Studies (ATS).

Role: Consultant; Member of the Executive Committee; Member of Steering Committees

## **HONORS**

Distinguished Lecturer, Ohio State University, 1992

Certificate of Appreciation, ARVO, for organizing the Gesine Mohn Travel Grant, 2000

Marshall M. Parks Lecturer, American Academy of Ophthalmology, 2002

Honorary Member, American Association of Pediatric Ophthalmology & Strabismus,  
2006

Pediatric Glaucoma and Cataract Family Association Award, 2008

ARVO Fellow, 2009

## **OTHER RESEARCH RELATED ACTIVITIES**

### ***Editorial Board:***

Binocular Vision (1987-1994)

Investigative Ophthalmology and Visual Science (1998-2003)

Journal of AAPOS (2006- )

### ***Journal Referee:***

Acta Ophthalmologica Scandinavia

Acta Paediatrica

American Journal of Clinical Nutrition

American Journal of Ophthalmology

Applied Optics

Archives of Ophthalmology

American Journal of Clinical Nutrition

Binocular Vision

Biology of the Neonate

British Journal of Ophthalmology

British Medical Journal

BMJ Clinical Evidence

Clinical Vision Science

Comparative Biochemistry and Physiology

Diabetes

Documenta Ophthalmologica

Early Human Development

European Journal of Clinical Nutrition

Investigative Ophthalmology and Visual Science

Journal of AAPOS

Journal of Neurochemistry

Journal of Pediatrics

Journal of Pediatric Ophthalmology & Strabismus  
The Lancet  
Lipids  
Molecular Vision  
Pediatric Research  
Ophthalmic & Physiological Optics  
Ophthalmology  
Optometry & Physiological Optics  
Optometry & Vision Science  
Perception and Psychophysics  
Vision Research

***Extramural Grant Reviewer:***

Member, Grant-In-Aid Review Panel (1992-1994), Fight for Sight  
Member, Visual Sciences B Study Section, National Institutes of Health, (1994-1998)  
Member, National Advisory Eye Council, (2004-2007)  
Ad Hoc Reviewer, National Institutes of Health  
Ad Hoc Reviewer, National Science Foundation  
Ad Hoc Reviewer, March of Dimes  
Ad Hoc Reviewer, Medical Research Council  
Ad Hoc Reviewer, Fight for Sight  
Ad Hoc Reviewer, Fight for Sight (UK)  
Ad Hoc Reviewer, Cochrane Eyes and Vision Group

***Service:***

Institutional Review Board Member, Texas Retina Associates, 1985-1995  
Trustee, Retina Foundation of the Southwest, 1987-Present  
Advisory Board Member, Dallas Services for Visually Impaired Children, 1988-Present  
National Children's Eye Care Foundation Strategic Planning Committee Member,  
Amblyopia 20/20 Project, 1991-1996  
Member, National Vision Screening Workshop, 1992-1995  
Member, Scientific Integrity Committee, Retina Foundation of the Southwest, 1992-  
Present  
Institutional Review Board Member, Greenville Surgery Center, 1994 - 2000  
Lead Organizer, ARVO Mini-symposium, "Co-Development of Eye Alignment,  
Stereopsis and Motion Processing", Association for Research in Vision and  
Ophthalmology, 1994  
Member, Program Committee, OSA/Noninvasive Assessment of the Visual System,

1994-1995

Chair, Program Committee, OSA/Noninvasive Assessment of the Visual System, 1996

Chair, Advisory Committee, OSA/Visual Science and Its Applications, 1997

Member, Advisory Committee, OSA/ Visual Science and Its Applications, 1995-1997

Principal Scientific Advisor, National Children's Eye Care Foundation Strategic

Planning Committee member for Amblyopia 20/20 Project, 1995-2002

Member, Ethics and Scientific Misconduct Committee, Retina Foundation of the Southwest, 1995-Present

Parent Volunteer, Vision Screening, St. Rita Catholic School, 1995-2005.

Member, Steering Committee, Early Surgery for Congenital Esotropia Trial, 1996- 2001

Member, Executive Committee, Infant Aphakia Treatment Study Group, 1997-1999.

Member, Executive Committee, Pediatric Eye Disease Investigator Group (PEDIG), 1998- Present

Member, Steering Committee, Amblyopia Treatment Studies, 1999- Present

Member, Eye Movements and Strabismus Program Committee, ARVO, 2000- 2003

Member, CEMAS Working Group, National Eye Institute, 1999-2001

Chair, Eye Movements and Strabismus Program Committee, ARVO, 2002-2003

Member, Data Monitoring and Oversight Committee, Baltimore Pediatric Eye Disease Study, 2003-2007.

Member, National Advisory Eye Council, 2004-2007

Member, Steering Committee, Esotropia Treatment Studies, 2004- Present

Member, Data Monitoring and Oversight Committee, Multi-Ethnic Pediatric Eye Disease Study, 2003-Present.

Member, Data Safety Monitoring Committee, Infant Aphakia Treatment Study, 2004 – Present

Member, Strabismus Institute of the National Children's Eye Care Foundation, 2005- Present

Member, NIH Toolbox Vision Team, 2007-2010

## TRAINING

### *Post-doctoral fellows:*

Jeffrey Hunter, MD	1995
Solange Salomão, PhD	1995-1997
Sherry Fawcett, PhD	1997-2000
Maria Pesheva, MD	1998-2000
Brett Jeffrey, PhD	1999-2001
Anna O'Connor, Ph.D.	2001-2002
Rain Bosworth, Ph.D	2001-2004
Valeria Fu, Ph.D.	2004-2007
James Drover, Ph.D.	2006-2008
Jingyun Wang, Ph.D.	2007-Present
Vidhya Subramanian	2009-Present

### *Doctoral theses:*

Mark Bane	1984-1987
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### *Summer biomedical science interns:*

Nathan Fish	1990
Julia Tyson	1991
Allison Barlow	1992, 1993
Mark Pennesi	1994
Jennifer Hill	1995
Kelly Hicks	1996
Sara Hoffman	1996, 1997
Kimberly Lloyd	1998
Jamie Weems	1999, 2000, 2001, 2002 (Fight for Sight Internship)
Amy McGehee	2001 (Fight for Sight Internship)
Christine Borowy	2003 (Fight for Sight Internship)
Amanda Lloyd	2004 (ExxonMobil Internship)
Christina Cheng	2004 (Fight for Sight Internship)
Mary Goldsmith	2005 (ExxonMobil Internship)
Laura Ellington	2006 (ExxonMobil Internship)
Robert Cousins	2006, 2007 (ExxonMobil Internship)
Christina Vu	2007
Christina Vu	2008 (Fight for Sight Internship)
Kristina Karganova	2008 (ExxonMobil Internship)
Andrew Bowman	2009

*Bridge year interns*

Amy McGehee	2001-2002
Christine Borowy	2003
Marianne Hedrick	2004
Amanda Lloyd	2004
Christina Vu, BS	2008-2009
Pooja Patel, BS	2009-2010
Reed Joost, BS	2010-2011