

## AOC-AAPOS Combined Workshop: Thinking outside the BOTOX: A Tribute to Alan Scott

### References

#### **Introduction : Sarah Whitecross CO/Doug Fredrick MD**

Binenbaum G, Chang MY, Heidary G, Morrison DG, Trivedi RH, Galvin JA, Pineles SL. Botulinum Toxin Injection for the Treatment of Strabismus: A Report by the American Academy of Ophthalmology. *Ophthalmology*. 2021 Dec;128(12):1766-1776. doi: 10.1016/j.ophtha.2021.05.009. Epub 2021 Jun 25. PMID: 34176652.

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#### **History of Botox : Gene Helveston MD**

Scott AB. Botulinum toxin injection of eye muscles to correct strabismus. *Trans Am Ophthalmol Soc*. 1981;79:734-70. PMID: 7043872; PMCID: PMC1312202.

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#### **Botox for infantile ET : Alejandra de Alba Campomanes MD**

Scott AB, Magoon EH, McNeer KW, Stager DR. Botulinum treatment of childhood strabismus. *Ophthalmology*. 1990 Nov;97(11):1434-8. doi: 10.1016/s0161-6420(90)32390-4. PMID: 2255516.

de Alba Campomanes AG, Binenbaum G, Campomanes Eguiarte G. Comparison of botulinum toxin with surgery as primary treatment for infantile esotropia. *J AAPOS*. 2010 Apr;14(2):111-6. doi: 10.1016/j.jaapos.2009.12.162. PMID: 20451851.

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#### **Botox for acute esotropia: Sarah MacKinnon CO**

Scott AB, Kraft SP. Botulinum toxin injection in the management of lateral rectus paresis. *Ophthalmology*. 1985 May;92(5):676-83. doi: 10.1016/s0161-6420(85)33982-9. PMID: 4011142.

Wan MJ, Mantagos IS, Shah AS, Kazlas M, Hunter DG. Comparison of botulinum toxin with surgery for the treatment of acute-onset comitant esotropia in children. *Am J Ophthalmol*. 2017 Apr; 176:33-39. doi: 10.1016/j.ajo.2016.12.024.

---

**Botox for Intermittent Exotropia: David Hunter MD PhD**

Razavi ME, Sharifi M, Armanfar F. Efficacy of botulinum toxin in the treatment of intermittent exotropia. *Strabismus*. 2014 Dec;22(4):176-81. doi: 10.3109/09273972.2014.962750. Epub 2014 Oct 14.

Al Hemaidi SS, Sesma G, Ahmad K, Alghofaili RS, Awad RA. Efficacy of Botulinum Toxin Injection in Exotropia Treatment. *Middle East Afr J Ophthalmol*. 2021 Dec 31;28(3):164-168. doi: 10.4103/meajo.meajo\_269\_21. eCollection 2021 Jul-Sep. PMID: 35125798

Su H, Fu J, Wu X, Sun A, Zhao B, Hong J. Comparison of Botulinum toxin type A with surgery for the treatment of intermittent exotropia in children. *BMC Ophthalmol*. 2022 Feb 4;22(1):53. doi: 10.1186/s12886-022-02285-2. PMID: 35114960

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**Beyond mechanics – Modeling eye movements: Joe Demer MD**

Scott AB. Editorial on recent advances: A plea for models. *Invest Ophthalmol*. 1975 Nov;14(11):799-800. PMID: 1184314.

Miller JM, Robinson DA. A model of the mechanics of binocular alignment.

*Comput Biomed Res*. 1984 Oct;17(5):436-70. doi: 10.1016/0010-4809(84)90012-0.

PMID: 6488757.

Robinson DA, O'Meara DM, Scott AB, Collins CC. Mechanical components of human eye movements. *J Appl Physiol*. 1969 May;26(5):548-53. doi: 10.1152/jappl.1969.26.5.548. PMID: 5781605.

Scott AB, Collins CC. Division of labor in human extraocular muscle. *Arch*

*Ophthalmol*. 1973 Oct;90(4):319-22. doi: 10.1001/archopht.1973.01000050321017.

PMID: 4746649.

Miller JM, Demer JL, Poukens V, Pavlovski DS, Nguyen HN, Rossi EA.  
Extraocular connective tissue architecture. J Vis. 2003;3(3):240-51. doi:  
10.1167/3.3.5. PMID: 12723968.

---

**Bridging the gap -Botox before surgery: Dusty Gronemyer CO**

Scott AB. Botulinum toxin injection into extraocular muscles as an  
alternative to strabismus surgery. J Pediatr Ophthalmol Strabismus. 1980 Jan-  
Feb;17(1):21-5. doi: 10.3928/0191-3913-19800101-06. PMID: 7365644.

Gómez de Liaño R. The Use of Botulinum Toxin in Strabismus Treatment. J  
Binocul Vis Ocul Motil. 2019 Apr-Jun;69(2):51-60. doi:  
10.1080/2576117X.2019.1601973. Epub 2019 May 6. PMID: 31058579.

---

**Teaching trainees how to use Botox: Doug Fredrick MD**

Yang HK, Kim DH, Hwang JM. Botulinum toxin injection without  
electromyographic guidance in consecutive esotropia. PLoS One. 2020 Nov  
12;15(11):e0241588. doi: 10.1371/journal.pone.0241588. PMID: 33180838; PMCID:  
PMC7660504.

Kassem RR, Badr RAA, Al Zarea BKA, Almasaud JS, Alshomer FM, El-Sada MA,  
Zedan RH. Botulinum Toxin Injection in Horizontal Rectus Muscles Without  
Electromyography Using an Open Sky Versus a Closed Sky Technique. J Pediatr  
Ophthalmol Strabismus. 2022 Nov-Dec;59(6):388-395. doi:  
10.3928/01913913-20220210-03. Epub 2022 Mar 11. PMID: 35275777.

Kao LY, Chao AN. Subtenon injection of botulinum toxin for treatment of  
traumatic sixth nerve palsy. J Pediatr Ophthalmol Strabismus. 2003 Jan-  
Feb;40(1):27-30. doi: 10.3928/0191-3913-20030101-09. PMID: 12580268.

Benabent EC, García Hermosa P, Arrazola MT, Alió y Sanz JL. Botulinum toxin injection without electromyographic assistance. *J Pediatr Ophthalmol Strabismus*. 2002 Jul-Aug;39(4):231-4. doi: 10.3928/0191-3913-20020701-12. PMID: 12148557.

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**Use of Bupivacaine: Bill Good MD**

Scott AB, Miller JM, Shieh KR. Treating strabismus by injecting the agonist muscle with bupivacaine and the antagonist with botulinum toxin. *Trans Am Ophthalmol Soc*. 2009 Dec;107:104-9. PMID: 20126486; PMCID: PMC2814569.

Miller JM, Scott AB, Danh KK, Strasser D, Sane M. Bupivacaine injection remodels extraocular muscles and corrects comitant strabismus. *Ophthalmology*. 2013 Dec;120(12):2733-2740. doi: 10.1016/j.ophtha.2013.06.003. Epub 2013 Aug 2. PMID: 23916485.

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**Combined Resection-Recession on a Single Extraocular Muscle for Incomitant Deviations: Gill Roper-Hall CO**

Roper-Hall G, Cruz OA. Results of combined resection-recession on a single rectus muscle for incomitant deviations-an alternative to the posterior fixation suture. *J AAPOS*. 2017 Apr;21(2): 89-93.e1. doi: 10.1016/j.jaapos.2016.12.003.

Scott A.B.: Lennerstrand G. Posterior fixation: adjustable and without posterior sutures. 1995. pp. 399-402. *Proceedings VIIth Congress International Strabismological Association* CRC Press, Inc.

Thacker N.M., Velez F.G., Rosenbaum A.L.: Combined adjustable rectus muscle resection- recession for incomitant strabismus. *J AAPOS* 2005; 9: pp. 137-140.

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Closing/Summary/Questions (10 min):