

**Carlo Aleci, MD, Ph.D**

## ***CURRICULUM VITAE***

Born in 1969 in Turin, Italy. Secondary school focused on humanities.

Graduated in Medicine at Turin University in 1993 with a dissertation on diabetic retinopathy.

Postgraduated in Ophthalmology at Turin University in 1997 with a final dissertation on a psychophysical test personally devised to evaluate spatial relationship perception in neuro-ophthalmological patients (*Eidomorphometry*).

In 1998-2004 teacher of topics related to neuro-ophthalmology, psychophysics and strabology to trainees in ophthalmology and vision sciences at the University of Turin.

From 1998 to 2000 fellowship in the Low Vision Centre of Turin as a researcher in low vision-inducing ocular pathologies and *retinitis pigmentosa*.

Until 2004 Consultant of the Centre of Neuro-Ophthalmology, University of Turin.

In 2003 Ph.D in Ophthalmological Sciences, with the doctoral dissertation titled *Curvature analysis, spatial relationship perception and quality of vision in neurophysiological and ophthalmological field*.

From 2006 to 2018 employed at the Gradenigo Hospital, Department of Ophthalmology, Turin, and in charge of the Outpatient Clinic for Glaucoma, the Outpatient Clinic of Neuro-ophthalmology and the service of Perimetry in the aforementioned hospital.

### **Tenures**

Professor on contract of Strabismology for the bachelor's degree in Orthoptics and Ophthalmology Assistant at the University of Turin since 1998.

Professor on contract of Psychophysics of Vision for the bachelor's degree in Orthoptics and Ophthalmology Assistant at the University of Turin since 2013.

Workshop on developmental dyslexia and ocular movements financed by the Turin Lions Club on February-May 2009.

### **Awards**

In 1997 awarded for the best research at the XXII meeting of the Northwestern Ophthalmological Society (SONO) for the study titled "*Polarized Light Perimetry and glaucoma: possibility of differential sensitivities as a function of the polarization axis*".

In 2000 awarded for the best research at the XXV meeting of the Northwestern Ophthalmological Society (SONO) for the study titled "*Spatial relationship perception in the dyslexic child: a novel reading key?*"

In 2001 Awarded for Research in Ophthalmology-2001

In 2001 winner of the Memorial Prof. Gallenga Award with the monograph titled "*Neuro-Ophthalmology*" (in Italian).

### **Fellowships**

Ex-Member of the Italian Perimetric Society (SIpE).

Member of the International Perimetric Society (IPS).

Member of the Italian Ophthalmological Society (SOI)

Ex member of the *Interdisciplinary Study Group of Posturology* in collaboration with The Gnatologic Department and the Otorhinolaryngology Department of the University of Turin in 2002-2003.

Ex member of the *Research and Interdisciplinary Formation in Mathematics and Biomedicine Group* [MeRIMa] established at the Mathematics Department of the University of Turin in 2006.

### **Invitations for lectures.**

- Vision and Dyslexia, Ivano Fracena, June, 19th-21st, 2003

- From the ABC to the OCT, Turin, November, 7th, 2003

- The Social Dimension of the Communication: Need for a Social-Sanitary Integrate Approach to Support the Adult and Elderly. Turin, March 1st-2nd, 2006
- Mathematical Approach to Visual Psychophysics, Turin, December 13th, 2006
- Primary Headache and Eye, Turin, December, 1<sup>st</sup>, 2007
- Mind and Visual Art, Turin, November 21th, 2008
- Spatial Vision and Developmental Dyslexia, Genoa, September 26<sup>th</sup>, 27<sup>th</sup>, 2008
- Visual Dyslexia, Turin, May, 4th, 2009
- Ophthalmological Alterations in Parkinson's Disease, Turin, April, 2008
- Reading and Interpreting the Automated Visual Field, Savigliano, December, 4th, 2009
- Ophthalmological and Orthoptic Evaluation in Learning Specific Disabilities and Visuospatial Component-Related Intervention Possibilities, Milan, December, 19th, 2009
- Ophthalmological and Orthoptic Evaluation in Learning Specific Disabilities and Visuospatial Component-Related Intervention Possibilities, Rome, May, 19th, 2010
- Ophthalmological and Orthoptic Evaluation in Learning Specific Disabilities and Visuospatial Component-Related Intervention Possibilities, Verona, May, 26th, 2010
- Perimetry: psychophysical, theoretical and clinical aspects, Bozen, April 9th, 2011
- Oculomotor and visuperceptive alterations in dyslexics. diagnosis and rehabilitative follow-up. Turin, October, 26<sup>th</sup>, 2011.
- Dyslexia and Vision, Milan, November, 4<sup>th</sup>, 2011.
- Functional and structural damage progression in glaucoma (part of the project *Save Sight Years*), Pisa, October, 13<sup>th</sup> -14<sup>th</sup>, 2012.
- Hemianopia and visual rehabilitation, in the symposium : *Visual field deficit rehabilitation: what are the strategies?* Villa Gualino, Turin, October, 24<sup>th</sup> 2012 and December, 6<sup>th</sup> 2012.
- The Tetra protocol in developmental dyslexics, Milan, December, 10<sup>th</sup>, 2012.
- Papilloedema and related pathologies, Turin, March, 23<sup>rd</sup>, 2013.
- Spatial vision in dyslexics as a dialectical solution: from the hypothesis of the perceptual shrinking to the TETRA protocol. Visual rehabilitation between myth and reality, in the symposium: *Specific Learning Disabilities: a glance at dyslexia*. Savigliano, September, 27<sup>th</sup>, 2013.
- Developmental dyslexia: main neuro-ophthalmological features and visual rehabilitation between myth and reality, in the symposium: *Specific Learning Disorders: the orthoptic examination and the point of view of the specialists*. Gardolo, Trento, November, 23<sup>rd</sup> 2013.
- The tetra protocol. Biella, November, 30<sup>th</sup> 2013
- State of the Art in Treatment and Rehabilitation. Learning Disabilities. XXXIX Meeting of the Northwestern Ophthalmological Society, Sanremo, October, 3-4, 2014.
- Neuro-ophthalmological aspects in developmental dyslexia, Florence, December, 14<sup>th</sup>, 2014.
- Neuro-ophthalmological assessment in the child suffering from specific learning disabilities. Turin, April, 11<sup>th</sup> 2015.
- The relationship between vision and dyslexia. Verona, May 10<sup>th</sup>, 2015, repeated every year.
- Does visual dyslexia exist? Presented at the symposium: Rehabilitative harmonization in developmental dyslexia, Turin, October, 21<sup>st</sup>, 2016
- Learning Disabilities...and Beyond. Venice, October, 5<sup>th</sup>, 2018.

## Interviews

*L'Oculista Italiano (The Italian Ophthalmologist)* (N.128, October 2000-January 2001) about the Eidomorphometry

*Informaconsumatori* (periodic newspaper) March 2009 focused on the relationship between developmental dyslexia and visual system.

## Diagnostic psychophysical tests

- *Eidomorphometry* aimed at evaluating spatial relationship perception and spatial relationship-related anisotropy of the visual system in dyslexic and neuro-ophthalmological patients.
- *Eidomorphometry*<sup>TM</sup> based on Eidomorphometry: perimetric examination aimed at studying the qualitative visual field.

- *Metamorphometry™ (or Computerized Amsler test)*: aimed at detecting and quantifying the extension and deepness of metamorphopsiae in patients affected by maculopathy.
- *Contrast Sensitivity Test*: aimed at measuring the CS function from 0.75 up to 12 cycles/degrees based on a 4-2 staircase procedure.
- *OKT*: aimed at measuring visual acuity in preverbal children or for medical-legal purpose by means of optokinetic nystagmus.
- *Reading Performance Test (REPORT)* aimed at measuring dyslexics' reading performance under anisotropic conditions
- *DomiTest-M and DomiTest-S* aimed at estimating the motor and sensorial ocular dominance.
- *Trigram* aimed at rehabilitating reading performance of patients suffering from dyslexia, maculopathy, amblyopia and visual field defects via improvement of the lateral masking.
- *Crowding Estimator* aimed at measuring psychophysically crowding (lateral masking) at different eccentricities across the visual field.
- *Eta/Mu model* aimed at assessing whether children with dysgraphia and in general learning disabilities suffer from a selective visuoperceptive impairment, a specific eye-hand coordination problem, or from a defect in their integration.

### **Books**

- *Dyslexia: A Visual Approach*. Nova Science Publishers Inc., New York, 2013.
- *Dislessia: l'Approccio Visivo, Italian Edition*, LaFeltrinelli, Milan, 2014
- *Measuring the Soul. Introduction to Psychophysics for Non-Psychophysicians (in Italian)*, LaFeltrinelli, Milan, 2014
- *Interpreting the TETRA Analyzer (in Italian)*. LaFeltrinelli, Milano, 2015.

### **Editorial Board Memberships and Reviewing**

Editor-in Chief of *Neuro-Ophthalmology & Visual Neuroscience*.

Editor of *American Journal of Medical and Biological Research*.

Editor of *International Journal of Neurology Research*.

Editor of *Ophthalmology Research and Reports*.

Reviewer of studies submitted to:

- *PlosONE*

- *Clinical Ophthalmology*

- *The Open Journal of Ophthalmology*

- *Eye and Brain*

- *Clinical Optometry*

- *American Journal of Pharmacological Sciences*

- *Neural Regeneration Research*

*Journal of Biological Regulators & Homeostatic Agents*

Reviewer at the 3<sup>rd</sup> International Conference on Biomedical Engineering and Biotechnology (ICEB 2014)

## International Publications and Communications

Boles Carenini B, Aleci C, Palanza L, Brogliatti B. Polarized light Perimetry: possible acquisition, in the glaucomatous eye, of differential sensitivities in respect to the polarization axis. Personal communication at the 2° International Glaucoma Symposium, Jerusalem, March, 15-20 1998, published in the congress book, p.61.

Aleci C, Boles Carenini B. Evidence for the recovery of ocular hypertone human retina sensitivity to polarized light: barostress phylogenetic regression theory. Presented at the 80° meeting of the *Association des Anatomistes*, Turin, May, 20-23, 1998.

Palanza L, Aleci C, Brogliatti B, Boles Carenini B. Polarized light perimetry and advanced glaucoma. Presented at the XIII Symposium of the International Perimetric Society, Gardone Riviera, September, 6-9, 1998, published in the congress book, p.29.

Aleci C, Bredariol C, Labanca I, Musso M. A new method for the study of simple formal perception: eidomorphometry. Preliminary results. *New Trends Ophtalm.* Vol.XIII, 30, 1998.

Aleci C, Brogliatti B, Boles Carenini B. The recovery of sensitivity to polarized light by the human retina in conditions of ocular hypertension: the theory of barostress phylogenetic regression. Theoretical aspects. *New Trends Ophthalm.* Vol.XIII, 67, 1998.

Palanza L, Aleci C, Magistro G, Brogliatti B, Boles Carenini B. Polarized Light Perimetry and advanced glaucoma. *New Trends Ophtalm.* Vol.XIII, 69, 1998.

Aleci C, Bredariol C, Sciandra L, Cavagnino D, Musso M. Studio della percezione spaziale in soggetti affetti da paralisi cerebrale infantile valutata mediante una tecnica sperimentale computer-assistita (Eidomorfometria). Presented at the II Meeting of the Italian Strabismological Association, Florence, May, 26-27, 2000, published in the abstract book, p.53.

Aleci C, Sciandra L, Tonini L, Palanza L, Fea A, Brogliatti B, Croce S, Iato MS, Boschetti R. Is Chromium supplementation effective in improving visual function in preretinitic diabetic patients? Presented at the International Forum on Diabetic Retinopathy, Naples, September, 7-9, 2000, published in the abstract book, p.39.

Aleci C, Sciandra L, Tonini L, Gallo R, Piccoli M, Musso M. Objective evaluation and perceptive effects of the cyclotorsional component in vertical non-comitant strabismus. Presented at 27<sup>th</sup> annual meeting of the European Strabismological Association, Florence, June, 7-9, 2001, published in the congress book, p.40 and in *Transactions 27<sup>th</sup> meeting European Strabismological Association*, 37, 2001.

Aleci C, Dogliani M, Sciandra L, Cavagnino D, Bredariol C, Musso M, Grignolo FM. The “perceptive spreading”: a different approach to current theories on aetiology of dyslexia. Personal communication at the XV International Congress of Eye Research (ICER), Geneva, October 6-10, 2002.

Grignolo FM, Vera Torres LF, Aleci C, Cattani I, Roagna B, Brogliatti B, Rolle T. Detection of programmed retinal ganglion cells death areas in initial stages of primary open angle glaucoma with “polarized light sensitivity”. Personal communication at EVER 2002, Alicante, October 2-5, 2002.

Aleci C, Usai T. Testing Spatial detection and light sensitivity in homonymous haemianopia by Rarebit and conventional automated perimetry. *The Open Ophthalmology Journal*, 2, 153-159, 2008.

Aleci C, Liboni W. Perceptive aspects of visual aura. *Neurological Sciences* 30, 447-452, 2009.

Aleci C, Piana G, Anselmino F. Evaluation of spatial anisotropy by curvature analysis of elliptical targets. *The Open Ophthalmology Journal*, 4, 15-21, 2010.

Aleci C, Piana G, Piccoli M, Bertolini M. Developmental dyslexia and spatial relationship perception. *Cortex*, 48, 466-476, 2012.

Aleci C, Usai T, Paiola M. Light sensitivity and visual field extension in hemianopes wearing halfmoon prismatic sectors. *American Journal of Medical and Biological Research*, 1 (3), 77-85, 2013.

Aleci C, Cavaglià L, Piana G, Usai T. Domitest-S: A Novel Dichoptic Technique to Assess Ocular Sensory Dominance In Children. A population study. *British Journal of Medicine & Medical Research*, 4(6): 1371-1382, 2014.

Aleci C, Canavese L. Fast eye movements and slow eye movements in congenital neurosensorial deaf subjects as assessed by 2d video-oculography™. *Ophthalmology Research: An International Journal*, 2(3): 157-164, 2014.

Aleci C. The game of reading: when saccades and fixations play on a seesaw. *American Journal of Medical and Biological Research*, 2(2), 31-36, 2014.

Aleci C, Cafasso R, Canavese L. Improving crowding in dyslexic children by visual training: conflicting results from a single masked cross-over pilot study. *British Journal of Medicine & Medical Research*, 4(20), 3720-3733, 2014.

Aleci C. Colored filters and dyslexia. a quick gliding over myth and (possible) reality. *Neuro-ophthalmology & Visual Neuroscience*, 1(1), 18-21, 2014.

Aleci C, Belcastro E, Canavese L. Visual training helps improve reading in dyslexic children with abnormal crowding. *Ophthalmology Research: An International Journal*, 3(3), 85-94, 2015.

Aleci C. Advancing a model to account for abnormal spatial relationship perception in bulbar cyclotorsion. *Cureus*, 7(4): e264. doi:10.7759/cureus.264, 2015.

Aleci C, Mannone C, Rebaudengo N. On the Relationship Between Ocular and Ventricular Fluid Dynamics. Advancing a Joint Classification and a Pilot Study in Patients Suffering from Nonocclusive Hydrocephalus. *Neuro-Ophthalmology & Visual Neuroscience*, 1(1), 27-36, 2015.

Aleci C, Canavese L. A computational approach to the anamnestic collection in neuro-ophthalmology: the Analytic Anamnestic Protocol. *Research*, 2, 1421, 2015.

Aleci C, Belcastro E. Parallel convergences: a glimpse to the magno- and parvocellular pathways in visual perception. *World Journal of Research and Review*, 3(3), 34-42, 2016.

Aleci C. Rationale of polyunsaturated fatty acids supplementation in the frame of the magnocellular theory of dyslexia. *Journal of Advances in Medical and Pharmaceutical Sciences* 12(4): 1-9, 2017.

Aleci C, Scaparrotti M, Fulgori S, Canavese L. A novel and cheap method to correlate subjective and objective visual acuity by using the optokinetic response. *International Ophthalmology*, DOI. 10.1007/s10792-017-0709-x, 2017.

Aleci C, Blanc M, Canavese L. Detecting Visuoperceptive Defects in Adult Disabled Readers with the TETRA Analyzer™. Normative Data and Test-retest Reliability. *Ophthalmology Research: An International Journal*, 7(3), 1-13, 2017.

Aleci C, Saldutto V, Canavese L. Detecting Visuoceptive Defects in Adolescent and Adult Disabled Readers with the TETRA Analyzer™. Pathological Sample and comparison with normal readers. Ophthalmology Research: An International Journal, 7(4), 1-12, 2017.

Aleci C, Piccoli, M, Melotti, Melis E, Canavese L. Separating Visuospatial from Visuomotor Coordination in Skill Estimation in Learning Disabled Children: the Eta-Mu Model. Cureus, 9(12):e1901.doi:10.7759/cureus.1901, 2017.

Aleci C. A brief consideration of the paper by Suttle et al about the repeatability of tinted lenses. Ophthalmic & Physiological Optics, 38: 468-469, 2018

Aleci C, Cossu G, Belcastro E, Canavese L. The optokinetic response is effective to assess objective visual acuity in patients with cataract and age-related macular degeneration. International Ophthalmology, DOI: 10.1007/s10792-018-1001-4, 2018

Aleci C, Pira F. Bidimensional spatial distortion in quadrantanopia depends on the cortical damage and not on the deprived region in the visual field. Submitted, 2018. Ophthalmology Research: An International Journal, 3(3), 34-42, 2018.

Aleci C, Vai F. Assessing the share of impaired visual function, fine motor coordination, and visuomotor integration in learning disabled children with the eta/mu model. Submitted, 2018

Aleci C, Belcastro E, Piccoli M. Visual dyslexia: Towards an operational definition from a correlational study. Submitted, 2018

In witness whereof,

Carlo Aleci.

Turin, May, 2<sup>nd</sup> , 2019