

# EYE AND VISION

August 21-23, 2017 | Toronto, Canada

## Modern vitreoretinal surgery and new trends in the treatment of retinal disorders

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**Introduction:** Vitreoretinal surgery has far advanced since the last decades, coming to a modern area of both vitrectomy and viewing systems, as well as with better approaches from the retinal surgeon, with the use of smaller gauge instruments, making the procedure easier to perform, thus contributing to a better follow up and recovery from the surgery. Though repairing techniques have changed, scleral buckling techniques are still popular since Charles Schepens's techniques in the early 1950s. Combined approaches are still largely employed, increasing the likelihood of attaching the retina, such as pars plana vitrectomy and scleral buckling procedures, with laser or cryotherapy, the last one mentioned less used due to disadvantages involving retinal pigment epithelium spreading and proliferative vitreoretinopathy, but not counter indicated though. Even though the cost and equipment involving vitrectomies are higher than those of scleral buckling alone, the anatomical results are proved to be faster with both approaches rather than with just one. Scleral buckling techniques, even though used in a lesser extent, still have the indication especially in the phakic patient. For the pseudophakic or aphakic patient, some buckle techniques or modified and combined buckle and vitrectomy techniques are used, such as using a band together with vitrectomy to help increase the likelihood the retina will attach during and after the procedure is made. Vitreoretinal surgery used to take too long before the development of wide angle vitrectomy viewing systems. Before it, prisms lenses had to be rotated for the aim of viewing the far periphery, and the contact lens often had to be held with a ring on the cornea. With the advent of 23-gauge vitrectomy, 25 and 27 came afterwards and are far more used nowadays, and benefits are linked to better success rates. Intraoperative Optical Coherence Tomography assisted vitrectomies, despite expensive, are helping treat macular diseases as well as other vitreoretinopathies, giving a simultaneous visualisation of the procedure of the actual surgical record comparing with the topographical cut making it more accurate to approach the retina and expecting better outcomes. Magnifying lenses and inverting image systems are applied in the management of manage macular

diseases such as macular holes, epiretinal membranes and others such as proliferative vitreoretinopathy. The use of gas or silicon oils increased overtime, as well as fluorocarbon liquids, playing a very important role not only in repairing retinal detachments, but also helping the surgeon control better hard and demanding cases.

**Conclusions:** We conclude that such a combined approach to primary pseudophakic and aphakic retinal detachments offers significant benefits to scleral buckling alone. We believe that the improved success rate is a function of vitrectomy contributing to both an improved peripheral visibility, resulting in fewer missed peripheral breaks, and a lower likelihood of proliferative vitreoretinopathy. We recommend this combined surgical approach for all primary pseudophakic and aphakic retinal detachments. We conclude that such a combined approach to primary pseudophakic and aphakic retinal detachments offers significant benefits to scleral buckling alone. We believe that the improved success rate is a function of vitrectomy contributing to both an improved peripheral visibility, resulting in fewer missed peripheral breaks, and a lower likelihood of proliferative vitreoretinopathy. We recommend this combined surgical approach for all primary pseudophakic and aphakic retinal detachments. Also, smaller gauge vitrectomies and wide-angle vitrectomy viewing systems help manage tough cases with less time and better outcome, making it feasible and more cost effective in today's vitreoretinal surgery techniques.

### Speaker Biography

Hudson Nakamura is a Medical Specialist in Ophthalmology and specialized in Retina and Vitreous. He completed his study from School of Medicine at the Federal University of Goiás – UFG and Residency from the Base Hospital of the Federal District - Brasília - DF. Presently, member of American Academy of Ophthalmology, Brazilian Council of Ophthalmology, Canadian Society of Ophthalmology and also the member of most prestigious society ARVO - The Association for Research in Vision and Ophthalmology United States. He works as a Professor in Department of Retina and Vitreous Course of Medical Residency in Ophthalmology at the Bank of Goias Eye Foundation. He also works as Specialist in vitreoretinal disease Fellowship - University of Toronto Canada, Specialist in Ophthalmology - University of Toronto Canada, Specialist in vitreoretinal disease Fellowship - Brazilian Centre for Eye Surgery.

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