Professional Master's Degree

Macula, Retina and Vitreous Pathology and Surgery

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Professional Master's Degree

Macula, Retina and Vitreous Pathology and Surgery

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/medicine/professional-master-degree/master-macula-retina-vitreous-pathology-surgery**

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01

Introduction

Eye diseases can lead to complications that require specific action by the ophthalmologist. The complexities of these pathologies make it necessary for these professionals to sub-specialize, taking into account the different parts of the eye and the most appropriate techniques for intervention in each type of disease. Therefore, we have designed this program with the objective of training ophthalmologists and retinologists in this new field.

Learn about the main new developments in Macula, Retina and Vitreous Pathology and surgery, and offer more personalized care to your patients"

This Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery deals in depth with all the subspecialties of the retina, delving deeply into other major issues, such as AMD (Age-Related Macular Degeneration). In addition, the specific subjects on surgery provide an additional value to this educational project, whose main objective is to offer higher training and high academic level to favor the need for study of these professionals and to enhance their professional training.

Specifically, this educational program deals exhaustively with diseases such as AMD, which has broad repercussions in society and in daily life, or tumors, uveitis and infections, for which there is little bibliographic reference, so that higher education such as this will allow our students to obtain advanced knowledge in this field.

Completion of this Professional Master's Degree will give students the necessary security for the full development of their profession, covering complex pathologies and surgical processes that can be developed later in their daily clinical-surgical activity. It will also serve as a basis for further consultation in order to solve complex or doubtful cases in their daily work.

The Professional Master's Degree has a teaching staff specialized in ocular pathology and surgery, and who contribute both their practical experience of their day to day in private practice, as well as their long experience of teaching at international level. In addition, it has the advantage of being a 100% online program, so the student can decide where and when they want to study- This way, they will be able to flexibly self-direct their study hours.

This **Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- The development of more than 75 clinical cases presented by experts in ocular pathology and surgery
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- The presentation of practical workshops on procedures and techniques
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- Action protocols and clinical practice guidelines, which cover the most important latest developments in this specialist area
- Theoretical lessons, questions for experts, discussion forums on controversial issues and individual reflection work
- Special emphasis on test-based medicine and research methodologies
- Content that is accessible from any fixed or portable device with an Internet connection

This Professional Master's Degree is the best option you can find to increase your knowledge about eye diseases and add to your professional career"

This Professional Master's Degree is the best investment you can make in a specialisation to update your knowledge in Macula, Retina and Vitreous Pathology and Surgery"

This 100% online Professional Master's Degree will allow you to study from anywhere in the world. All you need is a computer or mobile device with an internet connection.

Our innovative teaching methodology will allow you to study as if you were dealing with real cases, and therefore increasing your training.

The teaching staff includes a team of prestigious urologists, who bring their experience to this training program, as well as renowned specialists from leading scientific societies.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide an immersive training experience designed to train for real-life situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this reason, you will be assisted by an innovative, interactive video system created by renowned and experienced experts in the field of Macula, Retina and Vitreous Pathology and Surgery with extensive teaching experience.

02

Objectives

The program in Macula, Retina and Vitreous Pathology and Surgery is designed to facilitate the performance of the healthcare professional with the latest advances and most innovative treatments in the sector.

This program will generate a sense of security in daily practice performance and help you grow professionally"

General Objectives

- Expand your knowledge about the anatomy and physiology of the retina, macula and vitreous
- Know in detail the physiology of colour vision and its functional tests
- Become familiar with the latest exploratory techniques such as angiography or OCT, for their application in a clinic
- Delve into the full extent and depth of diabetic retinopathy and its possible treatments
- Have an in-depth knowledge of branch vein and central retinal vein thrombosis and its possible treatments
- Broaden knowledge of central retinal artery embolism and its treatment
- Understand macroaneurysms, macular telangiectasias, their differential diagnosis and their possible treatments
- Expand knowledge of other retinal vascular pathologies
- Expand knowledge of the diseases affecting the epithelium pigment of the macula, Bruch's membrane and choroid - pachychoroids
- Understand maculopathy radiation, siderosis and chalcosis
- Learn about light stress disorders of the macula and other disorders such as epithelium pigment detachments or angioid streaks
- Have a broad perspective on pachychoroid diseases
- Expand knowledge about inflammatory diseases of the retina, macula and vitreous
- Know the diagnostic tests for uveitis, treatment of cystoid macular oedema, as well as other inflammatory diseases of the macula
- Delve into autoimmune retinopathies and masquerade syndromes
- Acquire a broad and in-depth knowledge of infectious diseases of the retina, macula and vitreous
- Study in-depth about hereditary retinal dystrophies
- Broaden the understanding of the pathology of the retina, macula and vitreous in the pediatric age group
- Provide a comprehensive overview of all aspects related to age-related macular degeneration
- Exapand knowledge of the full extent of retinal, choroidal and vitreous tumor pathology
- Provide the student with the highest level of knowledge in the world regarding retina, macula and vitreous surgery
- Deepen understanding of vitrectomies associated with complications of anterior pole surgeries
- Obtain detailed knowledge of surgery in diabetic patients, as well as surgical techniques applicable to endophthalmitis and virus retinitis
- Obtain a comprehensive and in-depth knowledge of all aspects of retinal detachment treatment
- Learn all about surgery for myopia, the most common diseases of the macula and ocular trauma
- Learn the latest surgical techniques

Our goal is to achieve academic excellence and to help you achieve it too"

Specific Objectives

Module 1. Anatomy, Physiology and Exploratory and Functional Tests

- Learn about the ophthalmoscope and its examination lenses
- Understand the slit lamp and its exploratory alternatives
- Deepen knowledge of the anatomy of the retina, macula and vitreous in all its possibilities
- Enhance knowledge of the ageing of the vitreous and the pathology it can cause
- An in-depth study of the physiology of vision and colour vision
- Knowledge of the optical pathway and its associated pathology
- Further explore the visual cortex
- Deepen the knowledge of electrophysiological tests that explore visual function
- Know retinography in all its modalities, fluorescein angiography and indocyanine green angiography
- Deepen understanding of OCT and angioOCT
- Further in the study of autofluorescence
- In-depth study of ocular ultrasound

Module 2. Vascular Pathology of the Macula and Retina

- Learn about the ocular physiology of diabetic retinopathy
- Understand the exploratory tests for diabetic retinopathy
- Have a deeper understanding of diabetic macular edema and its possible treatments
- Understand proliferative diabetic retinopathy and the treatments to be performed
- Be aware of the complications that can occur in diabetic retinopathy
- Know how to identify branch vein and central retinal vein obstruction and know the tests for its diagnosis
- Know about the possible treatments to apply
- Know how to treat branch or central retinal arterial embolism

- Know the functional tests and possible treatments to be applied
- Learn about retinal arterial macroaneurysm
- Gain an understanding of idiopathic macular telangiectasias, their classification and differential diagnosis, as well as their treatment
- Learn about ocular ischaemia syndrome
- Understand the ocular impact of high blood pressure
- Know how to identify Eales disease and the pathology associated with blood dyscrasias
- Know the differential diagnosis of macular and premacular haemorrhages and their possible treatments

Module 3. Diseases of the Pigmentary Epithelium, Bruch's Membrane, Choroid and Pachychoroid

- Know about radiation maculopathy
- Learn about retinal diseases such as siderosis, calcinosis and other retinal storage diseases
- Understand light toxicity diseases of the macula
- An understanding of macular drug toxicity
- Know about subretinal neovascularisation associated with scarring and other processes
- Gain knowledge about pigment epithelium detachment
- Gain a comprehensive understanding of angioid grooves and their possible complications
- Acquire a comprehensive knowledge of pachychoroid diseases

Module 4. Inflammatory Eye Diseases with Affectation of Macula, Retina and Vitreous

- Know the basic and exploratory principles of uveitis
- Learn about cystoid macular oedema
- Understand evanescent whitehead disease and associated diseases
- Know about acute multifocal posterior placoid disease
- Develop a thorough understanding of serpiginous choroiditis, Vogt-Koyanagi-Harada syndrome, multifocal choroiditis, sympathetic ophthalmia, autoimmune retinopathies, intermediate uveitis and masquerade syndromes

Module 5. Infectious Diseases of the Retina and Vitreous

- Acquire a general management of endophthalmitis
- Know the ocular involvement of human immunodeficiency virus, mycobacteria, spirochetal retinal infection, ocular toxoplasmosis, toxocariasis, ocular ascaris, ocular onchocerciasis, ocular loiasis, ocular cysticercosis, retinal involvement by Borrelia, retinal involvement by Bartonella, Leptospira retinal involvement, brucellosis retinal infection, Whipple's disease of the eye, ocular Rickettsiosis, ocular leprosy, ocular herpes virus infections and retinal involvement, presumptive histoplasmosis syndrome, ocular candidiasis and ocular amebiasis

Module 6. Hereditary Retinal Dystrophies and Paediatric Retinal Pathology

- Obtain a high level of training in all aspects of hereditary retinal dystrophies in detail
- Learn about retinopathy of prematurity and its possible treatments
- Gain knowledge of albinism, X-linked congenital retinoschisis, Best's disease, Stargardt's disease, familial exudative vitreoretinopathy, persistent fetal vasculature syndrome, Coats' disease, Norrie's disease, incontinentia pigmenti, retinal detachment in the paediatric age, detachment associated with retinal coloboma, Stickler's syndrome and Marfan's disease and how it affects the retina

Module 7. Age-Related Macular Degeneration (AMD)

- Learn about the epidemiology and genetics of AMD
- Gain a thorough understanding of the histopathology of AMD
- Understand all aspects of clinical examination and consultation findings in AMD
- Learn about everything related to OCT and OCT and AMD
- Deepen understanding of old and current classifications of AMD
- Learn about each and every one of the treatments that have been applied and are currently being applied in AMD
- Know how to apply the new treatments used in AMD
- Understand the unique situations related to AMD

Module 8. Tumor Pathology of the Retina, Choroid and Vitreous

- Develop an in-depth understanding of retinal tumours, such as retinoblastoma
- Learn about cavernous and racemose haemangioma
- Further study on capillary hemangioblastoma and Von Hippel– Lindau disease
- Study tuberous sclerosis and retinal phacomatoses
- Understand retinal metastases, retinal involvement in paraneoplastic syndromes, melanocytoma, benign congenital hypertrophy of the pigment epithelium, pigment epithelium and retinal hamartoma, choroidal tumors, nevus, melanoma and choroidal metastases, choroidal osteoma, choroidal circumscribed hemangioma, and haematological tumors

Module 9. Introduction to retinal surgery, vitrectomy arising from complications of anterior pole surgery, surgery on diabetic patients, endophthalmitis and viral retinitis

- Know the instruments and different therapeutic alternatives for retinal surgery
- Study basic vitrectomy techniques
- Know how to identify surgical techniques to resolve complications arising from cataract surgery
- Further develop knowledge of the surgical techniques necessary to resolve complications arising from glaucoma surgery
- Learn how to do a diagnostic biopsy
- Have knowledge of surgery for the treatment of diabetes mellitus, surgical management of endophthalmitis, surgical treatment of virus retinitis, and intravitreal drugs and their concentrations

Module 10. Comprehensive Treatment for Retinal Detachment

- Know the basic and exploratory principles of retinal detachment
- Learn the principles of surgery for the treatment of retinal detachment
- Know how to perform scleral surgery applicable to retinal detachment
- Learn the principles of surgery for the treatment of retinal detachment
- Know the alternative methods for the treatment of retinal detachment
- Learn about retinal detachment vitrectomy
- Know the complex techniques for the treatment of retinal detachment
- Understand the complications of retinal detachment treatment

Module 11. Surgery for High Myopia. Surgery in macular diseases. Surgical Techniques in Ocular Trauma. Latest Surgical Techniques

- Know about restorative surgery associated with high myopia
- Acquire the surgical techniques applicable to the main diseases of the macula, such as macular hole, epiretinal membranes or vitreomacular traction syndromes
- Study surgical techniques for the repair of ocular trauma
- Learn about other surgical techniques for the treatment of specific retinal pathologies, such as Terson's syndrome, macular translocation, artificial vision, or surgical techniques for the repair of choroidal detachments

03

Skills

After passing the assessments on the Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery, the nurse will have acquired the necessary professional skills for quality, up-to-date practice based on the most recent scientific evidence.

With this program you will be able to master the new procedures in ocular pathologies that favor the health of your patients"

General Skill

- Perform a complete intervention on patients who have some kind of ocular pathology, including those cases where surgical intervention is required

Seize the opportunity and take the step to get up to date with the latest developments in Macula, Retina and Vitreous Pathology and Surgery"

Specific Skills

- Manage all the tools that the new digital devices provide for ophthalmologists
- Identify all the possible vascular alterations that can affect the macula and retina, allowing the student to make a perfect differential diagnosis
- Find out about a set of diseases that are not normally shown in the usual texts and programs
- Become an expert in inflammatory eye diseases affecting the retina and vitreous
- Improve day-to-day practice in dealing with all types of eye infections
- Achieve excellency in the treatment of retinal diseases
- Diagnose age-related macular degeneration, analyze the exploratory tests, classification, treatment and monitoring of the disease
- Recognize different eye tumors and better understand how to examine them
- Apply appropriate treatments for retinal detachments
- Identify possible complications during eye surgery and in the postoperative period

04

Course Management

The creation of these materials has been carried out by a team of leading professionals in ophthalmology, who work in the main hospitals throughout the country, transferring to the programme the experience they have gained in their jobs throughout their careers.

The best professionals in this area have joined forces to offer you the most specialised and up-to-date knowledge in the field"

Management

Dr. Armadá Maresca, Félix

- Head of Service, Ophthalmology Department, La Paz University Hospital, Madrid
- Doctor of Medicine. Autonomous University of Madrid
- Degree in Medicine. Alcalá de Henares University
- Director of the Department of Ophthalmology at the San Francisco de Asís University Hospital in Madrid
- Certified Ophthalmic Photographer, University of Wisconsin, Madison, U.S.
- The Chalfont Project, Chalfont St Giles, HP8 4XU United Kingdom. 2002
- ESADE - Course in Strategic Management of Clinical Services. 2011
- IESE - VISIONA course, clinical management in ophthalmology. 2020
- Lecturer in the Bachelor's Degree in Medicine at the University Alfonso X el sabio
- Lecturer in the Master "Expert in Health Management in Ophthalmology" of the Ministry of Health of the Community of Madrid. 2020
- Member of the Society of Ophthalmology of Madrid
- External Collaborator of Several Companies in the Medical Sector

Professors

Dr. Arias Barquet, Luis

- Head of the Retina Section at Bellvitge University Hospital (L'Hospitalet de Llobregat, Barcelona). Since 2012
- Degree in Medicine and Surgery from the University of Barcelona, 1986 - 1992)
- Director of the Ophthalmology Clinic Dr. Lluís Arias (Vilanova i la Geltrú, Barcelona). 2010
- Collaborating Professor at the University of Madrid
- President of the Spanish Society of Retina and Vitreous (SERV)
- Outstanding Award in her PhD. Autonomous University of Barcelona (2007)
- Member of the Following Ophthalmological Societies: American Academy of Ophthalmology, EURETINA,Spanish Society of Ophthalmology,Spanish Society of Retina and Vitreous and Catalan Society of Ophthalmology
- Member of: RETICS OFTARED RD12/0034/0015 Ocular diseases "Prevention, early detection and treatment of prevalent degenerative and chronic ocular pathology". Carlos III Health Institute. Ministry of Economy and Competitiveness. Government of Spain

Dr. Fernández-Vega Sanz, Álvaro

- Deputy Director of the Fernández-Vega Ophthalmological Institute
- Head of the Retina and Vitreous Department at the Ophthalmological Institute Fernández-Vega since 1989
- Partner and owner of the ophthalmological institute Fernández-Vega, performing 300 to 350 retina/vitreous operations per year
- Graduate in Medicine and Surgery from the Autonomous University of Madrid (1975- 1982)
- Degree in Medicine and Surgery from the Autonomous University of Madrid
- Member of the Spanish Society of Ophthalmology
- Member of the International Advisory Board of the International Schepens Society
- Founder and member of the Spanish Retina and Vitreous Society (SERV)

Dr. Nadal, Jeroni

- Deputy Medical Director of the Barraquer Ophthalmology Centre
- Head of the Retina and Vitreous Department
- Coordinator of the Macula Unit
- PhD in Medicine and Surgery 2011
- Degree in Medicine and Surgery. Autonomous University of Barcelona. 1984
- Specialist in Ophthalmology. Mayo Clinic Rochester, Minnesota, USA. 1992
- Retina and Vitreous Surgeon. Mayo Clinic Rochester Minnesota, USA
- Research excellence award from the Central University of Barcelona. 2010
- President of the Catalan Ophthalmology Society
- First Ophthalmologist to implant an artificial vision device in Spain 2013

Dr. Fonollosa, Alex

- Assistant of the Ophthalmology Service at Cruces University Hospital (Retina and Uveitis section). Since 2009
- Doctor in Medicine in 2007 at the Autonomous University of Barcelona (Extraordinary Prize)
- Degree in Medicine at the Autonomous University of Barcelona
- Coordinator of the Retina and Uveitis Unit at the Ophthalmological Institute of Bilbao. 2011
- Specialist in Ophthalmology in 2006
- Assistant to the Ophthalmology Service. Valld'Hebron Hospital in Barcelona between 2006 and 2009
- Associate Professor of Ophthalmology at the University of the Basque Country since 2017
- Main researcher of the Ophthalmology research group at BioCruces and Member of the Experimental Ophthalmobiology Group at the University of the Basque Country

Dr. López Gálvez, María Isabel

- Head of the Retina Unit at the Valladolid's Clinical University Hospital. Since 2018
- PhD in Medicine and Surgery from the University of Valladolid. 1991
- Degree in Medicine and Surgery from the University of Valladolid 1985
- Researcher at the Institute of Applied Ophthalmobiology (IOBA)
- Member of the Commission for the Recognition of Professionals "José María Segovia de Arana Awards" since 2019
- Specialist ophthalmology physician since September 2002 at the Department of Ophthalmology of the HCU of Valladolid
- Support Tutor and Teaching Collaborator in Specialised Healthcare Training at HCUV since 2016

Dr. Catalá Mora, Jaume

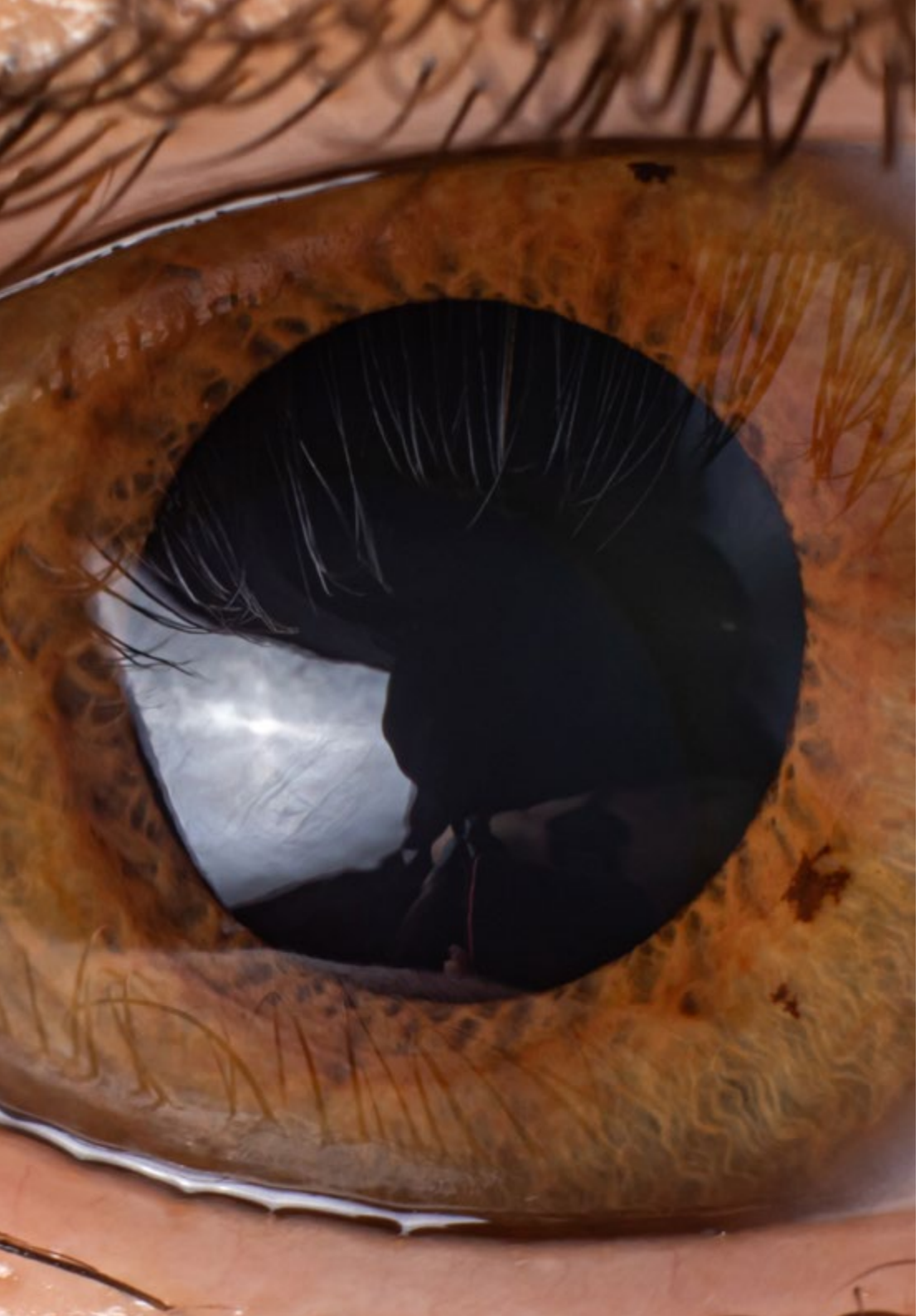
- Coordinator of the Dystrophies unit Bellvitge University Hospital
- Degree in Medicine and Surgery. Navarra University. 1997
- Ophthalmologist Specialising in Diseases of the Retina and Vitreous, With a Special Focus on Pediatric Retina
- Research Proficiency Work Autonomous University of Barcelona. 2003
- Health and Life Sciences. Autonomous University of Barcelona. 2016
- Researcher in new treatments for retinoblastoma and hereditary retinal dystrophies hereditary retinal dystrophies
- It has participated in several national and international clinical trials in the treatment of retinoblastoma, as well as in the development since the preclinical phase of the first oncolytic virus treatment, currently in phase I clinical trial

Dr. Cabrera López, Francisco Antonio

- Head of the Ophthalmology Service of the University Hospital Complex University Hospital Complex of Gran Canaria
- Medical Director of the Canary Islands Retina Institute (ICARE)
- Associate Professor and Member of the Department of Medical and Surgical Sciences of Las Palmas de Gran Canaria and Surgical Sciences of Las Palmas de Gran Canaria (ULPGC)
- Degree in Medicine and Surgery. University of La Laguna. Tenerife
- Degree in Medicine from the Autonomous University of Gran Canaria (ULPGC)
- Ex-President of the Spanish Society of Ophthalmology
- Member of the Following Ophthalmological Societies: American Academy of Ophthalmology (AAO), EURETINA, Spanish Society of Ophthalmology (SEO), Spanish Society of Retina and Vitreous (SERV), Canary Society of Ophthalmology (SCO)

Dr. Donate, Juan

- Head of the Retina Unit at the San Carlos Clinical Hospital. Madrid
- Head of the Ophthalmology Department at Hospital de La Luz. Quironsalud Group. Madrid
- Doctor in Ophthalmology. Complutense University of Madrid. 2016
- Degree in Medicine and General Surgery. University of Salamanca. 1994
- Managing Director of Ophthalmological Studies. Madrid
- Manager and administration of Agrupación Médico Quirúrgica Oftalmos SLP
- Member for the Community of Madrid of the Spanish Retina and Vitreous Society
- President of the foundation "Ver Salud"
- Member and co-director of the Spanish Macula Club
- Member of the following scientific societies: Spanish Society of Ophthalmology (SEO), Spanish Society of Vitreous and Retina (SERV) and Ophthared-Retics



Dr. Gómez-Ulla de Irazazába, Francisco Javier

- Medical Director and Founder of the Ophthalmological Institute Gómez-Ulla (Santiago de Compostela). Since 2001
- Doctor of Medicine in 1981
- Degree in Medicine from the University of Santiago de Compostela. 1975
- Specialist in Ophthalmology in 1978
- Professor of Ophthalmology at the University of Santiago de Compostela since 2002.
- Member of scientific societies such as American Academy of Ophthalmology, Societé Française d'Ophtalmologie, Panamericam Association of Ophthalmology, Spanish society of Ophthalmology, Spanish society of Retina and Vitreous, and Galician society of Ophthalmology
- Member of the Limnopharma Advisory Board
- Researcher/consultant for Alcon, Allergan, Bayer Hispania S.L, Boehringer Ingelheim, Novartis Farmacéutica S.A Ophthoctech, Roche, Santem, Zeiss

Dr. Asencio Durán, Mónica

- Ophthalmologist at Univerisity Hospital Ramón y Cajal, on secondment at University Hospital La Paz
- Private Ophthalmologist at "La Paloma" clinic
- Speciality in Medical and Surgical Retina, sub-speciality Intraocular Tumours. Cataract surgery. Ocular Pathology in Adults and Children
- Doctor from the Autonomous University of Madrid
- Degree in Medicine and Surgery from the University of Alcalá de Henares
- Specialist in Ophthalmology at University Hospital "La Paz"

05

Structure and Content

The structure of the syllabus has been designed by a team of professionals who are knowledgeable regarding the implications of medical education in the approach to patients, aware of the relevance of current training and committed to quality teaching through new educational technologies.

This Professional Master's Degree contains the most complete and up-to-date scientific program on the market"

Module 1. Anatomy, Physiology and Exploratory and Functional Tests

1.1. Historical Notes and Classical Exploration in Consultation
- 1.1.1. History to Understand the Present
- 1.1.2. The Ophthalmoscope and its Examination Lenses
- 1.1.3. The Slit Lamp and its Examination Lenses
- 1.1.4. Historical Notes of Current Exploration Techniques

1.2. Macula and Retina Anatomy
- 1.2.1. Compared Anatomy
- 1.2.2. Macula and Retinal Histology
- 1.2.3. Vascularization of the Retina and Macula
- 1.2.4. Innervation of the Retina and Macula

1.3. Vitreous Anatomy and Physiology
- 1.3.1. Vitreous Embryology
- 1.3.2. Composition of the Vitreous Gel
- 1.3.3. Hyaloid Insertions and Adhesions
- 1.3.4. Aging and Disorders of the Vitreous Gel
- 1.3.5. The Vitreous in Myopic Patients
- 1.3.6. The Vitreous in Certain Systemic Diseases
- 1.3.7. Vitreous as a Trigger for Various Retinal and Macular Pathologies

1.4. Physiology of Vision and Colour Vision
- 1.4.1. Functional Layers of the Retina
- 1.4.2. Photoreceptor Physiology
- 1.4.3. Functional Circuits of the Retina
- 1.4.4. Optical Route
- 1.4.5. Physiology of the Visual Cortex
- 1.4.6. Binocularity
- 1.4.7. Colour vision

1.5. Macular Functional Testing
- 1.5.1. Basis of Macular Functional Testing
- 1.5.2. Electroretinogram, Electrooculogram and Evoked Potentials
- 1.5.3. Multifocal Electroretinogram
- 1.5.4. Microperimetry

1.6. Fundus Photography, Intravenous Fluorescein Angiography and Indocyanine Green Angiography
- 1.6.1. Analogue and Digital Retinography
- 1.6.2. Widefield Retinography, Most Important Current Platforms
- 1.6.3. Properties of Sodium Fluorescein and its Adverse Effects
- 1.6.4. Normal AFG Pattern (Angiofluoresceingraphy)
- 1.6.5. Pathological Angiographic Patterns, Hyperfluorescence, Hypofluorescence and Window Effect
- 1.6.6. Current Role and Clinical Indications of AFG
- 1.6.7. Properties of Indocyanine Green and its Pharmacokinetics
- 1.6.8. Pathological Angiographic Patterns of Indocyanine Green

1.7. Fundus Autofluorescence
- 1.7.1. Autofluorescence Detection and Recording
- 1.7.2. Autofluorescence Detection and Recording
- 1.7.3. Normal Autofluorescence Patterns
- 1.7.4. Pathological Autofluorescence Patterns
- 1.7.5. Autofluorescence in Retinal Diseases

1.8. Ultrasonic Retinal Evaluation
- 1.8.1. Physical Bases of Ultrasound
- 1.8.2. Current Platforms and Probes for Ocular Ultrasound Scans
- 1.8.3. Current Ultrasound Methods and Modes
- 1.8.4. Ocular Ultrasound Patterns

1.9. Optical Coherence Tomography
- 1.9.1. Physical Principles of OCT (Optical Coherence Tomography)
- 1.9.2. Historical Evolution of OCT
- 1.9.3. Main OCT Platforms and Their Differential Characteristics
- 1.9.4. Normal OCT Patterns
- 1.9.5. Comparative Patterns of OCT Monitoring
- 1.9.6. OCT in Major Macular and Interface Pathologies

1.10. Angiography Using Optical Coherence Tomography
- 1.10.1. Basis of Angio-OCT
- 1.10.2. Main Platforms for Performing Angio-OCT
- 1.10.3. Normal Angio-OCT Patterns
- 1.10.4. Angio-OCT Analysis and Artefacts
- 1.10.5. Angio-OCT in the Main Macular Pathologies
- 1.10.6. Clinical Angio-OCT in Face
- 1.10.7. The Present and Future of Angio-OCT

Module 2. Vascular Pathology of the Macula and Retina

2.1. Diabetic Retinopathy
- 2.1.1. Pathophysiology of Diabetic Retinopathy and Metabolic Control
- 2.1.2. Exploratory Tests in Diabetic Retinopathy
- 2.1.3. Biomarkers
- 2.1.4. Diabetic Retinopathy Classification
- 2.1.5. Non-Proliferative Diabetic Retinopathy
- 2.1.6. Diabetic Macular Edema
- 2.1.7. Medical Treatment of Diabetic Macular Edema, Main Treatment Regimens, Main Pharmaceuticals and Supporting Clinical Trials
- 2.1.8. Pathophysiological Basis for Laser Treatment of DRNP and Diabetic Macular Edema
- 2.1.9. Current Laser Types and Their Application in RDNP
- 2.1.10. Laser Treatment Techniques and Patterns
- 2.1.11. Proliferative Diabetic Retinopathy PDR
- 2.1.12. Laser Treatment of PDR and its Combination with Intravitreal Pharmaceuticals
- 2.1.13. Side Effects of Retinal Panphotocoagulation
- 2.1.14. Management of Iris Rubeosis

2.2. Branch Retinal Vein and Central Retinal Vein Occlusion
- 2.2.1. Systemic and Local Risk Factors
- 2.2.2. Physiopathogenesis
- 2.2.3. ORVR and CRVO Clinic
- 2.2.4. Functional Tests for the Diagnosis of Venous Obstructions
- 2.2.5. Medical Treatment of Venous Obstructions. Treatment Guidelines and Current Pharmaceuticals
- 2.2.6. Current Status of Laser Treatment for Venous Obstructions
- 2.2.7. Treatment of Neovascularisations Secondary to Venous Obstructions

2.3. Arterial Embolism and Central Retinal Artery Embolism
- 2.3.1. Pathophysiology
- 2.3.2. Arterial Branch Occlusion
- 2.3.3. Central Retinal Artery Occlusion
- 2.3.4. Ciliary Retinal Artery Occlusion
- 2.3.5. Arterial Occlusion Associated with Venous Occlusions
- 2.3.6. Examination of the Patient with Retinal Arterial Obstruction
- 2.3.7. Medical Treatment of Retinal Artery Blockage

2.4. Retinal Arterial Macroaneurysm
- 2.4.1. Definition, Pathophysiology and Anatomy
- 2.4.2. Retinal Macroaneurysm Clinic
- 2.4.3. Diagnostic Tests for Retinal Macroaneurysm
- 2.4.4. Differential Diagnosis of Retinal Macroaneurysm
- 2.4.5. Retinal Macroaneurysm Treatment

2.5. Idiopathic Macular Telangiectasias
- 2.5.1. Pathophysiology and Classification of Retinal Telangiectasia
- 2.5.2. Examination of retinal Telangiectasias
- 2.5.3. Type 1 Juxtafoveal Telangiectasias
- 2.5.4. Type 2 Perifoveolar Telangiectasias
- 2.5.5. Type 3 Occlusive Telangiectasias
- 2.5.6. Differential Diagnosis of Macular Telangiectases
- 2.5.7. Idiopathic Macular Telangiectases Treatment

2.6. Ocular Ischaemia Syndrome
- 2.6.1. Definition and Pathophysiology of Ocular Ischaemia Syndrome
- 2.6.2. IOS Clinic
- 2.6.3. IOS Screening and Diagnosis
- 2.6.4. Differential Diagnosis
- 2.6.5. IOS Treatment

2.7. Arterial Hypertension and Retinal Pathology
- 2.7.1. Pathophysiology of AHT
- 2.7.2. Malignant Arterial Hypertension
- 2.7.3. Classification of Hypertensive Retinopathy by Fundoscopic Severity and its Clinical Signs
- 2.7.4. Semiology of Hypertensive Retinopathy
- 2.7.5. AHT Clinic
- 2.7.6. AHT Treatment and its Retinal Repercussions

2.8. Retinal Pathology Associated with Blood Dyscrasias
- 2.8.1. Definition and Classification of Retinopathy Associated with Blood Dyscrasias
- 2.8.2. Screening for Retinopathies Associated with Dyscrasia
- 2.8.3. Retinal Pathology Associated with Anemic Syndromes, Classification and Ophthalmologic Manifestations
- 2.8.4. Retinal Pathology Associated with Anemic Syndromes, Classification and Ophthalmologic Manifestations
- 2.8.5. Retinal Pathology Associated with Blood Hyperviscosity Syndromes. Classification and Ocular Manifestations
- 2.8.6. Retinal Pathology Associated with Bone Marrow Transplantation and Graft-Versus-Host Disease

2.9. Eales' Disease
- 2.9.1. Definition and Etiopathogenesis of Eales´ Disease
- 2.9.2. Clinical Symptoms
- 2.9.3. Exploratory Tests in Eales' Disease
- 2.9.4. Differential Diagnosis
- 2.9.5. Medical Treatment, Laser Treatment and Surgical Treatment of Eales' Disease

2.10. Macular and Premacular Hemorrhages
- 2.10.1. Definition and Etiopathogenesis of Macular and Premacular Hemorrhages
- 2.10.2. Clinical and Etiological Diagnosis
- 2.10.3. Exploratory Functional Tests
- 2.10.4. Treatment of Macular and Premacular Hemorrhages. Laser Treatment, Surgical Treatment
- 2.10.5. Complications of macular and Premacular Hemorrhages

Module 3. Diseases of the Pigmentary Epithelium, Bruch's Membrane, Choroid and Pachychoroid

3.1. Radiation Maculopathy
- 3.1.1. Pathophysiology of Radiation Maculopathy
- 3.1.2. Histology of Radiation Maculopathy
- 3.1.3. Examination and Diagnosis of Radiation Maculopathies, Definite Patterns
- 3.1.4. Clinical Signs of Radiation Maculopathy
- 3.1.5. Incidence of Radiation Maculopathy
- 3.1.6. Risk Factors
- 3.1.7. Treatment of Radiation Maculopathy

3.2. Siderosis and Other Depot Maculopathies
- 3.2.1. Etiology of Depot Maculopathies
- 3.2.2. Natural, Clinical History of Depot Maculopathies
- 3.2.3. Scanning, Angiographic Patterns, Structural OCT and Angio-OCT Changes
- 3.2.4. Siderosis
- 3.2.5. Calcosis
- 3.2.6. Alterations in the ERG of Deposit Diseases
- 3.2.7. Medical Treatment for Deposit Diseases
- 3.2.8. Surgical Treatment of Deposit Diseases

3.3. Light Toxicity
- 3.3.1. Mechanisms of Photomechanical, Thermal and Photochemical Retinal Damage
- 3.3.2. Mechanisms of Retinal Damage Due to Chronic Sun Exposure
- 3.3.3. Mechanisms of Retinal Damage Due to Chronic Sun-Exposure
- 3.3.4. Electric Arc Welding Injuries
- 3.3.5. Electric Shock Injuries
- 3.3.6. Lightning Retinopathy
- 3.3.7. Iatrogenic Lesions Associated with Therapeutic Lasers
- 3.3.8. Macular Lesions Associated with Exposure to Non-Therapeutic Lasers
- 3.3.9. Treatment of Retinal Diseases Due to Light Exposure

3.4. Drug Toxicity
- 3.4.1. Pathophysiology of Drug Induced Maculopathy
- 3.4.2. Examination of the Macula in Drug Toxicity
- 3.4.3. Functional Diagnostic Tests
- 3.4.4. Maculopathy Due to Chloroquine and its Derivatives
- 3.4.5. Talc, Tamoxifen and Canthaxanthin Maculopathy
- 3.4.6. Maculopathy Associated with Latanoprost and Other Glaucoma Treatment Drugs, Epinephrine and Nicotinic Acid
- 3.4.7. Aminoglycoside Maculopathy
- 3.4.8. Phenothiazine Maculopathy
- 3.4.9. Deferoxamine Maculopathies
- 3.4.10. Treatment of Drug Retinopathy

3.5. Subretinal Neovascularisation Associated with Scarring and Other Processes
- 3.5.1. Etiology of Choroidal Neovascularization Associated with Scarring
- 3.5.2. Clinical and Natural History
- 3.5.3. Scanning, Structural OCT and Angio-OCT, Angiographic Patterns
- 3.5.4. Idiopathic Causes
- 3.5.5. Spectrum Inflammatory Diseases, Presumed Ocular Histoplasmosis Syndrome (POHS)
- 3.5.6. Inflammatory Diseases, Multifocal Choroiditis Syndrome with Panuveitis (MCP)
- 3.5.7. Inflammatory Diseases, Punctate Inner Choroidopathy (PIC)
- 3.5.8. Infectious Diseases, Toxoplasmosis
- 3.5.9. Infectious Diseases, Toxocariasis
- 3.5.10. Spectrum of Secondary Diseases Due to the Rupture of Bruch's Membrane. Choroidal Rupture, Angioid Streaks, Iatrogenesis Secondary to Photocoagulation
- 3.5.11. Spectrum of Diseases Secondary to Alterations in the Pigment Epithelium and Bruch's Membrane. Best's Disease, AMD-like Syndromes
- 3.5.12. Current Status of the Treatment of Neovascularisation Associated with Inflammatory, Infectious and Other Processes

3.6. Pigment Epithelium Detachment
- 3.6.1. Definition of Pigment Epithelium Detachment (PED)
- 3.6.2. Etiology of PED
- 3.6.3. Types of PED
- 3.6.4. PED Scanning. Angiographic Patterns, Structural OCT and Angio-OCT
- 3.6.5. Clinical and Natural History of PED
- 3.6.6. Intravitreal Treatment for PED-Associated Neovascularisation
- 3.6.7. Other Treatments for Pigmented Epithelium Detachment

3.7. Angioid Streaks
- 3.7.1. Definition of Angioid Streaks
- 3.7.2. Etiopathogenesis and Pathophysiology
- 3.7.3. Natural History and Evolution of Angioid Streaks
- 3.7.4. Diagnosis of Angioid Streaks, Angiographic Patterns, Indocyanine Green Angiography, Autofluorescence, Structural OCT, Angio-OCT
- 3.7.5. Exploration of Associated Neovascular Complexes
- 3.7.6. Current Treatments for Angioid Streak Marks and their Associated Neovascular Complexes

3.8. Pachychoroid Diseases
- 3.8.1. Definition of Pachychoroid Spectrum Disorders
- 3.8.2. Diagnosis of Pachychoroid Diseases, Common Features
- 3.8.3. OCT, Angio-OCT Patterns
- 3.8.4. Pachychoroid Spectrum Diseases, Acute and Chronic Central Serous Choroidopathy. Diagnosis, Characteristics and Up-To-Date Treatment
- 3.8.5. Pachychoroid Spectrum Diseases, Pachychoroid Pigment Epitheliopathy. Diagnosis, Characteristics and Up-To-Date Treatment
- 3.8.6. Pachychoroid Neovasculopathy. Diagnosis, Characteristics and Up-To-Date Treatment
- 3.8.7. Polypoid Choroidal Vasculopathy. Diagnosis, Characteristics and Up-To-Date Treatment
- 3.8.8. Focal Choroidal Excavation. Diagnosis, Characteristics and Up-To-Date Treatment
- 3.8.9. Peripapillary Pachychoroid Syndrome. Diagnosis, Characteristics and Up-To-Date Treatment

Module 4. Inflammatory Eye Diseases with Affectation of the Macula, Retina and Vitreous

4.1. Diagnosis and Treatment of Uveitis
- 4.1.1. Diagnosis of Uveitis
  - 4.1.1.1. Systematic Approach to the Diagnosis of Uveitis
  - 4.1.1.2. Classification of Uveitis
  - 4.1.1.3. Localisation of Uveitis
  - 4.1.1.4. Approach to Patients, The clinical History as a Diagnostic Asset
  - 4.1.1.5. Detailed Eye Examination. Diagnostic Guidance
  - 4.1.1.6. Most Common Tests Used for the Study of Uveitis
  - 4.1.1.7. Differential Diagnosis Tables
- 4.1.2. Imaging Tests Used for the Study of Uveitis. Systemic Imaging Tests
- 4.1.3. Ophthalmological Imaging Tests. Fundus Photograph, AFG, ICG, OCT, angio-OCT, BMU, Ultrasound, etc.

4.1.4. General Treatment for Uveitis
4.1.4.1. Corticosteroids
4.1.4.2. Mydriatic and Cycloplegic Agents
4.1.4.3. Non-Steroidal Anti-Inflammatory Drugs
4.1.4.4. Immunosuppressive Treatments
4.1.4.5. New Biological Therapies to Treat Uveitis
4.1.5. Diagnostic Surgery for Uveitis. Retinal Biopsies
4.1.6. Therapeutic Surgery: Cornea, Iris, Cataracts, Glaucoma, Vitreous and Retina. Comprehensive Treatment for Uveitis

4.2. Cystoid Macular Edema
4.2.1. Pathophysiology, Blood-Retinal Barrier Function
4.2.2. Histology of Cystoid, Macular Edema
4.2.3. Rupture Mechanisms of the Blood-Retinal Barrier
4.2.4. Exploration of Cystoid Macular Edema. Fluorescein Angiographic Patterns, OCT, Angio-OCT and Clinical in Face
4.2.5. Vitreous Fluorophotometry
4.2.6. Treatment of Post-Surgical Macular Edema

4.3. White Spot Syndromes and Associated Diseases
4.3.1. Birdshot: Chorioretinopathy in Buckshots
4.3.2. Placoid Diseases
4.3.3. Multifocal Choroiditis and Panuveitis, Internal Punctate Choroidopathy Syndrome, and Progressive Subretinal Fibrosis and Uveitis.
4.3.4. Multiple Evanescent White Plaques Syndrome. Main Characteristics, Evolution and Differential Diagnosis
4.3.5. Acute Zonal External Retinopathy
4.3.6. Acute Macular Neuroretinopathy

4.4. Acute Multifocal Posterior Placoid Epitheliopathy
4.4.1. Etiopathogenesis
4.4.2. Clinical Symptoms
4.4.3. Angiographic Scanning Patterns
4.4.4. OCT, Angio-OCT Scanning
4.4.5. Natural History of the Disease
4.4.6. Differential Diagnosis
4.4.7. Treatment

4.5. Serpiginous Choroiditis
4.5.1. Etiopathogenesis of Serpiginous Choroiditis
4.5.2. Clinical and Natural History of the Disease
4.5.3. Techniques for Examining Serpiginous Choroiditis
4.5.4. Angiographic Patterns and Structural OCT
4.5.5. Differential Diagnosis
4.5.6. Treatment

4.6. Vogt-Koyanagi-Harada Syndrome
4.6.1. Introduction and Classification of Vogt-Koyanagi-Harada syndrome
4.6.2. Macular Damage
4.6.3. Natural History of the Disease
4.6.4. Scanning, Angiographic Patterns, OCT Imaging. Angio-OCT
4.6.5. Differential Diagnosis
4.6.6. Treatment of Associated and Recurrent Neovascular Membranes

4.7. Multifocal Choroiditis
4.7.1. Epidemiology of Multifocal Choroiditis
4.7.2. Etiopathogenesis of Multifocal Choroiditis
4.7.3. Clinical Symptoms
4.7.4. Exploration of Multifocal Choroiditis. Angiographic Patterns, ICG, OCT and angio-OCT
4.7.5. Differential Diagnosis
4.7.6. Natural History of Multifocal Choroiditis
4.7.7. Current Treatment

4.8. Sympathetic Ophthalmia
4.8.1. Epidemiology of Sympathetic Ophthalmia
4.8.2. Pathophysiology of Sympathetic Ophthalmia
4.8.3. Immunopathology of Sympathetic Ophthalmia
4.8.4. Clinical Findings
4.8.5. Scanning, Angiographic Pattern, Structural OCT and Angio-OCT
4.8.6. Differential Diagnosis
4.8.7. Natural History of the Disease, Course and Possible Complications
4.8.8. Treatment, Prevention and Prognosis

4.9. Autoimmune Retinopathies
- 4.9.1. Epidemiology and Mechanisms of Action
- 4.9.2. Clinical Manifestations of Autoimmune Retinopathies
- 4.9.3. Diagnosis, Angiographic Patterns, OCT and Angio-OCT
- 4.9.4. Differential Diagnosis
- 4.9.5. Natural History, Evolution and Possible Complications
- 4.9.6. Local and Systemic Treatments
- 4.9.7. Prognosis

4.10. Ocular Sarcoidosis
- 4.10.1. General Considerations in Ocular Sarcoidosis
- 4.10.2. Natural History and Prognosis of Ocular Sarcoidosis
- 4.10.3. Ocular Manifestations of Sarcoidosis
- 4.10.4. Posterior Segment Eye Disease
- 4.10.5. Ocular Scanning, AFG Patterns, Structural OCT and Angio-OCT
- 4.10.6. Treatment for Retinal Sarcoidosis

4.11. Intermediate Uveitis
- 4.11.1. Introduction
- 4.11.2. Epidemiology and Demography
- 4.11.3. Clinical Findings, Examination of Intermediate Uveitis
- 4.11.4. Histopathology of Intermediate Uveitis
- 4.11.5. Clinical Course and Complications
- 4.11.6. Treatment for Intermediate Uveitis

4.12. Uveitis Masquerade Syndromes
- 4.12.1. Malignant Uveitis Masquerade Syndromes
  - 4.12.1.1. Intraocular Central Nervous System Lymphoma
  - 4.12.1.2. Leukemias
  - 4.12.1.3. Malignant Melanoma
  - 4.12.1.4. Retinoblastoma
  - 4.12.1.5. Metastasis
  - 4.12.1.6. Paraneoplastic Syndromes

4.12.2. Uveitis Masquerade Syndromes, Endophthalmitis
4.12.2.1. Chronic Postoperative Endophthalmitis
4.12.2.2. Endogenous Endophthalmitis
4.12.3. Non-malignant and Non-infectious Masquerade Syndromes
4.12.3.1. Regmatogenic Retinal Detachment
4.12.3.2. Retinitis Pigmentosa
4.12.3.3. Intraocular Foreign Bodies
4.12.3.4. Pigmentary dispersion
4.12.3.5. Ocular Ischaemia Syndrome
4.12.3.6. Juvenile Xanthogranuloma

Module 5. Infectious Diseases of the Retina and Vitreous

5.1. General Management of Endophthalmitis
5.1.1. Medical History of the Infection Process
5.1.2. Eye Examination According to the Endophthalmitis Process
5.1.3. Sampling for Cultivation
5.1.4. Gateway and Systemic Treatment
5.1.5. Intravitreal Injection Treatment of The Endophthalmitis Process
5.1.6. Surgical Treatment for Ocular Endophthalmitis
5.2. Eye Infection Due to Human Immunodeficiency Virus (HIV)
5.2.1. Uveitis Due To HIV
5.2.2. Eye Examination in HIV Patients
5.2.3. HIV In Eyes, Chorioretinal Involvement, HIV Retinitis
5.2.4. HIV-associated opportunistic infections. Cytomegalovirus Retinitis, Varicella Zoster Virus, Ocular Toxoplasmosis, Pneumocystosis, Tuberculosis, Cryptococcosis, Candidiasis, Other Opportunistic Infections
5.2.5. Uveitis Linked to HIV Drug Treatments
5.2.6. Medical Treatment for Ocular HIV, Systemic Intravitreal and Depot Treatments
5.2.7. Surgical Treatment of HIV Retinitis or Opportunistic Infections
5.3. Mycobacterial Infections
5.3.1. Definition of Mycobacterium Tuberculosis Eye Infection
5.3.2. History and Epidemiology
5.3.3. Clinical Presentation
5.3.4. Pathophysiology of Ocular Tuberculosis
5.3.5. Pathophysiology of Ocular Tuberculosis
5.3.6. Tuberculosis Diagnostic Tests, The Tuberculin Skin Test and Other Diagnostic Tests
5.3.7. Ocular Examination, Angiographic Patterns, OCT and Angio-OCT
5.3.8. Treatment of Tuberculosis and Ocular Tuberculosis
5.3.9. Possible Complications and Prognosis of Mycobacterial Infections
5.4. Spirochetal Infections
5.4.1. Definition of Treponema Pallidum Syphilis Infection
5.4.2. History and Epidemiology of Syphilis
5.4.3. Clinical Systemic Presentation
5.4.4. Ocular Clinical Presentation, Treponema Pallidum Uveitis. Anterior and Posterior Uveitis. Clinical Manifestations
5.4.5. Pathophysiology and Pathogenesis
5.4.6. Diagnostic Tests for Treponema Pallidum
5.4.7. Systemic and Ocular Treatment for Syphilis Associated Uveitis
5.4.8. Complications and Prognosis
5.5. Ocular Toxoplasmosis
5.5.1. Definition and Natural History of Toxoplasma Gondii Infection
5.5.2. Pathogenesis, The Toxoplasma Gondii Parasite
5.5.3. Parasite Life Cycle, Transmission
5.5.4. Immunobiology and Epidemiology
5.5.5. Congenital and Acquired Toxoplasmosis. Clinical Manifestations
5.5.6. Toxoplasmosis in Immunocompromised Patients
5.5.7. Diagnosis and Examination of Ocular Toxoplasmosis. Fundus photograph, AFG and ICG. OCT and angio-OCT
5.5.8. Atypical Forms of Ocular Toxoplasmosis. Angiographic and Retinographic Examination
5.5.9. Differential Diagnosis
5.5.10. Diagnostic Tests for Toxoplasma Gondii
5.5.11. Surgical Treatment for Ocular Endophthalmitis
5.5.12. Surgical Treatment of Ocular Toxoplasmosis
5.5.13. Prevention, Prognosis and Conclusions

5.6. Toxocariasis Eye Infection
- 5.6.1. Definition of Infection Caused by Toxocara Canis or Toxocara Cati
- 5.6.2. Etiology, The Micro-Organism, Its Life Cycle and Human Infection
- 5.6.3. Systemic and Ocular Clinical Manifestations
- 5.6.4. Natural History of Toxocariasis
- 5.6.5. Immunopathology
- 5.6.6. Diagnostics, Diagnostic and Serological tests
- 5.6.7. Ocular Complications of Toxocariasis
- 5.6.8. Differential Diagnosis of Toxocariasis
- 5.6.9. Medical and Surgical Treatment of Toxocariasis
- 5.6.10. Prognosis and Conclusions on Ocular Toxocariasis

5.7. Ocular Ascariasis
- 5.7.1. Definition of Ascaris Lumbricoides Nematode Infection
- 5.7.2. Natural History and Epidemiology
- 5.7.3. Systemic Clinical Features
- 5.7.4. Ocular Symptoms of Ascariasis
- 5.7.5. Immunology, Pathology and Pathogenesis, The Life Cycle
- 5.7.6. Systemic Diagnosis and Ocular Diagnosis. Basic Functional and Imaging Tests
- 5.7.7. Systemic Treatment and Eye Treatment
- 5.7.8. Possible Complications and Conclusions

5.8. Ocular Onchocerciasis
- 5.8.1. Definition of Onchocerca Volvulus Infection
- 5.8.2. Natural History, Epidemiology, Geographical Distribution
- 5.8.3. Demographic Factors, Ecology and Biology of Onchocerciasis
- 5.8.4. Systemic Clinical Manifestations of Onchocerciasis
- 5.8.5. Ophthalmological Symptoms of Onchocerciasis, Anterior Pole and Posterior Segment Involvement
- 5.8.6. Etiology, Transmission, Life Cycle of Onchocerca Volvulus
- 5.8.7. Pathogenesis and Pathology
- 5.8.8. Clinical and Laboratory Diagnostics
- 5.8.9. Differential Diagnosis
- 5.8.10. Systemic and Ocular Treatment of Onchocerciasis
- 5.8.11. Natural History and Prognosis

5.9. Ocular Loiasis
- 5.9.1. Definition of Loa Loa Filaria Infection
- 5.9.2. History, Epidemiology, Morphology
- 5.9.3. Systemic Clinical and Ocular Manifestations Anterior Pole and Posterior Pole
- 5.9.4. Systemic and Ocular Diagnosis
- 5.9.5. Systemic and Ocular Treatment
- 5.9.6. Prevention and Chemoprophylaxis

5.10. Ocular Cysticercosis
- 5.10.1. Definition of Cysticercus Cellulose Infection
- 5.10.2. History and Epidemiology
- 5.10.3. Systemic and Ocular Clinical Features
- 5.10.4. Pathogenesis and Pathology
- 5.10.5. Systemic and Ocular Diagnosis, Imaging Tests. Ultrasound
- 5.10.6. Differential Diagnosis
- 5.10.7. Treatment According to the Location of the Larvae
- 5.10.8. Complications and Prognosis

5.11. Ocular Borreliosis
- 5.11.1. Definition of Lyme Disease Due to Borrelia Burgdorferi Infection
- 5.11.2. History and Epidemiology
- 5.11.3. Systemic Clinical Symptoms According to Staging
- 5.11.4. Ocular Clinical Manifestations, Early Disease, Disseminated and Persistent Disease
- 5.11.5. Pathogenesis
- 5.11.6. Systemic Diagnosis and Ocular Diagnosis
- 5.11.7. Systemic and Ocular Treatment
- 5.11.8. Prognosis, Possible Complications

5.12. Bartonella Eye Infection
- 5.12.1. Definition of Bartonella Infections
- 5.12.2. History and Epidemiology
- 5.12.3. Systemic and Ocular Clinical Features, Retinal and Vitreous Damage
- 5.12.4. Pathogenesis and Immunology
- 5.12.5. Systemic Diagnosis and Ocular Diagnosis
- 5.12.6. Systemic and Ocular Treatment for Bartonellosis
- 5.12.7. Differential Diagnosis
- 5.12.8. Prognosis and Conclusions

5.13. Leptospirosis and Eye Infection
- 5.13.1. Definition of Leptospira Interorgan Infection
- 5.13.2. Epidemiology
- 5.13.3. Clinical Features of Non-ocular Disease
- 5.13.4. Clinical Signs of Leptospira Eye Disease
- 5.13.5. Pathogenesis
- 5.13.6. Laboratory Diagnostics and Ocular Diagnostics
- 5.13.7. Differential Diagnosis
- 5.13.8. Systemic and Ocular Treatment of Leptospira Infection
- 5.13.9. Prognosis and Conclusions

5.14. Ocular Brucellosis
- 5.14.1. Definition of Brucella spp Infection
- 5.14.2. History, Etiology, Epidemiology
- 5.14.3. Molecular Genetics, Pathology and Immunology
- 5.14.4. Systemic Clinical features, Subclinical, Acute, Subacute and Chronic Disease
- 5.14.5. Ocular Manifestations
- 5.14.6. Systemic and Ocular Diagnosis
- 5.14.7. Systemic and Ocular Treatment for Bartonellosis
- 5.14.8. Prognosis, Prevention and Conclusions

5.15. Ocular Whipple's Disease
- 5.15.1. Definition Signs of Leptospira Eye Disease
- 5.15.2. History, Epidemiology, Etiology, Pathology and Immunology
- 5.15.3. Extraocular Clinical Features
- 5.15.4. Ocular Clinical Features, Uveitis, Neurophthalmology
- 5.15.5. Systemic and Ocular Diagnosis
- 5.15.6. Differential Diagnosis
- 5.15.7. Systemic and Ocular Medical Treatment. Surgical Management
- 5.15.8. Prognosis and Conclusions

5.16. Rickettsial Eye Disease
- 5.16.1. Definition, Microbiological Characteristics and Classification of Rickettsioses
- 5.16.2. History Epidemiology. Pathophysiology. Immunology Pathology and Pathogenesis
- 5.16.3. Clinical Characteristics. Systemic and Ocular Involvement
- 5.16.4. Systemic, Laboratory and Ocular Diagnosis
- 5.16.5. Systemic and Ocular Treatment
- 5.16.6. Prognosis, Complications and Conclusions on Ocular Rickettsiosis

5.17. Eye Leprosy
- 5.17.1. Definition of Ocular Hansen's Disease Caused by Mycobacterium Leprae
- 5.17.2. History and Epidemiology
- 5.17.3. Systemic and Ocular Clinical Features
- 5.17.4. Posterior Segment Ocular Complications. Ocular Changes During Acute Leprosy Reactions
- 5.17.5. Ocular Histopathology
- 5.17.6. Pathogenesis and Immunology
- 5.17.7. Systemic and Ocular Diagnosis
- 5.17.8. Differential Diagnosis
- 5.17.9. Treatment of Systemic Disease and Eye Disease
- 5.17.10. Management of Ocular Complications

5.18. Eye Infections Due to the Herpes Virus
- 5.18.1. Virology, Herpes Simplex Virus and Varicella-Zoster Virus
  - 5.18.1.1. Clinical Features, Acute Retinal Necrosis and Other Retinopathies
  - 5.18.1.2. Diagnostics, Functional and Imaging tests, AFG, OCT and Angio-OCT
  - 5.18.1.3. Differential Diagnosis of Acute Retinal Necrosis
  - 5.18.1.4. Treatment of Acute Retinal Necrosis, Antiviral Agents. Treatment of Associated Retinal Detachment
- 5.18.2. Eye Infection Due to Epstein-Barr Virus
- 5.18.3. Cytomegalovirus Eye Infections
  - 5.18.3.1. Ocular Clinical Features
  - 5.18.3.2. Systemic and Ocular Treatment
  - 5.18.4.3. Complications, Prognosis and Conclusions of Cytomegalovirus Infection

5.19. Rubella Eye Disease. Measles Disease
- 5.19.1. Definition of Measles or Rubella Disease
- 5.19.2. History
- 5.19.3. Congenital Rubella
- 5.19.4. Acquired Rubella
- 5.19.5. Subacute Sclerosis Subacute Panencephalitis
- 5.19.6. Treatment for Ocular Rubella
- 5.19.7. Prognosis and Conclusions

5.20. Presumptive Ocular Histoplasmosis Syndrome
- 5.20.1. Definition
- 5.20.2. History, Mycology and Epidemiology
- 5.20.3. Clinical Features, Disseminated choroiditis, Maculopathy
- 5.20.4. Pathogenesis, Pathophysiology, Immunology
- 5.20.5. Laboratory Diagnostics and Ocular Diagnostics, Imaging Tests
- 5.20.6. Differential Diagnosis
- 5.20.7. Laser Treatment, Corticosteroid Treatment and Other Currently Proposed Treatments
- 5.20.8. Submacular and Subretinal Surgery. Complications
- 5.20.9. Prognosis and Conclusions

5.21. Ocular Candidiasis
- 5.21.1. Definition of Candida Eye Infection
- 5.21.2. History and Epidemiology
- 5.21.3. Clinical Features, Endogenous and Exogenous Candida Endophthalmitis
- 5.21.4. Complications, Pathogenesis, Histopathology and Immunology
- 5.21.5. Diagnosis. Vitreous and Anterior Chamber Aspiration
- 5.21.6. Differential Diagnosis
- 5.21.7. Systemic and Medical Treatment. The Role of Vitrectomy
- 5.21.8. Prognosis and Conclusions

5.22. Ocular Amebiasis
- 5.22.1. Definition of Acanthamoeba and Naegleria Eye Infection
- 5.22.2. History and Microbiology
- 5.22.3. Epidemiology, Pathophysiology
- 5.22.4. Clinical Ocular Disease, Anterior Pole, Uveitis and Late Complications
- 5.22.5. Diagnostics, Confocal Microscopy, Laboratory Diagnostics
- 5.22.6. Histology, Cultures
- 5.22.7. Differential Diagnosis
- 5.22.8. Medical Treatment, The Value of Vitrectomy and Cryotherapy
- 5.22.9. Prevention, Prognosis and Conclusions

Module 6. Hereditary Retinal Dystrophies and Pediatric Retinal Pathology

6.1. Hereditary Retinal dystrophies
- 6.1.1. Clinical Diagnosis. In-Clinic Tests and Campimetry
- 6.1.2. Imaging Tests, OCT and angio-OCT, Autofluorescence (AF), Fluorescein Angiography and Indocyanine Green
- 6.1.3. Electrophysiological Study
  - 6.1.3.1. Generalized Photoreceptor Dystrophies
  - 6.1.3.2. Macular Dystrophies
  - 6.1.3.3. Generalised Choroidal Dystrophies
  - 6.1.3.4. Hereditary Vitreoretinopathies
  - 6.1.3.5. Albinism
- 6.1.4. RHD in the Pediatric Age Group, Main Signs and Symptoms
- 6.1.5. Genetic Basis of RHD
- 6.1.6. Clinical Classification of RHD
  - 6.1.6.1. Introduction
  - 6.1.6.2. DHR and Non-syndromic Vitreoretinal
    - 6.1.6.2.1. Rod Diseases
      - 6.1.6.2.1.1. Stationary: Stationary Night Blindness. With Normal and Abnormal Fundus (Fundus Albipunctatus and Oguchi Disease)
      - 6.1.6.2.1.2. Progressives: Retinitis Pigmentosa (RP) or Cone-Rod Dystrophies (CRD)
    - 6.1.6.2.2. Cone Diseases
      - 6.1.6.2.2.1. Stationary or Cone Dysfunctions: Congenital Achromatopsia
      - 6.1.6.2.2.2. Cone and Cone-Rod Dystrophies (CRD)
    - 6.1.6.2.3. Macular Dystrophies
      - 6.1.6.2.3.1. Stargardt/Fundus Flavimaculatus
      - 6.1.6.2.3.2. Best's Disease
      - 6.1.6.2.3.3. Central Areolar Choroidal Dystrophy (CACD)
      - 6.1.6.2.3.4. X-linked Juvenile Retinoschisis
      - 6.1.6.2.3.5. Other Macular Dystrophies
    - 6.1.6.2.4. Widespread Photoreceptor Diseases
      - 6.1.6.2.4.1. Choroideremia
      - 6.1.6.2.4.2. Atrophy Gyrate
    - 6.1.6.2.5. Exudative and Non-Exudative Vitreoretinopathies

6.1.6.3. Syndromic RHD
6.1.6.3.1. Usher Syndrome
6.1.6.3.2. Bardet Biedl Syndrome
6.1.6.3.3. Senior Loken Syndrome
6.1.6.3.4. Refsum´s Disease
6.1.6.3.5. Joubert´s Disease
6.1.6.3.6. Alagille´s Disease
6.1.6.3.7. Alström's Syndrome
6.1.6.3.8. Neuronal Ceroid Lipofuscinosis
6.1.6.3.9. Primary Ciliary Dyskinesia (PCD)
6.1.6.3.10. Stickler's Disease

6.1.7. RHD Treatment
6.1.7.1. Gene Therapy A New Future for Treating Diseases with Genetic Disorders. Luxturna
6.1.7.2. Neurotrophic Growth Factor Therapies
6.1.7.3. Cell Therapy
6.1.7.4. Artificial Vision
6.1.7.5. Other Treatments

6.2. Retinopathy of Prematurity
6.2.1. Introduction and Historical Recollection
6.2.2. ROP Classification
6.2.3. Disease Context and Risk Factors
6.2.4. Diagnosis, Screening and Follow-up Guidelines in ROP
6.2.5. ROP Treatment Criteria
6.2.6. Using Anti-Vascular Endothelium Grown Factor
6.2.7. Use of Laser Treatment Today
6.2.8. Treatment by Scleral Surgery and/or Vitrectomy in Advanced Stages
6.2.9. Sequelae and Complications Arising from ROP
6.2.10. Criteria for Discharge and Subsequent Follow-up
6.2.11. Accountability, Documentation and Communication
6.2.12. Future of Screening and New Treatment Options

6.3. Albinism
6.3.1. Introduction and Definitions
6.3.2. Examination and Clinical Findings
6.3.3. Natural History
6.3.4. Treatment and Management of Albino Patients

6.4. X-Linked Congenital Retinoschisis
6.4.1. Definition, Genetical Study and Family Tree
6.4.2. Examination and Clinical Findings
6.4.3. Electrophysiological Tests
6.4.4. Classification
6.4.5. Natural History and Genetic Counselling
6.4.6. Treatment Guidelines According to Staging

6.5. Best's Disease
6.5.1. Definition, Genetic Study
6.5.2. Diagnosis, Clinical Findings, Imaging Tests
6.5.3. Functional Testing, Microperimetry and Electrophysiological Testing
6.5.4. Natural History, Clinical Course
6.5.6. Current and Future Treatments for Best's Disease

6.6. Stargardt's Disease, Fundus Flavimaculatus
6.6.1. Definition and Genetic Study
6.6.2. Clinical Findings in Consultation, Imaging Tests
6.6.3. Electrophysiological Tests
6.6.4. Evolutionary History and Genetic Counselling
6.6.5. Current Treatments

6.7. Familial Exudative Vitreoretinopathy. (RVEF)
6.7.1. Definition, Genetic Study
6.7.2. RVEF Clinical Findings
6.7.3. Imaging Tests, OCT, Angio-OCT. AFG
6.7.4. Natural History and Progression of the Disease, Staging
6.7.5. RVF Laser Treatment
6.7.6. Treatment with RVEF Vitrectomy
6.7.7. Treating Complications

6.8. Persistent Foetal Vasculature Syndrome. (PFVS)
- 6.8.1. Definition and Evolution of Disease Nomenclature
- 6.8.2. Ultrasound Examination, Imaging Tests
- 6.8.3. Clinical Findings in Consultation
- 6.8.4. Treatment Guidelines and Staging
- 6.8.5. Surgical Treatment of PFVS. Vitrectomy
- 6.8.6. Natural and Evolutionary History of the Disease
- 6.8.7. Visual Rehabilitation

6.10. Coat's Disease
- 6.10.1. Definition of Coat's Disease Evolving Forms
- 6.10.2. Clinical Findings in Consultation
- 6.10.3. Imaging Studies, Retinography, AFG, OCT and Angio-OCT. Evolving Forms
- 6.10.4. Ocular Ultrasound in Coat's Disease
- 6.10.5. Treatment Spectrum According to the Developmental Form. Natural History
- 6.10.6. Laser Treatment and Cryotherapy
- 6.10.7. Treatment by Vitrectomy in Advanced Forms
- 6.10.8. Visual Rehabilitation

6.11. Norrie's Disease
- 6.11.1. Definition, Genetic Study
- 6.11.2. Clinical Findings in Consultation
- 6.11.3. Treatment Guidelines and Genetic Counselling Treatment Guidelines and Current Pharmaceuticals
- 6.11.4. Natural and Evolutionary History of Norrie's Disease

6.12. Incontinentia Pigmenti
- 6.12.1. Definition and Genetic Study
- 6.12.2. Clinical Findings and Functional Tests
- 6.12.3. Natural and Evolutionary History of the Disease
- 6.12.4. Current Therapeutic Possibilities, Visual Aids

6.13. Choroidal Neovascularisation in the Pediatric Age Group
- 6.13.1. Clinical Findings in Consultation
- 6.13.2. Basic Functional and Imaging Tests
- 6.13.3. Differential Diagnosis
- 6.13.4. Treatment Guidelines and Their Possibilities According to Age

6.14. Retinal Detachment in the Pediatric Age and Detachment Associated with Ocular Coloboma
- 6.14.1. General Considerations
- 6.14.2. Anatomy and Surgical Adaptation to Retinal Detachment Morphology
- 6.14.3. Peculiarities of Surgery in the Pediatric Age Group, Specialised Surgical Instruments and Equipment for Young Children
- 6.14.4. Scleral Surgery in the Pediatric Age Group
- 6.14.5. Vitrectomy in the Pediatric Age Group
- 6.14.6. Post-surgical Medical and Postural Treatment in Infancy
- 6.14.7. Visual Rehabilitation

6.15. Stickler's Syndromes
- 6.15.1. Definition and Classification of Stickler Syndromes
- 6.15.2. Clinical Findings and Imaging Tests
- 6.15.3. Systemic and Ocular Treatment for the Disease
- 6.15.4. Current Treatment for Stickler Syndrome
- 6.15.5. Natural and Evolutionary History of the Disease

6.16. Marfan Syndrome
- 6.16.1. Definition and Genetic Study of the Disease
- 6.16.2. Systemic Spectrum of the Disease
- 6.16.3. Ocular Involvement in Marfan Disease
- 6.16.4. Ocular Clinical Findings
- 6.16.5. Applicable Treatments to Marfan Syndrome
- 6.16.6. Retinal Detachment in Marfan Syndrome
- 6.16.7. Natural and Evolutionary History of the Disease

Module 7. Age-Related Macular Degeneration (AMD)

7.1. Epidemiology of AMD
- 7.1.1. Introduction
- 7.1.2. International Classification Systems, Classification History
- 7.1.3. Incidence
- 7.1.4. Prevalence
- 7.1.5. Etiopathogenesis
- 7.1.6. Risk Factors

7.2. Genetics of Age-Related Macular Degeneration
- 7.2.1. Introduction
- 7.2.2. Genetic Studies Associated with AMD
- 7.2.3. Complement H Factors and Loci Involved in AMD
- 7.2.4. Other Factors Implicated in AMD

7.3. Histopathology of AMD
- 7.3.1. Ocular Aging, Changes in the Various Retinal Structures
- 7.3.2. Histological Changes in the Developmental Form of AMD
- 7.3.3. Changes in the Various Retinal Structures and Pigmented Epithelium
- 7.3.4. Drusen
- 7.3.5. Incipient Atrophy
- 7.3.6. Geographical Atrophy
- 7.3.7. Neovascular Age-Related Macular Degeneration

7.4. Clinical and Angiographic Findings in AMD. AFG and ICG
- 7.4.1. Clinical Signs and Symptoms of AMD
- 7.4.2. Drusen
- 7.4.3. Pigment Changes
- 7.4.4. Geographical Atrophy
- 7.4.5. Pigment Epithelium Detachment DEP
- 7.4.6. Subretinal Neovascular Complexes
- 7.4.7. Disciform Shapes
- 7.4.8. Angiographic Study with Fluorescein and Indocyanine Green. Current Applications of the Technique

7.5. Optical Coherence Tomography and Angio-OCT in Age-related Macular Degeneration
- 7.5.1. OCT and Angio-OCT as a Basis for Disease Monitoring
- 7.5.2. Initial Information on the Technology
- 7.5.3. OCT in Early Stages of the Disease
- 7.5.4. OCT and Angio-OCT, in Geographic Atrophic Forms of the Disease
- 7.5.5. OCT and Angio-OCT, in Quiescent Forms
- 7.5.6. Exudative AMD and its Examination with OCT and Angio-OCT
- 7.5.7. OCT in Retinal Pigment Epithelial Detachments
- 7.5.8. OCT and Angio-OCT, in Other Forms of Presentation of AMD
- 7.5.9. Importance of OCT in Clinical Trials for Drug Development and Drug Comparisons in AMD
- 7.5.10. Prognostic Factors of OCT and Angio-OCT in AMD. Biomarkers

7.6. Updated Classification of AMD and its Correspondence with Previous Classifications
- 7.6.1. Type 1 Neovascularization
- 7.6.2. Type 2 Neovascularization
- 7.6.3. Type 3 Neovascularization
- 7.6.4. Type 1 Aneurysmal Dilatations or Polypoidal Choroidal Vasculopathy

7.7. Treatment of Atrophic and Degenerative Forms of AMD
- 7.7.1. Introduction
- 7.7.2. Diet and Nutritional Supplements in AMD Prevention
- 7.7.3. The Role of Antioxidants in the Evolutionary Control of the Disease
- 7.7.4. What Would Be the Ideal Business Mix?
- 7.7.5. Role of Sun Protection in AMD

7.8. Disused Treatments for Neovascular Forms of AMD
- 7.8.1. Laser Treatment in AMD, Historical Implications
- 7.8.2. Types of Lasers for Retinal Treatment
- 7.8.3. Mechanism of Action
- 7.8.4. Historical Results and Recurrence Rate
- 7.8.5. Indications and Instructions for Use
- 7.8.6. Complications
- 7.8.7. Transpupillary Thermotherapy as a Treatment for AMD
- 7.8.8. Epiretinal Brachytherapy for the Treatment of AMD

7.9. Current Treatments for Neovascular Forms of AMD
- 7.9.1. Photodynamic Therapy for Some Cases of AMD. Historical Recollections of Their Use
- 7.9.2. Macugen
- 7.9.3. Ranibizumab
- 7.9.4. Bevacizumab
- 7.9.5. Aflibercept
- 7.9.6. Brolucizumab
- 7.9.7. Role of Corticosteroids for some types of AMD

7.10. New Treatments for Exudative AMD

7.11. Combined Therapies for AMD

7.12. Systemic Impact of Intravitreal Drugs for AMD
- 7.12.1. Cardiovascular Risk Factors in AMD
- 7.12.2. Half-life of Different Intravitreal Drugs in AMD
- 7.12.3. Adverse Effects in Major Studies of Intravitreal Drugs

Module 8. Tumor Pathology of the Retina, Choroid and Vitreous

8.1. Retinoblastoma
- 8.1.1. Definition
- 8.1.2. Genetics of Retinoblastoma
- 8.1.3. Retinoblastoma Disease. Histopathology
- 8.1.4. Presentation, Diagnosis and Exploration, Imaging Techniques for Children
- 8.1.5. Differential Diagnosis
- 8.1.6. Classification
- 8.1.7. Retinoblastoma Treatment
  - 8.1.7.1. Chemotherapy/Chemoreduction/Intra-arterials
  - 8.1.7.2. Thermotherapy
  - 8.1.7.3. Photocoagulation
  - 8.1.7.4. Cryotherapy
  - 8.1.7.5. Brachytherapy
  - 8.1.7.6. External Radiotherapy
  - 8.1.7.7. Enucleation
  - 8.1.7.8. Extraocular Retinoblastoma
- 8.1.8. Regression Patterns
- 8.1.9. Visual Rehabilitation and Prognosis

8.2. Cavernous Hemangioma and Racemose Hemangioma
- 8.2.1. Definition
- 8.2.2. Clinical Symptoms
- 8.2.3. Prognosis
- 8.2.4. Diagnosis and Histology
- 8.2.5. Treatment

8.3. Retinal Capillary Hemangioblastoma and VonHippel-Lindau Disease
- 8.3.1. Definition
- 8.3.2. Clinical Symptoms
- 8.3.3. Diagnostic techniques
- 8.3.4. Differential Diagnosis
- 8.3.5. Treatment
- 8.3.6. Complications
- 8.3.7. Results

8.4. Tuberous Sclerosis and its Ophthalmological Pathology
- 8.4.1. Definition
- 8.4.2. Systemic Manifestations
- 8.4.3. Ocular Manifestations
- 8.4.4. Genetic Studies

8.5. Phacomatosis
- 8.5.1. Definition
- 8.5.2. Definition of Hamartoma, Choristoma
- 8.5.3. Neurofibromatosis (von Recklinghausen Syndrome)
- 8.5.4. Encephalofacial Hemangiomatosis (Sturge-Weber Syndrome)
- 8.5.5. Hemangiomatosis Racemose (Wyburn-Mason Syndrome)
- 8.5.6. Retinal Cavernous Hemangiomatosis
- 8.5.7. Phacomatosis Vascular Pigment
- 8.5.8. Oculo-dermal Melanocytosis
- 8.5.9. Other Phacomatoses

8.6. Retinal Metastases
- 8.6.1. Definition
- 8.6.2. Systemic Study Following the Finding of a Possible Metastasis
- 8.6.3. Eye Study
- 8.6.4. Treatment

8.7. Distant Effects of Cancer in the Retina. Paraneoplastic Syndromes
- 8.7.1. Definition
- 8.7.2. Cancer-associated Retinopathy Syndrome
- 8.7.3. MAR Cutaneous Melanoma-Associated Retinopathy Syndrome
- 8.7.4. Treatment of Paraneoplastic Retinopathies
- 8.7.5. Bilateral Diffuse Uveal Melanocytic Diffuse Melanocytic Proliferation

8.8. Melanocytoma of the Optic Nerve
- 8.8.1. Definition
- 8.8.2. Clinical Findings of Optic Nerve Melanocytoma
- 8.8.3. Pathology and Pathogenesis
- 8.8.4. Exploration and Diagnostic Approach
- 8.8.5. Treatment

8.9. Congenital Hypertrophy of Pigmented Epithelium
- 8.9.1. Definition
- 8.9.2. Epidemiology and Demography
- 8.9.3. Clinical Findings and Classification
- 8.9.4. Differential Diagnosis

8.10. Combined Pigment Epithelium and Retinal Hamartoma
- 8.10.1. Definition
- 8.10.2. Epidemiology
- 8.10.3. Clinical Manifestations
- 8.10.4. Examination in Consultation, Diagnosis
- 8.10.5. Differential Diagnosis
- 8.10.6. Clinical Course
- 8.10.7. Etiology and Pathology
- 8.10.8. Histopathology
- 8.10.9. Treatment

8.11. Choroidal Nevus
- 8.11.1. Definition and Prevalence
- 8.11.2. Choroidal Nevus and Systemic Disease
- 8.11.3. Histopathology
- 8.11.4. Clinical Findings in Consultation
- 8.11.5. Differential Diagnosis
- 8.11.6. Natural History of Choroidal Nevus
- 8.11.7. Observation and Monitoring of Choroidal Nevi

8.12. Choroidal Melanoma
- 8.12.1. Epidemiology
- 8.12.2. Prognosis and Natural History of Uveal Melanoma
- 8.12.3. Molecular Genetics of Choroidal Melanoma
- 8.12.4. Pathology of Choroidal Melanoma
- 8.12.5. Management and Treatment of Choroidal Melanoma
  - 8.12.5.1. Enucleation
  - 8.12.5.2. Brachytherapy for Choroidal Melanoma.
  - 8.12.5.3. Endoresection by Vitrectomy of Choroidal Melanoma
  - 8.12.5.4. Abexternal Resection of Choroidal Melanoma
  - 8.12.6.5. Laser in Choroid Treatment, Transpupillary Thermotherapy Abexternal Resection of Choroidal Melanoma
  - 8.12.7.6. Photodynamic Therapy for the Treatment of Uveal Melanoma

8.13. Choroidal Metastases
- 8.13.1. Definition
- 8.13.2. Incidence and Epidemiology
- 8.13.3. Clinical Findings and Exploration
- 8.13.4. Differential Diagnosis
- 8.13.5. Pathology and Pathogenesis
- 8.13.6. Treatment
- 8.13.7. Prognosis

8.14. Choroidal Osteoma
- 8.14.1. Definition and Epidemiology
- 8.14.2. Clinical Findings and Exploration
- 8.14.3. Differential Diagnosis
- 8.14.4. Pathology and Pathogenesis
- 8.14.5. Diagnostic Approach
- 8.14.6. Treatment
- 8.14.7. Prognosis

8.15. Circumscribed Choroidal Hemangioma
- 8.15.1. Definition
- 8.15.2. Clinical Symptoms
- 8.15.3. Diagnostic Methods, AFG, ICG, Ocular Iltrasound, CT and MRI, OCT
- 8.15.4. Treatment

8.16. Diffuse Choroidal Hemangioma
- 8.16.1. Definition
- 8.16.2. Clinical Symptoms
- 8.16.3. Diffuse Choroidal Hemangioma
- 8.16.4. Treatment

8.17. Uveal Tumours
- 8.17.1. Ciliary Body Epithelial Tumours. Acquired and Congenital
- 8.17.2. Leukemias and Lymphomas. Primary Vitreous Retinal Lymphoma

Module 9. Introduction to retinal surgery, vitrectomy arising from complications of anterior pole surgery, surgery on diabetic patients, endophthalmitis and viral retinitis

9.1. Instruments, Materials and Therapeutic Alternatives
- 9.1.1. Methods to Induce Chorioretinal Adhesion
- 9.1.2. Scleral Surgery Equipment
- 9.1.3. Gases for Intraocular Use
- 9.1.4. Silicone Oils
- 9.1.5. Perfluorocarbons
- 9.1.6. Cryotherapy
- 9.1.7. The Vitrectomy, Surgical Principles and Techniques
- 9.1.8. Different Sizes and Systems of Vitrectomy Probes
- 9.1.9. Endocular Light Sources and Diversity of Light Terminals
- 9.1.10. Endovascular Lasers
- 9.1.11. Accessory Instruments
- 9.1.12. Visualisation Systems in Vitrectomy. Surgical Lenses. Wide Field
- 9.1.13. Microscope Systems, 3D Microscopes

9.2. Advanced Vitrectomy Techniques
- 9.2.1. Simple Vitrectomy. Location of Pars Plana
- 9.2.2. Pars Plana Lensectomy
- 9.2.3. Endocyclophotocoagulation
- 9.2.4. Endolaser Techniques
- 9.2.5. Liquid Air Exchange Techniques. Gas Injection Techniques
- 9.2.6. Liquid Perfluorocarbon Injection Techniques
- 9.2.7. Techniques for the Use and Injection of Silicone Oils
- 9.2.8. Control of Intraocular Hemorrhage During Surgery
- 9.2.9. Pupil Management, Pupillary Opening, for Visualisation in Vitrectomy
- 9.2.10. Handling for Removal of Air or Subretinal Substances

9.3. Surgical Techniques for the Management of Complications Arising from Cataract Surgery
- 9.3.1. Anterior Vitrectomy
- 9.3.2. Vitrectomy of Dislocated Crystalline Lens to Vitreous or Crystalline Debris in Vitreous
- 9.3.3. Surgical Techniques to Manage Dislocated Vitreous Lenses
- 9.3.4. Techniques for Secondary Lens Implantation in the Absence of a Capsular Bag. Current Lens Models
- 9.3.5. Techniques for the Treatment of Vitreous Incarcerations

9.4. Glaucoma-related Vitrectomy Techniques
- 9.4.1. Filter Surgery and Vitrectomy
- 9.4.2. Lensectomy and Vitrectomy in the Presence of Leakage Blebs
- 9.4.3. Techniques for the Management of Pupillary and Angular Blockade
- 9.4.4. Techniques for Vitreous Chamber Valve Device Implantation

9.5. Diagnostic Biopsy
- 9.5.1. Biopsy Techniques for the Anterior Segment
- 9.5.2. Techniques for Vitreous Biopsy and Collection of Material for Analysis
- 9.5.3. Retinal Biopsy Techniques
- 9.5.4. Uveal Biopsy Techniques

9.6. Vitrectomy in Diabetes Mellitus
- 9.6.1. Indications for Surgery in DM
- 9.6.2. Vitrectomy of Simple Hemorrhage
- 9.6.3. Vitrectomy for Diabetic Tractional Detachment
- 9.6.4. Vitrectomy for Progressive Fibrovascular Proliferation
- 9.6.5. Vitrectomy for Dense Macular Hemorrhages
- 9.6.6. Vitrectomy in Diabetic Rhegmatogenous Detachment
- 9.6.7. Use of Silicone in the Diabetic Patient

9.7. Vitrectomy for Endophthalmitis
- 9.7.1. Pharmacological Management of Endophthalmitis
- 9.7.2. Sampling for Microbiology
- 9.7.3. Vitrectomy of the Patient with Endophthalmitis

9.8. Vitrectomy for Retinitis Due To Viruses
- 9.8.1. Vitrectomy in Herpes Simplex Retinitis
- 9.8.2. Vitrectomy in Cytomegalovirus Retinitis
- 9.8.3. Other Herpetic Retinitis
- 9.8.4. Vitrectomy in Acute Retinal Necrosis
- 9.8.5. Intravitreal Antiviral Agents

9.9. Intravitreal Pharmaceuticals
- 9.9.1. Slow-release Implants
- 9.9.2. Intravitreal Agents, Miscellaneous

Module 10. Comprehensive Treatment for Retinal Detachment

10.1. Retinal Detachment
- 10.1.1. Extraocular Anatomy and Physiology Adapted to Retinal Detachment Treatment
- 10.1.2. Extraocular Anatomy and Physiology Adapted to Retinal Detachment Treatment
- 10.1.3. Vitreous Liquefaction
- 10.1.4. Posterior Vitreous Detachment
- 10.1.5. Abnormal Vitreous-Retinal Adhesions
- 10.1.6. Reticular Degeneration
- 10.1.7. Asymptomatic Retinal Tears
- 10.1.8. In-consultancy Examination of Retinal Detachment. Color Coding When Drawing
- 10.1.9. Lincoff's Laws. Methods for Locating Retinal Tears

10.2. Principles of Retinal Reapplication Surgery
- 10.2.1. Physiological Factors That Maintain Retinal Detachment
- 10.2.2. Factors That Induce Retinal Detachment
- 10.2.3. History of Retinal Detachment Surgery, Contributions of Jules Gonin
- 10.2.4. Evolution of Contemporary Surgical Techniques.
- 10.2.5. Preoperative Eye Examination
- 10.2.6. Anesthesia in Retinal Detachment Surgery
- 10.2.7. Methods for Creating a Chorioretinal Adhesion

10.3. Scleral Surgery for Retinal Detachment
- 10.3.1. Materials for Scleral Indentation
- 10.3.2. Preparation of the RD's Surgical Process in the Clinic
- 10.3.3. Preparing the Surgical Field
- 10.3.4. Examination of Retinal Detachment in the Operating Theatre. Location of Tears and Their Scleral Markings
- 10.3.5. Sealing of Retinal Tears, Positioning of the Various Devices, Locks, Silicone Sponges, etc.
- 10.3.6. Cryotherapy or Laser Around Ruptures, Surgical Technique
- 10.3.7. Drainage and Control of Subretinal Fluid
- 10.3.8. Scleral Cerclage Height Adjustment and Suturing of Intraocular Implants and Injections
- 10.3.9. Closure and End of Surgery
- 10.3.10. Medical Treatment Accompanying the Scleral Surgical Process

10.4. Alternative Methods of Treatment for Retinal Detachment
- 10.4.1. Pneumatic Retinopexy
- 10.4.2. Lincoff Balloon or Orbital or Episcleral Balloon
- 10.4.3. Suprachoroidal Surgery, Suprachoroidal Indentation
- 10.4.4. Liquid-air Exchanges in Consultation with Expanding Gases
- 10.4.5. Nd:YAG Laser Vitreolysis
- 10.4.6. Enzymatic Vitreolysis

10.5. Complicated Types of Retinal Detachment
- 10.5.1. Total Retinal Detachments with Multiple Retinal Tears
- 10.5.2. Retinal Detachments of Posterior Pole Retina Caused by Macular Holes
- 10.5.3. Retinal Detachment Due To Giant Tears
- 10.5.4. Proliferative Vitreoretinopathy
- 10.5.5. Retinal Detachment Secondary to Uveitis and Retinitis
- 10.5.6. Retinal Detachment Secondary to Choroidal Detachment
- 10.5.7. Retinal Detachment Secondary to Retinal Coloboma
- 10.5.8. Retinal Detachment Secondary to Morning Glory Syndrome
- 10.5.9. Retinal Detachment Secondary to Retinoschisis
- 10.5.10. Retinal Detachment Secondary to Anterior Pole Surgery
- 10.5.11. Retinal Detachment with Major Corneal Opacity
- 10.5.12. Retinal Detachment in the Myopic Patient

10.6. Vitrectomy for the Treatment of Retinal Detachment
- 10.6.1. First Steps of Current and Past Vitrectomy
- 10.6.2. Central and Peripheral Vitrectomy
- 10.6.3. Use of Liquid Perfluorocarbon
- 10.6.4. Surgical Techniques for Retinal Reapplication Depending on the Location of the Tear
- 10.6.5. Endolaser
- 10.6.6. Endocular Cryotherapy
- 10.6.7. Endocular Diathermy
- 10.6.8. Surgical Techniques of Intraocular Exchanges, Liquid-Air, Liquid-Oil, Liquid-Oil Silicone
- 10.6.9. Removal of Silicone Oil from the Anterior Chamber, Posterior Pole. Extraction of Heavy Oils
- 10.6.10. Control of Hemorrhage During Surgery
- 10.6.11. Membrane Clearance in Proliferative Vitreoretinopathy (PVR)
- 10.6.12. Anterior Retinectomy
- 10.6.13. Posterior Relaxing Retinotomy
- 10.6.14. Other Retinal Reapplication Techniques
- 10.6.15. Post-surgical Postural Treatment
- 10.6.16. Changes in Pressure, Aeroplane Flights During the Presence of Expandable Gases in the Eye
- 10.6.17. Expandable Gases and Anesthetic Gases

10.7. Complications of Retinal Detachment Surgery
- 10.7.1. Complications Arising from Sclerotomies
- 10.7.2. Retinal Incarceration at the Drainage Site in Scleral Surgery
- 10.7.3. All Aspects of the Lens in Retinal Detachment Surgery
- 10.7.4. Surgical Techniques for Mechanical Dilation of the Pupil
- 10.7.5. Intraoperative Complications of Retinal Detachment Surgery
- 10.7.6. Perioperative Complications of Retinal Detachment Surgery
- 10.7.7. Postoperative Complications of Retinal Detachment Surgery

Module 11. Surgery for High Myopia. Surgery in Macular Diseases Surgical Techniques in Ocular Trauma. Latest Surgical Techniques

11.1. Surgery for High Myopia
- 11.1.1. The Sclera in High Myopia
- 11.1.2. The Peripheral Retina in the High Myopia
- 11.1.3. Surgical Equipment Adapted to High Myopia
- 11.1.4. Vitreomacular Traction Syndrome and Epiretinal Membrane in High Myopia
- 11.1.5. Macular Retinoschisis
- 11.1.6. Myopic Macular Hole
- 11.1.7. Macular Indentation
- 11.1.8. Intraoperative Complications in High Myopia
- 11.1.9. Perioperative Complications in High Myopia

11.2. Vitrectomies for Macular Diseases
- 11.2.1. Idiopathic Macular Holes
- 11.2.2. Epiretinal Membranes
- 11.2.3. Vitreomacular Traction Syndrome
- 11.2.4. Colobomatous Fossa of the Optic Nerve
- 11.2.5. Submacular Hemorrhage
- 11.2.6. The Use of Tissue Plasminogen Activator in Submacular Hemorrhage Surgery
- 11.2.7. Submacular Surgery of Neovascular Complexes
- 11.2.8. Surgical Techniques for Subretinal Surgery
- 11.2.9. Pigment Epithelium Cell Transplantation
- 11.2.10. Vitrectomy in Vitreous Opacities
- 11.2.11. Surgical Techniques to Apply Gene Therapy

11.3. Surgical Techniques in Ocular Trauma
- 11.3.1. Examination of Eye Injuries in the Consultation Room
- 11.3.2. Exploration and Primary Scleral Repair of Ocular Perforator Trauma
- 11.3.3. Treatment of Hyphema
- 11.3.4. Surgical Techniques Iridodialysis Repair
- 11.3.5. Surgical Techniques for the Treatment of Traumatic Lens Dislocation or Subluxation or Traumatic Intraocular Lenses
- 11.3.6. Surgical Techniques for Intraocular Foreign Bodies
- 11.3.7. Penetrating and Piercing Injuries
- 11.3.8. Traumatic Suprachoroidal Hemorrhages
- 11.3.9. Sympathetic Ophthalmia

11.4. Other Retinal Surgery Techniques
- 11.4.1. Surgical Techniques in Retinal Occlusion
- 11.4.2. Removal of Intra-Arterial Emboli
- 11.4.3. Terson Syndrome
- 11.4.4. Macular Translocation
- 11.4.5. Artificial Vision, Bionic Retinal Prostheses
- 11.4.6. Intraoperative Radiotherapy for Subretinal Neovascular Complexes
- 11.4.7. Surgical Techniques for the Treatment of Choroidal Detachments

A unique, key, and decisive educational experience to boost your professional development"

06

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.

According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

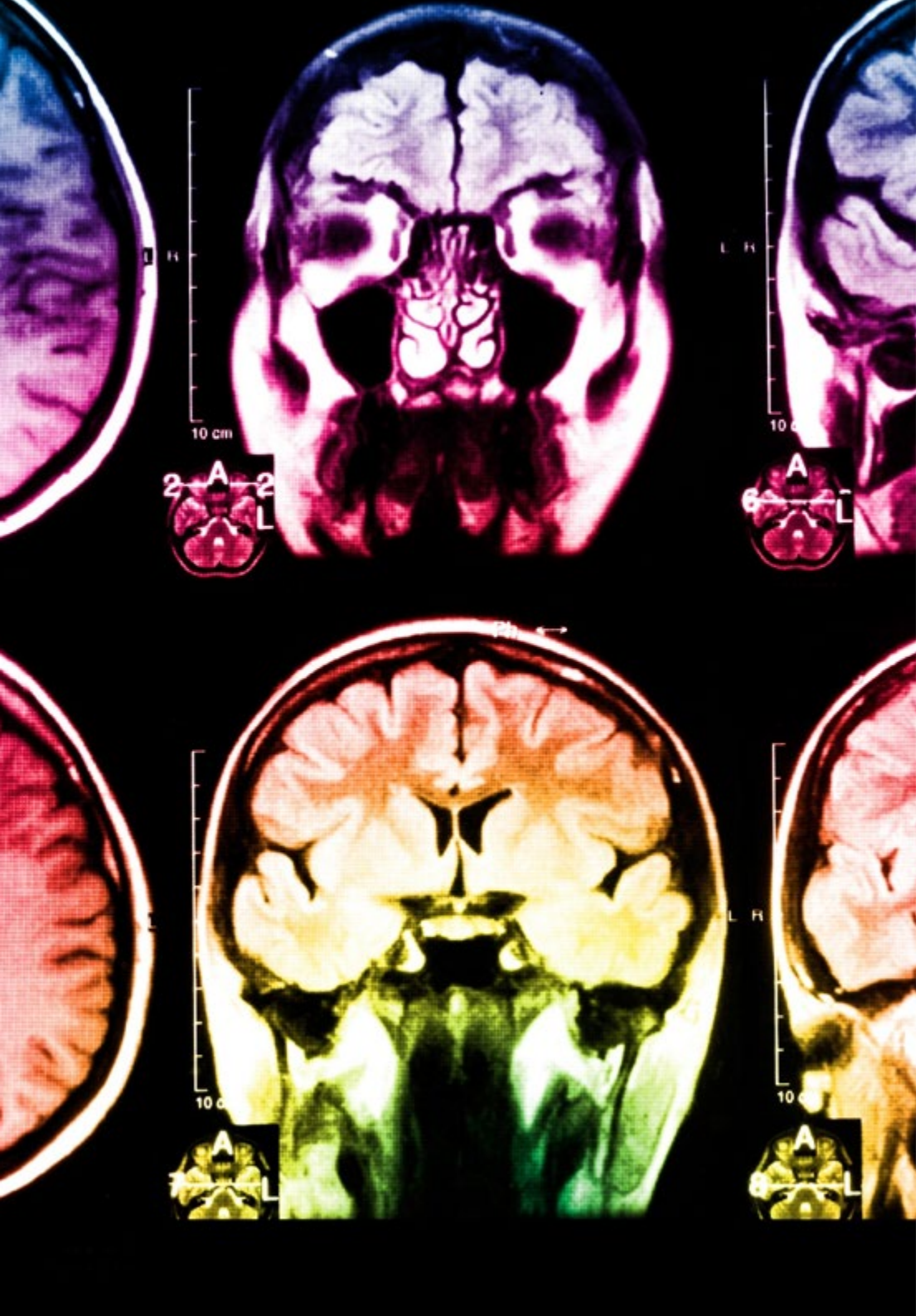
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

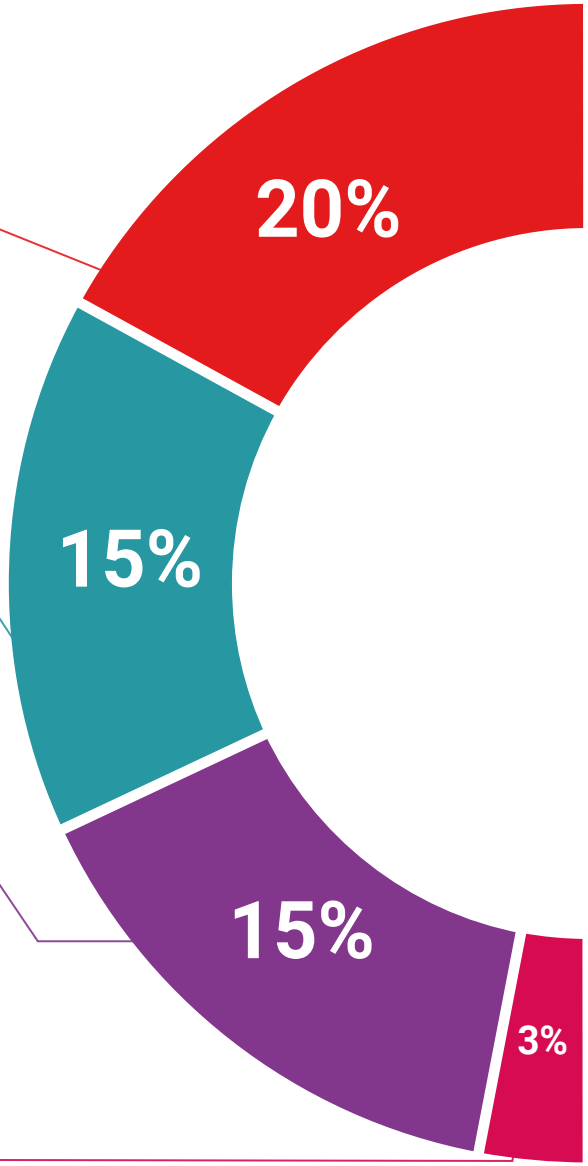
Interactive Summaries

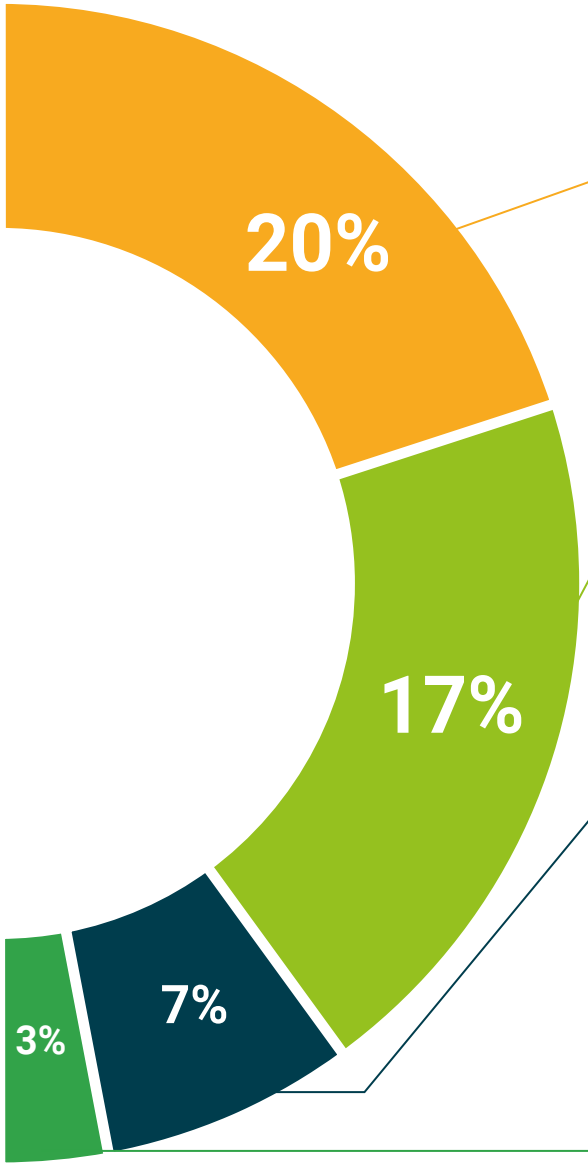
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

07

Certificate

The Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery guarantees students, in addition to the most rigorous and updated education, access to a Professional Master's Degree issued by TECH Global University.

Successfully complete this program and receive your university degree without travel or laborious paperwork"

This program will allow you to obtain your **Professional Master's Degree diploma in Macula, Retina and Vitreous Pathology and Surgery** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery

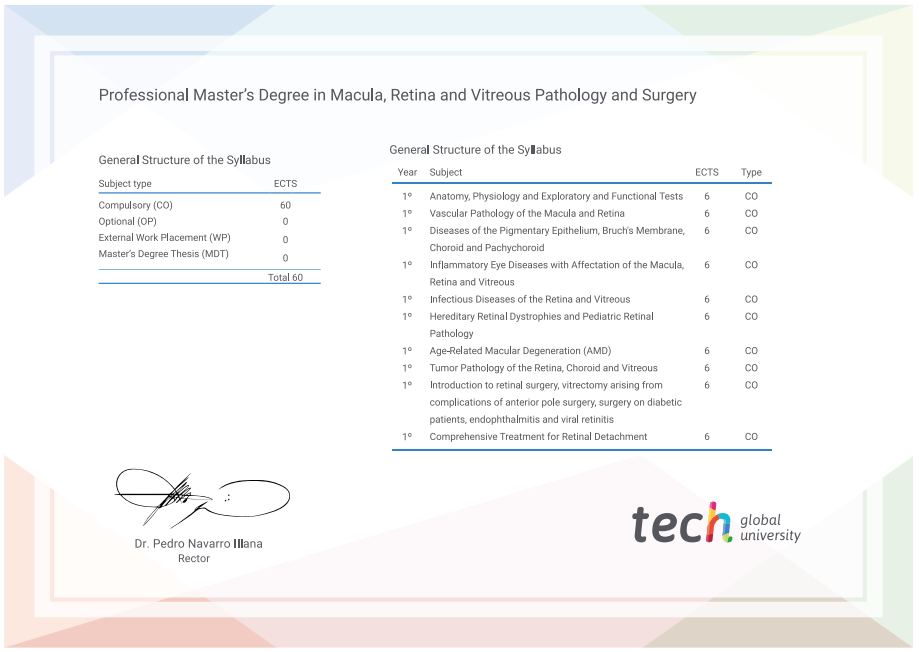
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Macula, Retina and Vitreous Pathology and Surgery

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Anatomy, Physiology and Exploratory and Functional Tests	6	CO
1º	Vascular Pathology of the Macula and Retina	6	CO
1º	Diseases of the Pigmentary Epithelium, Bruch's Membrane, Choroid and Pachychoroid	6	CO
1º	Inflammatory Eye Diseases with Affectation of the Macula, Retina and Vitreous	6	CO
1º	Infectious Diseases of the Retina and Vitreous	6	CO
1º	Hereditary Retinal Dystrophies and Pediatric Retinal Pathology	6	CO
1º	Age-Related Macular Degeneration (AMD)	6	CO
1º	Tumor Pathology of the Retina, Choroid and Vitreous	6	CO
1º	Introduction to retinal surgery, vitrectomy arising from complications of anterior pole surgery, surgery on diabetic patients, endophthalmitis and viral retinitis	6	CO
1º	Comprehensive Treatment for Retinal Detachment	6	CO

Dr. Pedro Navarro Illana
Rector

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*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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Professional Master's Degree

Macula, Retina and Vitreous Pathology and Surgery

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Macula, Retina and Vitreous Pathology and Surgery

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