
האוניברסיטה העברית בירושלים

סילבוס

עיניים - שנה ה' - 96809

תאריך עדכון אחרון 21-01-2014

נקודות זכות באוניברסיטה העברית: 3

תואר: מוסמך

היחידה האקדמית שאחראית על הקורס: רפואה

השנה הראשונה בתואר בה ניתן ללמוד את הקורס: 1

סמסטר: שנתי

שפת ההוראה: עברית

קמפוס:

מורה אחראי על הקורס (רכז): דר' הדס משולם

דוא"ל של המורה האחראי על הקורס: hadasm@gmail.com

שעות קבלה של רכז הקורס: בתיאום מראש

מורי הקורס:

פרופ איתי חוברס
ד"ר הדס משולם
פרופ חנה לייבה

תאור כללי של הקורס:
קורס קליני בן 3 שבועות.

מטרות הקורס:
1. לזהות ולתאר מחלות עיניים שכיחות ומחלות עיניים מסכנות חיים או ראייה
2. להכיר סימנים עיניים של מחלות מערכתיות
3. לטפל במחלות עיניים שכיחות כגון דלקת לחמיות

תוצרי למידה
בסיומו של קורס זה, סטודנטים יהיו מסוגלים:
לרכוש מיומנות בבדיקה:
1. בדיקת עיניים באמצעים הזמינים במרפאה כללית - בדיקת ראייה, תגובת אישונים, תנועות עיניים, שדה ראייה בקונפרונטציה, סגמנט קדמי (לגוף זר, טראומה, גלאוקומה סגורת זווית ועוד)
2. בדיקת קרקעיות באופתלמוסקופ ישיר (לבצקת דסקות, דימום)
3. בדיקה במנורת סדק
לקיחת אנמנזה
הכנת מקרה והצגתו למדריך ולקבוצה (היסטוריה, ממצאים קליניים, אבחנה מבדלת, מהלך מחלה, טיפול וסקירת ספרות)

דרישות נוכחות (%) :
80%

שיטת ההוראה בקורס: הרצאות מקיפות ברפואת עיניים ינתנו על ידי מומחי על בתחומים השונים.
עבודה קלינית תתבצע בחדרי ניתוח ובמרפאת עיניים כללית, במרפאות מומחים ובמרפאה ראשונית בקהילה.

רשימת נושאים / תכנית הלימודים בקורס:
Anatomy of the Anterior Segment

The eye as an optical device

The eyeball
The Extraocular Muscles
Eyewall

Lids and Tear film

Tear films

Glands

Conjunctiva

Sclera

Tenon's capsule

The anterior segment

A/C borders

Cornea

Corneal layers

The limbus

Iris

Iris muscles

Lens

Lens development

The A/C angle

Trabecular meshwork

Ciliary body and Aqueous humor

Ciliary epithelium

Ciliary muscles and accommodation

Anatomy of the Posterior Segment

Vitreous body

Areas of attachment

Posterior vitreous detachment

Retina

Neural tissue

Ora serrata

Histological layers

Retinal cell types

Macula

Blood supply and drainage

Choroid

Central retinal artery

Vortex veins

Superior and inferior ophthalmic veins

Optic nerve
Intraocular
Intraorbital
Intracanalicular
Intracranial

Orbit
Bones
Apertures
optic canal
superior orbital fissure
inferior orbital fissure

Extraocular muscles
Rectus muscles
Oblique muscles

Cornea and External Eye Diseases

Infectious diseases
Blepharitis
Seborrheic, Staphylococcal
Chalazion, Hordeolum
Conjunctivitis
Viral, Bacterial, allergic
Papillary vs. follicular reaction
Microbial Keratitis
Herpes Simplex Keratitis
Epithelial
Stromal
Ophthalmic Herpes Zoster
Trachoma

Keratoconus

Pterygium and Pinguecula

Inflammatory diseases
Dry Eye Syndromes
Classification
Pathophysiology
Clinical tests (Schirmer, TBUT, dye staining)
Management

Tear substitutes (preserved, non-preserved)
Anti-inflammatory
Punctal occlusion

Allergic Eye Disorders
Contact dermatitis
Giant papillary conjunctivitis
Seasonal allergic conjunctivitis
Vernal keratoconjunctivitis
Cicatrizing conjunctivitis
Stevens-Johnson Syndrome
Atopic keratoconjunctivitis
Ocular cicatricial pemphigoid

Limbal stem cell deficiency
Diagnosis
Surgical procedures

Red Eye

Symptoms and Signs
Differential Diagnosis

Retinal Disorders

Posterior segment imaging
Fluorescein angiogram
Optical coherence tomography
Ophthalmic echography

Vascular retinal diseases
Diabetic retinopathy
Definition
Prevalence
Pathogenesis
Clinical findings
Classification
Diagnosis

Systemic factors associated with diabetic retinopathy
Treatment
Laser- focal, PRP
Anti-VEGF compounds
Surgery
Steroids

Retinal vein and artery occlusions – clinical findings, risk factors, diagnosis, treatment

Central retinal vein occlusion

Branch retinal vein occlusion

Central retinal artery occlusion

Branch retinal artery occlusion

Hypertensive retinopathy –clinical findings, grading

Age related macular degeneration (AMD)

Definition

Prevalence

Pathogenesis

Clinical findings

Classification

Treatment

Modifiable factors

Oral supplements

Photodynamic therapy (PDT)

Anti-VEGF compounds

Retinal Detachment

Etiology (rhegmatogenous, tractional, exudative)

Risk factors

Posterior vitreous detachment

Peripheral retinal degenerations, retinal tears

Signs and Symptoms of retinal detachment

Vitreo-retinal surgical procedures

Complications of vitreo-retinal surgery

Visual Function testing:

1. Main Electrophysiological tests:

- Electroretinography (ERG) (retinal function)

Physiologic basis of retinal response

Rod versus cone systems in the retina

Main components of the ERG waveform

Diseases and conditions in which the ERG is helpful

- Electro-oculography (EOG) (function of retinal pigment epithelium)

- Visual Evoked Potentials (VEP) (conductance of optic nerve and response of visual cortex)

Flash and pattern VEPs,

VEP in demyelinating diseases
Pattern VEP (evaluation of visual acuity)

2. Main Psychophysical Tests:
- Visual field testing (perimetry)

- Contrast sensitivity

- Color Vision testing

Physiology of color vision

Congenital versus acquired color vision deficiencies

The Ishihara and Farnsworth-Munsell D-15 color tests

- Dark adaptation

The normal course of dark adaptation

Conditions with impaired night vision

Work-up of night blindness

Hereditary retinal degenerations:

Retinitis pigmentosa (RP):

Prevalence

Modes of inheritance

Symptoms and signs

Funduscopy findings

Electroretinographic findings

Genetics

Treatment

Cone-rod dystrophies:

Symptoms and signs

Funduscopy findings

Electroretinographic findings

Congenital stationary night blindness (CSNB):

Symptoms and signs

Funduscopy findings

Electroretinographic findings

Genetics

Pathophysiology

Comparison to RP

Congenital color blindness:

Prevalence

Mode of inheritance

Pathophysiology

Acquired color blindness

Acute Visual loss

Causes:

Corneal diseases

Anterior chamber diseases

Lens diseases

Vitreous disorders

Retinal detachment

Retinal vascular diseases

Optic nerve diseases

Cataract

Lens anatomy

Classification of cataract

By age

By anatomy

Metabolic cataract

Indications for surgery

Cataract surgery: ICCE, ECCE, phacoemulsification

Intra-ocular lenses

Complications of cataract surgery

Neuro-Ophthalmology

Neuroanatomy of the visual pathway

The Neuro-ophthalmological History

Symptoms & Signs

Visual disturbances

Double vision

Medications

Past Medical History

Review of Systems

Hereditary Diseases

Differential Diagnoses - etiological processes

The Neuro-ophthalmological Exam

Visual Acuity

Color Vision

Contrast Sensitivity

Visual Fields
Visual field abnormalities due to visual pathway lesions
Pupils
RAPD
Horner's syndrome

Ocular Motility
Neuroanatomy of Eye Movements
Examination
Internuclear Ophthalmoplegia
Third Cranial Nerve Palsy
Fourth Cranial Nerve Palsy
Sixth Cranial Nerve Palsy
Nystagmus

Papilledema
Pseudotumor Cerebri

Optic Disc Edema
Idiopathic & primary demyelinating optic neuritis
Atypical Optic Neuritis
Ischemic Optic Neuropathy
Non-arteritic
Arteritic

Glaucoma

The triad of glaucoma
Intraocular pressure
Optic nerve damage
Visual field damage

Relevant Anatomy
Anterior chamber angle
Outflow channels
Optic nerve head

The characteristic damage in glaucoma
Optic nerve head cupping
Glaucomatous visual field defects

Epidemiology and risk factors of glaucoma

Relevant topics
Measuring intraocular pressure,

*Gonioscopy,
Visual field examination,
Optic nerve head cupping,
Open versus closed anterior chamber angle.*

*Glaucoma subtypes
Open versus Closed angle glaucoma,
Primary versus Secondary glaucoma.*

*Diagnosing glaucoma
Normal
Ocular hypertension
Glaucoma*

Imaging in Glaucoma

*Medical treatment of glaucoma
Different groups: beta blockers, alpha agonists, cholinergic agonists, carbonic
anhydrase inhibitors, prostaglandin analogs, hyperosmotic agents
Effects and side effects*

*Laser treatment of glaucoma
Trabeculoplasty
Iridotomy*

*Surgical treatment of glaucoma
Trabeculectomy
Other surgical procedures.*

Pediatric Ophthalmology

*Why is pediatric ophthalmology a separate entity?
Characteristics of the infant eye
Infant vision - Developmental milestones*

*How do we determine vision in infants?
Visual acuity in preverbal children
Fixation behavior
Teller Preferential Looking
Spatial Sweep VEP
Optokinetic nystagmus
Visual acuity in verbal children
Picture cube - single optotypes vs linear optotypes
Illiterate "E"*

Clinical signs of poor vision

Amblyopia

Definition

Classification (anisometropic, strabismic, ametropic, deprivation, iatrogenic)

Pathophysiology of amblyopia

Assessment of amblyopia

Treatment of amblyopia – penalization, patching

Selective topics in pediatric ophthalmology:

- 1. Ophthalmia neonatorum – etiology, diagnosis and treatment*
- 2. Childhood ptosis – differential diagnosis, complications and treatment*
- 3. Congenital dacryostenosis – pathophysiology, diagnosis and treatment*
- 4. Periorbital and orbital cellulites (in children) – clinical diagnosis, complications and treatment*
- 5. Childhood cataract – unilateral vs. bilateral, etiology, work-up and treatment, aphakia vs. pseudophakia – pros and cons*
- 6. Childhood glaucoma – Difference from adult glaucoma, signs and symptoms, treatment*
- 7. Retinopathy of prematurity – etiology, who is at risk, staging (brief version) and treatment*
- 8. Congenital anomalies*

Strabismus

- 1. Definition –when is it pathologic?*
- 2. Anamnesis: onset, family history, medical history*
- 3. Differential diagnosis: epicanthus*
- 4. Eyes movements: ductions, versions, diagnostic position of gaze*
- 5. Clinical characteristics: laterality, intermittent, alternating,*
- 6. Comitant vs. incomitant*
- 7. Association amblyopia and strabismus.*
- 8. Clinical tests: Hirschberg test, cover test, alternating cover test, phorias/tropias,*
- 9. Types of Esotropias: Accommodative, Partial Accommodative, Sensory, Infantile, (Duane Syndrome, high Myopia)*
- 10. Types of Exotropias: Sensory, intermittent, convergence insufficiency,*

-
- divergence excess
11. Vertical strabismus: SO palsy, TED, MS, MG, orbital fractures
12. Treatment of strabismus: glasses, prisms and surgical treatments

Intraocular tumors
Uveal melanoma (iris, ciliary body and choroid)
Epidemiology
Clinical aspects, signs and symptoms
Diagnostic methods
Histopathology
Prognostic factors and metastasis
Treatment
Differential diagnosis (including metastatic tumors to the eye)
Retinoblastoma
Epidemiology
Genetics
Clinical aspects, signs and symptoms
Diagnostic methods
Histopathology
Prognosis and metastasis
Treatment
Retinoma/retinocytoma
Differential diagnosis:
- PHPV
- Coat's disease
- Ocular toxocariasis
- Retinopathy of prematurity

Oculoplastics
Eyelids
Inflammations
Sty
Chalazion
Blepharitis
Trichiasis
Malposition of eyelids
Ptosis
Entropion
Ectropion
The aging face – Dermatochalasis
Blepharospasm
Facial nerve palsy

Congenital eyelid disorders
Blepharophymosis syndrome

Eyelid coloboma

Tumors of the eyelids

Benign lid tumors (papilloma, cysts, xanthelasma, verucca, nevus, molluscum)

Malignant lid tumors (Keratoses, BCC, SCC, sebaceous gland carcinoma, melanoma)

Basic eyelid reconstruction

Eye / orbital Prosthesis

Socket reconstruction

Lacrimal system

Anatomy

Physiology

Clinical examination, tests, imaging, treatment including surgery of:

Canaliculitis

Naso Lacrimal Obstruction

Inflammations

Neonatal dacryostenosis

Surgery - DCR, endonasal surgery, Jones's tubes

Orbital diseases

Anatomy

Orbital symptoms Examination, Imaging, Evaluation,

Inflammations

Infections - Preseptal / Orbital cellulitis

Orbital pseudotumor

Vascular abnormalities

AV malformation

Orbital Varices

Carotid cavernous fistula

Thyroid eye disease - Graves orbitopathy

Signs, symptoms, treatment, surgery

Tumors

Dermoid cyst

Lipodermoid

Capillary hemangioma

Cavernous hemangioma

Lymphangioma

Lymphoma

Rhabdomyosarcoma

Lacrimal gland tumors - Adenoma / Carcinoma

*Optic nerve Glioma, Meningioma
Orbital Metastatic Dis*

*Orbital trauma
Blowout fracture mechanism and surgical repair*

Refractive Surgery

The excimer laser

Laser ablation in myopia, hyperopia, astigmatism

Surgical procedures:

Incisional procedures (RK)

Surface procedures (PRK, LASEK)

Lamellar procedures (LASIK)

Intra-corneal ring segments

Phacik IOLs

Clear lens extraction

Results of refractive surgery

Indications and contraindications in refractive surgery

Imaging of the cornea (Corneal topography, Orbscan)

Wavefront technology (high order aberrations, aberrometer)

Complications of refractive surgery

Uveitis

1. Definition

2. Classification

a. Anatomical

b. Clinical

c. Etiological

d. Pathological

3. Symptomatology

4. Clinical signs

5. Clinical presentation of the different uveitic subtypes

6. *Diagnosis and differential diagnosis:*
Implications of diagnosis on:
Management, visual outcome, systemic outcome

7. *Clinical entities*

a. *Anterior uveitis:*

- *HLA-B27 related diseases*
- *Juvenile idiopathic arthritis*
 - *Herpetic uveitis*

b. *Intermediate uveitis:*

- *Pars Planitis*
- *Toxoplasmosis*

c. *Posterior uveitis:*

- *Behcet's disease*
- *CMV retinitis*

d. *Panuveitis :*

- *Sarcoidosis*
- *Sympathetic ophthalmia*

8. *Management*

a. *Importance of prompt management*

b. *Treatment of the different anatomical types of uveitis*

c. *Treatment of the different clinical entities*

d. *Systemic treatment: steroids and immunosuppressive agents.*

Eye Trauma

Introduction

International classification of eye trauma

Natural eye protection mechanisms

Trauma prevention

Eye injuries in a multiple trauma setting

Assessment of eye trauma

Ocular burns:

Thermal, UV, Chemical - diagnosis and treatment

Minor ocular trauma

Erosions and superficial foreign bodies - diagnosis and treatment

Open globe injuries, anterior and posterior

Diagnosis and treatment

Penetrating eye injuries - eye lacerations

*Intraocular foreign bodies
Ruptured globe*

*Closed globe injuries, anterior and posterior
Diagnosis and treatment
Hyphema
Post-traumatic hypotony, glaucoma
Traumatic retinal detachment*

*Eye affected by a distant trauma
Shaken Baby syndrome*

Introduction to Eye Surgery

*Pre-op assessment and doctor-patient interaction
Evaluating the goals of the eye surgery
General health considerations
Choice of procedure – patient-related considerations
Choice of anesthesia and ocular anesthesia techniques*

*Principles of the eye surgery
Sterility and aseptic techniques
Maintenance of the intraocular pressure
Self-sealing wounds
Principles of eye suturing
Ophthalmic lasers – principles and practice
Viscoelastic materials
Vitreous substitutes: intraocular gas and silicone oil
Antimetabolites in the eye surgery*

*Post-op care
Evaluating the outcomes and monitoring for complications
Prevention of postoperative infection and inflammation
Ocular pain management
Functional rehabilitation after the eye surgery*

*Post-op care
Evaluating the outcomes and monitoring for complications
Prevention of postoperative infection and inflammation
Ocular pain management
Functional rehabilitation after the eye surgery*

Low vision

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- 1-Low vision: epidemiology, definition and causes
 - 2-Low vision aids: for near and distance, the use of digital systems
 - 3-Rehabilitation of low vision – a multidisciplinary approach
 - Integration into special or regular schools/kindergarten/university, the need for familiar support, what governmental support is offered, the blind certificate and it's implications
 - 4- Nystagmus: epidemiology, definition, types, clinical characteristics, treatment
 - 5-Albinism: epidemiology, definition, types, clinical characteristics,
 - 6-Genetic Counseling in ocular hereditary disorders. Update. What's new in pre natal diagnosis.

חומר חובה לקריאה:
Kanski, Clinical Ophthalmology

חומר לקריאה נוספת:

הערכת הקורס - הרכב הציון הסופי :
מבחן מסכם בכתב/בחינה בעל פה 60 %
הרצאה 10 %
השתתפות 15 %
הגשת עבודה 0 %
הגשת תרגילים 0 %
הגשת דו"חות 0 %
פרויקט מחקר 0 %
בחנים 15 %
אחר 0 %

מידע נוסף / הערות:
מבחן בעל פה בנוכחות הקבוצה יערך בתום הקורס. כל תלמיד ידון בשתי פתולוגיות בהתבסס על ממצאים קליניים שיוצגו בתמונה.