

Lecture 28 – Review Topics for Exam 2

Covers Lectures 16-27, Labs 5, 6

Lecture 16 – Rivalry and suppression

Situations that lead to rivalry

Diplopia v. confusion

Gross, central and local suppression

Which image gets suppressed in a rivalry situation?

Binocular luster

Color fusion

Suppression during BI/BO to blur/break/recovery testing

Bagolini lenses to measure suppression

Worth Four-dot test

What is stereocampimetry?

Suppression, development, amblyopia

Alternation

Pulfrich phenomenon and suppression

Lecture 17 – Binocular space perception; Aniseikonia I

Space distortion from BI and BO prism

Factors contributing to perceived aniseikonia

Geometric, induced, oblique effects

SILO

Lecture 18 – Aniseikonia II

Be familiar with all the examples illustrated in the figures.

Knapp's Law

Lecture 19 – Neurophysiology of binocular vision

Arrangement in the LGN

Fine-static and coarse motion stereopsis – differences

Parvo and magno pathways illustrated in Schwartz Fig. 14-11 to 14-16

Simple and complex cells in the visual cortex

Lecture 20 – Normal binocular development

Techniques for measuring stereopsis in infants

Sensitive (critical) period for binocular fusion begins after about 2 months

Unstable eye movements early in life

Development of stereopsis

Held's two-stage model

Lecture 22 – Deprivation and binocular vision anomalies

What did Hubel and Wiesel do?
Interpretation of ocular dominance histograms
How deprivation and reverse occlusion affect the histograms
Sensitive period and deprivation or treatment
Esotropia -> amblyopia; exotropia -> alternation
How deprivation affects development of ocular dominance columns

Lecture 23 – Developmental strabismus

Three kinds of ocular misalignments
Characteristics of infantile esotropia
Close relationship between development of stereopsis, motion perception, eye alignment
Accommodative esotropia, intermittent exotropia, constant infantile exoptropia

Lecture 24 – Amblyopia

Pattern deprivation amblyopia and infantile cataract
Optical defocus deprivation
Strabismic amblyopia
Visual anomalies expected in amblyopia
Structural anomalies

Lecture 25 – Eccentric fixation

Eccentric fixation v. anomalous correspondence
Diagnosing eccentric fixation

Lecture 26 – Anomalous correspondence

Anomalous correspondence definition
Harmonious and unharmonious types

Lecture 27 – Miscellaneous topics

Definitions of past pointing, bottom-up and top-down processing
Gestalt theory and visual perception
Figure-ground
More definitions: agnosia, blind sight, optic flow field, self-motion, autokinesis, induced motion
Teller's rule of thumb
Age-related changes in vision

Lab 5 – Eikonometry – Understand all of Table 2

Lab 6 – Miscellenous phenomena