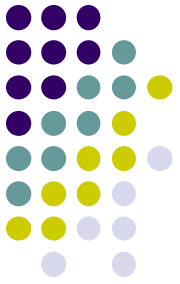


Before you begin: This is a big topic, and big topics beget big slide-sets. There are natural breaks around slides 159 and 303; *break time!* slides have been placed at those locations.

Q

Amblyopia

In a nutshell, what is amblyopia?

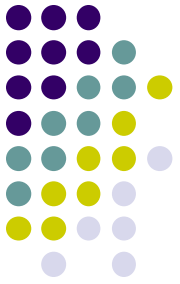


A

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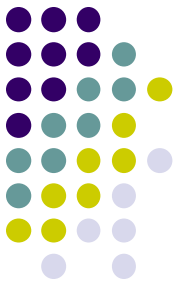
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A reduction in BCVA that isn't directly attributable to a structural abnormality of the eye and/or visual pathway



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So does this mean that if an eye with reduced BCVA has a structural abnormality, the eye cannot have amblyopia?

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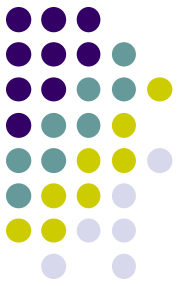
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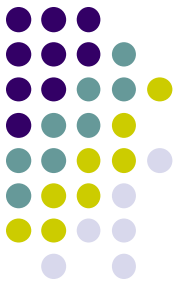
So does this mean that if an eye with reduced BCVA has a structural abnormality, the eye cannot have amblyopia?

It does not. Just like a dog can have both ticks and fleas, so too can an eye have both a vision-reducing structural abnormality *and* amblyopia. Plenty of eyes have, say, both optic nerve hypoplasia *and* amblyopia, with **both** conditions contributing to the eye's reduced BCVA.



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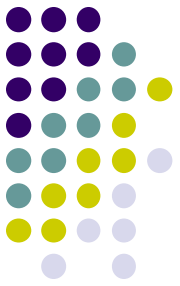
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What should you do if you suspect a pt with a structural abnormality has amblyopia as well?

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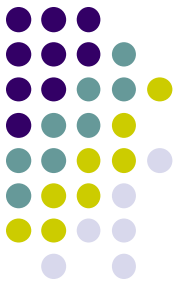
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What should you do if you suspect a pt with a structural abnormality has amblyopia as well?

Undertake a therapeutic trial of amblyopia treatment (covered later). If it works, your suspicion is confirmed.

Q

Amblyopia



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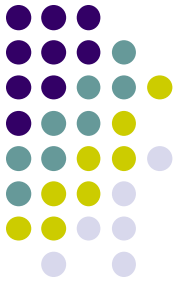
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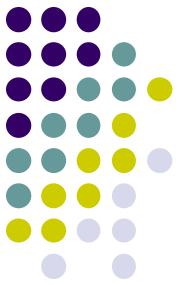
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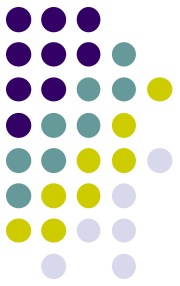
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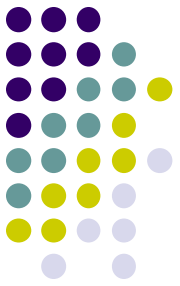
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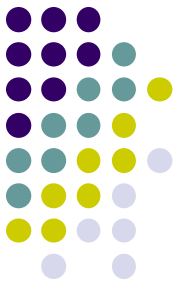
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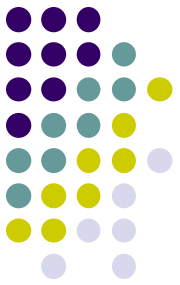
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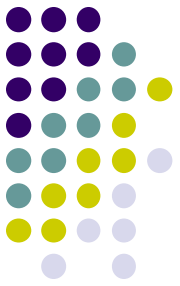
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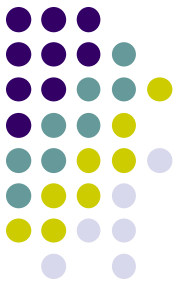
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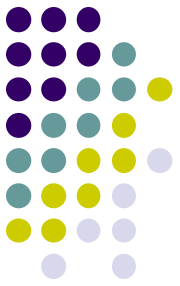
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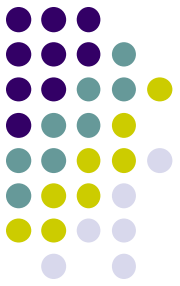
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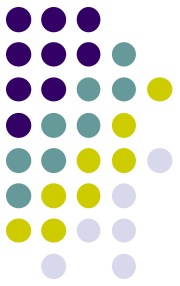
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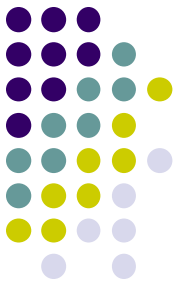
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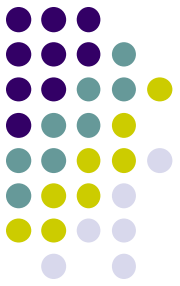
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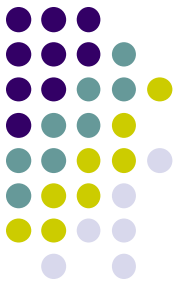
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- 3) The period during which amblyopia tx may be effective: Up to ~9 years*

*That said, there is evidence that tx initiated in the teens can be at least somewhat effective, especially in tx-naïve cases

Q

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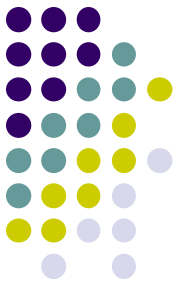
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Q/A

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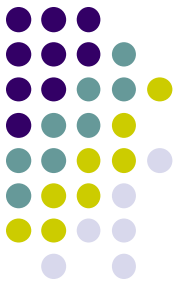
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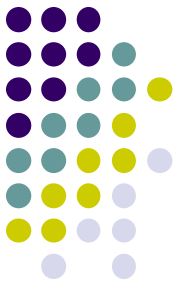
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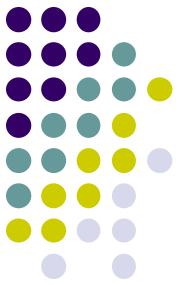
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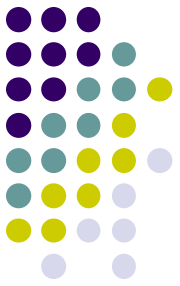
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What is the crowding phenomenon?

The finding that a letter on the acuity chart is more difficult for amblyopes to read when it is surrounded (or 'crowded') by figure of similar shape

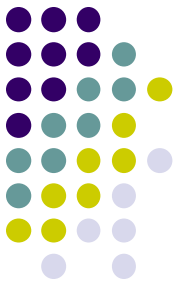
Amblyopia



'Crowded' HOTV optotypes. An amblyope who has no difficulty reading letters this size on a standard chart might be unable to read them when they're surrounded by crowding bars as above.

Q

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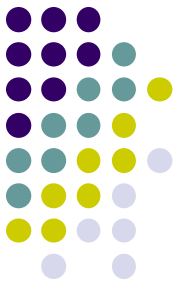
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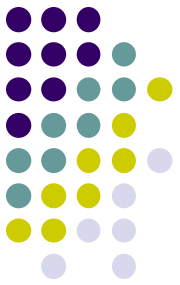
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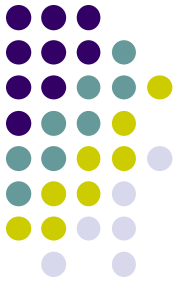
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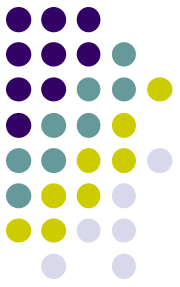
The finding that a letter on the acuity chart is not recognized when it is surrounded (or 'crowded') by figures of similar shape

Is it always present in amblyopia?

While typically present, it is **not** universally present

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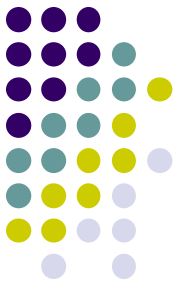
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Q/A

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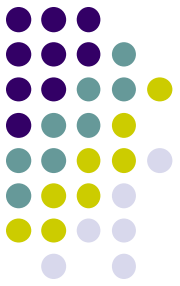
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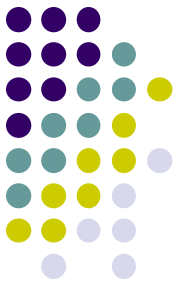
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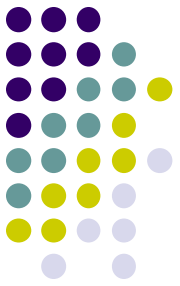
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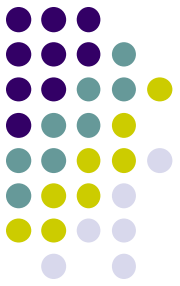
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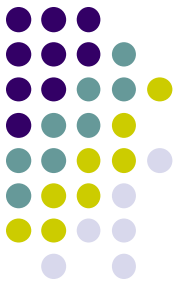
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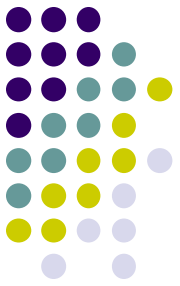
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Thus, the answer to this question is along the lines of 'It can, but only in severe cases, and the presence of an RAPD should prompt a search for other pathology.'

Q

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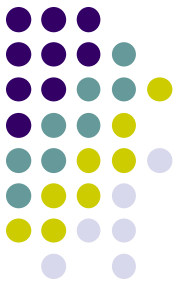
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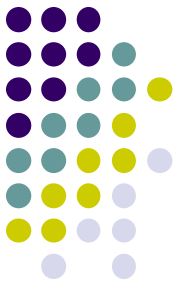
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It's #1—the most common cause

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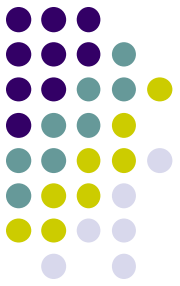
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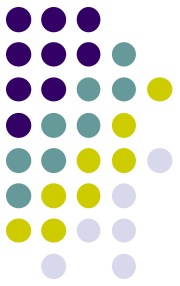
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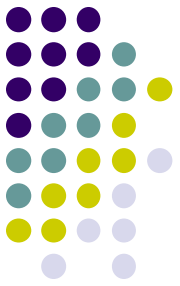
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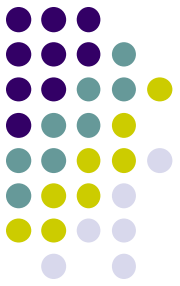
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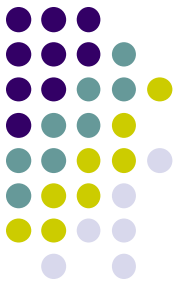
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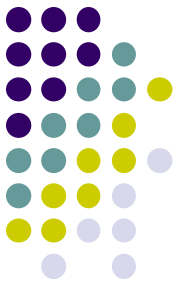
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The **anisometropic** eye. The eye with degraded vision. Subsequent measurement of that eye's acuity will be less-than-normal, and thus the eye will qualify as amblyopic.

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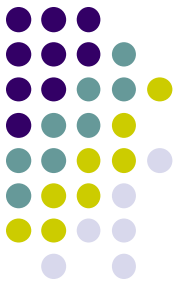
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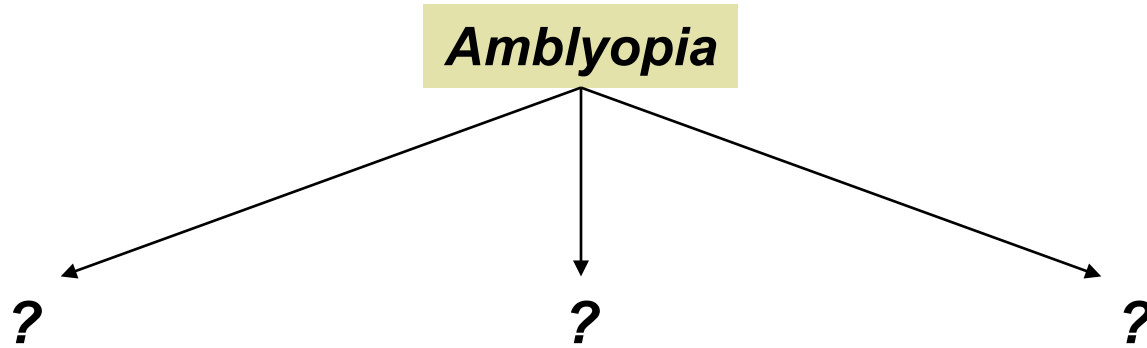
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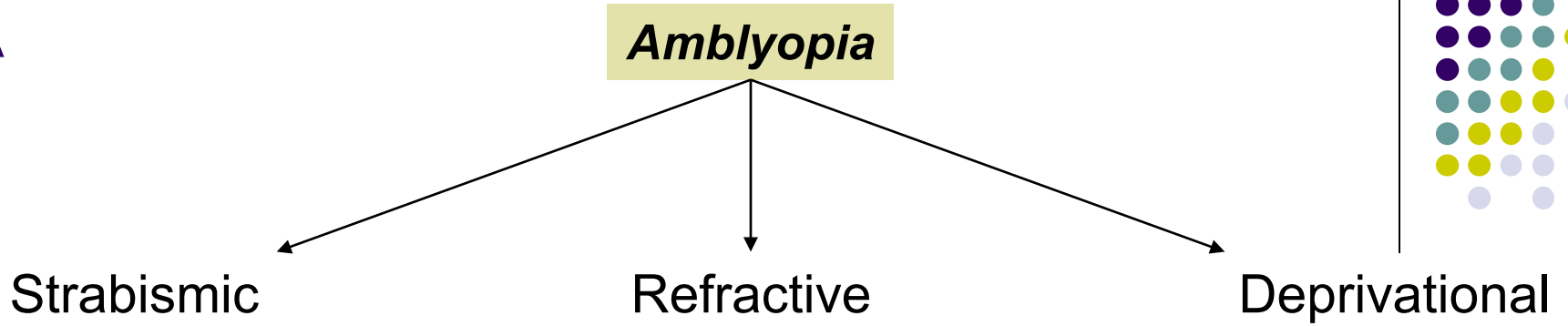
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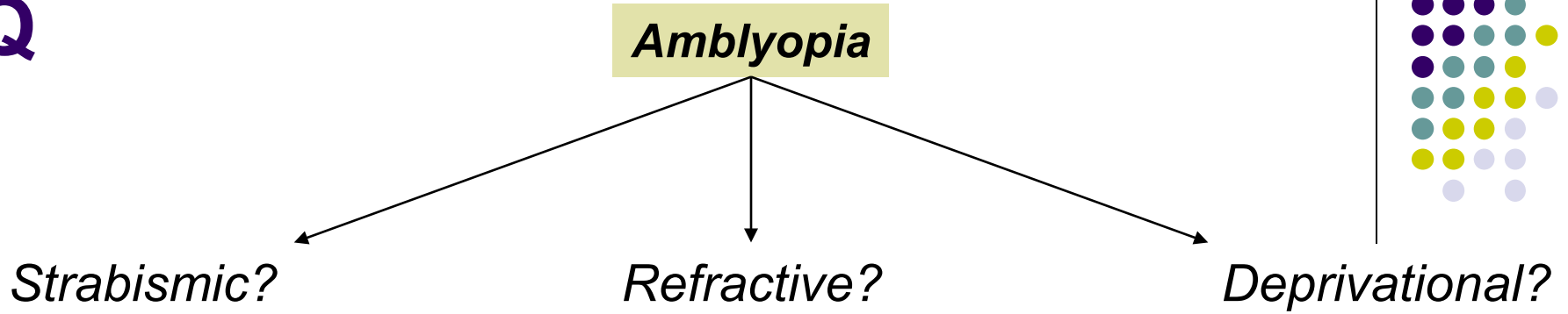
*The Peds book identifies three basic etiologies of amblyopia.
What are they?*

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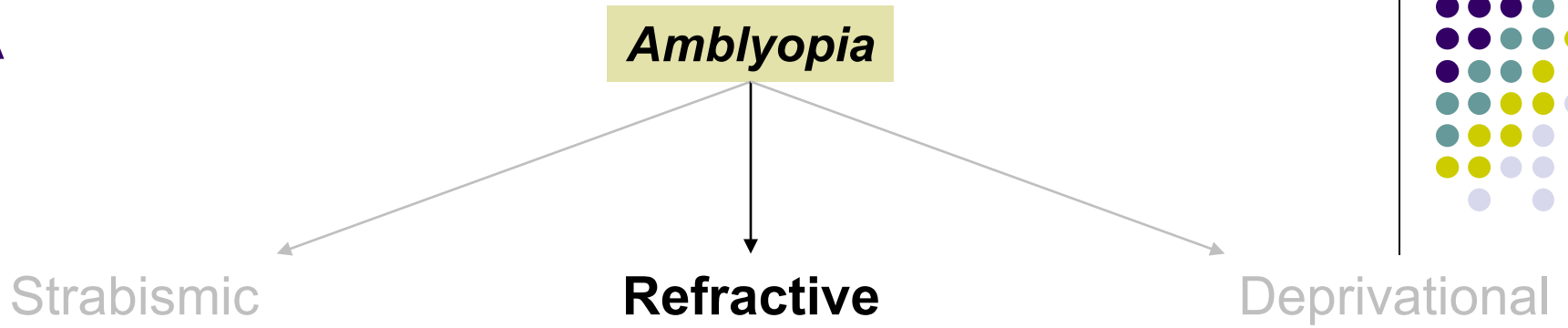
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Q



Which is the most common cause of amblyopia?

A



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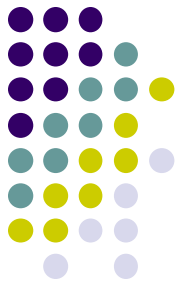
Amblyopia

Strabismic?

Refractive?

Deprivational?

*Which is the **least** common?*



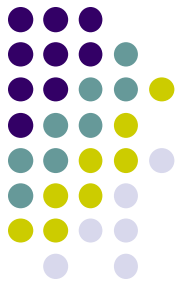
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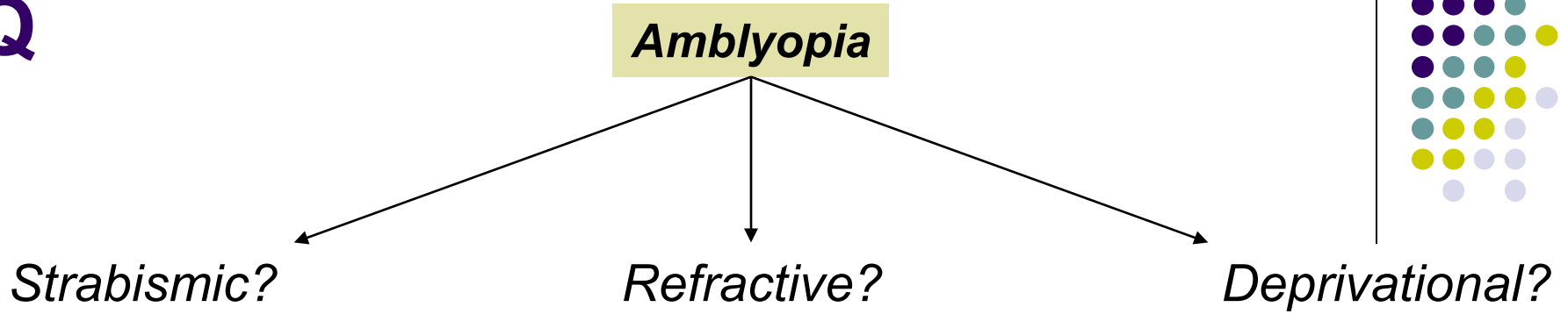
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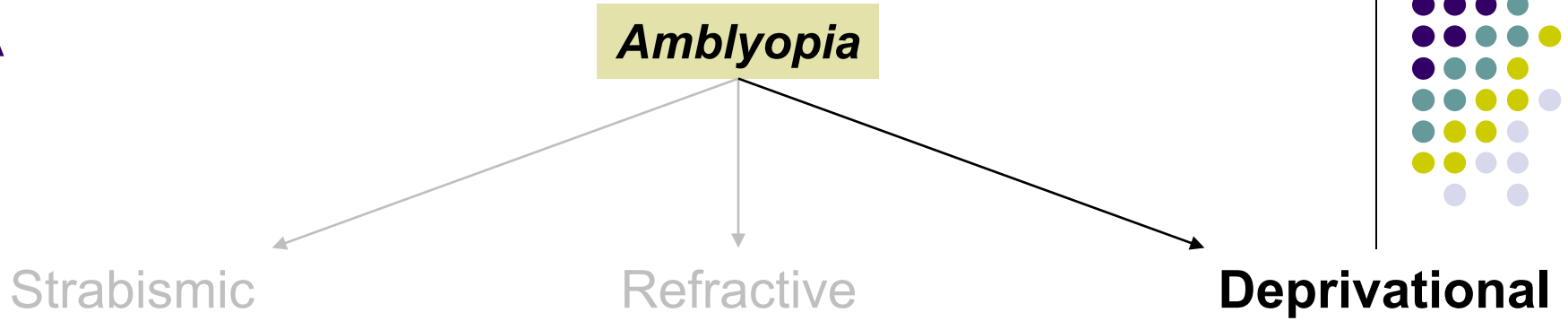
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Q



Which tends to produce the most severe amblyopia?

A



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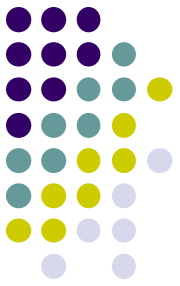
Q

Amblyopia

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What makes deprivational amblyopia worse?

Which tends to produce the most severe amblyopia?

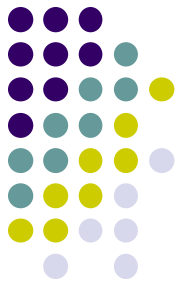
Q/A

Amblyopia

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What makes deprivational amblyopia worse?

It develops , and is

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A

Amblyopia

Strabismic

Refractive

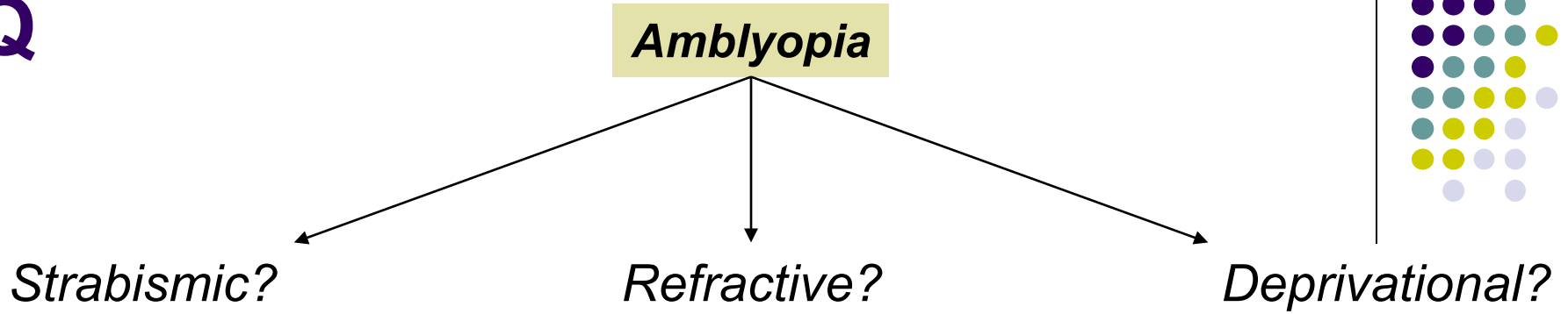
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*What makes deprivational amblyopia worse?
It develops faster , and is 'deeper'*

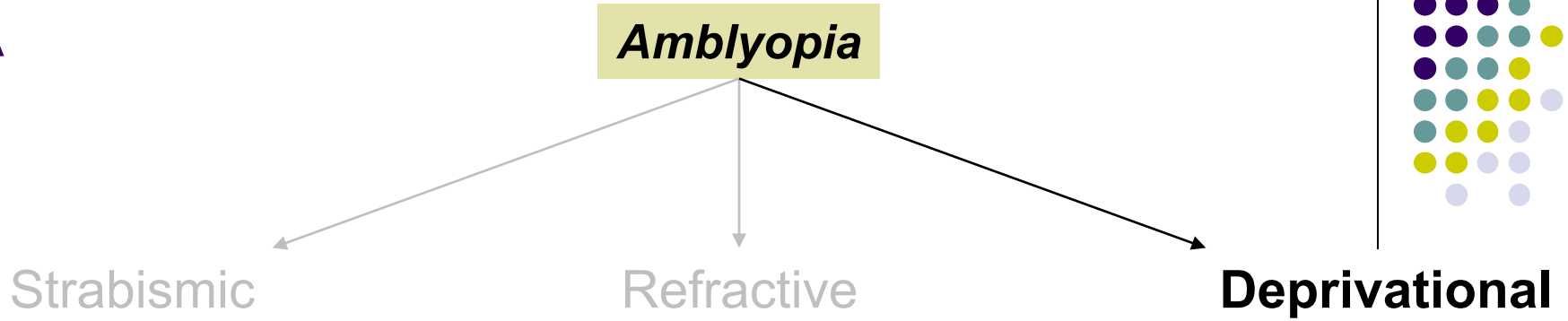
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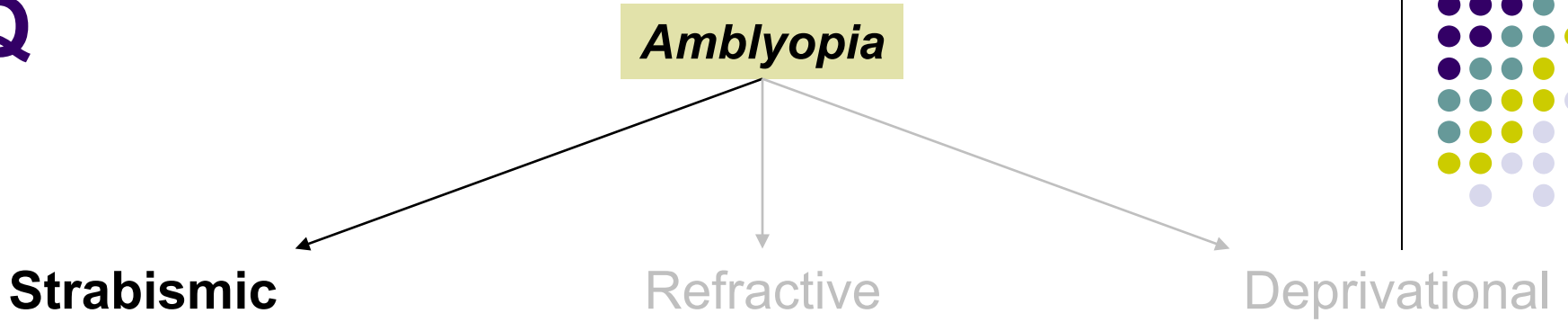
Amblyopia stemming from which type is the most difficult to treat?

A



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Q

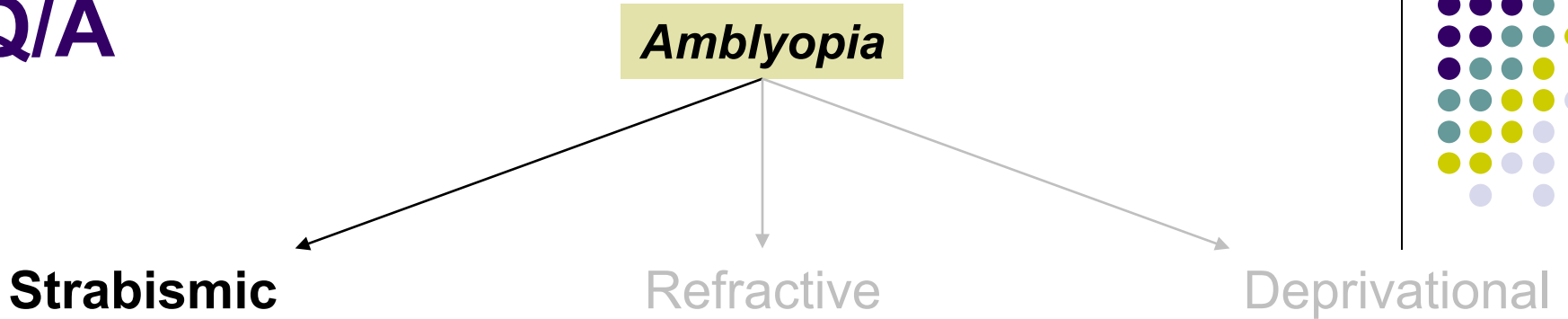


The book notes that a strabismic child is at particular risk of amblyopia if her strabismus has one or both of two characteristics—what are they?

--?

--?

Q/A

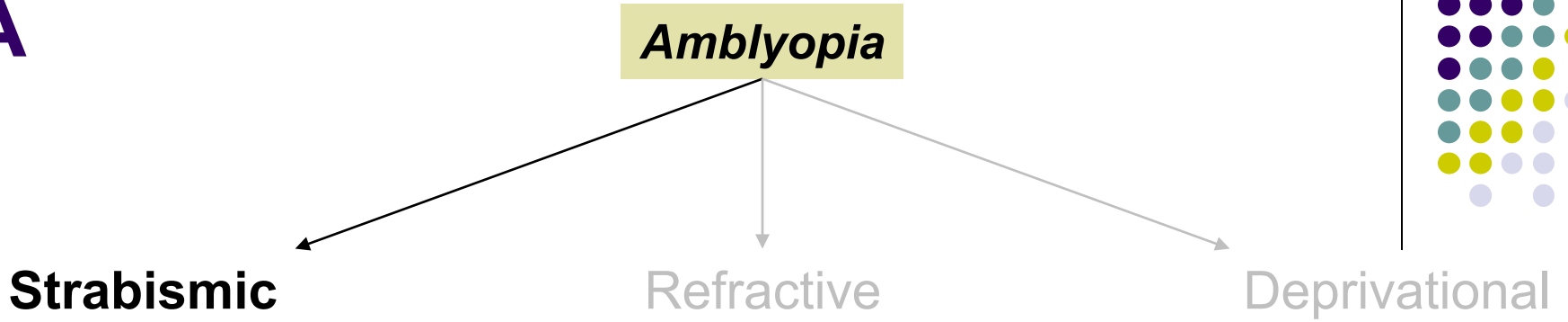


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--If it is constant vs
intermittent

--If fixation is alternating vs
nonalternating

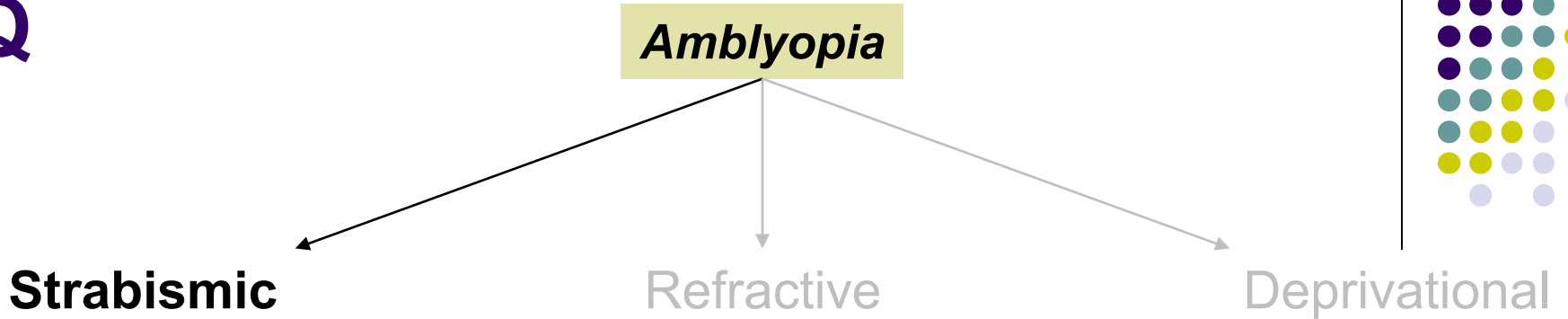
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- If it is constant
- If fixation is nonalternating

Q



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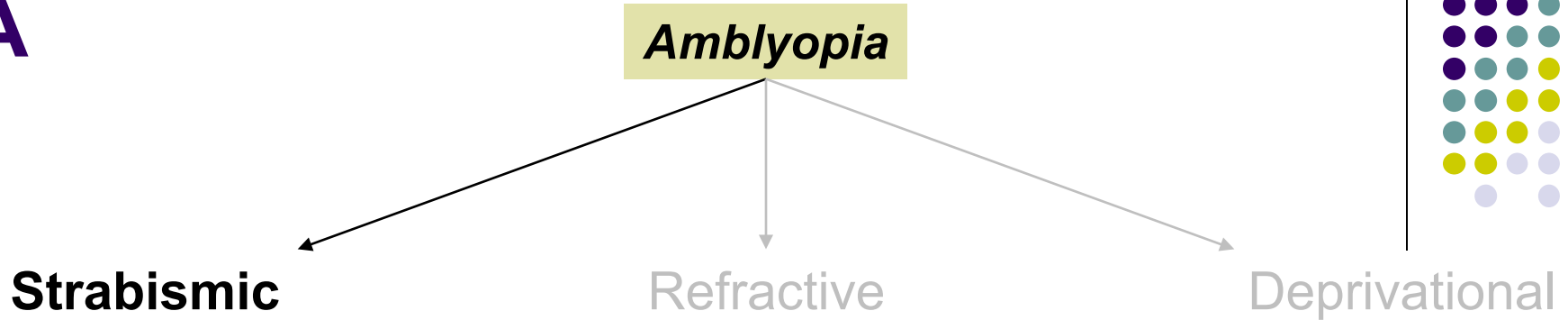
--If it is constant

--If fixation is nonalternating

In the explanation below of the cause of strabismic amblyopia, two key words are covered. What are they?

from the two eyes

A



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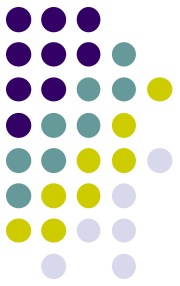
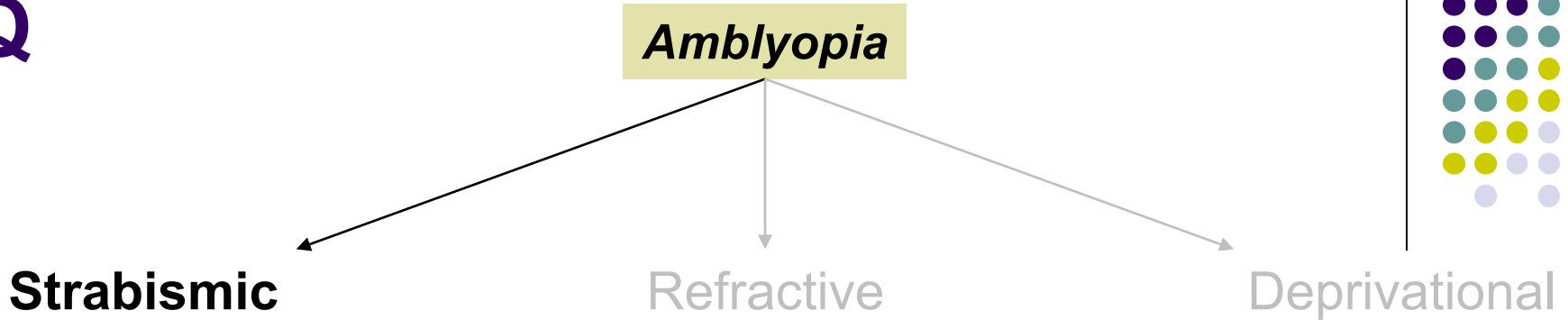
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In the explanation below of the cause of strabismic amblyopia, two key words are covered. What are they?

Nonfusible input from the two eyes

Q



The book notes that a strabismic child is at particular risk of amblyopia if her strabismus has one or both of two characteristics—what are they?

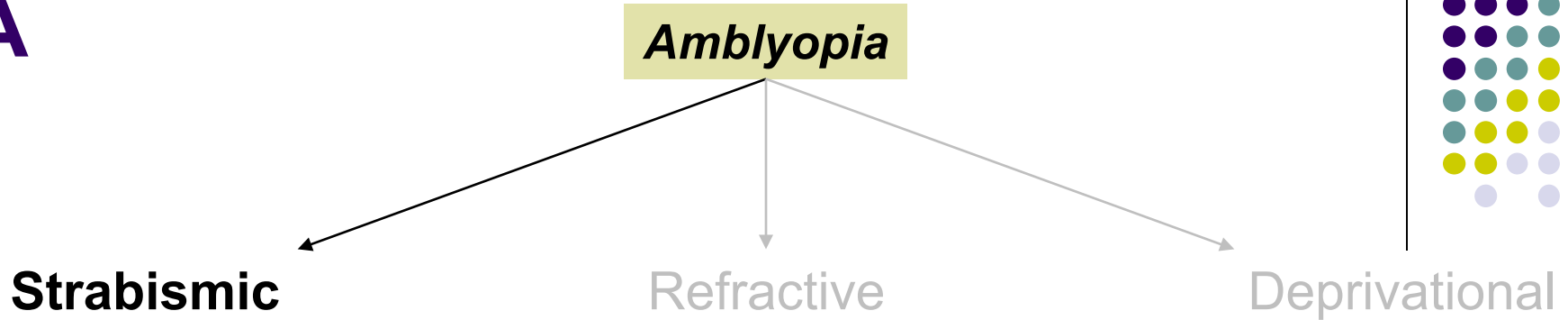
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A



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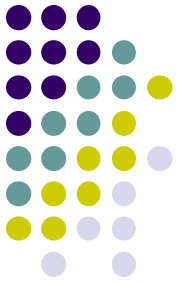
Q

Amblyopia

Strabismic

Refractive

Deprivational



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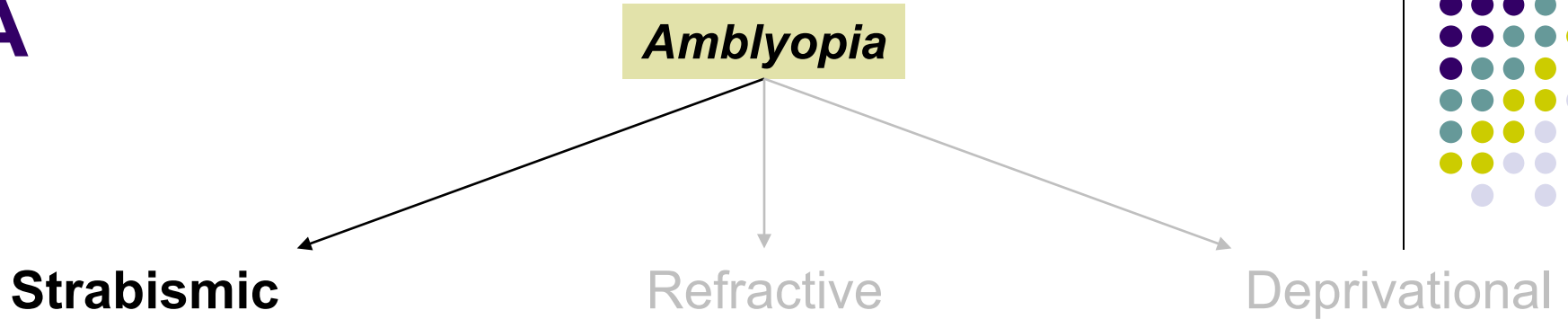
suppressed

It's important to note that suppression isn't a bad thing—it serves to save the individual from experiencing the unpleasantness of

[] and/or

[] two words

A



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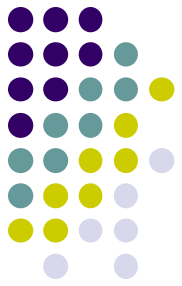
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In the explanation covered. What Nonfusible inputs, the neural eye's image w

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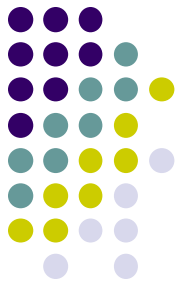
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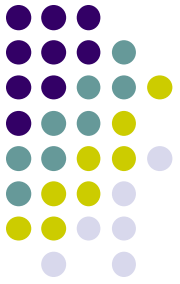
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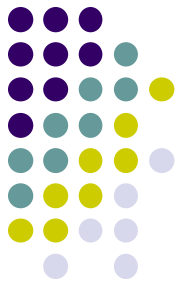
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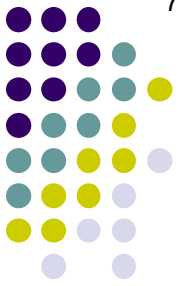
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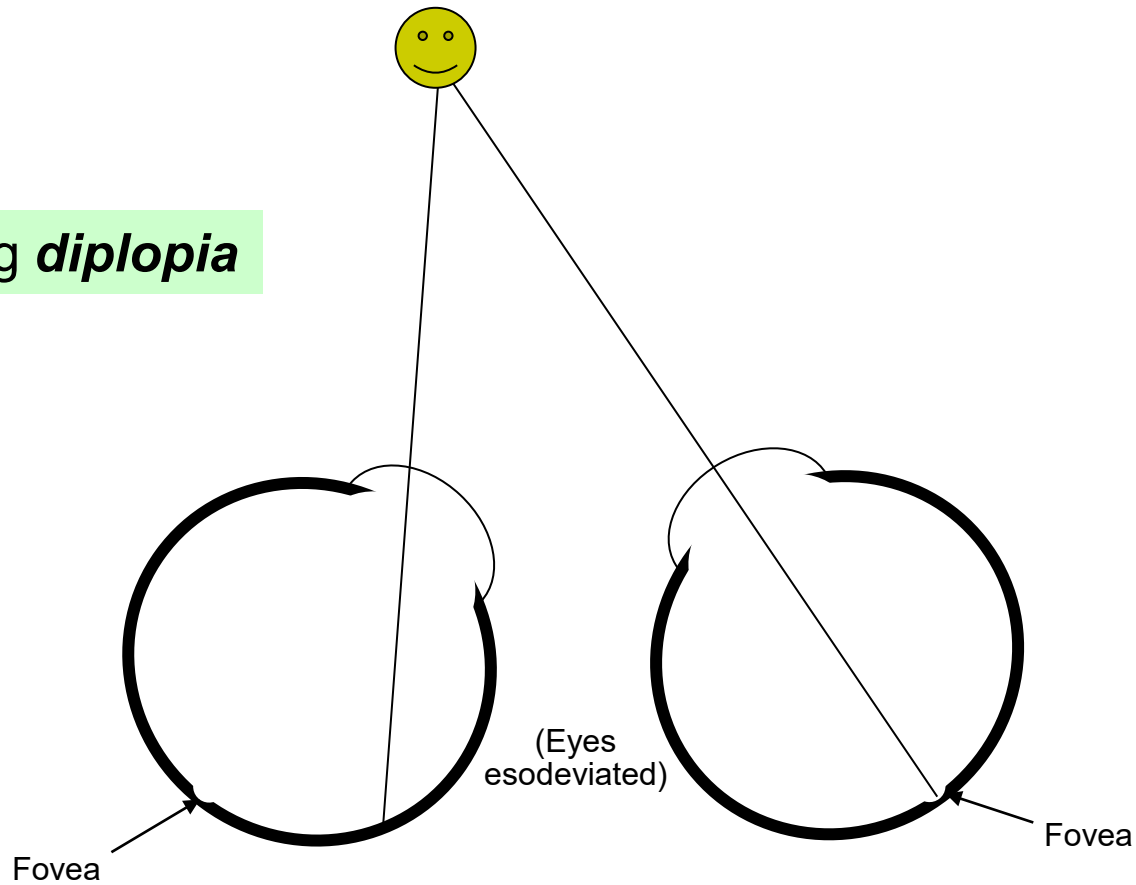
No disrespect homie, but if that sounds like diplopia, it turns out you didn't know what diplopia is after all. To spill the tea: Whereas visual confusion consists of seeing two objects in one location, diplopia consists of seeing **one** object in **two** locations.

to save the individual from experiencing the unpleasantness of **diplopia and/or visual confusion**.

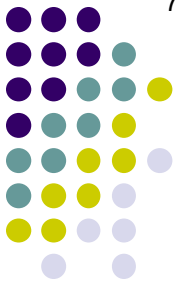


Amblyopia

Unpacking *diplopia*

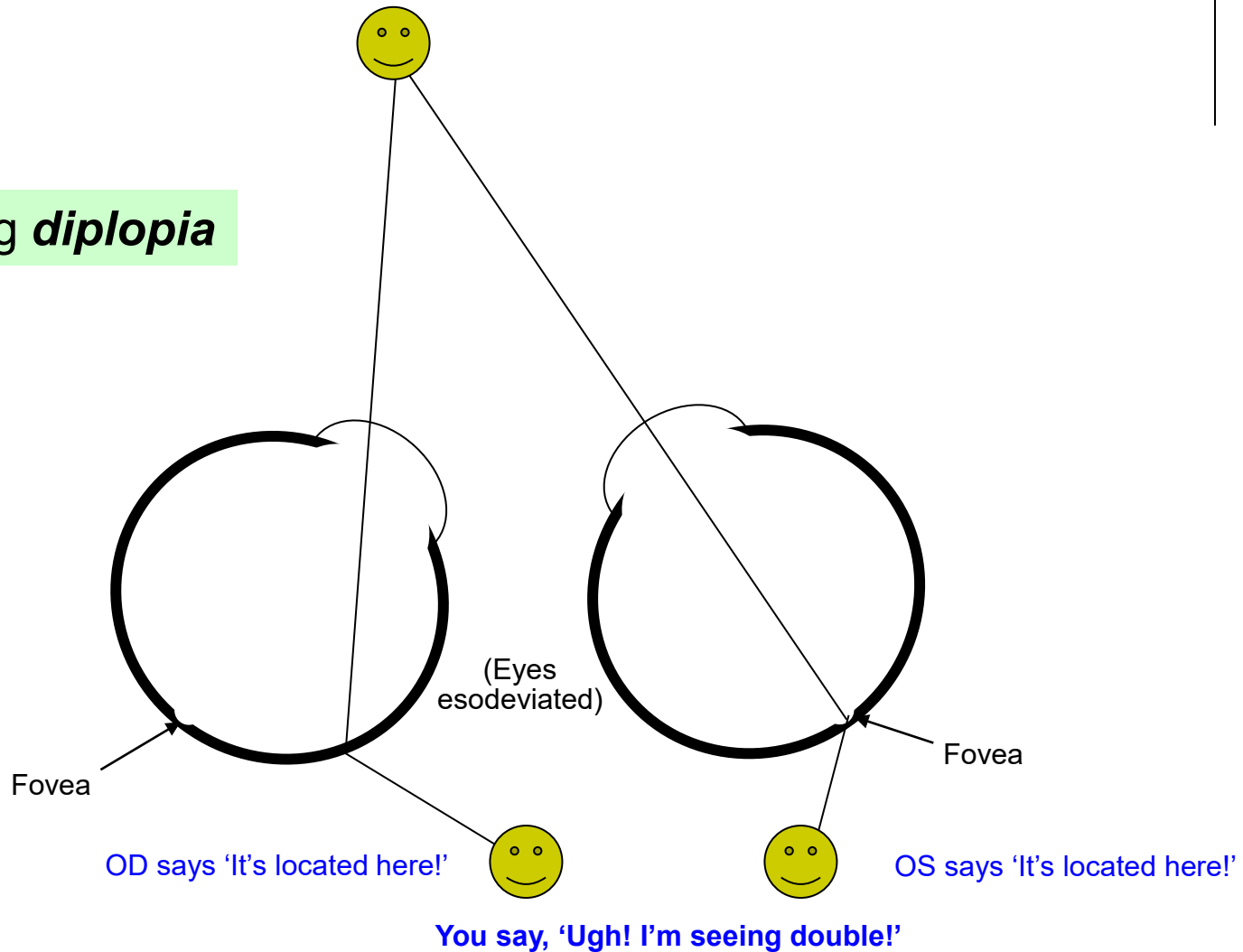


In these misaligned eyes, the image of a single object is being projected to noncorresponding areas of the retinas.

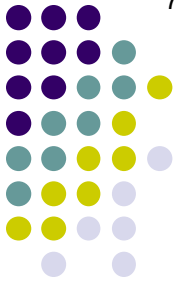


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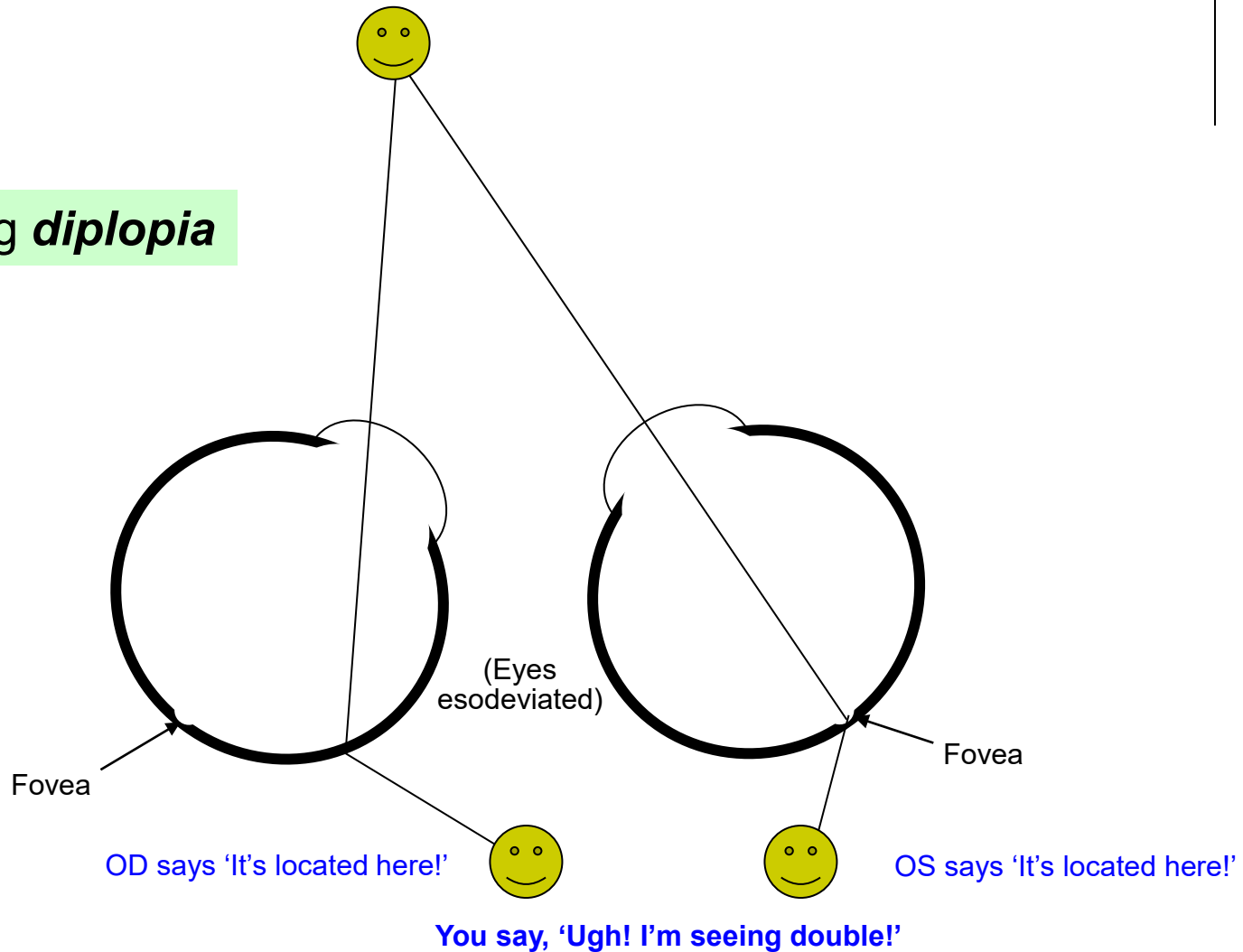


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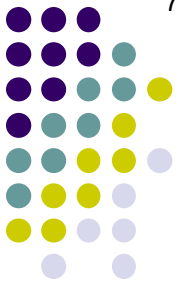


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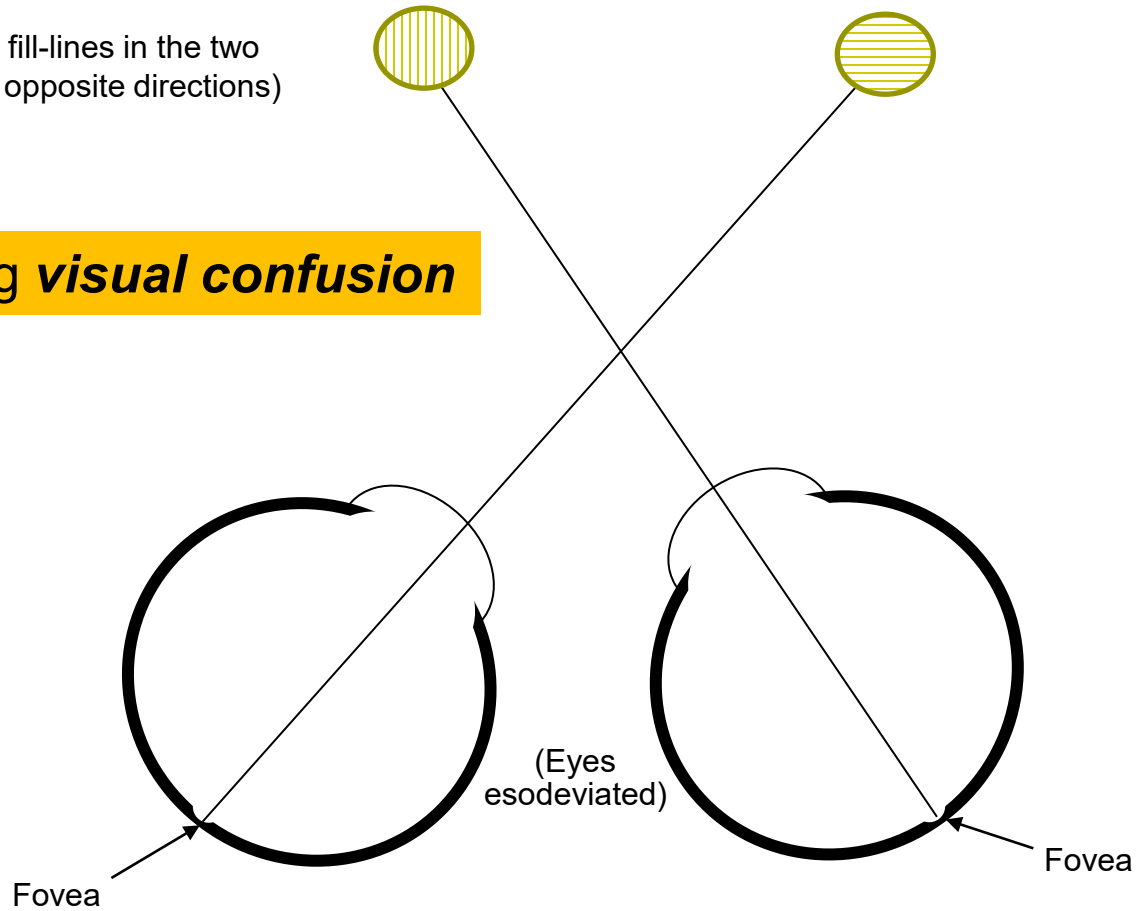
In these misaligned eyes, the image of a single object is being projected to noncorresponding areas of the retinas. If the brain interprets this situation by creating a percept of this one object occupying two separate locations in space, this would constitute diplopia.



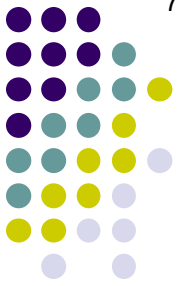
Amblyopia

(Note that the fill-lines in the two objects run in opposite directions)

Unpacking *visual confusion*



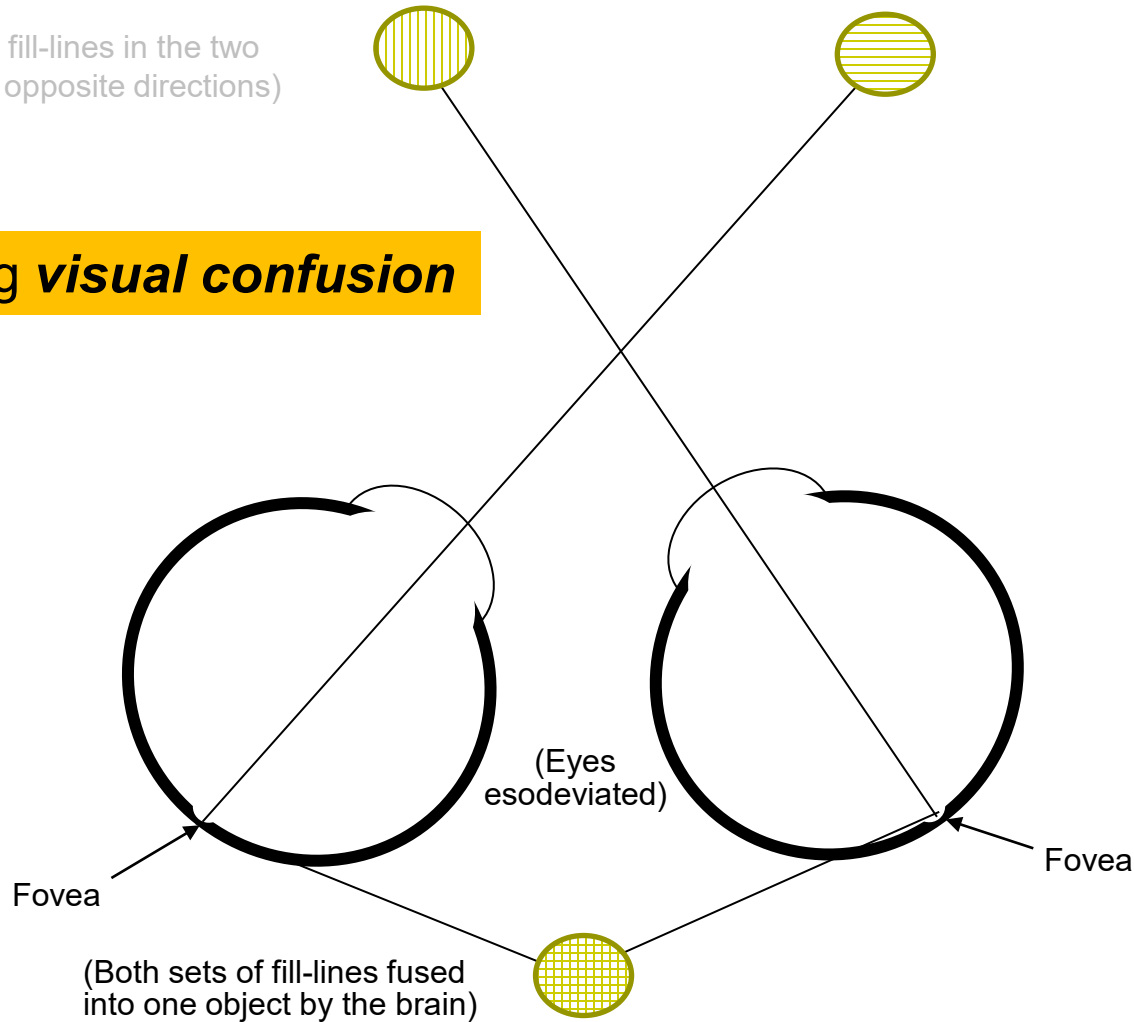
These misaligned eyes are foveating different objects, and thus each is projecting a different image to the visual cortex as being the object of regard.



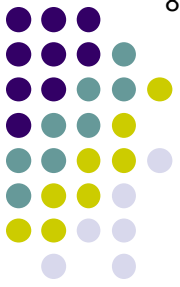
Amblyopia

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Unpacking *visual confusion*



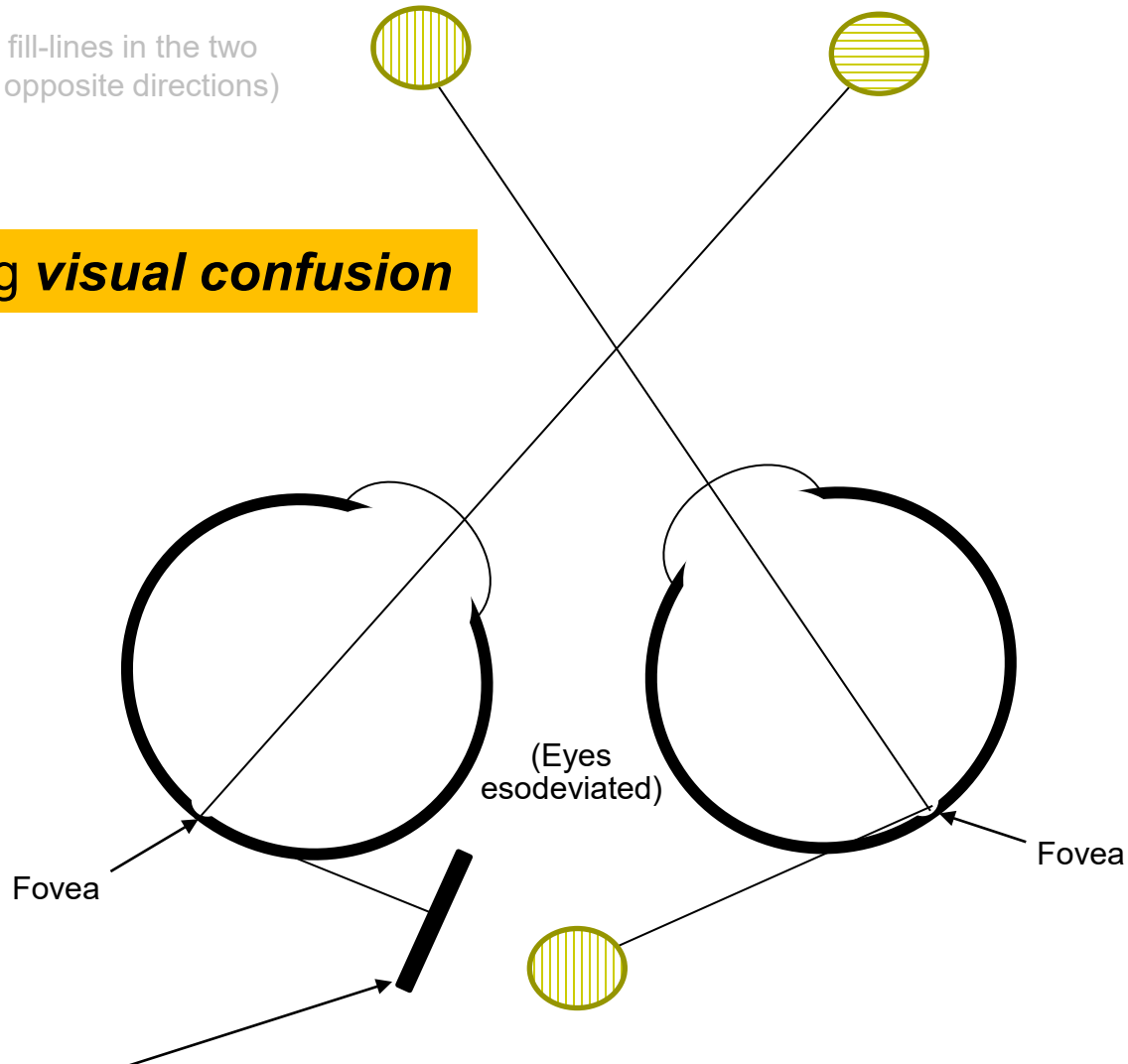
These misaligned eyes are foveating different objects, and thus each is projecting a different image to the visual cortex as being the object of regard. **If the brain deal with this conundrum by creating a percept of the two objects occupying the same space, this would constitute visual confusion.**



Amblyopia

(Note that the fill-lines in the two objects run in opposite directions)

Unpacking *visual confusion*



Suppression prevents conscious awareness of the image transmitted by one eye, thereby precluding visual confusion

Amblyopia



Visualizing Suppression

Think about what you see when you cross your eyes. Better yet, go ahead and try it—look at something across the room, then cross your eyes. The image of regard immediately becomes doubled (and blurred from induced accommodation, but that's a topic for another day).

Amblyopia



Visualizing Suppression

Think about what you see when you cross your eyes. Better yet, go ahead and try it—look at something across the room, then cross your eyes. The image of regard immediately becomes doubled (and blurred from induced accommodation, but that's a topic for another day). But note what you **don't** see—whatever image is falling on the fovea of your nonfixating eye. The fovea of your nonfixating eye must be pointing at *something*; so why don't you see it?

Amblyopia

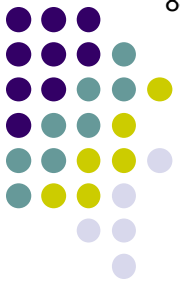


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You don't see it because this foveal image is prevented from reaching consciousness by the sensory adaptation of *central suppression*. What would you see without central suppression? You would see the two foveal images-of-regard seeming to occupy the same location in visual space—the definition of *visual confusion*. You would see **two** objects in **one** location. But you don't, thanks to central suppression.

Amblyopia



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On the other hand, the image of regard in the fixating eye is also falling on a peripheral retinal area in your nonfixating eye, and suppression of **this** image (*peripheral suppression*) is a sensory adaptation available only on an acquired basis in an immature visual system—it can't be 'conjured up on the fly' during volitional eye-crossing. The result is that crossing one's eyes produces *diplopia*—**one** object seen in **two** locations—but (thanks to central suppression) not visual confusion.

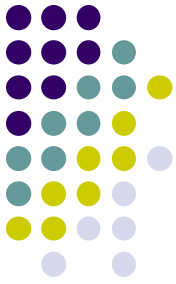
Q

Amblyopia

Strabismic

Refractive

Deprivational



The book notes that a strabismic child is at particular risk of amblyopia if her strabismus has one or both of two characteristics—what are they?

--If it is constant

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In the explanation below of the cause of strabismic amblyopia, two key words are covered. What are they?

Nonfusible input from the two eyes. When visual-cortex neurons carry nonfusible inputs, the neurons compete with and inhibit one another to determine which eye's image will

suppressed

It's important to note that suppression isn't a bad thing—it serves to save the individual from experiencing the unpleasantness of diplopia and/or visual confusion. Suppression is one of the **# sensory adaptations to strabismus** that serve this purpose.

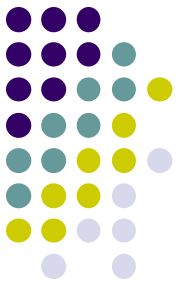
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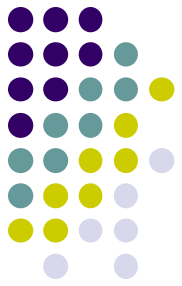
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What are the other two mechanisms the immature visual system uses to avoid diplopia and visual confusion?

--Suppression

In the explanation covered. What a Nonfusible input inputs, the neuro eye's image will

--?

But first a mnemonic, which is...

--?

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three sensory adaptations to strabismus

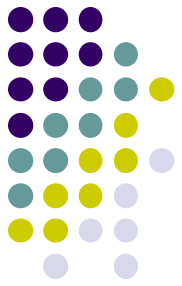
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--M

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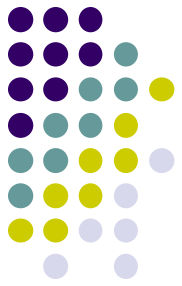
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--**Anomalous retinal correspondence (ARC)**

--**Monofixation syndrome**

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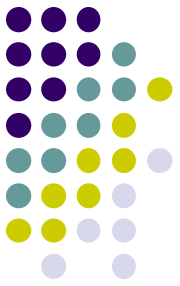
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Review of this one (we just talked about it)

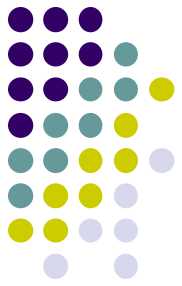
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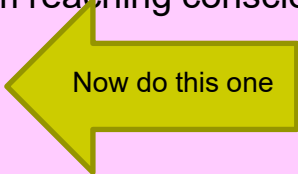
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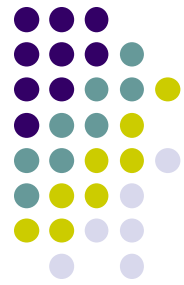
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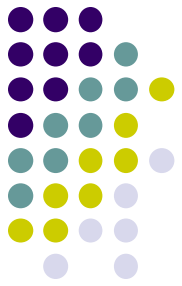
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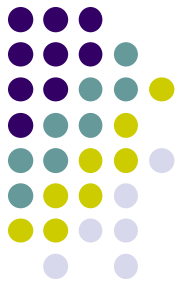
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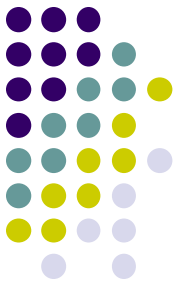
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For more on the sensory responses to strabismus, see slide-set P14

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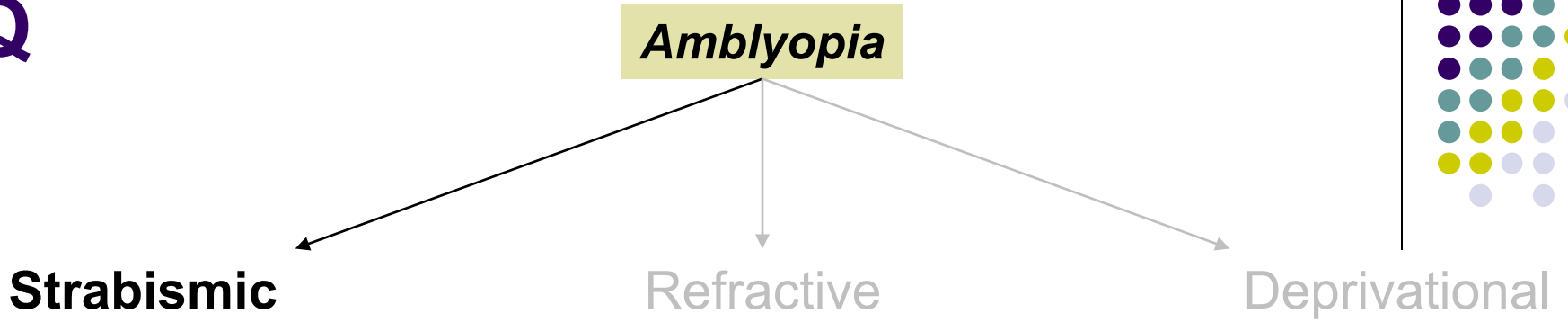
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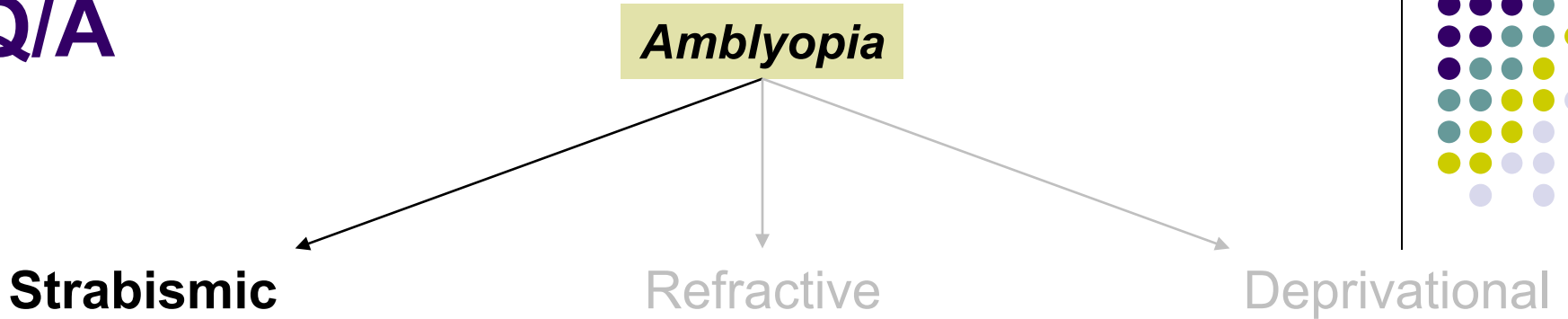


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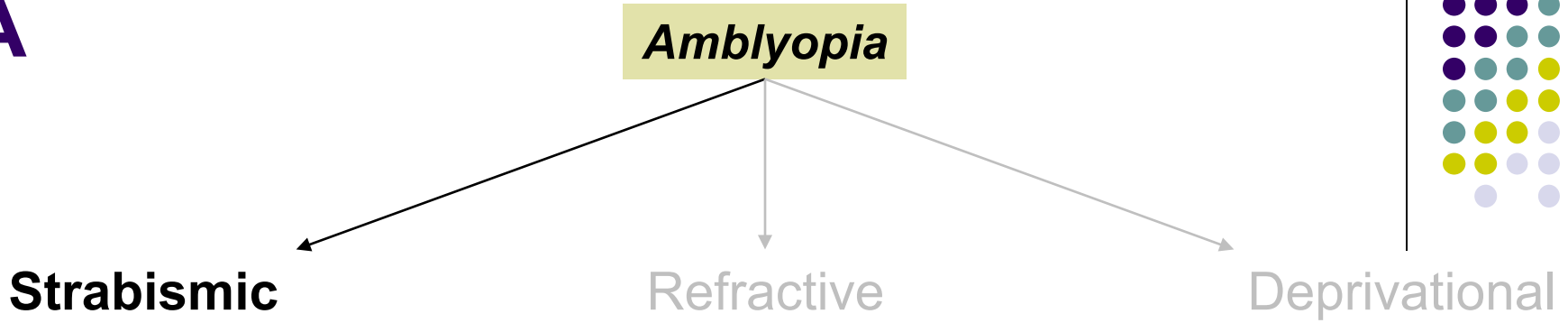
Q/A



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- acuity
- fixation

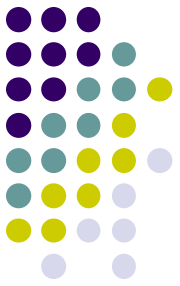
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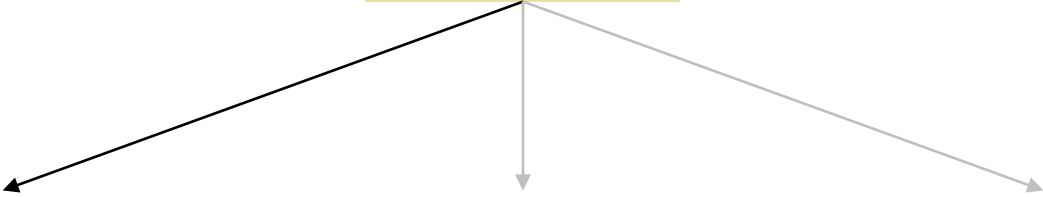
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- Grating acuity
- Eccentric fixation

Q



Amblyopia

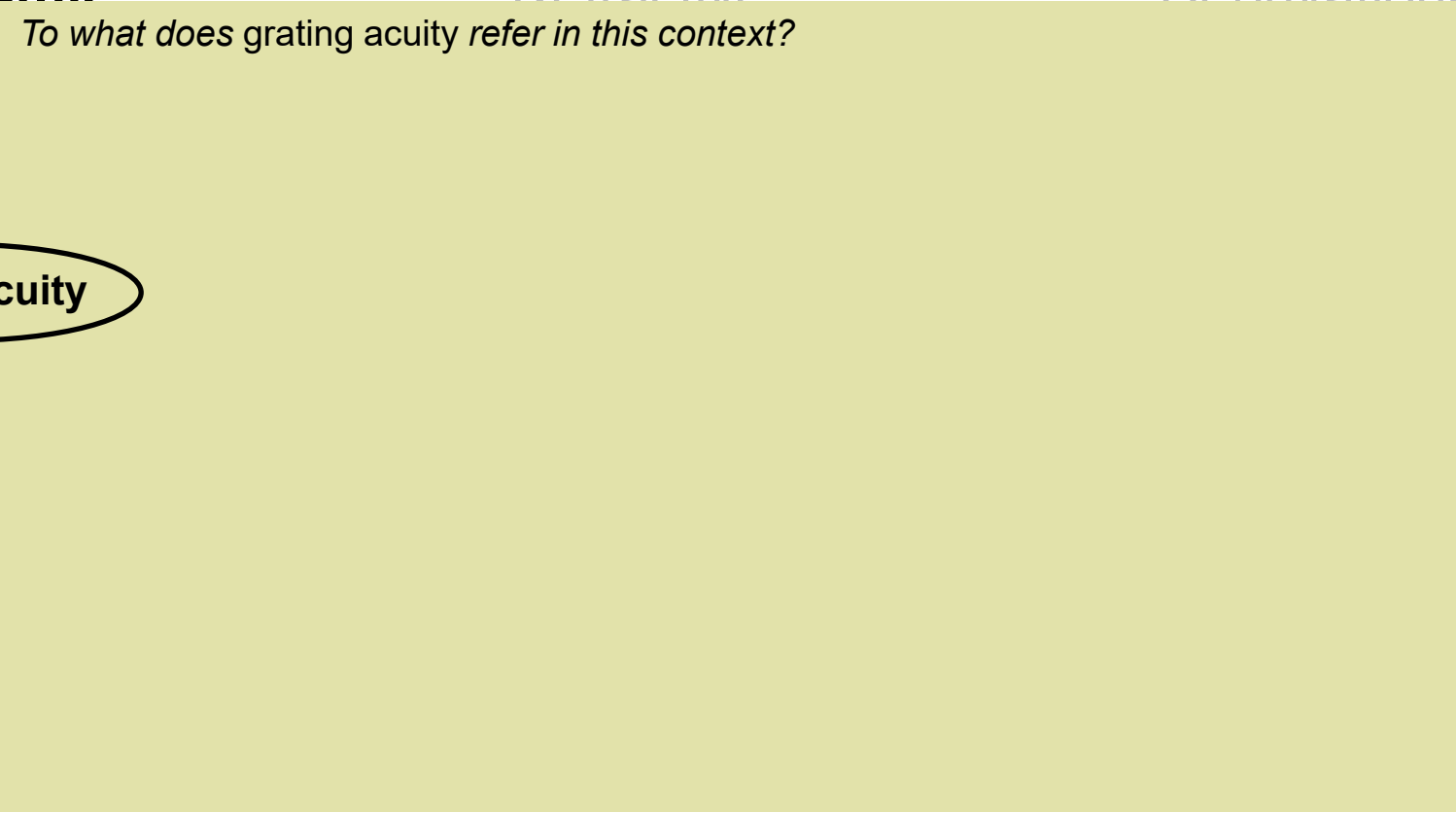


Strabismic

Refractive

Deprivational

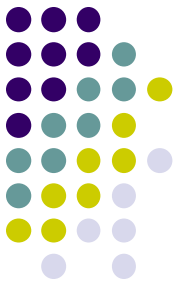
To what does grating acuity refer in this context?



The Peds b
distinguish i
features?
--Grating acuity
--Eccentric

Grating acuity

Q/A



Amblyopia

Strabismic

Refractive

Deprivational

To what does grating acuity refer in this context?

A **two words** test used to assess VA in preverbal and nonverbal pts

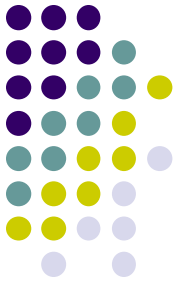
The Peds b
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-- **Grating acuity**

-- Eccentric

A

Amblyopia



Strabismic

Refractive

Deprivational

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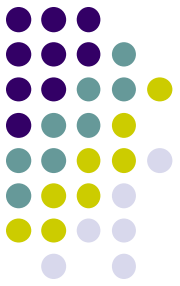
A preferential looking test used to assess VA in preverbal and nonverbal pts

The Peds b
distinguish i
features?

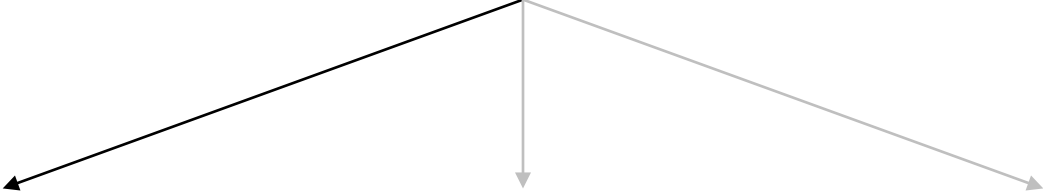
-- Grating acuity

-- Eccentric

Q



Amblyopia



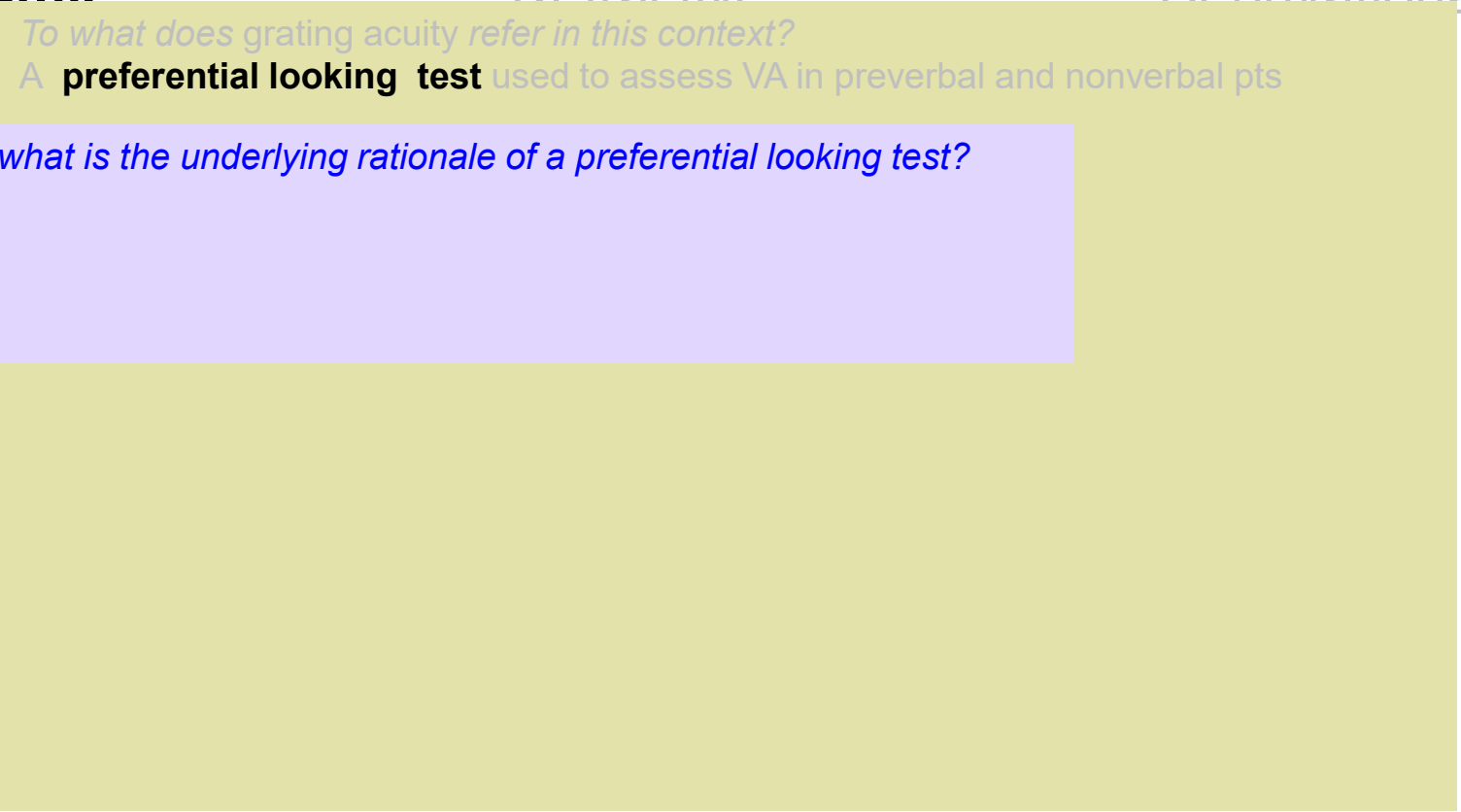
Strabismic

Refractive

Deprivational

To what does grating acuity refer in this context?
A **preferential looking test** used to assess VA in preverbal and nonverbal pts

In a nutshell, what is the underlying rationale of a preferential looking test?



A

Amblyopia

Strabismic

Refractive

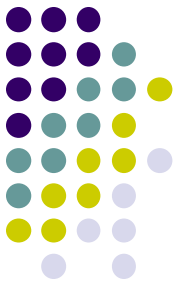
Deprivational

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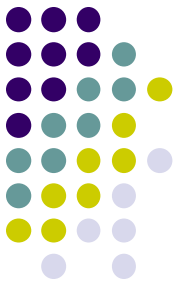
A **preferential looking test** used to assess VA in preverbal and nonverbal pts

In a nutshell, what is the underlying rationale of a preferential looking test?

The pt is presented with two visual stimuli. If she demonstrates a preference for looking at one vs the other, it follows that she can distinguish between them. If no such preference manifests, the presumption is that the two stimuli are indistinguishable in her eyes.



Q



Amblyopia

Strabismic

Refractive

Deprivational

To what does grating acuity refer in this context?

A preferential looking test used to assess VA in preverbal and nonverbal pts

What is a 'grating' as the word is used here?

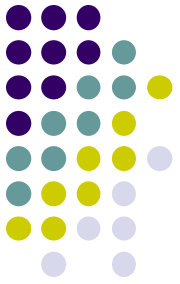
*The Peds b
distinguish i
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Grating acuity

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A

Amblyopia



Strabismic

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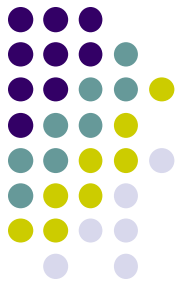
It refers to a grate-like pattern of alternating white and black stripes (see the next slide)

Grating acuity

The Peds b
distinguish i
features?

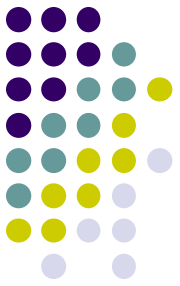
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Amblyopia



Teller acuity cards

Q



Amblyopia

Strabismic

Refractive

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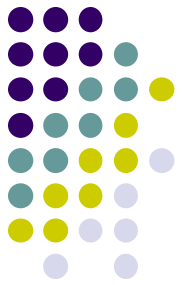
Grating acuity

How is the grating acuity test performed?

The Peds b
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Amblyopia



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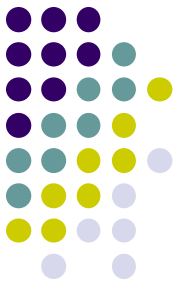
The pt is shown a series of cards with a grate at one end and a uniform gray area at the other. Crucially, the grate has the same *average* luminance as the gray area, so if the pt is unable to see the black-and-white gradations, both ends of the card will appear identically and uniformly gray, and thus should be equally (un)interesting to look at.

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Amblyopia



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Grating acuity

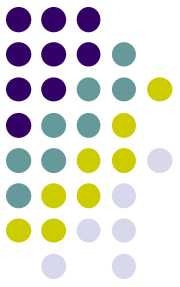
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Because of this, if the pt exhibits no preference for the grated end of the card, we infer that her VA is too poor to discern a grate of the tested spatial frequency.*

**Spatial frequency* just refers to how many stripes the area contains; the higher the frequency, the finer the stripes—and the harder they are to discern.

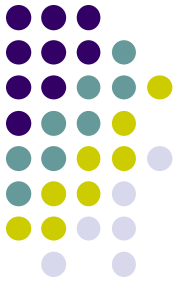
Amblyopia



Teller acuity cards being used to measure visual acuity in a preverbal child. If the pattern is visible to the child, the eyes gaze toward the grating; otherwise, the stripes blend into the gray background, and the child will exhibit no tendency to look at one or the other end of the card.

A

Amblyopia



Strabismic

Refractive

Deprivational

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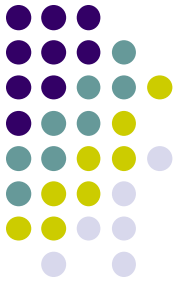
Q

Amblyopia

Strabismic

Refractive

Deprivational



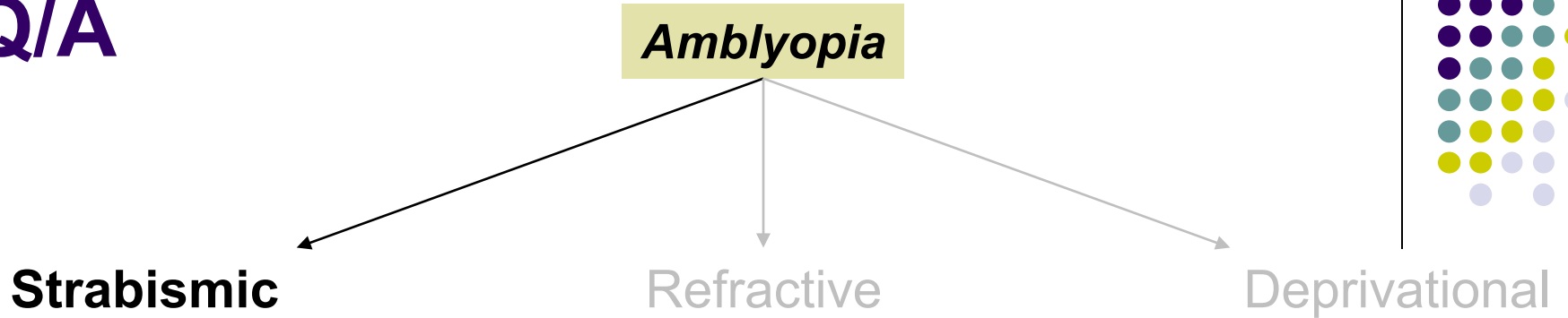
The Peds book identifies two features of amblyopia 2ndry to strabismus that distinguish it from that due to refraction and/or deprivation. What are these two features?

--Grating acuity

To what does eccentric fixation refer?

Eccentric fixation

Q/A



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Eccentric fixation

To what does eccentric fixation refer?

To the use of a nonfoveal retinal location in an amblyopic eye to fixate under **binocular vs monocular** viewing conditions

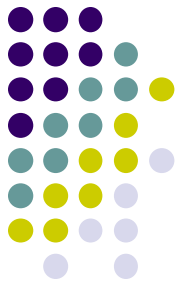
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Amblyopia

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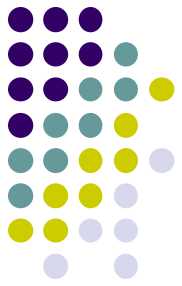
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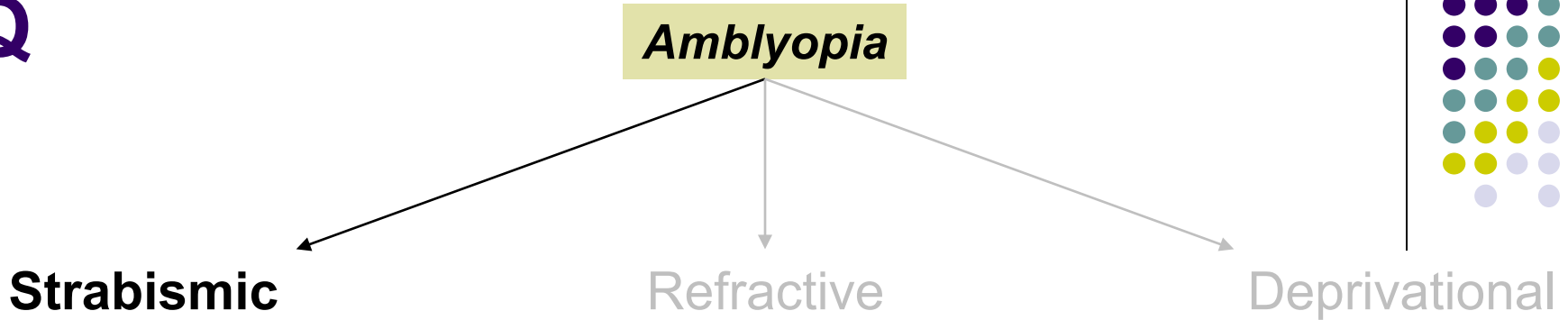
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Eccentric fixation

To what does eccentric fixation refer?

To the use of a nonfoveal retinal location in an amblyopic eye to fixate under monocular viewing conditions; ie, the amblyopic eye won't foveate even when given the opportunity (via occlusion of the sound eye, say) to do so

Q



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What does eccentric fixation imply about the Snellen acuity in an eye?

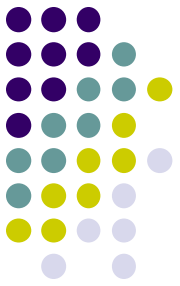
Q/A

Amblyopia

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That it's bad—usually or worse

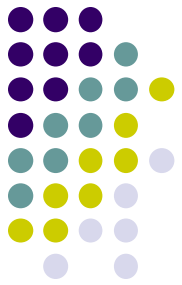
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Amblyopia

Strabismic

Refractive

Deprivational



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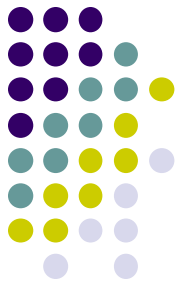
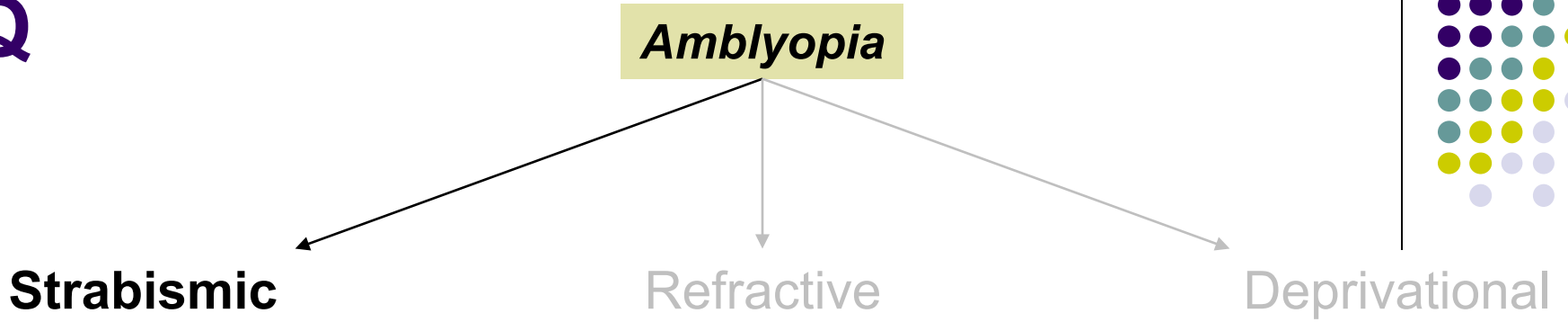
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What does eccentric fixation imply about the Snellen acuity in an eye?

That it's bad—usually 20/200 or worse

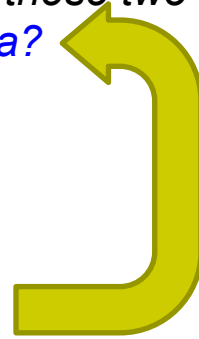
Q



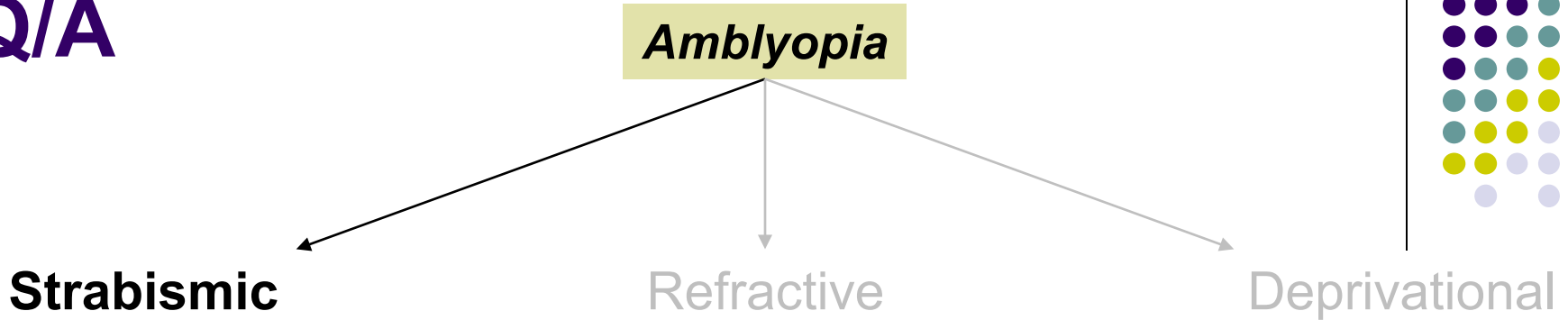
*The Peds book identifies two features of amblyopia 2ndry to strabismus that distinguish it from that due to refraction and/or deprivation. What are these two features? **What is it about each that is unique to strabismic amblyopia?***

- Grating acuity: ?
- Eccentric fixation

Now that we know what they are...



Q/A

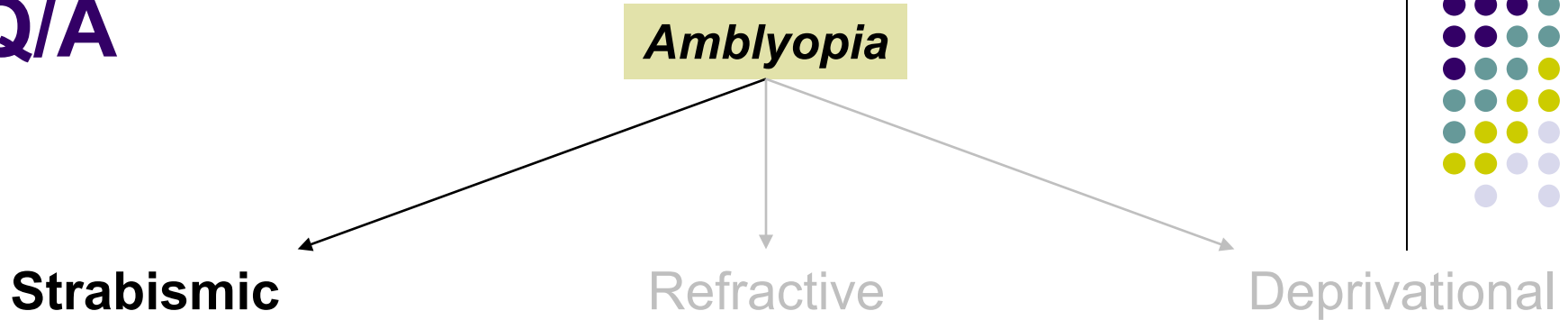


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--Grating acuity: Is affected **less vs more** than it is in other forms of amblyopia

--Eccentric fixation

Q/A



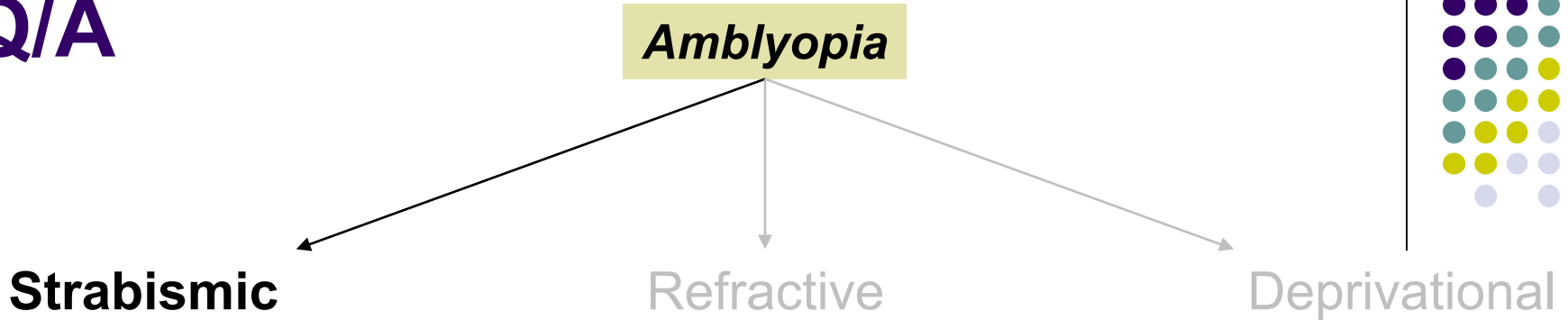
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Q/A

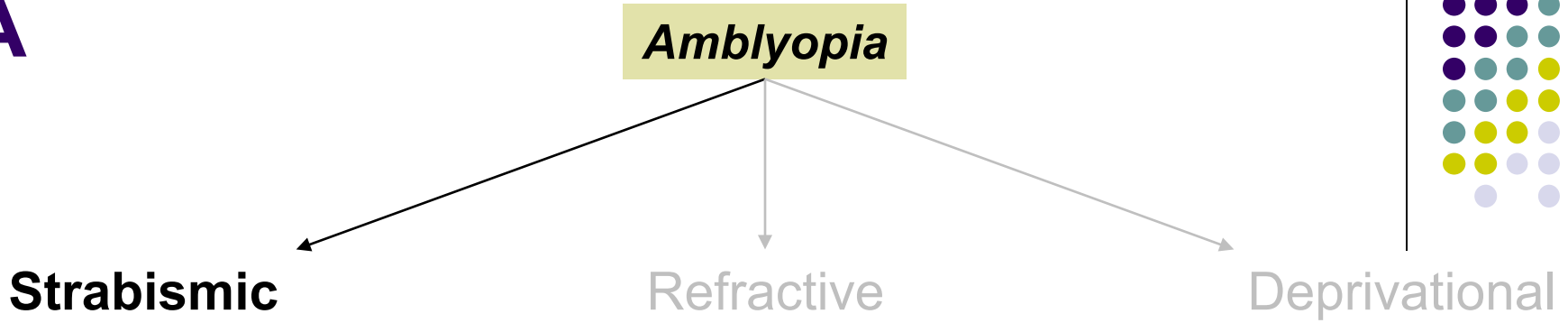


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--Eccentric fixation: **Strabismic amblyopes** often vs never **engage in eccentric fixation, whereas refractive and deprivational amblyopes** do vs don't

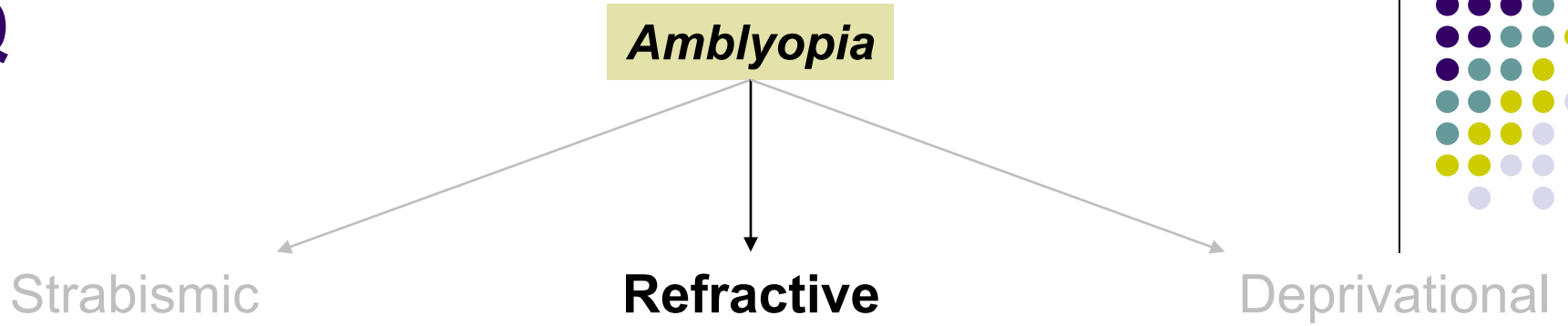
A



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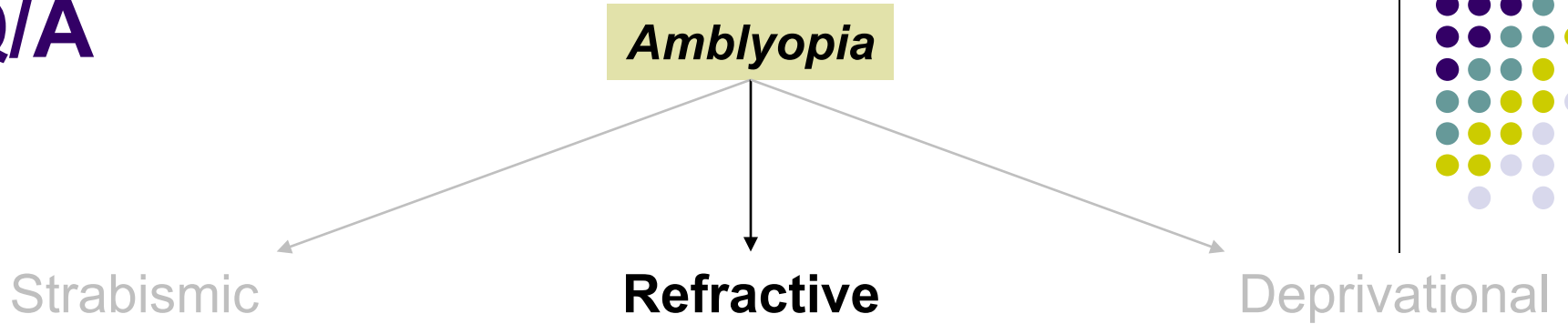
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Q



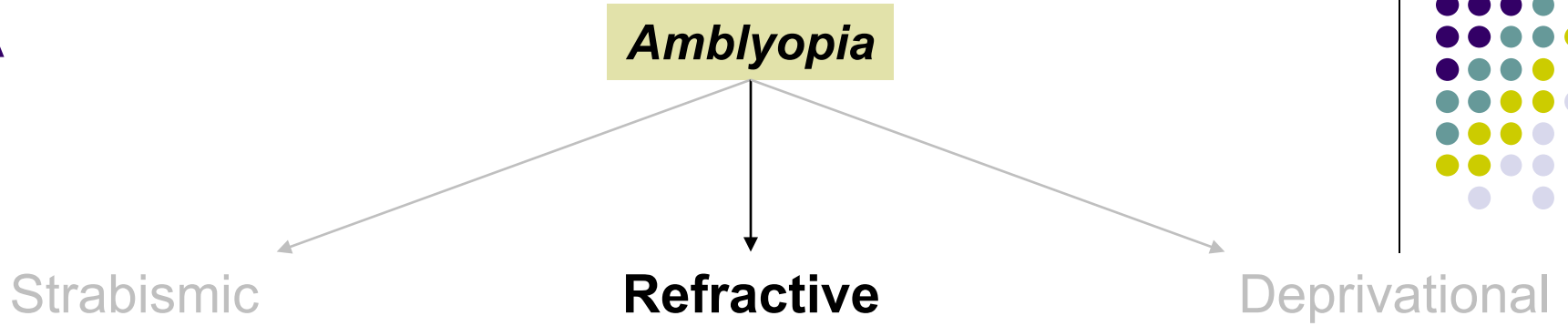
In general terms, what is the underlying issue causing refractive amblyopia?

Q/A



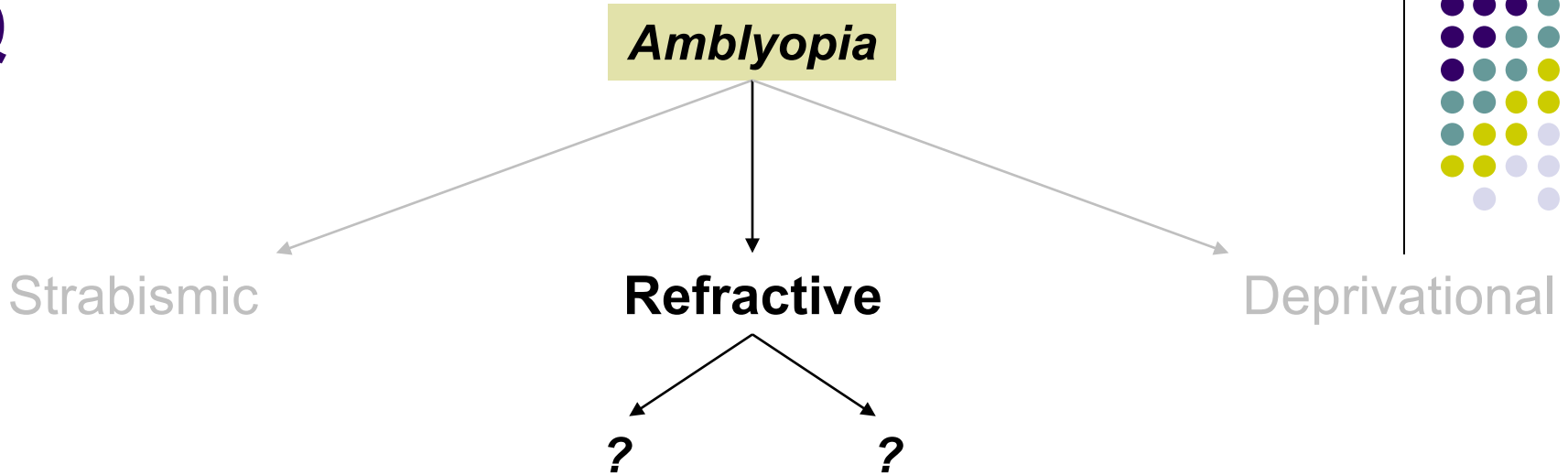
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A



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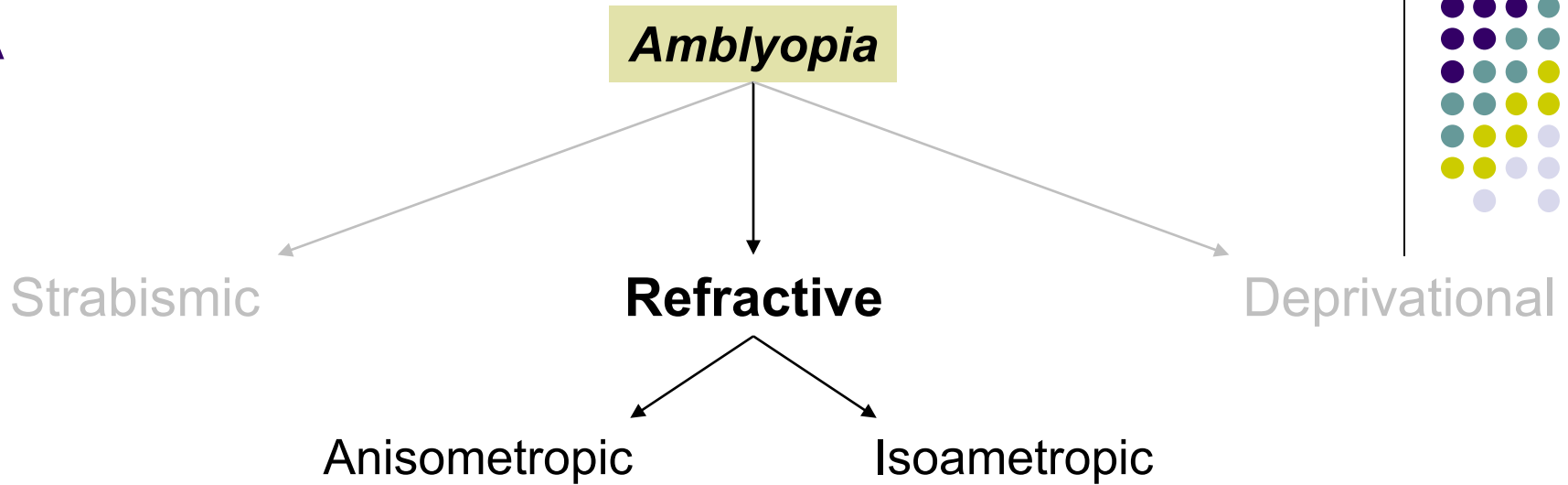
Q



In general terms, what is the underlying issue causing refractive amblyopia?
The retinal image in one eye (or both) is chronically defocused

There are two subtypes of refractive amblyopia—what are they?

A

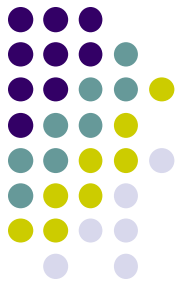


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Q

Amblyopia



Strabismic

Refractive

Deprivational

Anisometropic

Isoametropic

refractive state of the eyes

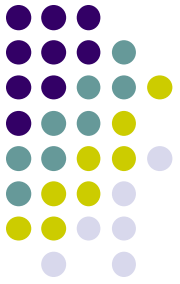
eyes

refractive state of the eyes

eyes

A

Amblyopia



Strabismic

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Deprivational

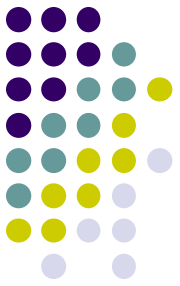
Anisometropic

Isoametropic

Dissimilar refractive states b/t the eyes

Similar high refractive error in both eyes

Q



Amblyopia

Strabismic

Refractive

Deprivational

Anisometropic

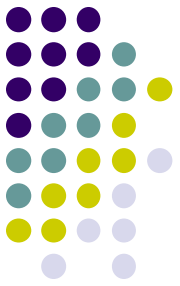
Isoametropic

Dissimilar refractive states b/t the eyes →
chronically defocused
how many eyes?

Similar high refractive error in both eyes →
chronically defocused
how many eyes?

A

Amblyopia



Strabismic

Refractive

Deprivational

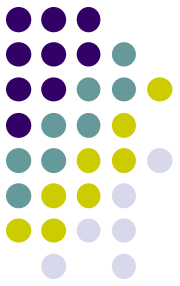
Anisometropic

Isoametropic

Dissimilar refractive states b/t the eyes →
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Similar high refractive error in both eyes →
both retinal images chronically defocused

Q



Amblyopia

Strabismic

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Deprivational

Anisometropic

Isoametropic

Dissimilar refractive states b/t the eyes →
one retinal image chronically defocused →

unilateral vs
bilateral amblyopia

Similar high refractive error in both eyes →
both retinal images chronically defocused →

unilateral vs
bilateral amblyopia

A

Amblyopia



Strabismic

Refractive

Deprivational

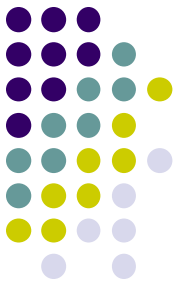
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bilateral amblyopia

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Amblyopia

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Dissimilar refractive states b/t the eyes →
one retinal image chronically defocused →
unilateral amblyopia

Similar high refractive error in both eyes →
both retinal images chronically defocused →
bilateral amblyopia

How big a difference in refractive error must be present for anisometropic amblyopia to become a concern?

Depends on whether we're talking about...

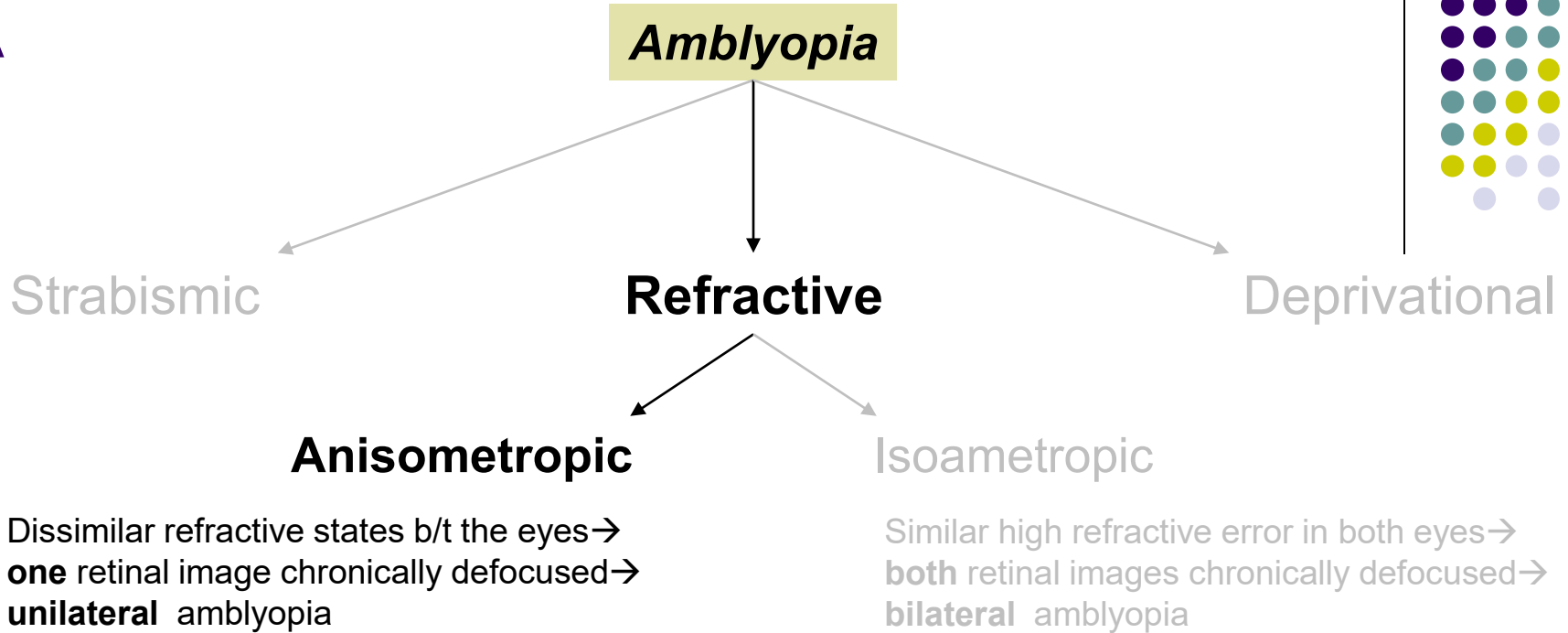
--?

--?

(or)

--?

A



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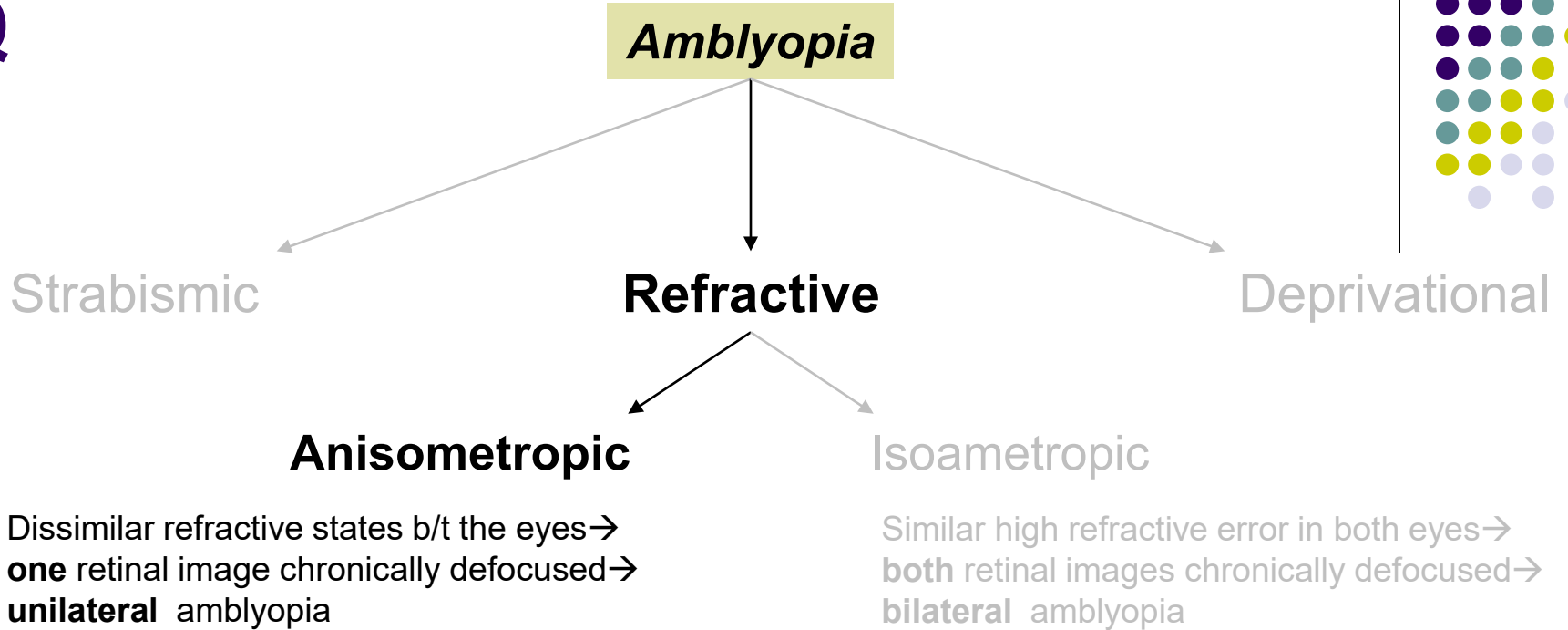
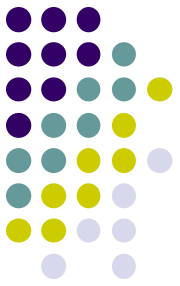
--Hyperopia

--Myopia

(or)

--Astigmatic error

Q



How big a difference in refractive error must be present for anisometropic amblyopia to become a concern?

Depends on whether we're talking about... **For each, the difference must be at least...**

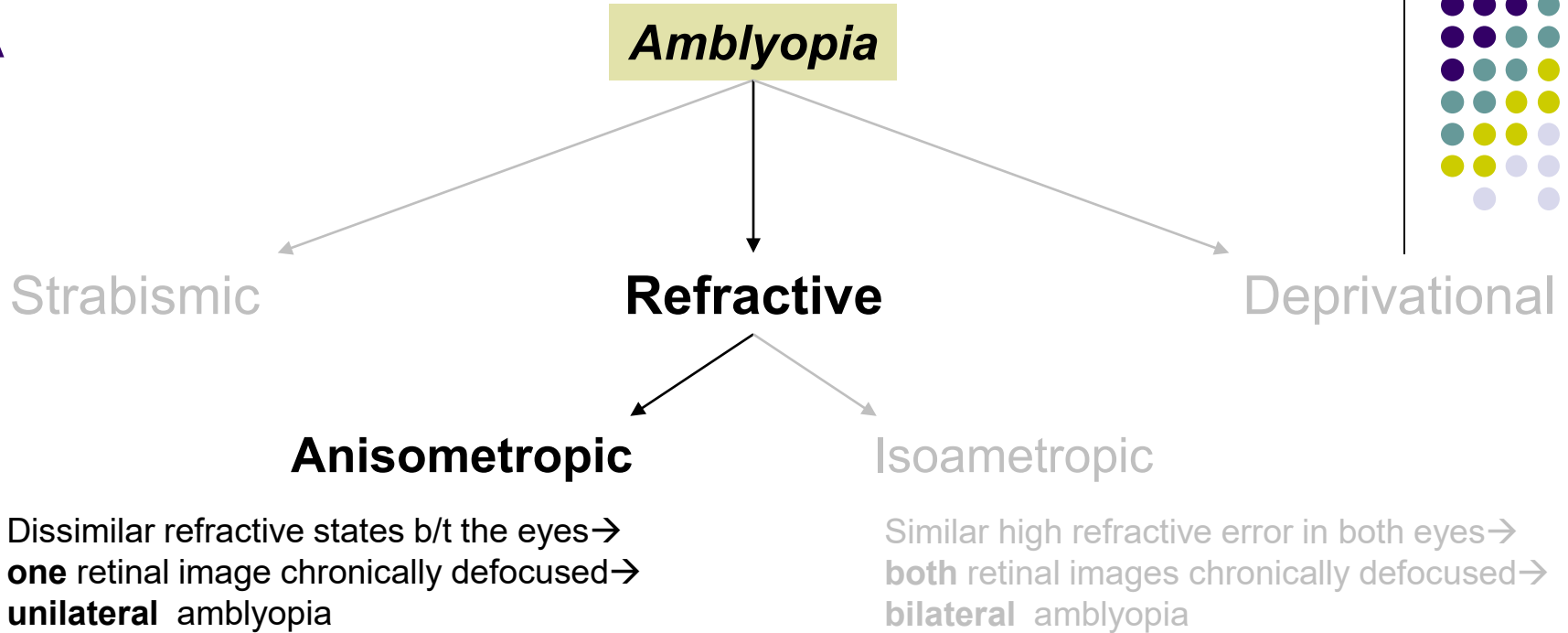
--Hyperopia: ?

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(or)

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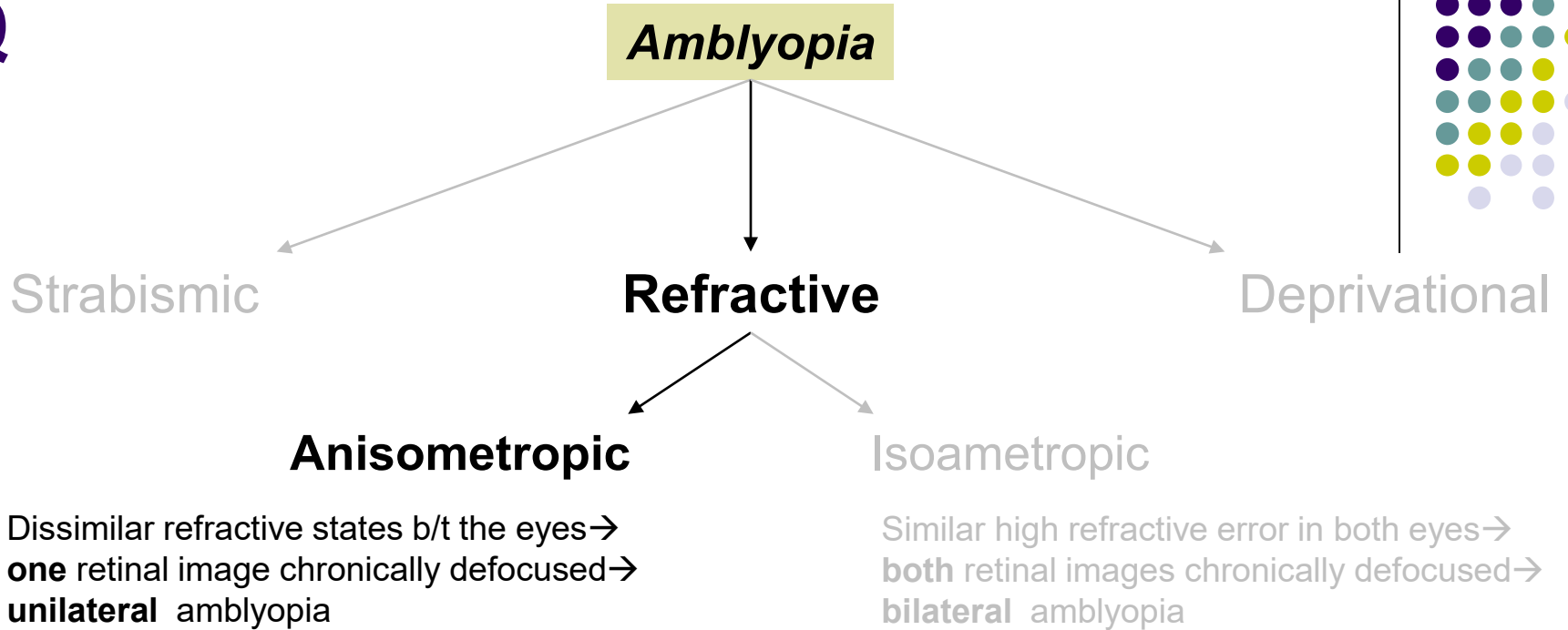
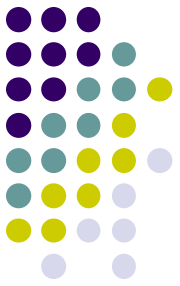
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(or)

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Q



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--Myopia: **?**

(or)

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Amblyopia

Strabismic

Refractive

Deprivational

Anisometropic

Isoametropic

Dissimilar refractive states b/t the eyes →
one retinal image chronically defocused →
unilateral amblyopia

Similar high refractive error in both eyes →
both retinal images chronically defocused →
bilateral amblyopia

How big a difference in refractive error must be present for anisometropic amblyopia to become a concern?

Depends on whether we're talking about... **For each, the difference must be at least...**

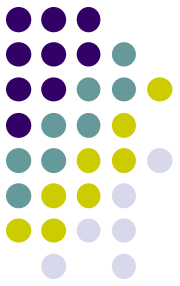
--Hyperopia: **~1.5D**

--Myopia: **~3D**

(or)

--Astigmatic error

Q



Amblyopia

Strabismic

Refractive

Deprivational

Anisometropic

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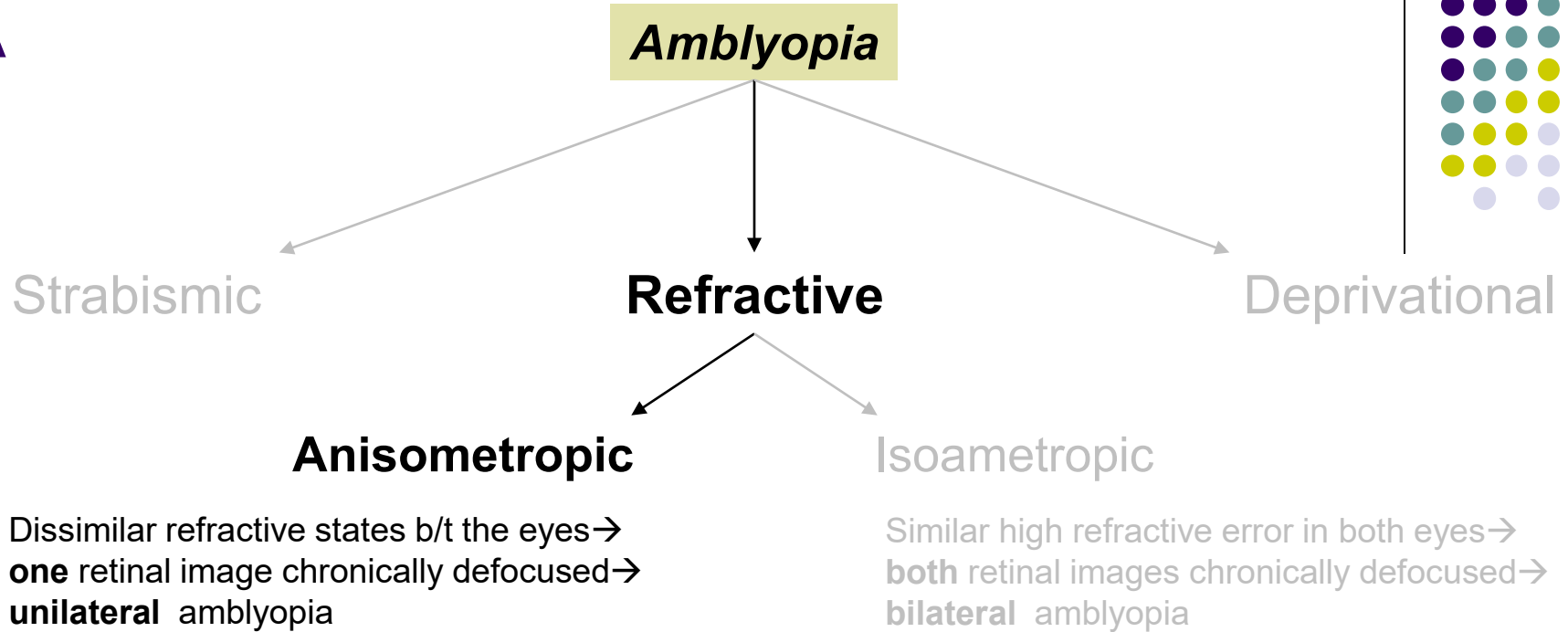
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A



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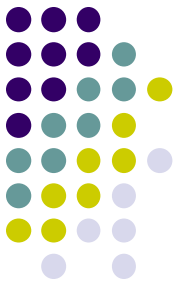
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(or)

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Q



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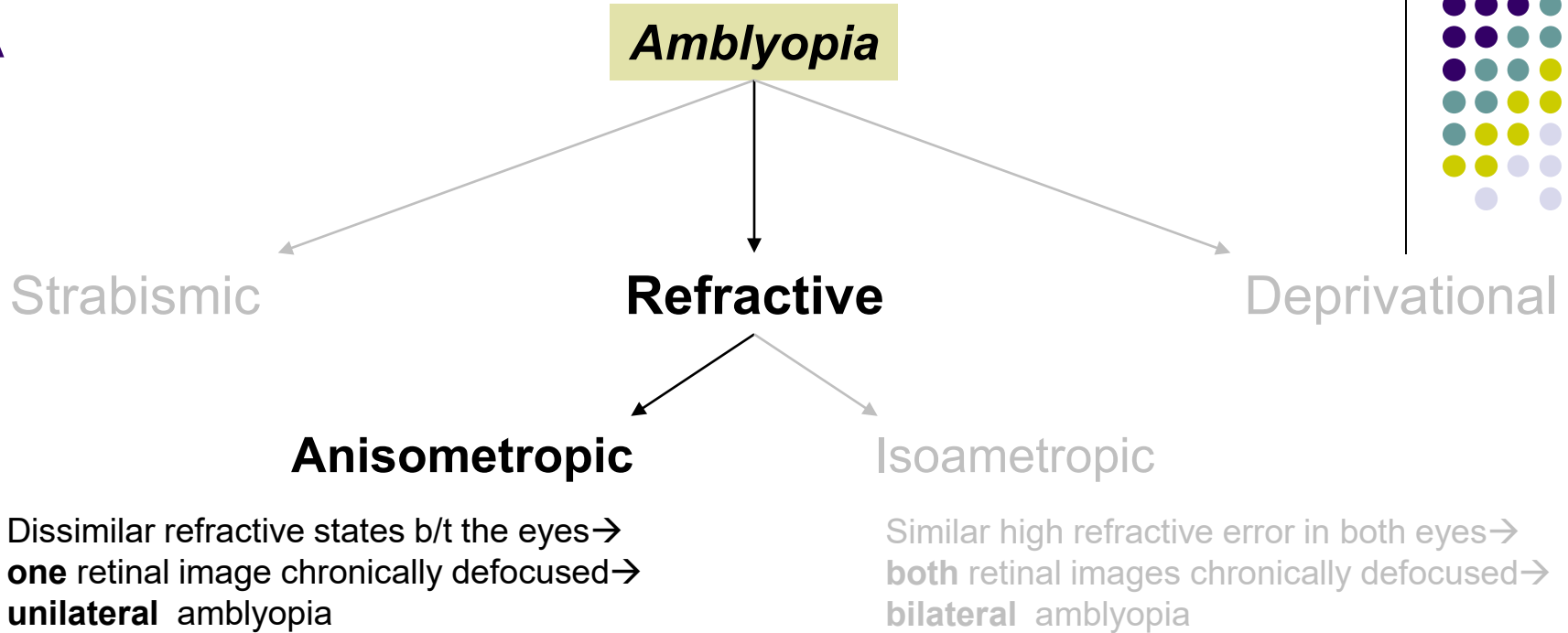
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(or)

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Does the risk of amblyopia scale with the degree of anisometropia?

A



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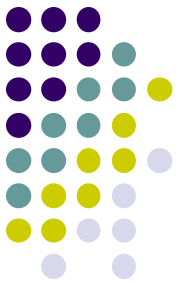
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--Astigmatic error: **~2D**

Does the risk of amblyopia scale with the degree of anisometropia?

It does indeed—the greater the anisometropia, the greater the risk of amblyopia

Q



Amblyopia

Strabismic

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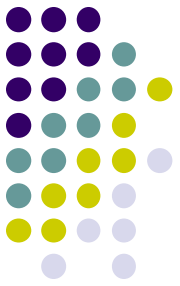
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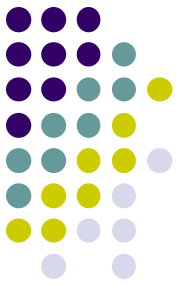
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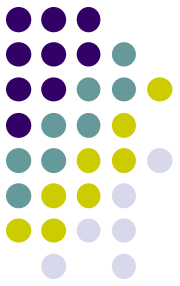
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*After age , that is

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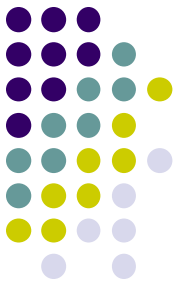
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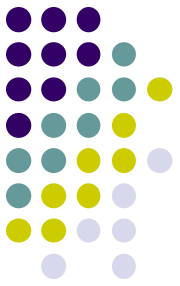
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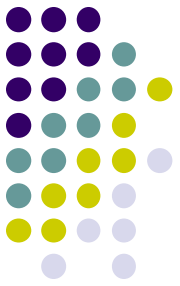
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Q/A



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Sort of? What happens is, the brain can fail to develop the ability to focus in the chronically blurred meridian—so-called **meridional** amblyopia

A



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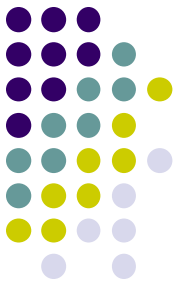
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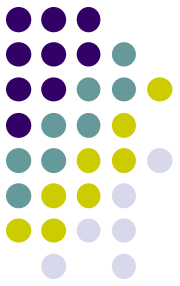
--Myopia: 5-6D (any age)

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At what level of astigmatism should you be concerned about the possibility of meridional amblyopia developing?

Q/A



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Sort of? What happens is, the brain can fail to develop the ability to focus in the chronically blurred meridian—so-called **meridional amblyopia**

At what level of astigmatism should you be concerned about the possibility of meridional amblyopia developing?

Most ophthos recommend correcting astigmatism of or more

A



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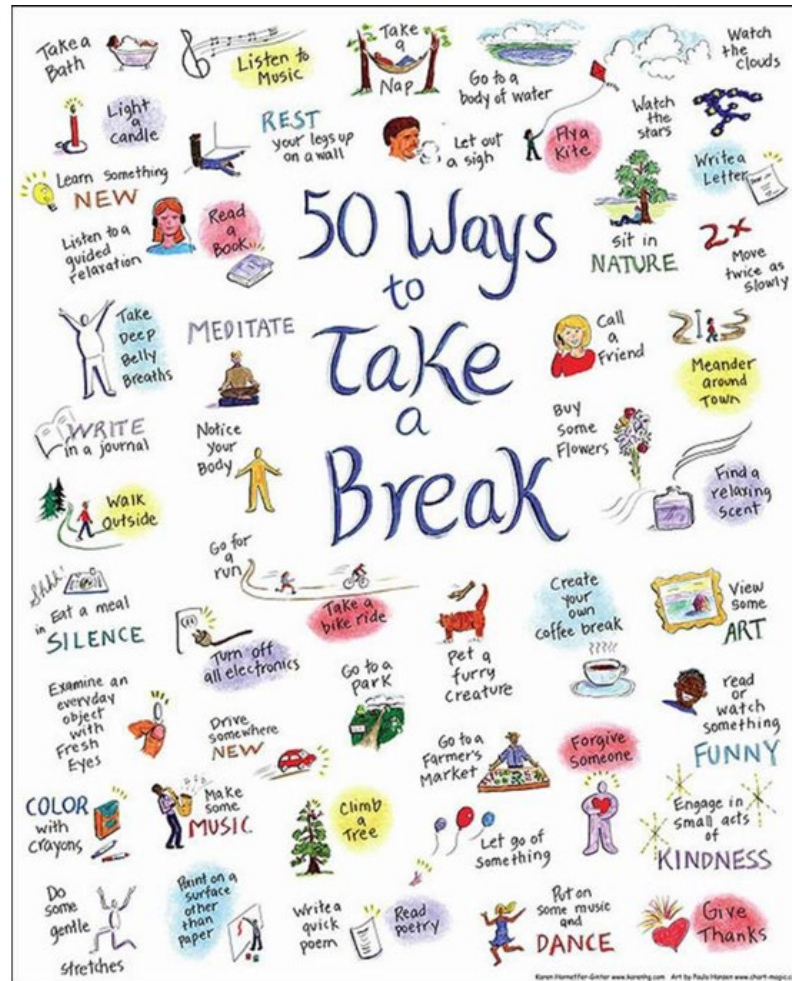
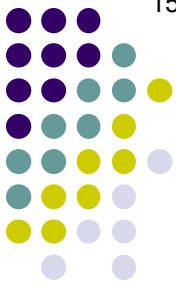
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What about high astigmatic error—can that produce isoametropic amblyopia?

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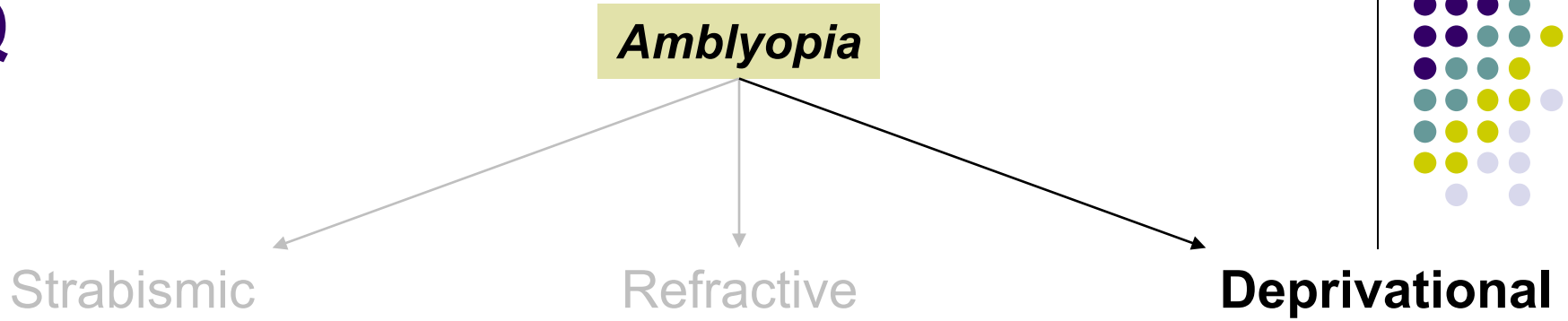
At what level of astigmatism should you be concerned about the possibility of meridional amblyopia developing?

Most ophthos recommend correcting astigmatism of 2D or more



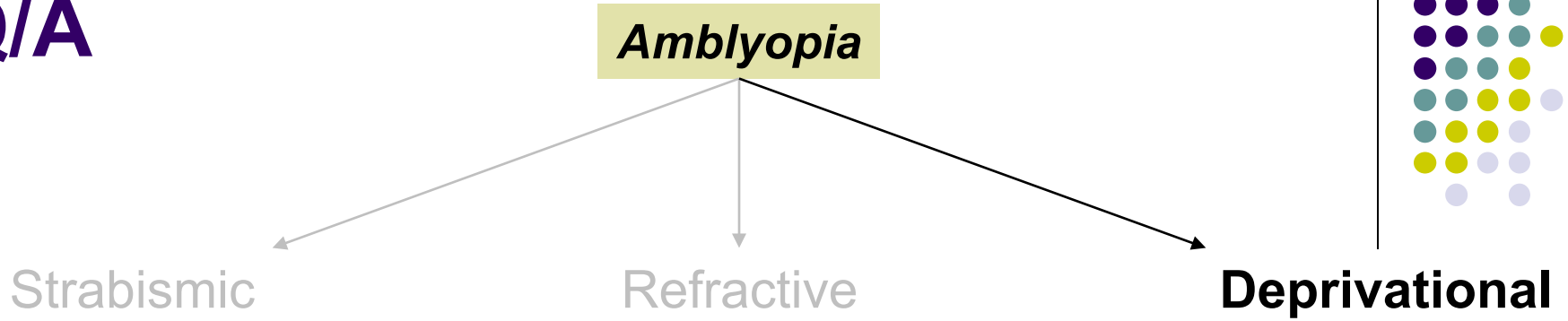
(This is a good point in the set to take a break)

Q



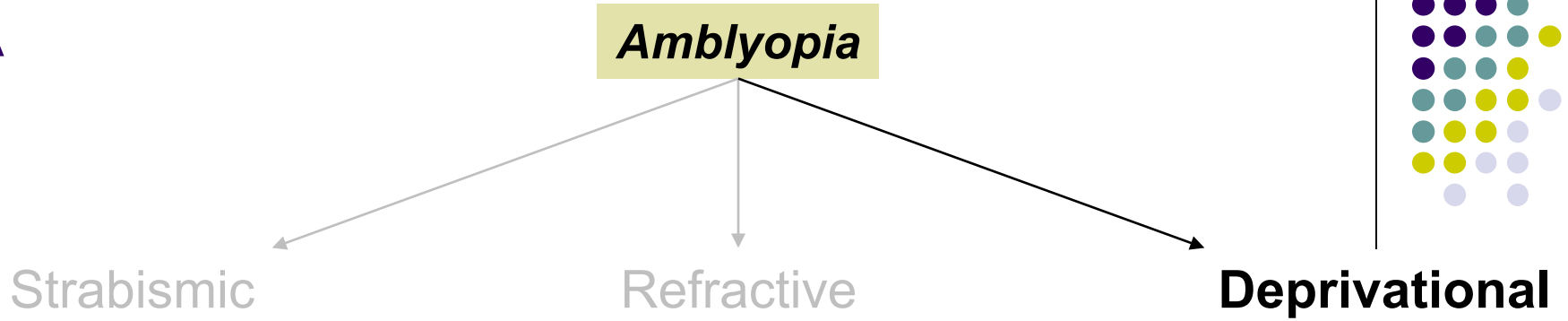
What is the most common cause of deprivational amblyopia?

Q/A



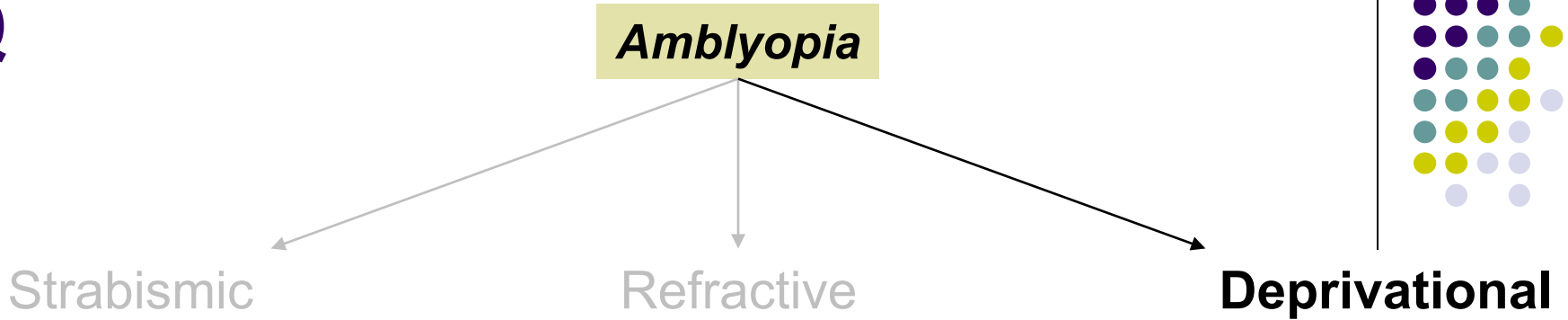
What is the most common cause of deprivational amblyopia?
Congenital (or very early-acquired)

A



What is the most common cause of deprivational amblyopia?
Congenital (or very early-acquired) cataract

Q



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Peds book lists several other sources of deprivation—what are they?

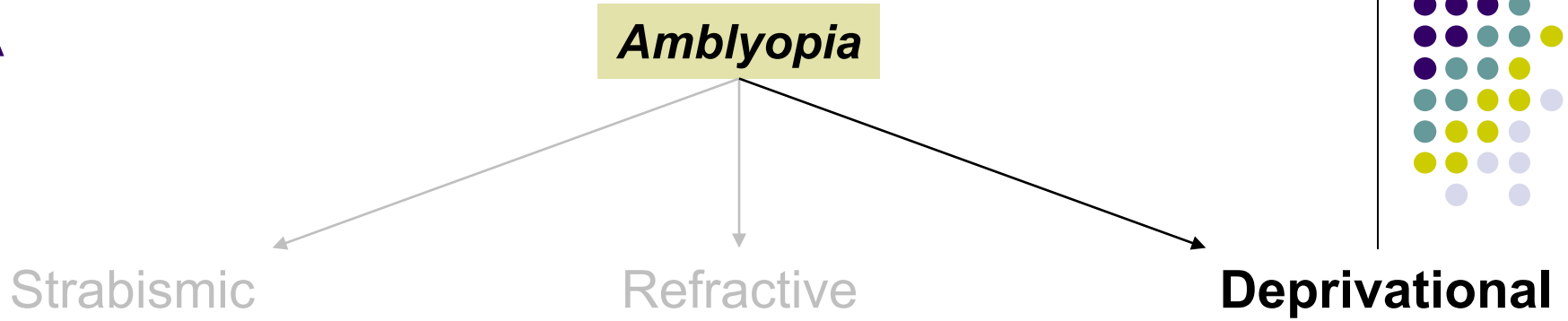
?--

?--

?--

?--

A



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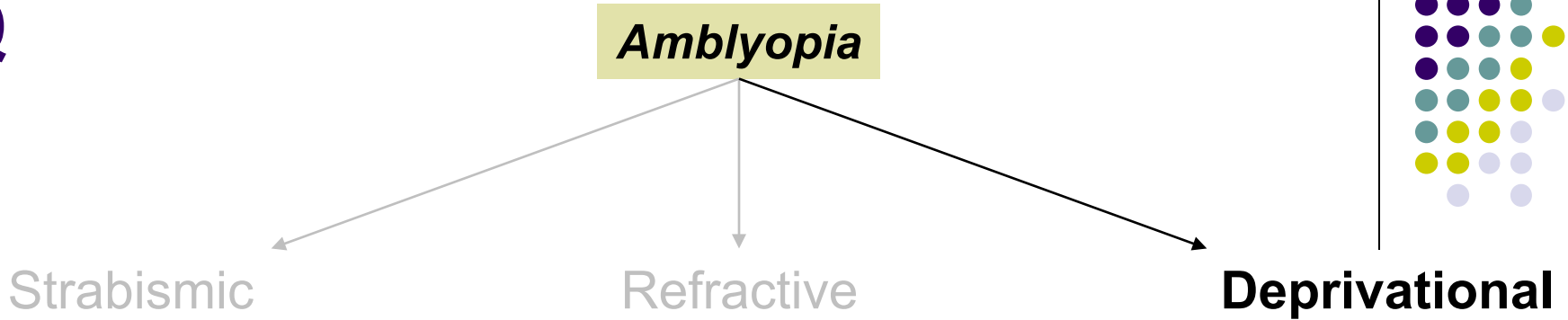
Ptosis--

Periocular lesions covering the visual axis--

Corneal opacities--

Vitreous hemorrhage--

Q



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Pec **How much (in mm) of the central lens must be involved in a dense cataract in order to produce severe deprivational amblyopia?**

- Periocular lesions covering the visual axis--
- Corneal opacities--
- Vitreous hemorrhage--

A

Amblyopia

Strabismic

Refractive

Deprivational



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Pec

How much (in mm) of the central lens must be involved in a dense cataract in order to produce severe deprivational amblyopia?

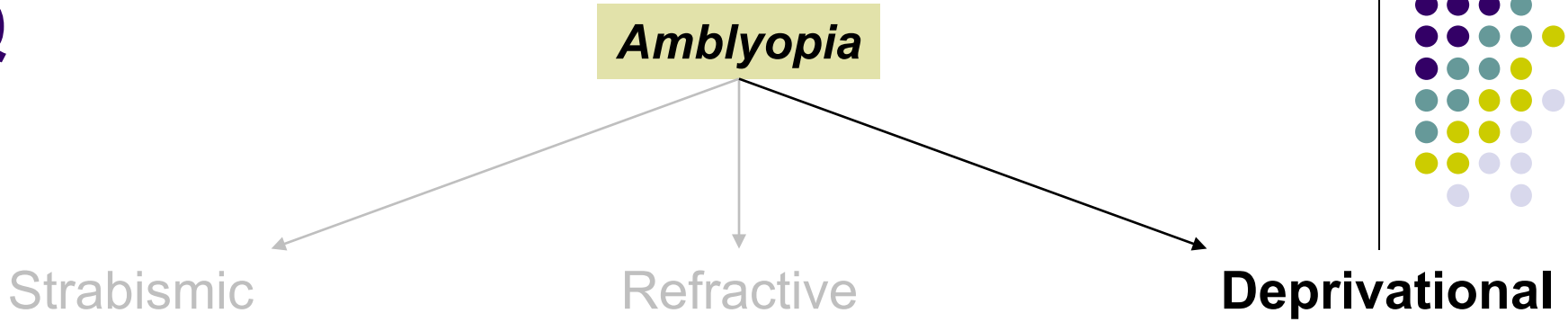
About 3 mm

Periocular lesions covering the visual axis--

Corneal opacities--

Vitreous hemorrhage--

Q



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Pec

*How much (in mm) of the central lens must be involved in a **dense cataract** in order to produce severe deprivational amblyopia?*
About 3 mm

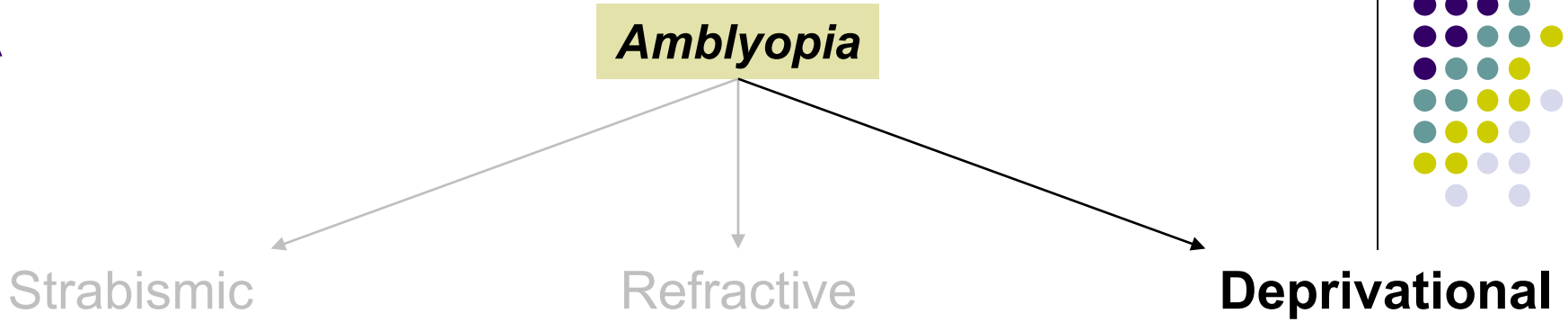
*

- Periocular lesions covering the visual axis--
- Corneal opacities--
- Vitreous hemorrhage--

*The book notes an important caveat to this related to pt

age?
race?
sex?
sign?

A



What is the most common cause of deprivational amblyopia?

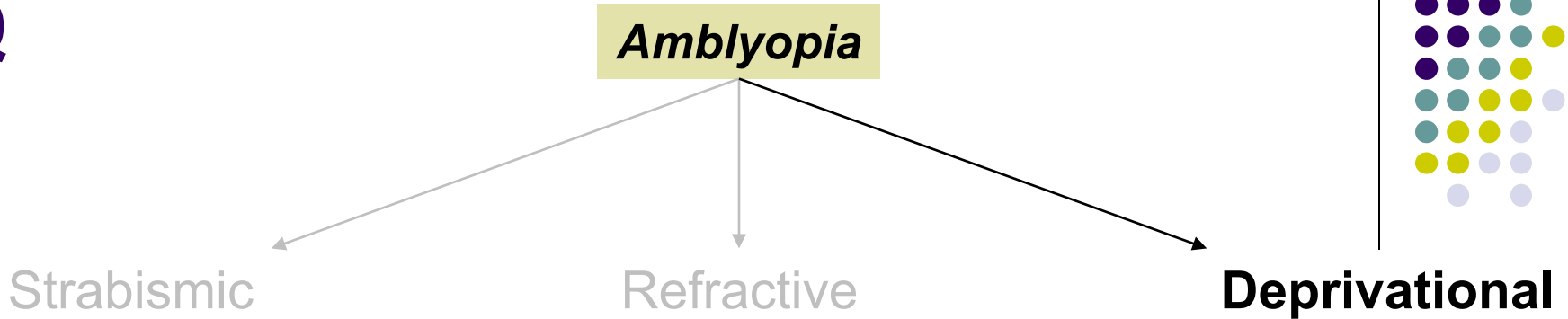
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About 3 mm

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Q



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

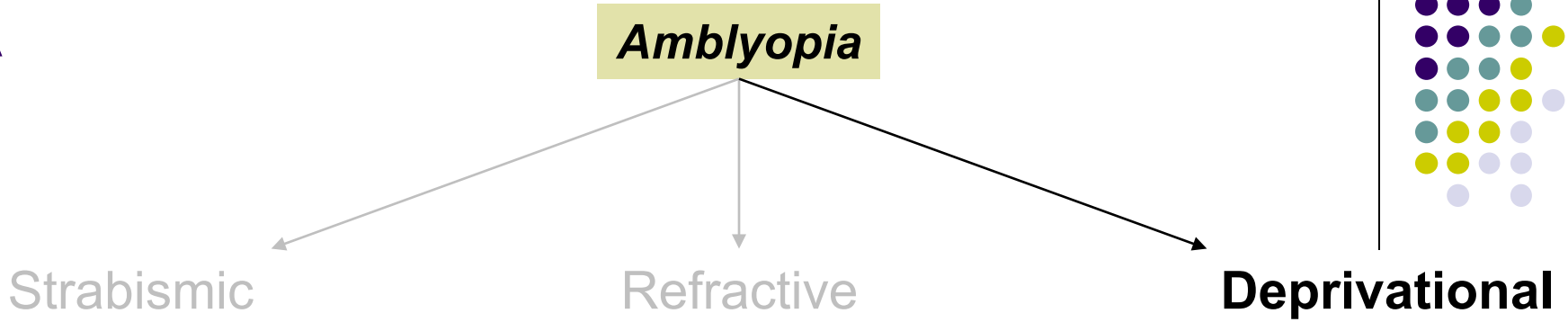
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About 3 mm

- Periocular lesions covering the visual axis--
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A



What is the most common cause of deprivational amblyopia?

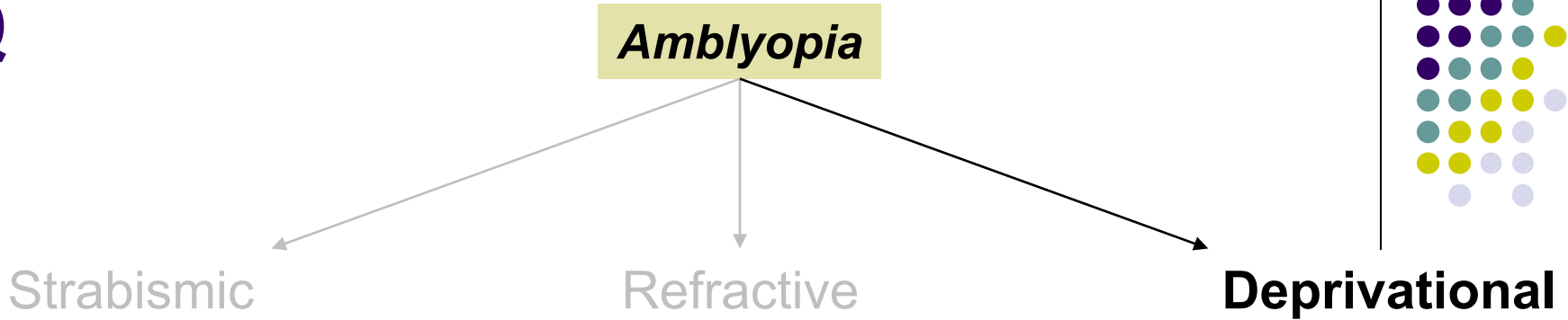
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About 3 mm

- Periocular lesions covering the visual axis--
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- Vitreous hemorrhage--

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Q



What is the most common cause of deprivational amblyopia?

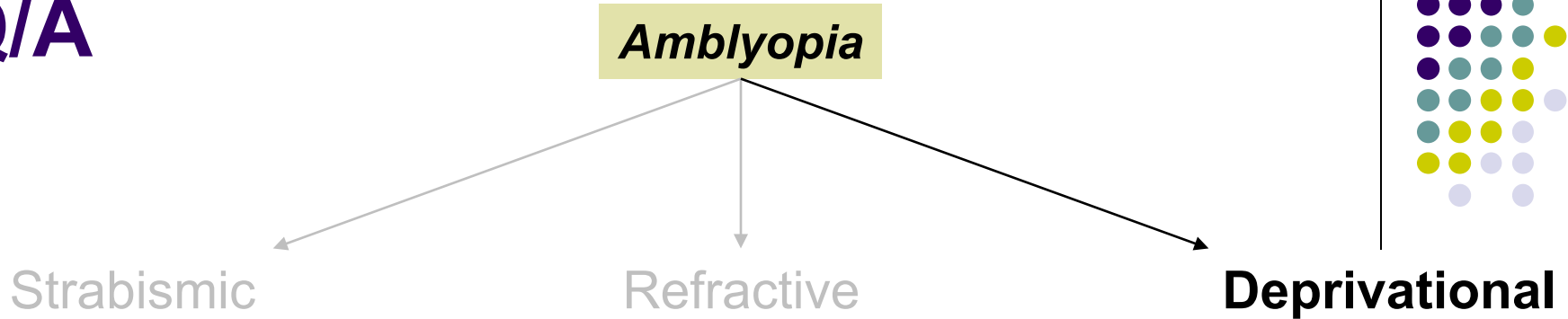
Congenital (or very early-acquired) cataract

The Pec *How much (in mm) of the central lens must be involved in a **dense cataract** * in order to produce severe deprivational amblyopia?*

In order to reduce the risk of dense, irreversible amblyopia, you gotta bust up in there and get these gnarly cataracts out. What is the window of opportunity for this; ie, by what age should this be accomplished?

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Q/A



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

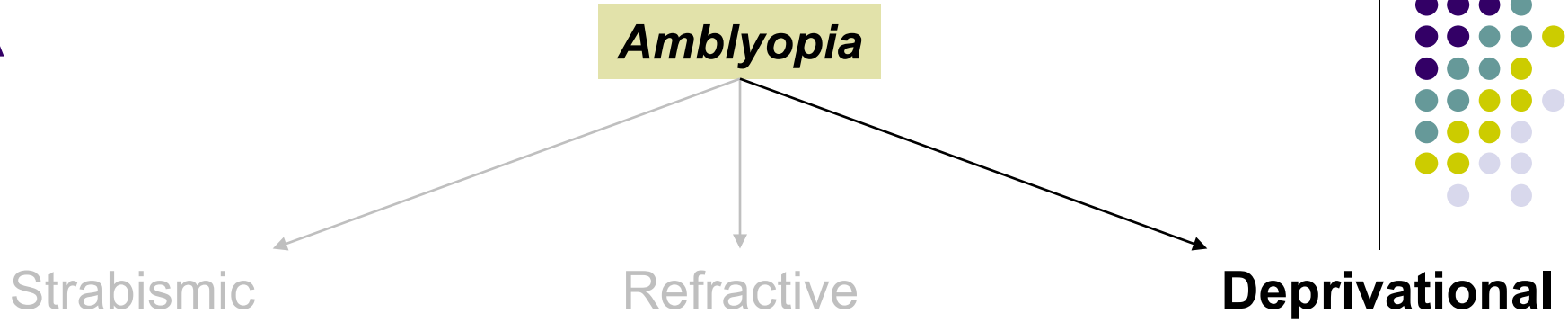
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It depends on whether the cataracts are or .

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A



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It depends on whether the cataracts are unilateral or bilateral .

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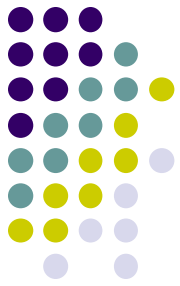
Q

Amblyopia

Strabismic

Refractive

Deprivational



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

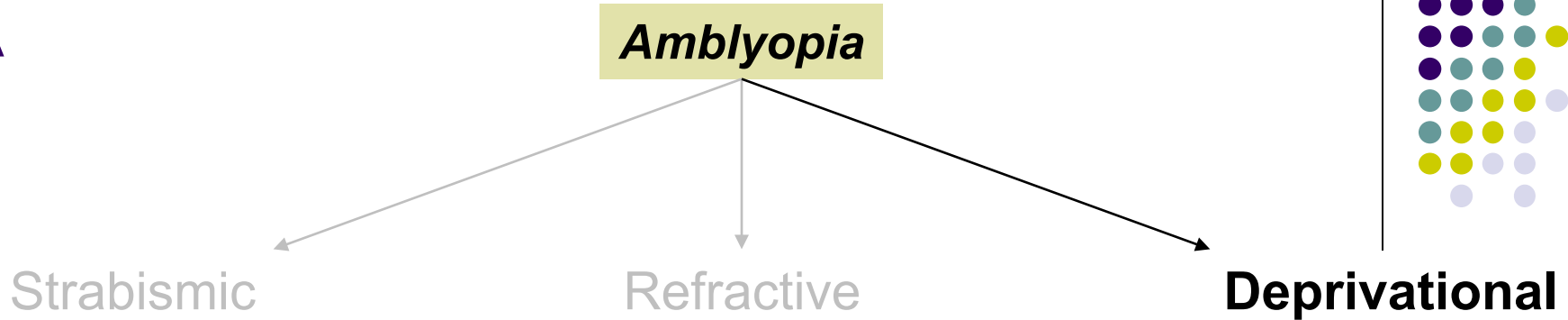
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A



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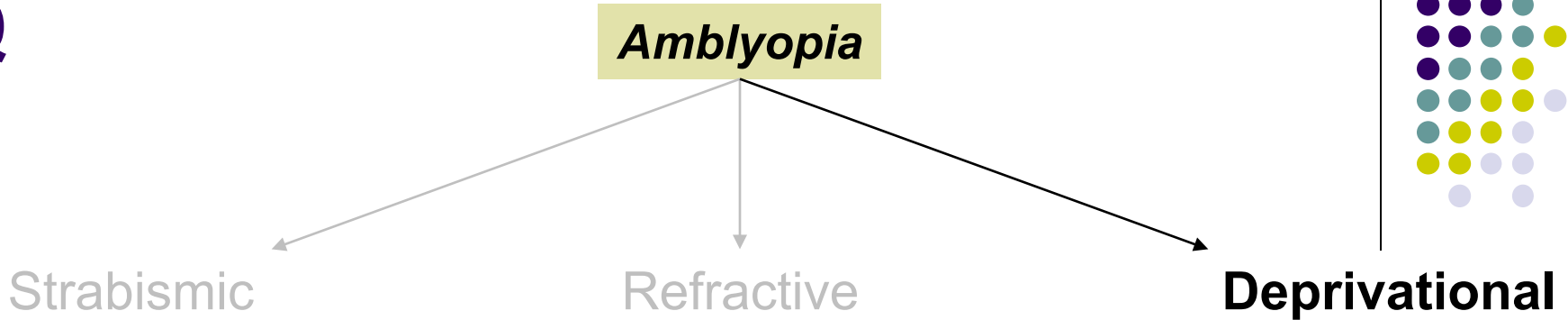
The Pec *How much (in mm) of the central lens must be involved in a **dense cataract** * in order to produce severe deprivational amblyopia?*

In order to reduce the risk of dense, irreversible amblyopia, you gotta bust up in there and get these gnarly cataracts out. What is the window of opportunity for this; ie, by what age should this be accomplished?

It depends on whether the cataracts are unilateral or bilateral . If unilateral, CE should be undertaken by age 6 weeks; if bilateral, they should be removed no later than age 10 weeks.

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Q



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Book *How much (in mm) of the central lens must be involved in a less dense cataract* in order to produce severe deprivational amblyopia?*

In order to reduce the risk of dense, irreversible amblyopia, you gotta bust up in there and get these early cataracts out. What is the window of opportunity for this: the visual axis--

What about less-dense cataracts; eg, a small anterior polar, or lamellar cataract?

It depends on w... should be under... later than age 1

*The book notes an important caveat to this related to pt age . Specifically, it notes that severe amblyopia is likely to occur *if* such a cataract is acquired before age 6 years ; those acquired at a later age are generally less impactful.

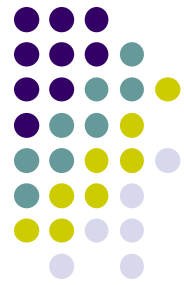
A

Amblyopia

Strabismic

Refractive

Deprivational



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Book *How much (in mm) of the central lens must be involved in a less dense cataract* in order to produce severe deprivational amblyopia?*

In order to reduce the risk of dense, irreversible amblyopia, you gotta bust up in there and get these early cataracts out. What is the window of opportunity for this: the visual axis--

ie, by what age? What about less-dense cataracts; eg, a small anterior polar, or lamellar cataract? Such cataracts will be much less amblyogenic (if they're amblyogenic at all).

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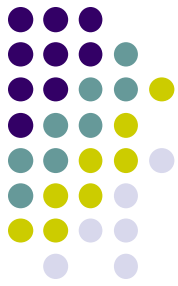
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It depends on what you should be under. Rule of thumb: If you can perform **exam maneuver**, and get a good **another one**, the cataract in question is unlikely to be severely amblyogenic.

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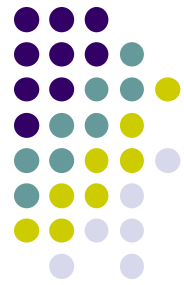
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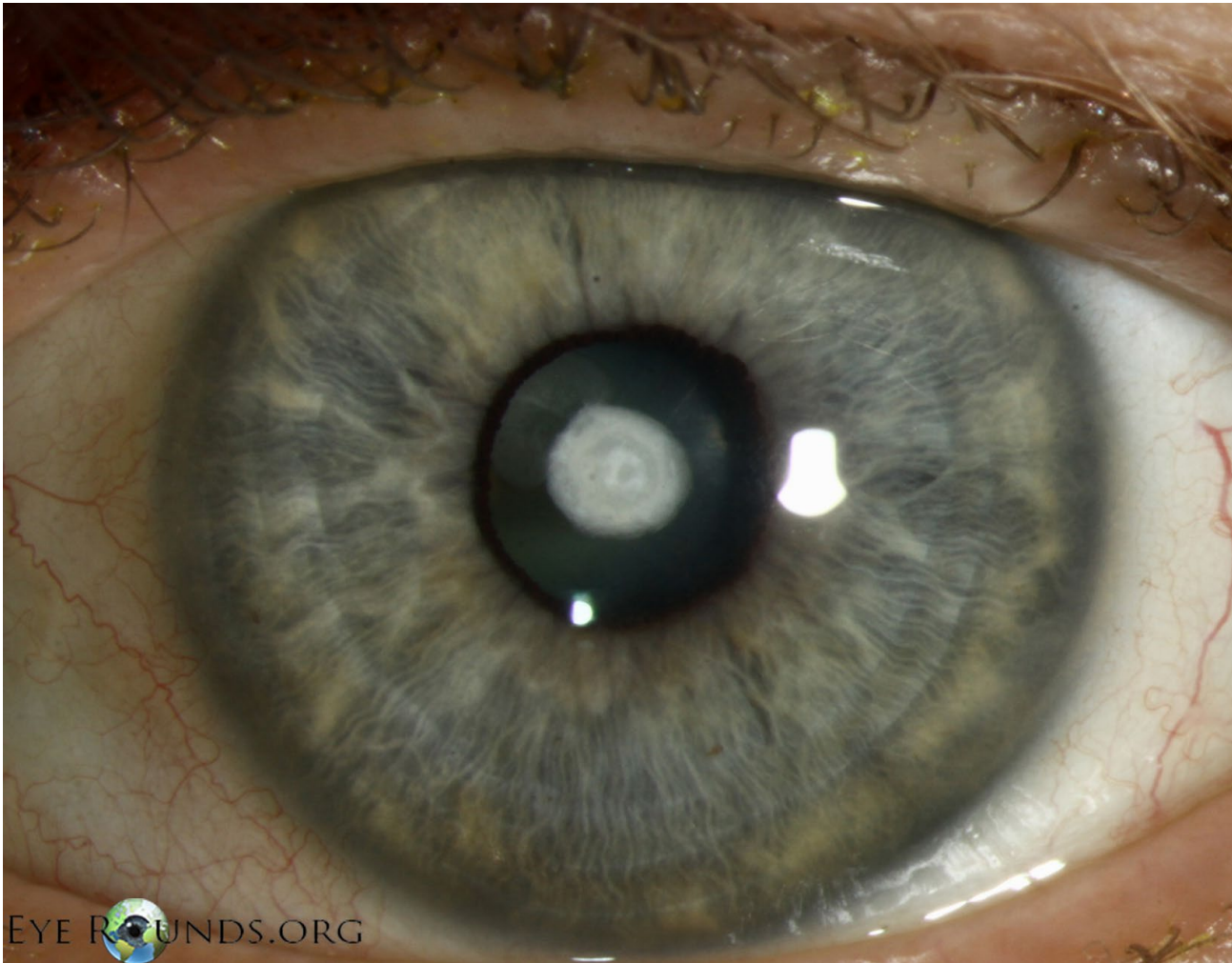
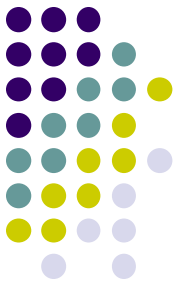
What about less-dense cataracts; eg, a small anterior polar, or lamellar cataract?

Such cataracts will be much less amblyogenic (if they're amblyogenic at all).

Rule of thumb: If you can perform retinoscopy, and get a good view on DFE, the cataract in question is unlikely to be severely amblyogenic.

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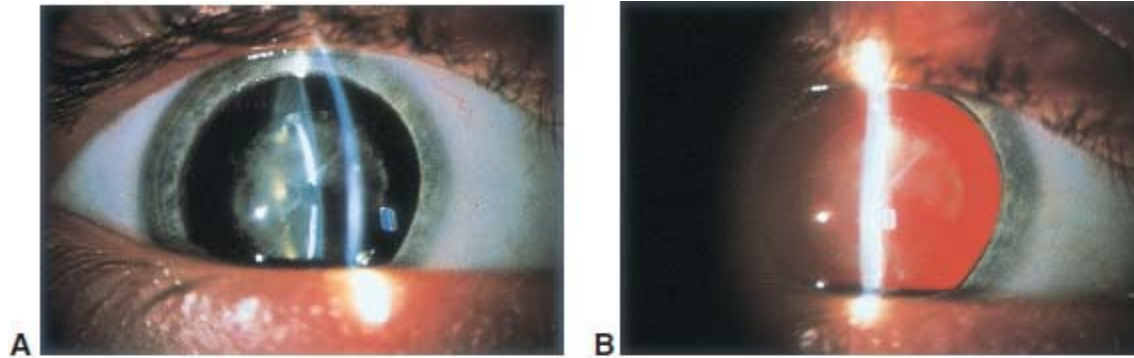
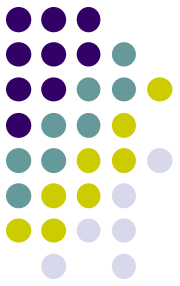
Amblyopia



Anterior polar cataract

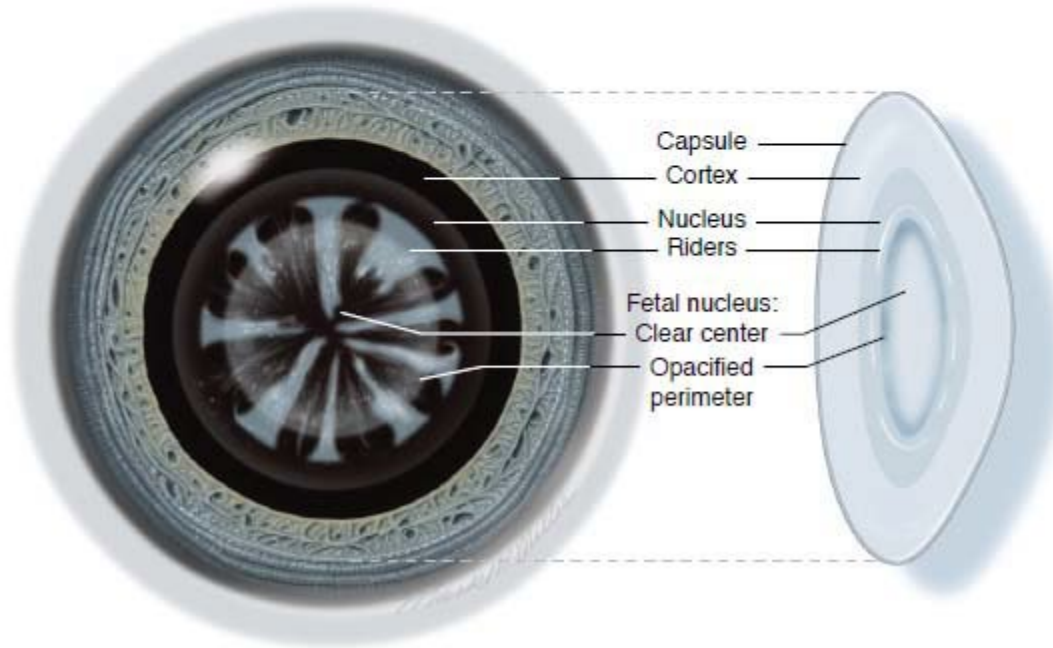
(Note: This is a bad one, and might be amblyogenic)

Amblyopia



A

B



C

Lamellar cataract. A, Slit-lamp view. B, Viewed by retroillumination. C, Schematic.

Q

Amblyopia

Strabismic

Refractive

Deprivational



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Pec

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What can be done to increase the odds that a child can 'see around' a dense-but-small central cataract, thus precluding amblyopia?

age . Specifically, it notes is acquired before age impactful.

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Keep the child pharmacologically dilated. This is a reasonable option for nonsurgical management of certain cataracts.

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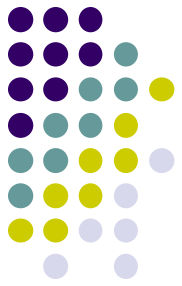
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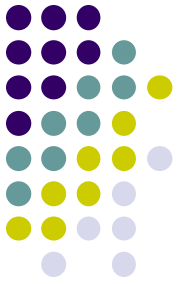
Speaking of anterior polar cataracts... Just because one may not induce deprivational amblyopia doesn't mean the eye is home-free. By what other mechanism(s) might an anterior polar cataract induce amblyopia?

What can be done to increase a dense-but-small central cataract, thus precluding amblyopia:

Keep the child pharmacologically dilated. This is a reasonable option for nonsurgical management of certain cataracts.

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Q/A



Amblyopia

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Speaking of anterior polar cataracts... Just because one may not induce deprivational amblyopia doesn't mean the eye is home-free. By what other mechanism(s) might an anterior polar cataract induce amblyopia?

Even optically mild ones can produce significant

two words

What can be done to increase the chance of clearing a dense-but-small central cataract, thus precluding amblyopia?

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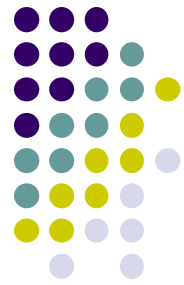
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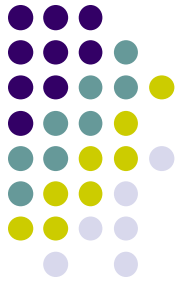
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Speaking of anterior polar cataracts... Just because one may not induce deprivational amblyopia doesn't mean the eye is home-free. By what other mechanism(s) might an anterior polar cataract induce amblyopia? Even optically mild ones can produce significant refractive error; thus, **unilateral anterior polars are associated with** **amblyopia**

What can be done to increase the chance of preventing amblyopia from a dense-but-small central cataract, thus precluding amblyopia?

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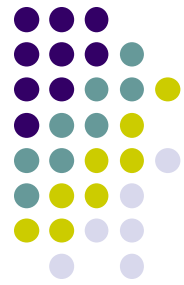
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anterior polar

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Amblyopia

Strabismic

Refractive

Deprivational



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

*The means by which ptosis induces deprivational amblyopia—occlusion of the visual axis—needs no unpacking. **Instead, let's take a minute to review the (highly OKAPable) topic of congenital ptosis in general...***

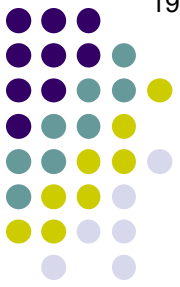
What are they?

Ptosis--

visual axis--

l opacities--

vitreous hemorrhage--



Q

Amblyopia

General categories of ptosis etiology	
?	
?	
?	
?	
?	
?	
?	

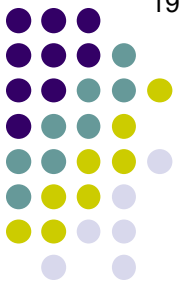
*Ptosis etiology can be classified into six categories. What are they? (Note: These categories are not unique to congenital ptosis—they apply to **acquired** ptosis as well.)*

A

Amblyopia



General categories of ptosis etiology	
Myogenic	
Neurogenic	
Aponeurotic	<i>Ptosis etiology can be classified into six categories. What are they? (Note: These categories are not unique to congenital ptosis—they apply to acquired ptosis as well.)</i>
Mechanical	
Syndromic	
Traumatic	

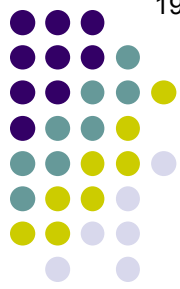


Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	? ← start here
Neurogenic	
Aponeurotic	
Mechanical	
Syndromic	
Traumatic	

*For each category, identify one or more specific causes of **congenital** ptosis*

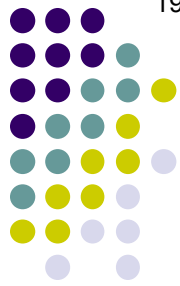


A

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
Neurogenic	
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Mechanical	
Syndromic	
Traumatic	

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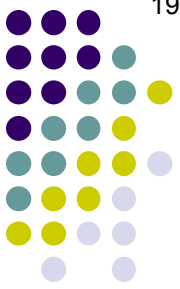


Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
Neurogenic	? ? ?
Aponeurotic	
Mechanical	
Syndromic	
Traumatic	

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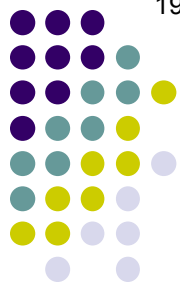


A

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
Neurogenic	CN3 palsy Horner's Marcus Gunn jaw wink
Aponeurotic	
Mechanical	
Syndromic	
Traumatic	

*For each category, identify one or more specific causes of **congenital** ptosis*



Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
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Aponeurotic	?
Mechanical	
Syndromic	
Traumatic	

*For each category, identify one or more specific causes of **congenital** ptosis*

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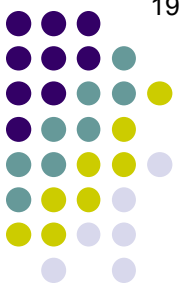
Amblyopia



General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
Neurogenic	CN3 palsy Horner's Marcus Gunn jaw wink
Aponeurotic	Rare; associated with forceps injury
Mechanical	
Syndromic	
Traumatic	

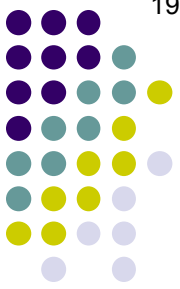
*For each category, identify one or more specific causes of **congenital** ptosis*

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Amblyopia

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Myogenic	Congenital myogenic ptosis
Neurogenic	CN3 palsy Horner's Marcus Gunn jaw wink
Aponeurotic	Rare; associated with forceps injury
Mechanical	
Syndromic	
Traumatic	<i>(So an argument could be made that it actually belongs here)</i>

*For each category, identify one or more specific causes of **congenital** ptosis*

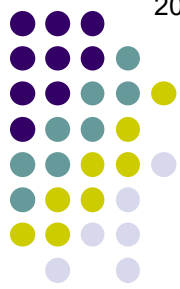


Q

Amblyopia

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Mechanical	? ?
Syndromic	
Traumatic	

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Syndromic	
Traumatic	

*For each category, identify one or more specific causes of **congenital** ptosis*



Q

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Mechanical	Plexiform neurofibroma Capillary hemangioma
Syndromic	?
Traumatic	

*For each category, identify one or more specific causes of **congenital** ptosis*

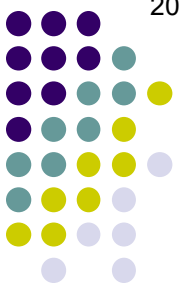


A

Amblyopia

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Mechanical	Plexiform neurofibroma Capillary hemangioma
Syndromic	Blepharophimosis syndrome
Traumatic	

*For each category, identify one or more specific causes of **congenital** ptosis*

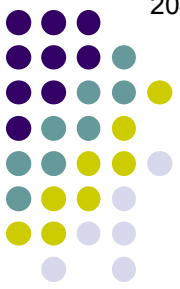


Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category	
Myogenic	Congenital myogenic ptosis	?
Neurogenic	CN3 palsy Horner's Marcus Gunn jaw wink	?
Aponeurotic	Rare; associated with forceps injury	?
Mechanical	Plexiform neurofibroma Capillary hemangioma	?
Syndromic	Blepharophimosis syndrome	?
Traumatic		?

Which is the most common cause of congenital ptosis?



General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis !
Neurogenic	CN3 palsy Horner's Marcus Gunn jaw wink
Aponeurotic	Rare; associated with forceps injury
Mechanical	Plexiform neurofibroma Capillary hemangioma
Syndromic	Blepharophimosis syndrome
Traumatic	

Which is the most common cause of congenital ptosis?

Congenital myogenic ptosis (aka *congenital* two words (not including of the)), by a mile



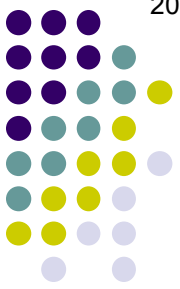
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Aponeurotic	Rare; associated with forceps injury
Mechanical	Plexiform neurofibroma Capillary hemangioma
Syndromic	Blepharophimosis syndrome
Traumatic	

Which is the most common cause of congenital ptosis?

Congenital myogenic ptosis (aka congenital **fibrosis of the levator**), by a mile



Q

Amblyopia

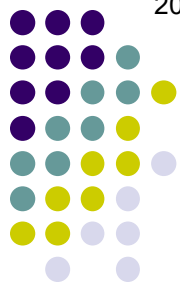
General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i></p>	
Traumatic	

A

Amblyopia



General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
<i>In three words, what is the etiology of congenital myogenic ptosis?</i> Levator muscle dysgenesis	
Traumatic	



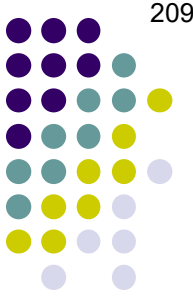
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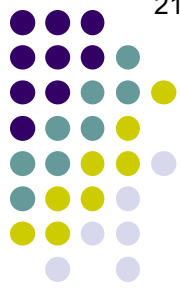
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Myogenic	Congenital myogenic ptosis
<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i> Levator muscle dysgenesis</p> <p><i>What does that mean?</i></p>	
Traumatic	

A

Amblyopia



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<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i> Levator muscle dysgenesis</p> <p><i>What does that mean?</i> The levator fails to develop properly, with some or all of its muscle fibers replaced by fibrous and adipose tissue</p>	
Traumatic	



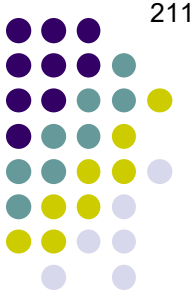
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Amblyopia

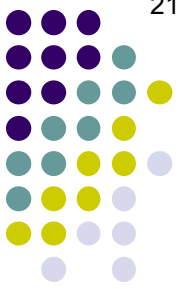
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Traumatic	

A

Amblyopia



General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i> Levator muscle dysgenesis</p> <p><i>What does that mean?</i> The levator fails to develop properly, with some or all of its muscle fibers replaced by fibrous and adipose tissue</p> <p><i>How is it inherited?</i> This is not addressed in either the <i>Peds</i> or <i>Plastics</i> book, but both mention that it can be familial (so be sure to inquire re family hx)</p>	
Traumatic	



Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i></p>	
<p><i>In congenital myogenic ptosis, what important finding manifests in downgaze?</i></p>	
<p><i>This is not addressed in either the text or lecture but, for your mention that it can be familial (so be sure to inquire re family hx)</i></p>	
Traumatic	

A

Amblyopia

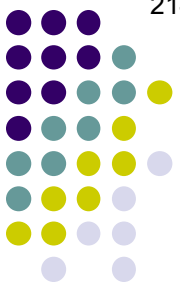


General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis

In three words, what is the etiology of congenital myogenic ptosis?
In congenital myogenic ptosis, what important finding manifests in downgaze?
Lid lag

This is not addressed in either the text or the video, but I would mention that it can be familial (so be sure to inquire re family hx)

Traumatic	
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Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
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<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i></p>	
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<p>Lid lag</p>	
<p><i>What is lid lag?</i></p>	
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Traumatic	

A

Amblyopia



General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis

In three words, what is the etiology of congenital myogenic ptosis?

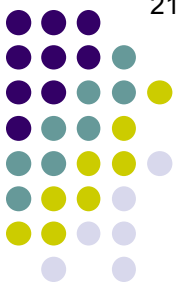
*In congenital myogenic ptosis, what important finding manifests in downgaze?
Lid lag*

What is lid lag?

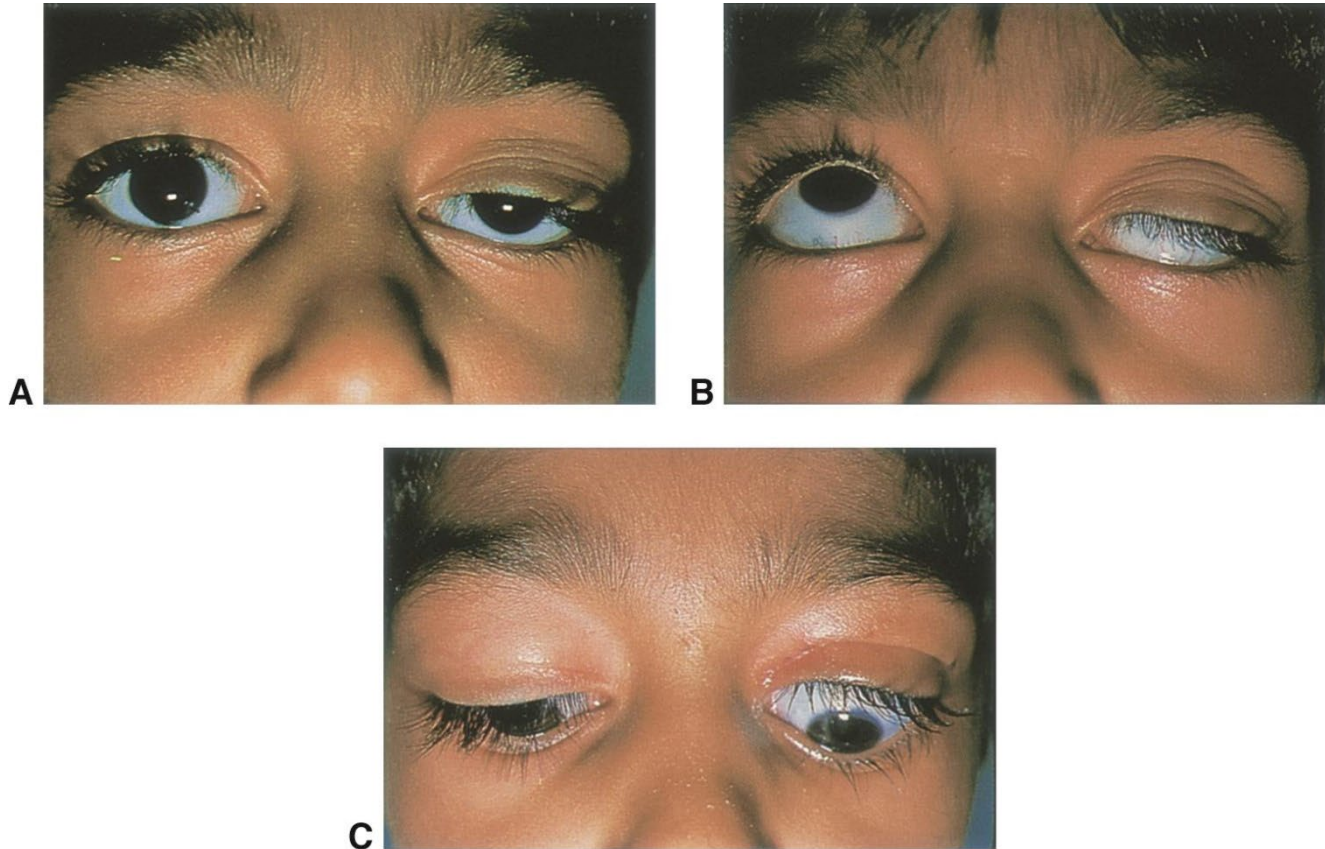
The phenomenon in which the upper lid does not 'follow' the globe in downgaze

This is not addressed in either the text or the video, but I would mention that it can be familial (so be sure to inquire re family hx)

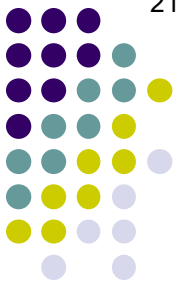
Traumatic	
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Amblyopia



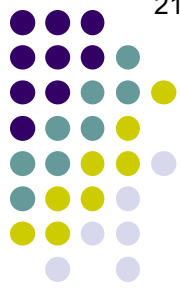
Congenital myogenic ptosis: Lid lag. Not only does the ptotic lid not elevate in upgaze, neither does it depress in downgaze.



Q

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis
<p><i>In three words, what is the etiology of congenital myogenic ptosis?</i></p>	
<p><i>In congenital myogenic ptosis, what important finding manifests in downgaze?</i> Lid lag</p>	
<p><i>What is lid lag?</i> The phenomenon in which the upper lid does not 'follow' the globe in downgaze</p>	
<p><i>What causes lid lag in congenital myogenic ptosis?</i></p>	
<p><i>What is the etiology of congenital myogenic ptosis?</i></p>	
<p><i>What is the etiology of congenital myogenic ptosis?</i> mention that it can be familial (so be sure to inquire re family hx)</p>	
Traumatic	



A

Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis

In congenital myogenic ptosis, what important finding manifests in downgaze?

Lid lag

What is lid lag?

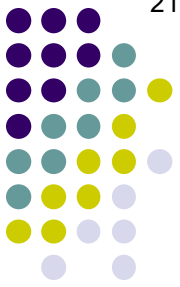
The phenomenon in which the upper lid does not 'follow' the globe in downgaze

What causes lid lag in congenital myogenic ptosis?

Some or all of the levator muscle has been replaced by fibrofatty tissue. This tissue can neither contract (causing ptosis) *nor* relax (causing lid lag).

mention that it can be familial (so be sure to inquire re family hx)

Traumatic	
------------------	--



Amblyopia

General categories of ptosis etiology	Specific causes of congenital ptosis within each category
Myogenic	Congenital myogenic ptosis

In three words, what is the etiology of congenital myogenic ptosis?

In congenital myogenic ptosis, what important finding manifests in downgaze?

Lid lag

For more on congenital ptosis, see slide-set O2

What causes lid lag in congenital myogenic ptosis?

Some or all of the levator muscle has been replaced by fibrofatty tissue. This tissue can neither contract (causing ptosis) *nor* relax (causing lid lag).

This is not addressed in either the 1st or 2nd slides, but be sure to mention that it can be familial (so be sure to inquire re family hx)

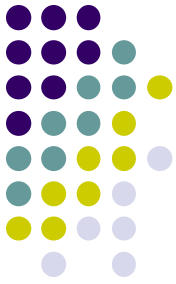
Traumatic	
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Amblyopia

Strabismic

Refractive

Deprivational



What is the most common cause of deprivational amblyopia?

Congenital (or very early-acquired) cataract

The Peds book lists several other sources of deprivation—what are they?

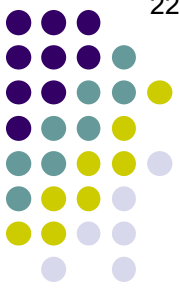
Ptosis--

covering the visual axis--

Corneal opacities--

Vitreous hemorrhage--

Ditto for the means by which corneal opacities induce deprivational amblyopia. Again, let's take a minute to review this (also) highly OKAPable topic.

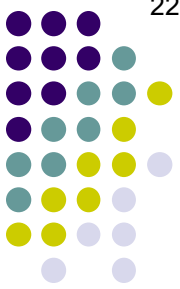


Q

Amblyopia

- ?
- ?
- ?
- ?
- ?
- ?
- ?

What is the mnemonic for remembering the DDx for corneal opacities in an infant?



A

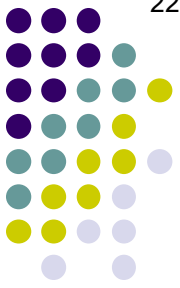
Amblyopia

- S
- T
- U
- M
- P
- E
- D

What is the mnemonic for remembering the DDx for corneal opacities in an infant?
STUMPED

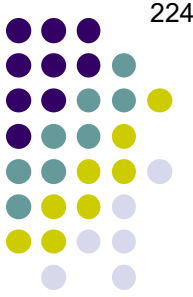
Q

Amblyopia



- **S**
- T
- U
- M
- P
- E
- D





- **Sclerocornea**

- **T**



- U

- M

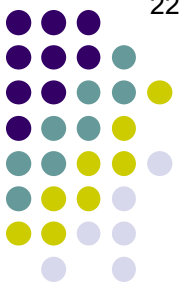
- P

- E

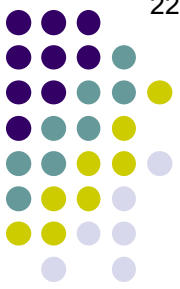
- D

A

Amblyopia




- **Sclerocornea**
- **Trauma (endothelial; ie, from forceps)**
- **U** (*Tears in Descemet's membrane* works too)
- **M**
- **P**
- **E**
- **D**




Q

Amblyopia

- **Sclerocornea**
- **Trauma (endothelial; ie, from forceps)**
- **U** 
- M
- P
- E
- D




- **Sclerocornea**
- **Trauma (endothelial; ie, from forceps)**
- **Ulcer**
- **M** 
- P
- E
- D

Q/A

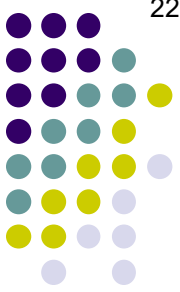
Amblyopia




- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P** ← 
- **E**
- **D**

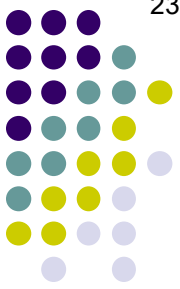
Q/A

Amblyopia



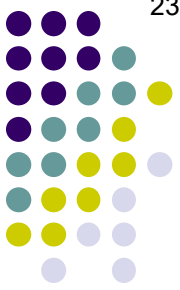
- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E** ← 
- **D**


A

Amblyopia

- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D** (*Edema* works too, as does *Elevated IOP*)

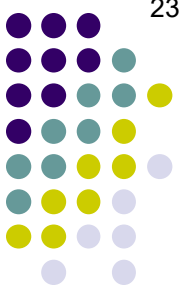
(CHED = congenital hereditary endothelial dystrophy)

**Q*****Amblyopia***

- **S**clerocornea
- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D** 

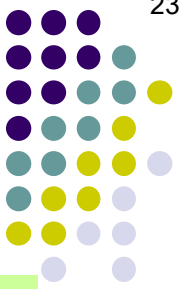
A

Amblyopia



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- **T**rauma (endothelial; ie, from forceps)
- **U**lcer
- **M**etabolic disorders
- **P**eters anomaly
- **E**ndothelial dystrophy (CHED)
- **D**ermoid of the cornea

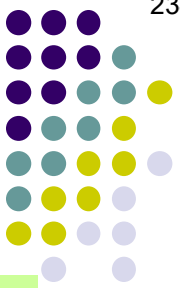
Q

Amblyopia

How does sclerocornea present?

- **Sclerocornea**
- Trauma (endot
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

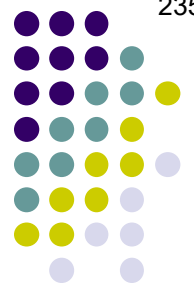
A

Amblyopia

How does sclerocornea present?

The name says it all—the cornea looks like sclera

- **Sclerocornea**
- Trauma (endothelial injury)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

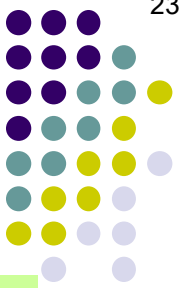


Amblyopia



Sclerocornea

Q

Amblyopia

- **Sclerocornea**
- Trauma (endothelial dystrophy)
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

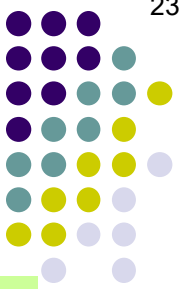
How does sclerocornea present?

The name says it all—the cornea looks like sclera

Does it present unilaterally, or bilaterally?

Q/A

Amblyopia



- **Sclerocornea**

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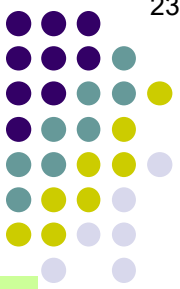
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Does it present unilaterally, or bilaterally?

It is **unilateral** in the vast majority of cases (>90%)

A

Amblyopia

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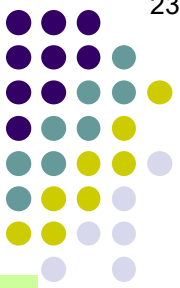
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Amblyopia

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- Ulcer

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How does sclerocornea present?

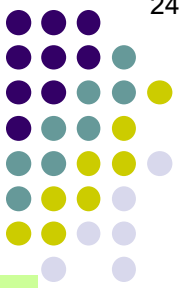
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It is bilateral in the vast majority of cases (>90%)

Another congenital corneal abnormality is strongly associated with sclerocornea. What is it?

A

Amblyopia

- **Sclerocornea**

- Trauma (endot

- Ulcer

- Metabolic disorders

- Peters anomaly

- Endothelial dystrophy (CHED)

- Dermoid of the cornea

How does sclerocornea present?

The name says it all—the cornea looks like sclera

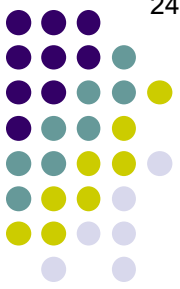
Does it present unilaterally, or bilaterally?

It is bilateral in the vast majority of cases (>90%)

Another congenital corneal abnormality is strongly associated with sclerocornea. What is it?

Cornea plana

Q

Amblyopia

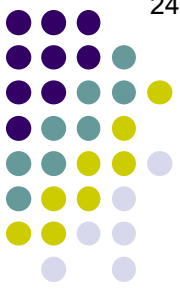
- Sclerocornea
- **Trauma (endothelial; ie, from forceps)**

Does this sort of birth trauma tend to be unilateral, or bilateral?

-
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-
-

● Dermoid of the cornea

A

Amblyopia

- Sclerocornea
- **Trauma (endothelial; ie, from forceps)**

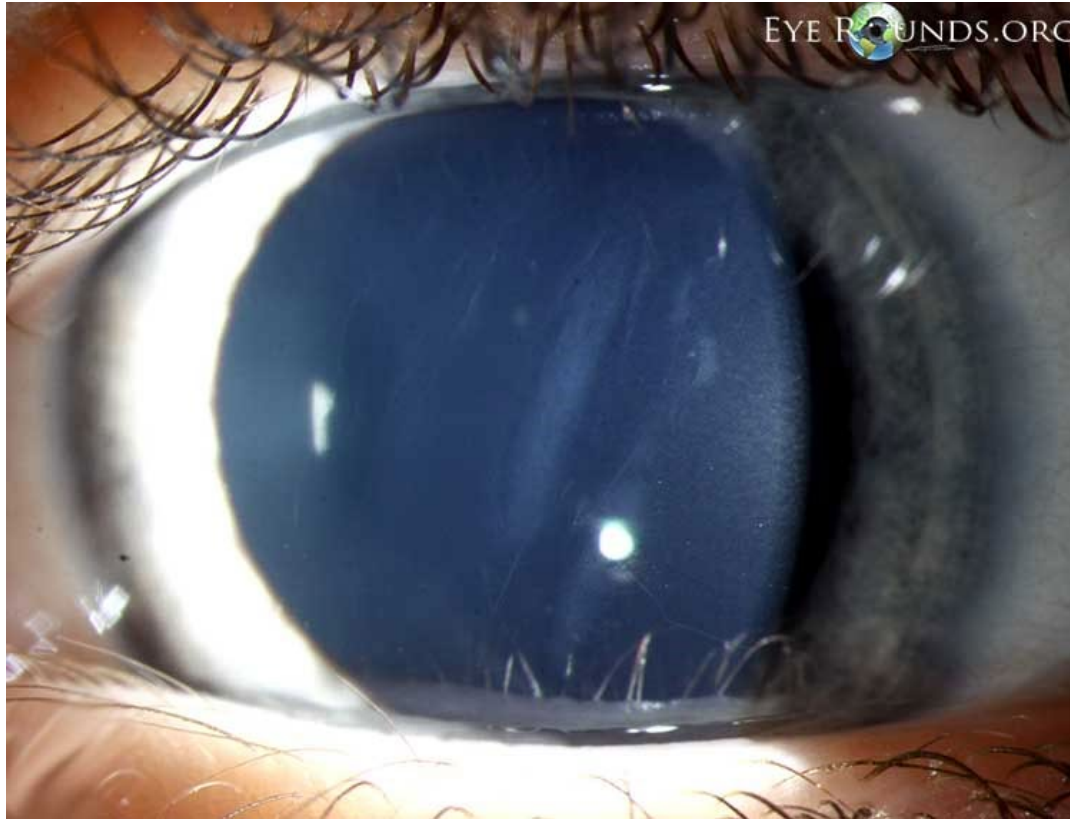
Does this sort of birth trauma tend to be unilateral, or bilateral?

It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

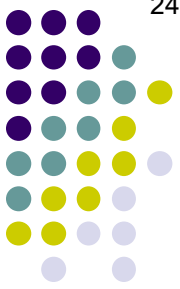
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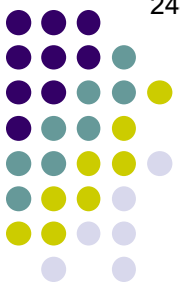
● Dermoid of the cornea

Amblyopia



Corneal haze 2ndry to birth trauma





Q

Amblyopia

- Sclerocornea

- Trauma (endothelial; ie, from forceps)

- *Does this sort of birth trauma tend to be unilateral, or bilateral?*

- It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

- *At what point post-partum does the traumatized cornea become cloudy?*

- Dermoid of the cornea



A

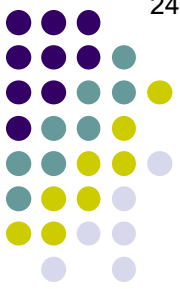
Amblyopia

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- *Does this sort of birth trauma tend to be unilateral, or bilateral?*
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- *At what point post-partum does the traumatized cornea become cloudy?*
Usually within a day or two

- Dermoid of the cornea



Q

Amblyopia

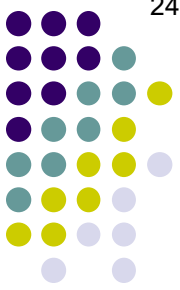
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- *How does endothelial damage lead to a cloudy cornea?*

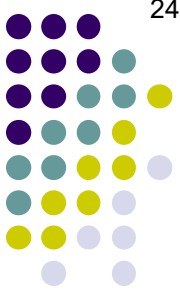
- Dermoid of the cornea



A

Amblyopia

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Usually within a day or two
- *How does endothelial damage lead to a cloudy cornea?*
Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy
- Dermoid of the cornea



Q

Amblyopia

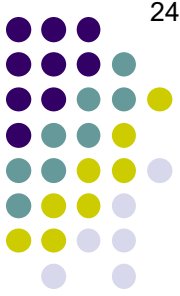
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Breaks in Descemet's/endothelium allow the cornea to become edematous, and thus hazy

- *Do these traumatic Descemet breaks tend to run vertically, or horizontally?*



A

Amblyopia

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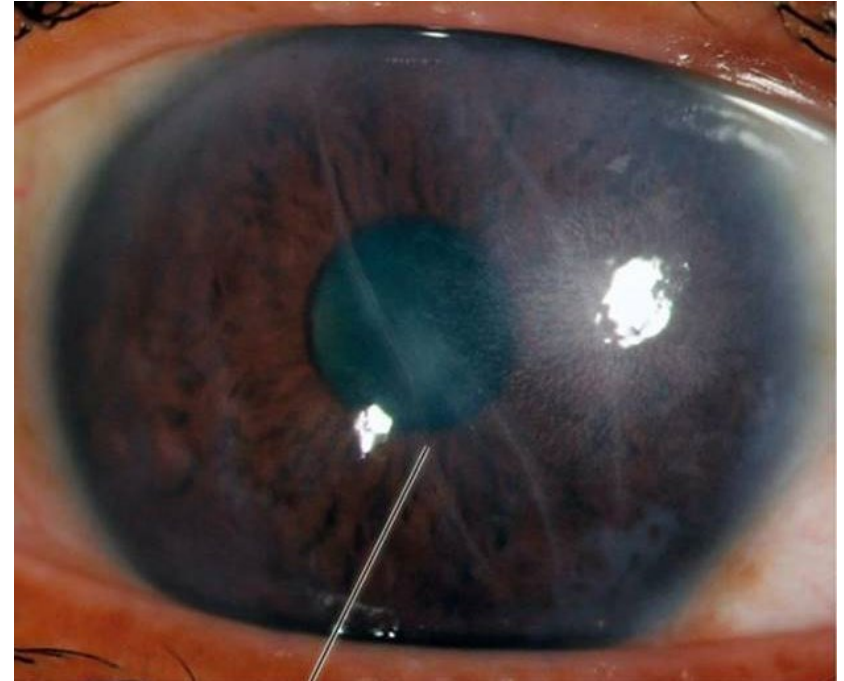
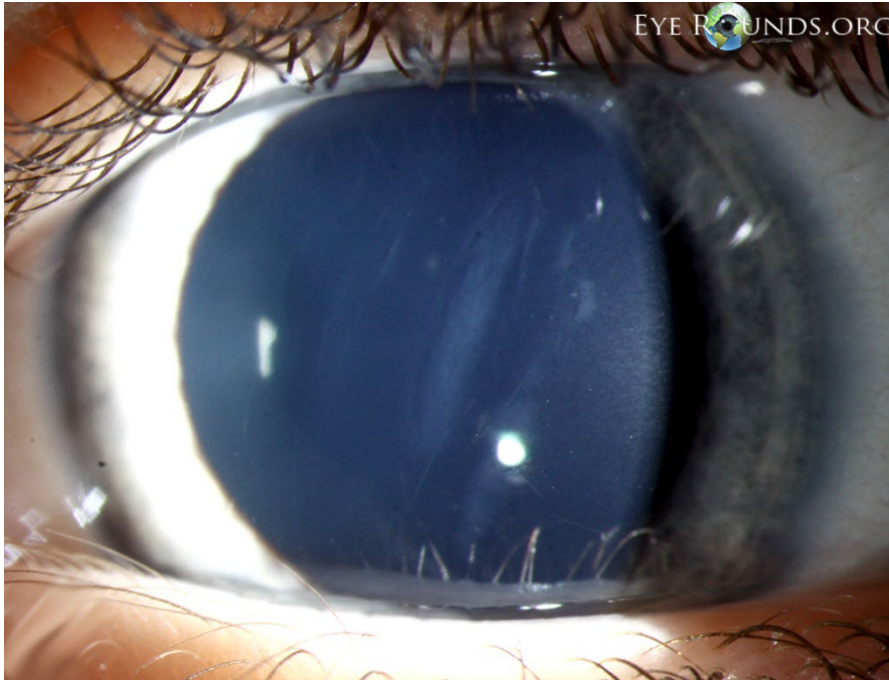
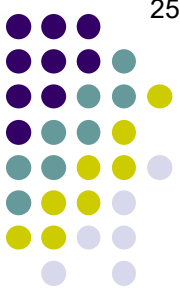
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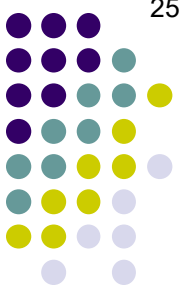
Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically

Vertical
agina

Amblyopia



Vertical Descemet's breaks after birth trauma



Q

Amblyopia

- Sclerocornea
- Trauma (endothelial; ie, from forceps)

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It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

- *At what point post-partum does the traumatized cornea become cloudy?*
Usually within a day or two

- *How does endothelial damage manifest itself?*
Breaks in Descemet's/endothelium, and thus hazy

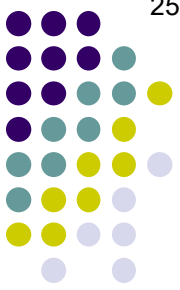
Relevant sidebar: Vertical lines in the posterior stroma are a common finding in keratoconus. What is the eponymous name for this?

- *Do these traumatic Descemet breaks tend to run vertically, or horizontally?*
Vertically

Vertical

A

Amblyopia



- Sclerocornea
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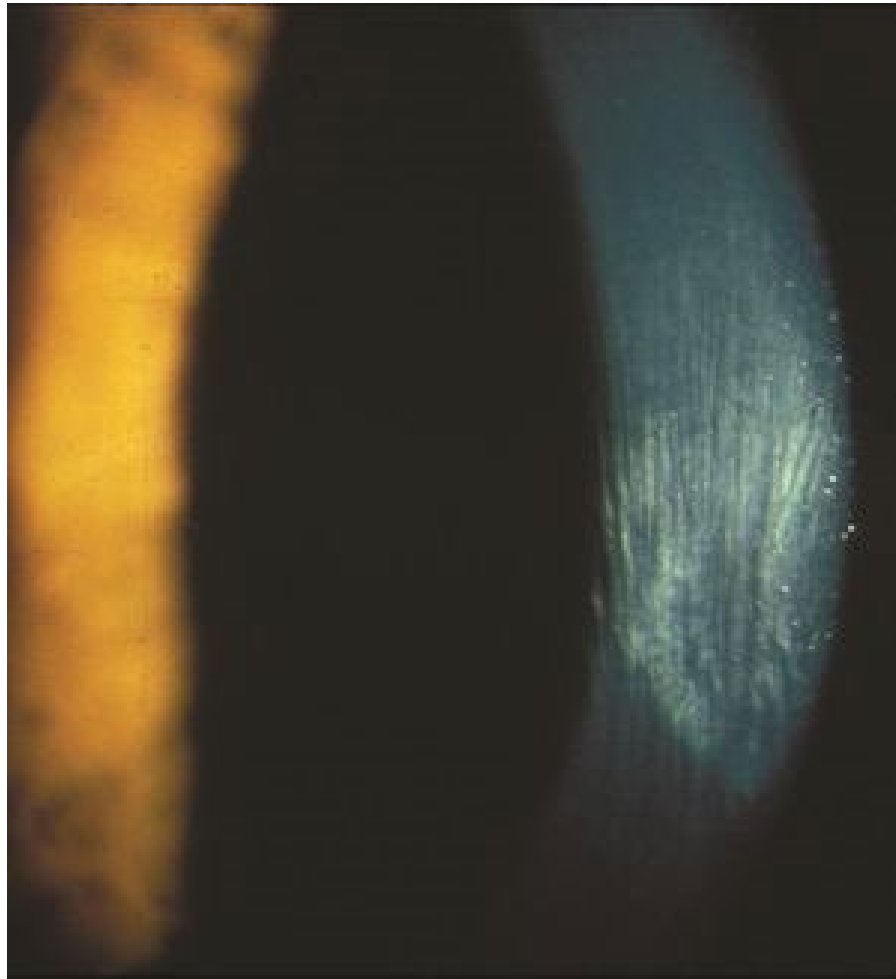
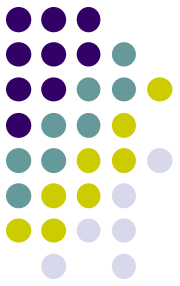
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- *How does endothelial damage manifest?*
Breaks in Descemet's/endothelium, and thus hazy
Relevant sidebar: Vertical lines in the posterior stroma are a common finding in keratoconus. What is the eponymous name for this?
Vogt striae

- *Do these traumatic Descemet breaks tend to run vertically, or horizontally?*
Vertically

Vertical
ogt

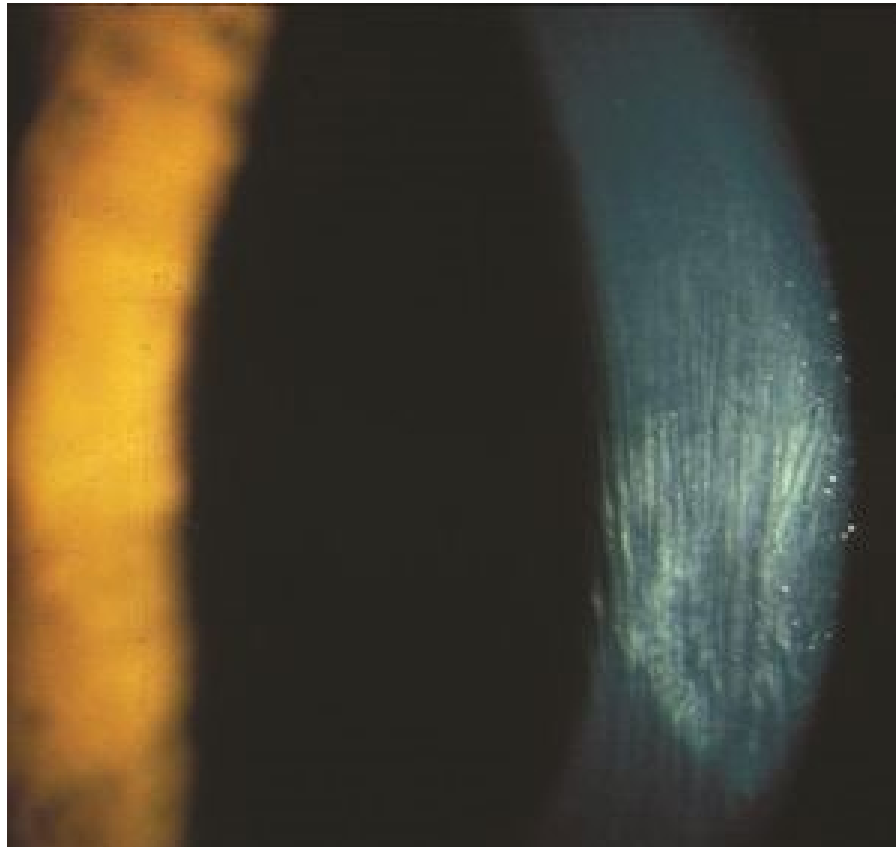
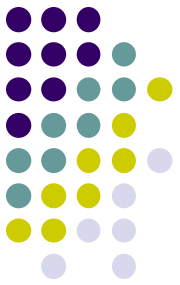
Amblyopia



Vogt striae (aka Vogt lines)

Q

Amblyopia

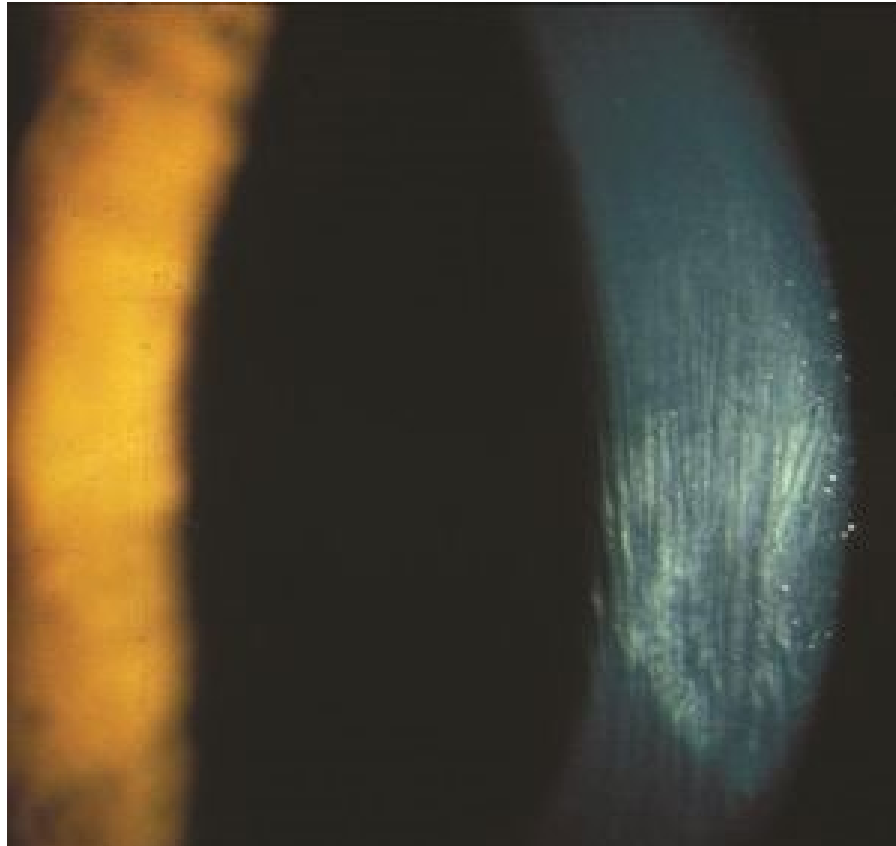
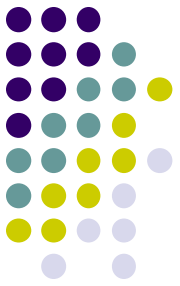


One characteristic of Vogt striae is that, with a simple maneuver, they can be made to disappear (temporarily). What is the maneuver?

Vogt striae (aka Vogt lines)

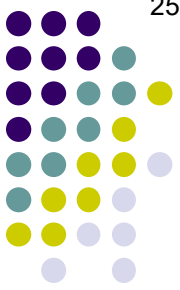
A

Amblyopia



One characteristic of Vogt striae is that, with a simple maneuver, they can be made to disappear (temporarily). What is the maneuver? Press gently upon the cornea

Vogt striae (aka Vogt lines)



Q

Amblyopia

- Sclerocornea
- Trauma (endothelial; ie, from forceps)

Does this sort of birth trauma tend to be unilateral, or bilateral?

It is almost always unilateral (would take seriously bad luck to injure both corneas simultaneously)

Another congenital condition is associated with Descemet's breaks—what is it?

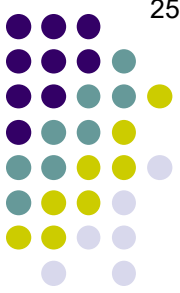
Myopia. Myopic cornea become cloudy?

How does endothelial damage lead to a cloudy cornea?

They allow the cornea to become edematous, and thus hazy

Breaks in Descemet's/endothelium

Do these traumatic Descemet breaks tend to run vertically, or horizontally?
Vertically



A

Amblyopia

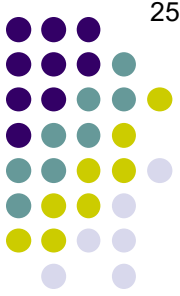
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Congenital glaucoma
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Edematous cornea become cloudy?

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Q

Amblyopia

- Sclerocornea

- Traumatic Descemet's breaks (from forceps)

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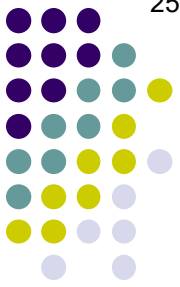
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Amblyopia

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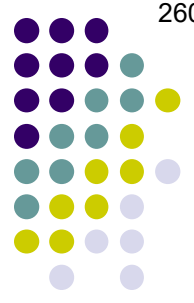
How does endothelial damage lead to a cloudy cornea?

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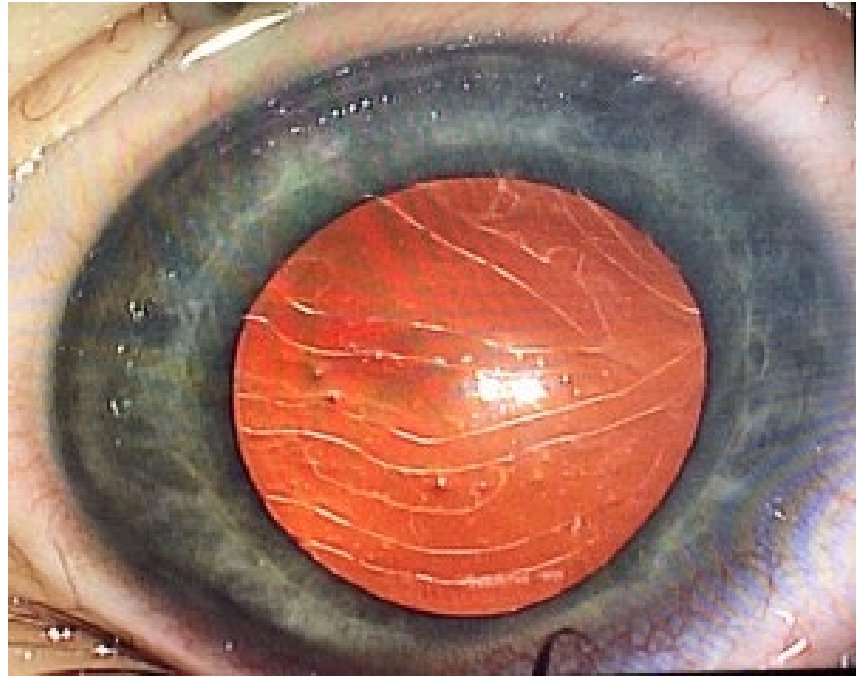
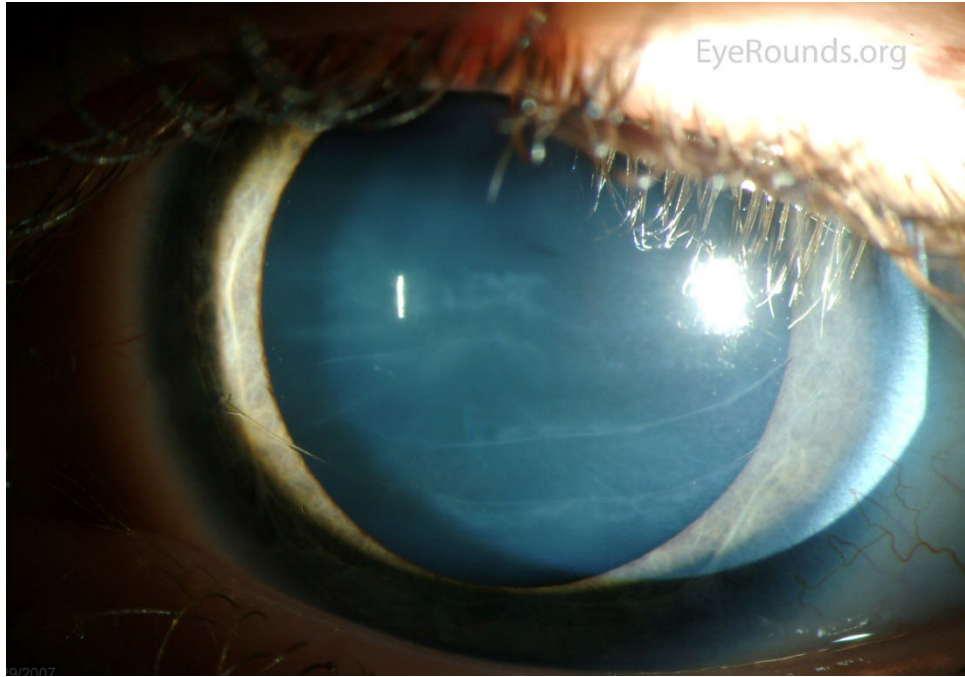
Breaks in Descemet's/endothelium

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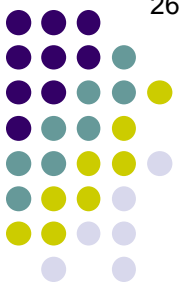
Vertically



Amblyopia



Horizontal Descemet's breaks in congenital glaucoma



Q

Amblyopia

What is the eponymous name for the Descemet's breaks associated with congenital glaucoma?

- Sclerocornea

- Traumatic Descemet's breaks (from forceps)

Do these traumatic Descemet breaks tend to run vertically, or horizontally?

Horizontally

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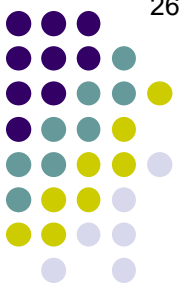
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Congenital glaucoma

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Do these traumatic Descemet breaks tend to run vertically, or horizontally?
 Vertically



A

Amblyopia

What is the eponymous name for the Descemet's breaks associated with congenital glaucoma?
Haab's striae

Horizontal
High IOP
aab

from forceps)

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Horizontally

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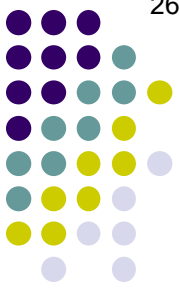
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Q

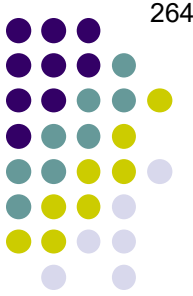
Amblyopia

- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- **Metabolic disorders**

The Peds book mentions one specific class of metabolic disorder—what is it?

A

Amblyopia



- Sclerocornea
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The Peds book mentions one specific class of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)



- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- **Metabolic disorders**

*The Peds book mentions one specific class of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)*

In a nutshell, what is a mucopolysaccharidosis?

A

Amblyopia

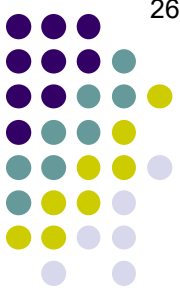


- Sclerocornea
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- Ulcer
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The Peds book mentions one specific class of metabolic disorder—what is it?
Mucopolysaccharidosis (MPS)

In a nutshell, what is a mucopolysaccharidosis?

An inherited condition in which mucopolysaccharides cannot be metabolized, and subsequently accumulate to toxic levels



Q

Amblyopia

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- Trauma (endothelial; ie, from forceps)
- Ulcer
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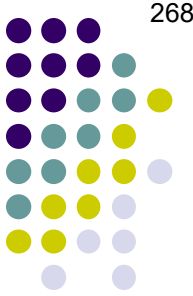
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The Peds book mentions three MPSs by (eponymous) name—which ones?

A

Amblyopia



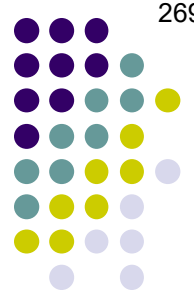
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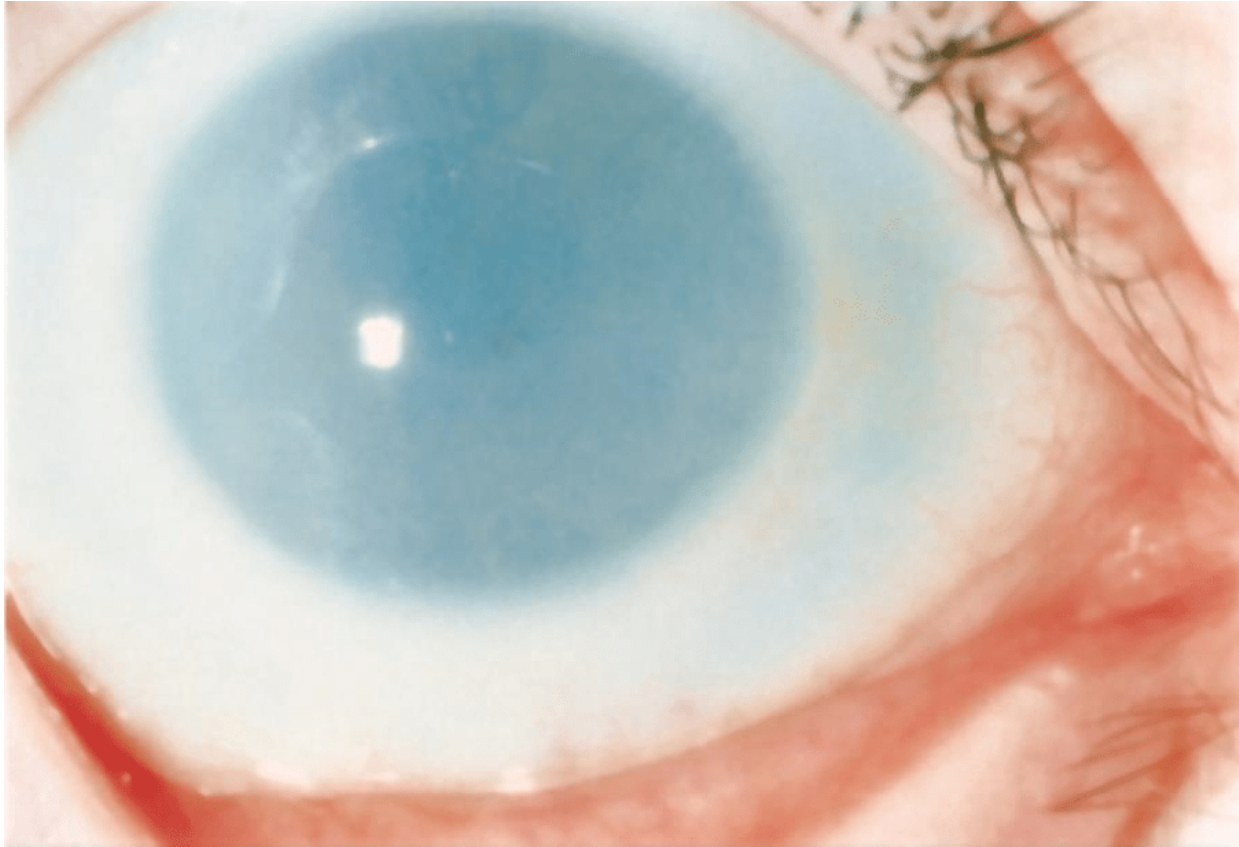
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Hurler, Scheie, and Morquio syndromes



Amblyopia



MPS (Hurler syndrome)

**Q**

Amblyopia

In three words, what sort of condition is Peters anomaly?

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an

three words

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

A

Amblyopia



In three words, what sort of condition is Peters anomaly?
It is a classic exemplar of an anterior segment dysgenesis

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- Dermoid of the cornea

**Q**

Amblyopia

In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an anterior segment dysgenesis

How does it present?

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

A

Amblyopia



In three words, what sort of condition is Peters anomaly?

It is a classic exemplar of an anterior segment dysgenesis

How does it present?

As a corneal opacity at birth (duh, it's in the STUMPED mnemonic). The opacity ranges in severity from a faint haze to an opaque, elevated and vascularized mess.

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea



Q

Amblyopia

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What specific abnormalities are commonly present?

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A

Amblyopia

In three words, what sort of condition is Peters anomaly?

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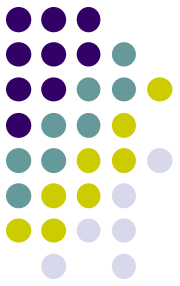
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What specific abnormalities are commonly present?

There is a defect in the posterior central cornea, including the absence of Descemet's and subjacent endothelium. Adhesions extending from the iris to the posterior corneal defect are often present.

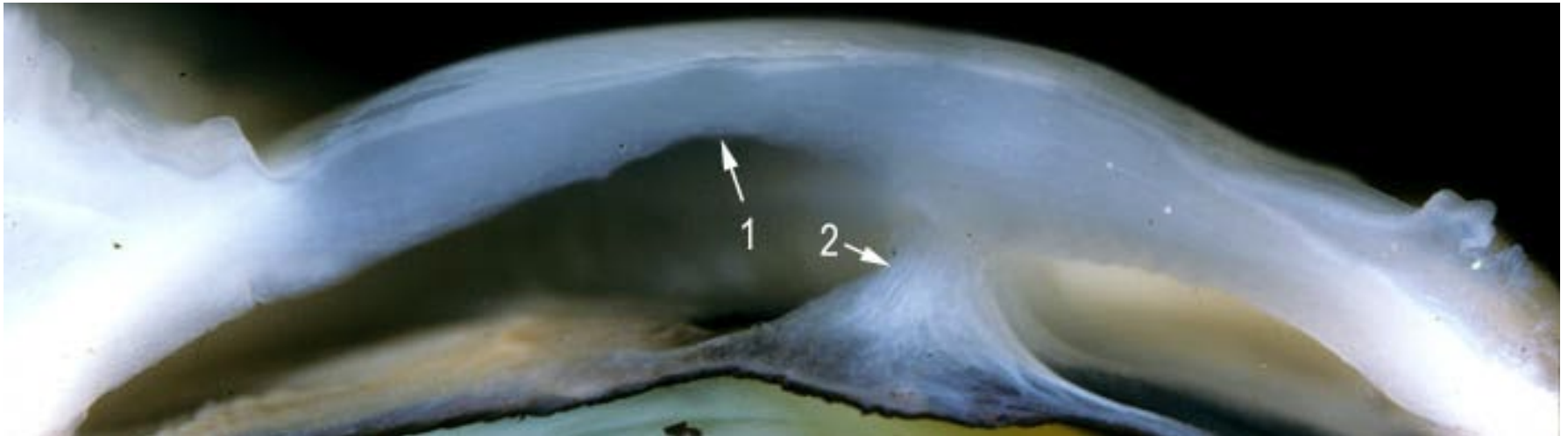
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- Endothelial dystrophy (CHED)
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Amblyopia



1. Defect of the posterior central cornea, including the absence of Descemet's and subjacent endothelium

2. Adhesions extending from the iris to the posterior corneal defect



Peters anomaly

A

Amblyopia

In three words, what sort of condition is Peters anomaly?

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How does it present?

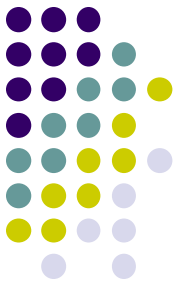
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What specific abnormalities are commonly present?

There is a defect in the posterior central cornea, including the absence of Descemet's and subjacent endothelium. Adhesions extending from the iris to the posterior corneal defect are often present. The lens may be small, cataractous and misshapen, and may be adherent to the defect in the posterior cornea.

- **Peters anomaly**
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

Amblyopia



Peters anomaly: Small, cataractous, misshapen lens



Q

Amblyopia

With what condition are corneal dermoids strongly associated?

- Sclerocornea
- Trauma
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- **Dermoid of the cornea**



A

Amblyopia

With what condition are corneal dermoids strongly associated?
Goldenhar syndrome

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Q

Amblyopia

*With what condition are corneal dermoids strongly associated?
Goldenhar syndrome*

Briefly, what is Goldenhar syndrome?

- Sclerocornea
- Trauma
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- **Dermoid of the cornea**



Q/A

Amblyopia

With what condition are corneal dermoids strongly associated?

Goldenhar syndrome

Briefly, what is Goldenhar syndrome?

A congenital condition characterized by along with various

- Sclerod , , and ophthalmic manifestations (including corneal dermoids, obv)
- Trauma
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- **Dermoid of the cornea**



A

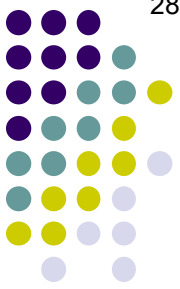
Amblyopia

With what condition are corneal dermoids strongly associated?
Goldenhar syndrome

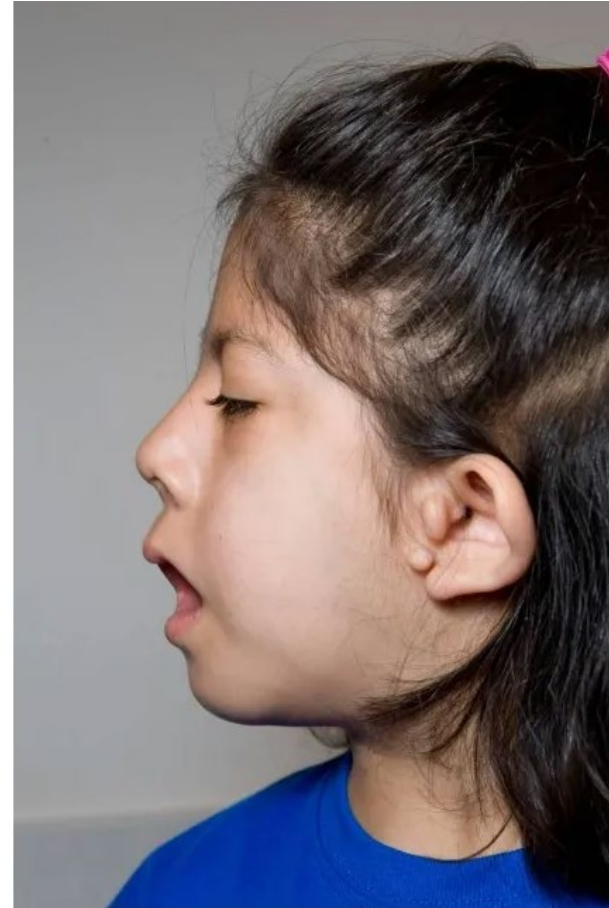
Briefly, what is Goldenhar syndrome?

A congenital condition characterized by hemifacial microsomia along with various ear, vertebral, and ophthalmic manifestations (including corneal dermoids, obv)

- Sclerocornea
- Trauma
- Ulcer
- Metabolic disorders
- Peters anomaly
- Endothelial dystrophy (CHED)
- **Dermoid of the cornea**



Amblyopia



Goldenhar syndrome: Hemifacial microsomia; ear abnormalities



Q

Amblyopia

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- Sclerocornea
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A

Amblyopia

With what condition are corneal dermoids strongly associated?

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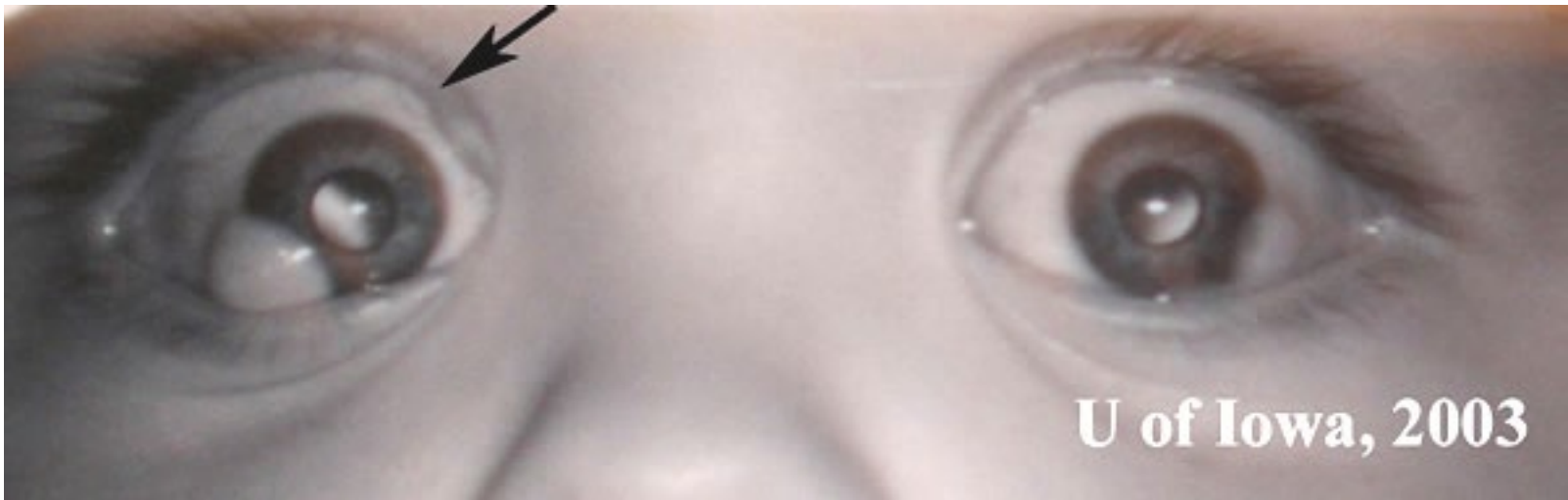
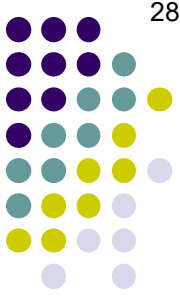
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At the limbus (they are often called *limbal dermoids*)

- Sclerocornea
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- **Dermoid of the cornea**

Amblyopia



Goldenhar syndrome: Limbal (epibulbar) dermoids OU

Q

Amblyopia



Goldenhar syndrome: Limbal (epibulbar) dermoids OU.
The arrow is pointing out a , another common manifestation of the condition.

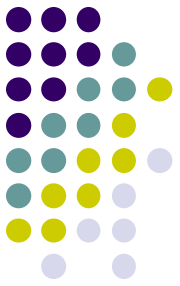
A

Amblyopia

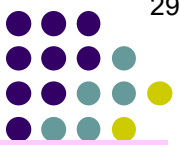


Goldenhar syndrome: Limbal (epibulbar) dermoids OU.
The arrow is pointing out a lid coloboma , another common manifestation of the condition.

Amblyopia



Goldenhar syndrome: Limbal dermoid threatening the visual axis



Q

Amblyopia

With what condition are corneal dermoids strongly associated?
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Briefly, what is Goldenhar syndrome?

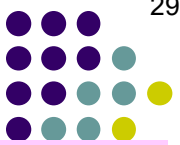
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- Trauma
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- Metabolic disorders
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A

Amblyopia

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A craniofacial malformation

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Q

Amblyopia

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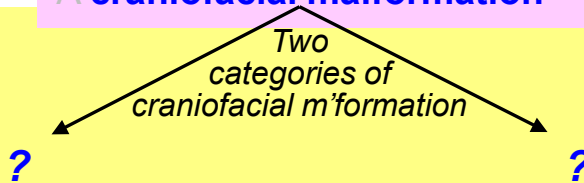
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A **craniofacial malformation**



What are the two categories of craniofacial malformation?

- Scleroc

- Trauma

- Ulcer

- M

- P

- E

- **Dermoid of the cornea**



A

Amblyopia

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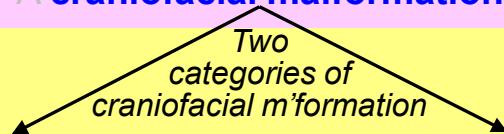
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Craniosynostoses

Not craniosynostoses

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- Sclerocornea

- Trauma

- Ulcer

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- **Dermoid of the cornea**



Q

Amblyopia

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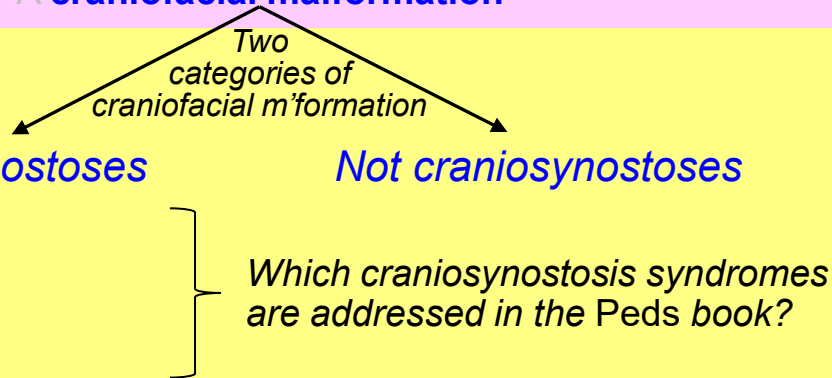
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- Scleroc

- Trauma

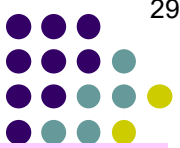
- Ulcer

- M

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A

Amblyopia

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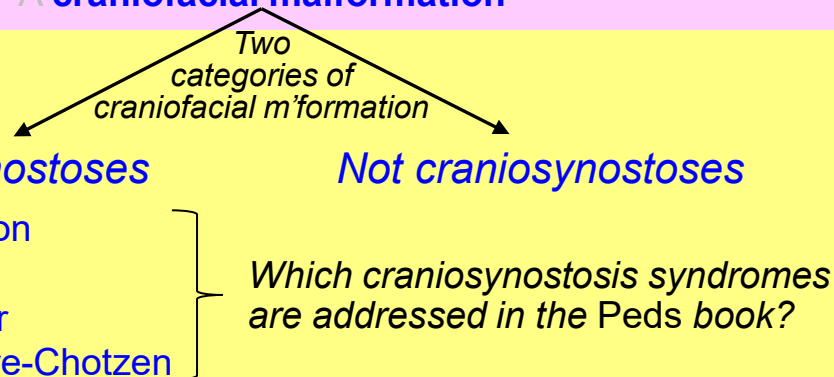
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- Scleroc

- Trauma

- Ulcer

- M

- P

- E

- **Dermoid of the cornea**



Amblyopia



Crouzon syndrome



Apert syndrome

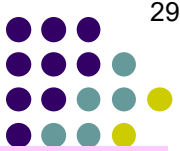


Pfeiffer syndrome



Saethre-Chotzen syndrome

Craniosynostotic craniofacial malformations



Q

Amblyopia

With what condition are corneal dermoids strongly associated?
Goldenhar syndrome

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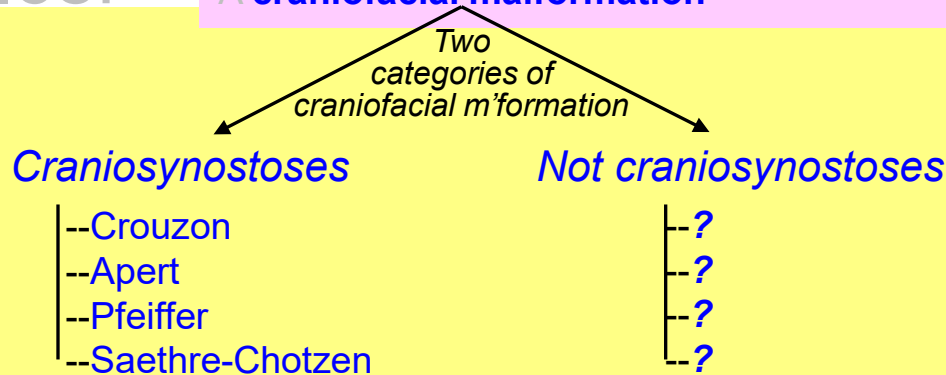
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Which nonsynostotic conditions are addressed in the Peds book?

- Scleroc

- Trauma

- Ulcer

- M

- P

- E

- **Dermoid of the cornea**

A

Amblyopia

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Briefly, what is Goldenhar syndrome?

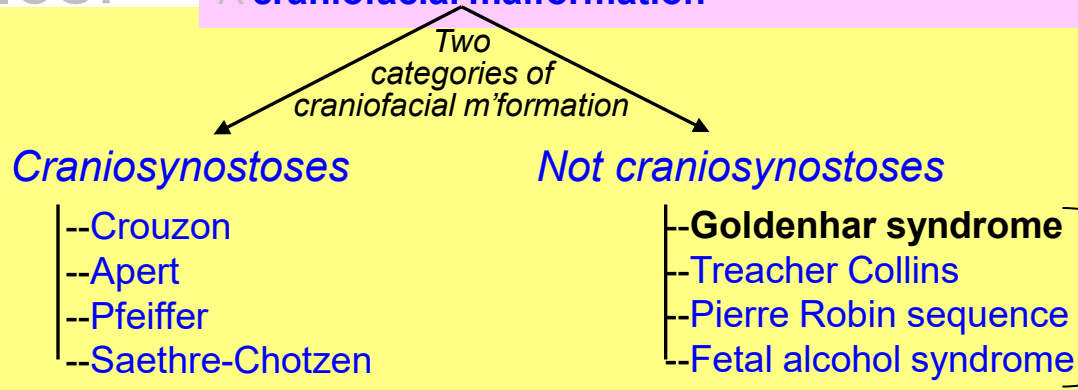
A congenital condition characterized by hemifacial microsomia along with various ear, vertebral, and ophthalmic manifestations (including corneal dermoids, obv)

In Goldenhar, where on the cornea are dermoids typically located?

At the limbus (they are often called *limbal dermoids*)

In two words, what sort of condition is Goldenhar?

A **craniofacial malformation**



Which nonsynostotic conditions are addressed in the Peds book?

- Scleroc
- Trauma
- Ulcer
- M
- P
- E
- **Dermoid of the cornea**

Amblyopia



Goldenhar syndrome



Treacher-Collins
syndrome



Pierre-Robin sequence

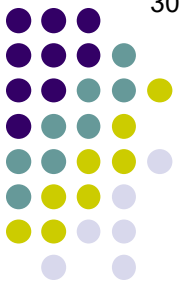
Nonsynostotic craniofacial malformations



Fetal alcohol
syndrome

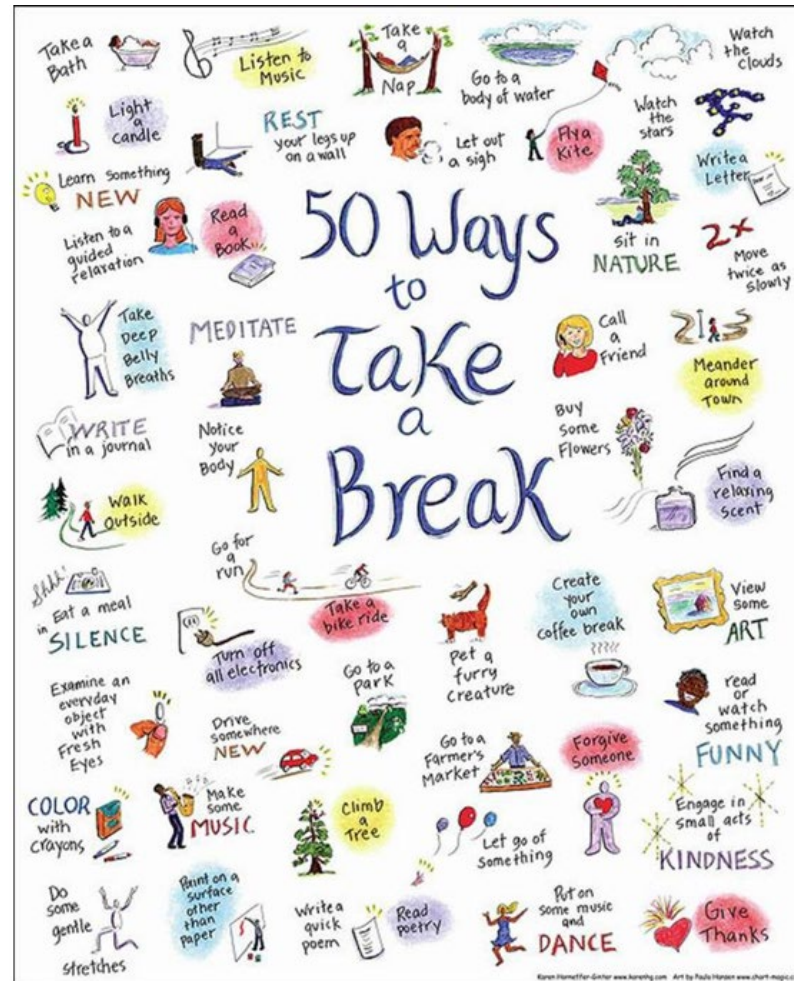
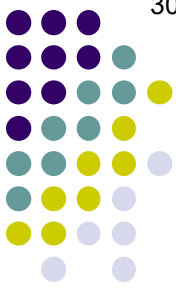


Amblyopia



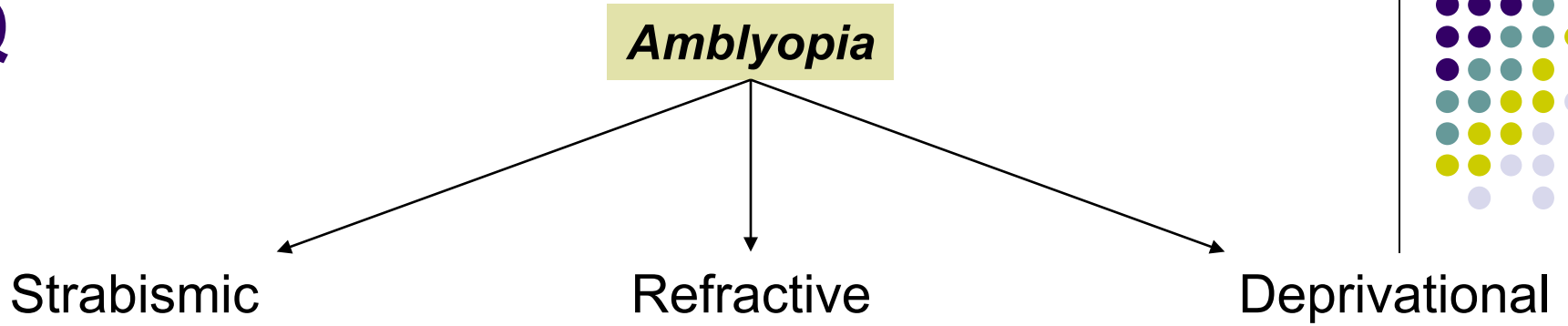
- Sclerocornea
- Trauma (endothelial; ie, from forceps)
- Ulcer
- M
- Peters anomaly
- Endothelial dystrophy (CHED)
- Dermoid of the cornea

*For more on the conditions in the
STUMPED mnemonic, see slide-set K9**



(This is a good point in the set to take a break)

Q



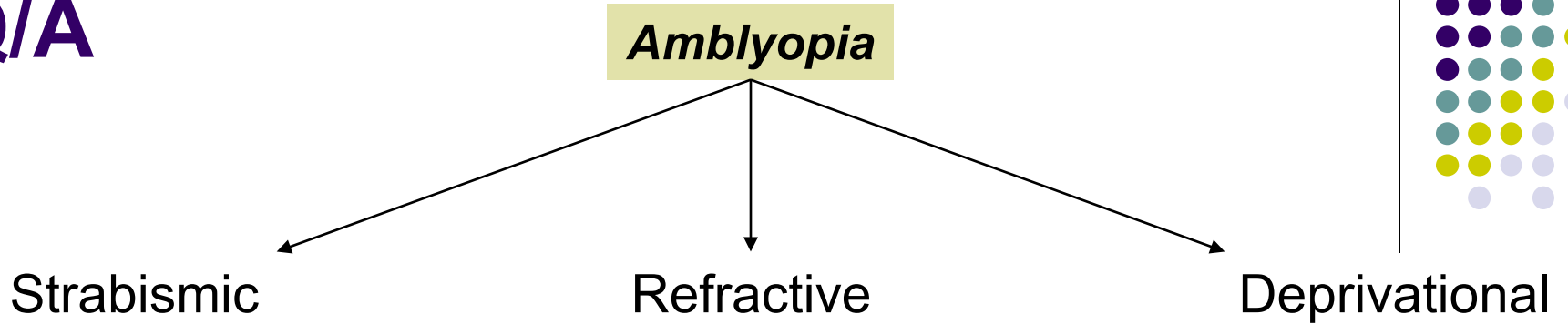
*Screening for amblyopia involves performing one or more of several exam maneuvers—
which ones?*

--?

--?

--?

Q/A



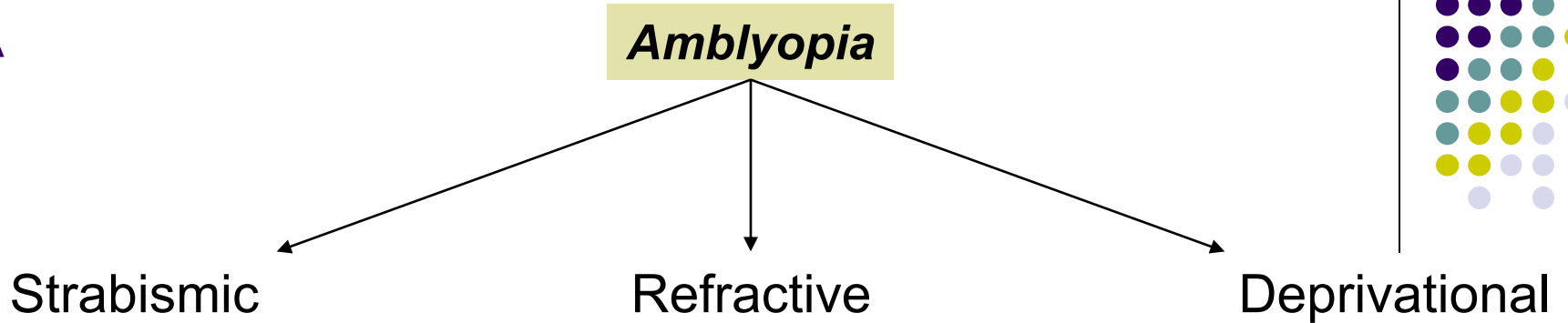
Screening for amblyopia involves performing one or more of several exam maneuvers— which ones?

--Checking abb.

--Assessing for

-- eponym testing

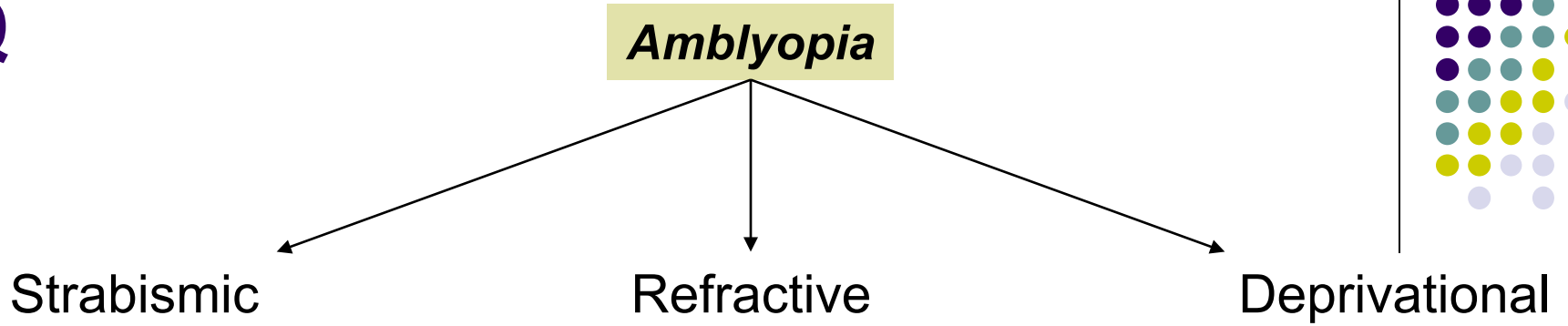
A



*Screening for amblyopia involves performing one or more of several exam maneuvers—
which ones?*

- Checking BCVA
- Assessing for strabismus
- Brückner testing

Q



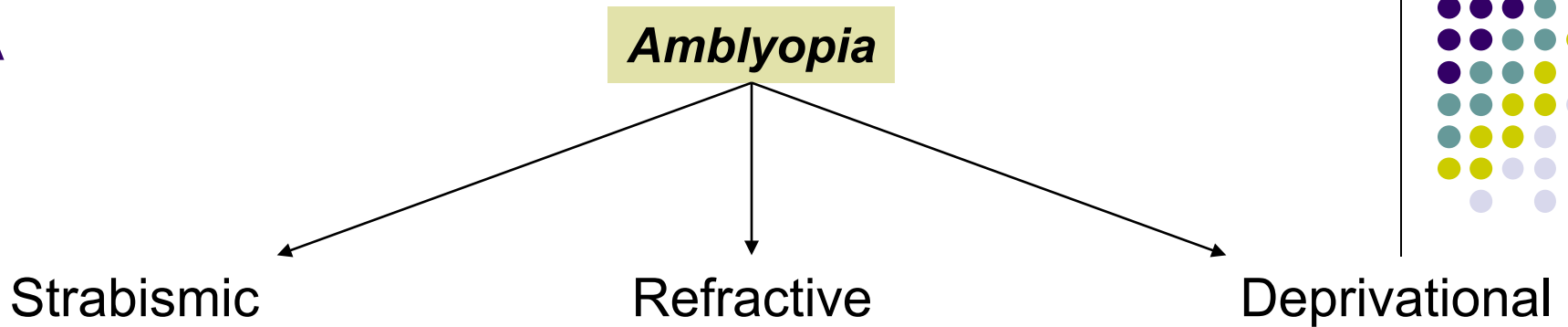
Screening for amblyopia involves performing one or more of several exam maneuvers— which ones?

--Checking BCVA

--Assessing for strabismus via three words **assessment and/or** two words

--Brückner testing

A



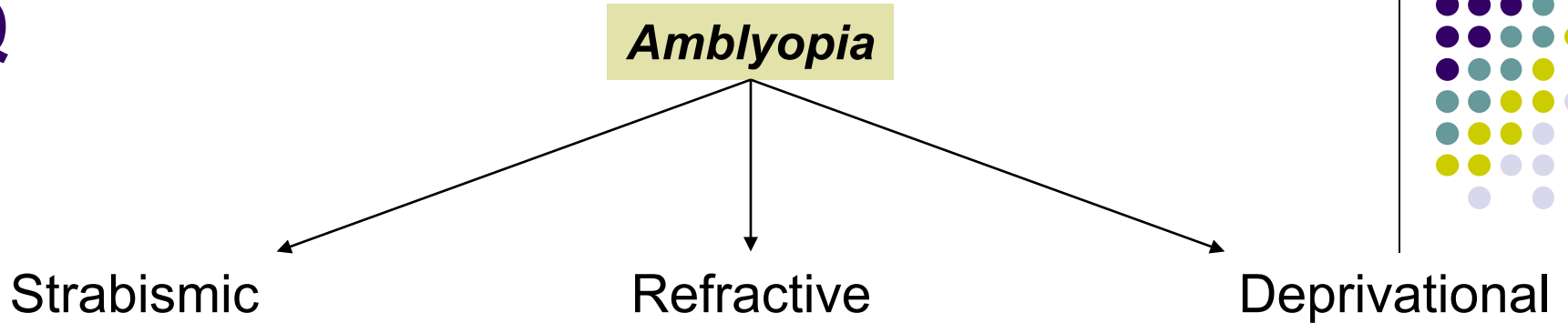
*Screening for amblyopia involves performing one or more of several exam maneuvers—
which ones?*

--Checking BCVA

--Assessing for strabismus **via corneal light reflex assessment and/or cover testing**

--Brückner testing

Q



Screening for amblyopia involves performing one or more of several exam maneuvers— which ones?

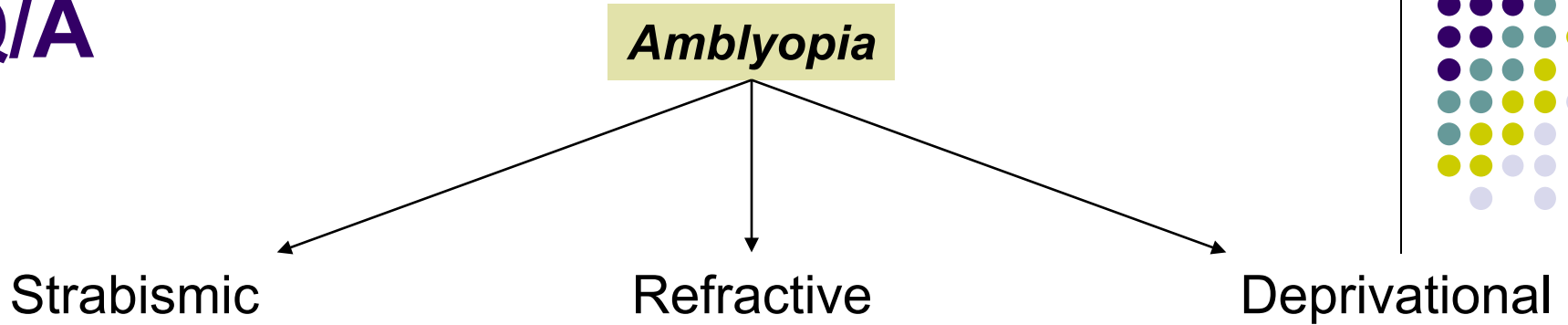
--Checking BCVA

--Assessing for strabismus via corneal light reflex assessment and/or cover testing

--**Brückner testing**

In a nutshell, how does the Brückner test work?

Q/A



Screening for amblyopia involves performing one or more of several exam maneuvers— which ones?

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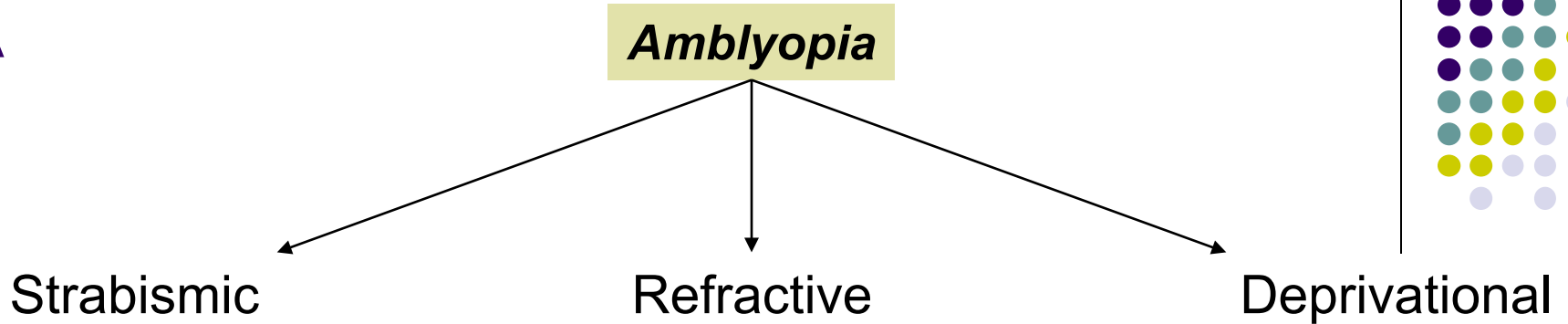
--Assessing for strabismus via corneal light reflex assessment and/or cover testing

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In a nutshell, how does the Brückner test work?

It uses the relative brightness of the **two words** of the two eyes (evaluated simultaneously)

A



Screening for amblyopia involves performing one or more of several exam maneuvers— which ones?

--Checking BCVA

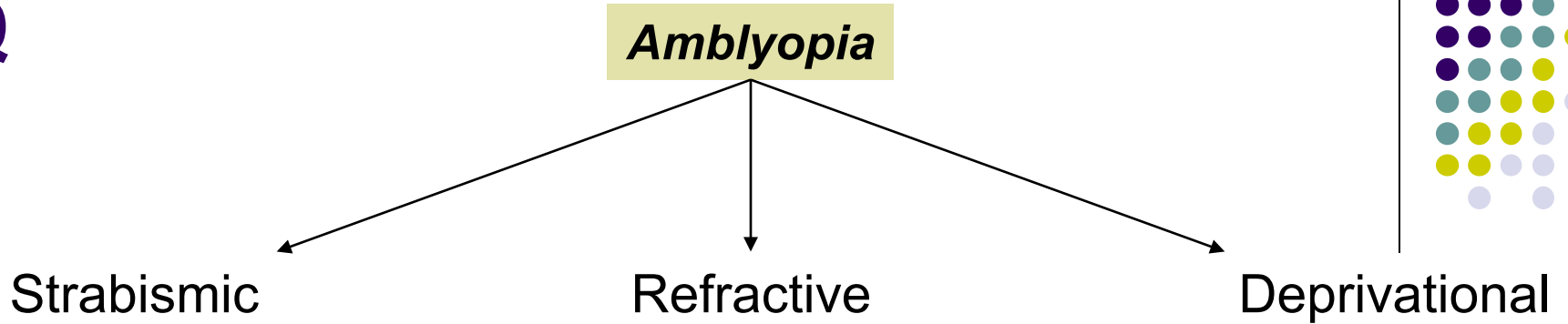
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In a nutshell, how does the Brückner test work?

It uses the relative brightness of the red reflexes of the two eyes (evaluated simultaneously)

Q



Screening for amblyopia involves performing one or more of several exam maneuvers— which ones?

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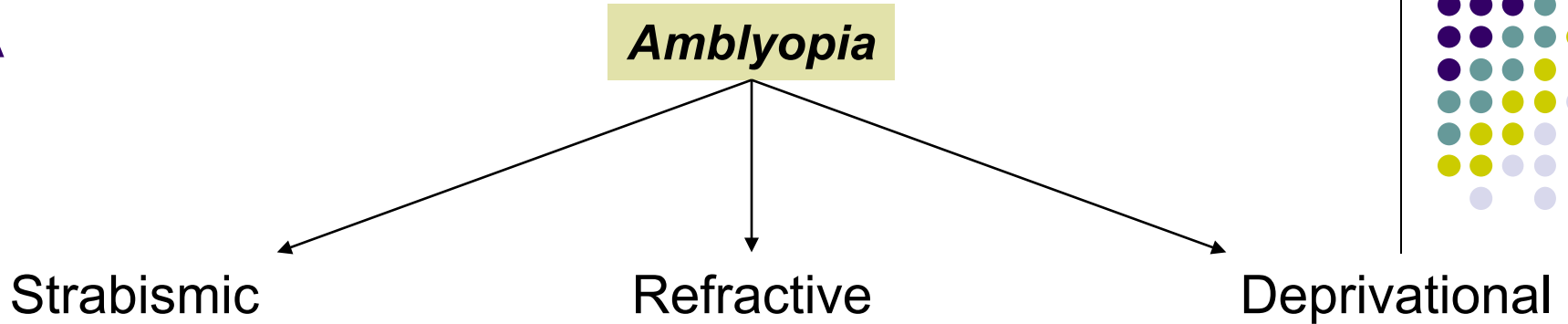
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In a nutshell, how does the Brückner test work?

It uses the relative brightness of the red reflexes of the two eyes (evaluated simultaneously) to reveal the presence of [condition (two words)], [condition], and significant [condition (two words)] (both [] and high [])

A



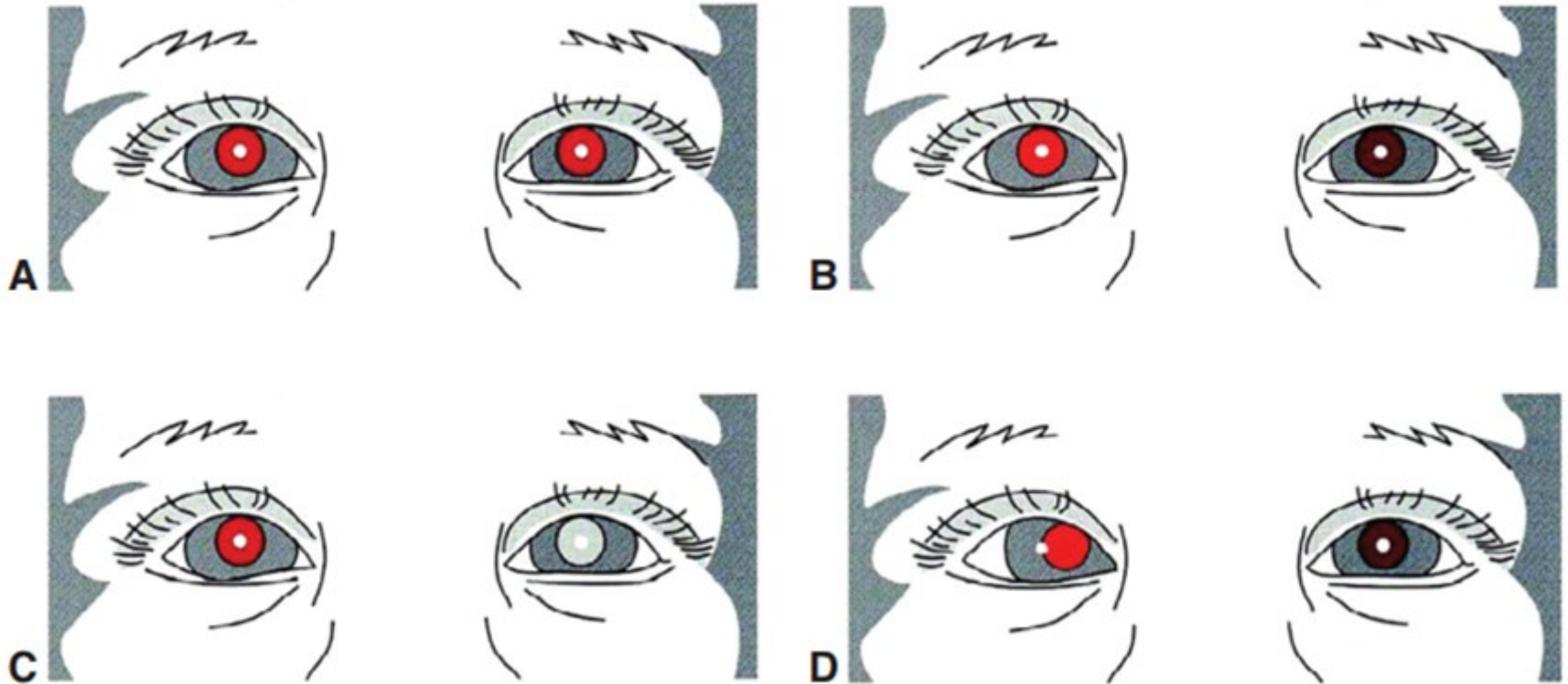
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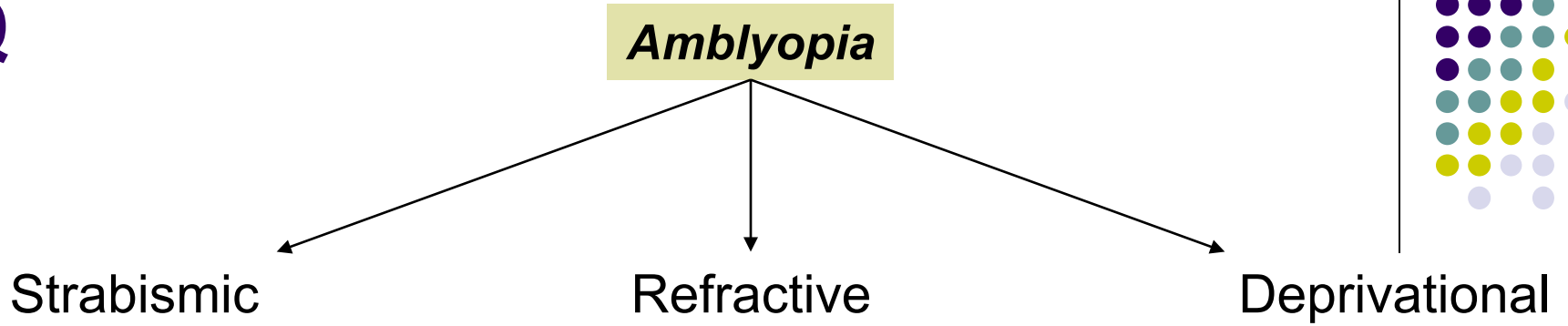
It uses the relative brightness of the red reflexes of the two eyes (evaluated simultaneously) to reveal the presence of media opacities, strabismus, and significant refractive error (both anisometropia and high isoametropia)

Amblyopia



Bruckner test. *A*, Symmetric red reflex. *B*, Asymmetric red reflex due to anisometropia. *C*, Asymmetric red reflex (absent OS due to cataract). *D*, Asymmetric red reflex (brighter in the deviated eye to due strabismus).

Q

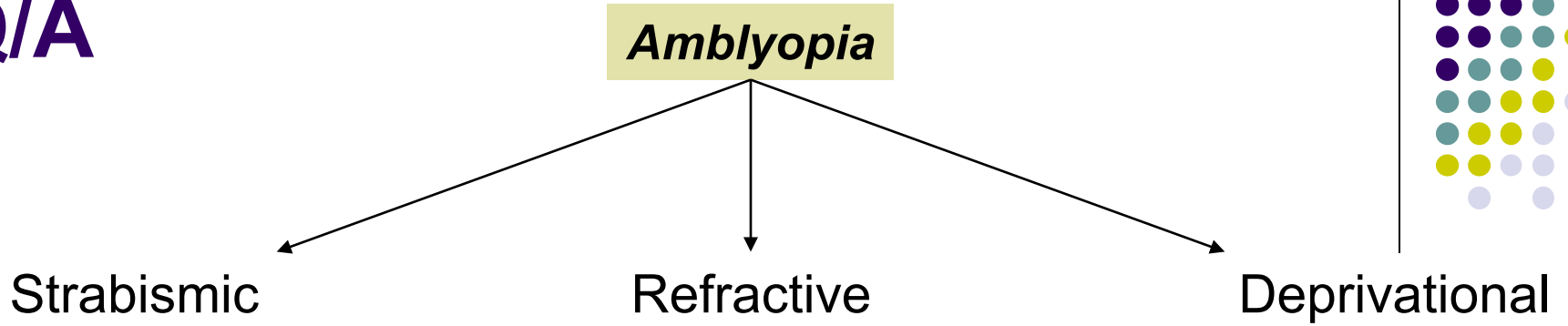


Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) ?
- 2) ?
- 3) ?

Q/A

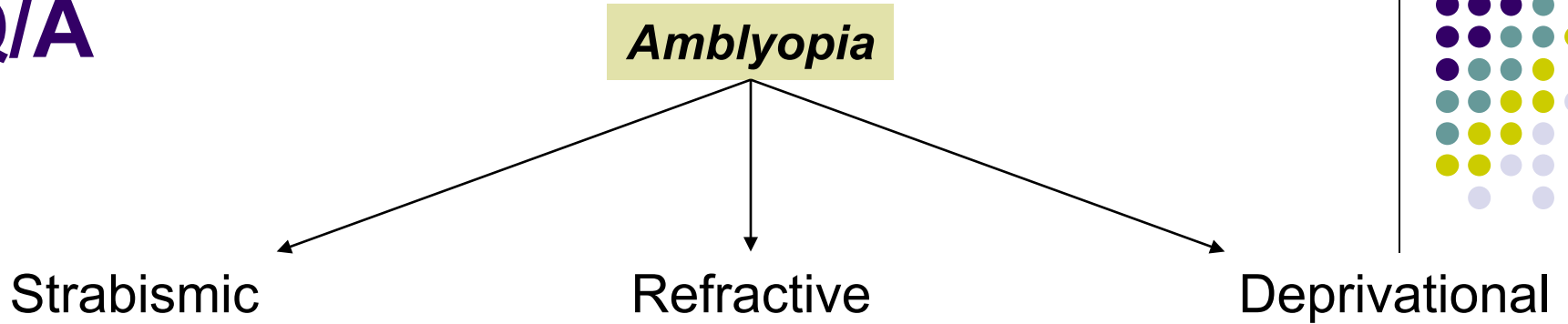


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In order:

- 1) Clear the visual axis if occluded
- 2) ?
- 3) ?

Q/A

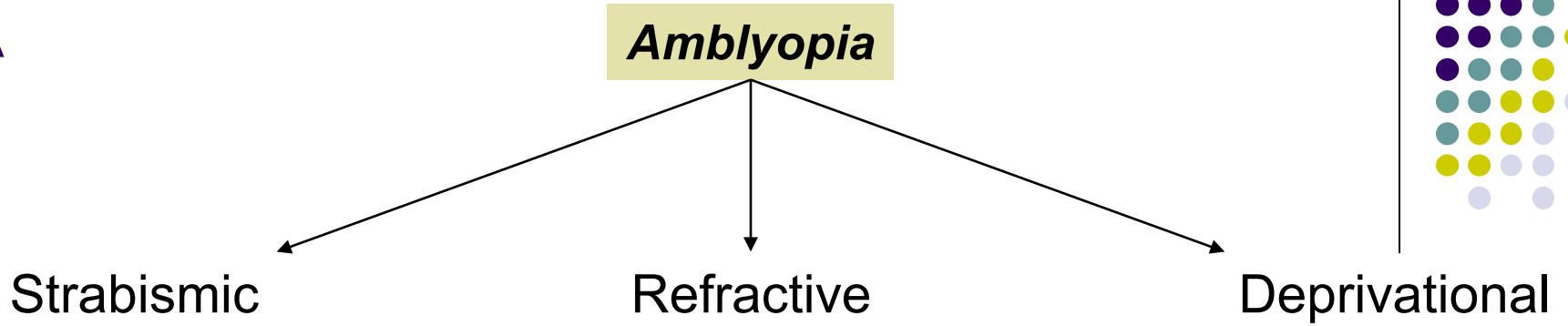


Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) Clear the visual axis if occluded
- 2) Correct any significant refractive error present
- 3) ?

A

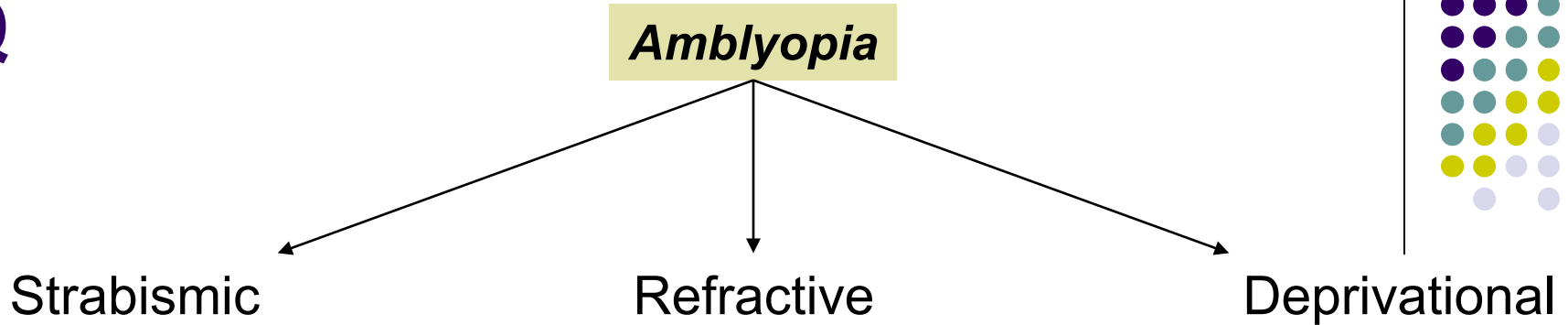


Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) Clear the visual axis if occluded
- 2) Correct any significant refractive error present
- 3) Encourage (ie, force; require) the child to use the amblyopic eye

Q



Treatment of amblyopia involves three general steps—what are they?

In order:

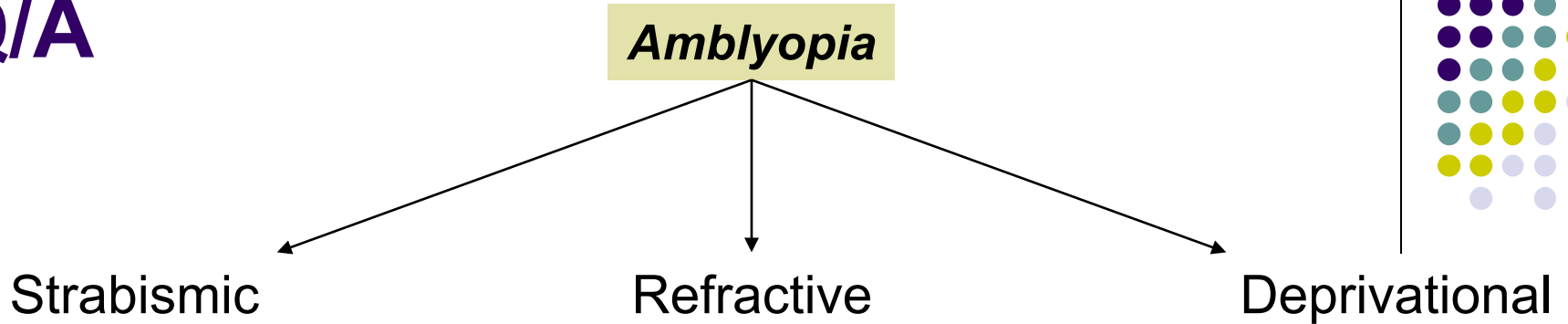
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What are the two hoped-for therapeutic endpoints when treating unilateral amblyopia?

--?

--?

Q/A



Treatment of amblyopia involves three general steps—what are they?

In order:

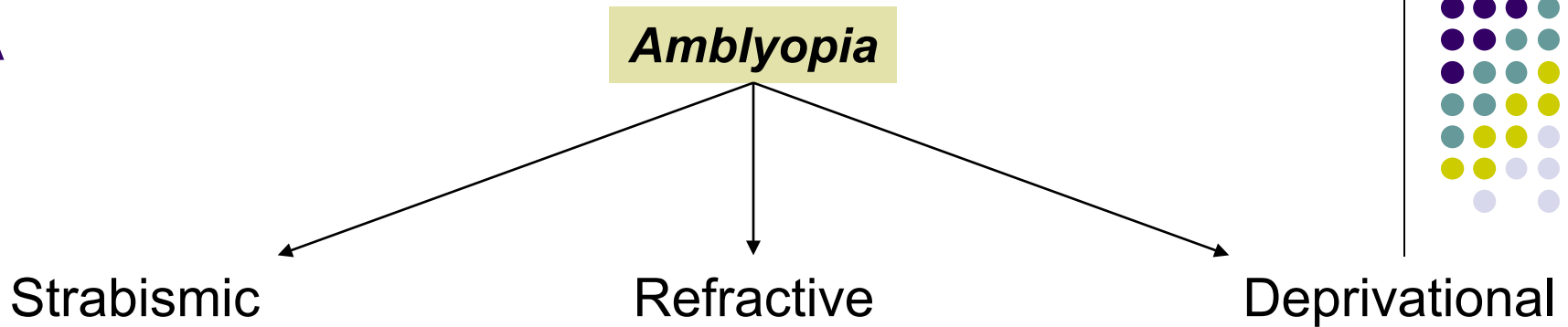
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--No , ie, free

--?

A



Treatment of amblyopia involves three general steps—what are they?

In order:

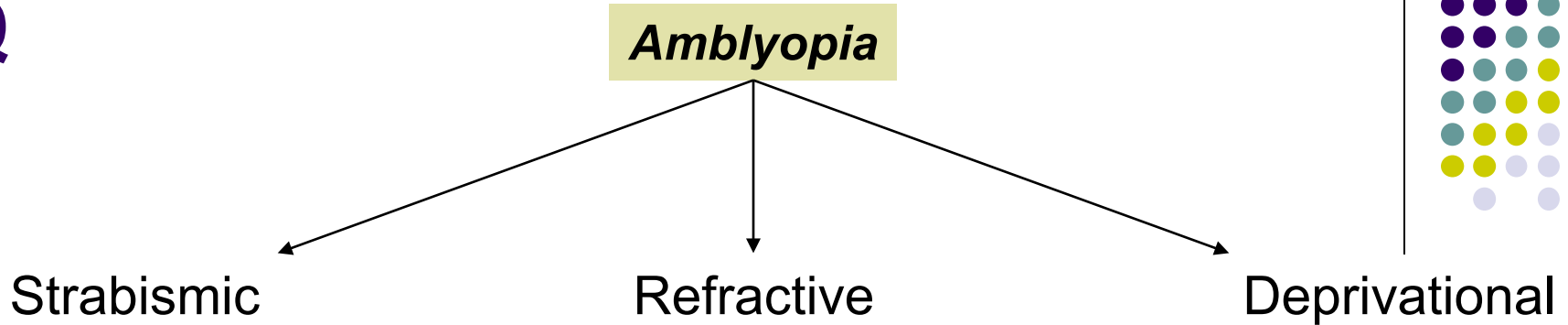
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--No gaze preference , ie, free alternation of fixation

--?

Q



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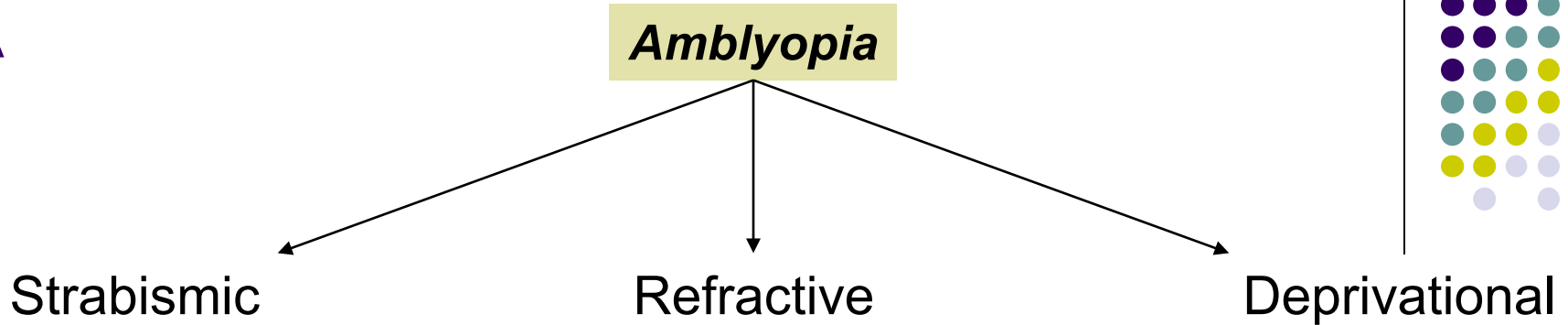
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What are the two hoped-for therapeutic endpoints when treating unilateral amblyopia?

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- BCVA in the amblyopic eye no more than # Snellen line worse than that of the sound eye

A



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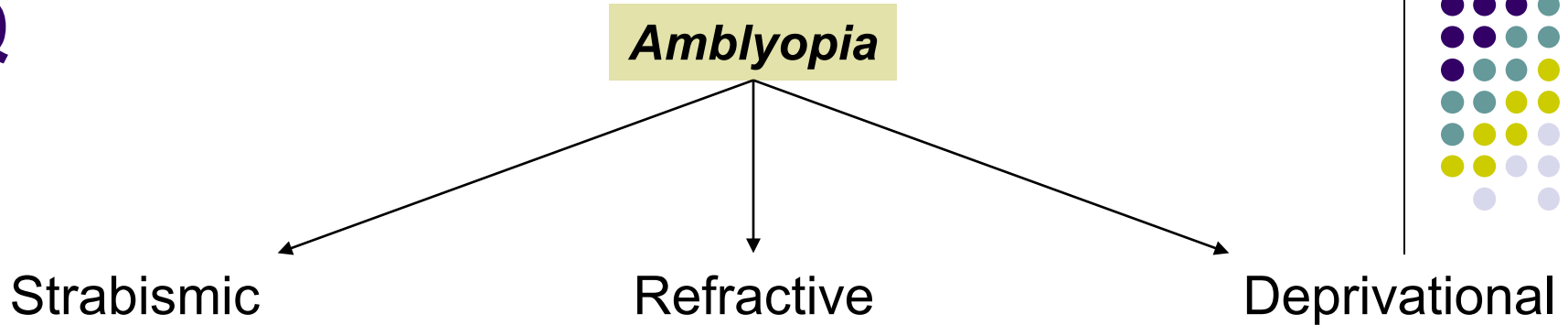
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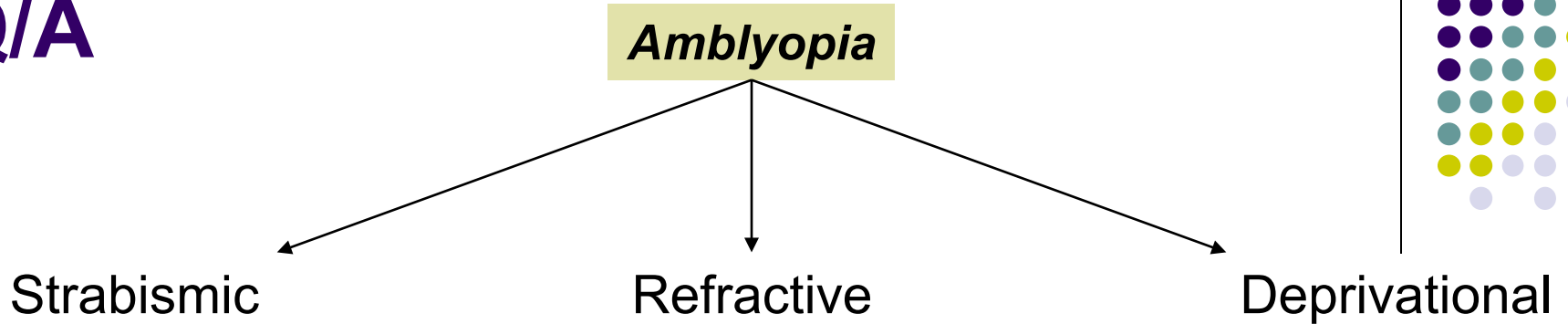
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How long does it take to get there?

Q/A



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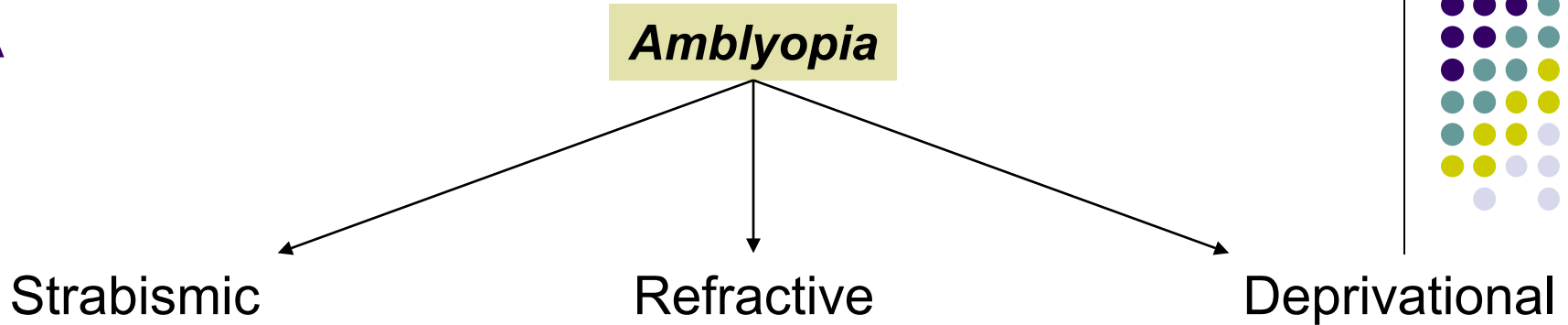
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That depends upon two factors: The of the amblyopia (more = longer tx)

A



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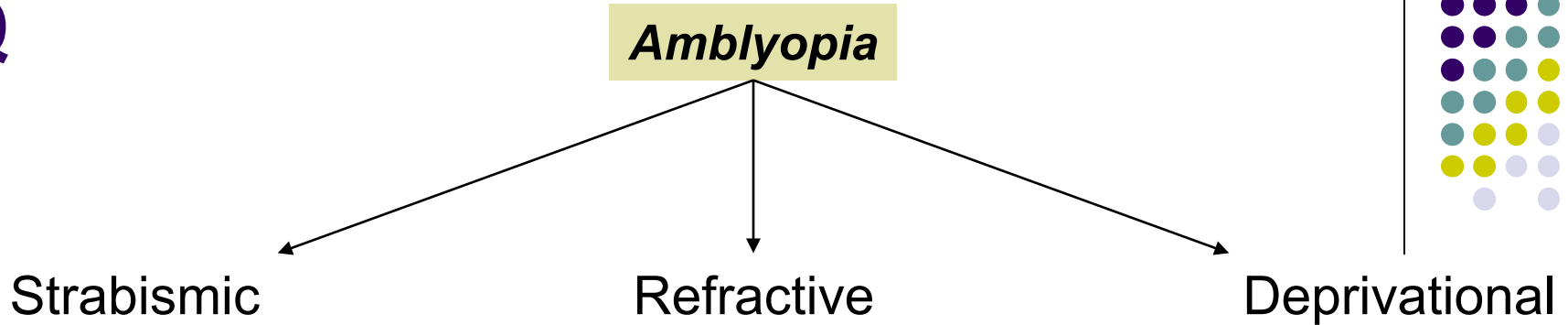
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Q



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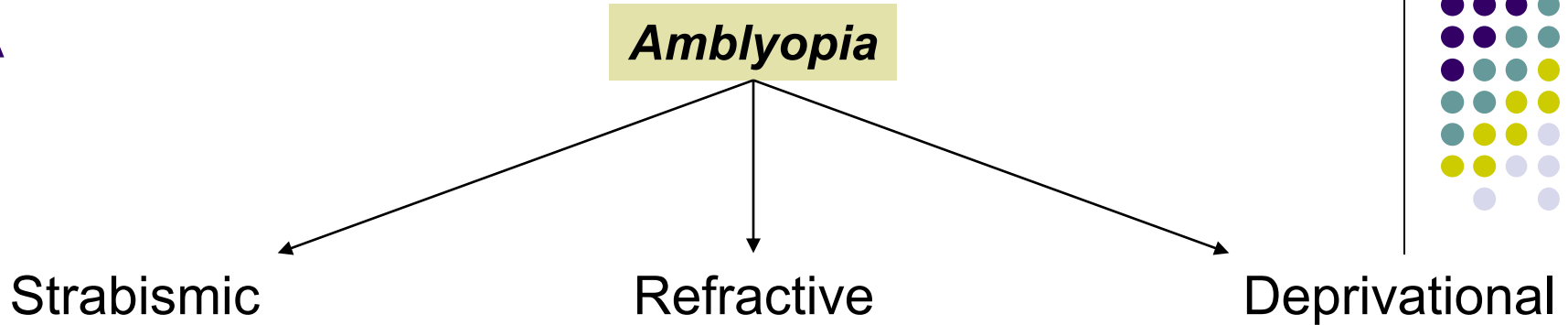
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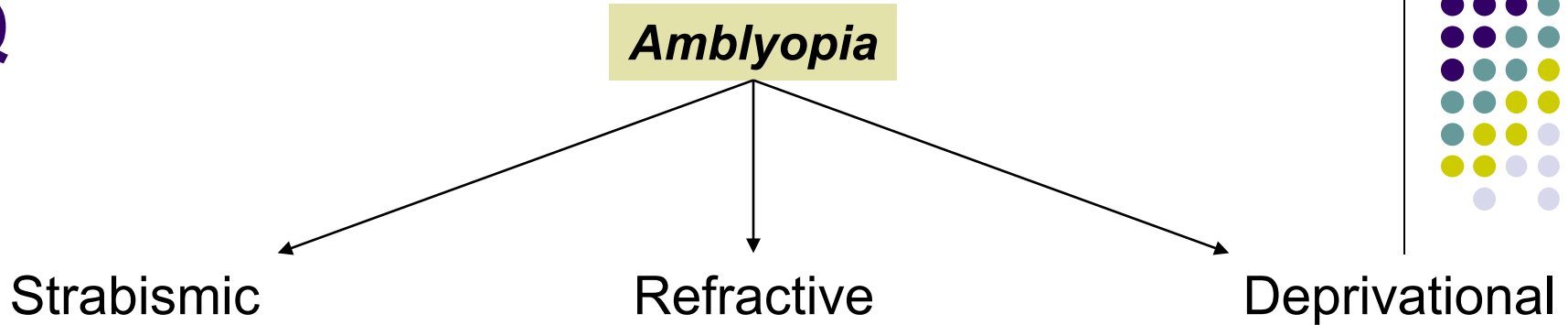
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Q



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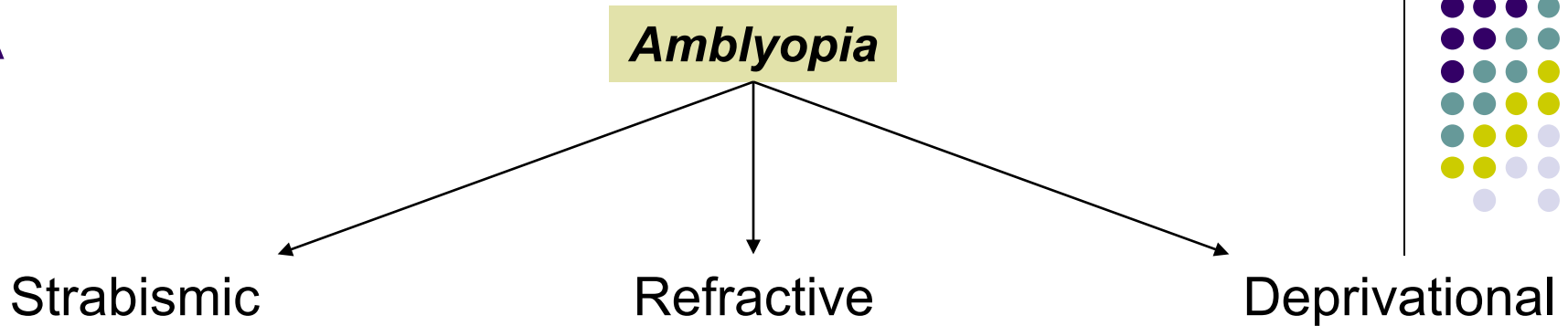
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A



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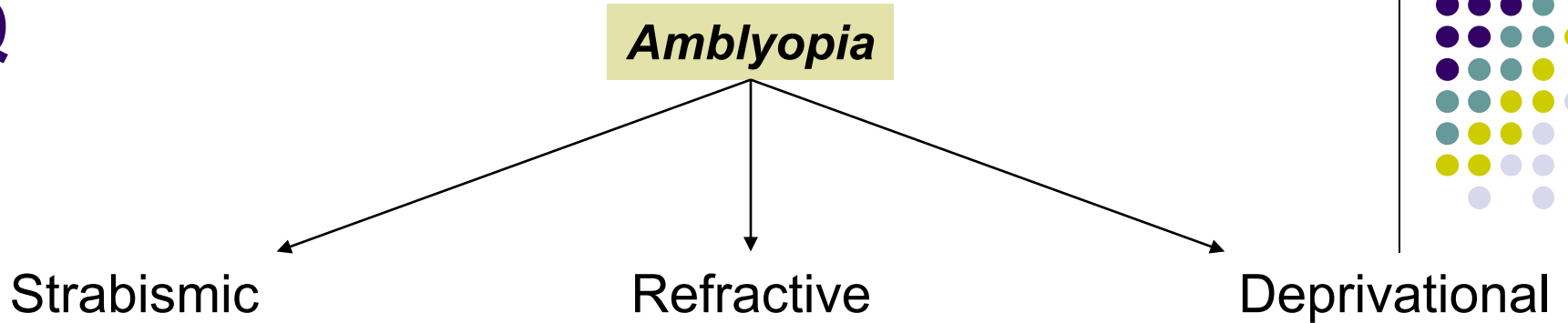
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Treatment of amblyopia involves three general steps—what are they?

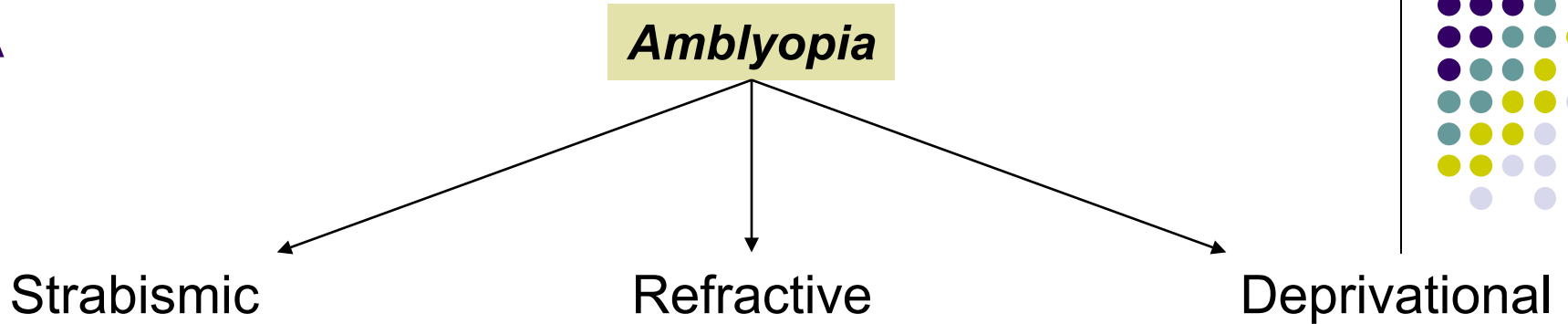
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A



Treatment of amblyopia involves three general steps—what are they?

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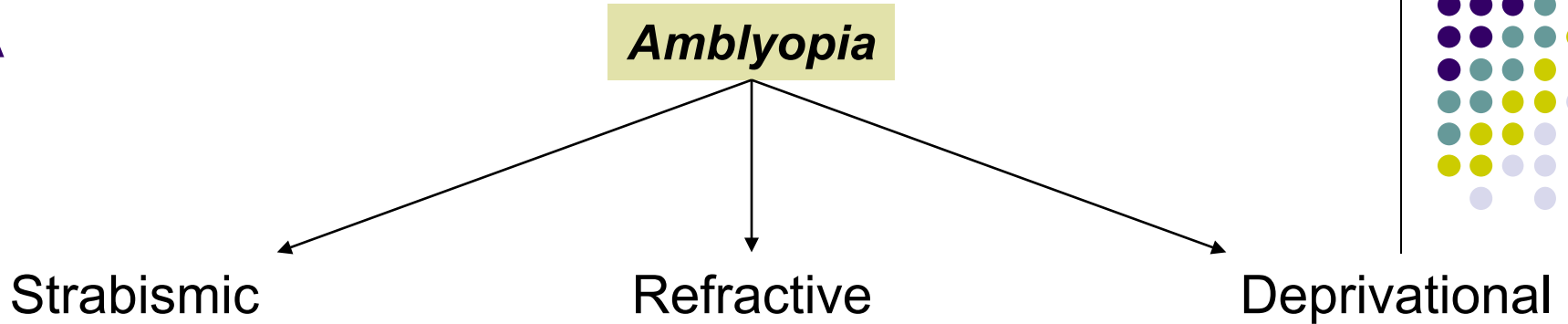
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You'd think so, but no—correction of refractive error “plays a key role in the treatment of **all** types of amblyopia,” as the *Peds* book puts it. [Emphasis mine]

A



Treatment of amblyopia involves three general steps—what are they?

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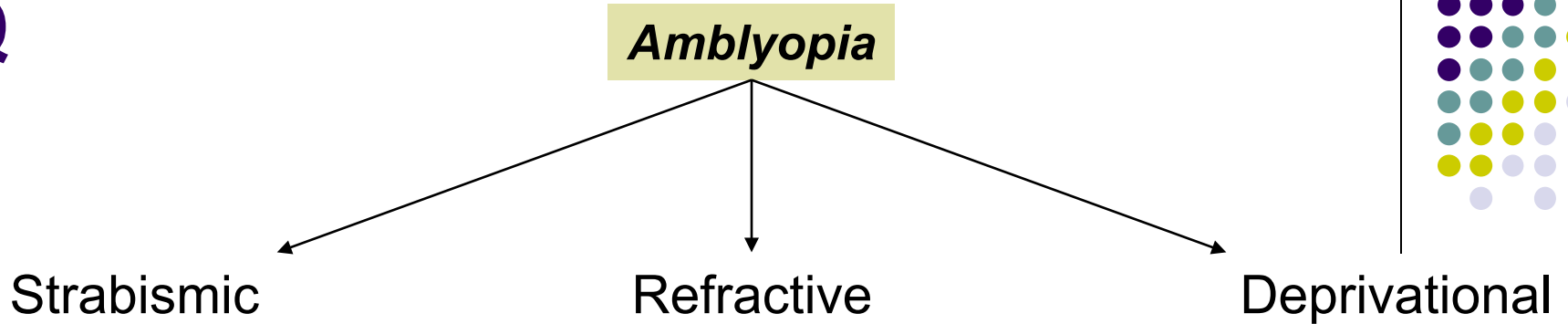
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Q



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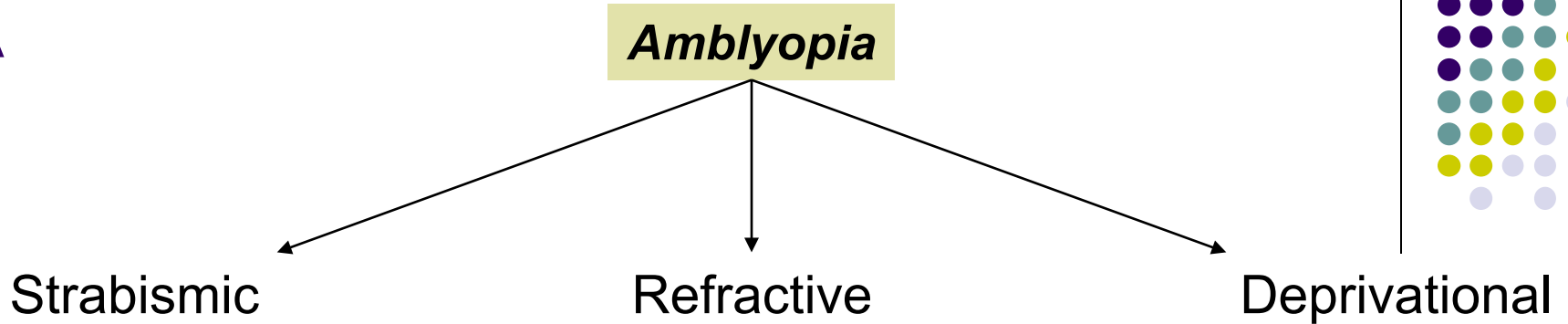
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Should correction be based on the manifest, or cycloplegic refraction?

A



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3)

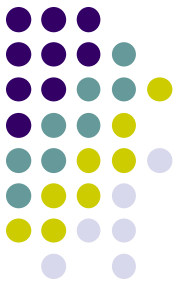
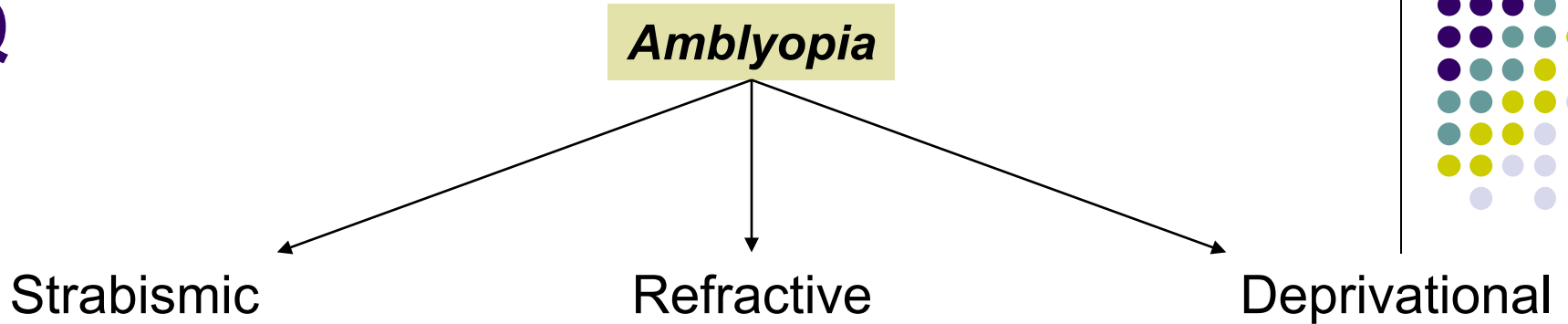
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Should correction be based on the manifest, or cycloplegic refraction?

The cycloplegic (albeit recognizing there are clinical scenarios in which Rxing less than the full cycloplegic amount is indicated)

Q



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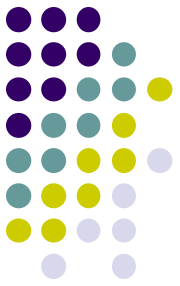
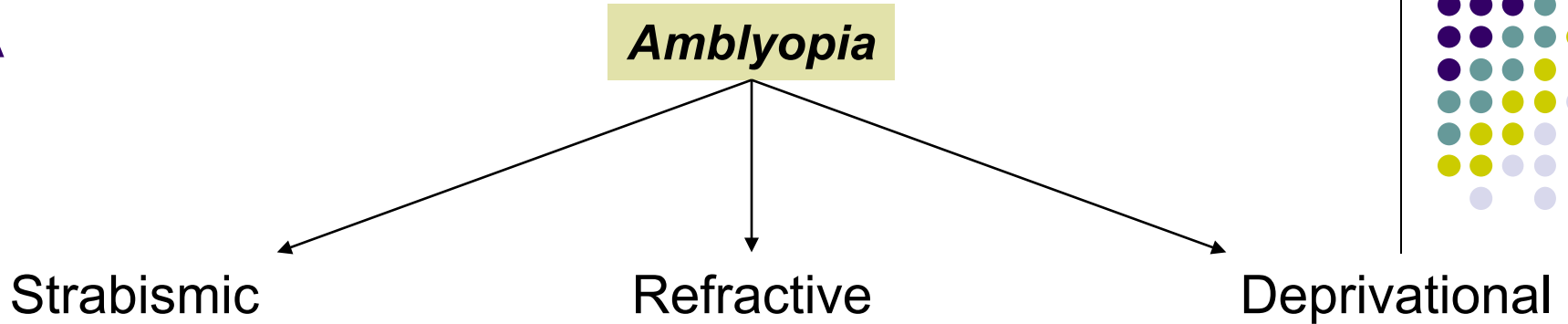
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Should correction be based on the manifest, or cycloplegic refraction?

The cycloplegic (albeit recognizing there are clinical scenarios in which Rxing less than the full cycloplegic amount is indicated)

Which method of correction is preferable—contacts, or glasses?

A



Treatment of amblyopia involves three general steps—what are they?

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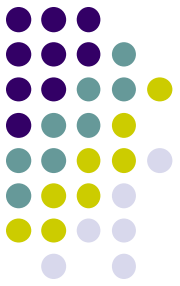
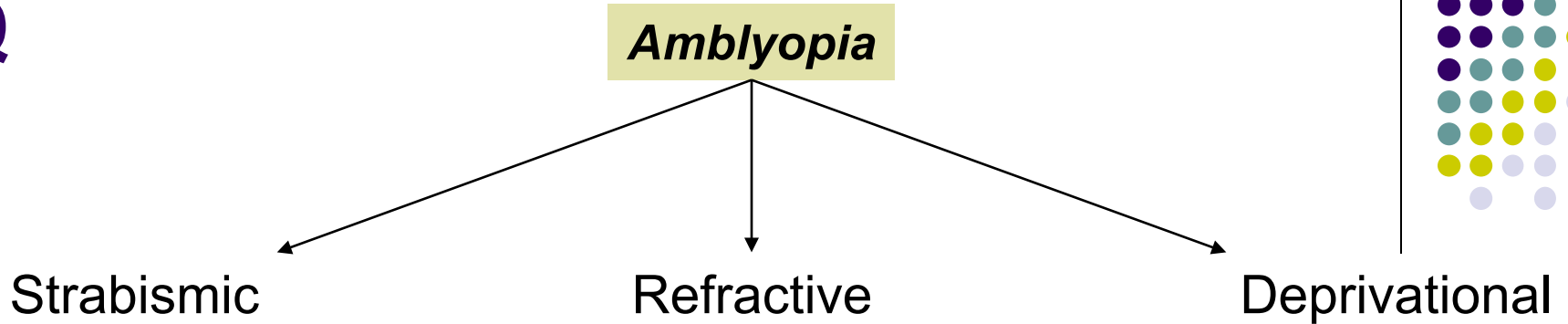
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Q



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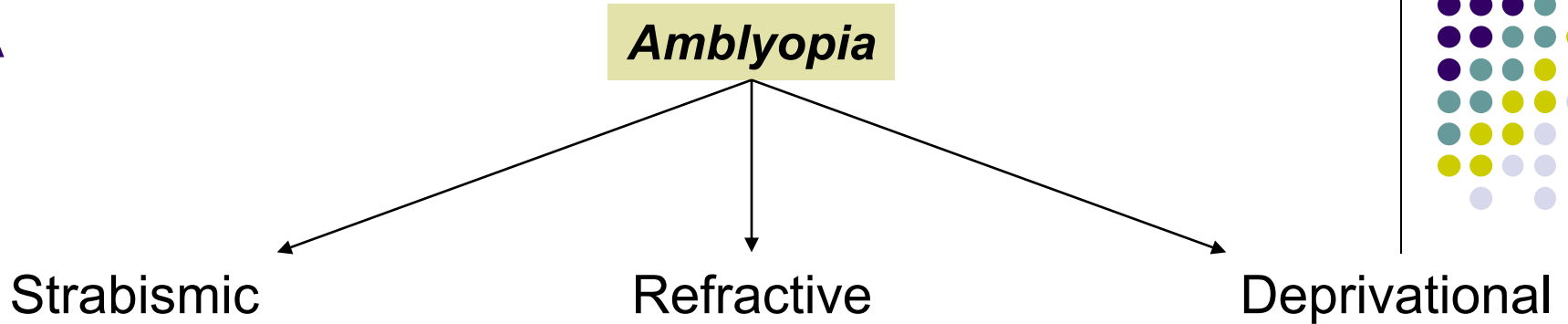
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Is refractive surgery an option?

A



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In order:

1) Clear the visual axis if occluded

2) Correct any significant refractive error present

3)

You mean, correct refractive error if the amblyopia is refractive in nature, yes?

You'd think so, but no—correction of refractive error “plays a key role in the treatment of **all** types of amblyopia,” as the *Peds* book puts it. [Emphasis mine] **In fact, refractive correction is so effective, many ophthos will hold off on Step 3 above, opting instead to see how far refractive correction alone can go in reversing amblyopia.**

Should correction be based on the manifest, or cycloplegic refraction?

The cycloplegic (albeit recognizing there are clinical scenarios in which Rxing less than the full cycloplegic amount is indicated)

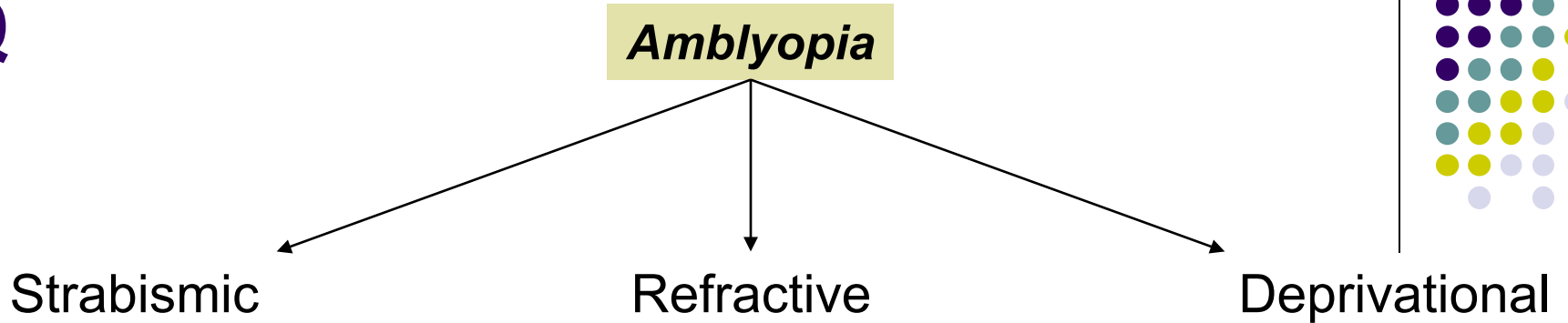
Which method of correction is preferable—contacts, or glasses?

Contacts (but many kids are intolerant, in which case glasses are used)

Is refractive surgery an option?

Yes, but is generally reserved for kids who won't tolerate either CLs or glasses

Q



Treatment of amblyopia involves three general steps—what are they?

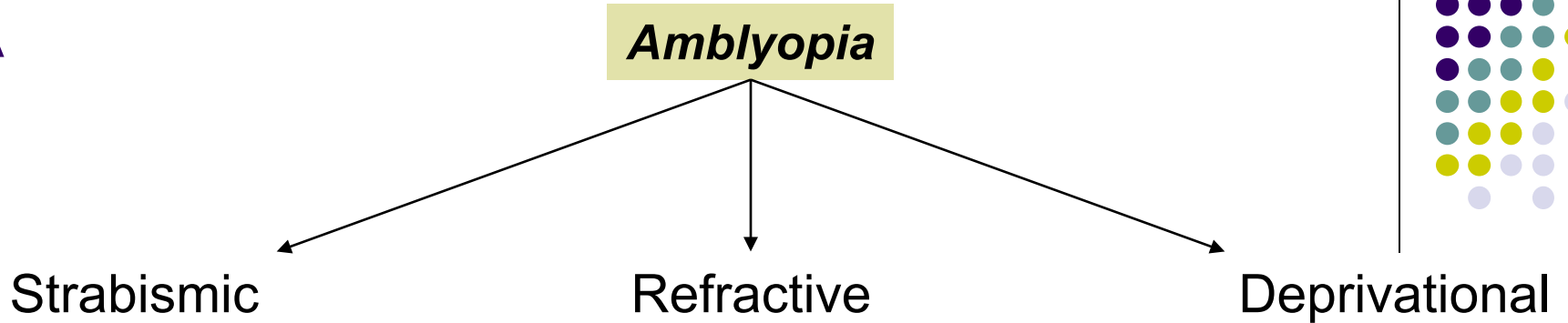
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In very general terms (ie, not specific techniques), how do you get a child to use their amblyopic eye?

A



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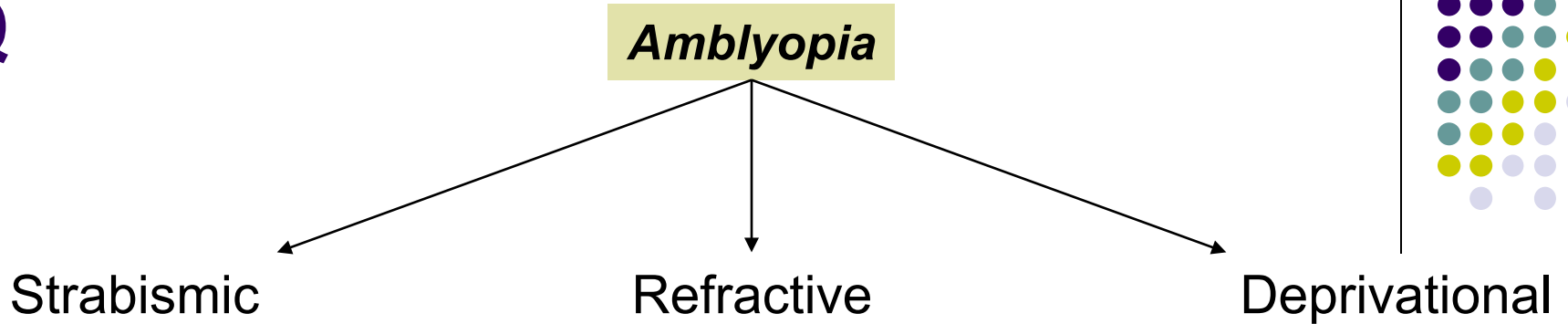
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You make it their better-seeing eye by disrupting the vision in their sound eye

Q



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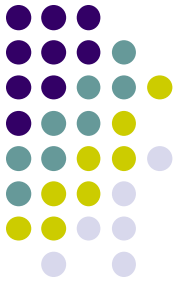
Q/A

Amblyopia

Strabismic

Refractive

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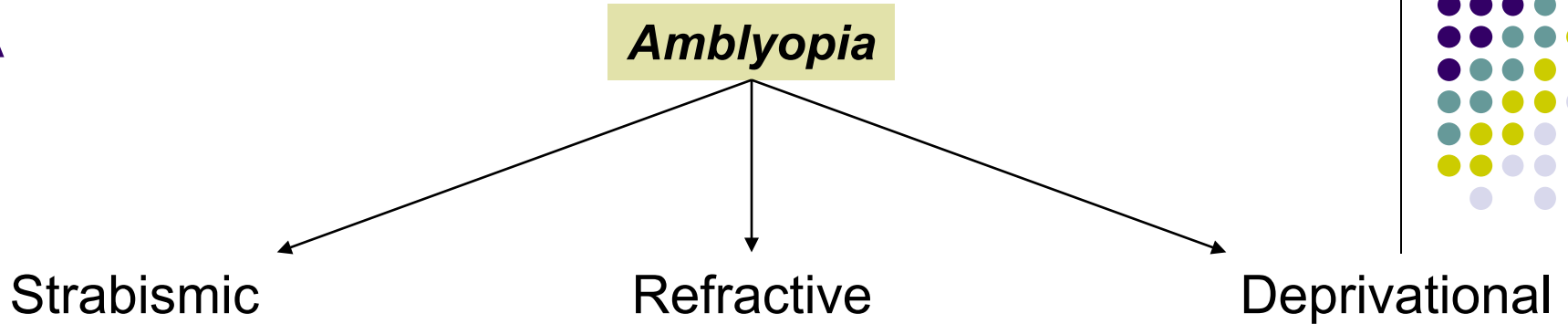
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- [redacted] its visual axis, ie, [redacted]

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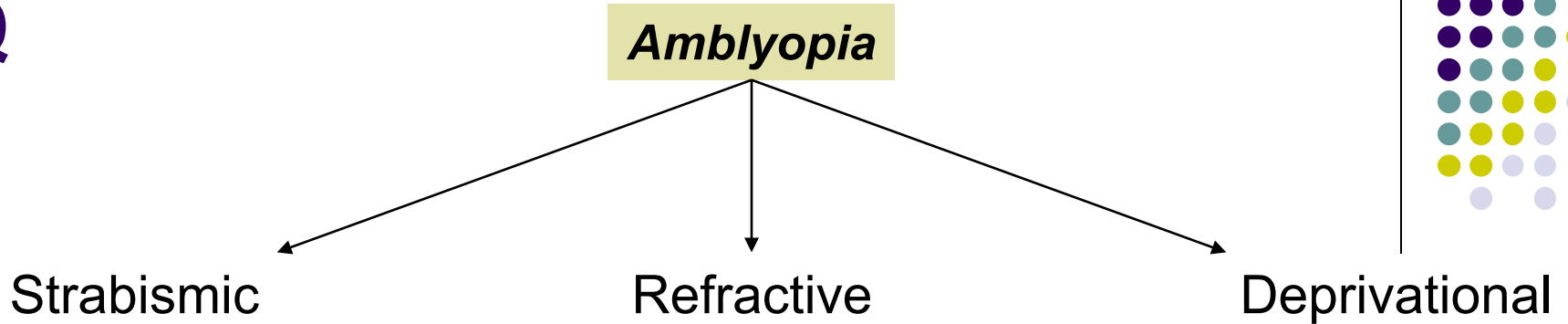
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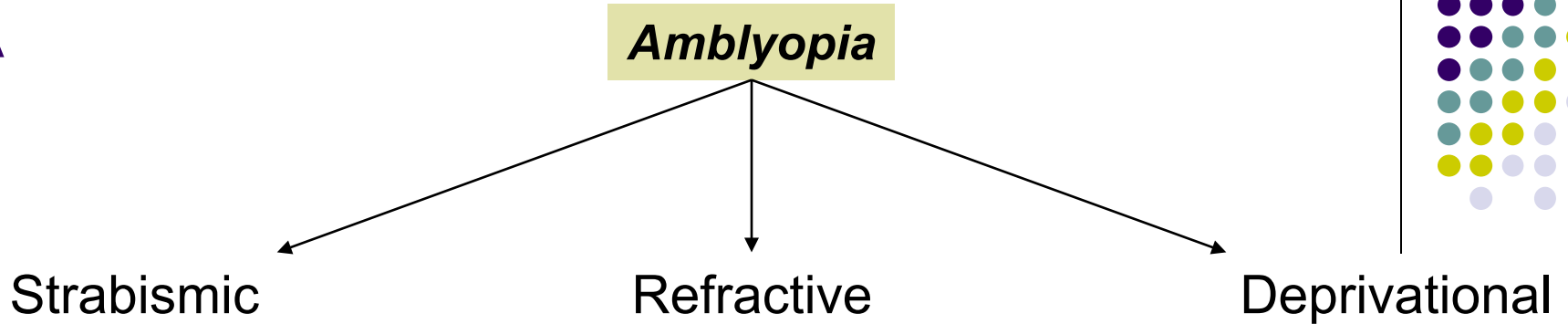
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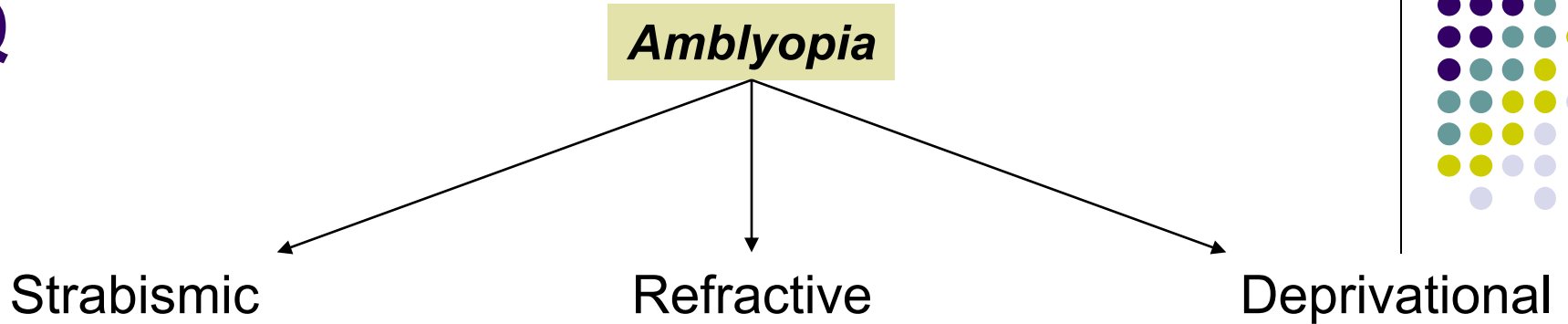
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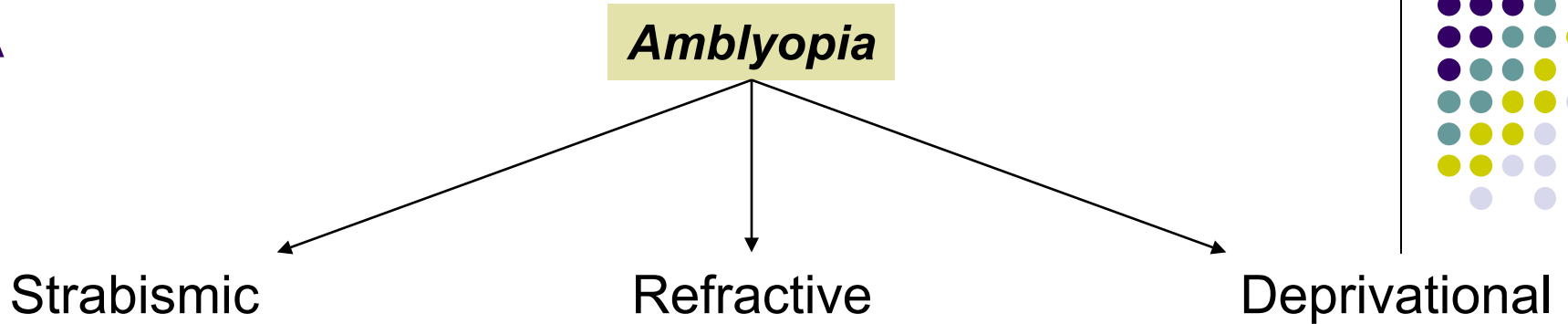
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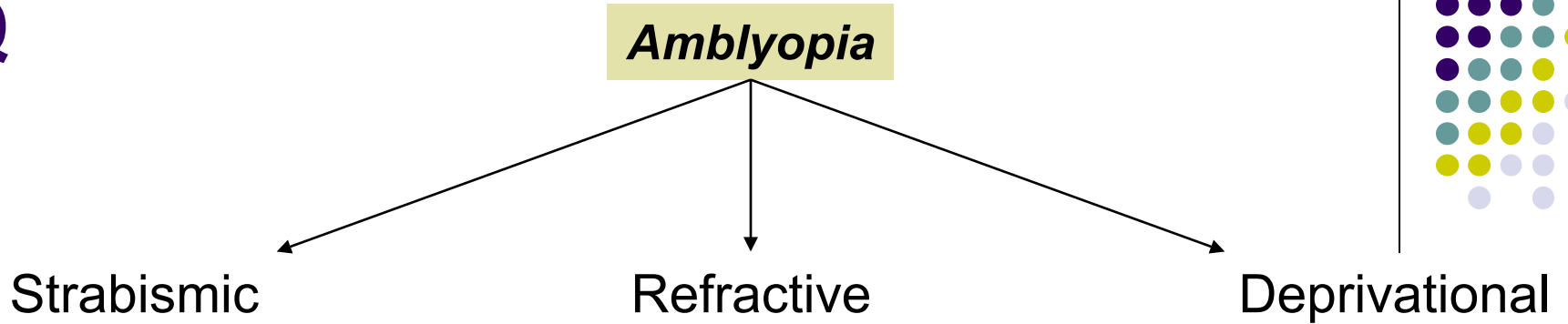
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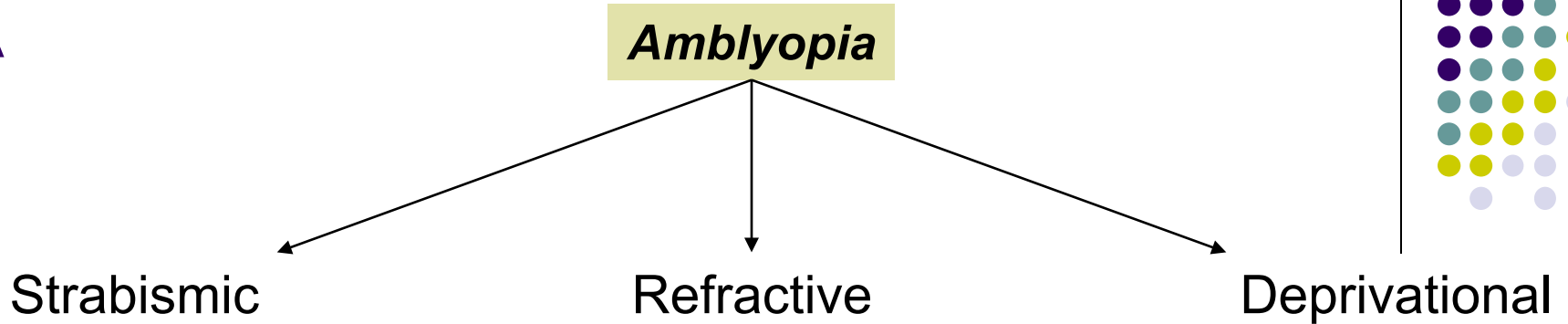
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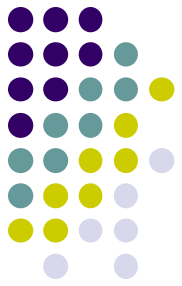
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Strabismic

Refractive

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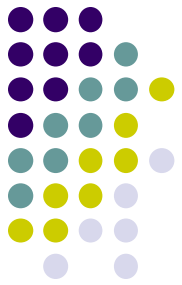
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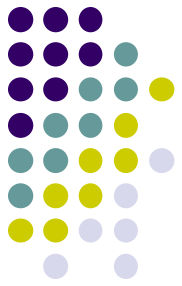
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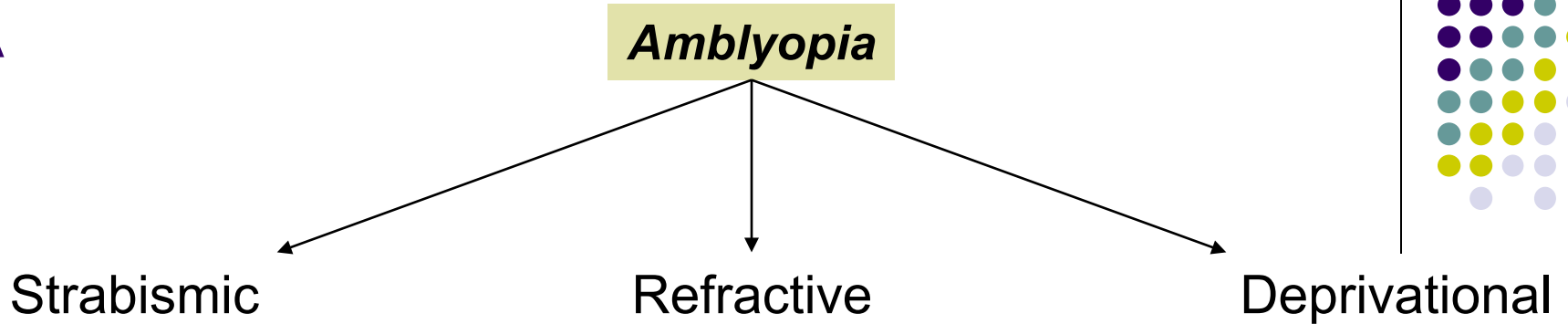
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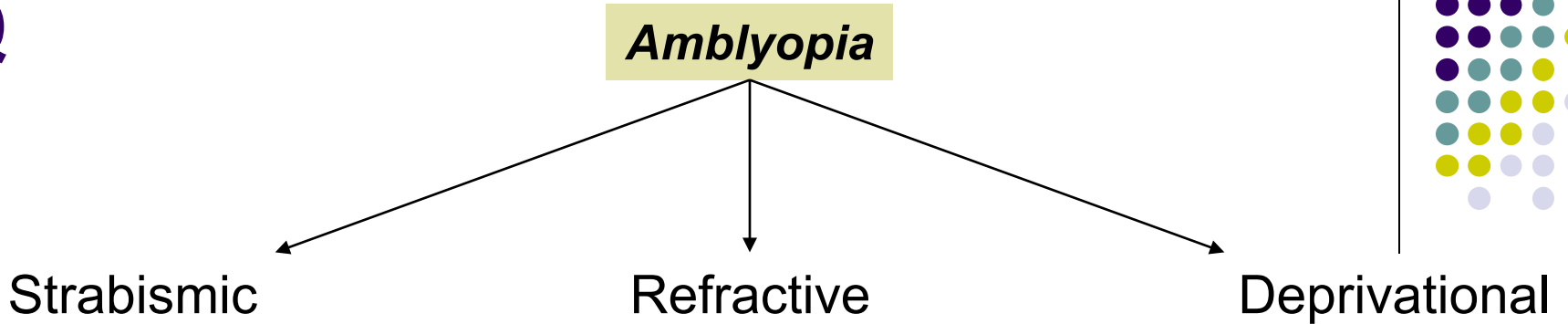
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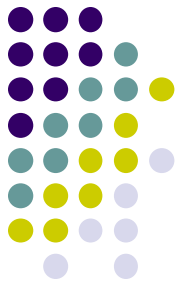
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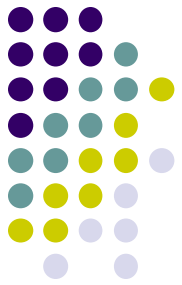
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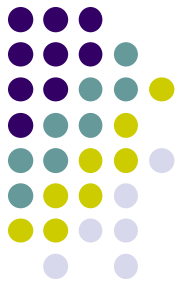
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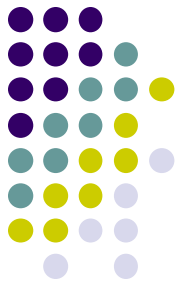
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What's the major drawback of full-time patching?

are they?

amblyopic eye

child to use their

and eye

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vision in the sound eye—

patch it

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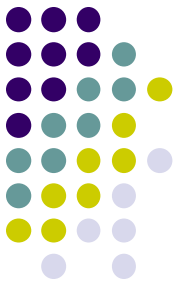
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Q/A



Amblyopia

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What's the major drawback of full-time patching?

It has been known to lead to **amblyopia** and/or **amblyopia**

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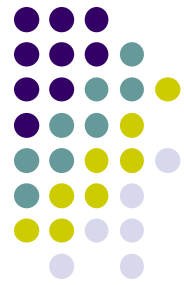
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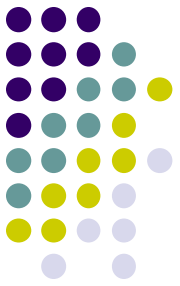
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What is reverse amblyopia?

and eye

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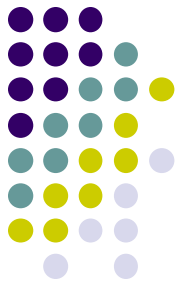
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What is reverse amblyopia?

Loss of BCVA in the formerly sound eye 2ndry to amblyopia tx

and eye

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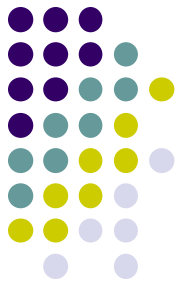
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If it develops, is reverse amblyopia reversible?

Full-time

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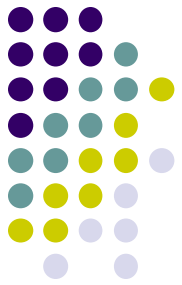
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Yes, thankfully. Some cases require patching the other (ie, the original amblyopic) eye; others can be fixed simply by stopping therapy altogether.

and eye

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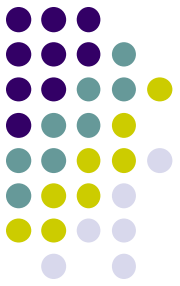
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What techniques are commonly used to occlude the eye?

- Adhesive patches
- Spectacle-mounted occluders
- Opaque CLs

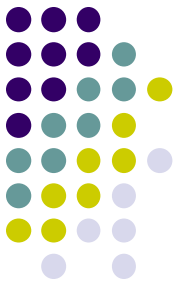
Patches have a common drawback—what is it?

The adhesive can be irritating, or inadequate

Spectacle-mounted occluders have a common drawback—what is it?

The sound eye may peek around them, negating the desired effect

Q/A



Amblyopia

Strabismic

Refractive

Deprivational

What's the major drawback of full-time patching?

It has been known to lead to reverse amblyopia and/or strabismus

What's the major advantage of full-time patching?

There is none really—studies indicate part-time occlusion of **amount of time** is just as effective, and is far less likely to result in reverse amblyopia or strabismus

Full-time

which means 'during all waking hours'

patch it

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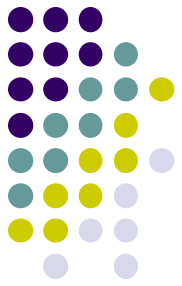
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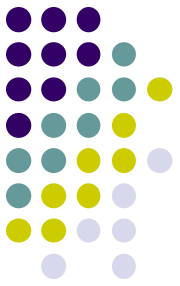
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So what role does full-time patching play these days in amblyopia tx?

Full-time, which means 'during all waking hours'

--Part time
--Occluding its visual axis, ie **patch it**
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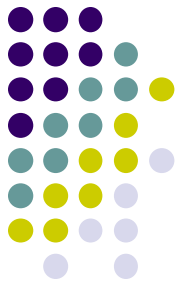
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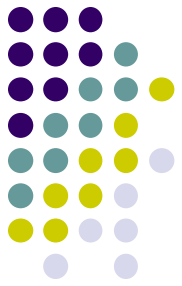
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Amblyopia



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Treatment of amblyopia involves three general steps—what are they?

In order:

1) Clear the visual axis

2) Correct the refractive error

3) Encourage amblyopic eye use

How long (ie, hrs/day) should part-time patching be employed?

In very general terms, amblyopia is

Occlusion therapy

What are the types of occlusion therapy?

--Full-time

--Part-time

Part-time

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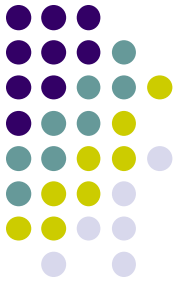
Q/A

Amblyopia

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Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) Clear the visual axis
- 2) Correct the refractive error
- 3) Encourage the amblyopic eye to see

How long (ie, hrs/day) should part-time patching be employed?
That depends upon the **severity** of the amblyopia

In very general terms, amblyopia is

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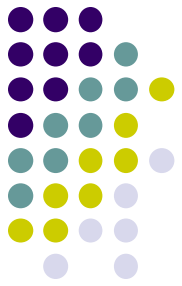
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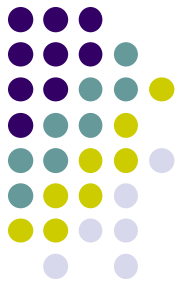
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- 2) Correct the refractive error
- 3) Encourage the amblyopic eye to use its visual axis

How long (ie, hrs/day) should part-time patching be employed?

That depends upon the severity of the amblyopia. If it's severe (VA equal to or worse than about **Snellen**), **#** hrs/d is indicated.

In very general terms, amblyopia is

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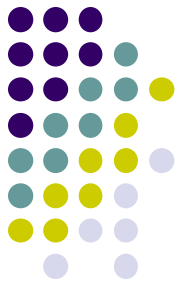
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In order:

- 1) Clear the visual axis
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- 3) Encourage the amblyopic eye to see

How long (ie, hrs/day) should part-time patching be employed?

That depends upon the severity of the amblyopia. If it's severe (VA equal to or worse than about 20/125), 6 hrs/d is indicated.

In very general terms,

amblyopia is

Occlusion therapy

What are the

types of

occlusion?

Part-time

Full-time

Intermittent

What techniques are commonly used to occlude the eye?

--Adhesive patches

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patch it

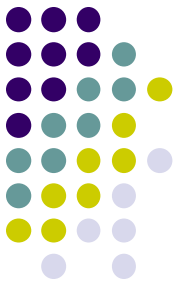
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In order:

- 1) Clear the visual axis
- 2) Correct the refractive error
- 3) Encourage the amblyopic eye to use its visual axis

How long (ie, hrs/day) should part-time patching be employed?

That depends upon the severity of the amblyopia. If it's severe (VA equal to or worse than about 20/125), 6 hrs/d is indicated. If more moderate (VA 20/100 or better), # hrs/d may be enough.

In very general terms, amblyopia is a condition in which the visual axis of one eye is occluded or its visual signal is degraded.

Occlusion of the visual axis can be achieved either pharmacologically or optically.

What are the techniques commonly used to occlude the eye?

--Full-time

--Part-time

--Occluding its visual axis, ie patch it

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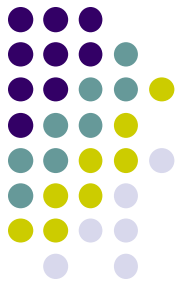
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Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) Clear the visual axis
- 2) Correct the refractive error
- 3) Encourage the use of the amblyopic eye

How long (ie, hrs/day) should part-time patching be employed?

That depends upon the severity of the amblyopia. If it's severe (VA equal to or worse than about 20/125), 6 hrs/d is indicated. If more moderate (VA 20/100 or better), 2 hrs/d may be enough.

In very general terms, amblyopia is a condition of the visual system in which the visual axis is occluded, either pharmacologically or optically.

Occlusion of the visual axis can be either full-time or part-time.

What are the techniques commonly used to occlude the eye?

--Full-time

--Part-time

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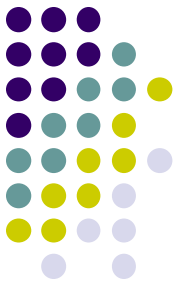
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What sort of followup schedule should be used when part-time patching is employed?

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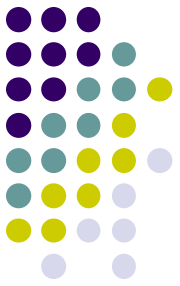
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As there is essentially no risk of inducing reverse amblyopia or strabismus, re-eval in **amount of time** is reasonable

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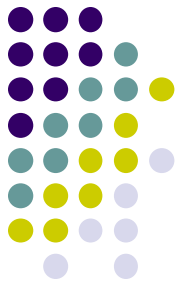
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What sort of followup schedule should be used when part-time patching is employed?

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Part-time

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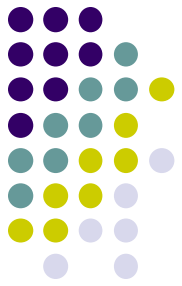
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Treatment of amblyopia involves three general steps—what are they?

What's the basic idea underlying the pharmacologic tx of amblyopia?

- Occluding its visual axis, i.e., patching
- Degrading the quality of its visual signal either **pharmacologically** or optically

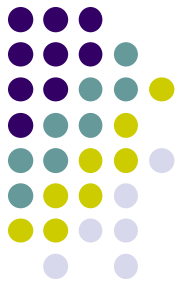
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--Occluding its visual axis, i.e., patching

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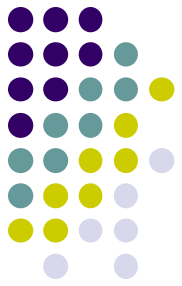
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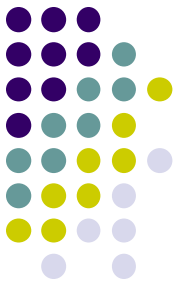
What's the basic idea underlying the pharmacologic tx of amblyopia?

The sound eye is cyclopleged (usually with atropine 1%), thereby preventing it from accommodating

--Occluding its visual axis, i.e., patch it

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Atropine is not a benign drug. What are signs of systemic toxicity?

- ?
- ?
- ?
- ?

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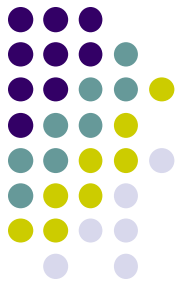
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Atropine is not a benign drug. What are signs of systemic toxicity?

- Fever
- Tachycardia
- Dry mouth
- Delirium

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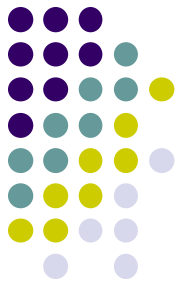
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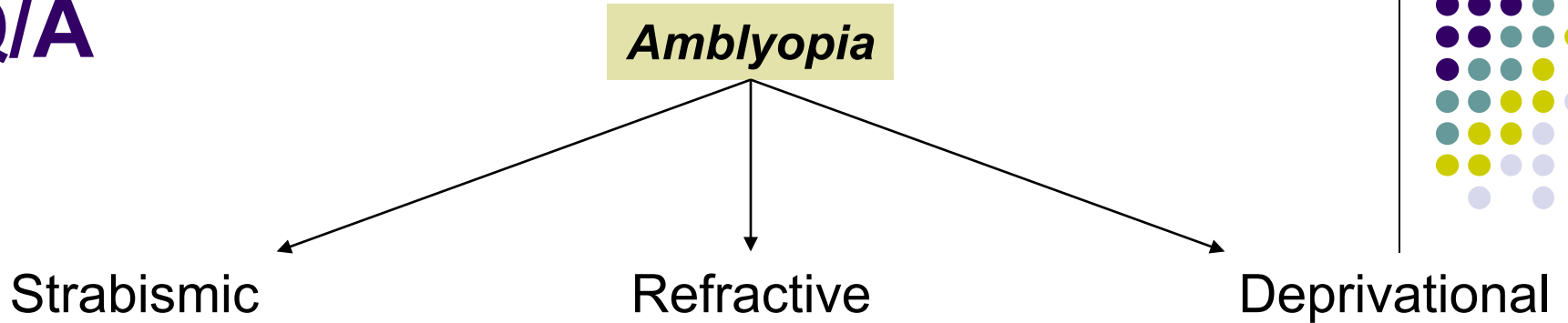
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How often is atropine administered?

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Q/A



Treatment of amblyopia involves three general steps—what are they?

What's the basic idea underlying the pharmacologic tx of amblyopia?

The sound eye is cyclopleged (usually with atropine 1%), thereby preventing it from accommodating

How often is atropine administered?

As often as (for moderate amblyopia), and as infrequently as (for mild)

two words

--Occluding its visual axis, i.e., patch it

--Degrading the quality of its visual signal either **pharmacologically** or optically

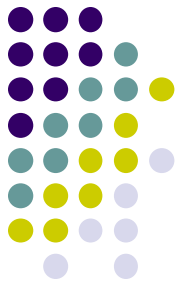
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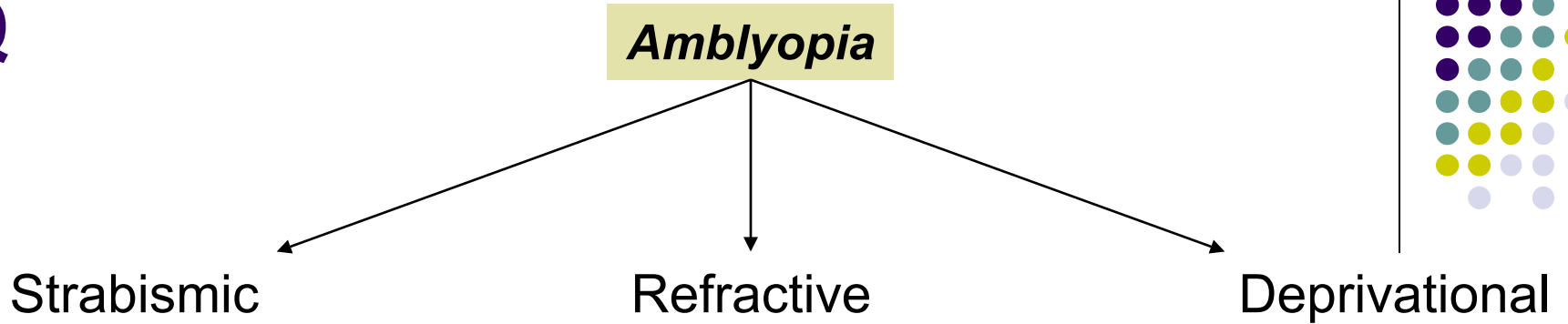
How often is atropine administered?

As often as daily (for moderate amblyopia), and as infrequently as weekends only (for mild)

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--Occluding its visual axis, i.e., patch it

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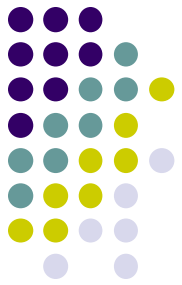
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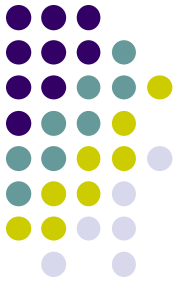
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Q

Amblyopia



Deprivational

The effectiveness of pharm tx can be affected by the refractive state of the cyclopleged eye. Which refractive state may reduce tx effectiveness?

they?

it from accommodating

only (for mild)

W/
Th

Ho
As

Ho

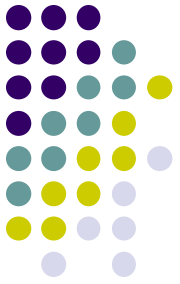
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Amblyopia



Deprivational

The effectiveness of pharm tx can be affected by the refractive state of the cyclopleged eye. Which refractive state may reduce tx effectiveness?
Myopia

they?

it from accommodating

only (for mild)

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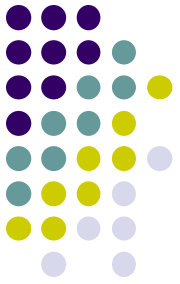
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Why?

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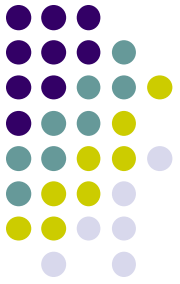
In moderate amblyopia, it's as effective as patching

--Occluding its visual axis, i.e., patching

--Degrading the quality of its visual signal either **pharmacologically** or optically

A

Amblyopia



Deprivational

The effectiveness of pharm tx can be affected by the refractive state of the cyclopleged eye. Which refractive state may reduce tx effectiveness?
Myopia

Why?

Because a cyclopleged myopic eye can still see clearly at near, in which case it is likely to remain the better-seeing eye (and thus preferred) during near work

they?

it from accommodating

only (for mild)

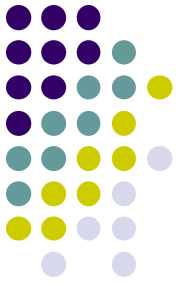
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Q

Amblyopia



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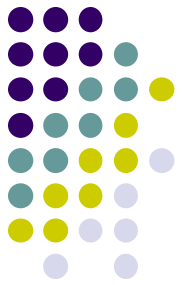
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Deprivational

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Myopia

Why?

Because a cyclopleged myopic eye can still see clearly at near, in which case it is likely to remain the better-seeing eye (and thus preferred) during near work

What can be done to offset this untoward effect?

Make the kid wear her myopic distance correction*

they?

it from accommodating

only (for mild)

In moderate amblyopia, **it's as effective as patching**

--Occluding its visual axis, i.e., patching it

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*Easier said than done, perhaps

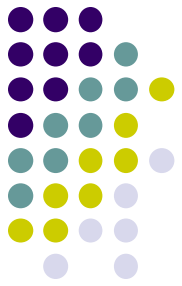
Q

Amblyopia

Strabismic

Refractive

Deprivational



Treatment of amblyopia involves three general steps—what are they?

What's the basic idea underlying the pharmacologic tx of amblyopia?

The sound eye is cyclopleged (usually with atropine 1%), thereby preventing it from accommodating

How often is atropine administered?

As often as daily (for moderate amblyopia), and as infrequently as weekends only (for mild)

How well does pharmacologic therapy work?

In moderate amblyopia, it's as effective as patching

*Can pharmacologic tx work **too** well, ie, is reverse amblyopia a possibility?*

--Occluding its visual axis, ie, patching

--Degrading the quality of its visual signal either **pharmacologically** or optically

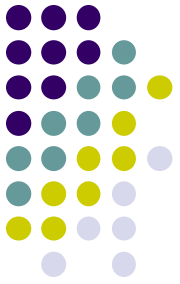
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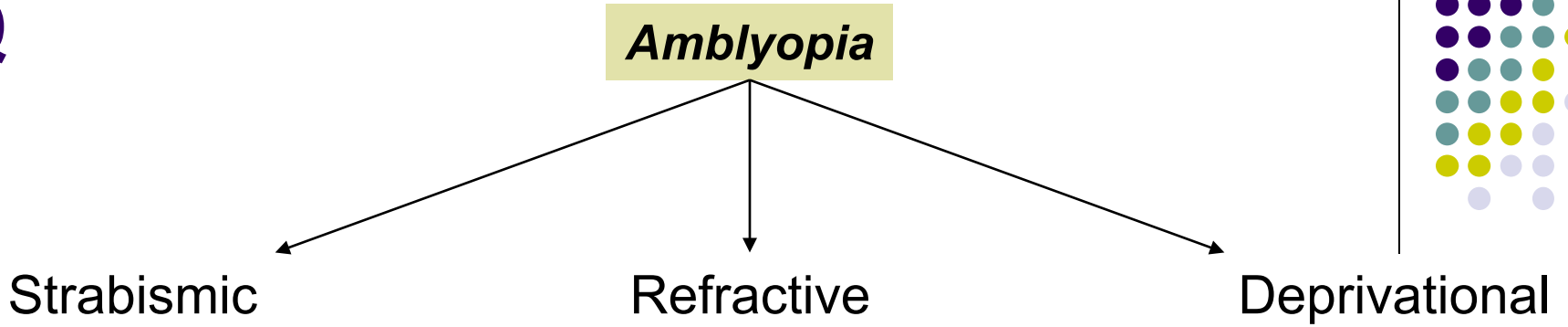
*Can pharmacologic tx work **too** well, ie, is reverse amblyopia a possibility?*

Indeed it is, and it's for this reason that regular followup is critical

--Occluding its visual axis, ie, patching

--Degrading the quality of its visual signal either **pharmacologically** or optically

Q



Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) Clear the visual axis if occluded
- 2) Correct any significant refractive error present

3) Encourage (ie, force; require) the child to use the amblyopic eye

*In very general terms, how do you treat an amblyopic eye?
You make it their*

What's the basic idea underlying the optical tx of amblyopia?

There are two broad categories of optical treatment—what are they?

--Occluding its vision

--Degrading the quality of its visual signal either pharmacologically or

optically

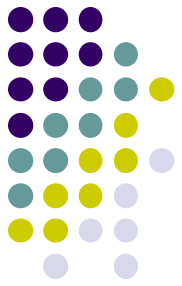
Q/A

Amblyopia

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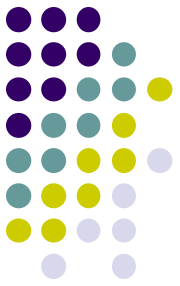
What's the basic idea underlying the optical tx of amblyopia?

The image in the sound eye is degraded via (with excess power), or via two words

optically

A

Amblyopia



Strabismic

Refractive

Deprivational

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What's the basic idea underlying the optical tx of amblyopia?

The image in the sound eye is degraded via fogging (with excess plus power), or via diffusing filters

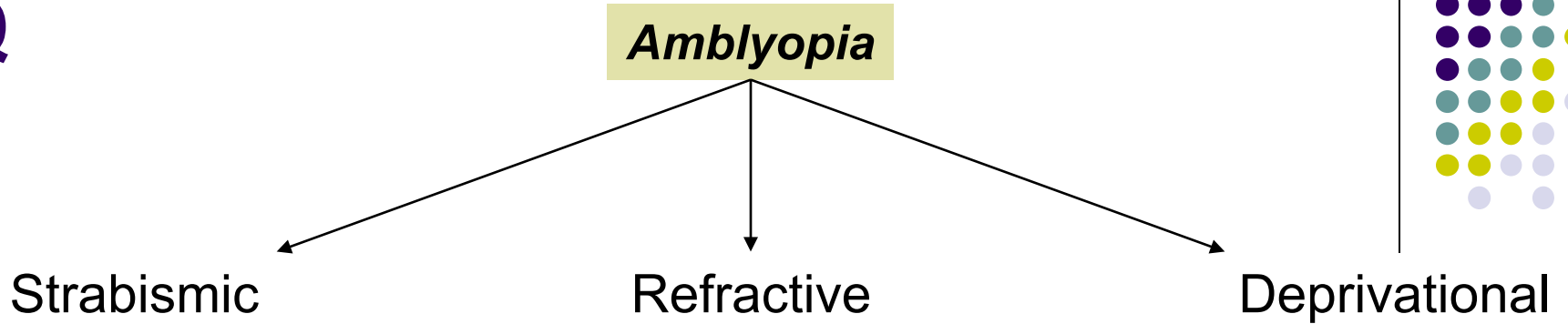
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What's the basic idea underlying the optical tx of amblyopia?

The image in the sound eye is degraded via fogging (with excess plus power), or via diffusing filters

There are two broad categories of optical treatment for amblyopia—what are they?

The main drawback to optical tx is similar to that of patching—what is it?

--Occluding its vision

--Degrading the quality of its visual signal either pharmacologically or

optically

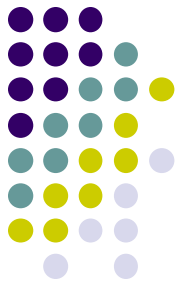
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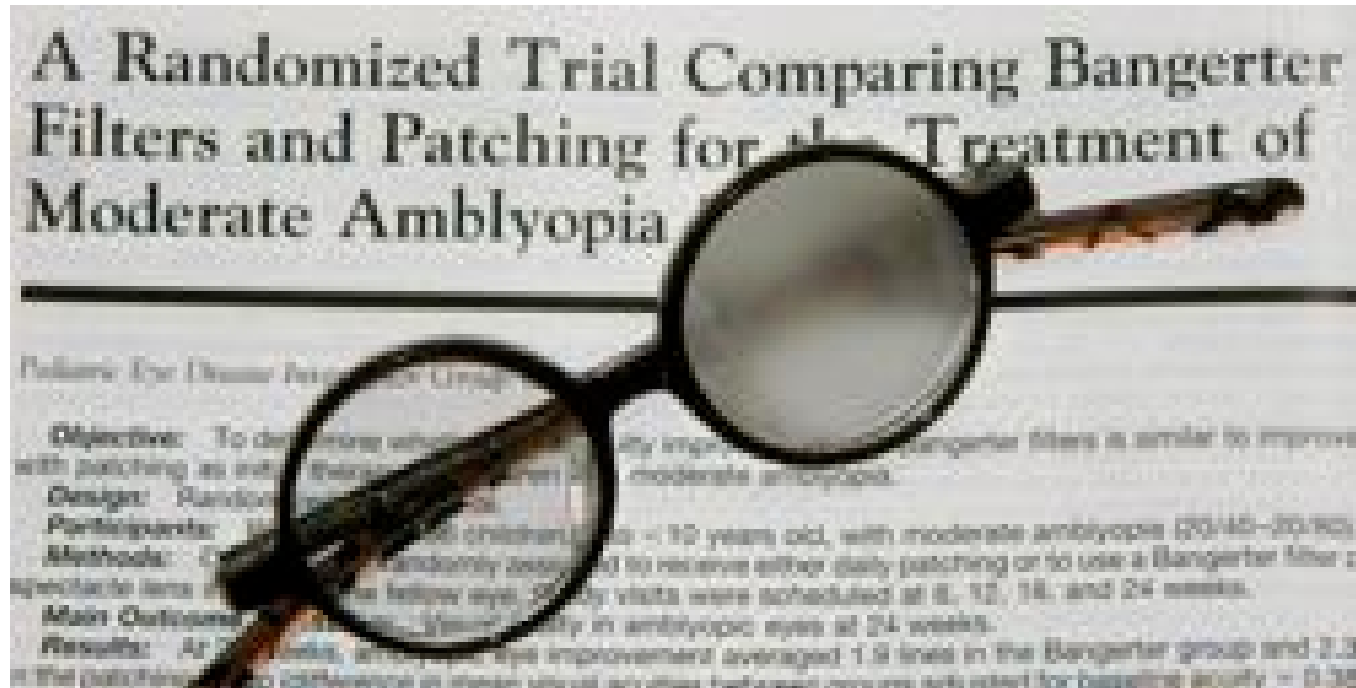
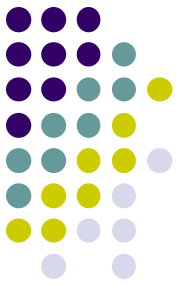
Peeking around the plus lens/filter

--Occluding its vision

--Degrading the quality of its visual signal either pharmacologically or

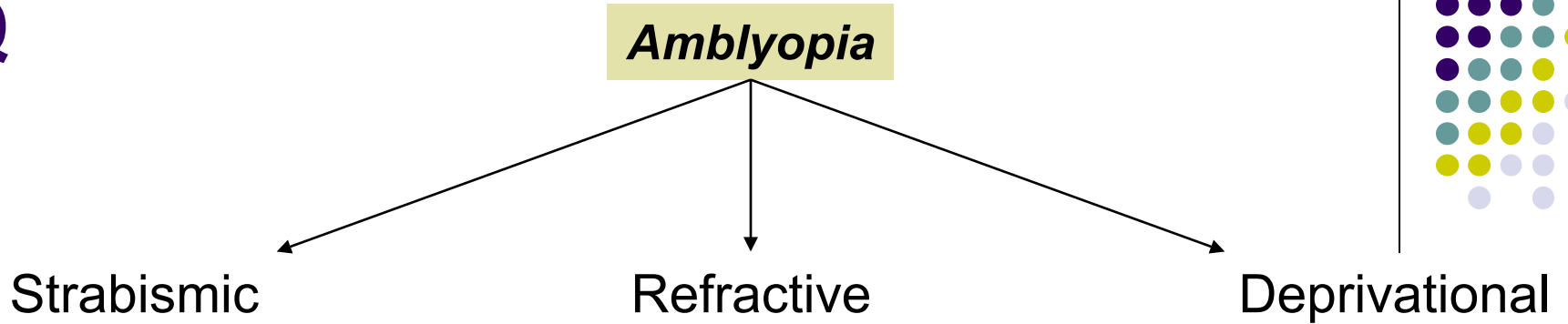
optically

Amblyopia



Diffusion filter

Q



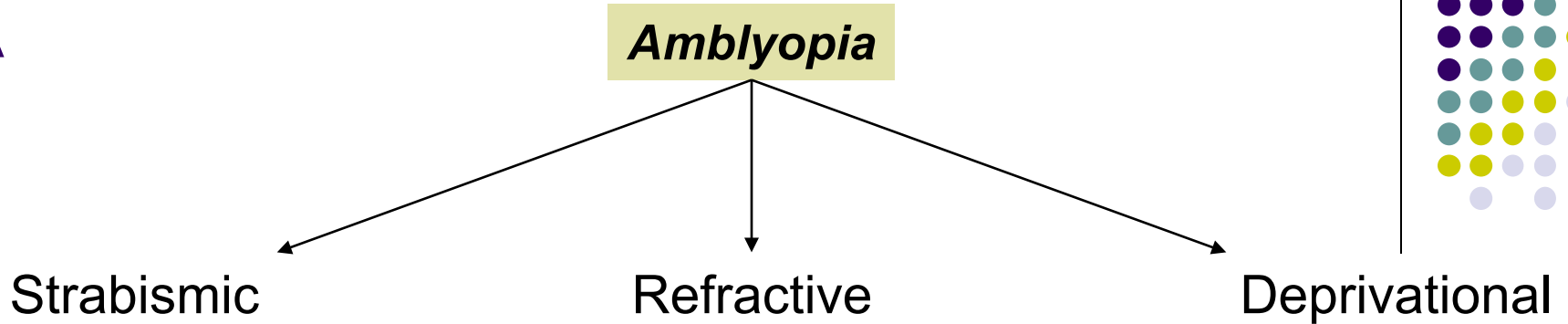
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What is the most common cause of tx failure in amblyopia?

A



Treatment of amblyopia involves three general steps—what are they?

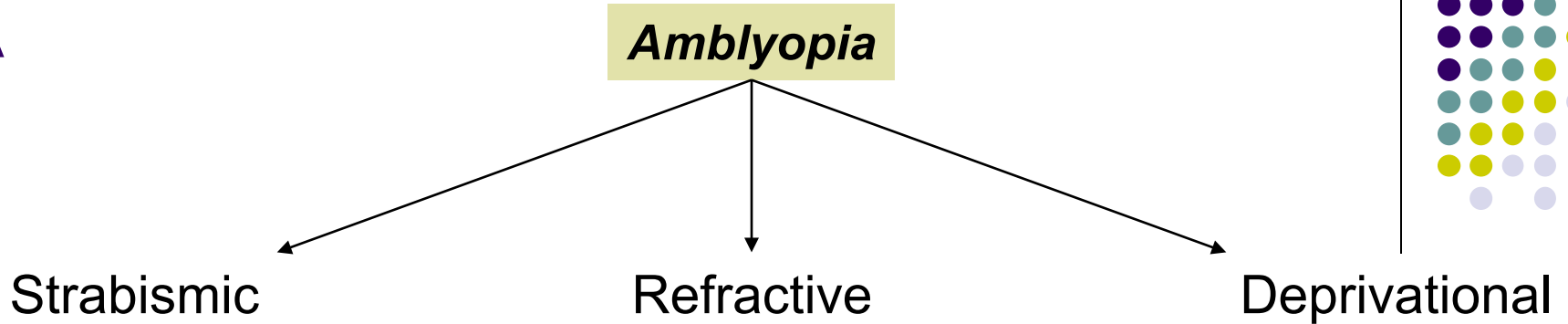
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Poor compliance/adherence

A



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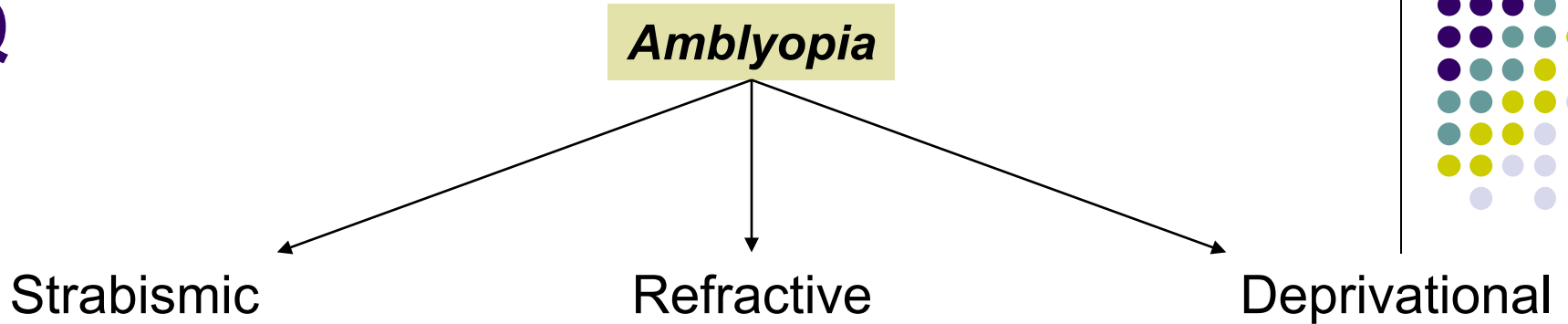
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What is the most common cause of tx failure in amblyopia?

Poor compliance/adherence. For this reason, the clinician must be 1) vigilant regarding evidence of noncompliance; 2) meticulous in identifying tx barriers; and 3) nimble with respect to modifying/jettisoning unsuccessful tx approaches and/or implementing alternatives that circumvent the identified barriers.

Q



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What is the most common cause

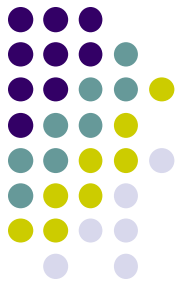
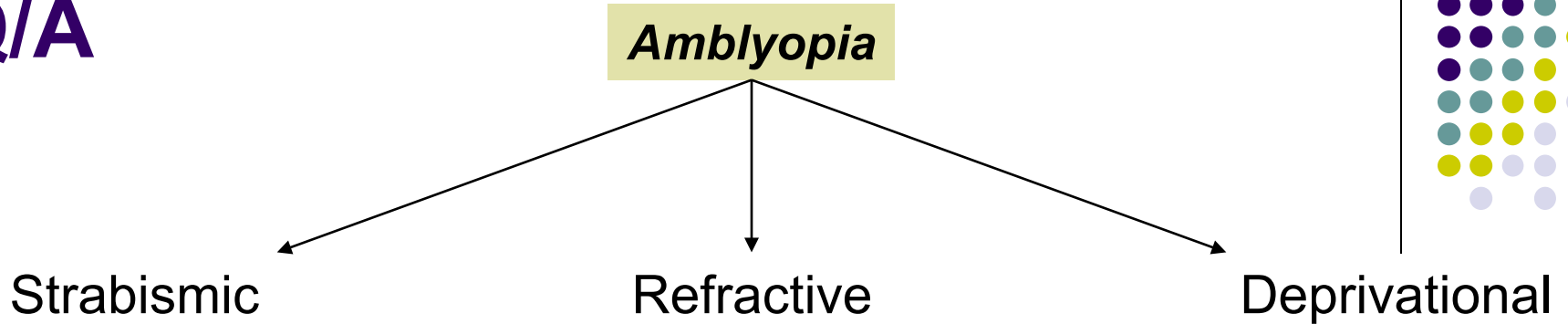
Poor compliance/adherence.

For the first two steps, be vigilant regarding evidence of no tx barriers; and 3) nimble with re-trying unsuccessful tx approaches and/or implementing alternatives that circumvent the identified barriers.



If noncompliance has been ruled out, what is the most likely explanation for a failed tx response?

Q/A



Treatment of amblyopia involves three general steps—what are they?

In order:

- 1) Clear the visual axis if occluded
- 2) Correct any significant refractive error present
- 3) Encourage (ie, force; require) the child to use the amblyopic eye

What is the most common cause of failed tx?

Poor compliance/adherence.

Be vigilant regarding evidence of no tx barriers; and 3) nimble with re-trying unsuccessful tx approaches and/or implementing alternatives that circumvent the identified barriers.



If noncompliance has been ruled out, what is the most likely explanation for a failed tx response?

You missed something (usually either **two words** and/or **dz**) on exam

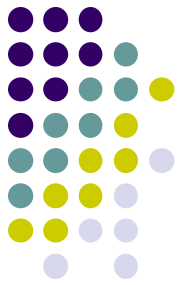
A

Amblyopia

Strabismic

Refractive

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Poor compliance/adherence.

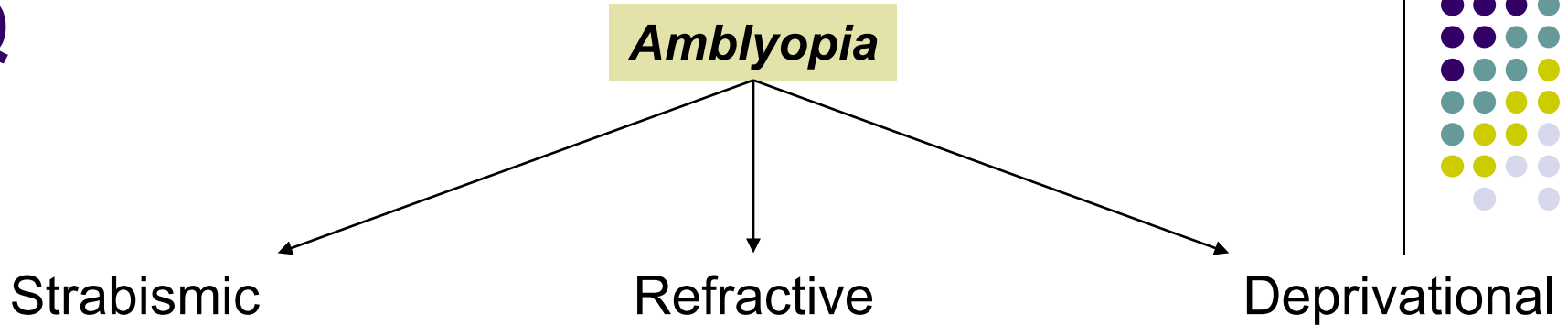
For the most part, be vigilant regarding evidence of no tx barriers; and 3) nimble with re-uns successful tx approaches and/or implementing alternatives that circumvent the identified barriers.



If noncompliance has been ruled out, what is the most likely explanation for a failed tx response?

You missed something (usually either optic nerve and/or retinal dz) on exam

Q



Treatment of amblyopia involves three general steps—what are they?

In order:

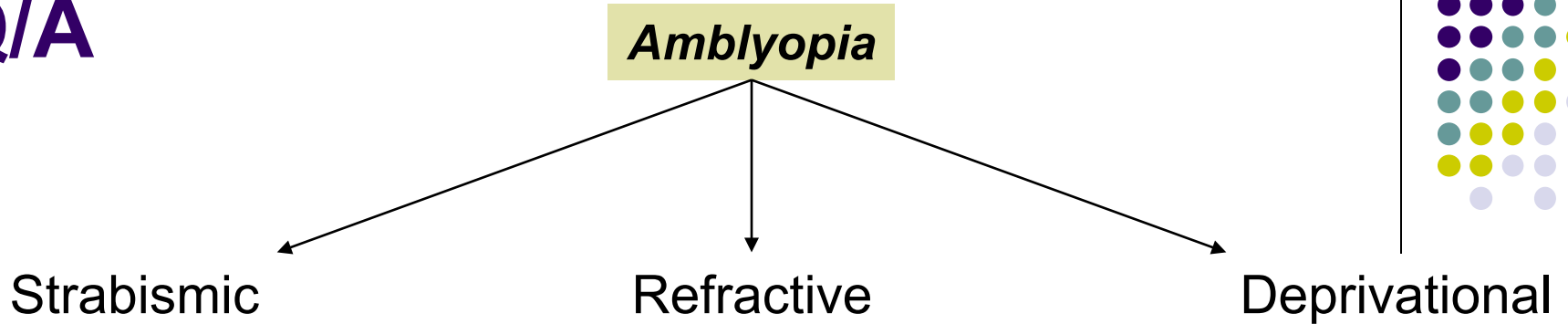
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Is amblyopia recurrence (ie, post-tx) a thing?

Q/A



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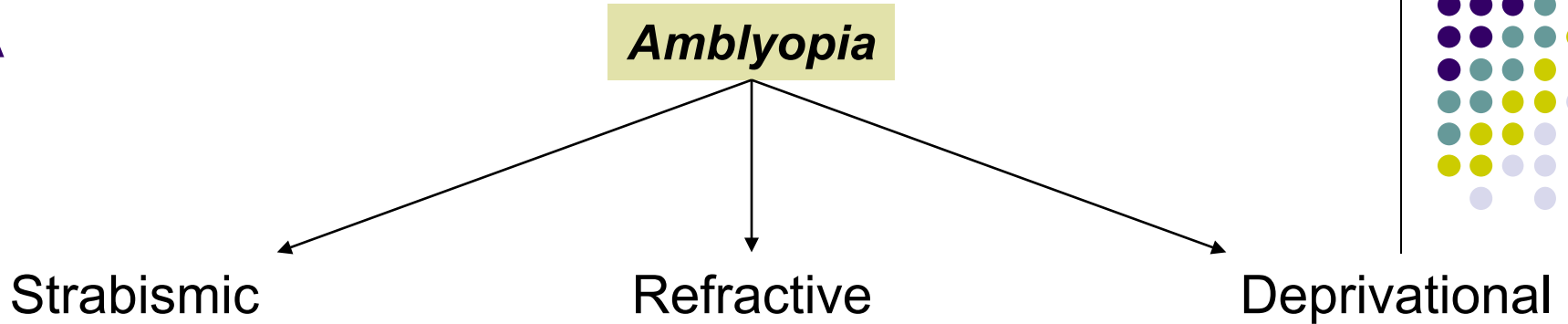
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Is amblyopia recurrence (ie, post-tx) a thing?

Mos def—estimates are that as many as a % of 'tx successes' will backslide to some degree once tx is stopped

A



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Is amblyopia recurrence (ie, post-tx) a thing?

Mos def—estimates are that as many as a third of 'tx successes' will backslide to some degree once tx is stopped