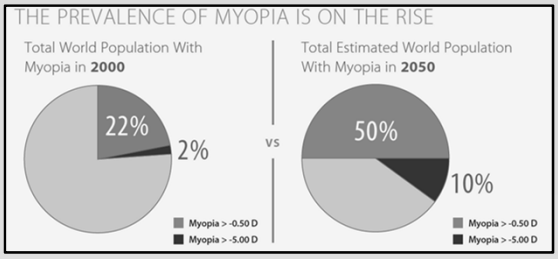
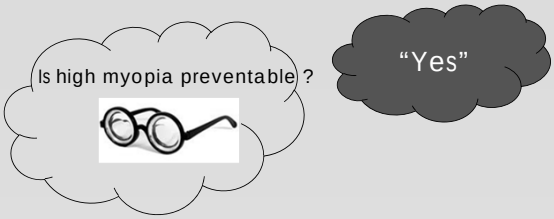
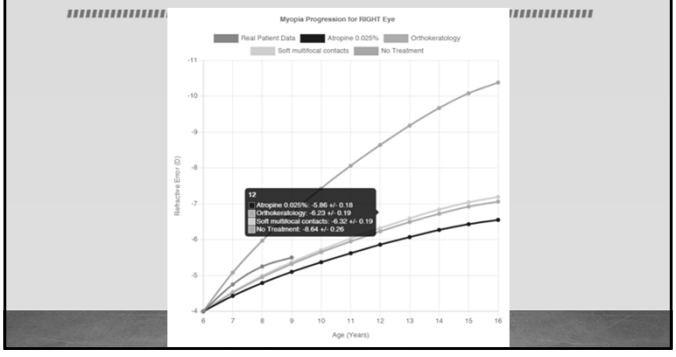
Atropine , what dose to use in myopia control ?

Rasha Altaie



	CATARACTS	GLAUCOMA	RETINAL DETACHMENT	MYOPIC MACULOPATHY
-1.00 to -3.00 D	2 x	4 x	3 x	2 x
-3.00 to -6.00 D	3 x	4 x	9 x	10 x
> -6.00 D	5 x	14 x	22 x	41 x





2016

Five-Year Clinical Trial on Atropine for the Treatment of Myopia 2

Myopia Control with Atropine 0.01% Eyedrops

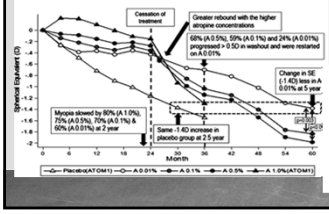
2005

Atropine for the Treatment of Childhood Myopia

Atropine for the Treatment of Childhood Myopia: Effect on Myopia Progression after Cessation of Atropine

Atropine for the Treatment of Childhood Myopia: Safety and Efficacy of 0.5%, 0.1%, and 0.01% Doses (Atropine for the Treatment of Myopia 2)

Summary of ATOM 1 & 2



ATOM 2 (phase 1) : To compare efficacy and visual side effects of 3 lower doses of atropine: 0.5%, 0.1%, and 0.01%.

Atropine 0.01% retains comparable efficacy in controlling myopia progression.

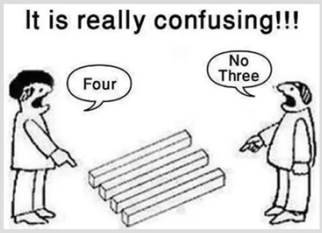
Atropine is unlikely to block progression through accommodative block, and experiments suggest that atropine acts mainly through the M4 subtype of muscarinic receptor

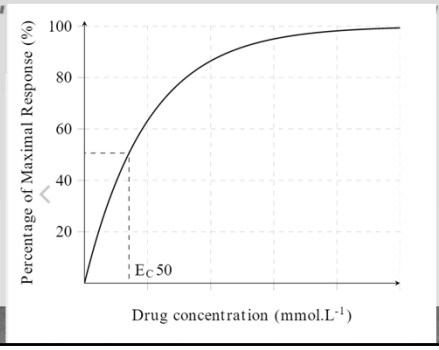
Low-Concentration Atropine for Myopia Progression (LAMP) Study

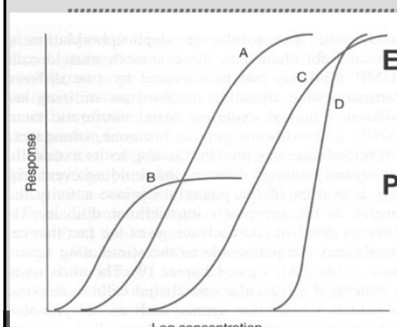
A Randomized, Double-Blinded, Placebo-Controlled Trial of 0.05%, 0.025%, and 0.01% Atropine Eye Drops in Myopia Control

Conclusions: The 0.05%, 0.025%, and 0.01% atropine eye drops reduced myopia progression along concentration – dependent response.
All the concentrations were well tolerated without an adverse effect.
Of the 3 concentrations used **0.05%** atropine was the most effective in controlling SE progression and AL elongation over 1 year .

Ophthalmology 2019;126:113-124





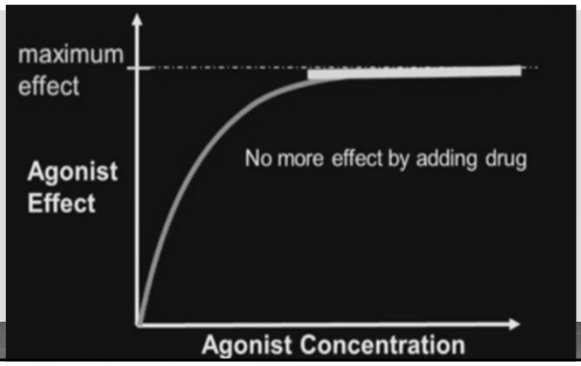


Efficacy:

Maximal response a drug can produce

Potency:

Measure of dose required to produce a response



Ophthalmology. 2019 Dec 21. pii: S0161-6420(19)32356-5. doi: 10.1016/j.ophtha.2019.12.011. [Epub ahead of print]

Two-Year Clinical Trial of the Low-Concentration Atropine for Myopia Progression (LAMP) Study: Phase 2 Report.

TAKE-HOME MESSAGE

- This report of the phase II results from the LAMP study indicates that 0.05% atropine (vs 0.01% and 0.025%) was superior at myopia control over the 2-year study period. Side effects were minimal and well-tolerated.
- Further study is warranted to assess the long-term efficacy.

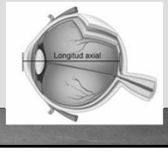
Over 2 years
Spherical equivalent progressed

- **0.05%:** 0.55±0.35 D
- **0.025%:** 0.85± 0.73 D
- **0.01%**: 1.12± 0.85D
  (0.27-1.197)

Axial length
0.05%: 0.39±0.35mm

0.025%: 0.5±0.33mm

0.01%: 0.59±0.38 mm
(0.21-0.97)



Some questions
Low dose atropine –stability, container, Temp, PH…
Rebound

MOSAIC is the first RCT to explore the efficacy, safety and mechanisms of action of unpreserved 0.01% atropine in a predominantly White population

Champ study:is a multi-center FDA drug trial that **studies** the long-term safety and efficacy of low-dose atropine eye drops on **myopia** progression control.

Conclusion

- Although atropine slows myopia progression in children , further studies is required about its efficacy
  We can start at lower dose and increase it accordingly
- Watch the horizon for further studies