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## ATROPINE DROPS FOR MYOPIA CONTROL

We have known for many years that atropine drops at 1% dosage slows down progression of myopia or short-sightedness. However, it has not been a popular option because of adverse side effects - permanently dilated pupils, light sensitivity and inability to focus close up are the most significant concerns, but there can also be rarer cases of fever, redness and swelling around the eye, facial flushing and delirium.

But recent research published from Singapore (*A.Chia et al "Atropine for the Treatment of Childhood Myopia: Safety and Efficacy of 0.5%, 0.1% and 0.01% Doses" in American Academy of Ophthalmology 2011.07.031*) indicates that lower doses of atropine seem to work almost as well as 1% and with the lowest dose of 0.01% there seem to be no side effects. There also appears to be less rebound effect with the lowest dose on cessation of the drops.

Currently the only dose that is readily available in Australia is 1%, but the compounding pharmacy Slades at Epworth Hospital in Richmond (ph 9421 1055) are able to make up the lower dosages in a sterile 15ml bottle that would last one month, unfortunately at additional cost. Pharmacy Smart Compounding at 1/190 Belmore Rd Balwyn (ph 9857 3679) and Dartnell's Compounding Pharmacy at 376 Canterbury Rd Surrey Hills (ph 9888 5899) are also able to oblige. Slades are able to transfer the bottles to their pharmacy at Epworth Hospital Box Hill at no additional cost. There is now an on-line service available from [www.yoursolutioncompounding.com.au](http://www.yoursolutioncompounding.com.au) - based in Queensland but can post bottles direct to you for an additional \$10 freight with one bottle costing \$47 and discounts for greater quantities (April 2018). Your Solution now have a branch in Hawthorn (192 Burwood Rd 2019). Another option is [www.customcarepharmacy.com.au](http://www.customcarepharmacy.com.au) based in Dural, NSW. Once opened, each bottle can be kept for 1 month, unopened for 3 months. Unit dose non-preserved drops can also be made up, at additional cost if there are allergy concerns to the preservatives in the bottled drops.

Atropine is a non-specific muscarinic antagonist, but the exact mechanism as to why atropine drops are effective in reducing myopia progression is still unclear. At first it was thought to relate to effects on the focusing mechanism of the eye but it is now known that biomechanical effects on the retina and sclera are involved.

Much research is being done in this important area of vision research since the incidence of myopia is increasing rapidly in children in developed countries around the world - studies suggest that increasing time spent indoors engaged in visually demanding near activities like computers, reading and electronic hand-held games may be significant.

'Inadequate' sunlight exposure also seems to play a real role in myopia development, involving melatonin and possibly Vitamin D, so make sure your children enjoy balanced lifestyles, with plenty of outdoor activities.

### PROCEDURE

We recommend a 2 to 6 week trial of 0.01% atropine.

The drops will need to be instilled one drop in each eye every night.

To minimise the risk of systemic absorption, the puncta (tear duct openings) should be occluded for one minute after application. This is more important with higher dosages than with the low 0.01% dosage.

There should be minimal or no side effects using the 0.01% dosage, but we will address as needed and we would certainly like you to ring us if your child has any adverse response to the drops.

If all is good, we will review your child in-office about 6 weeks later, and then again typically every 6 months.

**We are here to help in any way we can, so please feel free to ring us if you have any concerns.**