Myopia management best practice

A reference guide for eye care professionals to implement myopia management in their practice for the best possible outcomes.

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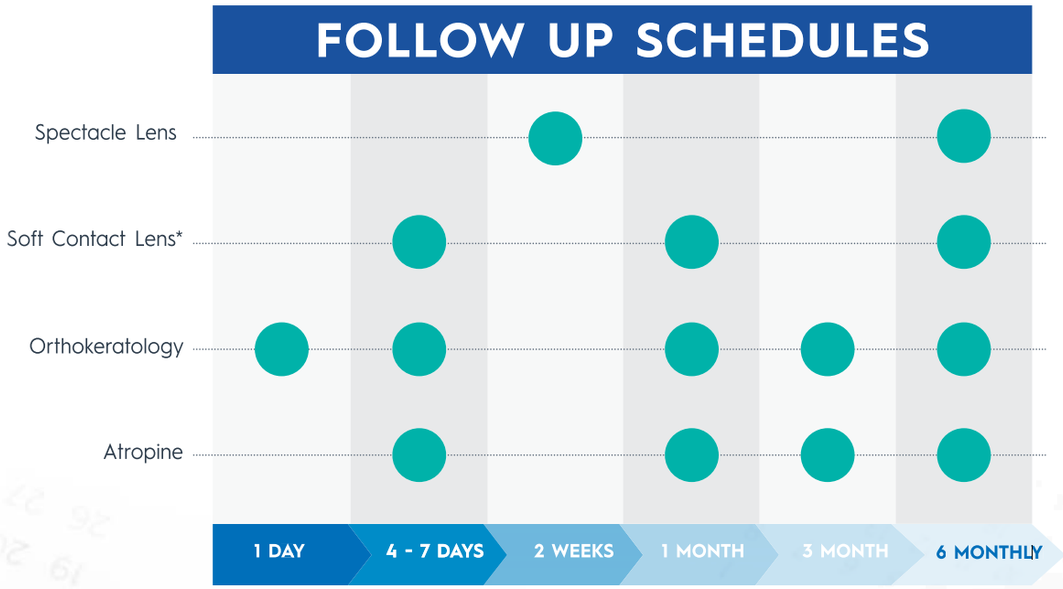
MYOPIA MANAGEMENT SOLUTIONS

FOLLOW UP SCHEDULES



*Multifocal and myopia control contact lens

Gifford KL, Richdale K, Kang P, Allen TA, Lam CS, Liu YM, Michaud L, Mulder J, Orr JB, Rose KA, Saunders KJ, Seidel D, Tideman JWL, Sankaridurg P. IMI - Clinical Management Guidelines Report. Invest Ophthalmol Vis Sci. 2019;60:M184-M203.

Adapted from the IMI Clinical Mangement Guidelines.

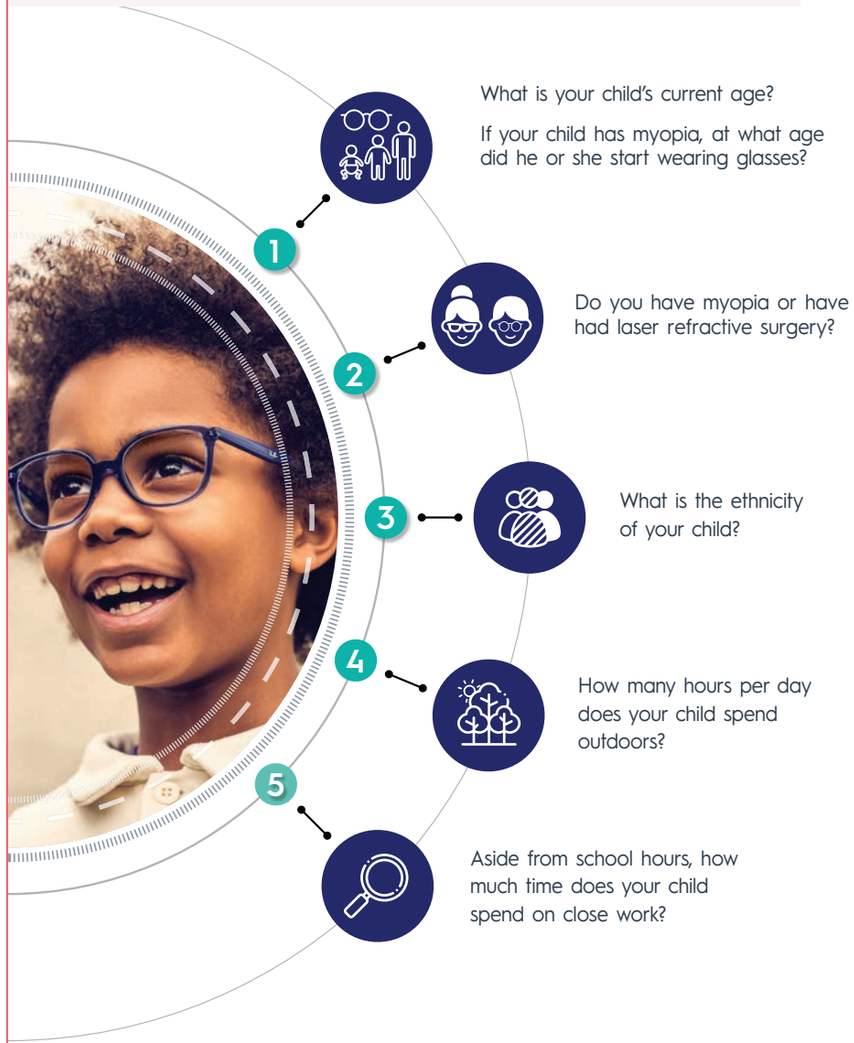
ADVANTAGES & DISADVANTAGES

MODALITY	ADVANTAGES	DISADVANTAGES
Spectacle Lens	• Simple • Non-invasive • No adverse effects • Easy to wear and prescribe	• Compliance-dependent • Cosmetic concerns • Activity limitations
Soft Contact Lens*	• Wider field of vision • Excellent cosmesis • Ideal for sports • Stable on the eye	• Ghosting can appear • Risk of infection • Not suitable for dry eyes • Difficulties in handling • Parental supervision required • Not for children under age 8
Ortho-keratology	• No need to wear correction during day • Wider field of view • Suitable for sports	• Higher risk of microbial keratitis than daily wear contact lens • Limited prescription range compared to multifocal soft contact lenses • Skills and equipment required by practitioner • Parental supervision required
Atropine	• Likely to have good VA when used with SV correction	• Dosage and long-term effects are still not known • Can dilate pupil and reduce accommodation with higher concentrations requiring near add and/or photochromatic spectacles • Limited availability • Rebound effects with high dosage

*Multifocal and myopia control contact lens

1 INTERVIEW

Ask questions to fully assess and manage risk factors for onset of myopia or myopia progression.



1. What is your child's current age?

   If your child has myopia, at what age did he or she start wearing glasses?

2. Do you have myopia or have had laser refractive surgery?

3. What is the ethnicity of your child?

4. How many hours per day does your child spend outdoors?

5. Aside from school hours, how much time does your child spend on close work?

2 EXAMINATION

Conduct a comprehensive examination* to ensure the best outcome for your management plan.

**Examination components are up to the ECP*

Unaided Vision + VA Refractive Assessment:

- Auto Refraction / Retinoscopy
- Subjective refraction / Baseline cycloplegic refraction (where possible)

Best Corrected VA Binocular Vision Assessment:

- Phorias + Fusional reserves + NPC
- Amplitude of accommodation + Lag of accommodation
- AC/A

Ocular Health: (dilated fundus, if possible & annual exam)

- Anterior eye
- Posterior eye – retinal assessment
- Axial length measurement (if available)

Additional Diagnostic Assessment (if available)

- Corneal topography (Ortho-K)

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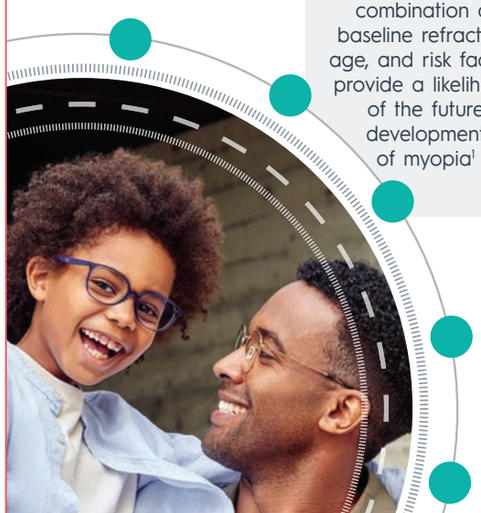
Adapted from the IMI Clinical Mangement Guidelines.
VA: Visual Acuity; NPC: Near Point of Convergence; AC/A: Accommodative Convergence/Accommodation

3 DIAGNOSIS

Effective communication of the outcomes of the examination in a format that that child and their parents can easily understand.

1 NO MYOPIA	2 PRE MYOPIA	3 MYOPIA
	≤+0.75D and >-0.50D in children where a combination of baseline refraction, age, and risk factors provide a likelihood of the future development of myopia[1]	**Myopia** -0.50D or less spherical equivalent **High Myopia** -6.00D or less spherical equivalent. A threshold of ≤-5.00D is also found in literature.[2]



1. Flitcroft DI, He M, Jonas JB, et al. IMI - Defining and Classifying Myopia: A Proposed Set of Standards for Clinical and Epidemiologic Studies. Invest Ophthalmol Vis Sci. 2019;60(3):M20-M30. doi:10.1167/iovs.18-25957
2. The impact of myopia and high myopia: report of the Joint World Health Organization-Brien Holden Vision Institute Global Scientific Meeting on Myopia, University of New South Wales, Sydney, Australia, 16-18 March 2015. Geneva: World Health Organization; 2017

4 PRESCRIPTION

Provide useful advice on visual environment changes and recommend the most suitable solution.

1 NO MYOPIA	2 PRE MYOPIA	3 MYOPIA
• Review yearly or in line with local guidelines	• 6 monthly review	• Prescribe Myopia Management solutions REFER TO OVERLEAF >> • Review schedule based on myopia management solution

ENVIRONMENTAL ADVICE

- **20-20-20 RULE**: Every 20 minutes spent using a screen, you should try to look away at something that is 20 feet away from you for at least 20 seconds.
- Spend at least 2 hours a day outdoors.
- Limit the amount of leisure near work (outside of school time) to less than two hours.

5 FOLLOW-UP

Offer a holistic management plan to ensure that myopia progression is always closely.

1

DIAGNOSIS

NO MYOPIA PRESENT & MINIMAL RISK FACTORS

REVIEW FREQUENCY

Review yearly or in line with local guidelines

2

DIAGNOSIS

PRE MYOPIA PRESENT INCLUDING MEDIUM OR HIGH RISK FACTORS

REVIEW FREQUENCY

- 6 monthly review

3

DIAGNOSIS

MYOPIA PRESENT ≤-0.50

REVIEW FREQUENCY

- Dependent on Myopia Management solution

REFER TO OVERLEAF >>

REVIEW PROCESS

- Review symptoms
- Confirm behavioral changes are in place
- If applicable, check compliance/wearing time of the optical intervention
- Unaided vision
- Refractive assessment
- Binocular vision
- Eye health

Together we can play a part in the fight agains myopia

FOLLOW UP SCHEDULES

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MYOPIA RISK FACTORS

	RISK FACTOR	LOW RISK	MEDIUM RISK	HIGH RISK
1	Current age of child[1-4]	16 years old or older	10 to <16 years old	9 years old or younger
2	Family history of myopia[1, 5]	Neither parent with myopia	One parent with myopia	Both parents with myopia
3	Ethnicity[4, 6-8]	African + Rural	East Asian living in western countries. Other Asian, European & Latino living anywhere	East Asian + Urban
4	Time spent outdoors[1, 5, 9, 10]	> 2.5 hours / day	1.5 to 2.5 hours / day	0 to 1.5 hours / day
5	Time spent on near work (outside of school hours)[1, 9, 11]	0 to 2 hours / day	2 to 3 hours / day	> 3 hours / day
6	Refractive error (risk of myopia onset)[12]	-	-	< +0.75D (6-7 years of age)

Myopia risk factor categorization is utilized under license from Myopia Profile Pty Ltd.

1.Parssinen O, Kauppinen M, Viljanen A. The progression of myopia from its onset at age 8-12 to adulthood and the influence of heredity and external factors on myopic progression. A 23-year follow-up study. Acta Ophthalmol. 2014;92:730-739. 2. Chua SY, Sabanayagam C, Cheung YB, Chia A, Valenzuela RK, Tan D, Wong TY, Cheng CY, Saw SM. Age of onset of myopia predicts risk of high myopia in later childhood in myopic Singapore children. Ophthalmic Physiol Opt. 2016;36:388-394. 3. Matsumura S, Lanca C, Htoon HM, Brennan N, Tan C-S, Kathrani B, Chia A, Tan D, Sabanayagam C, Saw S-M. Annual Myopia Progression and Subsequent 2-Year Myopia Progression in Singaporean Children. Trans Vis Sci Tech. 2020;9:12-12. 4. Donovan L, Sankaridurg P, Ho A, Naduvilath T, Smith ELI, Holden BA. Myopia progression rates in urban children wearing single-vision spectacles. Optom Vis Sci. 2012;89:27-32. 5. Jones LA, Sinnott LT, Mutti DO, Mitchell GL, Moeschberger ML, Zadnik K. Parental History of Myopia, Sports and Outdoor Activities, and Future Myopia. Invest Ophthalmol Vis Sci. 2007;48:3524-3532. 6. French AN, Morgan IG, Burlutsky G, Mitchell P, Rose KA. Prevalence and 5- to 6-year incidence and progression of myopia and hyperopia in Australian schoolchildren. Ophthalmol. 2013;120:1482-1491. 7. Holden BA, Fricke TR, Wilson DA, Jong M, Naidoo KS, Sankaridurg P, Wong TY, Naduvilath TJ, Resnikoff S. Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. Ophthalmol. 2016;123:1036-1042. 8. Rudnicka AR, Kapetanakis VV, Wathern AK, Logan NS, Gilmartin B, Whincup PH, Cook DG, Owen CG. Global variations and time trends in the prevalence of childhood myopia, a systematic review and quantitative meta-analysis: implications for aetiology and early prevention. Br J Ophthalmol. 2016;100:882-890. 9. Rose KA, Morgan IG, Ip J, Kifley A, Huynh S, Smith W, Mitchell P. Outdoor Activity Reduces the Prevalence of Myopia in Children. Ophthalmol. 2008;115:1279-1285.10. Xiong S, Sankaridurg P, Naduvilath T, Zang J, Zou H, Zhu J, Lv M, He X, Xu X. Time spent in outdoor activities in relation to myopia prevention and control: a meta-analysis and systematic review. Acta Ophthalmol. 2017;95:551-566. 11. Li SM, Li SY, Kang MT, Zhou Y, Liu LR, Li H, Wang YP, Zhan SY, Gopinath B, Mitchell P, Wang N, Anyang Childhood Eye Study G. Near Work Related Parameters and Myopia in Chinese Children: the Anyang Childhood Eye Study. PLoS One. 2015;10:e0134514. 12. Zadnik K, Sinnott LT, Cotter SA, Jones-Jordan LA, Kleinstein RN, Manny RE, Twelker JD, Mutti DO, Collaborative Longitudinal Evaluation of E, Refractive Error Study G. Prediction of Juvenile-Onset Myopia. JAMA Ophthalmol. 2015;133:683-689.

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