



Assessing and Managing Myopic Children in the United Arab Emirates: Summary of clinical pathway

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MYOPIA MANAGEMENT PATHWAY

Clinical quick-reference — assessment, advice and myopia control



STEP 1 — CLINICAL ASSESSMENT

- History: age, ethnicity, parental myopia, near-work & outdoor time
- Exam: refraction, BCVA and ocular health assessment
- Axial length $\pm$ corneal topography (if considering ortho-K)
- Wide field retinal imaging (if high myopia or aniso-myopia)

CONSIDER SECONDARY MYOPIA IF:

- High myopia ($\leq -6.00\text{DS}$) under age 10, or myopia greater than the child's age in years
- + any red flag on exam — full criteria on reference sheet*

IF ANY PRESENT → FURTHER WORK-UP

- Widefield retinal imaging + Autofluorescence + macular OCT $\pm$ corneal topography (as indicated)
- If retinal dysfunction is suspected consider ERG +/- genetic testing

IF NONE PRESENT → CONTINUE PATHWAY

- Confirmed typical myopia — proceed to advice & myopia control below

STEP 2 — ADVISE ALL PATIENTS & FAMILIES

- ≥ 2 hrs outdoors daily · Good lighting · 30 minute maximum near work duration · 30cm minimum working distance
- Discuss myopia control options individually with every myopic child & caregiver

STEP 3 — OFFER MYOPIA CONTROL (confirmed myopia, no secondary cause)

OPTICAL

- Myopia control spectacles (e.g. HALT, DIMS, CARE)
- Soft contact lenses (Dual Focus, EDOF, Centre Distance)
- Orthokeratology (overnight wear)

PHARMACOLOGICAL

- Low concentration atropine
- Start / monitor / taper protocol — see reference sheet

STEP 4 — MONITOR WITH AXIAL LENGTH

Target: Annual progression slower than untreated myopic children of same age & ethnicity or emmetropic growth (see reference sheet)

REFERENCE — EXPECTED AXIAL LENGTH GROWTH

Use alongside Step 4 (Monitor) to judge whether treatment response is adequate

Table 1 — Mean axial elongation (following year) for myopic children by age & ethnicity

Age (yrs)	East Asian (mm/yr)	Non-East-Asian (mm/yr)
6	0.71	0.51
7	0.61	0.44
8	0.52	0.37
9	0.44	0.32
10	0.38	0.27
11	0.32	0.23
12	0.28	0.20
13	0.24	0.17
14	0.20	0.15
15	0.17	0.12
16	0.15	0.11
17	0.13	0.09
18	0.11	0.08

Table 2 — Expected emmetropic eye growth by age (stricter target)

Age (yrs)	Axial length, 95% CI (mm)	Annual growth (mm/yr)
6	22.70 [22.57, 23.24]	0.24
7	22.94 [22.83, 23.31]	0.17
8	23.11 [23.02, 23.37]	0.13
9	23.24 [23.16, 23.43]	0.09
10	23.33 [23.25, 23.47]	0.07
11	23.40 [23.33, 23.51]	0.05
12	23.45 [23.38, 23.55]	0.04
13	23.49 [23.42, 23.58]	0.03
14	23.51 [23.45, 23.60]	0.02
15	23.54 [23.47, 23.62]	0.02
16	23.55 [23.48, 23.64]	0.01

POSSIBLE SECONDARY MYOPIA

For further work-up if the primary criterion AND at least one red flag are present

PRIMARY CRITERION

High myopia ($\leq -6.00\text{DS}$) in a child under 10 years — OR — myopia greater than the child's age in years

PLUS — any one of the following red flags

● BCVA ≤ 0.2 logMAR

● Nyctalopia (night blindness)

● Clinical features of retinal dystrophy

● Hearing loss

● Abnormal colour vision

● Nystagmus

● Abnormal macula OCT

● Family history of visual impairment

● High astigmatism / inconsistent refraction

LOW CONCENTRATION ATROPINE PROTOCOL

For confirmed typical myopia meeting treatment criteria (see Step 3, main pathway)

1 START

- Discuss risks & benefits, including rebound and the likely need for long-term therapy (often into late teenage years)
- Baseline Axial Length
- Pupil assessment
- Accommodation assessment



2 MONITOR

- Review with axial length measurements every 6 months
- Aim for annual progression slower than untreated myopic children of same age & ethnicity or emmetropic growth



3 TAPER

- Once elongation is $\leq 0.1\text{mm/year}$, can discuss tapering
- Discuss risks of rebound vs. continued treatment
- Taper slowly over several months — reduce concentration or frequency
- Re-check axial length 2–3 months after starting the taper
- Rebound (elongation above mean for age/ethnicity or emmetropic target) → escalate again
- No rebound → continue taper