INTERNATIONAL MYOPIA INSTITUTE

IMI – 2025 摘要

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引言

IMI 定期发布白皮书，提供兼具科学严谨性与临床实用性的循证共识指南。每期摘要都对既有白皮书的相关主题进行针对性更新。2025 年摘要聚焦六个领域的重点更新：近视的定义与分类、临床管理指南、风险因素、调节与双眼视觉、实验模型，以及近视在年轻成人中的发生与进展。[1]

本节涵盖两个方面：近视前期（PRE-MYOPIA）以及用于外科性视网膜疾病的新共识命名体系。

近视前期：远视储备已成为近视前期研究的核心关注点，睫状肌麻痹后等效球镜屈光度被确立为预测近视发生的最佳单一指标。[2-7] 远视储备是指与年龄相匹配的适度远视状态，可为近视的发生提供保护性缓冲；年龄越小，所需储备量越大，方能有效降低近视风险。现有证据表明，亚洲儿童可能需要比其他族裔儿童更大的远视储备，才能达到同等的近视防护效果。[8，9]

现有证据支持对近视前期儿童实施预防性干预。户外活动时间仍是最有力的保护因素，而新兴数据提示低剂量阿托品、重复低水平红光治疗及新型镜片设计在延缓近视发生方面具有潜在获益。

视网膜命名法：国际专家组开发了基于 OCT 的近视牵引性黄斑病变（MYOPIC TRACTION MACULOPATHY）新分类系统，旨在统一诊断标准、监测疾病进展并规范管理策略。该框架有助于提升临床实践与研究报告的一致性。

临床管理指南

本节重点介绍以下四个关键领域：

预防性管理：延迟近视发生至关重要。每延迟一年，其效果相当于现有治疗手段 2 至 3 年的干预效益。[10] 尽管预防具有明确的长期获益，临床医生仍需权衡治疗的潜在风险与成本，并综合考量近视前期儿童的个体风险状况、治疗意愿、生活方式及可利用资源，以应对结果的不确定性。

主动管理：日益充分的证据与全球共识已将主动近视管理确立为标准诊疗规范，以降低视力损害及生活质量下降的长期风险。长期研究证实，光学干预措施（如双焦点隐形眼镜、周边离焦/对比度降低型镜片）安全有效，且停止治疗后无反弹。治疗方案应个体化制定，光学干预通常作为首选，因其兼顾屈光矫正与近视控制的双重功效。患者的治疗体验与依从性是优化疗效的关键，充分体现了知情共同决策的重要性。

了解治疗效果：新兴方法通过与正视眼生长模式对比，区分生理性眼轴增长与异常性眼轴延长，为临床评估提供了有益参考，但随机对照试验（RCT）仍是疗效评估的金标准。建议未来研究在对照组中采用已验证的近视控制参照方案，而非单光镜片。

长期管理：治疗成功的标志包括：近视进展减缓、持续的安全性、良好的视力与生活质量，以及患者对治疗方案的接受度。建议结合睫状肌麻痹屈光度与眼轴长度（如条件允许）进行规律监测，同时密切关注眼部健康状况，因为眼轴长度与眼部病变风险密切相关。来自亚洲的近期纵向研究揭示，高度近视患者的视网膜改变发生较早，且豹纹状眼底可作为近视性黄斑变性的早期预警指标。因此，即便在较年轻的患者中，主动开展视网膜监测也是长期管理的核心内容。

近视风险因素

除随机对照试验外，新型分析方法进一步强化了环境暴露与近视发生之间的因果证据。

教育与年龄：来自中国的研究显示，学校就读年级而非实际年龄，与屈光不正的相关性最为显著，[11，12]进一步佐证了教育性近距离用眼对近视发生的环境影响。

户外时间：仍是迄今最为可靠的近视保护因素，得到大量观察性研究及随机对照试验的一致支持。[13，14]在台湾，学校推行增加户外活动时间的政策后，相关人群调查与学校研究均有显示人群近视患病率趋于稳定甚至逆转。[15-17]新冠疫情封控期间观察到的证据进一步显示：当户外活动受限时，年幼儿童近视发生率显著上升；[18-26]而在有户外活动的情况下，这一效应得到有效抑制。[17，27]

近距离工作与屏幕使用：部分研究将电视、智能手机等屏幕使用与近视相关联，但结论尚不一致，[28，29]电子设备是否比其他近距离工作带来更高风险目前仍无定论。值得注意的是，东亚地区近视率的快速攀升早于电子设备的普及，[30，31]提示单纯减少屏幕时间而不同步增加户外活动，对降低近视患病率的作用可能十分有限。

睡眠：现有研究已探讨近视与睡眠时长不足、就寝时间过晚、起床时间延后及睡眠障碍等之间的关联，但目前研究结论尚不一致。[32-40]

调节与双眼视觉

现有证据表明，近视控制干预对调节功能及双眼视觉的影响轻微，且与近视进展无关。短期研究提示，光学治疗（如多焦点隐形眼镜、角膜塑形镜）可能在一定程度上改变调节或集合功能，但儿童长期临床试验表明，上述影响会逐渐趋于稳定，不会损害视功能。低浓度阿托品对调节功能的影响则可忽略不计。

正视化和近视的实验模型

近期动物研究进一步拓展了对正视化过程与近视机制的认识，研究模型涵盖小鼠至灵长类动物。研究发现强调了光照特征的重要性——光谱成分、闪烁频率及空间频率均对眼球生长产生影响，但不同物种间存在差异。新型视蛋白（OPN3、OPN4、OPN5）被证实参与非成像光通路，揭示了昼夜节律调控、多巴胺信号与屈光发育之间的潜在联系。脉络膜与巩膜作为关键的信号传导与重塑部位，受到越来越多的重视，炎症反应及细胞外基质的动态变化被认为是潜在的治疗靶点。这些发现为既有临床观察提供了生物学依据，并将有助于推动未来转化医学研究的开展。

年轻成人近视的发生和进展

纵向研究与基于诊所的数据均证实，大多数成年近视患者屈光度保持稳定，但仍有一部分年轻成人的近视在持续进展。平均进展速率较为温和（约为–0.05 至–0.25 D/年），但在学术环境及高度近视人群中更为常见，20 至 50 岁之间的累积屈光变化可达–1 D。相关风险因素包括：基线近视度数较高、女性、日照不足、屏幕使用时间较长及遗传易感性。临床上，建议对年轻成人持续随访，尤其是高风险患者。

结论

IMI 2025 年摘要强调早期识别与预防的重要性，尤其应重视远视储备的评估与户外活动的推广。现有证据支持采用安全有效的光学干预手段，对近视进行主动、个体化的综合管理。近视控制干预对调节功能与双眼视觉的影响极为有限。实验模型揭示了光介导及分子层面的新机制，临床数据亦证实部分年轻成人，尤其是高度近视者的近视仍在持续进展。上述进展共同支持将主动、全程化的近视管理策略作为近视防控的核心理念。

致谢

本 IMI 白皮书由 Nina Tahhan 博士负责总结。IMI 工作组成员完整名单及各白皮书全文可访问 myopiainstitute.org 获取。国际近视研究所报告的出版与传播费用由 Brien Holden Vision Institute, Carl Zeiss Vision, CooperVision, EssilorLuxottica, Hoya, Thea, Alcon 和 Oculus 提供捐款支持。

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