A Meta-Analysis of Myopia Control with MiSight 1 Day Contact Lenses

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Abstract. The purpose of this research (PROSPERO Registration No. CRD42023396866) is to evaluate efficacy of MiSight 1 Day Contact Lenses (CooperVision) for controlling myopia progression. Data were researched from search in PubMed, MEDLINE, EMBASE, Web of Science and Cochrane Library ended on February 3, 2023. Our meta-analyses included three RCTs and one retrospective study and covered 470 eyes which have tested the efficacy of MiSight. The research results include the changes of refractive errors (spherical equivalent refraction) and axial length from the beginning of intervention to the end of follow-up. The weighted mean difference (WMD) of the change of spherical equivalent refraction (SER) in MiSight groups and control groups were 0.098D (95% CI, 0.006-0.189, p = 0.037) in 6 months, 0.353D (95% CI, 0.261-0.445, p < 0.0001) in 12 months and 0.432D (95% CI, 0.181-0.683, p = 0.001) in 24 months. The weighted mean difference (WMD) of change of axial length (AL) in MiSight groups and control group were 0.098D (95% CI, 0.006-0.189, p = 0.037) in 6 months, 0.353D (95% CI, 0.261-0.445, p < 0.0001) in 12 months and 0.432D (95% CI, 0.181-0.683, p = 0.001) in 24 months. This meta-analysis suggests that MiSight is effectual on Myopia control.

Keywords: MiSight; Myopia; intervention studies; soft contact lenses; meta-analysis.

1. Introduction

Myopia (near-sightedness) is the most prevalent refractive error in children and young adults. On the basis of pathogeny, it has been divided into three categories: axial myopia, refractive myopia, and secondary myopia[1]. Myopia occurs when the refractive image forms anterior to the photoreceptors of the retina, resulting in blurred distance vision. Concurrently, a variety of severe complications are common in patients with high myopia (spherical equivalent refraction (SER) ≤ -6 D). They include myopic macular degeneration, retinal detachment and posterior subcapsular cataract[2], all of which, in conjunction with myopia, cause visual impairment and negatively impact patients' quality of life. According to Iwase's research[3], myopic macular degeneration is the most frequent cause of monocular blindness. Myopia has become more common throughout the world, particularly among children and young adults. An estimated 2.7% of the world's population (1406 million people) was affected by myopia in 2000. By 2050, myopia is expected to affect roughly half of the global population (4758 million people). Myopia is estimated to affect 53.4% of high-income people in Asia-Pacific areas[4]. The prevalence is approximately 41.6% in America[5] and 30.6% in Europe[6]. The prevalence of myopia is even higher in children and young adults. Myopia affects 80%-90% of children aged 17-18 in developed East and Southeast Asian countries[7]. Myopia affects 47.2% of young adults aged 25 to 29 in Europe. While the overall prevalence of childhood myopia in Africa is low, it is estimated to be around 4.7%[8].

Myopia typically develops during childhood and adolescence. It is a disease with various etiologies. One of the causes of myopia is genetic factors[9] and environmental factors. Myopic heritability is accounted for by 18.4% of all relevant genetic variations. Genes which are participated in the development of tissue components of eyes, controlling circadian rhythm and pigmentation can give rise to myopia[10]. Given that the prevalence of myopia among young people has increased three to four times in the last decade, environmental factors might be the leading cause in the dramatic rise in the incidence of myopia, as gene pools cannot transform that quickly[11]. Environmental risk factors including the popularity of smart phones and computers,

reduction of outdoor activity time and unbalanced diet can increase the incidence of myopia. Education is a crucial factor among them. Numerous studies[6, 11-13] have shown a significant link between myopia and education. Expanded learning time could unintentionally result in an increase in the prevalence of myopia and the rate of visual impairment in the future. Higher education levels are associated with higher rates of myopia

Several measures are used to alleviate myopia in order to alleviate the burden of high myopia. They consist of developing proper vision care habits, optimizing environmental influences, and using atropine eye drops, spectacles, orthokeratology, and contact lenses[14]. Initially, bifocal and multifocal soft contact lenses were primarily used to treat presbyopia. In the last two decades, they have been shown to be effective in controlling myopia progression and have been used in clinical practice. However, when compared to spectacles, the most commonly used treatment measure, soft contact lenses have higher requirements for wearing operation. MiSight 1 Day Contact Lenses (CooperVision), a type of bifocal soft contact lenses (BSCLs), is a hydrophilic contact lens composed of Omafilcon A material[15]. It is the only FDA-approved contact lens for postponing the progression of myopia in children aged 8 to 12, with a refraction of -0.75 to -4.00 D with ≤ 0.75 D of astigmatism. The daily disposable soft contact lens must be discarded after each removal, obviating the need for daily cleaning and disinfection. MiSight contact lenses have a 3.36 mm central correction area surrounded by concentric circles, resulting in 2.00 D of simultaneous myopic retinal defocus. It is demonstrated that decrease retinal peripheral hyperopic defocus as natural optical signals can retard the development of refractive errors[16, 17].

To the best of the authors' knowledge, no systematic review or meta-analysis has been published on the clinical effect of MiSight 1 Day Contact Lenses on the progression of myopia. As a consequence, the goal of this study is to provide clinical evidence on visual outcomes in MiSight-treated Myopic patients versus patients treated with single vision spectacle lenses or single vision soft contact lens, since there is no statistically significant disparity between them in treating myopia progression[18].

Our study extracted information from the selected studies (including author, year of publication, country or region, research center, number, age, near use added value, sample size, follow-up time, number of lost visits, intervention measures, results and test methods, etc.) and used the Downs and Black scoring system to assess the quality of the literature included in the study. Weighted mean difference (WMD) was used to calculate the difference in spherical equivalent refraction (SER) and axial length (AL) between the MiSight and control groups, as well as the 95% confidence interval between the two groups. The I-squared (I2) is used to evaluate heterogeneity. When $P<0.1$ (or $I2>50\%$), the heterogeneity is significant, and the random effect model (I-V heterogeneity) is used to assess. Otherwise, the fixed effect model (inverse variance) is used to evaluate. The Z test was applied to comparing the two groups' spherical equivalent refraction (SER) and axial length (AL).

2. Materials And Methods

2.1 Search Strategy

We conducted a comprehensive literature search in PubMed, MEDLINE, EMBASE, Web of Science and Cochrane Library to identify studies research on the clinical effect of MiSight contact lenses. Search term was “MiSight”. The publication language had no language restrictions. The literature search period ended on February 3, 2023.

2.2 Inclusion and exclusion criteria

Inclusion criteria: clinical controlled trials that meet the following criteria:

(1) Parallel control study or cross control study.

(2) Myopic patients (children, adults) in the test.

(2) The intervention group used MiSight 1 Day Contact Lenses (CooperVision), and the control group used single vision soft contact lenses or spectacles.

(4) The research results include the changes of spherical equivalent refraction (SER) and axial length(AL) from the beginning of intervention to the end of follow-up.

2. Exclusion criteria: exclude documents with incomplete data, incomplete data and repeated publications.

2.3 Data extraction

All of the data were extracted independently by two reviewers from the selected study (including author, year of publication, country or region, research center, number, age, added value of near use, sample size, follow-up time, number of lost visits, intervention measures, results and test methods). If necessary, contact the author to obtain the detailed data of the article.

2.4 Quality Assessment

We used a modified Downs and Black(D&B) checklist[19] to assess the methodological quality of the included four studies. D&B scoring system was chosen because it can be applied to both RCTs and non-RCTs[20]. This score can be used for both randomized controlled trials (RCT) and non-RCT. The content includes 5 parts, a total of 27 items, with a full score of 28 points. This research graded D&B scores (excellent: 26-28; good: 20-25; fair: 15-19; and poor: ≤14) in the included four studies.

We applied Review Manager (RevMan) [Computer program]. Version 5.4. The Cochrane Collaboration, 2020. to assess risk of bias of the included trials. The Revman analyzes the risk of bias on the following domains: (1) Random sequence generation (selection bias) ;(2) Allocation concealment (selection bias) ;(3) Blinding of participants and personnel (performance bias) ; (4) Blinding of outcome assessment (detection bias) ; (5) Incomplete outcome data (attrition bias) ; (6) Selective reporting (reporting bias) ; (7) Other bias. Based on the support for judgement, low risk, high risk and unclear risk were differentiated.

2.5 Statistical Analysis

Stata v. 17.0 software (Stata Corporation LLC, College Station, USA) was used to analyze the data. The weighted mean difference (WMD), which is the average change of the MiSight group minus the average change of the control group, was calculated to determine the difference of refractive errors and axial length between the treatment group and control group, and the 95% confidence interval between the two was calculated. The I-squared (I^2) statistic is used to assess the heterogeneity. When the $P<0.1$（or I^2 statistic $<50\%$）, the fixed effects model(inverse variance) was used. Conversely, when the I^2 statistic was $\geq 50\%$, then the random-effects model(I-V heterogeneity) was used. Z-test was used to compare the refractive errors and axial length of the two groups. $P<0.05$ indicates the difference was statistically significant.

3. Results

3.1 Study Selection

The entire literature search process was illustrated by **Figure 1.** After a comprehensive literature search in PubMed, MEDLINE, EMBASE, Cochrane library and Web of Science databases, 212 records were identified. After deleting duplicate records, 83 records remained. After screening title/abstract, 33 articles were selected for full-text examination. Five clinical trial protocols were excluded and 28 full-text publications had been retrieved. Six articles were excluded for the following reasons: Three studies were conference abstracts without peer review. Intervention of five studies were not in the scope of this overview. Outcome of 15 studies were not relevant. Besides, one record identified from citation searching was excluded because the follow-up interval was 5 months. Finally, our study identified four studies of which four reports and one review were assesses for eligibility from 2018 to 2022.

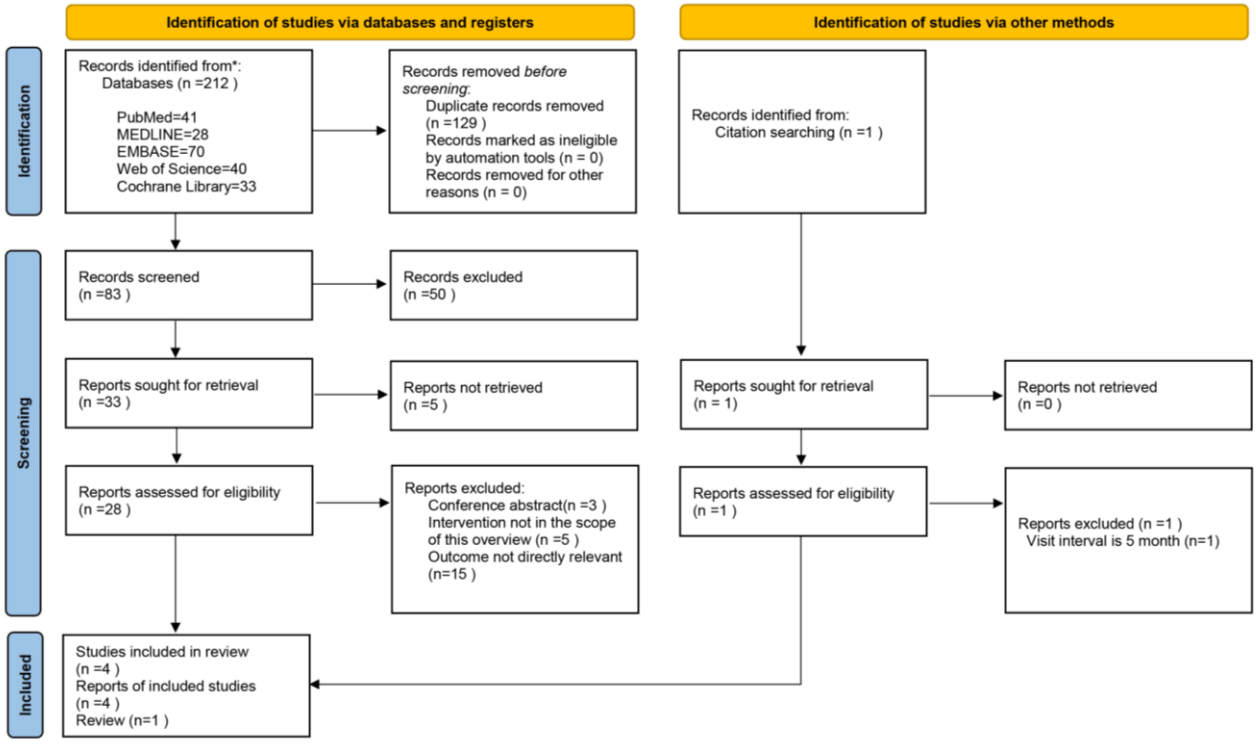


Figure 1. PRISMA flowchart of the literature search performed. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

3.2 Study Characteristics

A total of four studies researching on the myopia control effect between MiSight were included in this overview. Among the included articles, three were high-quality RCTs[21, 22] [23], one was retrospective, parallel-group research[24] and one was review[25] which provided statistic data of the included RCT conducted by Ruiz-Pomeda et al.[21] Of the included studies, one was multicenter performed in Portugal, United Kingdom, Singapore and Canada. Two studies were conducted in Spain and one was carried out in China. The characteristics of the included studies were shown in **Table 1.**

Table 1. The characteristics of the included studies

Author, year	Location	Trial design	Age, Treated/control, mean	Number of eyes, Treated/control, n	Baseline SER(D), Treated/control, mean	Baseline AL(mm), Treated/control, mean	Duration	Follow-up	Outcome measure, SER/AL
Chamberlain et al. (2019)	Portugal, Singapore United Kingdom, Canada	RCT	10.1y /10.1y	148/140	−2.02/−2.19	24.42/24.46	3y	12m	Keratometer WR-5100K or WAM-5500 / IOLMaster
García-Ayuso et al. (2022)	Spain	Non-RCT	12.0y /13.4y	22/22	−2.19/−2.63	24.25/24.58	1y	12m	RM-8000B, Topcon / IOL Master 700
Ruiz-Pomeda et al. (2018)	Spain	RCT	11.0y/10.12y	82/66	−2.16/−1.75	24.09/24.00	2y	12m	Measured objectively following the current protocol of the Novovision ophthalmologic clinic / Topcon RM-8000B
Weng et al. (2022)	China	RCT	11.2y/11.0y	21/21	−1.97/−2.10	24.47/24.60	1y	6m	Shin Nippon K 5001/ Lenstar 900

3.3 Methodological Quality and Bias Analysis

The methodological quality assessed by modified Downs and Black checklist of the four trials was shown by **Table 2.** According to Downs and Black scoring system, the score of four tests ranged from 14 points to 24 points (mean=18, Chamberlain et al.=24, García-Ayuso et al.=14, Ruiz-Pomeda et al.=20, Weng et al.=14). The risk of bias of included trials analyzed by Review Manager ((RevMan) [Computer program]. Version 5.4. The Cochrane Collaboration, 2020) was illustrated in **Figure 2** and the support for judgement of each study was shown in **Table 3.**

Table 2. Methodological quality of included studies assessed by modified Downs and Black checklist.

Author, year	Reporting	External Validity	Internal validity		Power	Total score
			Bias	Confounding		
Chamberlain et al. (2019)	11	1	6	5	1	24
García-Ayuso et al. (2022)	6	0	5	2	1	14
Ruiz-Pomeda et al. (2018)	11	0	5	3	1	20
Weng et al. (2022)	6	1	5	2	0	14
Median (range)	8.5 (6-11)	0.5 (0-1)	5.25 (5-6)	3 (2-5)	0.75 (0-1)	18 (14-24)

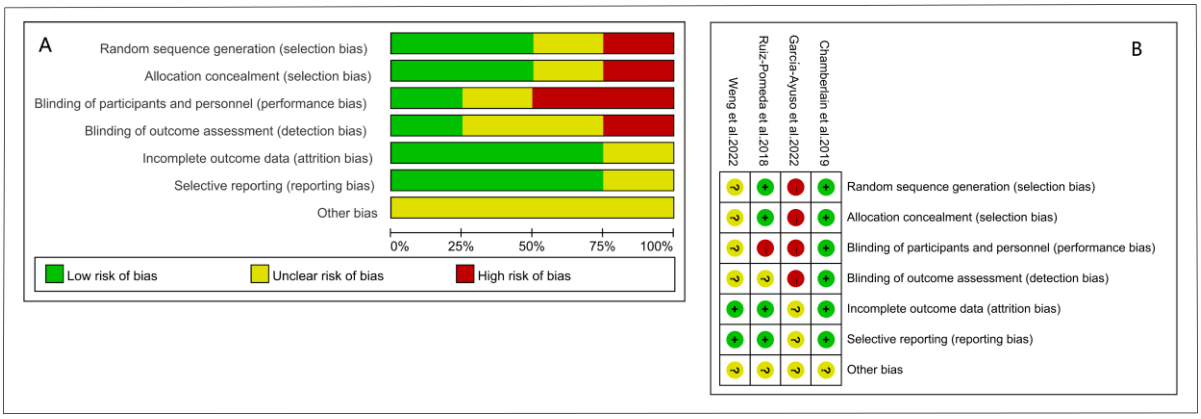


Figure 2. Risk of bias graph. (A). Risk of bias graph: judgements of review authors about each risk of bias item presented as percentages across all included studies. (B). Risk of bias summary: judgements of review authors about each risk of bias item for each included study.

Table 3 The judgement of the risk of bias of included studies

Bias	Authors' judgement	Support for judgement
Chamberlain et al.2019		
Random sequence generation (selection bias)	Low risk	Random number – generating computer program.
Allocation concealment (selection bias)	Low risk	Double-masked. All investigators could access the randomization log, but the study product was coded (lens A and lens B) and the randomization log only had the lens codes listed on it.
Blinding of participants and personnel (performance bias)	Low risk	Double-masked. Participants and their parents were masked. All investigators could access the randomization log, but the study product was coded (lens A and lens B) and the randomization log only had the lens codes listed on it.
Blinding of outcome assessment (detection bias)	Low risk	Double-masked. All investigators could access the randomization log, but the study product was coded (lens A and lens B) and the randomization log only had the lens codes listed on it.
Incomplete outcome data (attrition bias)	Low risk	The number and reasons of lost to follow-up and withdrawal in each group were reported explicitly.
Selective reporting (reporting bias)	Low risk	All relevant outcomes were described.
Other bias	Unclear risk	unclear
García-Ayuso et al.2022		
Random sequence generation (selection bias)	High risk	Non-randomized, retrospective, descriptive, parallel-group, observational study
Allocation concealment (selection bias)	High risk	Retrospective, descriptive, parallel-group, observational study.
Blinding of participants and personnel (performance bias)	High risk	non-blind method
Blinding of outcome assessment (detection bias)	High risk	non-blind method
Incomplete outcome data (attrition bias)	Unclear risk	unmentioned
Selective reporting (reporting bias)	Unclear risk	unmentioned
Other bias	Unclear risk	unclear
Ruiz-Pomeda et al.2018		
Random sequence generation (selection bias)	Low risk	A random-number table of 200 numbers
Allocation concealment (selection bias)	Low risk	Personnel not directly related to the participants assigned subject numbers using a random-number table of 200 numbers. Researchers had no access to the randomization schedule.
Blinding of participants and personnel (performance bias)	High risk	non-blind method
Blinding of outcome assessment (detection bias)	Unclear risk	unmentioned
Incomplete outcome data (attrition bias)	Low risk	Five withdrawals in treatment group and none in control group. Reasons of withdrawal were reported explicitly.
Selective reporting (reporting bias)	Low risk	All relevant outcomes were described.
Other bias	Unclear risk	Unclear
Weng et al.2022		
Random sequence generation (selection bias)	Unclear risk	Randomized, no description
Allocation concealment (selection bias)	Unclear risk	Randomized, no description
Blinding of participants and personnel (performance bias)	Unclear risk	masked, no description
Blinding of outcome assessment (detection bias)	Unclear risk	masked, no description
Incomplete outcome data (attrition bias)	Low risk	Discontinuations were 33.3%, 48.4% and 50.0% for groups I to III, respectively, and did not differ significantly between the groups (p = 0.35; additionally, group II and III discontinuations were not higher than group I discontinuation [p= 0.19]). The reasons for discontinuations were reported explicitly.
Selective reporting (reporting bias)	Low risk	All relevant outcomes were described.
Other bias	Unclear risk	unclear

3.4 Treatment Effects of MiSight Lenses

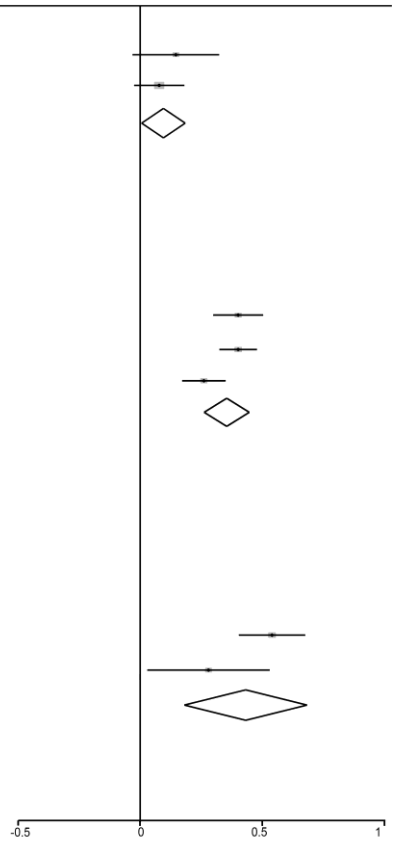
Based on the result of included four studies, we set up 6-months,12-months and 24-months groups to assess the myopia progression by comparing the change of spherical equivalent refraction (SER) and axial length(AL) respectively. We used the random effect model (I-V heterogeneity) to analyze the data, on account of the 12-months and 24-months SER groups' moderate heterogeneity (I^2 > 50% and p < 0.05). We utilized the fixed effect model (inverse variance) in accordance with other groups' low heterogeneity (I^2 <50% and p > 0.05).

The weighted mean difference(WMD) of the change of spherical equivalent refraction(SER) were less in MiSight groups than in control groups, which were 0.098D (95% CI, 0.006-0.189, p = 0.037) in 6 months, 0.353D (95% CI, 0.261-0.445, p < 0.0001) in 12 months and 0.432D (95% CI, 0.181-0.683, p = 0.001) in 24 months, respectively. **Table 4** shows the result.

Compared with control groups, the change of axial length calculated by the weighted mean difference(WMD) shown that MiSight groups yielded less axial elongation, which were -0.068mm (95% CI, -0.103to-0.033, p < 0.0001) in 6 months, -0.123mm (95% CI, -0.135to-0.112, p < 0.0001) in 12 months and -0.223mm (95% CI, -0.274to-0.172, p < 0.0001) in 24 months. Meanwhile, the result is illustrated in **Table 5.**

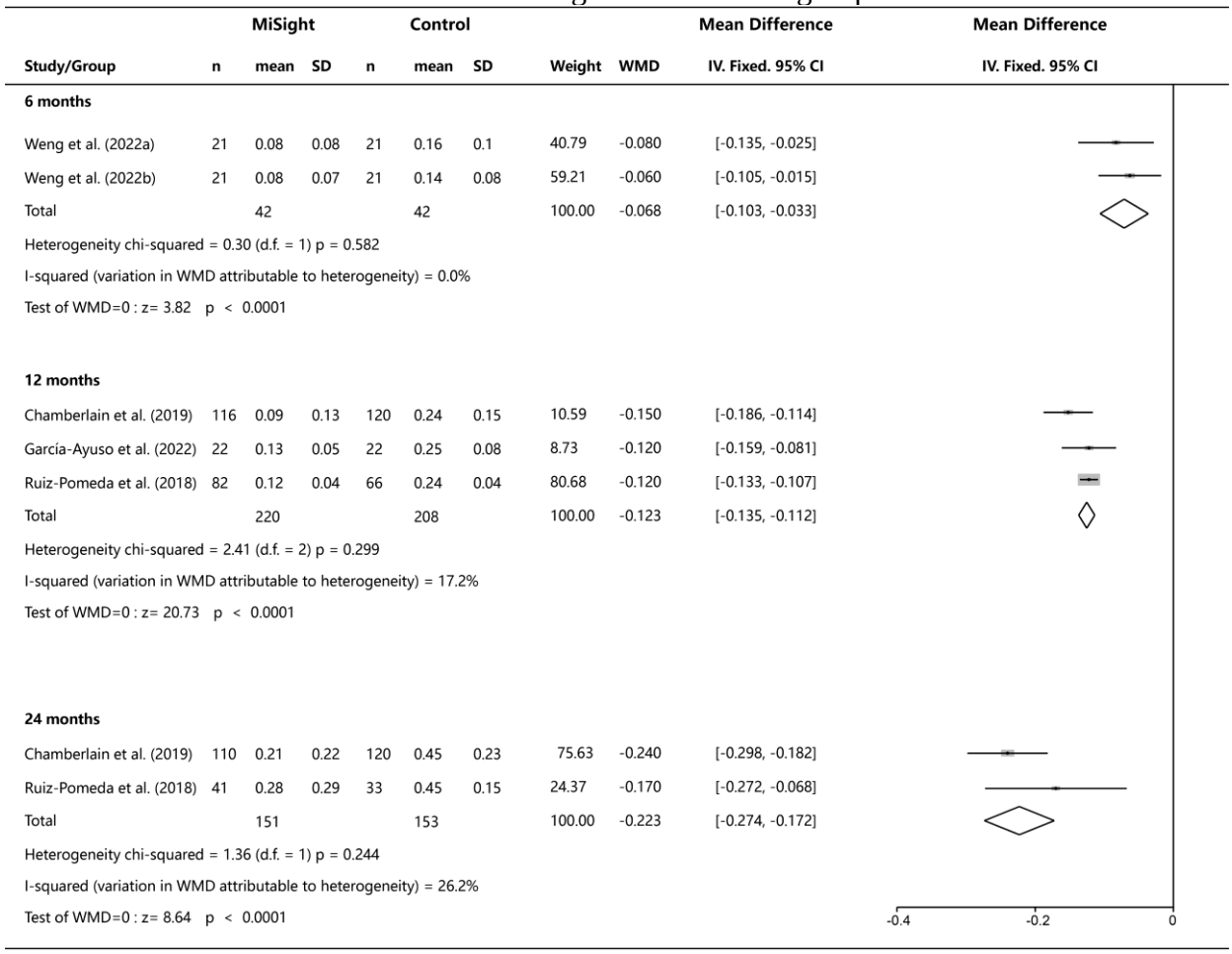
Table 4. The change of SER in three groups.

	MiSight			Control					Mean Difference	Mean Difference
Study or Group	**n**	**mean**	**SD**	**n**	**mean**	**SD**	**Weight**	**WMD**	**95% CI**	**95% CI**
6 months									IV. Fixed. 95% CI	
Weng et al. (2022a)	21	-0.23	0.33	21	-0.38	0.27	25.22	0.150	[-0.032 ,0.332]	
Weng et al. (2022b)	21	-0.18	0.17	21	-0.26	0.18	74.78	0.080	[-0.026 ,0.186]	
Total	42			42			100.00	0.098	[0.006 ,0.189]	
Heterogeneity chi-squared = 0.42 (d.f. = 1) p = 0.515										
I-squared (variation in WMD attributable to heterogeneity) = 0.0%										
Test of WMD=0 : z= 2.09 p = 0.037										
12 months									IV. Random. 95% CI	
Chamberlain et al. (2019)	116	-0.18	0.39	120	-0.58	0.41	30.36	0.400	[0.298, 0.502]	
García-Ayuso et al. (2022)	22	-0.14	0.09	22	-0.54	0.16	36.24	0.400	[0.323, 0.477]	
Ruiz-Pomeda et al. (2018)	82	-0.18	0.29	66	-0.44	0.26	33.40	0.260	[0.171, 0.349]	
Total	220			208			100.00	0.353	[0.261, 0.445]	
Heterogeneity chi-squared = 6.47 (d.f. = 2) p = 0.039										
I-squared (variation in WMD attributable to heterogeneity) = 69.1%										
Estimate of between-study variance Tau-squared = 0.0046										
Test of WMD=0 : z= 7.51 p = 0.000										
24 months									IV. Random. 95% CI	
Chamberlain et al. (2019)	110	-0.38	0.52	120	-0.92	0.53	58.53	0.540	[0.404, 0.676]	
Ruiz-Pomeda et al. (2018)	82	-0.45	0.62	33	-0.73	0.62	41.47	0.280	[0.029, 0.531]	
Total	42			42			100.00	0.432	[0.181, 0.683]	
Heterogeneity chi-squared = 3.20 (d.f. = 1) p = 0.074										
I-squared (variation in WMD attributable to heterogeneity) = 68.7%										
Estimate of between-study variance Tau-squared = 0.0232										
Test of WMD=0 : z= 3.37 p = 0.001										



SER: spherical equivalent refraction
a The number of samples is eyes
b Weighted mean difference
CI, confidence interval

Table 5. The change of AL in three groups.



AL: axial length
a The number of samples is eyes
b Weighted mean difference
CI, confidence interval

4. Discussion

This research synthesized evidence from three randomized controlled trials and one retrospective study to investigate the effect of MiSight on myopia progression in school-aged children. The MiSight group exhibited statistically significant less myopia progression than the control group. With MiSight, the development of refractive error was -0.193D, -0.166D, and -0.409D in 6 months, 12 months, and 24 months, respectively. Simultaneously, with single vision contact lenses or spectacles, the progression of refractive error was -0.29D, -0.519D and -0.841D. Furthermore, MiSight also shown profound clinical effect on retarding axial elongation. With MiSight, the axial elongation was 0.08mm, 0.118mm and 0.227mm in 6 months, 12 months, and 24 months. Meanwhile, in control groups, the axial elongation was 0.148mm, 0.241mm and 0.45mm. To sum up, MiSight had high clinical application value of decelerating the development of refractive error and axial elongation in myopia patients.

Furthermore, there are various other strategies for controlling myopia progression in addition to MiSight. While different strategies have inequivalent effects on myopia retardation, according to scientific evidence.[26] Commercially available soft contact lenses have significantly different peripheral refraction and spherical aberration profiles, which are thought to be the cause of the variable myopic control effect. [27, 28] This meta-analysis concluded that MiSight, a type of bifocal soft contact lenses (SCLs), effectively slows myopia progression. However, in other studies

comparing bifocal SCLs with single vision lenses, the myopia control value was lower than in our study: 0.16D (95%CI, 0.01-0.32) vs. 0.353D (95% CI, 0.261-0.445) in 1-year SER change and 0.20D (95%, -0.09 to 0.49) vs. 0.432D (95% CI, 0.181to 0.683) in 2-year SER change. As to peripheral add multifocal soft contact lenses, the effect of myopia control was less than MiSight lens: 0.31D(95%CI, 0.05 to 0.57) vs. 0.353D (95% CI, 0.261 to 0.445) in 1-year SER change and -0.12mm (95%CI, -0.18 to -0.07) vs. -0.123mm (95% CI, -0.135 to -0.112) in 1-year AL change[26, 29-32]. Besides, MiSight also had a slight advantage over multifocal spectacle lenses 0.25D (95%CI, 0.13 to 0.38) in 1 year SER change. Nevertheless, the axial elongation with multifocal spectacle lenses was identical to MiSight.[33].

In addition to SVLs and spectacles, other strategies such as atropine eye drops and orthokeratology are widely used. Orthokeratology is a prevalent treatment option among both eye care professionals and patients. A meta-analysis found that orthokeratology was more effective than MiSight in slowing axial elongation: -0.13mm (95%CI, -0.18 to -0.09) vs. -0.068mm (95% CI, -0.103 to -0.033) in 6 months, -0.19mm (95%,-0.22 to -0.17) vs. -0.123mm (95% CI, -0.135 to -0.112) in 1 year, -0.27mm (95%,-0.32 to 0.23) vs. -0.223mm (95% CI, -0.274 to -0.172) in 2 years[34]. When compared with SCLs, spectacles, orthokeratology and outdoor activity, atropine eye drops had a more significant therapeutic effect [28] and the effectiveness of atropine was dose-dependent[35, 36]. Besides, a study[37] presented literately evidence to support using stem cells for myopia controlling.

Considering that there are many treatment options to choose, it is crucial for ophthalmologists and patients to be acquainted with merits and defects of different treatment measures. Atropine is recognized as the most effective measures to decelerate myopia progression, but spectacles and contact lenses are needed to ensure the clarity of vision in the daytime. Consequently, combination of MiSight and atropine is indicated to control myopia. However, a retrospectively selected cohort reported that combination of MiSight and atropine had no preponderance over low-concentration atropine monotherapy[38]. Orthokeratology is also a prevalent choice and was more effective at retarding axial elongation than MiSight. Even so, MiSight are thought to be safer than orthokeratology considering that MiSight is daily disposable and obviating the need for daily cleaning and disinfection.

No serious ocular adverse events or rebound effects were reported in these three RCTs and one retrospective study included, of which two RCTs had elaborated on adverse events. Asymptomatic corneal infiltrative events were reported by Chamberlain et al [22] during the 3 years of follow-up, which includes one subject in MiSight group and three subjects in control group. Nonsignificant adverse events were presented by Ruiz et al [39] during the 2 years of follow-up in two subjects. These two patients were affected by unilateral foreign body attached to the cornea completely asymptomatically and their visual clarity had not been affected. Furthermore, no rebound effects occurred in patients wore MiSight lenses. In a 12-month prospective study[40], subjects who discontinued to wear MiSight contact lenses had not accelerated their myopia progression and axial elongation, compared with those who continued to wear single vision spectacles, or those who go on to wear MiSight contact lenses. Meanwhile, Weng et al[23] suggested that there was not rebound effects indicated on account of no statistical difference between subjects who switched from MiSight to SVCLs and who wore SVCLs constantly.

This meta-analysis has some limitations. Firstly, one retrospective study was included and the number of included studies was small. This added the possibility of heterogeneity of research source. Secondly, the adverse events and rebound effect were not mentioned in two of those included studies. Furthermore, some details were not elaborated in García's study [24]. This missing information limited a more thorough analysis. Thirdly, as age is a crucial impact on myopia progression, we did not model age effects. Because the detailed information was lack in some studies and the number of included studies was too small.

In conclusion, there was convincing statistical evidence that MiSight was effectual on Myopia control in 6 months, 12 months and 24 months. Although a slightly decrease effect was presented in

6 months, effective therapeutic effect was observed in a longer follow-up. As MiSight herald a new therapeutic scenario that decelerates myopia progression, more researches and clinical trials are needed.

Author Contributions: Siyue Luo had full access to all the data in this study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Siyue Luo.

Acquisition, analysis, or interpretation of data: Siyue Luo and Siyi Peng.

Drafting of the manuscript: Siyue Luo.

Critical revision for important intellectual content of the manuscript: Siyue Luo.

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Conflicts of Interest: The author states that they have no conflicts of interests.

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