Positive benefits of fitting children with contact lenses

Contact lens wear has been shown to have positive life-changing effects in young people. **Jonathon Bench** explains why fitting children and teens is rewarding both for the patient and the practice

How many times have you read peer-reviewed publications and articles or heard from the contact lens industry that you should fit more patients with contact lenses and introduce the idea to younger patients? But why should you actually think about doing it?

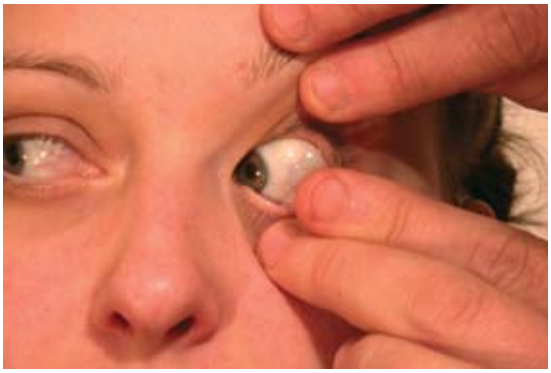
This article will outline why this is a good recommendation, and demonstrate that the whole experience of fitting children and teens with contact lenses is rewarding on two fronts. Firstly, knowing that you have been instrumental in unlocking a young person's true potential, then sharing in the joy of watching their confidence grow before your eyes. Secondly ensuring that your practice is successful and profitable, and in a strong position for future growth.

When and where do you start?

The 3.6 million contact lens wearers in the UK represent just 7.2 per cent of the adult population.[1] It is true to say that optometrists see far fewer contact lens patients than those seeking just an eye examination and spectacles. The proportion of children and young teenagers in this contact lens wearing group is unknown as typically survey data look at no younger than the age of 16. However, it can be surmised that while the vast majority of practitioners will see children and teenagers as part of everyday practice, they may only see a small proportion of this group as contact lens wearers.

So although the average practitioner may see few young contact lens patients, when is it right to start fitting children with contact lenses? A survey of 1,376 practitioners in 2007 highlighted that around a fifth would fit children under the age of 11 years with contact lenses, with three-quarters starting to offer contact lenses to 11-16 year olds.[2] A similar survey of practitioners completed in 2008 found that 13 years and older seemed to be the point at which most practitioners felt comfortable to consider contact lenses for their younger patients.[3] A shift in practitioner attitudes was found in a recent survey of US optometrists, with 21 per cent reporting that they were more likely to fit the younger group of 10-12 year olds in contact lenses than a year ago.[4] Nearly a third attributed the change in attitude to fitting daily disposable lenses and a quarter cited 'improved contact lens materials'.

In contrast to the attitudes of practitioners reflected in these surveys, recommendations made by researchers in this area suggest that contact lenses can and should be routinely fitted to children from about eight years old – a younger age than is currently employed.



Contact lenses can unlock a young person's potential

The Contact Lenses in Pediatrics (CLIP) study examined the differences in fitting young children (8-12 year olds) and teens (13-17 year olds).[5,6] The study was a three-month, bilateral daily-wear study conducted at three sites in the US. Several aspects of contact lens fitting were examined. The only difference between the two groups was in the area of insertion and removal training where the younger age group took around 15 minutes longer. There was no difference in success rates or the time taken to fit in the consulting room, and neither children nor teens experienced problems related to contact lens wear during the study. The younger age group were seen to cope just as well with contact lens wear and also received the same quality of life benefits as the teen group, highlighting that practitioners should routinely offer contact lenses as an option for children as young as eight years old.

Our early years are so very important, and this can perhaps be appreciated more as we watch our own children grow up. As parents we feel a huge responsibility to ensure our children have all the opportunities available to lead a full and happy life. As we know, when this comes to vision correction, the prescribing of spectacles can be fundamentally important both to the development of the visual system and to the child's ability to function in the world. However, for some children the wearing of glasses can also inhibit the pursuit of a particular activity. In these cases, parents and the children themselves will benefit from seeing a practitioner who is happy to explore the option of contact lenses.

The Adolescent and Child Health Initiative to Encourage Vision Empowerment (ACHIEVE) study examined the self-worth and vision-related quality of life benefits in contact lens wear in children.[7] It was a randomised, single-masked trial with children wearing spectacles or soft contact lenses for three years. They were assessed at baseline, one month and every six months thereafter.

It was found that contact lens wear did not affect the children's global self-perception based on the self-perception profile used in the study. However, physical appearance, athletic competence and social acceptance self-perceptions were all improved with contact lens wear.

In the panel on page 19, Dr Mitch Prinstein, paediatric psychologist and co-author of this study, outlines the significance of these findings and how they relate to other areas of child psychology based on his professional experience.

Concerns are sometimes put forward by both parents and practitioners about the consequences of fitting contact lenses to children. There is plenty of evidence to dispel these barriers and myths,[8] including that lens wear in the young does not lead to a higher risk of adverse events, and that children are mature enough to manage and look after their lenses. Parents are often a barrier to children not being fitted as they consider lenses are not an appropriate or safe option, mainly due to health and compliance concerns. This is where the practitioner's role is important as a mediator between parent and child.

The practitioner can discuss all options with both the parent and child, including material and modality, wearing schedule, lens care routine and wearing times. In addition they can educate both parties about the importance of providing ocular UV protection all year round.[9] Children's eyes are more vulnerable to the effects of UV radiation due to ▶

their larger pupils, clearer media[10] and often poor compliance with UV protective measures while outdoors. The prescribing of contact lenses with high levels of Class I or Class II UV blocking can provide additional valuable protection from the cumulative effects of ocular exposure to UV.

A recent study compared the long-term ocular health of patients fitted in contact lenses as a child (≤12 years of age) versus those fitted as a teenager (≥13 years of age).[11,12] Eligible subjects had worn soft contact lenses for the past 10 years. The study concluded that fitting children of 12 years or younger does not affect visual acuity, or lead to greater corneal curvature or endothelium changes. The only significant difference was that the group fitted at a younger age had a higher degree of myopia, although this is perhaps an expected finding as higher ametropia may prompt the patient and practitioner into considering contact lenses at an earlier age. The fitting of children was also found not to increase the risk of poor compliance, poor comfort or adverse events after 10 years of soft contact lens wear.

It makes sense financially

Fitting more patients with contact lenses also makes sense financially for the practice. These patients become both spectacle and contact lenses wearers, they visit the practice more frequently and their annual spend has been shown to be higher than spectacle wearers alone.[13] There is some evidence to suggest in the current economic climate that while patients are extending the glasses repurchase cycle the majority of contact lens wearers would not reduce their wearing schedule or spend less on their contact lenses. This indicates that contact lenses are not viewed as a luxury item but more of an essential purchase.[14] This is important to understand in the context of the current economic climate where contact lens patients may offer a more steady revenue stream for the practice.

In addition to this, contact lens patients are among the most loyal and best advocates of your practice. In fact they can act as local marketers, often making strong peer to peer recommendations to family and friends. In the author's experience, this strength of recommendation can be more powerful among the parents of children who have been fitted with contact lenses than almost any other patient group.

It is easy to see how getting patients in contact lenses can work for your practice. With a wide choice of lens materials, including silicone hydrogels, modalities and replacement frequencies, new technologies to enhance comfort, and designs to enhance visual performance for the majority of prescription needs, expecting patients to stay in contact lenses for years is not unreasonable.

Below are two examples of recent cases of fitting contact lenses to children. The first was driven by the patient's prescription and their discomfort of wearing glasses in certain situations. The main motivation for the second was to wear for a sporting pursuit, the outcome of which led to others seeing an improvement in his game.

Case study 1

First visit

EM is a 10-year-old girl with a stable refraction for the past two years (Table 1). She had become increasingly irritated by her spectacles, such that both the patient and her mother reported she was routinely removing them at school. EM is a bright and bubbly girl with a real passion for dance and performing. She did, however, feel different from her friends due to her need for spectacles. Consequently she asked her mother about letting her have contact lenses. Her mother was less convinced due to her age and perceived high prescription.

They both attended for an appointment and EM explained what she wanted, with mum supporting these requests with her concerns. All the options were discussed and the various pros and cons explored. It is important to be clear about the responsibilities of becoming a contact lens wearer, building upon these basics to highlight the positives that result from wearing them. It was checked that both the patient and their parent were happy to move forward with contact lenses prior to starting the contact lens fit. This stage of contracting, and openness, is vital in the potential success of the wearer, and the relationship between practitioner and parent/carer.

An anterior eye assessment and keratometry were completed. The anterior of both eyes was seen to be healthy with a trace of conjunctival and bulbar hyperaemia noted (grade 0.5 Efron) and trace papillae (grade 0.5 Efron). Her tears were also of good quality with a tear break-up time in excess of 10 seconds. Table 1 shows her refraction, visual acuity and K readings.

The initial trial lenses were chosen and applied to the eye. In situations where this is not possible to do on the day, for example where diagnostic lenses need to be ordered or if there is not sufficient time for a contact lens fitting, it is the strong belief of the author that there is considerable merit in giving some sort

SIGNIFICANCE OF THE ACHIEVE RESULTS

As youths mature from childhood to adolescence, they begin to form a stable sense of self-worth based on their perceptions of competence in a variety of domains (eg athletic, physical appearance, social competence etc). These self-perceptions arguably affect all domains of psychological functioning substantially through the lifespan. Research suggests that self-perceptions are linked to academic achievement, relationship successes, behavioural conduct, and even symptoms of psychiatric disorder. Accordingly, clinical child psychologists are highly motivated to understand factors that can influence the development of self-perceptions. Complex interventions have been developed and examined in clinical trials to improve self-perceptions among young people who may be at risk of a low sense of self-worth. Unfortunately, even the most costly interventions offer only a modest effect on changing self-perceptions. Some interventions may not be able to counteract the long-standing, pervasive experiences of young people in their environment that have led to stable self-perceptions.

The project ACHIEVE study group hypothesised that children's use of spectacles or contact lenses for vision correction may be associated significantly with the development of self-perceptions as children progress to adolescence. Intuitively, this makes sense. Wearing spectacles can be related to children's opportunities to play sports, attend to school work, and peer experiences. Thus, wearing glasses may change many aspects of children's experiences, and these changes might affect self-perceptions.

Almost 500 children, ages 8-12, in five sites in the US were recruited into a randomised clinical trial. Children reported their satisfaction with their spectacles, and half were randomised into a contact-lens wearing condition. Their self-esteem was measured for the next three years. As compared to more complex interventions, wearing contact lenses is a very simple, relatively inexpensive, and very fast way to try to help children's self-perceptions.

The results from the ACHIEVE study were very promising. Results suggested that especially among young people who initially were unsatisfied with their spectacles, contact lens wear was associated significantly with increasingly adaptive self-perceptions related to physical appearance, social acceptance, and global self-esteem. Given how stable self-perceptions are, and how difficult they are to change among youth, these findings have especially meaningful implications. A small change in children's self-perceptions can lead to significant long range advantages in the types of activities they will readily engage in and their success in a range of domains.

Dr Mitch Prinstein: paediatric psychologist and co-author of the ACHIEVE study

of contact lens experience at this first visit. The patient and parents can be given the chance to handle soft lenses, and if time allows, daily disposable lenses can be applied for a short comfort trial. The child can then overcome any initial concerns about the sensation of a contact lens in the eye.

Daily disposable contact lenses were chosen to meet the initial goal of contact lenses for dance and occasional wear. They provide a fresh pair at every wear and best addressed some of mum's concerns regarding compliance and ability to care for the contact lenses. The contact lenses were allowed to settle before assessing the fit. EM reacted very well to the lens application and was extremely compliant with directions given.

The contact lenses showed good fitting characteristics with good recovery after blink and push-up. EM reported that the contact lenses felt very comfortable in both eyes, beaming as she looked around the room. After an over-refraction, visual acuities were similar to that achieved with her spectacles and the lenses were considered acceptable for the trial.

EM was taught how to handle the contact lenses and took to this brilliantly, listening to and acting on, every piece of direction and advice given. Within two attempts on each eye she was able to confidently and competently apply and remove each contact lens. Mum was heard to comment at this point that she was pleasantly surprised by how mature EM was being, and was reassured that contact lenses for her would not hold the kind of worries that she had initially feared.

EM left with several pairs of daily disposable contact lenses to trial, handling and wearing them at home. Even though she was planning on wearing them part time, she was instructed to wear them daily in the trial period to maximise her experience prior to her follow-up visit. The patient and parent signed a consent form and written information was supplied that outlined the basics of wearing contact lenses and the action to be taken in the event of a problem occurring. The use of written consent ensures that all the salient points of safe contact lens wear are covered consistently with all patients. Having information to take away is important to provide patients with a reminder and back-up tips and actions for when they are out of the practice. This enhances both the service provided and, hopefully, their own level of compliance.

Second visit

A week later the patient returned for her follow-up appointment. She reported that she was really good at handling the contact lenses and was keen to show how well she could put the contact lenses in and take them out. This she did, after the anterior eye assessment was completed which showed all to be quiet. The contact lenses continued to have an optimal fit and no over-refraction was recorded at this visit, with visual acuities as seen on the first visit.

A specification was issued for her to be able to use the daily disposable contact lenses as she wanted, but in agreement with her mum. We also arranged for a return appointment initially one month later, with an intention to increase (if no problems) to once every six months. A reminder was given on the actions needed if any issues occurred in the interim. The future options for EM in terms of material and modality in contact lenses were also discussed. Both parent and child were made aware of the need to review her eyes regularly, with a view to possibly changing her lenses to a silicone hydrogel material should her wearing schedule increase significantly.

After several months, EM was happily wearing her contact lenses for up to 10 hours per day and for about three days per week with no problems being reported with comfort and vision. Anterior eye remained quiet with a stable refraction and Ks.

Her parents are delighted with her attitude overall, and at school she is a minor celebrity with her 'special eyes'. While she was a happy, sociable child before, contact lenses have enabled her to feel more confident in her chosen activities of dance and theatre. She is happy with wearing her contact lenses for these specific activities, but all parties are aware that there are other options available should she decide to increase her contact lens wear in the future.

TABLE 1

	Right	Left
Refraction VA	+5.50Ds 6/9-	+4.00/-0.25 x 175 6/7.5
Ks	7.65 H x 7.60 V	7.75 H x 7.80 V
Initial trial lens	1-Day Acuvue Moist 8.50/14.20 +6.00DS	1-Day Acuvue Moist 8.50/14.20 +4.00DS
Over refraction and VA	6/9 +0.25DS 6/9	6/7.5 Plano
Final specification	1-Day Acuvue Moist 8.50/14.20 +6.00DS	1-Day Acuvue Moist 8.50/14.20 +4.00DS

TABLE 2

	Right	Left
Refraction VA	-0.75/-0.75 x 85 6/5-2	-1.00/-0.75 x 82 6/6+
Ks	7.55 H x 7.55 V	7.55 H x 7.55 V
Initial trial lens	Acuvue Oasys for Astigmatism 8.6/14.5 -0.75/-0.75 x 90	Acuvue Oasys for Astigmatism 8.6/14.5 -1.00/-0.75 x 80
Over refraction and VA	6/5-2 Plano	6/6+ Plano
Final specification	Acuvue Oasys for Astigmatism 8.6/14.5 -0.75/-0.75 x 90	Acuvue Oasys for Astigmatism 8.6/14.5 -1.00/-0.75 x 80

Case study 2

First visit

So often contact lenses for children are only considered when the prescription is large or when pushed by the patient or parent. HD is an example of a patient with a low prescription and 'normal' school life, where the idea of contact lenses was introduced during a routine eye examination. (Table 2)

HD is a nine-year-old boy and the suggestion of contact lenses met a positive reception with his father, who has ambitions for HD and his rugby. His mother was more reserved. She had worn contact lenses in the past and was not always the happiest with their performance. The available options were discussed and the reasons why they could work well. All members of the family were given the chance to handle a contact lens during this discussion.

An anterior eye assessment was completed showing the eyes to be healthy. His eyelashes were long, but both lids and lashes were clean and quiet. There was a background level of papillae, bulbar and tarsal hyperaemia (grade 0.5 Efron).

Once it was clear that any concerns had been addressed, with consent from the patient and his parents, the trial lenses were selected. They were chosen after discussion with the patient and parents showed that HD was keen to wear contact lenses regularly rather than on a part-time basis.

The particular brand was selected ▶

after discussion of the features and benefits. The UV-blocking properties of the contact lens were explained and the parents felt this was an important added benefit, especially taking into consideration the amount of time HD spent outdoors. The superior oxygen delivery of silicone hydrogel material compared to conventional hydrogels was highlighted along with the excellent overall and end of day comfort with the lenses.

HD reacted well to the application of the lenses and they oriented and stabilised quickly. The vision and physical fit were determined to be excellent, with no rotation, instability or over-refraction observed. Rotational stability was checked by asking the patient to make large orthogonal versional eye movements, noting the consistency of the lens markings pre and post movement each time.[15]

The patient was then coached regarding the handling and cleaning/maintenance of his contact lenses by a support colleague. A multipurpose cleaning system was selected for the care regimen. It was noted that he was very good after a few initial attempts with the contact lenses. This of course is no different to teaching an adult to handle contact lenses, and indeed we found that he took no longer to learn the correct techniques than the average adult patient.

Following the completion of the written consent and handing out of written advice, HD then left to enjoy trialling contact lenses in his own world, clear in the knowledge of what a sensible wearing regime would be and to cease contact lens wear immediately if any issues were experienced. He was instructed to practise wearing them daily to help him settle into the full-time wearing routine he was aiming for.

Second visit

Two weeks later HD returned for his aftercare appointment and was finding life great with the combination of contact lenses and glasses. His sporting performance had improved, being positively commented upon by his games master.

The patient is now wearing contact lenses 5-6 days per week. He routinely and happily wears them for up to 11 hours per day. Contact lens fit continues to be good with lenses aligned and rotationally stable. He achieves binocular acuity of 6/5 (monocularly RE 6/5-, LE 6/6+) with no further over-refraction. His lenses were two weeks old at aftercare and were clean with no deposits. His eyes are also not showing any issues with slit-lamp findings being unchanged from baseline.

These are just two routine cases that showcase the positive and rewarding effect of fitting children with contact lenses, with improved self-worth and self-confidence for one and a noticeable improvement in sporting ability for the other. Both cases were straightforward and took no longer than fitting the average adult. Table 3 highlights some of the top tips that can be used in practice to maximise the opportunity of young people and contact lenses.

Conclusion

Fitting children can be rewarding in addition to generating patients for life and being an excellent source of referrals. The rewards come in several ways. The child and parents are delighted; this, in turn, has a positive effect on the practitioner and the business, with new patients routinely seen in practice that have been recommended by loyal families. More important, however, is the evidence of the life-changing effects of contact lens wear in young people, as outlined in the ACHIEVE study. So in addition to the practice and revenue building rewards, fitting children with contact lenses also provides enormous professional satisfaction knowing that our actions have helped change a child's life. There are few things in our routine day that can be so rewarding.

TABLE 3

Top tips for fitting children in routine practice

- Treat the child as you would want to be treated yourself, and remember to keep the language simple and appropriate
- Always include the parent/guardian in all decisions and discussions about the contact lenses – you need to all be on the same side and in agreement with every step that is taken
- Time taken to have a proper conversation about the options and pros and cons upfront will save you time and pain in the long run – don't race into the fitting before knowing what your plan is going to be
- Discuss options for maintaining eye health with regards to contact lens wear: silicone hydrogel materials, frequent replacement and UV protection
- Always have some daily disposable contact lenses handy to allow patients and parents the opportunity to feel what a contact lens is like – most assume that all contact lenses are hard and therefore likely to hurt
- Enjoy the experience – the happier and more relaxed you are, the more that those in the consulting room with you will be. Be professional – although this does not mean the experience can't be fun!
- Be clear about what you expect from the wearer and the parent, and what they can expect from you – contracting is important, and revisit this contract at each appointment to make sure that it is still working
- What to do if... All patients need to hear this, but make sure that this is especially well understood by the younger wearer (as they may need to act when at school, etc). The triple check does this:

  Do my eyes look right?
  Do my eyes feel right?
  Do I see right?

  If the answer is no to any of these then contact lenses should be removed, and if it does not then improve the patient should contact the practice

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