Aims We aimed to characterise human dermal fibroblasts (HDF) from a PHARC patient harbouring a nonsense mutation in *ABHD12* gene; and to generate one human iPSC line from the PHARC HDF.
Methods HDF from a PHARC patient harbouring a nonsense mutation in *ABHD12* gene were isolated and cultured. Gene expression was assessed by qPCR. *ABHD12* presence was detected by SDS-PAGE and immunoblotting. Proteins involved in primary cilia morphogenesis were examined by immunofluorescence. HDF were reprogrammed into iPSC using integration free episomal reprogramming plasmids.
Results *ABHD12* possess two alternative splicing isoforms (*ABHD12-a* and *ABHD12-b*). At a protein level, WT HDF express both of them, while PHARC HDF only express *ABHD12-b*. Cilia in PHARC HDF are less numerous and shorter than in WT. The transcript levels of *GRP78/BiP*, involved in unfolded protein response activation, are downregulated in PHARC compared to WT HDF. The iPSC line generated exhibits pluripotency markers and differentiation potential *in vitro*.
Conclusion A proportion of *ABHD12* transcripts are escaping the nonsense mediated decay in PHARC HDF. Moreover, we report for the first time a defective cilia formation and a reduction in *GRP78/BiP* mRNA levels in PHARC HDF.

P-12 CONTRAST-MODULATED CROWDED ACUITY AND INTEROCULAR DIFFERENCES IN AMBLYOPIC CHILDREN

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Introduction Amblyopia is a neurodevelopmental disorder characterised by deficits in visual acuity (VA). Amblyopes with strabismus are more sensitive to visual crowding so it is important to use crowded VA tests to enhance interocular differences (IOD), such as the 'Enhanced Cambridge Crowding Test' (ECC). Research in adults has indicated that crowding magnitude is increased when contrast-modulated noise (CM) stimuli are used compared to luminance-generated stimuli. CM stimuli may therefore be advantageous to use to detect amblyopia in children.
Aims This study aimed to establish whether an ECC test presented with CM optotypes (CM-ECC) offers greater sensitivity for paediatric amblyopia detection than the Sonksen logMAR Test (SLT), a standard hospital test.
Methods Monocular VA thresholds were examined in groups of children: a control group (n=24) and amblyopic groups (n=43; n=22 anisometropic amblyopes, n=21 strabismic/mixed amblyopes), aged 3–11 years. VA thresholds for both 'crowded' and isolated luminance (L) and CM optotypes were obtained from self-paced, interleaved, two-down, one-up staircases combined with a four-alternative, forced-choice (4AFC) paradigm. VA was also obtained according to SLT instructions.
Results While the CM-ECC yielded significantly larger (logMAR) acuities (**P<.001**), neither crowding magnitudes (P=.635) nor IODs (P=.306) were different from those obtained with SLT.
Conclusion As a paediatric visual screening tool, the CM-ECC provides no additional diagnostic benefit over the SLT.

P-13 DISTANCE ESTIMATION WITH STATIC AND DYNAMIC SOUNDS

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Introduction Previous studies found that approaching sounds are perceived to stop closer to participants than receding sounds (with the same end position). This effect is called the auditory looming bias. However, most studies asked participants for ratings of change in loudness and not for actual distance estimations of moving sounds. Additionally, most studies didn't compare moving sounds to static sounds and there are no studies on the auditory looming bias in visually impaired individuals.
Aims Our aim was to compare distance estimations for moving and static sounds.
Methods To investigate how moving sounds are perceived, we generated virtual sounds (1-kHz pure tone and white noise) that approach and recede from the participants or are static at different distances in an anechoic room. The sounds were simulated to move 11m at three different distances (near, medium, and far away). 14 participants were asked to listen to the sounds and estimate their start and end distance, they were also asked to rate the change in loudness of the moving sounds.
Results First preliminary results indicate that moving sounds are perceived to end further away from the participants compared to static sounds at the same distance. There also seems to be no auditory looming bias when participants were asked for distance estimations.
Conclusion Our results show that there might be a difference in accuracy of distance estimations for moving compared to static sounds. Additionally, we want to investigate the auditory looming bias in visually impaired participants and compare their distance estimations to those of age-matched normally sighted participants.

P-14 THE DEVELOPMENT OF DEXAMETHASONE NANOPARTICLES TO TREAT DIABETIC RETINOPATHY

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Introduction Diabetic retinopathy (DR) affects millions of individuals on a global scale. Current treatment for DR encompasses different drug delivery systems. Typically, intravitreal injections carry a half-life which is less than 5 days. Therefore, frequent injections are required increase the risks and complications that come with this procedure. An *in situ* forming drug delivery implant comprising nanoparticles and stimuli-responsive nanoparticles could overcome these drawbacks.

Aims To develop dexamethasone solid drug nanoparticles (SDNs) that are suitable for intravitreal drug delivery.

Methods An emulsion templated freeze-drying technique was used to synthesise dexamethasone SDNs. SDNs were evaluated for size, polydispersity index and dispersion rating, and well as stability. *In vitro* cytotoxicity to ARPE-19 cells was also studied.

Results SDN acceptance parameters were set, with sizes between 1000–1500nm, PDI<0.7 and dispersion rating of 1 or 2. Out of ten SDNs, four met the acceptance criteria. Cytotoxicity testing different concentrations of the four final SDNs further narrowed this down to two final SDNs that would make potential candidates for intravitreal therapy.

Conclusion Two novel dexamethasone solid drug nanoparticles have been synthesised to take forward for the treatment of diabetic retinopathy.

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