The results show 35% of male respondents frequently wear a poor standard of footwear at work compared to 18% of women. However a high percentage of women (38.1%, compared to men 12.6%) occasionally wear poor footwear for leisure. The number of respondents who frequently wore poor footwear between the ages of 20-29 was relatively high (women: 43.6%, men: 24%) and reduced between the ages of 30-44 (24%, 19.7%) and 45-64 (9.1%, 11.5%).
When asked about workplace policy regarding footwear: 16.7% of men and 9% of women are required to wear safety shoes and 18.2% of men and 4.8% of women are required to wear steel toe cap shoes/boots. Only one female respondent indicated they are currently required to wear high heeled shoes at work however 5% (20) were previously required.
Ninety percent of female respondents (342) have worn high heeled shoes despite knowing that they would cause foot pain. On a five-point scale of pain the majority of women reported their feet hurt 'a fair amount' (3/5) to 'very much' (5/5) after wearing high heeled shoes. In social settings 56.3% of women have felt pressure from others to wear high heeled shoes and 11.3% have felt pressure from others at work.
Conclusions: The results of this survey suggest men are more likely to wear poorer footwear at work however women will opt for poorer footwear to wear at leisure. Evidently women still feel under pressure from others to wear high heeled shoes in the workplace, but predominantly in a social setting, despite the significant foot pain they can cause.

P12

Footwear characteristics for newly independent walking - the development of a consensus based suitability criteria using nominal group technique (NGT)

Matthew Collison[1], Stewart Morrison[2], Angela Evans[3], Catherine Bowen[4]
[1]Guy's and St Thomas' NHS Foundation Trust; [2]School of Health Sciences, University of Brighton, Brighton, UK. [3]School of Allied Health, La Trobe University; [4]Faculty of Health Sciences, University of Southampton, Sotuhampton, UK
Journal of Foot and Ankle Research 2019, **12(Suppl 2):**P12

Objectives: Ill-fitting or unsuitable footwear has long been implicated in the development of foot problems in children. It has also been acknowledged that there is a lack of research into children's footwear and a lack of reliable guidance available for clinicians or parents with regards to choosing children's footwear, this is particularly true for shoes for children during initial bouts of independent walking at between 12 and 24 months. The objective of this study is to gain consensus from Healthcare Professionals on optimal footwear characteristics for new independent walkers (12-24 months).
Study design: This study employs a consensus method based on Nominal Group Technique, using a sample of four HCPs with experience of the paediatric footwear, recruited via their professional bodies. Criteria were proposed by the group and the subject to two rounds of voting to define a final eight criteria.
Results: Eight final criteria for footwear suitability were identified by the group: Barefoot is best when practical; flexible sole and upper; low sole pitch; round/squared toe-box; upper made from leather or breathable material; secure and adjustable fastening, proximal to midfoot; outsole; not too long or wide relative to foot; shoes should be fitted and regularly checked.
Conclusion: Using nominal group technique, it has been possible to find eight consensus-based criteria for optimal characteristics for footwear. While this was developed by a small group of professionals and may be limited in terms of the rigour of a consensus approach, it provides a basis for further research into the effects of footwear on children's gait and development.

P13

The characteristics of foot soft tissues in pre weight-bearing infants

Ana Martinez Santos[1], Carina Price[1], Stewart Morrison[2], Christopher Nester[1], Farina Hashmi[2]
[1]Centre for Health Sciences Research, University of Salford, Salford, UK; [2]School of Health Sciences, University of Brighton, Brighton, UK
Journal of Foot and Ankle Research 2019, **12(Suppl 2):**P13

Background: Foot skin and soft tissue characteristics such as hydration, pH, elasticity or thickness will vary in response to the loads the foot will bare when the infant starts walking. Previous studies have concluded that infant skin is more hydrated (Stamatas et al., 2011), less elastic (Visscher et al., 2017) and its pH decreases immediately after birth (Fluhr et al., 2010) compared to children and adult skin. These studies also showed that skin characteristics have a high anatomical and inter-subject variability. The anatomical regions where skin characteristics have been previously measured include buttocks, chest or arms. However, there are no studies describing the characteristics of the soft tissue of infantfeet and how these change after weight-bearing, despite the significant change in demand on these tissues during this stage in life.
Aim: To quantify the characteristics of the soft tissues of infant feet before they start regularly weight-bearing.
Methods: Twenty-two babies (21.6 ± 3.6 weeks old, 9 female were recruited as part of an ongoing study (Price et al., 2018)). They had been reaching for their feet while laying on their back for up to 2 weeks (16.7 days average). Skin thickness, pH, elasticity and hydration data were collected using DermaLab Combo (Cortex Technology, Denmark) on up to 5 foot regions (heel, medial midfoot, lateral midfoot, forefoot, and dorsum). Achilles tendon thickness was also quantified using Venue 40 Ultrasound (GE Healthcare, UK).
Results: The hydration of the skin is 20% higher on the heel and the 1st metatarsal head, but the results have a high inter-subject variability (up to 70 arb. Units per site). Regarding pH, the plantar aspect showed a stable value of 5.2 ± 0.3, slightly lower than the dorsum 5.4 ± 0.3. Skin thickness results show that the areas that will receive load in mature walking (heel, lateral midfoot and forefoot) are thicker (over 1000 μm) than the dorsum or the medial midfoot (below 1000 μm). Finally, the Achilles tendon has an average thickness of 2.61 ± 0.38 mm. Once the whole data set is collected statistical tests will be performed in order to investigate the differences in the skin characteristics between the areas that will be loaded and those that will not. Comparison will also be made to a following longitudinal data set, which measures the skin again during and after the onset of walking.
Conclusions: The characteristics from areas that will be loaded during gait (heel, lateral midfoot and forefoot) seem to be different to those that will receive less load (dorsum and medial midfoot) even before infants are regularly weight-bearing. In line with previous studies, foot skin characteristics are highly variable across participants.

References

1. Fluhr, J. W., Darlenski, R., Taieb, A., Hachem, J. P., Baudouin, C., Msika, P., De Belilovsky, C. & Berardesca, E. 2010. Functional Skin Adaptation In Infancy - Almost Complete But Not Fully Competent. Exp Dermatol, 19, 483-92.
2. Price, C., Mcclymont, J., Hashmi, F., Morrison, S. C. & Nester, C. 2018. Development Of The Infant Foot As A Load Bearing Structure: Study Protocol For A Longitudinal Evaluation (The Small Steps Study). J Foot Ankle Res, 11, 33.
3. Stamatas, G. N., Nikolovski, J., Mack, M. C. & Kollias, N. 2011. Infant Skin Physiology And Development During The First Years Of Life: A Review Of Recent Findings Based On In Vivo Studies. Int J Cosmet Sci, 33, 17-24.
4. Visscher, M. O., Burkes, S. A., Adams, D. M., Hammill, A. M. & Wickett, R. R. 2017. Infant Skin Maturation: Preliminary Outcomes For Color And Biomechanical Properties. Skin Res Technol, 23, 545-551.