WHAT ARE CHILDREN'S CLINICAL FOOTWEAR INTERVENTIONS AND HOW TO PRESCRIBE THEM? (SECTION2 ROUND 1)

The second section asks for your ideas and opinions on identifiable and or desirable design characteristics of “off the shelf” and modular clinical footwear interventions that offers stability to children with mobility impairment.

Section 2

Establishing identifiable and desirable design characteristics for "off the shelf"* and modular** footwear clinical interventions that offer stability to children with mobility impairment.
* Footwear taken from stock or supplies and not individually designed.
** Standard range of dimensional adaptations e.g. width, girth, (maximum 3) to stock upper.

This section consists of a series of ranked and open-ended questions concerning identifiable or desirable characteristics of standard "off the shelf" and modular clinical stability footwear interventions.

The information provided in this section was informed by a study of the design and dimensional characteristics of a sample of standard children's off-the-shelf footwear (EU size range 19-41*) from a range of manufacturers that are currently marketed to offer stability to children with some form of mobility impairment.

We will ask you to rate your agreement with the findings of the characteristics identified from the sample. These will be in the form of a Likert scale where you will rank your level of agreement on a scale of 1 Strongly Disagree to Strongly Agree 7.

We will provide you with the opportunity to offer your opinion on these characteristics and to suggest their possible purpose to facilitate stability in children with mobility

impairment. You will also be free to suggest additional aspects you view as important and your reasons for this. All answers will be anonymised and will not be identifiable as your responses.

Example of answers to a series of questions concerning a specific area of "off the shelf" modular stability footwear.

Please rate your agreement with the following findings of the topline of "off the shelf" modular stability footwear.

1) "Off the shelf" and modular stability footwear should have an extended topline height

Agree (6)

2) "Off the shelf" and modular stability footwear should have a padded foam collar.

Agree (6)

3) Please provide your opinion and the possible purpose of these characteristics

Answer:
The topline should extend above the ankle. The purpose of this is to offer a degree of proprioceptive stability and increased leverage at the ankle and rearfoot. This has been shown to help in previous studies on the elderly. High topped shoes appear to improve stability in comparison to lower toplines on children in my clinical practice. The padding of the collar allows for a reduction of shearing during ambulation, enhancing the ergonomics of the shoe design.

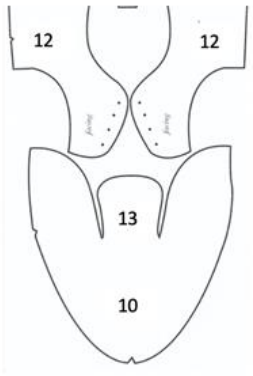
Please note when answering the following questions we are asking you to consider the characteristics of standard stability footwear and not adaptations for specific clinical presentations.

Required Field *

1)

Name: *

Glossary of Footwear Anatomy



1) Topline/Collar
2) Topline height
3) Upper
4) Fastening/Facing
5) Heel counter
6) Heel
7) Shank
8) Outsole
9) Toe spring
10) Vamp
11) Toe box
12) Quarters
13) Tongue

Image adapted from www.made-in-china.com

This section provides a brief glossary to the footwear terms used in this survey.

1) Topline: the opening of the shoe at the rearfoot and ankle region,
Collar: Sometimes padded, a strip of material attached to the topline/opening of a shoe.

2) Topline height, The height between the base of the upper at the heel cup to the topline.

3) Upper: The part of a shoe that covers the entire top, sides and back of the foot and attaches to the insole and outsole

4) Fastening: The part of the shoe that can adjust and secure the fitting of the vamp and the quarters to the foot.
Facing: The area of the shoe where the fastenings are located.

5) Heel counter: stiffened material placed between the shoe's inner lining and the upper located at the heel cup region of the shoe just above the heel.

6) Heel: The part of the outsole that raises the rear of the shoe (maybe part/or a separate attachment of the outsole)

7) Shank: The Reinforced strip of material located between the insole and the sole of the shoe running from the heel region to the midfoot.

8) Outsole: The base of the shoe that is attached to the upper and contacts the ground.

9) Toe spring: The elevation angle from the ball region of the shoe to the distal aspect of the toe box.

10) Vamp: The area of the upper that covers the front part of the shoe,

11) Toe box: Distal region of the shoe upper that provides space and protection for the toes.

12) Quarters: The back half of the upper. Attached at the front to the vamp, making up both sides of a shoe, and wrapping around the rear of the shoe.

13) Tongue: Flap of material attached to the vamp shoe, extending centrally along the instep from the forefoot to the topline.

Topline/collar

In the question below you will be presented with a series of findings in relation to the topline/collar of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

2)

The topline or collar should have the following characteristics: *							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Extended topline height above ankle	☐	☐	☐	☐	☐	☐	☐
Foam padded collar	☐	☐	☐	☐	☐	☐	☐
Collar contoured to malleoli	☐	☐	☐	☐	☐	☐	☐
Collar contoured to Achilles tendon	☐	☐	☐	☐	☐	☐	☐
Pull tab to back of collar	☐	☐	☐	☐	☐	☐	☐

3)

Please use this section to provide your opinion on the design characteristics of the topline/collar in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Upper

In the question below you will be presented with a series of findings in relation to the upper of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

4)

The upper should have the following characteristics: *							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Leather material	☐	☐	☐	☐	☐	☐	☐
Tongue in line with topline	☐	☐	☐	☐	☐	☐	☐
Tongue extended above topline	☐	☐	☐	☐	☐	☐	☐

5)

Please use this section to provide your opinion on the design characteristics of the upper in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Fastening and Facing

In the question below you will be presented with a series of findings in relation to the Fastening and Facing of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

6)

The fastening should have the following characteristics: (You may suggest an alternative by typing your suggestion in the other option) *	
☐	Velcro
☐	Lace
☐	No Preference
☐	Other

7)

The facings should have the following characteristics: (You may suggest an alternative by typing your suggestion in the other option)*	
☐	Facings extended to the midfoot
☐	Facings extended to just behind the toe box
☐	No Preference
☐	Other

8)

Please use this section to provide your opinion on the design characteristics of the fastening and facing in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Heel counter/stiffener

In the question below you will be presented with a series of findings in relation to the heel counter/stiffener of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

9)

The heel counter should have the following characteristics: *							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Heel counter /stiffener extended to midfoot	☐	☐	☐	☐	☐	☐	☐
Heel counter/ stiffener height extended towards topline.	☐	☐	☐	☐	☐	☐	☐

10)

Please use this section to provide your opinion on the design characteristics of the heel counter/stiffener in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Heel

In the question below you will be presented with a series of findings in relation to the heel of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

11)

The heel should have the following characteristics: (You may suggest an alternative by typing your suggestion in the other option)*	
☐	Heel width in line with heel counter width
☐	Heel width extended wider than heel counter width
☐	No Preference
☐	Other

12)

Please use this section to provide your opinion on the design characteristics of the heel in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Inlay

In the question below you will be presented with a series of findings in relation to the inlay of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

13)

The Inlay unit should have the following characteristics: *							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Stability footwear should come with a standard removable inlay.	☐	☐	☐	☐	☐	☐	☐
The inlay should be contoured to simulate the medial longitudinal arch.	☐	☐	☐	☐	☐	☐	☐

14)

Please use this section to provide your opinion on the design characteristics of the inlay in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Sole unit

In the question below you will be presented with a series of findings in relation to the heel counter/stiffener of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

15)

The sole unit should have the following characteristics: *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
A deepened tread	☐	☐	☐	☐	☐	☐	☐
Be made of hard wearing material	☐	☐	☐	☐	☐	☐	☐

16)

Please rank the degree of flexibility for the sole unit you feel would constitute a desirable characteristic of this clinical footwear intervention. *

0	1	2	3	4	5	6	7	8	9	10

0-Completely flexible 10-Completely rigid

17)

Please use this section to provide your opinion on the design characteristics of the inlay in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable. *

Toe spring forefoot/heel rocker

In the question below you will be presented with a series of findings in relation to the toe spring/forefoot rocker and heel rocker of standard "Off the Shelf" and modular stability footwear, please rank your level of agreement with these being a desirable characteristic of this clinical footwear intervention:

18)

*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Stability footwear should have a reasonable forefoot rocker.	☐	☐	☐	☐	☐	☐	☐
Stability footwear should have a heel rocker.	☐	☐	☐	☐	☐	☐	☐

19)

Please use this section to provide your opinion on the design characteristics of the toe spring forefoot heel rockers in terms of the purpose of the suggested design features, any disagreement with the suggested design features, or further design features you feel are desirable.*

Weight of the footwear

In the question below, we will ask you your opinion on the weight of "Off the Shelf" and modular stability footwear when considering these as a clinical intervention:

20)

*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
The weight of the stability footwear is an important consideration when issuing footwear to children with mobility impairment?	☐	☐	☐	☐	☐	☐	☐

21)

Please use this section to provide your opinion on the weight of stability footwear and how you feel it may impact on the gait of children with mobility impairment or may change with the age of the patient.*

Optional Further Information

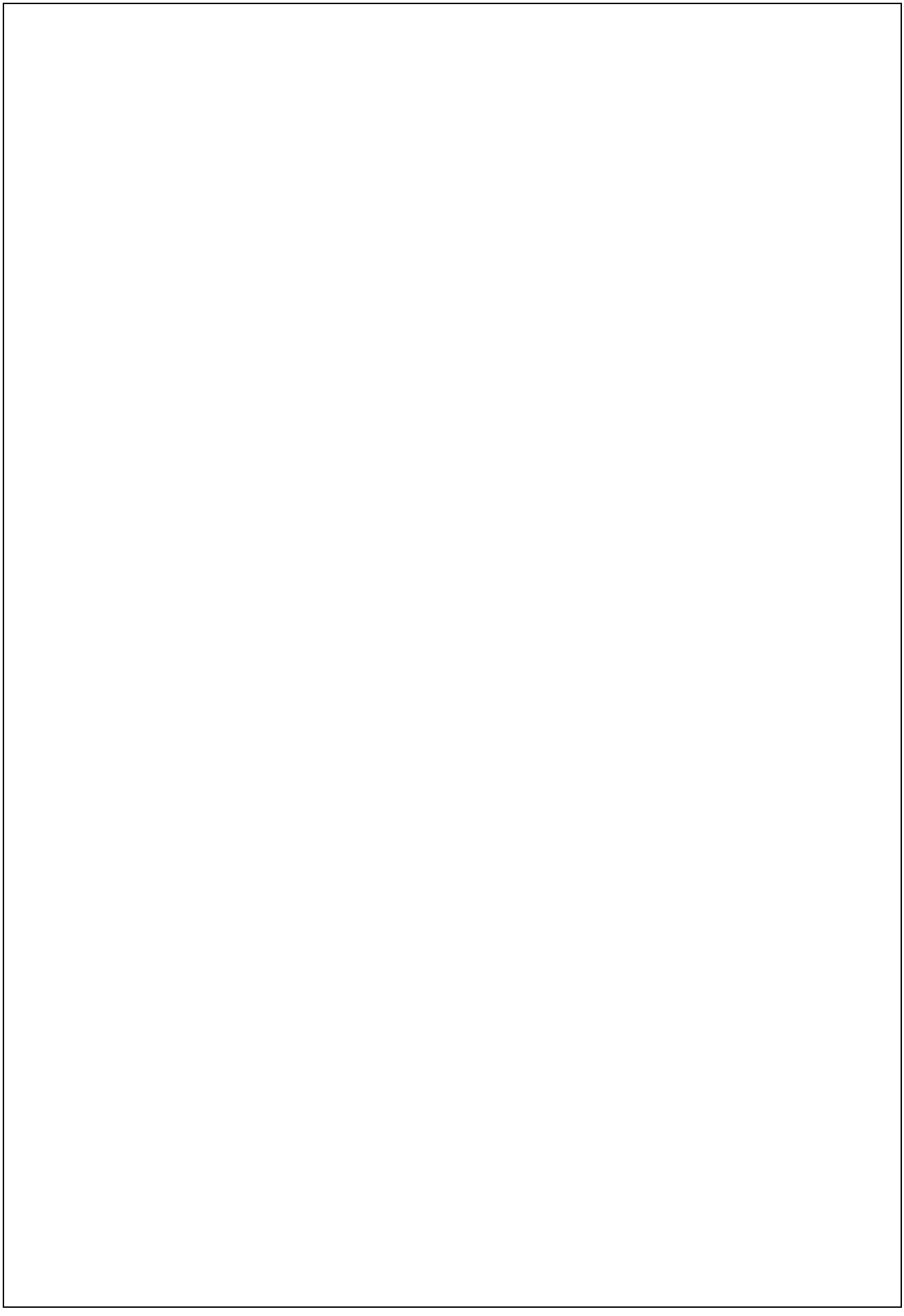
You may use this additional section to provide further suggestions that you feel are important characteristics of children's "Off the Shelf" and modular stability footwear.

Please remember to detail your answer where appropriate with the following information:

Constituents or area of the footwear
Material
Shape or dimension
Degree of rigidity flexibility.
Purpose

22)

Which other areas do you feel are important design characteristics of children's "Off the Shelf" and modular stability footwear?



END OF SECTION 2 ROUND 1

Thank you for taking the time to complete section 2. Your time and participation in this survey are greatly appreciated.

Please remember to submit your answers before closing this form.

You can find the link for next section of Round 1 attached to the Delphi survey email.

ROUND 2(S2) WHAT ARE CHILDREN'S CLINICAL FOOTWEAR INTERVENTIONS AND HOW TO PRESCRIBE THEM?

The second section will present the feedback of panellists opinions from Round 1 on the desired design characteristics of “off the shelf” stability footwear and the purpose of these as a clinical intervention for children with mobility impairment.

Section 2

Establishing desired design characteristics of “off the shelf”† stability footwear and the purpose of these as a clinical intervention for children with mobility impairment.
†*Footwear taken from stock or supplies and not individually designed.*

The original statements provided from the study of a range of children's "off the shelf" stability footwear is listed alongside modified statements informed by the collective opinions gained from the panellists in round 1. The panel in this section consisted of 17 experts in the clinical provision of footwear for children with mobility impairment.

You will be asked to give your preferred option or your level of agreement with the original or modified statements (Strongly Disagree to Strongly Agree)

You can review the previous information you provided (in the document emailed to you), and considering the information provided by the other panellists, You may maintain your position with your original statement or change your opinion and align yourself with the new statement

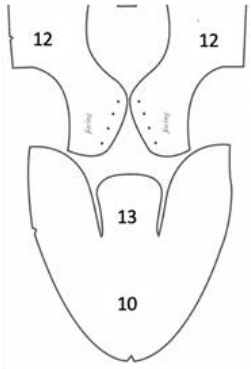
We will provide you with the opportunity to offer your reasoning for your stance or to suggest any further amendments to the statements at the end of each section (You may also leave these areas blank in this round). All answers will be anonymised and will not be identifiable as your responses.

Required Field *

1)

Name*

Glossary of Footwear Anatomy



1) Topline/Collar
2) Topline height
3) Upper
4) Fastening/Facing
5) Heel counter
6) Heel
7) Shank
8) Outsole
9) Toe spring
10) Vamp
11) Toe box
12) Quarters
13) Tongue

Image adapted from www.made-in-china.com

This section provides a brief glossary to the footwear terms used in this survey.

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2) Topline height, The height between the base of the upper at the heel cup to the topline.

3) Upper: The part of a shoe that covers the entire top, sides and back of the foot and attaches to the insole and outsole

4) Fastening: The part of the shoe that can adjust and secure the fitting of the vamp and the quarters to the foot.
Facing: The area of the shoe where the fastenings are located.

5) Heel counter: stiffened material placed between the shoe's inner lining and the upper located at the heel cup region of the shoe just above the heel.

6) Heel: The part of the outsole that raises the rear of the shoe (maybe part/or a separate attachment of the outsole)

7) Shank: The Reinforced strip of material located between the insole and the sole of the shoe running from the heel region to the midfoot.

8) Outsole: The base of the shoe that is attached to the upper and contacts the ground.

9) Toe spring: The elevation angle from the ball region of the shoe to the distal aspect of the toe box.

10) Vamp: The area of the upper that covers the front part of the shoe,

11) Toe box: Distal region of the shoe upper that provides space and protection for the toes.

12) Quarters: The back half of the upper. Attached at the front to the vamp, making up both sides of a shoe, and wrapping around the rear of the shoe.

13) Tongue: Flap of material attached to the vamp shoe, extending centrally along the instep from the forefoot to the topline.

Topline/collar

In the questions below you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the topline/collar of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment. Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

2)

"Extended topline height above the ankle":
The median level of agreement amongst the panellists was "agree" with the majority of responses between "somewhat agree" to "agree".

From panellist feedback, it was proposed the purpose of a topline extended above the ankle (supra-malleolar) increases proprioceptive input around the rearfoot and ankle in addition to assisting the leverage of the heel counters. This was thought to assist in reducing frontal plane movements at the foot and ankle. Other panellists suggested toplines extended above the ankle may adversely affect ankle plantarflexion and dorsiflexion power generation and limit mobility in some patients.

Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of the topline height for stability footwear. *

☐	The topline should be extended above the ankle (Original)
☐	The topline should not be extended above the ankle
☐	The topline extension should come in an optional range both above and below the ankle dependent on the patient's ability and needs.

3)

Please rank your level of agreement with the following purpose or potential adverse effects suggested from panellists' feedback of an extended topline.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: An extended topline height increases proprioception input at the rearfoot and ankle	☐	☐	☐	☐	☐	☐	☐
Purpose: An extended topline height assists heel counter leverage to resist frontal plane movement of the rearfoot and ankle.	☐	☐	☐	☐	☐	☐	☐
Adverse Effect: An extended topline height may reduce sagittal plane power generation at the ankle.	☐	☐	☐	☐	☐	☐	☐

4)

"Padded collar"

The median level of agreement amongst the panellists was "agree" with the majority of responses being "agree".
A consensus was reached in Round 1 with respect to this design feature being an ideal characteristic.

Panellist feedback suggested that the purpose of this design feature was to lower compression and shear stress to structures to the sides and the back of the supra-malleolar region. Some panellists indicated that foam padding may increase shear therefore the padded area should be covered in a low shear material.

Please rank your level of agreement with the following purpose or characteristic suggested from panellists' feedback of a padded collar. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Design Characteristic: The foam padded collar should be covered with low shear material.	☐	☐	☐	☐	☐	☐	☐
Purpose: Foam Padding reduces compression to lower limb anatomy from an extended topline height	☐	☐	☐	☐	☐	☐	☐

5)

"Collar contoured to Malleoli"

The median level of agreement amongst the panellists was "agree" with the majority of responses being "agree".
A consensus was reached in Round 1 with respect to this design feature being an ideal characteristic.

Although a consensus was reached on this design characteristic panellist feedback suggested there is potential ambiguity with "contoured to malleoli" if the topline is extended above the ankle (supra-malleolar), therefore, the description of the contouring is dependent on the topline height (supra or inframalleolar). Concerning the suggested

purpose of the design, panellists felt that due to the increased topline height the contoured padding would ergonomically incorporate ankle structures to reduce shear and compression.

Based on panellist feedback a modified description and purpose of the desired design characteristic is offered, please rank your agreement with these. *

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Design Characteristic: The foam padded collar should be covered with low shear material.	☐	☐	☐	☐	☐	☐	☐

6)

"Collar contoured to the Achilles tendon"

The median level of agreement amongst the panellists was "agree" with the majority of responses being between "somewhat agree" to "agree".

From the feedback of panellists, there did not appear to be any specific reason for only a partial level of agreement other than a lack of research to support the design adaption. There was no feedback to suggest an ideal modified design characteristic. Concerning the purpose of the suggested characteristic, it was proposed contouring to the Achilles tendon would reduce shear and compression to the area.

Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of contouring of the collar at the Achilles tendon for stability footwear.*

☐	Collar contoured to Achilles tendon (Original)
☐	Collar contoured to Achilles tendon is not a desired design characteristic.

7)

Please rank your level of agreement with the following purpose suggested from panellists feedback of a collar contoured to the Achilles tendon. *							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Contouring the collar to the Achilles tendon reduces shear and compression to the tendon.	☐	☐	☐	☐	☐	☐	☐

8)

"Pull tab to the back of collar": The median level of agreement amongst the panellists was "agree" with the majority of responses being between "neutral" to "agree". Panellist feedback suggested that the purpose of pull-tab was to assist donning of the footwear; however, a number of panellists stated that they had never seen a child use the pull-tab to don stability footwear. Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of a collar pull tab for stability footwear.*	
☐	Pull tab to back of collar (Original)
☐	Pull tab to back of collar is not a desired design characteristic.

9)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of a pull tab to the collar.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: A collar pull tab aids the child in donning the shoe.	☐	☐	☐	☐	☐	☐	☐

10)

You may use this optional area to provide us with any further information to your responses on the topline/collar.

Upper

In the questions below you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the upper of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

11)

"The Upper should be constructed of leather:"

The median level of agreement amongst the panellists was "agree" with the majority of responses being between "neutral" to "agree".

From panellist feedback, it was suggested that the purpose and advantages of leather material was that it adapts to foot structures over time and can enhance stability adaptions of the footwear through material stiffness. A number of panellists suggested that the upper should be available in optional materials, such as breathable materials for hot climates or sweaty feet, in addition, wipeable washable fabric for issues with incontinence.

Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of the material of the upper for stability footwear.*

☐	Upper should be constructed of leather (Original)
☐	Optional range of upper material to include; leather, breathable material and wipeable material.

12)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of leather as an upper material.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Leather adapts to foot structures over time	☐	☐	☐	☐	☐	☐	☐
Leather enhances material stiffness of the footwear	☐	☐	☐	☐	☐	☐	☐

13)

"Tongue to topline relationship:"

"Tongue in line with the topline:"
The median level of agreement amongst the panellists was "agree" with the majority of responses being between "neutral" to "agree".

"Tongue extended above topline:"
this reached the same level of agreement with the median level
amongst the panellists being "agree" with the majority of responses being between "neutral" to "agree".

Panellist feedback concerning the tongue being in line with the topline suggested that this would cause less irritation to the front of the ankle than an extended tongue. However, panellists who were in favour of an extended topline suggested that an extended tongue allowed comfort with lacing and the ability for the patient to pull up the tongue to stop slippage of the tongue during wear. Other feedback suggested that the tongue length should be optional depending on the patient's preference and manual dexterity.

Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of the tongue to topline relationship for stability footwear.
Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of the material of the upper for stability footwear.*

☐	Tongue extended above topline (Original)
☐	Tongue should be in line with topline (Original)
☐	Tongue length optional dependent on patient's preference and manual dexterity

14)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of the Tongue to topline relationship.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Tongue in line with topline is to minimise irritation to the anterior aspect of the ankle	☐	☐	☐	☐	☐	☐	☐
Purpose: Tongue extended above topline allows for comfort with lacing	☐	☐	☐	☐	☐	☐	☐
Purpose: Tongue extended above topline allows the wearer to minimise slippage of the tongue under the fastenings during wear	☐	☐	☐	☐	☐	☐	☐

15)

From panellist feedback other suggestions for the upper design were offered these included:

An option for an open upper in the form of a high topped sandal for standard stability footwear ranges for hotter climates.
The upper design should consider the effects and location of the internal seams in relation to compression and shearing of children's foot anatomy.

A slit or loop be placed in the tongue for the fastening (lace or velcro strap) to pass through to minimise tongue slippage in the shoe.

Please rank your agreement with the following panellists' suggestions in relation to further desired design characteristics for the uppers of stability footwear.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
High topped sandals to be offered as an option for stability footwear ranges for warm weather	☐	☐	☐	☐	☐	☐	☐
Ergonomic consideration of internal seams to reduce skin irritation	☐	☐	☐	☐	☐	☐	☐
Slit or loop in tongue for fastening to minimise tongue slippage	☐	☐	☐	☐	☐	☐	☐

16)

You may use this optional area to provide us with any further information to your responses on the upper.

Fastening and Facing

In the questions below you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the Fastenings and Facings of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

17)

"The type of fastenings"

Most panellists (53%) choose "other", next was Velcro (23%), no preference (18%) and lace (6%).

Those panellists that chose the other option suggested that the chosen fastenings be optional depending on the ability of the child or the desired therapeutic goal (e.g. Velcro for limited hand dexterity to enhance independence, lace if greater stability is required).

From panellist feedback Velcro fastenings were proposed to assists with independence making it easier for children to don/doff the shoes. A number of panellists proposed that lace fastenings allowed a firmer grip to the contours of the foot to enhance the stability offered by the shoe.

Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of the type of fastenings for stability footwear.*

☐	Velcro (Original)
☐	Lace (Original)
☐	No Preference (Original)
☐	Optional dependent on patient's ability and desired goal (e.g. Velcro for limited hand dexterity, lace for greater stability)

18)

Please rank your level of agreement with the following purpose suggested from panellists' feedback for the type of fastenings.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose of Velcro fastenings: Assists independenc e with limited hand dexterity in donning and doffing	☐	☐	☐	☐	☐	☐	☐
Purpose of lace fastenings: Enhances stability through potential firmer grip to contours of the foot	☐	☐	☐	☐	☐	☐	☐

19)

"Position of the facings"

Most panellists (47%) choose 'extended to just behind the toebox, 23% choose "other", 18% suggested "facings extended to the midfoot" and 12% had no preference.

From panellist feedback facings extended to the toe box were suggested to allow greater access into the footwear with patients who had limited foot and ankle ROM. Whereas facings extended to the midfoot allowed the upper to offer greater stability.
Similar to the fastenings a number of panellists felt the facings of stability footwear should be offered in an optional range dependent on the ability of the patient and desired therapeutic role. Extended to the toebox for limited patient foot and ankle mobility, extended to the midfoot for greater shoe stability.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the position of the facings for stability footwear.*

☐	Facings extended to the midfoot (Original)
☐	Facings extended to just behind the toe box (Original)
☐	No Preference (Original)

☐	Optional dependent on patient's foot and ankle mobility or therapeutic goal (i.e. facings extended to toe box for ease of foot and ankle access, extended to midfoot for greater upper stability)

20)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of the position of the facings.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Facings extended to just behind the toe box allows greater access into the footwear for the child with limited foot and ankle range of motion	☐	☐	☐	☐	☐	☐	☐
Purpose: Facing extended to the midfoot allows the upper to offer greater stability to the foot and ankle.	☐	☐	☐	☐	☐	☐	☐

21)

Other considerations suggested by the panellist in relation to the facings and fastenings were the gap between facings should be enough to allow an adequate range of fastening adjustment.
A side zip along the rearfoot was suggested alongside a lace fastening to allow easy donning and doffing to pre-tightened laced footwear.

Please rank your agreement with the following panellists' suggestions in relation to further desired design characteristics for the fastenings and facings of stability footwear.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
The gap between facings should allow an adequate range of fastening adjustment.	☐	☐	☐	☐	☐	☐	☐
Side zip lace combination fastening	☐	☐	☐	☐	☐	☐	☐

22)

You may use this optional area to provide us with any further information to your responses on fastening and facing.

Heel counter/stiffener

In the questions below you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the Heel Counter/Stiffener of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

23)

The heel counter/stiffener extension

"Heel counter/stiffener extended to midfoot:"
The median level of agreement amongst the panellists was "agree" with the majority of responses being between "somewhat agree" to "agree".

"Heel counter/stiffener extended towards the topline."
The median level of agreement amongst the panellists was "somewhat agree" with the majority of responses being between "somewhat agree" to "agree".

From panellist feedback, it was suggested that this was one of the most important design characteristics to enhance the stability of this footwear. It was thought the material stiffness of the counter and its extension could resist frontal plane movements of the foot and ankle and the midfoot if extended to this region. It was also suggested that this design feature can enhance proprioception at the rearfoot and ankle. Some panellists suggested that heel counters should come in a range of extensions both in length and height dependent on the therapeutic need (high to moderate stability) and to account for any impingement on the varied foot and ankle anatomy of patients.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the heel counter/ stiffener extensions for stability footwear.*

☐	Heel counter/stiffener extended to the midfoot only
☐	Heel counter/stiffener extended towards the topline only
☐	Heel counter stiffener, extended to the midfoot and towards topline

☐	Optional range of heel counter extensions dependent on therapeutic need and the patient's foot and ankle anatomy

24)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of the heel counter/stiffener:*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Heel counter/stiffener extensions can enhance proprioception at the foot and ankle	☐	☐	☐	☐	☐	☐	☐
Purpose: Heel counter/stiffener extension offers material stiffness to restrict frontal plane movements at the foot, ankle and midfoot dependent on the extension profile.	☐	☐	☐	☐	☐	☐	☐

25)

You may use this optional area to provide us with any further information to your responses on heel counter/stiffener.

Heel

In the questions below you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the Heel of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

26)

"Heel width in relation to the heel counter"

The majority (47%) felt that the heel should be extended wider than the heel counter followed by 23% who felt it should be in line, the remaining 30% chose no preference or other.

Feedback from the panellists suggested that the purpose of an increased heel width allowed greater medial-lateral stability. Panellists suggested that a welted sole construction provided a slight width increase from standard retail footwear. Others suggested that wider heels affect aesthetics and the mass of the shoe or potentially cause weakening to the upper and sole adhesion. Other feedback stated that heel width extension needs to be quantified and come in a range of prescriptive adaptions (heel float) dependent on clinical need rather than a standard characteristic.

Please consider the following options suggested by panellists' feedback in relation to the desired design characteristic of the heel to heel counter width relationship for stability footwear.*

☐	Heel width in line with heel counter width (Original)
☐	Heel width extended wider than heel counter width (Original)
☐	No preference (Original)

☐	Heel width extensions should be provided as an optional sole adaption with the heel width extension on standard stability footwear being no wider than the welted seam.

27)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of an extended heel width:*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Heel width extensions assist medial-lateral stability of the foot and ankle through an increased base of support	☐	☐	☐	☐	☐	☐	☐

28)

Other heel design considerations suggested by the panellists were the heel pitch; heel pitch should not be so high as to impart instability at the ankle or be incompatible with the fitting of adjunct orthotic therapy:

Please rank your agreement with the following panellists' suggestions in relation to further desired design characteristics for the heel of stability footwear:*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Heel Pitch should not increase ankle instability	☐	☐	☐	☐	☐	☐	☐
Heel pitch should allow for adjunct orthotic therapy	☐	☐	☐	☐	☐	☐	☐

29)

You may use this optional area to provide us with any further information to your responses on the heel

Inlay

In the questions below, you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the Inlay of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

30)

The inlay should have the following characteristics:

"Stability footwear should come with a standard removable inlay."
The median level of agreement amongst the panellists was "strongly agree" with the majority of responses being between "agree" to "strongly agree".
Consensus was reached on this design feature in Round 1.

"The inlay should be contoured to simulate the medial longitudinal arch. "
The median level of agreement amongst the panellists was "neutral" with the majority of responses being between "somewhat disagree" to "somewhat agree".

From panellist feedback, it was suggested that a removable inlay would allow for soft covering over the inner base layer of the sole and be thick enough to allow replacement with a prescriptive foot orthotic device if required. The majority of panellists did not feel contouring to the arch was necessary as this not be representative of an early walkers foot; however, panellists did suggest contouring to the heel cup to improve rearfoot fitting in the footwear.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the inlay for stability footwear.*

☐	The inlay should be contoured to simulate the medial longitudinal arch (Original)

☐	The inlay should be contoured to cup the heel but not the medial longitudinal arch
☐	The inlay should be contoured to simulate the medial longitudinal arch and to cup the heel

31)

Please rank your level of agreement with the following purpose suggested from panellists' feedback of the inlay.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Removable Inlay should be thick enough to allow for a potential prescriptive foot orthoses.	☐	☐	☐	☐	☐	☐	☐
An inlay contoured to cup the heel improves rearfoot fitting	☐	☐	☐	☐	☐	☐	☐

32)

You may use this optional area to provide us with any further information to your responses on the inlay.

Sole unit

In the questions below you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the sole unit of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

33)

The sole unit should have "A deepened tread"
The median level of agreement amongst the panellists was "somewhat agree" with the majority of responses being between "neutral" to "agree".

Panellist feedback suggested that a deepened tread allows for greater traction over different terrains however it may also be a trip hazard especially with low ground clearance in some mobility impairments.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the tread depth for stability footwear.*

☐	A deepened tread (Original)
☐	The tread depth should come in an optional range dependent (on the ability of the child and the environment where the footwear is to be used.

34)

The sole unit should: "Be made of hard-wearing material"
The median level of agreement amongst the panellists was "agree" with the majority of responses being between "somewhat agree" to "agree".

Panellist feedback suggested the benefit of a hard-wearing sole unit is that it would resist abnormal sole wear from pathological gait and prolong the stability effect of the footwear. Other suggestions indicated that hard-wearing soling material may not be so important for younger children as growth would entail replacement before significant wear. There was also the suggestion that hard-wearing soling material may increase walking effort in early walkers.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the wear resilience of the sole material for stability footwear.*

☐	Hard-wearing material (Original)
☐	Optional wear resilience of the sole material dependent on the age and ability of the patient.

35)

In relation to a hard wearing sole material please rank your level of agreement with the following purpose or characteristic suggested from panellists feedback.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Hard wearing sole material will prolong the stability effect of the footwear by resisting wear patterns associated with gait pathologies.	☐	☐	☐	☐	☐	☐	☐

36)

"The degree of flexibility" for the sole unit. The value range for flexibility 10 completely rigid and 0 completely flexible the median level of flexibility amongst the panel was 6 with the majority of values falling between 5 and 7. Panellist feedback suggested that although a rigid sole may enhance stability, flexion of the metatarsophalangeal joints (MPJ) is a requisite of the Hick's windlass and potential development of the arched complex of the foot. It was suggested that the sole stiffness may come in a range dependent on the ability of the child and therapeutic goals. Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the sole unit flexibility for stability footwear.*	
☐	The sole unit should come in a range of sole stiffness dependent on the patient's ability or the therapeutic goals, with flexibility of the sole focused at the MPJ area
☐	Other: (Please state)

37)

Other sole unit design considerations suggested by the panellists were:

That the rearfoot to forefoot sole width should be kept to the lowest practical ratio to manage mediolateral stability of the footwear.
That the sole unit should be stiffer at the midfoot and rearfoot to assist stability in these regions

Please rank your agreement with the following panellists' suggestions in relation to further desired design characteristics for the sole unit of stability footwear.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Rearfoot to Forefoot width of the sole unit kept to lowest practical ratio to assist medial-lateral stability	☐	☐	☐	☐	☐	☐	☐
The sole unit should be stiffer at the midfoot and rearfoot to assist stability in these regions.	☐	☐	☐	☐	☐	☐	☐

38)

You may use this optional area to provide us with any further information to your responses on the sole unit.

Toe spring forefoot/heel rocker

In the questions below, you will be presented with the collective opinion of panellists to the findings form Round 1 in relation to the Toespring forefoot/heel rocker of standard "Off the Shelf" stability footwear used as a clinical intervention for children with mobility impairment, please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

39)

"Stability footwear should have a reasonable forefoot rocker."

The median level of agreement amongst the panellists was "agree" with the majority of responses being between "somewhat agree" to "agree".

Panellist feedback suggested that forefoot rockers should come in a range depending on the patient's condition from increased in Charoct Marie Tooth to avoid tripping in propulsion and swing, to reduced in conditions such as Idiopathic toe walking to reduce the 3rd rocker (MPJ) loading. It was pointed out a range of forefoot rockers would also be required dependent on the stiffness of the sole. Panellists suggested the purpose of an appropriate rocker was to facilitate sagittal progression in propulsion without impacting on stability and also allowing for adequate ground clearance in swing phase.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the forefoot rocker for stability footwear.*

☐	Stability footwear should have a reasonable forefoot rocker. (Original)
☐	Stability footwear should come in a range of forefoot rockers dependent on the patient's condition and the stiffness of the sole.

40)

In relation to the forefoot rocker please rank your level of agreement with the following purpose or characteristic suggested from panellists feedback.*							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose of forefoot rocker: Should facilitate forward progression in terminal stance without impacting on stability	☐	☐	☐	☐	☐	☐	☐
Design characteristic of forefoot rocker: Should allow adequate ground clearance in swing	☐	☐	☐	☐	☐	☐	☐

41)

"Stability footwear should have a heel rocker."

The median level of agreement amongst the panellists was "neutral" with the majority of responses being between "somewhat disagree" to "somewhat agree".

Panellist feedback suggested that a heel rocker may speed up the 1st rocker and cause instability during the initial loading phase of gait. A number of panellists suggested that heel rockers should be offered as a sole adaption prescription dependent on the child's condition rather than a standard design.

Please consider the following options suggested by the panellists' feedback in relation to the desired design characteristic of the heel rocker for stability footwear.*

☐	Stability footwear should have a heel rocker. (Original)

☐	Heel rockers should be offered as a sole adaption prescription dependent on the child's condition rather than a standard design of stability footwear.

42)

You may use this optional area to provide us with any further information to your responses on toe spring forefoot/heel rocker.

Weight of the footwear

In the questions below you will be presented with the collective opinion of panellists to the findings from Round 1 in relation to the weight of "Off the Shelf" Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics:

20)

"The weight of stability footwear is an important consideration when issuing footwear to children with mobility impairment?"
The median level of agreement amongst the panellists was "agree" with the majority of responses being "agree."
Consensus was reached in Round 1 with respect to this being an important design characteristic.

Panellist feedback suggested that the footwear should be the lowest reasonable mass to reduce physiological cost during mobility. The design should, however, consider the mass of the child and the stability requirements of the child's condition, with more stabilising features associated with a higher mass. It was also highlighted some mobility-impaired conditions might allow the child to become more mobile with age; therefore, requiring sturdier footwear conversely other conditions may entail the child becoming weaker requiring lighter footwear. It was suggested that heavier shoes could assist stability in stance and the pendular motion in swing. Others noted that the perceived increased weight of stability footwear by children might be due to its stiffness rather than the actual mass.

The following design considerations in respect to the weight of stability footwear and its purpose have been formed from panellist feedback; please rank your agreement with these.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Stability footwear should be the lowest reasonable	☐	☐	☐	☐	☐	☐	☐

mass to reduce physiological cost during mobility.							
The mass of the shoe should be dependent on the mass and age of the child.							
The mass of the shoe should be dependent on the child's stability needs.							
Purpose of increased mass: Assist stability in stance							
Purpose of increased mass: Assists pendular motion in swing							

21)

You may use this optional area to provide us with any information for your responses on the weight of the footwear.

Further Design Considerations

The following section provides additional design considerations for "Off the Shelf" Stability footwear suggested by the panellists.

45)

Children's "Off the Shelf" stability footwear should come in a range of last dimensions to accommodate proportional differences in foot types.

Please rank your agreement with the following panellists' suggestion in relation to further desired design characteristics for stability footwear.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Children's stability footwear should be available in a range of last dimensions to accommodate different foot types.	☐	☐	☐	☐	☐	☐	☐

46

Children's "Off the Shelf" stability footwear should come in a range of colours and styles to appeal to children's preferences.

Please rank your agreement with this design feature suggested from the panellists' feedback.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Stability footwear should come in a range of colours and styles to appeal to children's aesthetics.	☐	☐	☐	☐	☐	☐	☐

47)

You may use this optional area to provide us with any information for your responses.

END OF SECTION 2 ROUND 2

Thank you for taking the time to complete section 2. Your time and participation in this survey are greatly appreciated.

Please remember to submit your answers before closing this form.

You can find the link for the next section of Round 2 attached to the Delphi survey email.

ROUND 3(S2) WHAT ARE CHILDREN'S CLINICAL FOOTWEAR INTERVENTIONS AND HOW TO PRESCRIBE THEM?

The second section will present yours and the panellists' collective choices and opinions from Round 2 on the desired design characteristics of “off the shelf” stability footwear and the purpose of these as a clinical intervention for children with mobility impairment.

Section 2

Establishing desired design characteristics of “off the shelf” stability footwear and the purpose of these as a clinical intervention for children with mobility impairment.
* Footwear taken from stock or supplies and not individually designed.

In this section, you will be presented with the collective preference (Median, relative frequency of response) and opinions of the panellists to the modified and original statements from round 1 and 2 of the survey concerning the desired design characteristics of “off the shelf” stability footwear and the purpose of these as a clinical intervention for children with mobility impairment. You will again be asked to give your preferential option or your level of agreement or non-agreement with them ("Strongly Disagree" to "Strongly Agree").
You can review the previous information you provided (in the document emailed to you), and considering the information provided by the other panellists, you may maintain your option or level of agreement with your chosen statement or change your opinion.

Full consensus for a statement is reached when a statement gains ≥75% of panellists with a level of agreement of "agree" or above, or ≥ 75% of panellists preferred option.

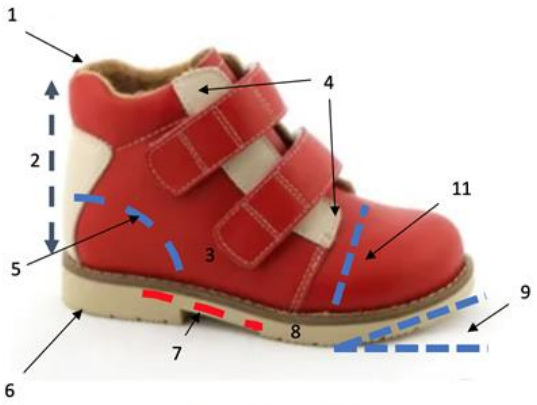
If you choose a level of agreement below "agree" we would ask that you provide us with the reason for your choice in the optional open-ended section provided.

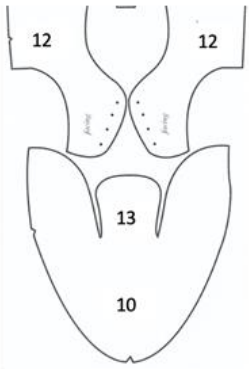
Required Field *

1)

Name*

Glossary of Footwear Anatomy





1) Topline/Collar
2) Topline height
3) Upper
4) Fastening/Facing
5) Heel counter
6) Heel
7) Shank
8) Outsole
9) Toe spring
10) Vamp
11) Toe box
12) Quarters
13) Tongue

Image adapted from www.made-in-china.com

This section provides a brief glossary to the footwear terms used in this survey.

1) Topline: the opening of the shoe at the rearfoot and ankle region,
Collar: Sometimes padded, a strip of material attached to the topline/opening of a shoe.

2) Topline height, The height between the base of the upper at the heel cup to the topline.

3) Upper: The part of a shoe that covers the entire top, sides and back of the foot and attaches to the insole and outsole

4) Fastening: The part of the shoe that can adjust and secure the fitting of the vamp and the quarters to the foot.
Facing: The area of the shoe where the fastenings are located.

5) Heel counter: stiffened material placed between the shoe's inner lining and the upper located at the heel cup region of the shoe just above the heel.

6) Heel: The part of the outsole that raises the rear of the shoe (maybe part/or a separate attachment of the outsole)

7) Shank: The Reinforced strip of material located between the insole and the sole of the shoe running from the heel region to the midfoot.

8) Outsole: The base of the shoe that is attached to the upper and contacts the ground.

9) Toe spring: The elevation angle from the ball region of the shoe to the distal aspect of the toe box.

10) Vamp: The area of the upper that covers the front part of the shoe,

11) Toe box: Distal region of the shoe upper that provides space and protection for the toes.

12) Quarters: The back half of the upper. Attached at the front to the vamp, making up both sides of a shoe, and wrapping around the rear of the shoe.

13) Tongue: Flap of material attached to the vamp shoe, extending centrally along the instep from the forefoot to the topline.

Topline/collar

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the topline/collar of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment.
Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

2)

rom Round 2 panellists were presented with a series of options from suggestions from the panel and the original study of stability footwear in relation to the height of the topline. The relative frequency of response is detailed below:

Option 1: The topline extension should come in an optional range both above and below the ankle dependent on the patient's ability and needs. (93%)
Option 2: The topline should be extended above the ankle (Original) (7%)
Option 3: The topline should not be extended above the ankle (0%)

A Consensus was reached to Option 1.

Panellist feedback suggested that it was difficult to recommend standard design as different foot types (pes planus, pes cavus) will affect the efficacy of the topline and collar options

3)

Panellists were asked to rank their agreement with the following purpose and potential adverse effects of an extended topline in Round 2.
The median level of agreement and relative distribution of response is detailed below.

Purpose: Extended topline increases proprioception at the Foot and Ankle
Median level of Agreement 5 ("Somewhat Agree")
20% "Neutral", 33% "Somewhat Agree", 40% "Agree", 7% "Strongly Agree"

Purpose: Extended topline assist heel counter leverage to resist frontal plane motion at foot and ankle
Median level of Agreement 6 ("Agree")
13% "Neutral", 34% "Somewhat Agree", 40% "Agree", 13% "Strongly Agree"

Adverse Effect: An extended topline height may reduce sagittal plane power generation at the ankle
Median level of Agreement 5 ("Somewhat Agree")
7% "Somewhat Disagree", 20% "Neutral", 40% "Somewhat Agree"
13% "Agree", 20% "Strongly Agree"

Panellist Feedback suggested that partial agreement could only be reached due to limited peer-reviewed evidence to support the purpose of the design characteristics.
The research team appreciates that there is a paucity of scientific or structured clinical research but we would ask you to consider your years of clinical experience and expertise as to the perceived role of this design adaption.

Based on your clinical experience please rank your level of agreement with these proposed purposes of an extended topline.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: An extended topline height may increase proprioception input at the rearfoot and ankle.	☐	☐	☐	☐	☐	☐	☐
Purpose: An extended topline height may assist heel counter leverage to	☐	☐	☐	☐	☐	☐	☐

resist frontal plane movement of the rearfoot and ankle.							
Adverse Effect: An extended topline height may reduce sagittal plane power generation at the ankle.	☐	☐	☐	☐	☐	☐	☐

4)

"Padded collar"
The panellists were presented with the following design characteristic and purpose of a foam padded collar in Round 2
The median level of agreement and the relative distribution of response is detailed below.

Design Characteristic: Foam Padded collar covered with low sheer material
Median level of Agreement 6 ("Agree")
13% "Neutral", 20% "Somewhat Agree", 47% "Agree", 20% "Strongly Agree"

Purpose Foam padding collar reduces compression from an extended topline height.
Median level of Agreement 6 ("Agree")
7% "Disagree", 13% "Neutral", 27% "Somewhat Agree", 33% "Agree"
20% "Strongly Agree"

Panellist Feedback again suggested that partial agreement could only be reached due to limited peer-reviewed evidence to support the design characteristics and their purpose. It was difficult to recommend standard design as different foot types (pes planus, pes cavus) will affect the efficacy of the topline and collar options.
The research team appreciates that there is a paucity of scientific or structured clinical research but we would ask you to consider your years of clinical experience and expertise as to the perceived role of this design adaption.

Based on your clinical experience please rank your level of agreement with these proposed purposes of a foam padded collar.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Design Characteristic: The foam padded collar	☐	☐	☐	☐	☐	☐	☐

should be covered with low shear material.							
Purpose: Foam Padding may reduce compression to lower limb anatomy from an extended topline height.	☐	☐	☐	☐	☐	☐	☐

5)

The panellists were presented with the following purpose to the contouring of the topline to the ankle region in Round 2

The median level of agreement and relative distribution of response is detailed below.

Purpose: contouring of topline reduces compression and sheer to ankle region.
Median level of Agreement 6 ("Agree")
13% "Somewhat Disagree", 7% "Neutral", 20% "Somewhat Agree", 47% "Agree", 13% "Strongly Agree"

Panellist Feedback again suggested that partial agreement could only be reached due to limited peer-reviewed evidence to support the purpose. However, some panellists did acknowledge contouring to anatomical structures above or below the ankle improves tolerance fit and comfort.
The research team appreciates that there is a paucity of scientific or structured clinical research but we would ask you to consider your years of clinical experience and expertise as to the perceived role of this design adaption.

Based on your clinical experience please rank your level of agreement with these proposed purposes of a contoured topline.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Contouring of topline may reduce shear and compression stress to the ankle region.	☐	☐	☐	☐	☐	☐	☐

6)

The panellists were presented with the following options in relation to the contouring of the collar to the Achilles tendon in Round 2
The relative distribution of response is detailed below:

Option 1: Collar contoured to Achilles tendon (Original) (80%)
Option 2: Collar contoured to the Achilles tendon is not a desired design characteristic (20%)
A Consensus was reached to Option 1.*

7)

The following purpose was presented to the panellists in Round 2 in relation to contouring the collar to the Achilles tendon.
The median level of agreement and relative distribution of response is detailed below.

Purpose: Contouring the collar to the Achilles tendon reduces shear and compression to the tendon.
Median level of Agreement 6 (Agree)
13% "Neutral", 27% "Somewhat Agree", 53% "Agree", 7% "Strongly Agree"

Panellist Feedback again suggested that partial agreement could only be reached due to limited peer-reviewed evidence to support the purpose. However, some panellists did acknowledge contouring to anatomical structures above or below the ankle improves tolerance fit and comfort.
The research team appreciates that there is a paucity of scientific or structured clinical research but we would ask you to consider your years of clinical experience and expertise as to the perceived role of this design adaption.

Based on your clinical experience please rank your level of agreement with these proposed purposes of a topline contoured to the Achilles tendon.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Contouring the collar to the Achilles tendon may reduce shear and compression	☐	☐	☐	☐	☐	☐	☐

to the tendon.							

8)

The panellists were presented with the following options in relation to the pull tab at the back of the collar in Round 2

Option 1: Pull tab to back of collar (Original) 53%
Option 2: Pull tab to back of collar is not a desired design characteristic 47%

Panellist feedback suggested that the pull tab may aid the child or those offering assistance to the child in donning the shoe.
The pull tab may inadvertently assist sliding of an AFO into the boot.

Please consider again the following options.*

☐	Pull tab to back of collar (Original)
☐	Pull tab to back of collar is not a desired design characteristic.

9)

The following purpose was presented to the panellists in Round 2 in relation to the pull tab to the back of the collar.
The median level of agreement and relative distribution of response is detailed below.

Purpose: A collar pull tab aids the child in donning the shoe
Median level of Agreement 5 ("Somewhat Agree")
7% "Disagree", 33% "Neutral", 26% "Somewhat Agree", 27% "Agree"
7% "Strongly Agree"

The statement has been slightly modified based on panellist feedback please rank your level of agreement with this.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: A collar pull tab may aid the child or those offering assistance in donning the stability shoe	☐	☐	☐	☐	☐	☐	☐

10)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the topline/collar please use this optional area to provide us with your reasoning.

Upper

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the upper of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment.

Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

11)

The panellists were presented with the following options in relation to the ideal material for the upper in Round 2
The relative distribution of response is detailed below:

Option 1: Optional range of upper material to include; leather, breathable material and wipeable material. 100%

Option 2: Upper should be constructed of leather (Original) 0%

A Consensus was reached for Option 1

12)

The following purpose was presented to the panellists in Round 2 in relation to leather as an upper material.
The median level of agreement and relative distribution of response is detailed below.

Purpose: Leather adapts to foot structures over time
Median level of Agreement 6 ("Agree")
7% "Neutral", 20% "Somewhat Agree", 53% "Agree", 20% "Strongly Agree"

Purpose: Leather enhances material stiffness of the footwear
Median level of Agreement 6 ("Agree")
7% "Somewhat Disagree", 20% "Neutral", 20% "Somewhat Agree",
53% "Agree"

Panellist feedback suggested that Leather material do not have uniform tensile strength. The upper material needs to account for the mass of the patient and the potential for increased mechanical stress.

The statements have been slightly modified based on panellist feedback please rank your level of agreement with these.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Leather may adapt to foot structures over time dependent on the tensile strength of the leather.	☐	☐	☐	☐	☐	☐	☐
Purpose: Leather may enhance material stiffness of the footwear dependent on the tensile strength of the leather.	☐	☐	☐	☐	☐	☐	☐

13)

The panellists were presented with the following options in relation to the desired design characteristic of the tongue to topline relationship for stability footwear In Round 2.
The relative distribution of response is detailed below:

Option 1: Tongue length optional dependent on patient's preference and manual dexterity 67%
Option 2:Tongue extended above topline (Original) 33%
Option 3:Tongue should be in line with topline (Original) 0%

No specific panellist feedback was given to inform any further modification of these options.

Please consider the following two options in reference to the tongue to topline relationship.*

☐	Option 1:Tongue length optional dependent on patient's preference and manual dexterity
☐	Option 2: Tongue extended above topline (Original)

14)

The following purposes were presented to the panellists in Round 2 in relation to the tongue to topline relationship.
The median level of agreement and the relative distribution of response is detailed below.

Purpose: Tongue in line with topline is to minimise irritation to the anterior aspect of the ankle.
Median level of Agreement 5 ("Somewhat Agree")
13% "Somewhat Disagree", 13% "Neutral", 40% "Somewhat Agree",
27% "Agree", 7% "Strongly Agree"

Purpose: Tongue extended above topline allows for comfort with lacing
Median level of Agreement 6 ("Agree")
13% "Neutral", 27% "Somewhat Agree", 40% "Agree", 20% "Strongly Agree"

Purpose: Tongue extended above topline allows the wearer to minimise slippage of the tongue under the fastenings during wear
Median level of Agreement 6 ("Agree")
13% "Somewhat Disagree", 13% "Neutral", 13% "Somewhat Agree",
40% "Agree", 21% "Strongly Agree"

No specific panellist feedback was given to inform any further modification of these statements, However, you may consider the distribution of the panel's response to either change or maintain your previous choice.

Please consider the following statements from Round 2 in relation to the purpose of the tongue to topline relationship and rank your agreement with them..*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Tongue in line with topline is to minimise irritation to the anterior aspect of the ankle	☐	☐	☐	☐	☐	☐	☐
Purpose: Tongue extended above topline allows for comfort with lacing	☐	☐	☐	☐	☐	☐	☐
Purpose: Tongue extended above topline allows the wearer to minimise slippage of the tongue under the fastenings during wear	☐	☐	☐	☐	☐	☐	☐

15)

The panellists were presented with following design considerations for the upper of off the shelf stability footwear in Round 2 based on panellist suggestions in Round 1.
The median level of agreement and relative distribution of response is detailed below.

High topped sandals to be offered as an option for stability footwear ranges for warm weather.
Median level of Agreement 6 ("Agree")
13% "Neutral", 33%, "Somewhat Agree", 27% "Agree", 27% "Strongly Agree"

Ergonomic consideration of internal seams to reduce skin irritation
Median level of Agreement 6 ("Agree")

67% "Agree", 33% "Strongly Agree"
A Consensus was reached for this design option

Slit or loop in the tongue for fastening to minimise tongue slippage
Median level of Agreement 6 ("Agree")
13% "Somewhat Agree", 60% "Agree", 27% "Strongly Agree"
A Consensus was reached for this design option

No specific panellist feedback was given to inform any further modification of the design option of high topped sandals, However, you may consider the distribution of the panel's response to either change or maintain your previous choice.

Please consider the following statement from Round 2 in relation to the design option for the upper.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
High topped sandals to be offered as an option for stability footwear ranges for warm weather	☐	☐	☐	☐	☐	☐	☐

16)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the upper please use this optional area to provide us with your reasoning.

Fastening and Facing

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the Fastenings and Facings of standard "Off the Shelf" stability footwear used as a clinical intervention for children with mobility impairment. Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

17)

The panellists were presented with the following options in relation to the desired design characteristic of the type of fastening in Round 2 The relative distribution of response is detailed below:

Option 1: Optional dependent on patient's ability and desired goal (e.g. Velcro for limited hand dexterity, lace for greater stability) 93%
Option 2: Velcro (Original) 7%
Option 3: Lace (Original) 0%
Option 4:No preference (Original) 0%

A consensus was reached for Option 1.

Panellist feedback suggested that having combination fastenings on offer may also assist donning with adjunct assistive aids such as AFO's

18)

The following purposes were presented to the panellists in Round 2 for the type of fastenings.
The median level of agreement and relative distribution of response is detailed below.

Purpose of Velcro fastenings: Assists independence with limited hand dexterity in donning and doffing.
Median level of Agreement 6 ("Agree")
7% "Somewhat Agree", 46% "Agree", 47% "Strongly Agree"
A Consensus was reached for this purpose

Purpose of lace fastenings: Enhances stability through potential firmer grip to contours of the foot.
Median level of Agreement 6 (Agree)
7% "Somewhat Disagree", 7% "Neutral", 13% "Somewhat Agree", 47% "Agree", 26% "Strongly Agree"

No specific panellist feedback was given to inform any further modification of the purpose of lace fastenings. However, you may consider the distribution of the panel's response to either change or maintain your previous choice.

Please consider the following statement from Round 2 in relation to the purpose of a lace fastening.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose of lace fastenings: Enhances stability through potential firmer grip to the contours of the foot	☐	☐	☐	☐	☐	☐	☐

19)

The panellists were presented with the following options in relation to the desired design characteristic of the Position of the facings in Round 2
The relative distribution of response is detailed below:

Option 1: Optional dependent on patient's foot and ankle mobility or therapeutic goal (i.e. facings extended to toe box for ease of foot and ankle access, extended to midfoot for greater upper stability) 93%
Option 2: Facings extended to just behind the toe box (original)
7%
Option 3: Facings extended to midfoot (original) 0%
Option 4: No Preference (original) 0%

A consensus was reached for Option 1.

20)

The following purposes were presented to the panellists in Round 2 in relation to the position of the facings.
The median level of agreement and the relative distribution of response is detailed below.

Purpose: Facings extended to just behind the toe box allows greater access into the footwear for the child with limited foot and ankle range of motion
Median level of Agreement 6 ("Agree")
7% "Neutral", 66% "Agree", 27% "Strongly Agree"
A consensus was reached for this Purpose

Purpose: Facing extended to the midfoot allows the upper to offer greater stability to the foot and ankle.
Median level of Agreement 6 ("Agree")
7% "Somewhat Disagree", 20% "Neutral", 20% "Somewhat Agree"
, 53% "Agree"

No feedback was given to explain the lack of consensus agreement to the purpose of the facings extended to the midfoot, or to suggest further modification of the statement, although a strong majority of the panel advocated for an optional range of facing extensions to be incorporated in Question 19.

Please consider the following statement from Round 2 in relation to the purpose of facings extended to the midfoot..*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Facing extended to the midfoot allows the upper to offer greater stability to the foot and ankle.	☐	☐	☐	☐	☐	☐	☐

21)

The panellists were presented with following design considerations for the fastenings and facings of off the shelf stability footwear in Round 2 based on panellist suggestions in Round 1.
The median level of agreement and the relative distribution of response is detailed below.

The Gap between the facings should allow adequate range of fastening adjustment
Median level of Agreement 6 ("Agree")
13% "Somewhat Agree", 40% "Agree", 47% "Strongly Agree"
A consensus was reached for this statement

Side Zip combination fastening
Median level of Agreement 6 ("Agree")
7% "Somewhat Disagree", 20% "Neutral", 13% "Somewhat Agree", 47% "Agree", 13% "Strongly Agree"

Panellist feedback suggested potential difficulty with side zip fastening including easy to damage zip mechanism, dangers of damaging skin or nails, and difficulty in fastening zip if lace fastenings are tightened tight enough to contour to the foot and ankle.

Considering panellist feedback please rank your level of agreement to side zip lace combination fastening..*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Side zip lace combination fastening	☐	☐	☐	☐	☐	☐	☐

22)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the fastening and facings please use this optional area to provide us with your reasoning.

Heel counter/stiffener

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the Heel counter/stiffener of standard "Off the Shelf" stability footwear used as a clinical intervention for children with mobility impairment. Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

23)

The panellists were presented with the following options in relation to the desired design characteristic of the heel counter/stiffener extension in Round 2.
The relative distribution of response is detailed below:

Option1: Optional range of heel counter extensions dependent on therapeutic need and the patient's foot and ankle anatomy (80%)
Option 2: Heel counter/stiffener extended to the midfoot only (13%)
Option 3: Heel counter stiffener, extended to the midfoot and towards topline (7%)
Option 4: Heel counter/stiffener extended towards the topline only (0%)

A Consensus was reached for Option 1:

Panellist Feedback suggested a concern that requesting too many optional features may present manufactures with difficulty in providing a stock boot. Additionally, heel counter changes may affect the fixation of the upper to the sole unit.

24)

The following purposes were presented to the panellists in Round 2 in relation to the heel counter/stiffener.
The median level of agreement and the relative distribution of response is detailed below.

Purpose: Heel counter/stiffener extensions can enhance proprioception at the foot and ankle
Median level of Agreement 5 ("Somewhat Agree")

20% "Neutral", 46% "Somewhat Agree", 27% "Agree", 7% "Strongly Agree"

Purpose: Heel counter/stiffener extension offers material stiffness to restrict frontal plane movements at the foot, ankle and midfoot dependent on the extension profile.
Median level of Agreement 6 ("Agree")
7% "Neutral", 40% "Somewhat Agree", 40% "Agree", 13% "Strongly Agree"

Panellist feedback suggested partial agreement due to the limited evidence base to support the purpose of the heel counter. Additionally, it was felt control at the heel counter area of the shoe should also consider the vertical ground reaction force component through increased contact area between the inner sole of the shoe and the plantar surface of the child's heel.
The research team appreciates that there is a paucity of scientific or structured clinical research but we would ask you to consider your years of clinical experience and expertise as to the perceived role of this design adaption.

Based on your clinical experience please rank your level of agreement with these proposed purposes and design considerations of the Heel counter/stiffener:*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Purpose: Heel counter/stiffener extensions may enhance proprioception at the foot and ankle.	☐	☐	☐	☐	☐	☐	☐
Purpose: Heel counter/stiffener extension offers material stiffness that may restrict frontal plane movements at the foot, ankle and midfoot dependent on the extension profile.	☐	☐	☐	☐	☐	☐	☐
Control of frontal plane movements of the foot and ankle at the	☐	☐	☐	☐	☐	☐	☐

heel counter area should also consider vertical ground reaction force contact area, through close contact between the plantar surface of the child's heel and the inner sole of the shoe.							

25)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the heel counter/stiffener please use this optional area to provide us with your reasoning.

Heel

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the Heel of standard "Off the Shelf" stability footwear used as a clinical intervention for children with mobility impairment.
Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

26)

The panellists were presented with the following options in relation to the desired design characteristic of the "Heel width in relation to the heel counter" in Round 2.
The relative distribution of response is detailed below:

Option 1: Heel width extensions should be provided as an optional sole adaption with the heel width extension on standard stability footwear being no wider than the welted seam. (53%)
Option 2: Heel width extended wider than heel counter width (Original) (40%)
Option 3: No preference (Original) (7%)
Option 4: Heel width in line with heel counter width (Original) 0%

No specific panellist feedback was given to inform any further modification of the options of heel width in relation to the heel counter. However, you may consider the distribution of the panel's response to either change or maintain your previous choice.

Please consider the following 3 options from Round 2 of the heel width in relation to the heel counter.*

☐	Heel width in line with heel counter width (Original)
☐	Heel width extended wider than heel counter width (Original)
☐	No preference (Original)
☐	Heel width extensions should be provided as an optional sole adaption with the heel width extension on standard stability footwear being no wider than the welted seam.

27)

The following purpose was presented to the panellists in Round 2 in relation to an extended heel width
The median level of agreement and relative distribution of response is detailed below.
Purpose: Heel width extensions assist medial-lateral stability of the foot and ankle through an increased base of support.
Median level of Agreement 6 ("Agree")
7% "Neutral", 7% "Somewhat Agree:, 53% "Agree", 33% "Strongly Agree"
A consensus was reached for this statement.

Panellist feedback suggested for a wide sole to offer increased stability maximum contact with the insole of the shoe and the plantar surface of the foot is required to maximise vertical GRF contact area:*

28)

The panellists were presented with following design considerations for the heel of off the shelf stability footwear in Round 2 based on panellist suggestions in Round 1.
The median level of agreement and relative distribution of response is detailed below.

Heel Pitch should not increase ankle instability
Median level of Agreement 6 ("Agree")
13% "Somewhat Agree", 67% "Agree", 20% "Strongly Agree"
A consensus was reached for this statement

Heel pitch should allow for adjunct orthotic therapy
Median level of Agreement 6 ("Agree")
7% "Somewhat Agree", 73% "Agree", 20% "Strongly Agree"
A consensus was reached for this statement

Panellist feedback suggested that ankle Instability would be inevitable due to plantarflexion in propulsion.

29)

You may use this optional area to provide us with any further information to your responses on the heel

Inlay

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the Inlay of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment.
Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

30)

The panellists were presented with the following options in relation to the desired design characteristic of the Inlay in Round 2.
The relative distribution of response is detailed below:

Option 1: The inlay should be contoured to simulate the medial longitudinal arch and to cup the heel 54%

Option 2: The inlay should be contoured to cup the heel but not the medial longitudinal arch 33%

Option 3: The inlay should be contoured to simulate the medial longitudinal arch (Original) 13%

Panellist feedback suggested, That "off the shelf" stability footwear not just for early walkers therefore contouring to MLA may be required for larger sizes. Mild arch contour similar to that offered in standard retail footwear would be appropriate. The Arch may be easily reduced by clinician to control blistering in low arch feet.
Ambiguous statement unsure if heel cupping would improve the fit of inlay to shoe or inlay and shoe to patient's foot

Slight modification to the options have been addressed panellist based on panellist feedback.*

☐	The inlay should cup the child's heel to improve rearfoot fit and be appropriately contoured to the medial longitudinal arch
☐	The inlay should cup the child's heel to improve rearfoot fit but not be contoured to the medial longitudinal arch
☐	The inlay should be appropriately contoured to the medial longitudinal arch

31)

The following purpose and design characteristics were presented to the panellists in Round 2 in relation to inlay
The median level of agreement and the relative distribution of response is detailed below.

Removable Inlay should be thick enough to simulate a potential prescriptive foot orthoses
Median level of Agreement 6 ("Agree")
67% "Agree", 33% "Strongly Agree"
A consensus was reached for this statement

Purpose: An inlay contoured to cup the heel improves rearfoot fitting Median level of Agreement 5 ("Somewhat Agree")
7% "Somewhat Disagree", 13% "Neutral", 34% "Somewhat Agree", 33% "Agree", 13% "Strongly Agree"

Panellist feedback suggested ambiguity if cupping of the heel would improve the fit of inlay to shoe or the inlay and shoe to the patient's foot

The statement has been slightly modified based on panellist feedback please rank your level of agreement with this.*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
An inlay contoured to cup the heel improves rearfoot fitting of the child's foot to the shoe	☐	☐	☐	☐	☐	☐	☐

32)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the Inlay please use this optional area to provide us with your reasoning.

Sole unit

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the Sole unit of standard "Off the Shelf" stability footwear used as a clinical intervention for children with mobility impairment.
Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

33)

The panellists were presented with the following options in relation to the desired design characteristic of the tread depth of the sole unit in Round 2.
The relative distribution of response is detailed below:

Option 1: The tread depth should come in an optional range dependent on the ability of the child and the environment where the footwear is to be used. (87%)

Option 2: A deepened tread (Original) 13%

A consensus was reached for Option 1

34)

The panellists were presented with the following options in relation to the desired design characteristic of the wear characteristics of the sole unit in Round 2.
The relative distribution of response is detailed below:

Option 1: Optional wear resilience of the sole material dependent on the age and ability of the patient. (87%)

Option 2: Hard-wearing material (Original) (13%)

A consensus was reached for Option 1

35)

The following purpose was presented to the panellists in Round 2 in relation to hard wearing sole material.
The median level of agreement and relative distribution of response is detailed below.

Purpose: Hard-wearing sole material will prolong the stability effect of the footwear by resisting wear patterns associated with gait pathologies.
Median level of Agreement 6 ("Agree")
7% "Neutral", 7% "Somewhat Agree", 79% "Agree", 7% "Strongly Agree"

A consensus was reached for this Statment.

36)

"The panellists were presented with the following options in relation to the desired design characteristic of the degree of flexibility for the sole unit. in Round 2.
The relative distribution of response is detailed below:

Option 1: The sole unit should come in a range of sole stiffness dependent on the patient's ability or the therapeutic goals, with flexibility of the sole focused at the MPJ area
(100%)
Option2 (Other)
(0%)

A consensus was reached for option 1.

37)

The panellists were presented with following design considerations for the sole unit of off the shelf stability footwear in Round 2 based on panellist suggestions in Round 1.
The median level of agreement and relative distribution of response is detailed below.

Rearfoot to Forefoot width ratio's kept to lowest practical ratio to assist medial lateral stability
Median level of Agreement 5 ("Somewhat Agree")
27% "Neutral", 27% "Somewhat Agree', 40% "Agree", 6% "Strongly Agree"

The sole unit should be stiffer at the midfoot and rearfoot to assist stability in these regions.
Median level of Agreement 5 (Somewhat Agree)
7% "Somewhat Disagree", 20% "Neutral", 26% "Somewhat Agree", 20% "Agree", 27% "Strongly Agree"

Panellist feedback suggested the width ratio of forefoot and rearfoot was ambiguous and required further explanation.

The statement in relation to the sole unit rearfoot to forefoot ratio has been slightly modified based on panellist feedback No specific feedback was offered to offer modification of the statement concerning the stiffness at midfoot and rearfoot sole unit,

However, you may consider the distribution of the panel's response to either change or maintain your previous choice to this statement.

Please rank your level of agreement with these statements..*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
The ground contact area ratio between the rearfoot and forefoot of the sole unit should be kept to the lowest practical ratio to assist medial-lateral stability	☐	☐	☐	☐	☐	☐	☐
The sole unit should be stiffer at the midfoot and rearfoot to assist stability in these regions.	☐	☐	☐	☐	☐	☐	☐

38)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the sole unit please use this optional area to provide us with your reasoning.

Toe spring forefoot/heel rocker

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the toe spring forefoot/heel rocker of standard "Off the Shelf" stability footwear used as a clinical intervention for children with mobility impairment.
Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

39)

The panellists were presented with the following options in relation to the desired design characteristic of the forefoot rocker in Round 2.
The relative distribution of response is detailed below:

Option 1: Stability footwear should come in a range of forefoot rockers dependent on the patient's condition and the stiffness of the sole. (73%)

Option 2: Stability footwear should have a reasonable forefoot rocker. (Original) (27%)

Panellist feedback suggested that although the variation of rocker's and sole stiffeners offered for conditions such as Charcot Marie Tooth and toe walking were important these should be offered as a sole adaption prescription rather than a standard design on stability footwear.

A modified option as been offered based on panellist feedback.*

☐	Option 1: Stability footwear should come in a range of forefoot rockers dependent on the patient's condition and the stiffness of the sole.
☐	Option 2: Stability footwear should have a reasonable forefoot rocker as a standard design. With forefoot rocker adaption prescriptions available to meet patient's needs.

40)

The following purposes were presented to the panellists in Round 2 in relation to the forefoot rocker
The median level of agreement and relative distribution of response is detailed below.

Purpose of forefoot rocker: Should facilitate forward progression in terminal stance without impacting on stability.
Median level of Agreement 6 ("Agree")
7% "Somewhat Agree", 66% "Agree", 27% "Strongly Agree"
A consensus was reached for this statement

Design characteristic of forefoot rocker: Should allow adequate ground clearance in swing
Median level of Agreement 6 ("Agree")
7% "Somewhat Agree", 66% "Agree', 27% "Strongly Agree"
A consensus was reached for this statement

41)

The panellists were presented with the following options in relation to the desired design characteristic of the heel rocker in Round 2.
The relative distribution of response is detailed below:

Option 1: Heel rockers should be offered as a sole adaption prescription dependent on the child's condition rather than a standard design of stability footwear. (100%)
Option 2: Stability footwear should have a heel rocker. (Original) (0%)

A Consensus was reached for Option 1

42)

You may use this optional area to provide us with any further information to your responses on toe spring forefoot/heel rocker.

Weight of the footwear

In the questions below you will be presented with the collective choices and opinions from Round 2 in relation to the weight of the footwear of standard “Off the Shelf” stability footwear used as a clinical intervention for children with mobility impairment. Please consider the options offered or rank your level of agreement with the suggested characteristic or purpose of these design characteristics some of which may have been slightly modified based on panellist feedback in Round 2:

43)

The following purpose and design characteristics were presented to the panellists in Round 2 in relation to the weight of the footwear
The median level of agreement and relative distribution of response is detailed below.

Stability Footwear should be the lowest reasonable mass to reduce physiological cost during mobility
Median level of Agreement 6 ("Agree")
33% 'Somewhat Agree", 40% "Agree", 27% 'Strongly Agree'

Mass of shoe should be dependent on the mass and age of the child
Median level of Agreement 6 ('Agree")
13% "Neutral", 20% "Somewhat Agree", 54% "Agree", 13% "Strongly Agree"

The mass of the shoe should be dependent on the child's stability needs.
Median level of Agreement 6 ("Agree")
7% "Neutral", 13% "Somewhat Agree", 67% "Agree", 13% "Strongly Agree"
A consensus was reached for this statement

Purpose of Increased mass assists stability in stance,
Median level of Agreement 5 ("Somewhat Agree")
40% "Neutral", 20% "Somewhat Agree", 40% "Agree"

Purpose of Increased Mass Assists pendular motion in swing
Median level of Agreement 5 ("Somewhat Agree")
7% "Somewhat Disagree", 40% "Neutral', 26% "Somewhat Agree"
20% "Agree", 7% "Strongly Agree"

Panellist feedback suggested that pendular motion may be assisted but increased mass may also cause an adverse effect with instability in swing and preloading increasing difficulty in navigating obstacles and stair climbing.
The increased mass of the footwear may unintentionally provide a benefit in strengthening limbs but also may induce early fatigue.

A new statement was generated from panellist feedback concerning a potential adverse effect of the weight of the shoe. No specific panellist feedback was given to inform further modification of the other statements, However, you may consider the distribution of the panel's response to either change or maintain your previous choice.

Please rank your level of agreement with these statements..*

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
	1	2	3	4	5	6	7
Stability footwear should be the lowest reasonable mass to reduce physiological	☐	☐	☐	☐	☐	☐	☐

cost during mobility.							
The mass of the shoe should be dependent on the mass and age of the child.	☐	☐	☐	☐	☐	☐	☐
Purpose of increased mass: Assist stability in stance	☐	☐	☐	☐	☐	☐	☐
Purpose of increased mass: Assists pendular motion in swing	☐	☐	☐	☐	☐	☐	☐
Adverse Effect: Increased mass of the shoe may lead to difficulty in swing phase with ground clearance, navigating obstacles and stair climbing.	☐	☐	☐	☐	☐	☐	☐

44)

If your level of agreement was "somewhat agree" or lower for any of the statements in relation to the weight of the footwear please use this optional area to provide us with your reasoning.

Further Design Considerations

The following section provides additional design considerations for "Off the Shelf" Stability footwear suggested by the panellists.

45)

The Following design consideration was presented to the panellist in Round 2
The median level of agreement and relative distribution of response is detailed below.

Children's "Off the Shelf" stability footwear should come in a range of last dimensions to accommodate proportional differences in foot types.
Median level of Agreement 6 ("Agree")
7% "Neutral", 46% "Agree", 47% "Strongly Agree",

A consensus was reached for this statement.

46

The Following design consideration was presented to the panellist in Round 2
The median level of agreement and relative distribution of response is detailed below.

Children's "Off the Shelf" stability footwear should come in a range of colours and styles to appeal to children's preferences.
Median level of Agreement 7 ("Strongly Agree")
40% "Agree", 60% "Strongly Agree"

A consensus was reached for this statement.

END OF SECTION 2 ROUND 3

Thank you for taking the time to complete section 2. Your time and participation in this survey are greatly appreciated.

Please remember to submit your answers before closing this form.

You can find the link for the next section of Round 2 attached to the Delphi survey email.