

CADCAM Orthotic Prescription and Design

Session 4

Orthotics that correct foot function

StepForce Training

Presented By
Paul Graham

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What exactly does 'correct foot function' mean?

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What exactly does 'Correct foot function' mean?


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Orthotics that correct CoP

Correction Design aims

- Stabilising Calcaneocuboid Joint facilitating Peroneus Longus
- Weight transfer to medial column; Low gear to High gear
- Windlass Function stabilising medial column on midfoot
- Proper function of 1st MTP Joint into swing phase

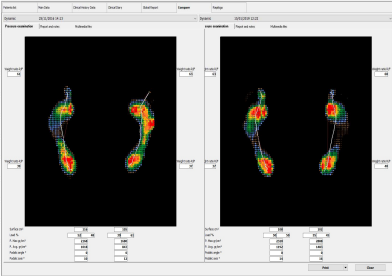


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Orthotics that correct CoP



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Orthotic design

Consider, what is:

- The patient's main concern?
- Your diagnosis and treatment strategy?
- The aim of the orthotics?
- What were the outcomes of your Intervention tests?
- The material that the resupination test indicates is needed?
- The correction type that is required for each foot?
- The required extra prescription options?
- What footwear will they be wearing the orthotics in?

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A Clear focus on the Outcome

Be crystal clear in your mind regarding:

1. The patient's main concern?
2. Your diagnosis and treatment strategy?
 - What role do the orthotics have in the overall plan?
 - What other therapy are you including?
 - Does the orthotic correction need to be altered?



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What is the aim of the Orthotics

1. Provide support and increased proprioception?
2. Offload area and reduce chance of further injury?
3. Address dysfunction and correct CoP trajectory?

"If you don't know where you are going, you will probably end up somewhere else."—Lawrence J.



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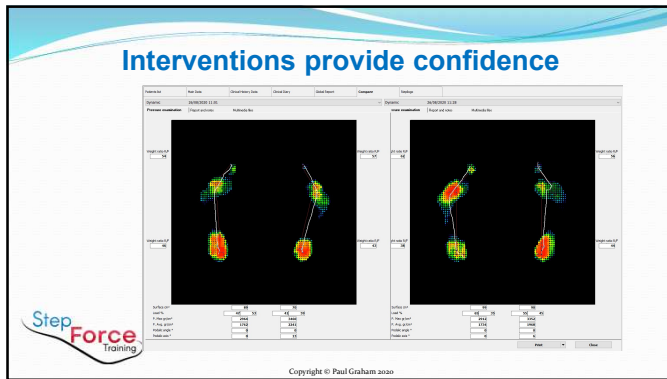
What was the outcome of your Intervention tests?

- | | |
|---|---|
| 1. Arch collapse test | 4. Forefoot weight redistribution |
| 2. Frontal Plane Correction Test | 5. Improving Heel loading |
| 3. Improving 1 st MTPJt function | 6. Offloading by changing CoP pressure trajectory |



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Material and Function

The following guides your choice of Orthotic material

1. How hard is the Resupination Test?
2. What is the position of the Subtalar axis?
3. What is the patient's activity type and frequency?
4. What is the weight and lifestyle of the patient?

Also there will be special cases such as:

- Polypropylene for Gait plates because of the anterior extension
- Carbon Fibre insoles to rest forefoot structures

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Orthotic Correction Type

Based on a number of variables

- Force pathways based on skeletal structure
- Subtalar Joint Axis
- Resupination
- Medial Column Function
- Muscle strength / Joint mobility
- Other: Age / Activity levels / medical history / Footwear choice

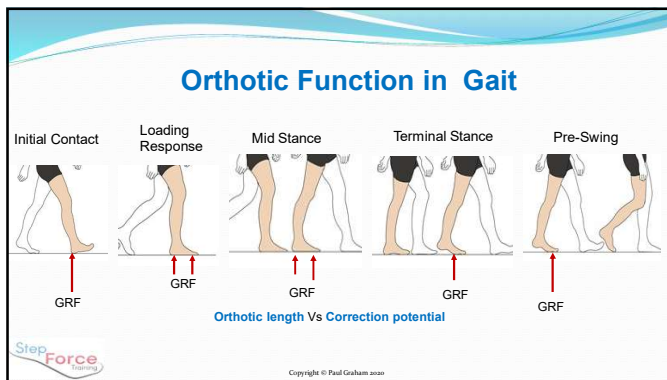
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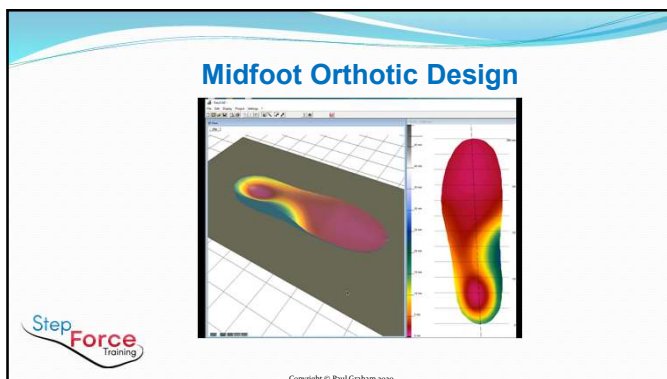
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DETAILED SCRIPTING			
SHELL POLYPROPYLENE <input type="checkbox"/> DIRECT MILLED <input type="checkbox"/> 3D PRINTED <input type="checkbox"/> ULTRA <input type="checkbox"/> SEMI <input type="checkbox"/> STANDARD <input type="checkbox"/> FIRM <input type="checkbox"/> EXTRA FIRM EVA <input type="checkbox"/> 3/4 LENGTH DIRECT MILLED <input type="checkbox"/> FULL LENGTH DIRECT MILLED <input type="checkbox"/> SOFT <input type="checkbox"/> MEDIUM <input type="checkbox"/> HARD			
DIGITAL CORRECTIONS		HEEL CUP WIDTH	
POUR VERTICAL <input type="checkbox"/> L <input type="checkbox"/> R INV <input type="checkbox"/> L <input type="checkbox"/> R EV <input type="checkbox"/> L <input type="checkbox"/> R	MLA FILL MIN <input type="checkbox"/> L <input type="checkbox"/> R STD <input type="checkbox"/> L <input type="checkbox"/> R MAX <input type="checkbox"/> L <input type="checkbox"/> R mm L mm R	HEEL CUP HEIGHT LOW <input type="checkbox"/> L <input type="checkbox"/> R STD <input type="checkbox"/> L <input type="checkbox"/> R HIGH <input type="checkbox"/> L <input type="checkbox"/> R	NARROW <input type="checkbox"/> L <input type="checkbox"/> R STD <input type="checkbox"/> L <input type="checkbox"/> R WIDE <input type="checkbox"/> L <input type="checkbox"/> R mm L mm R
SHELL WIDTH		SHELL SHAPE	
NARROW <input type="checkbox"/> L <input type="checkbox"/> R STD <input type="checkbox"/> L <input type="checkbox"/> R WIDE <input type="checkbox"/> L <input type="checkbox"/> R mm L mm R	STD <input type="checkbox"/> L <input type="checkbox"/> R DRESS <input type="checkbox"/> L <input type="checkbox"/> R COMFORT <input type="checkbox"/> L <input type="checkbox"/> R	MED/LAT HEEL SKIVE L <input type="checkbox"/> MED <input type="checkbox"/> LAT R <input type="checkbox"/> MED <input type="checkbox"/> LAT mm L mm R	
POSTINGS		SHELL MODIFICATIONS	
REARFOOT INT / EXT <input type="checkbox"/> L VR / VL INT / EXT <input type="checkbox"/> R VR / VL <input type="checkbox"/> EXT POLY <input type="checkbox"/> EXT EVA	HEEL RAISE mm L mm R	ELEVATION mm L mm R	FOREFOOT BALANCE FIT-BIT <input type="checkbox"/> L <input type="checkbox"/> R INT / EXT <input type="checkbox"/> L VR / VL INT / EXT <input type="checkbox"/> R VR / VL
TAPER <input type="checkbox"/> -10% <input type="checkbox"/> -5% FLARE <input type="checkbox"/> +5% <input type="checkbox"/> +10% <input type="checkbox"/> +15%		MEDIAL FLANGE <input type="checkbox"/> L <input type="checkbox"/> R LATERAL FLANGE <input type="checkbox"/> L <input type="checkbox"/> R PL FASC GROOVE <input type="checkbox"/> L <input type="checkbox"/> R 1st MET HEAD CURCUT <input type="checkbox"/> L <input type="checkbox"/> R HEEL APERTURE <input type="checkbox"/> L <input type="checkbox"/> R MORTONS (POLY) SHORT <input type="checkbox"/> L <input type="checkbox"/> R MORTONS (POLY) LONG <input type="checkbox"/> L <input type="checkbox"/> R	

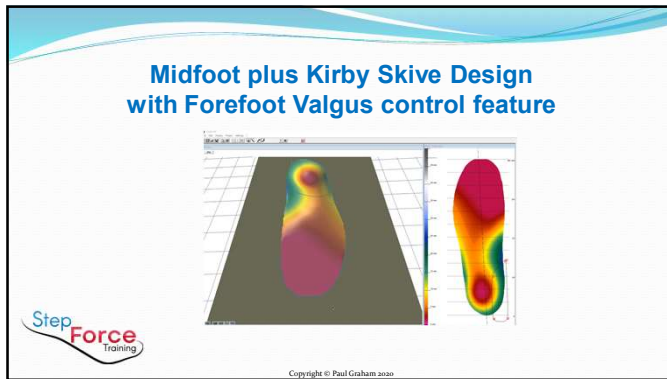
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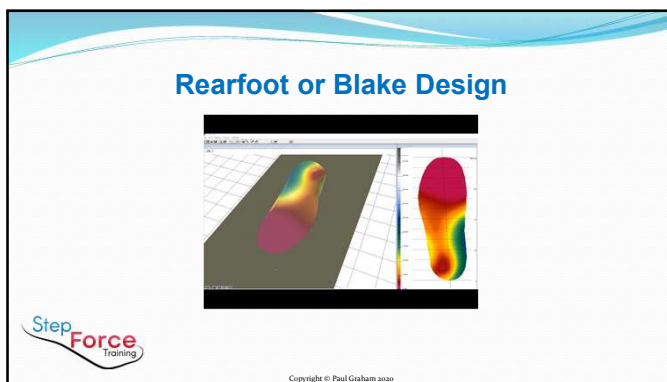
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FINISHING		LEFT		RIGHT		LEFT		RIGHT	
ADDITIONS	MET DOME SIZE	1 2 3 4 5		1 2 3 4 5		MORTONS EXT		EVA 1 2 3 4 5 mm	
	MET DOME POSITION	1 2 3 4 5		1 2 3 4 5		PORON		1.6mm 3.2mm	
	MET BAR SIZE	1 2 3 4 5		1 2 3 4 5		REVERSE MORTONS EXT		EVA 1 2 3 4 5 mm	
TOP COVERS	FFV VL EXTENSION	1 2 3 4 5		1 2 3 4 5		PORON		1.6mm 3.2mm	
	FFV VR EXTENSION	1 2 3 4 5		1 2 3 4 5		ARCH PADS		PORON 1.6mm 3.2mm	
						HEEL CUSHIONS		PORON 1.6mm 3.2mm	
INSTRUCTIONS	DURAFIT SMOOTH	BLACK		SKIN					
	LEATHER	BLACK		SAND					
	SEMI-PERFORATED	ANTHRACITE		RED					
	EVA	2mm 3mm		MAGENTA		BLACK		BLUE	
	NORA	DIABETIC ANTI SHEAR 3mm		CORK		ORANGE		SILVER	
	LUNASOFT 2mm	BLACK		BLK/RED		RED		NATURAL	
	NEOLON	1.5mm 3mm		BLUE		BLUE SWIRL		LIME SWIRL	
	PLASTAZOTE	1.5mm 3mm		GREY BAMBOO		LUNALASTIK FLESH 2mm		PRK SWIRL	
	PORON	1.5mm 3mm		BLACK		BLK/WHITE		BLK/YELLOW	
	PORON SR	1.5mm 3mm		BLUE		BLK/PURPLE		BLK/PINK	
						PORON FFV EXT		1.6mm 3.2mm	
						EVA FFV EXT		1mm 2mm 3mm	
								SHELL	
								SULCUS	
								FULL LENGTH	
								ALL BACKS FULL LENGTH IS CARBONELLE BACKED	

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Additional prescription options

- Correction for LLD
- Rearfoot Valgus (careful)
- Heel lift:
 - Soft or Firm
 - Intrinsic or Extrinsic
- Lateral Arch Support
- Calcaneocuboid Support
- 1st Metatarsal Cut-out and/or Backfill
- Forefoot supinatus allowance
- Metatarsal Pads or Domes
- Shaft for HL or HR
- Cluffy Wedge
- Hallux and toe positions
- Custom addition

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Footwear Issues

Ensure you discuss the expectations clearly with the patient:

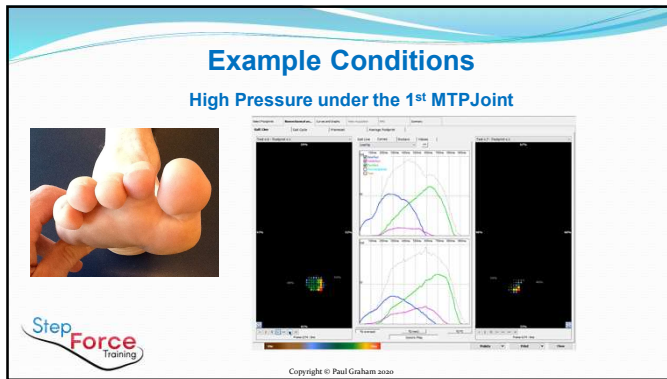
1. Will the orthotics fit and work with the shoe choice?
2. Will the correction be enough or too much in different shoes?
3. Do you need to make more than 1 pair to satisfy this?

It is always good to have this discussion before you dispense them to the patient, so neither of you get a nasty surprise!

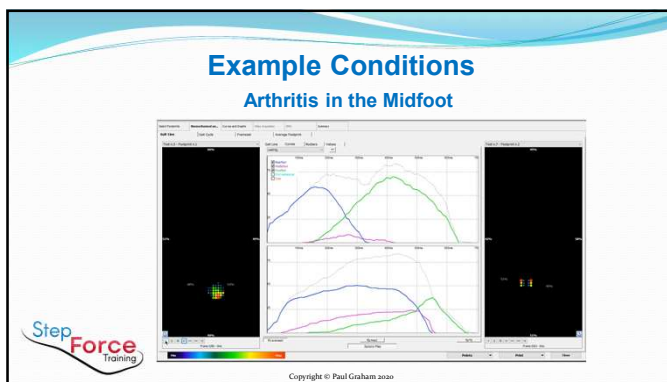
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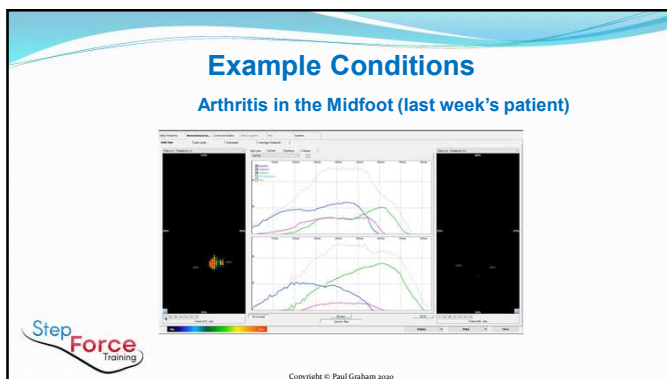
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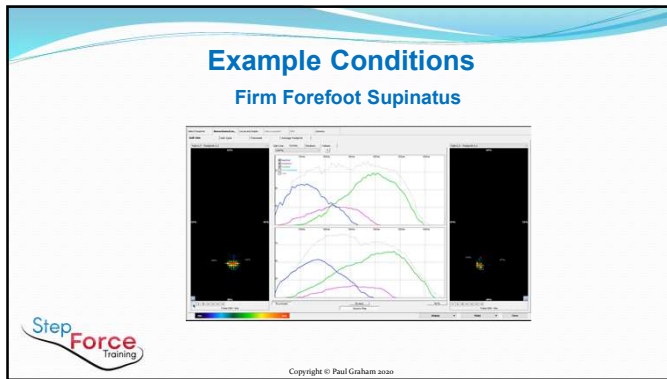
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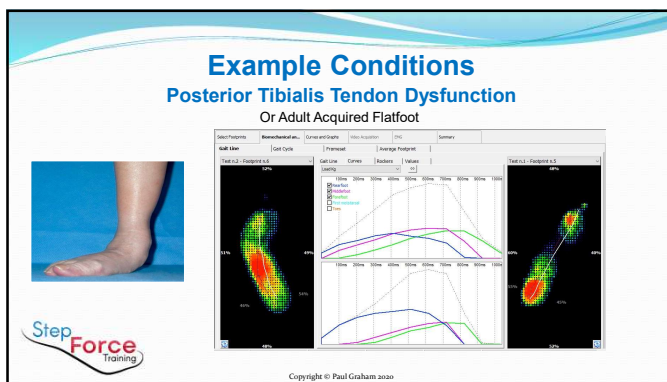
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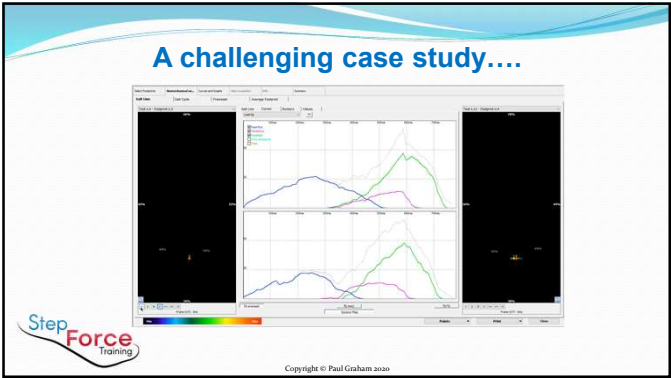
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