



Treatment and prevention of knee ligament injuries



Solution: CTi features benefits,
how it works – soft goods and
accessories discussion

Introduction

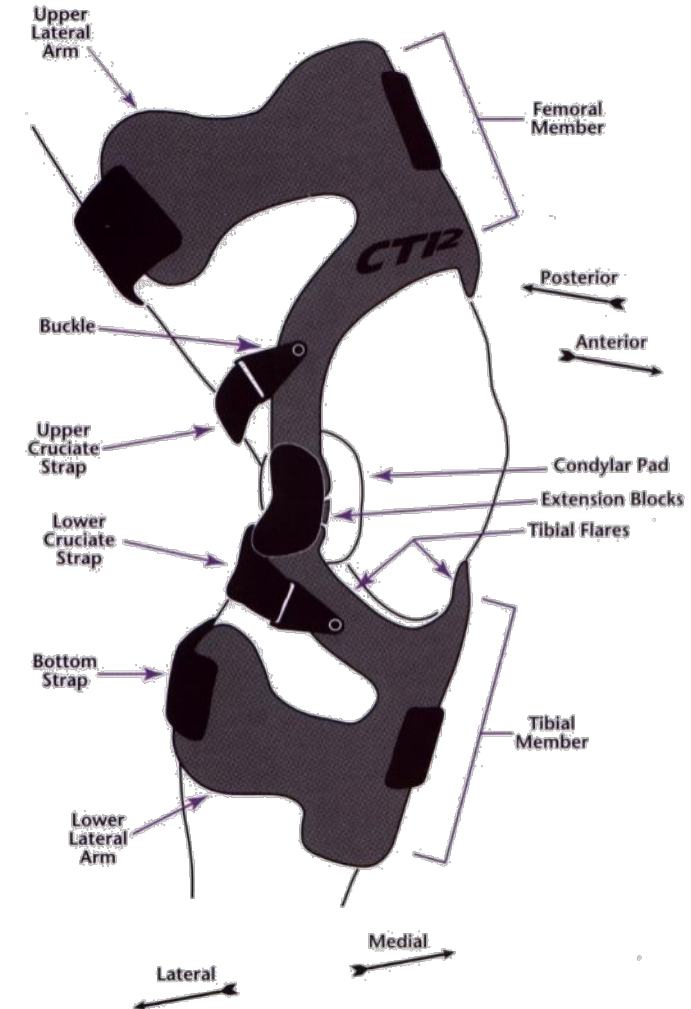
- 1981 First CTi Prototype
- 1983 Introduction CTi
- 1986 Launch Pro Sport Version
- 1992 Accutrak Hinge
- 2007 Introduction CTi OTS
- 2014 Improvements on CTi OTS and Cti Custom



Specifics on the CTi Design

CTi C = Carbon
 Ti = Titanium

- Rigid frame design combined with non-elastic straps creates a static support system.
- Brace to bone contact
- Unique tibial component design critical for providing superior support.



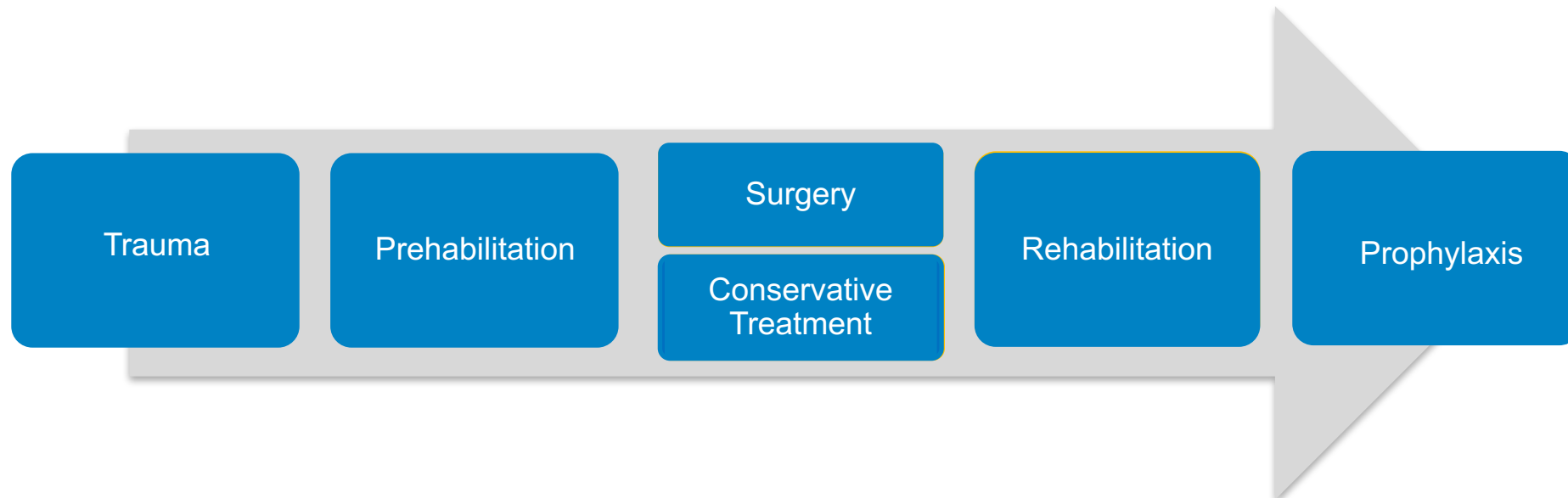
INDICATIONS FOR USE

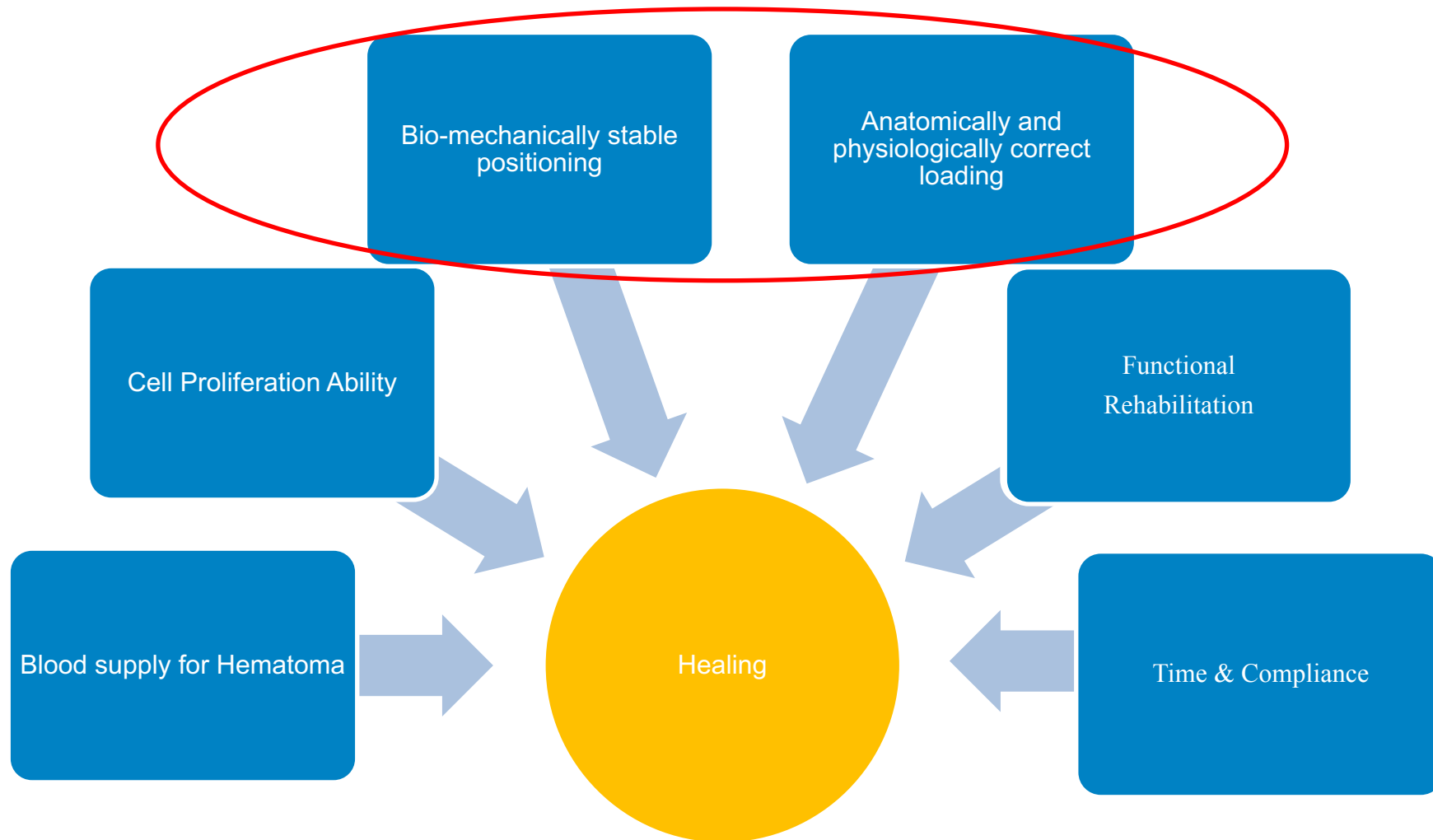
- Anterior Cruciate Ligament instability, Posterior Cruciate Ligament instability, medial collateral ligament injury, lateral collateral ligament injury and combined instabilities
- Prophylactic use
- Mild to severe unicompartmental osteoarthritis



TREATMENT PATHWAY

CTi braces provide the ultimate combination of stabilization and protection of the knee joint. This truly custom-made brace uses Accutrac® hinges with extension stops to glide with the knee and breathable liners coated with bio-inert Össur Sensil® Silicone to reduce migration and skin irritation.





CTi Philosophy

Total Support system





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AIM

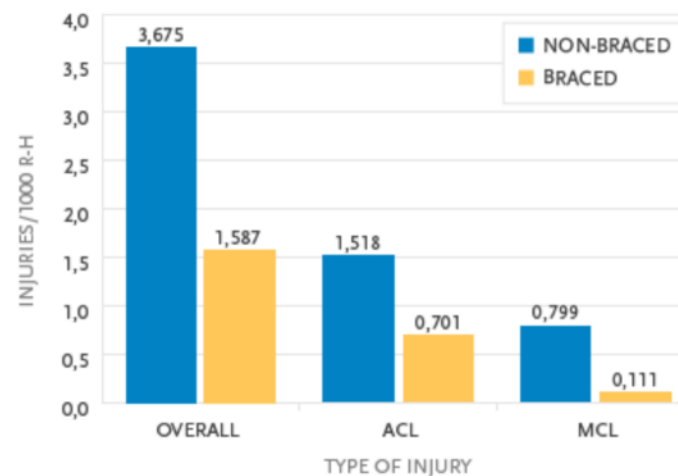
Evaluate the effectiveness of prophylactic knee bracing in preventing knee injuries during off-road motorcycling.

METHODS

- Descriptive epidemiology study **EBM level 5**
- Data from 2155 off-road motorcycle riders was obtained using an internet-based survey over 1 year period

CONCLUSION

1. Use of prophylactic knee bracing has a beneficial effect in preventing ACL and MCL injuries, as well as overall knee injury occurrence
2. These findings may be applicable to other sports with similar forces and mechanics



Significantly higher incidence rates of

- ACL rupture (1.518 vs 0.701 per 1000 rider hours)
- MCL injury (0.799 vs 0.111 per 1000 rider hours)

were found among non-braced riders compared with braced riders



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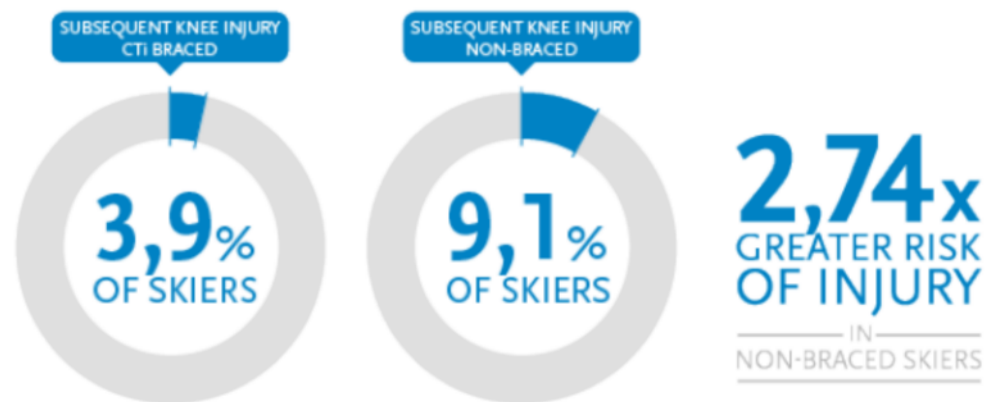
Functional bracing will have an effect on subsequent knee injury in skiers with anterior cruciate ligament reconstruction.

METHODS

- Prospective cohort study **EBM level 2**
- 820 skiers (out of 11606 skiers) with an ACL reconstruction 2 years or more earlier were compromised to be part of the cohort group
- The cohort group was composed of ski instructors (74%), lift operators (8%), ski patrol (8%), and mountain employees (10%)
- Allocation of CTi® bracing by physician

CONCLUSION

1. ACL-deficient skiers had 2.74 times greater risk of subsequent knee injury than skiers braced with a CTi® knee brace
2. Non-bracing is a significant risk factor for subsequent knee injury in skiers with ACL-reconstruction
3. CTi® bracing for skiers with ACL reconstruction is recommended



Subsequent knee injury rates in braced (3,9%; 10 out of 257) and non-braced skiers (9,1%; 51 out of 563).

Sterrett WI, Briggs, KK, Farly T, Steadman JR. Effect of functional bracing on knee injury in skiers with anterior cruciate ligament reconstruction. A prospective cohort study. The American Journal of Sports Medicine International, 2006; 40:3 294-399



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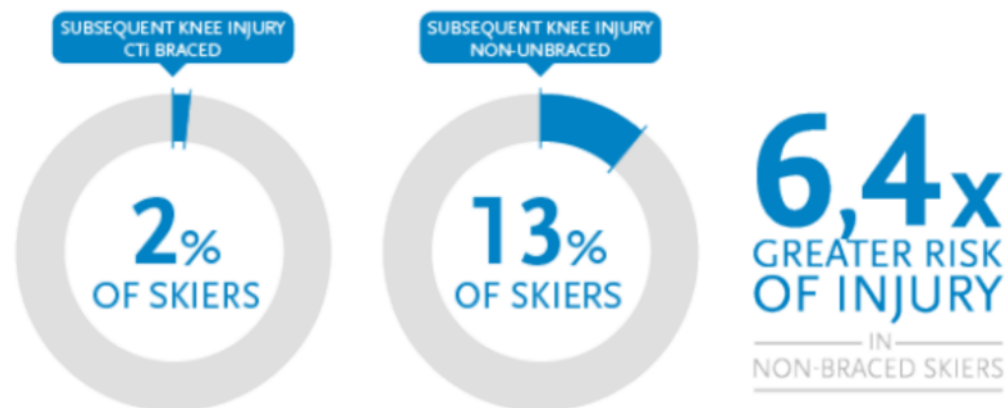
Effect of functional bracing on knee injury in ACL deficient professional skiers was evaluated.

METHODS

- Cohort study **EBM level 2**
- 180 ACL-deficient professional skiers were identified from a knee screening of 9410 professional skiers from 1991–1997
- ACL deficient knee was defined by examination (lachman/pivot) and a ≥ 5 mm KT-1000 manual max difference
- Allocation of CTi® bracing by physician

CONCLUSION

ACL-deficient non-braced professional skiers had 6.4 times greater risk of subsequent knee injury than skiers braced with a CTi® knee brace.



Subsequent knee injury rates in braced (2% 2; out of 101) and non-braced professional skiers 13%; 10 out of 79).

Kocher, MS, Sterett, WI, Briggs, KK, Zurakowski D, Steadman J. Effect of Functional Bracing on subsequent Knee Injury in ACL-Deficient Professional Skiers. Journal of Knee Surgery 2003;16:87-92

CTi® - Rigid Frame

- Hand laminated frame
- Carbon Fibre and Epoxy Resin Composite including Accutrak Hinge
- Durable and Lightweight
- Pro Sport
 - thick core designed for high impact sports
- Standard
 - comprises a thinner core for moderate impact
- Vapor (only for CTi Custom)
 - thinnest core for low activity



CTi® - Features & Benefits



OTS Version available





Difference between CTi Custom and Cti OA Custom?

OA unloading possibility

- Degrees of unloading from 2 till 7 degrees

Brace Information



No.	Description	No.	Description	No.	Description
1	Top Strap	6	Sensil Calf Pad	11	Gear Guards
2	D Ring	7	Sensil Tibial Liner (inside)	12	Softsleeve
3	Lower Thigh Strap	8	Bottom Strap	13	Sports Sleeve
4	Hinge Cover	9	AMS Wrap		
5	Condyle Pad	10	Patella Cup		



No.	Description	No.	Description	No.	Description
1	Sensil Thigh Liner (inside)	7	Sensil Tibial Liner (inside)	13	Patella Cup
2	Top Strap	8	Sensil Calf Pad	14	Gear Guards
3	Thigh Subshell	9	Tibial Subshell	15	Softsleeve
4	Lower Thigh Strap	10	Anterior Tibial Strap	16	Sports Sleeve
5	Hinge Cover	11	Bottom Strap		
6	Condyle Pad	12	AMS Wrap		

Options



Flexion Stop Kit

Used in-conjunction with the Accutrak hinge to provide 0-90 degrees of flexion control.



Ski Boot attachment

Rod and piston mechanical attachment used to link the CTi brace to a ski boot.



ACL Cable System

A dynamic system which applies additional stability to the ACL as the leg moves into full extension.



Hyperextension Strap

A fifth strap designed to help provide additional resistance for users with recurvatum.



Super Short Frame

A shorter version of the CTi brace enhances comfort for patients under 5'3".



PCL Opposition System

It incorporates a femoral horseshoe extension and an anatomically-designed opposing gastroc force plate designed to help reduce posterior drawer.



Accessories



Anti Migration System (AMS) wrap

A circumferential neoprene or evazote wrap designed to aid in brace suspension.



Patella cup

A protective knee cup designed to shield the patella from flying rocks and debris common to sports like motocross and mountain biking.



Gear guard

A protective exterior wrap for the Accutrak™ hinge designed to reduce wear-and-tear on riding leathers and bike graphics.



Soft Sleeve

A breathable under sleeve designed to provide patient comfort.



Sport Sleeve

A breathable under sleeve designed to provide patient comfort. The contoured shape and elastic band aid in the suspension of the sleeve.



Neoprene undersleeve

A neoprene undersleeve designed to provide warmth and compression. The diamond shaped lycra popliteal cutout provides relief from material bunching in flexion.

Ordering Cti Custom and OTS

CTi OTS



			STANDARD		PRO SPORT	
SIZE	CALIPER	CIRCUMFERENCE	LEFT	RIGHT	LEFT	RIGHT
Small	8.9 - 10.2cm	27.9 - 32.1cm	B-238600112	B-238500112	B-239600112	B-239500112
Medium	10.2 - 11.4cm	32.1 - 36.2cm	B-238600113	B-238500113	B-239600113	B-239500113
Large	11.4 - 12.7cm	36.2 - 39.1cm	B-238600114	B-238500114	B-239600114	B-239500114
X-Large	12.7 - 14.0cm	39.1 - 42.2cm	B-238600115	B-238500115	B-239600115	B-239500115
XX-Large	14.0 - 15.2cm	42.2 - 46cm	B-238600116	B-238500116	B-239600116	B-239500116



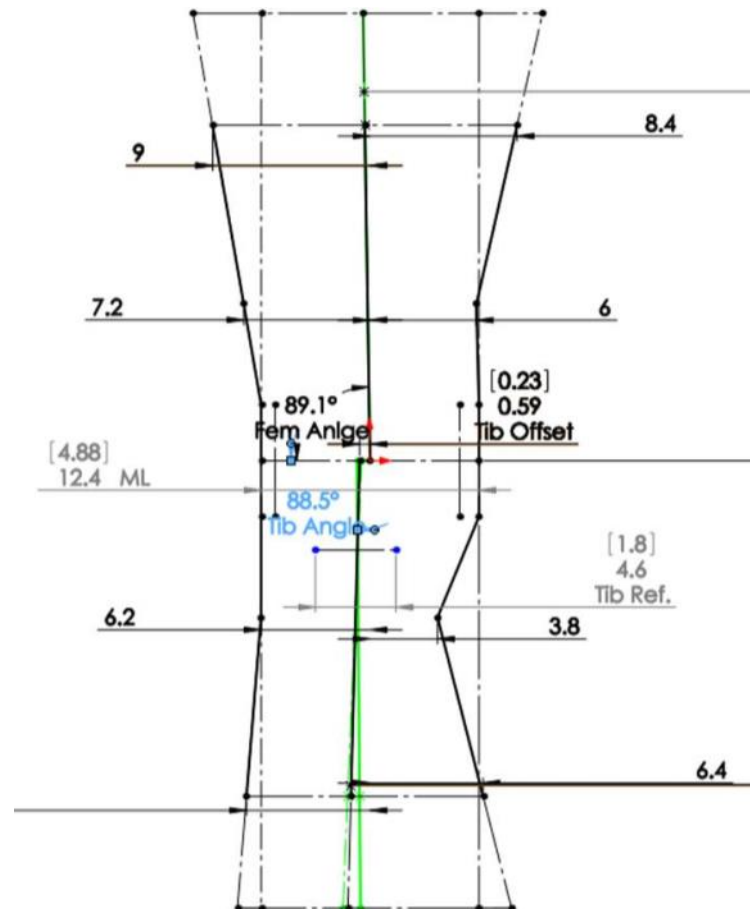
CTi CUSTOM

STANDARD		PRO SPORT		VAPOR	
LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT
B-116600010	B-116500010	B-117600010	B-117500010	B-118600010	B-118500010

Orange	Ocean Blue
Navy Blue	Lime Green
Champagne	Red
Pink	White
Silver	Yellow
Charcoal	Black

CMS – Capturing the Data

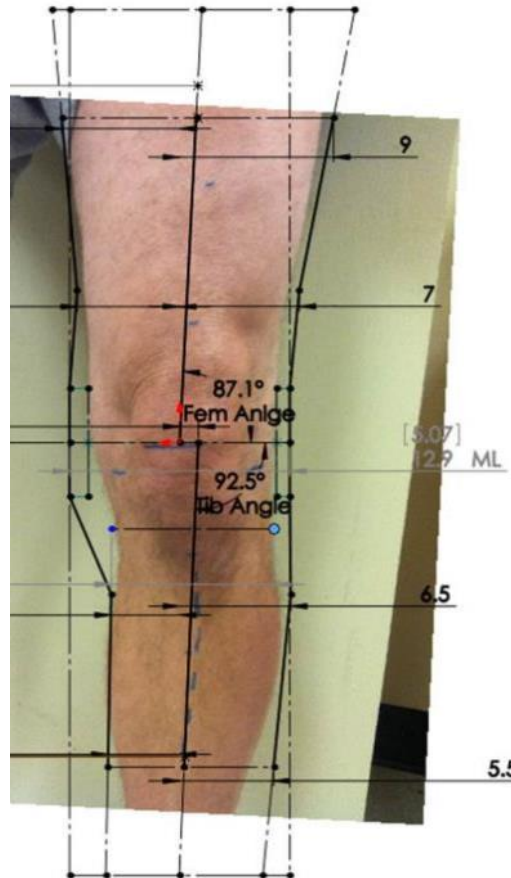
- 23 measurements taken with the CMS board represent the hinge width and depth, the contours and A-P of the leg and the circumferences
- But.. we don't see the leg



SmartMeasure – Capturing the Data

Measurements are captured from the pictures of the actual leg

- Scale photos to actual size using the caliper measurement
- See and analyze the leg using the contours of the actual leg
- Capture the hinge depth along with the A-P from the side view of the actual leg



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