Lohmann & Rauscher

Immobilization

Professional Support for Cast Room Management

M Ka Trading - Myanmar
14 June 2017

Contents:

Immobilization

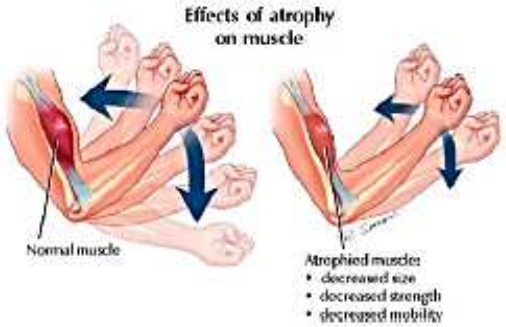
= fixation of a body part in order to promote proper healing

A broken bone heals faster the less broken ends rub against each other. Therefore, we immobilize the limbs to promote the development of calluses (= new bone tissue).

Reposition → Retention → Rehabilitation

Side effects:

- Atrophy of muscles, tendons, and ligaments
- Stiffening of limbs



→ **Immobilization only as long as necessary !**

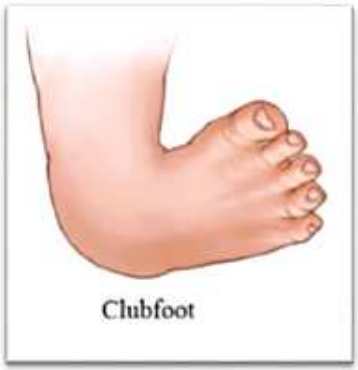
Indications

Fracture

Luxation

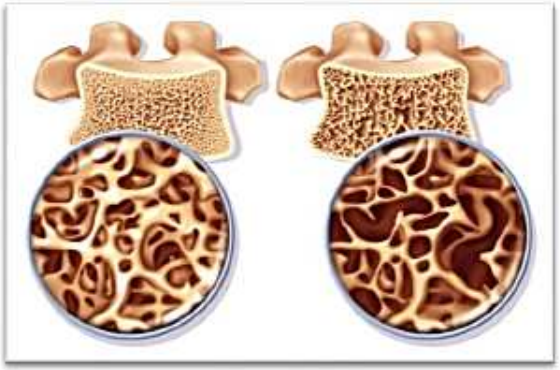
Spraining/Distorsion

Rupture



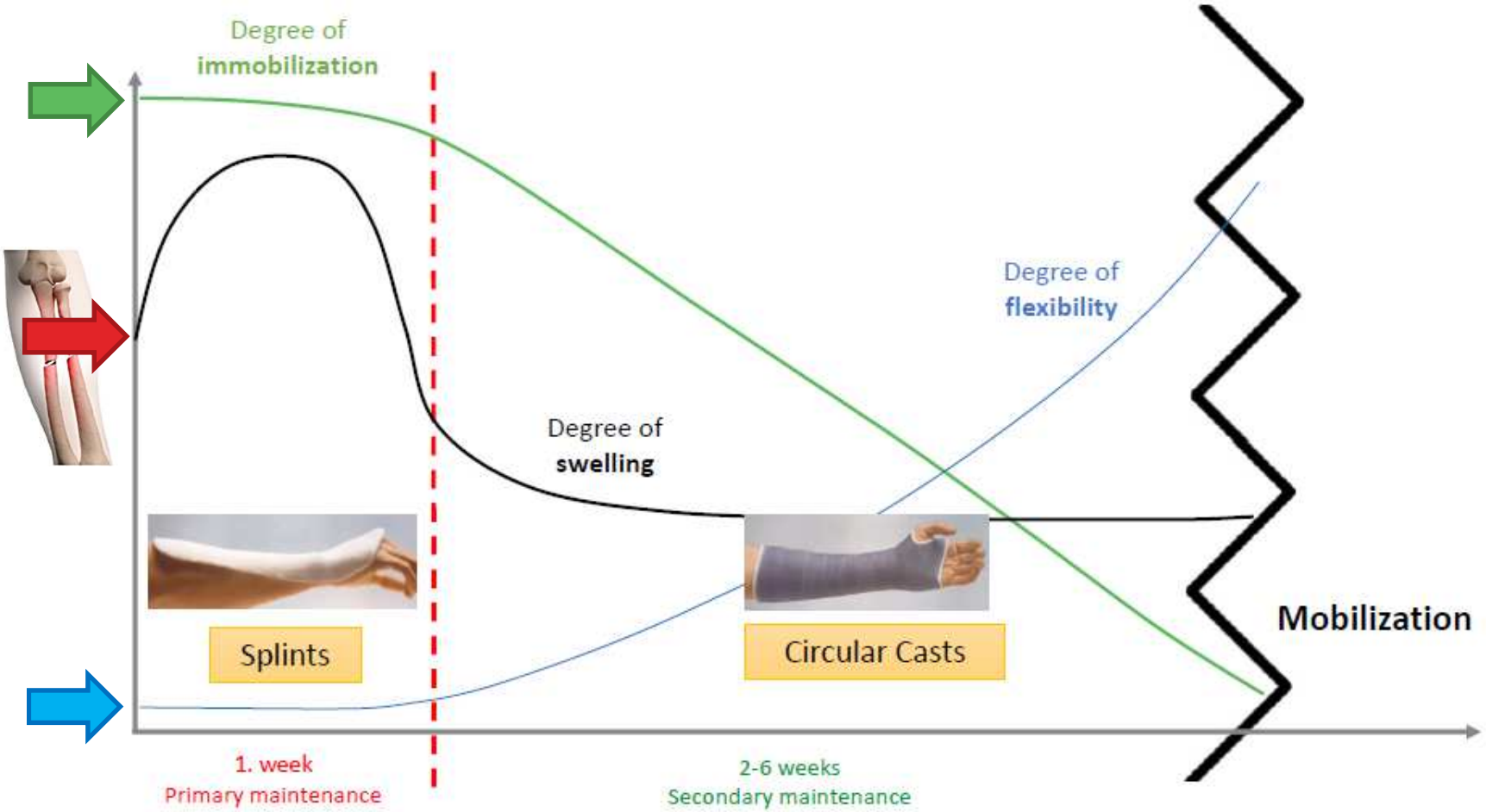
Orthopedic corrections

Arthrosis



Osteoporosis

Recommendation -Treatment along therapy pathway



The degrees of stabilization

total

focused

partial

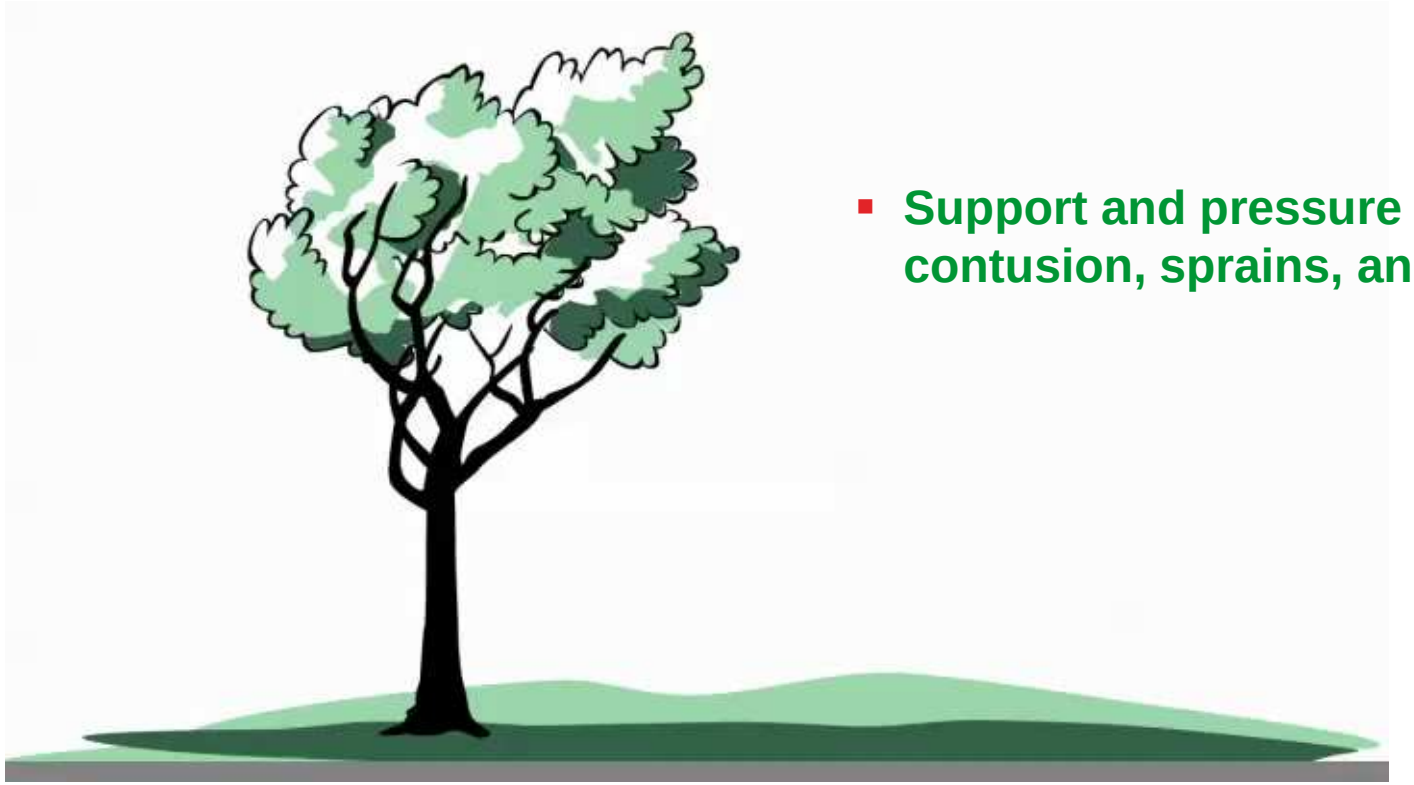
Problem solving
total stabilisation

- Following fractures, surgery or orthopedic corrections

Problem solving
focused stabilisation

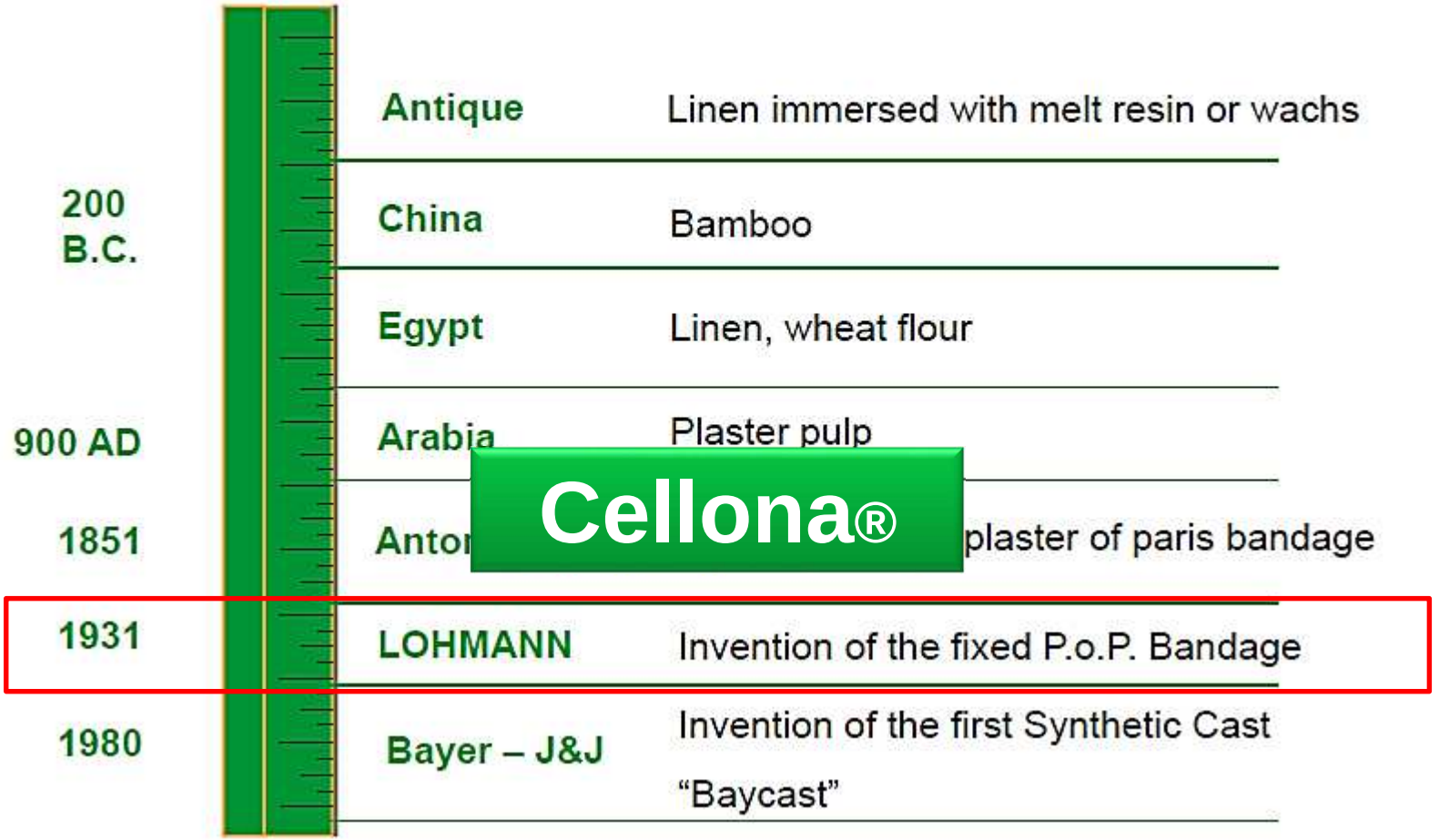
- Following fractures, surgery or orthopaedic corrections
- Following an ankle sprain
- Preparing functional & partially mobilizing

Problem solving
partial stabilisation / support

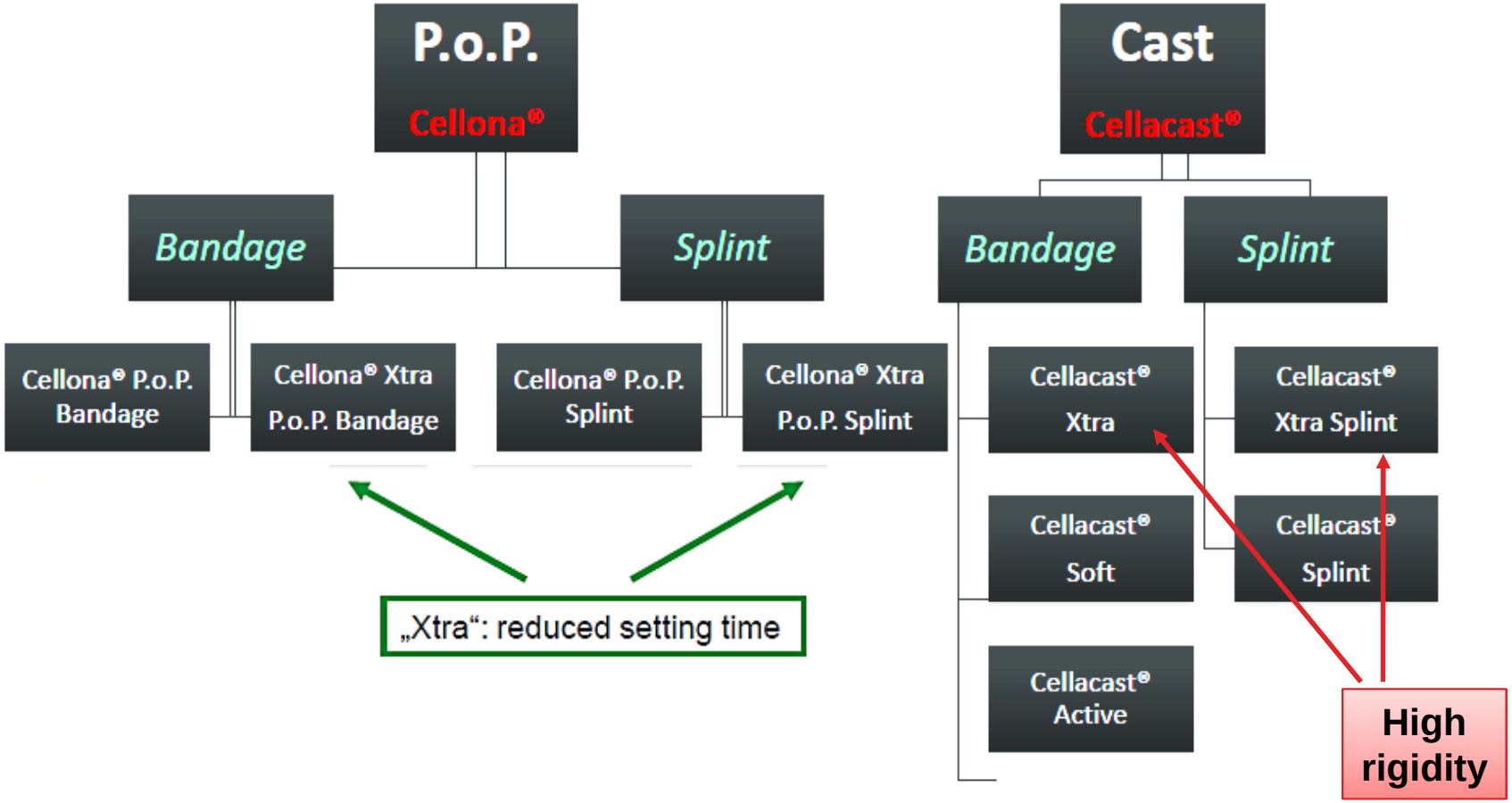


- Support and pressure relief for contusion, sprains, and dislocation

History of Immobilization



Immobilization - Cellona® & Cellacast®



Plaster of Paris (P.O.P)

History of P.O.P

- **1834**: Belgium army doctor Louis Seutin created a bandage made of linen bandages & starch
  - needed 2 days to dry out
  - unsuitable for soldiers
- **1851**: Dutch army doctor **Antonius Mathijsen** used cotton & gypsum
  - Cheap
  - Easy application
  - Quick drying
  - Stable
  - → breakthrough in civil medicine
- **1931**: "Cellona" (L&R)
  - Gypsum fixated on a gauze with water-soluble binding → no loss of gypsum
  - Natural product so quality may differ

Experts in Fracture Management

Cellona®

the ready made P.O.P bandage developed 1930 by L&R

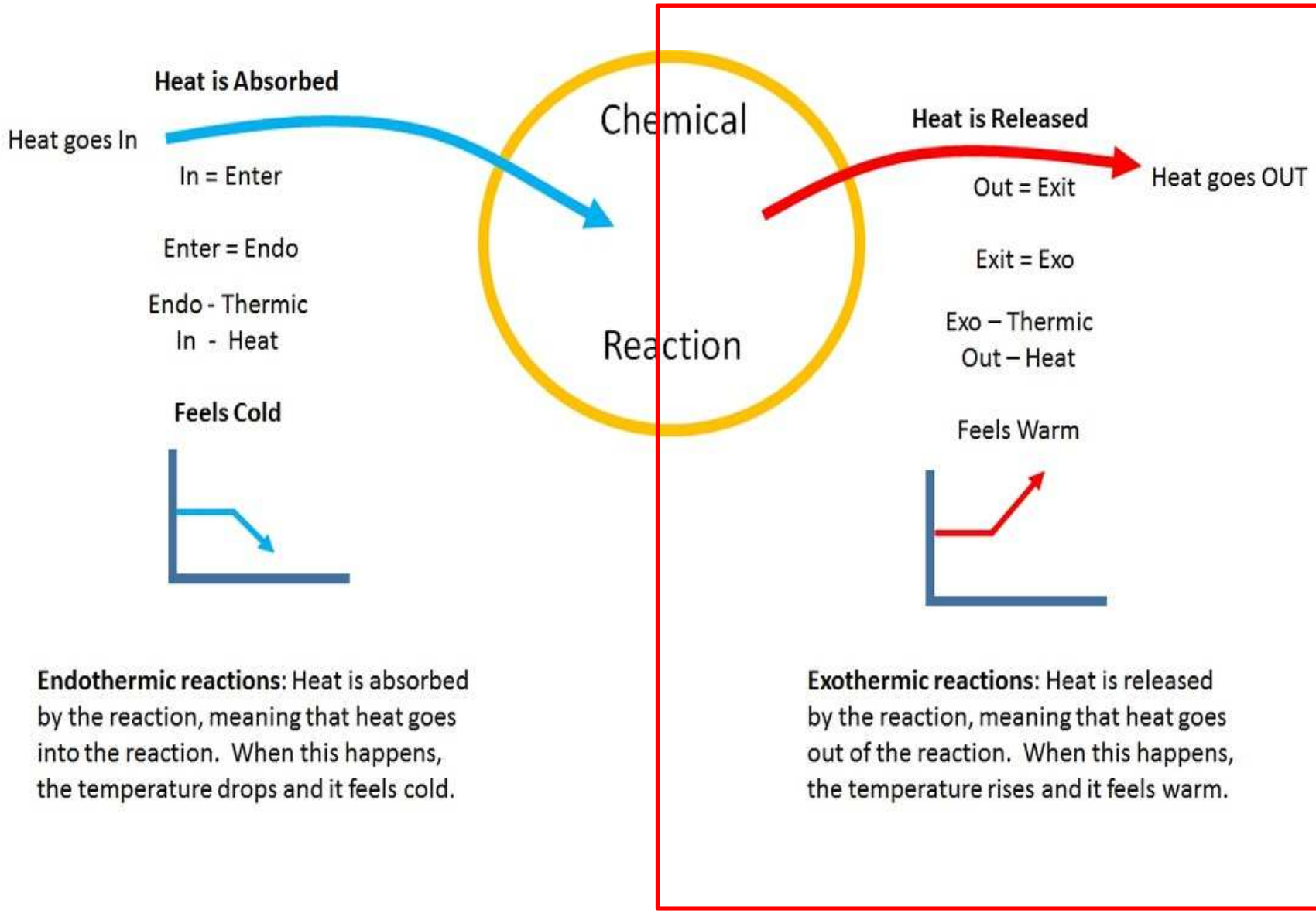
17-thread count cotton gauze fabric, with porous P.o.P. coating. Consisting of calcium sulphate hemihydrate

Features	Benefits
▪ Ready to dip	▪ Immediate use after immersion
▪ Soaks through rapidly and evenly	▪ Immersion time 1 Sec. / Meter allows a complete moisterization.
▪ Setting time one 3 – 4 minutes	▪ Provides a creamy application environment.
▪ First stability after 30 minutes	▪ No further manipulation possible – safe for transport
▪ 12-24 hours drying time (setting time two)	▪ The fast drying time allows a full load bearing after 12 – 24 hours.

Cellona®
is the well-known brand of L&R P.o.P.

Cellona®	Cellona® Xtra
• short setting time: approx. **3 - 4 minutes**	• short, extra fast setting time: approx. **2.5 minutes**

Exothermic reaction!
- Gets double as warm as water temperature
- Recommended water temperature: 20 to 25’C



Endothermic reactions: Heat is absorbed by the reaction, meaning that heat goes into the reaction. When this happens, the temperature drops and it feels cold.

Exothermic reactions: Heat is released by the reaction, meaning that heat goes out of the reaction. When this happens, the temperature rises and it feels warm.

Synthetic Cast

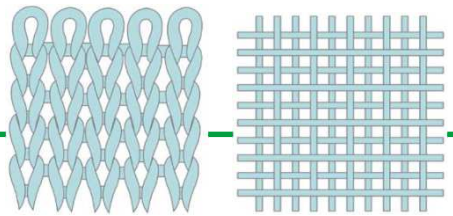
History

- **1955**: “Glassona” (Smith & Nephew)
  - Fiberglass impregnated with cellulose acetate
  - Dipped into acetone (risky)
- **1978**: “Baycast” (Bayer/Johnson & Johnson)
  - Cotton wool coated with polyurethane resin
- **1986**: “Scotchcast Plus” (3M)
  - Similar to other casts but resin not that sticky

Synthetic Cast since 1955

Product Composition

- **Textile**:
  - Knitted/woven synthetic yarn
- **Resin**:
  - self hardening chemical
  - Activated by moisture (also air humidity)
  - After immersion a polymer will build that connects with the textile



Guidelines for usage

- Wear gloves
- Make sure that material is evenly soaked to assure a proper fusion of the layers
- Avoid sharp edges (fiberglass) or trim them as long as they are not dried out
- Don't let get into contact with the patient's skin
- The integrated silicone makes the cast "soapy" when molding → never use the same water for PoP (wouldn't dry out)

Cellacast®

offers the right solution for all your immobilization needs

- Easy & clean to apply
- Economic use
- Reduced setting time
- Light weight
- Comfortable to wear
- Reduced risk of breaking
- X-ray transparent to a certain degree
- Easy to cut

Cellacast®

offers the right solution for all your immobilization needs

Fiberglass

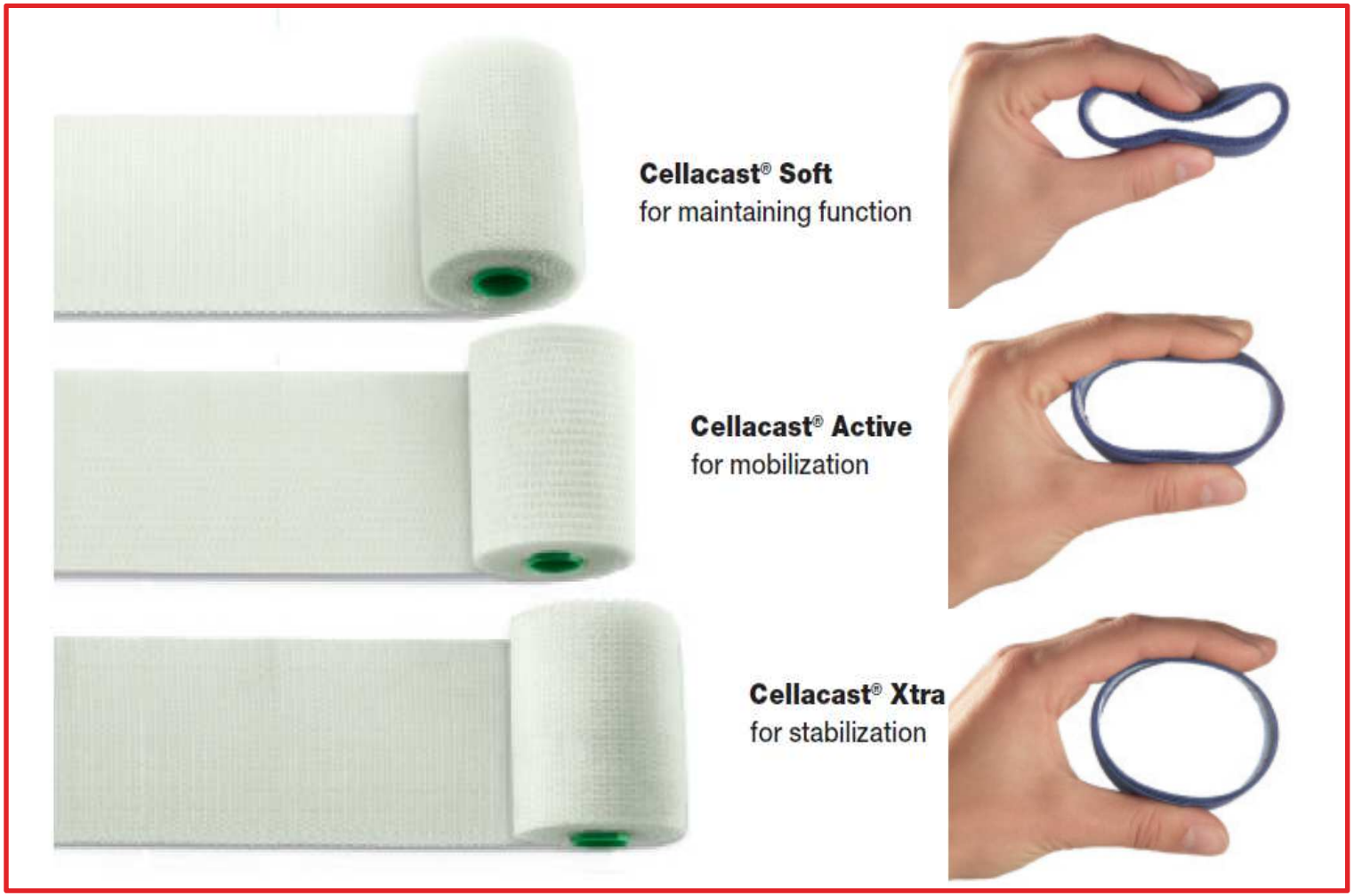
- High rigidity
- Less skin-friendly
- Fiberglass threads
- Cut with saw

Polyester

- More flexible
- Less breakable
- X-ray transparent
- No threads
- Comfortable to wear
- Cut with scissor (depending on layers)

Cellacast

a full range of casting options for modern immobilization



Cellacast® Xtra

The rigid casting tape from L&R

- Rigid fiberglass fabric
- Impregnated with polyurethane resin

Features

- Rigid fiberglass fabric
- Very lightweight yet highly stable
- Setting time about 4 Minutes
- Final stability after 20 – 30 Minutes

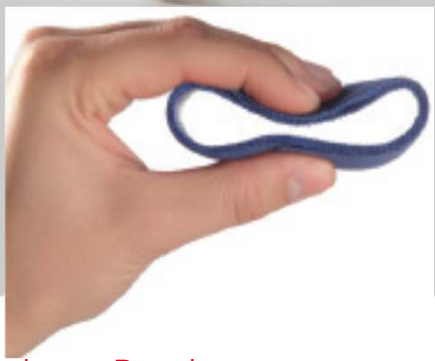
Benefits

- Offers maximum strength
- Guarantees maximum patient comfort
- Reduces the waiting whilst application
- Allows a fully weight bearing after its set
- Facilitates a wrinkle free application

Cellacast® Soft

The function - preserving casting tape

- Special fiberglass fabric
- Impregnated with polyurethane resin



Features

- Semi-rigid casting tape
- Diagonal and width-wise stretch
- Setting time 3 – 4 minutes
- Fine, smooth surface
- Thin, lightweight and flexible

Benefits

- Provides with a high support
- Allows contoured application
- Guarantees a speedy application.
- provides a good mold ability
- Supports the focused immobilization and can be easily strengthened with Cellacast splint

Cellacast® Active

The mobilizing casting tape

- Polyester fabric
- Impregnated with polyurethane resin

Features

- Highly flexible
- Thin, lightweight polyester fabric
- Setting time 4 – 5 minutes
- Particularly X-ray translucency
- Final stability after 20 - 30 minutes

Benefits

- Particularly suitable for focused immobilization
- Allows an extremely good molding
- Provides a suitable application without time pressure
- Facilitates easier fracture monitoring
- Allows a fully weight bearing after its set

Cellona P.O.P & Splint:

Products at a glance

Plaster of Paris (P.o.P)	Cellona® P.o.P.	Cellona® Xtra	Cellona® P.o.P.	Cellona® Xtra
	Bandage		Splint	
Fabric	17-thread count cotton gauze			
Product composition	α & β-calcium sulphate hemihydrate			
Number of Layer	roll	roll	folded in 4 layers	
Rigidity	very high			
Immersion Time	1 sec / meter			
Water Temperature	20 – 25 ℃			
Setting Time	3 - 4 minutes	2.5 minutes	3 - 4 minutes	2.5 minutes
First Stability (safe for transport)	after 30 minutes			
Final Setting Time (allows full load bearing)	after 12 – 24 hours			
How Removed	Orthopaedic saw		Removable splint	
Used for	Circular cast		Splints & reinforce circular cast	

Cellacast:
Products at a glance

Synthetic Cast	Cellacast® Xtra	Cellacast® Soft	Cellacast® Active	Cellacast® Xtra Splint	Cellacast® Splint
	Bandage			Splint	
Fabric	Fiberglass		Polyester	Fiberglass	
Product composition	Impregnated with Polyurethane Resin				
Number of Layer	roll	roll	roll	4 layes (without padding)	7 layers (padded on both sides)
Rigidity	Very High	Semi-rigid	High (with flexibility)	Very High	
X-ray transparent	✓	✓	✓ 100%	✓ (Removable splint)	
Water Temperature for Immersion	20 - 25℃				
Setting Time	4 minutes	3 – 4 minutes	4 – 5 minutes	4 minutes	
Final Setting Time (allows full load bearing)	20 – 30 minutes				
Waterproof (when fully set)	✓	✓	✓	✓ (except the padding material)	
Air-permeable	✓	✓	✓	✓	
How Removed	Orthopaedic saw	Cast Scissors	Cast Scissors	Removable splint	
Fields of Application	Immobilization following fractures, surgery or orthopaedic corrections	For focussed immobilization, Immobilization with controlled movement	For treating joint & bone disorders & ligament & tendon injuries	Reinforce circular cast	For preparing functional & partially mobilizing dressings and splints
Suitable for moulding Children's casts		✓	✓		

Competitors – P.O.P & Synthetic Cast

Cellona P.o.P. bandage/splint	*Cellona: BSN Platrix, BSN Rapidur*
Cellona P.o.P. Xtra bandage/splint	*CellonaXtra: BSN Biplatrix, BSN Gypsona*
Cellacast Xtra bandage (fiberglass)	*BSN Delta-Lite Plus, 3M ScotchcastPlus, NemoaCast*
Cellacast Xtra splint fiberglass	*BSN Delta-Lite Plus, 3M ScotchcastPlus, NemoaCast*
Cellacast Soft fiberglass	*BSN Delta-Cast Conformable, 3M Soft Cast, NemoaFlex*
Cellacast Active polyester	*BSN Delta-Cast, 3M ScotchcastPoly, NemoaElastiCast*
Cellacast Splint fiberglass	*BSN DynacastPrelude, 3M ScotchcastQuickstep, NemoaSplint*

Skin Protection Padding

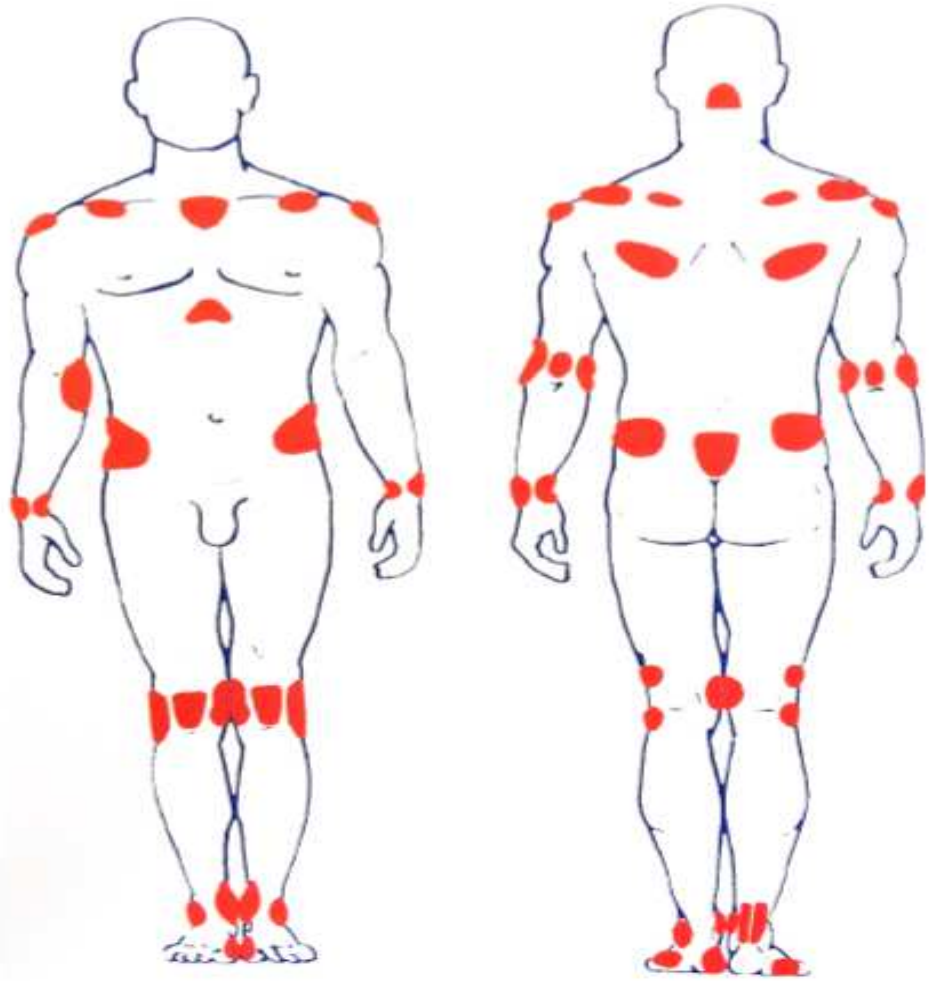
Tg® Tubular Bandage

BSN Tricofix, Hartmann Stülpa

67% cotton wool
33% viscose

- Skin friendly
- Wrinkle free application
- Available in 10 sizes
- Adaption on body contours

Pressure points at risk



Cellona® Synthetic Undercast Padding

BSN Artiflex, Hartmann Rolta Soft, 3M Scotchcast Wet & Dry

100% polyester fibers

- Fine elastic fibrous web
- soft
- Fibers can be separated by pulling lightly
- Also available in sterile form
- air-permeable

Cellona® (Edge-) Padding

BSN Delta Terry-Net, 3M Reston, Adheban, Microfoam

50% polyester,
30% polypropylene,
20% viscose

- Cut in any form
- Adhesive
- Skid-proof
- Skin friendly
- Latex free

Conclusion –Padding

Cellona Synthetic Undercast Padding	• padding underneath casts • fibers can be separated easily
Cellona Edge Padding	• to cushion the edges under casts
Cellona Padding	• to cushion exposed bones

The degrees of stabilization

total

Cellona P.o.P
(Bandage / Splint)

Cellona P.o.P. Xtra
(Bandage / Splint)

Cellacast Xtra

Cellacast Active

focused

Cellona P.o.P. Splint

Cellacast Splint

Cellacast Active

Cellacast Soft

partial

Tapping

Thank you!