

# Seriegipsning som kontrakturbehandling vid cerebral pares



Gunnar Hägglund  
Lund



# Innehåll

Fysiologi

Litteraturgenomgång

Teknik

CPUP-resultat

- Hur ofta seriegipsar vi?

- Vilka muskler?

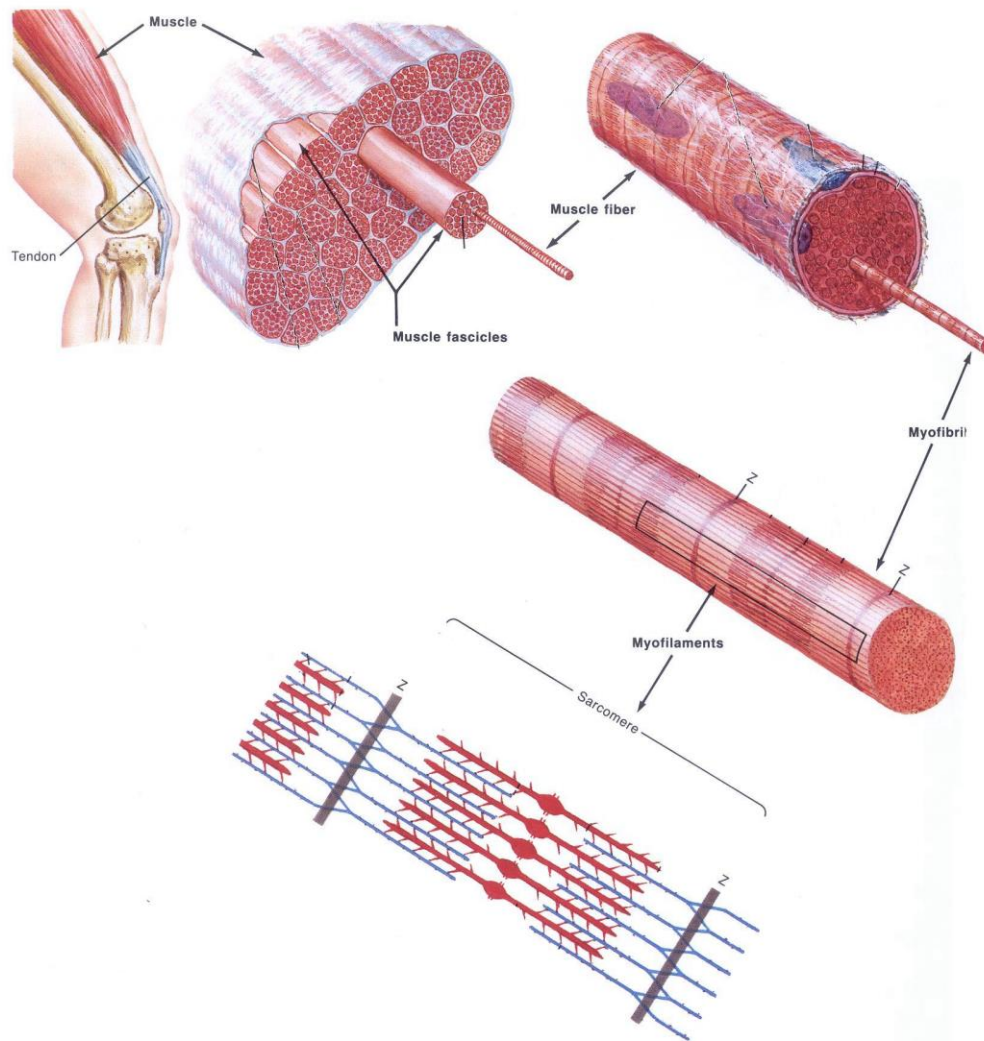


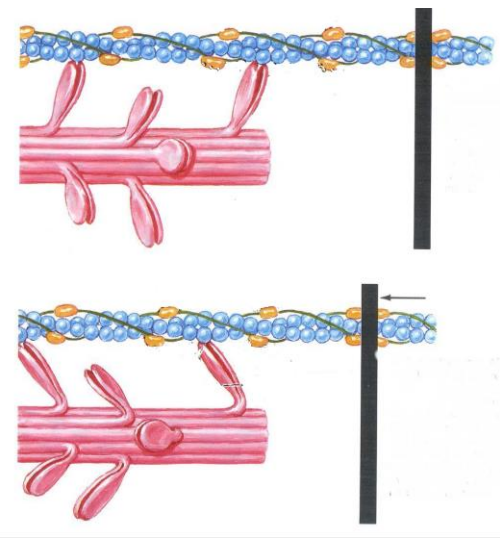
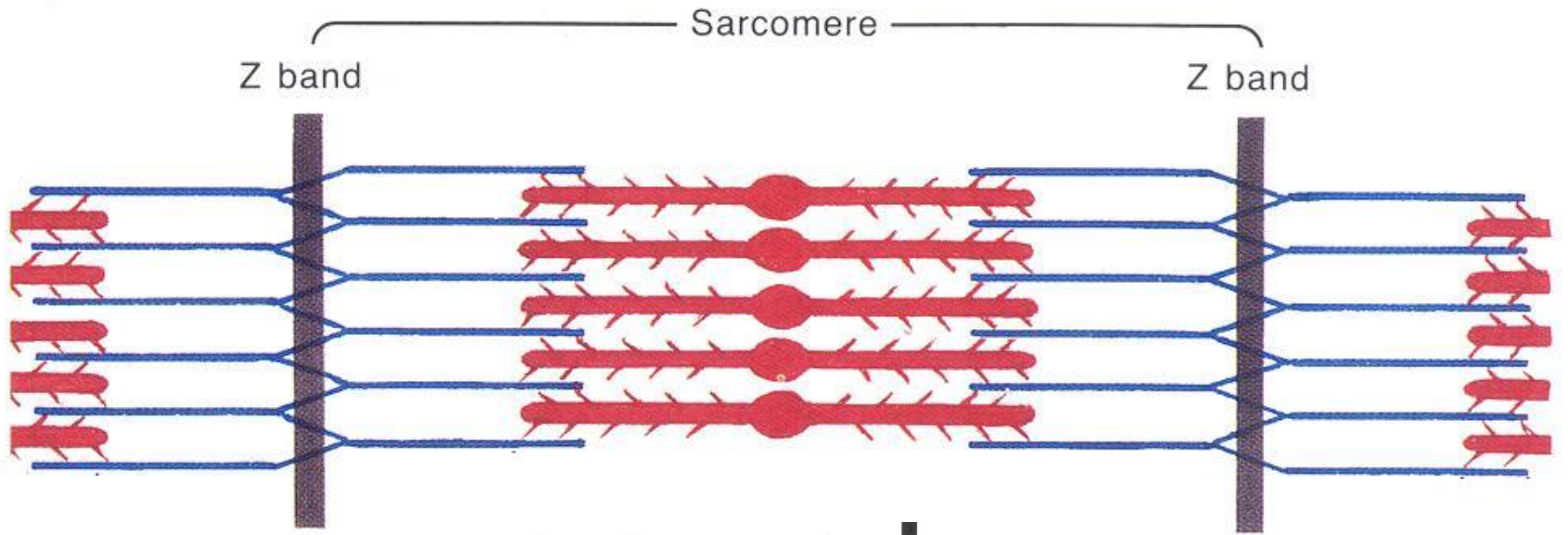
Spasticitet?

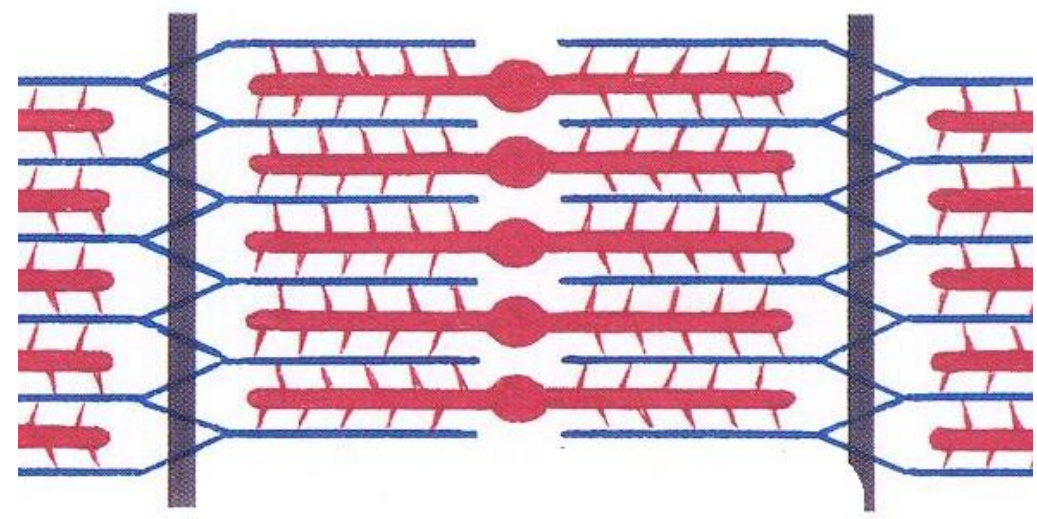
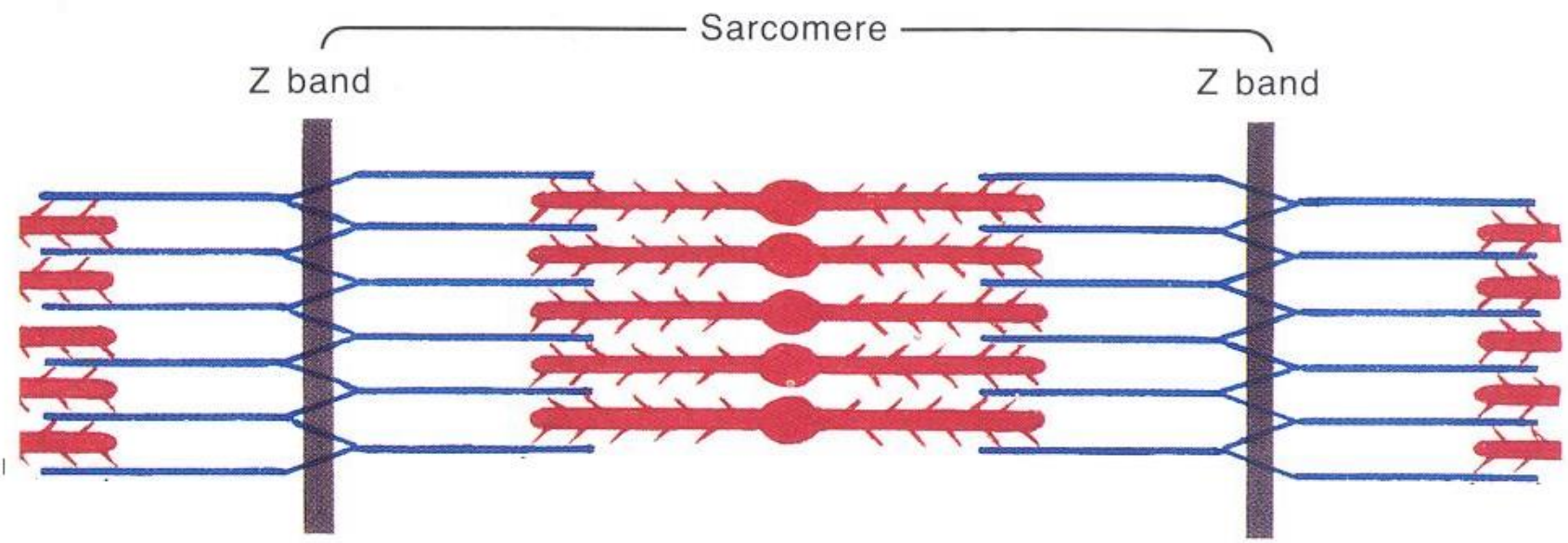
BxA  
ITB  
SDR

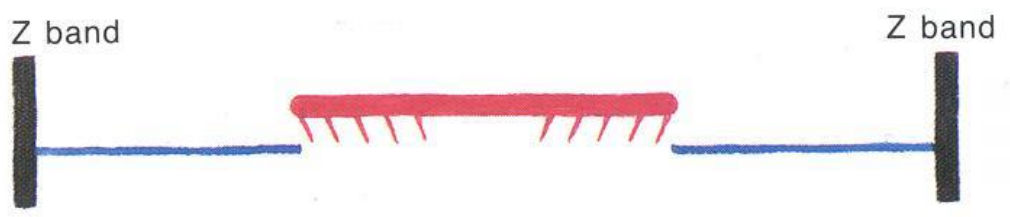
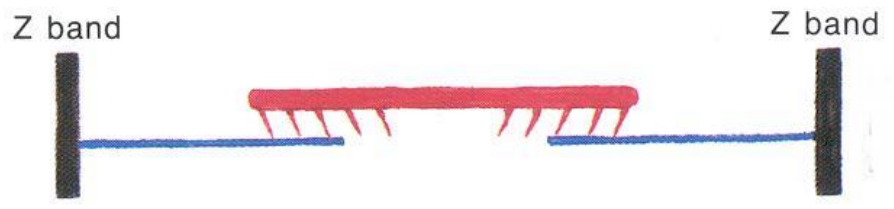
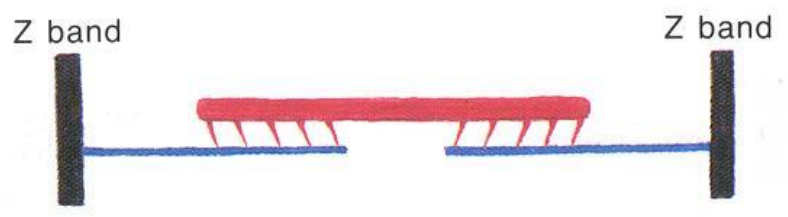
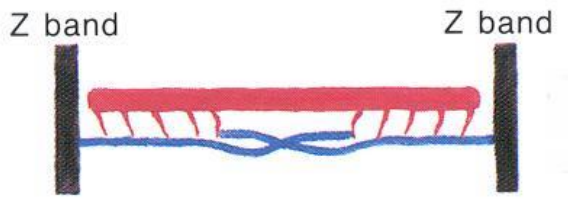
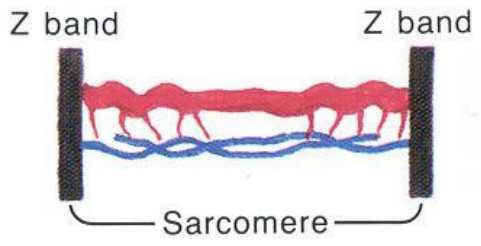
Kontraktur?

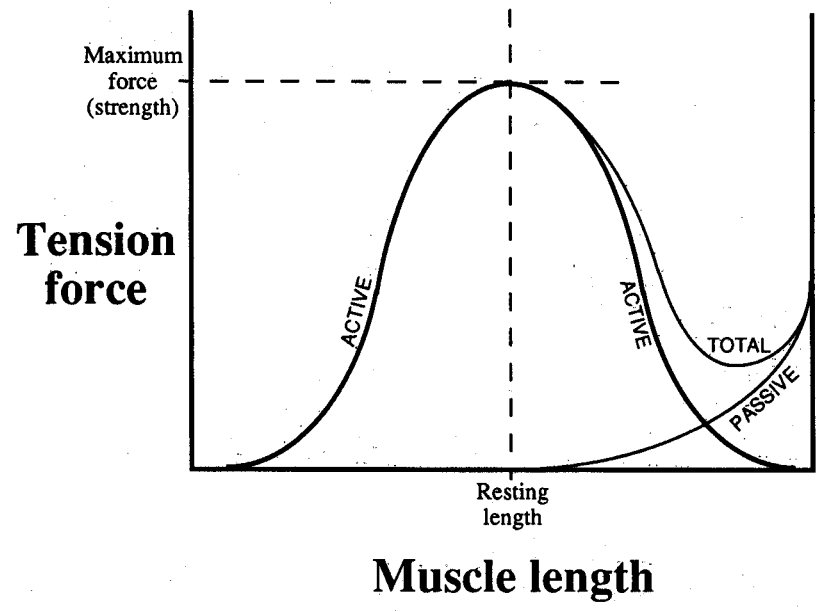
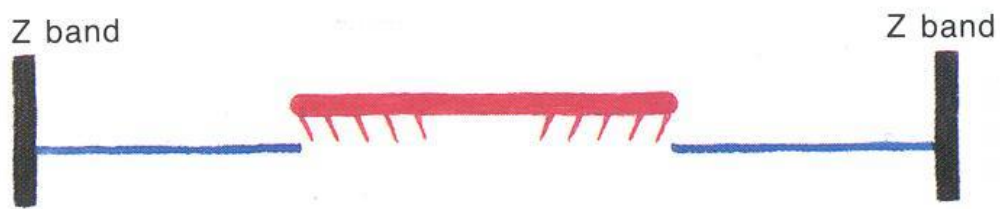
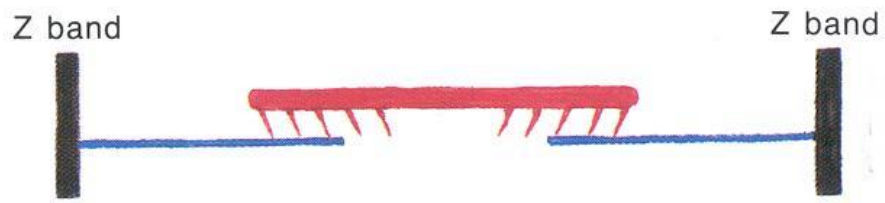
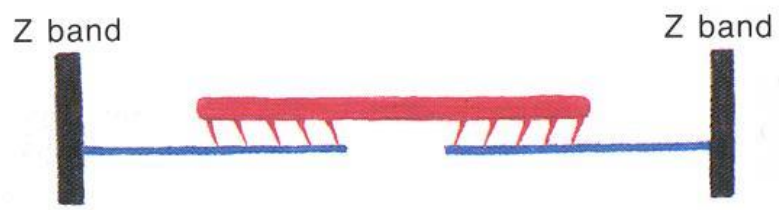
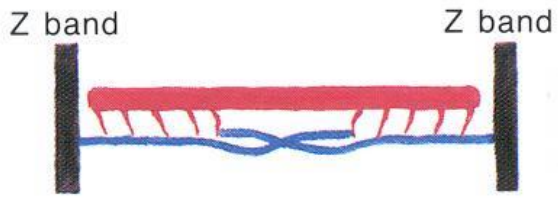
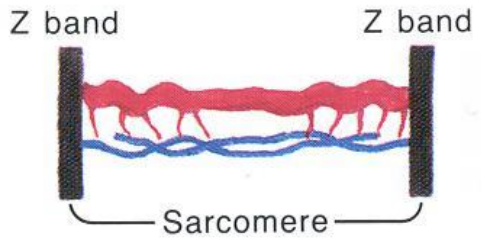
Ortos  
Seriegipsning  
Operation



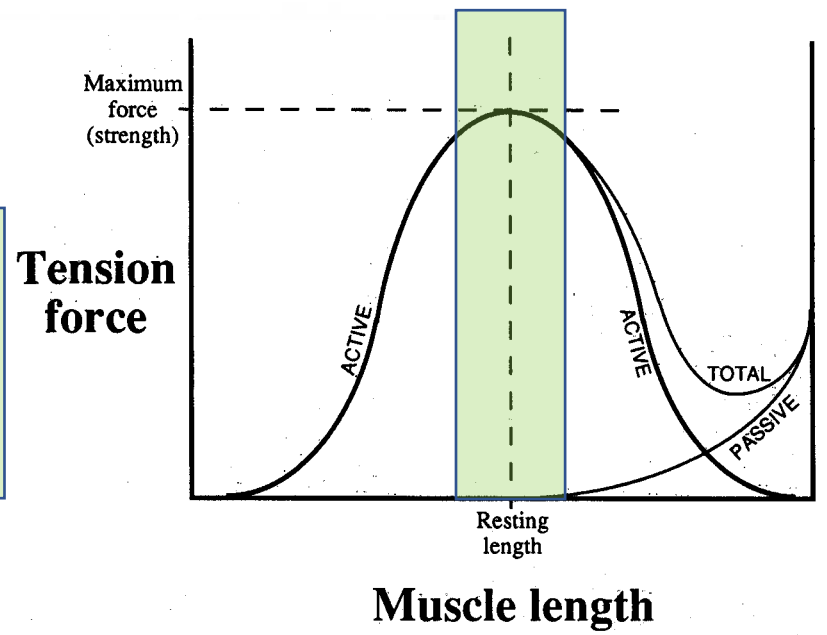
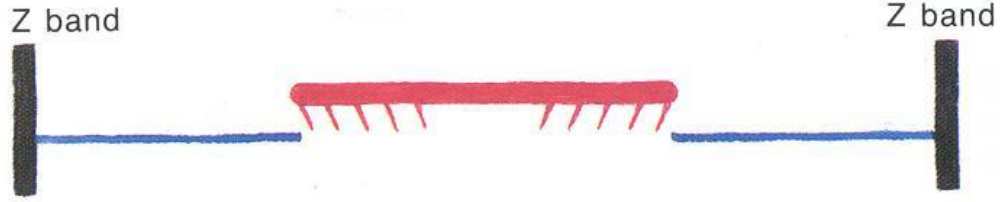
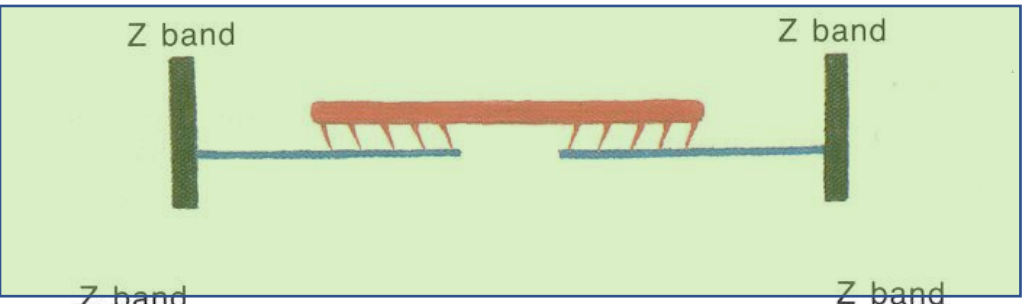
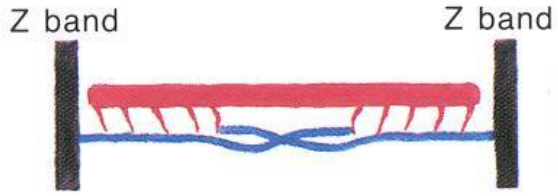
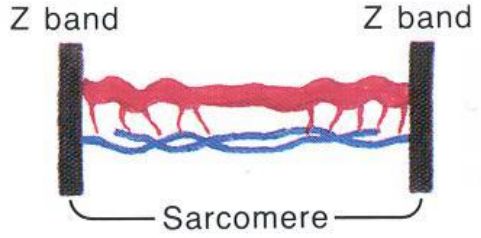


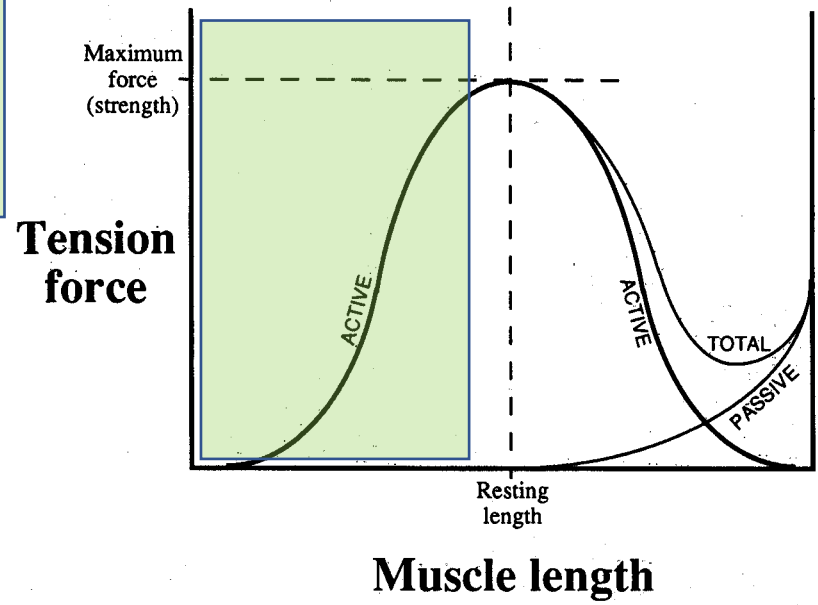
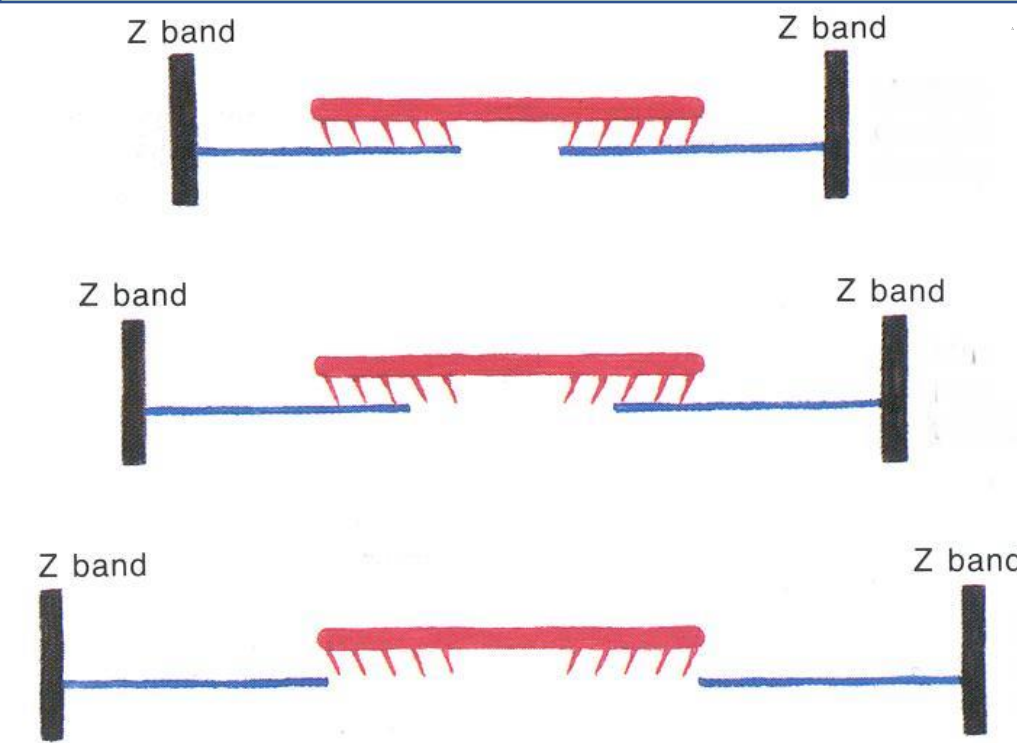
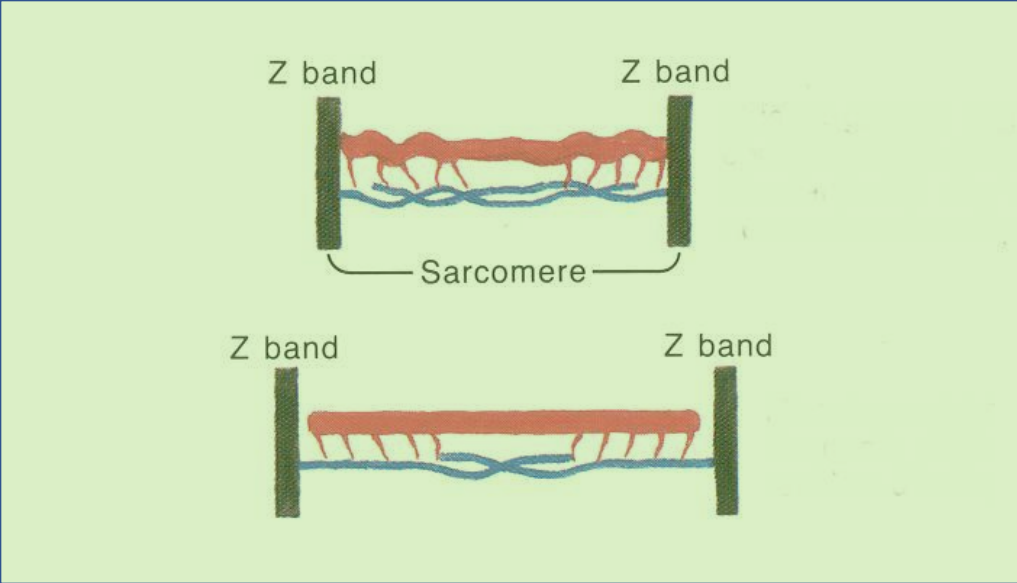


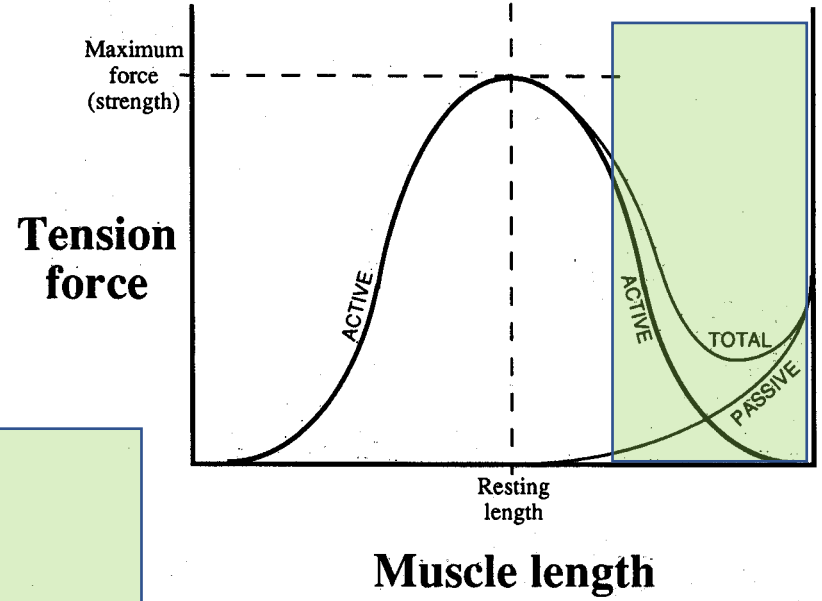
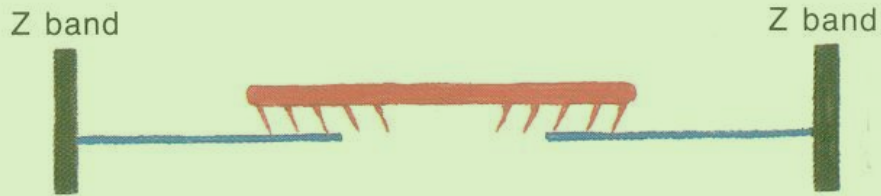
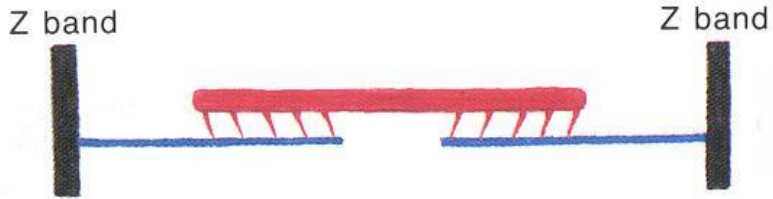
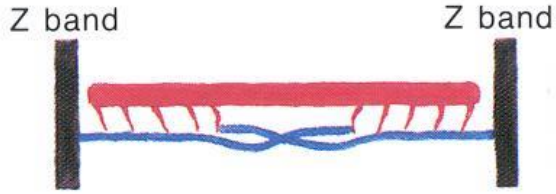
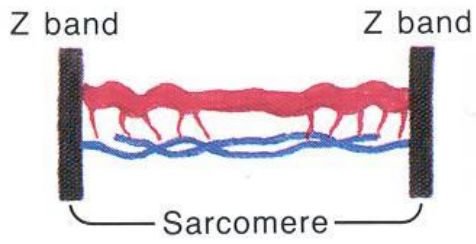


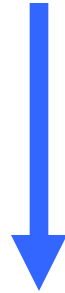
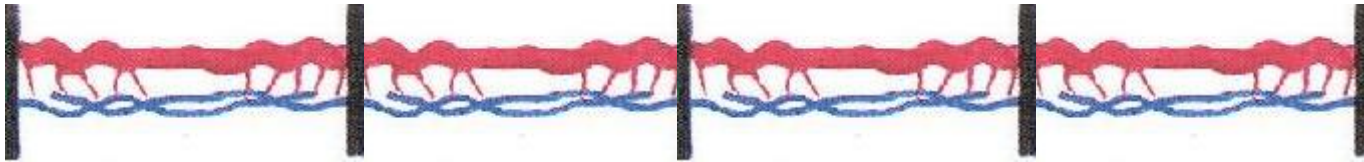


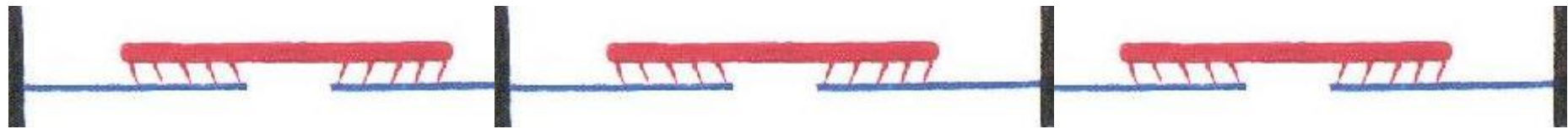






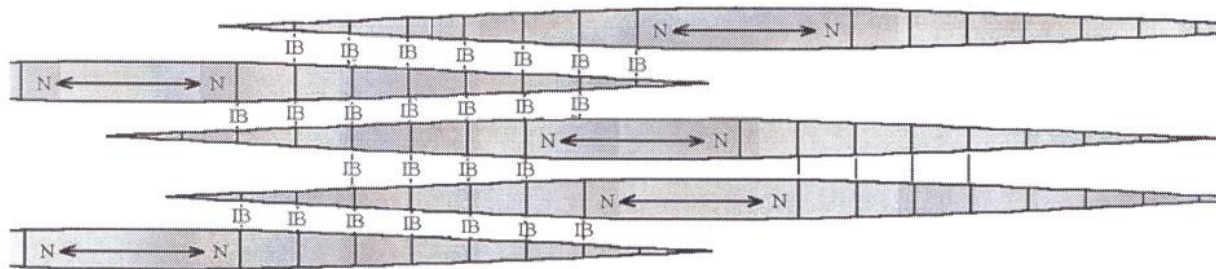






En muskel behöver  
inte vara i ytterläge  
för att förhindra  
kontraktur!

En muskel behöver  
inte vara i ytterläge  
för att växa!





FOR HOW LONG MUST THE SOLEUS  
MUSCLE BE STRETCHED EACH DAY TO  
PREVENT CONTRACTURE?

---

*C. Tardieu*  
*A. Lespargot*  
*C. Tabary*  
*M. D. Bret*

- Minst 4-6 timmar

RESEARCH ARTICLE

Open Access

# The effects of serial casting on lower limb function for children with Cerebral Palsy: a systematic review with meta-analysis



Nikki Milne<sup>1,2\*</sup> , Michelle Miao<sup>1</sup> and Emma Beattie<sup>1</sup>

25 artiklar

414 barn 5,9 år (2-14)

1-4 gipsar (mål minst 2)

Gipsintervall 3d – 4 veckor

RESEARCH ARTICLE

Open Access

# The effects of serial casting on lower limb function for children with Cerebral Palsy: a systematic review with meta-analysis



Nikki Milne<sup>1,2\*</sup> , Michelle Miao<sup>1</sup> and Emma Beattie<sup>1</sup>

Förbättrad dorsalflexion med i genomsnitt 8 grader  
Förbättrad gångförmåga

mätt upp till 6 månader efter behandling

# Serial Casting vs Combined Intervention with Botulinum Toxin A and Serial Casting in the Treatment of Spastic Equinus in Children

Melissa Y. Booth, Charlotte C. Yates, Terence S. Edgar, and William D. Bandy

Arkansas Children's Hospital (M.Y.B, C.C.Y.), Little Rock, AR; Medical University of South Carolina (T.S.E.), Charleston, SC; and the University of Central Arkansas (W.D.B), Conway, AR

*Pediatr Phys Ther.* 2003;15:216–220

Retrospektiv studie

Barn med CP, 2-18 år, GMFCS I-III, ej opererade gastrosoleus

De 15 första som uppfyllde kriterierna i respektive grupp inkluderades

Grupp 1: Enbart seriegipsning (7.8 år)

Grupp 2: Botulinumtoxin + seriegipsning (5.6 år)

Mål: +20 graders dorsalflexion eller platå två veckor

# Serial Casting vs Combined Intervention with Botulinum Toxin A and Serial Casting in the Treatment of Spastic Equinus in Children

Melissa Y. Booth, Charlotte C. Yates, Terence S. Edgar, and William D. Bandy

Arkansas Children's Hospital (M.Y.B, C.C.Y.), Little Rock, AR; Medical University of South Carolina (T.S.E.), Charleston, SC; and the University of Central Arkansas (W.D.B), Conway, AR

*Pediatr Phys Ther.* 2003;15:216–220

## Resultat

Grupp 1 (Bx + gips): Mål nåddes på 2 veckor (sd 1 v)

Grupp 2: (gips): Mål nåddes på 3.5 (sd 1v)

Grupp 1: Ökning 9 grader per vecka

Grupp 2: Ökning 5.5 grader per vecka

Statistiskt signifikanta skillnader.

# Efficacy of botulinum toxin A, serial casting, and combined treatment for spastic equinus: a retrospective analysis

Allan M Glanzman\* PT DPT PCS ATP;  
Heakyung Kim MD, Pediatric Physiatrist, Division of Child Development, Physical Medicine and Rehabilitation, and Metabolism, Children's Seashore House of The Children's Hospital of Philadelphia;  
Kartik Swaminathan MD, Physiatrist, Department of Physical Medicine and Rehabilitation, Temple University;  
Teresa Beek RN BSN MEd CRRN, Department of Nursing, Children's Seashore House of The Children's Hospital of Philadelphia, Philadelphia, PA, USA.

*Dev Med Child Neurol.* 2004;46:807–811.

Retrospektiv studie

50 barn med CP, 31 i GMFCS I-II. 10 III, 8 IV-V  
7 år (SD 5)

**Table I: Mean (SD) between-group differences**

<i>Group</i>	<i>Pretreatment ROM</i>	<i>Posttreatment ROM</i>	<i>Change in ROM</i>
Casting and BTX-A	-6° (9.7°)	10° (10.6°)	17° (11.2°)
Casting only	-5° (7.4°)	10° (7.7°)	15° (4.5°)
BTX-A only	-2° (5.9°)	5° (6.1°)	5° (6.7°)

ROM, range of motion; BTX-A, botulinum toxin type A. Significant difference between casting and BTX-A and BTX-A only:  $p=0.0002$ . Significant difference between casting only and BTX-A only:  $p=0.0001$ . Non-significant difference between casting only and casting and BTX-A:  $p=0.37$ .

# Botulinum toxin with and without casting in ambulant children with spastic diplegia: a clinical and functional assessment

**M Bottos** MD, Childhood Neuromotor Disabilities Centre, Azienda USL;  
**M G Benedetti\*** MD;  
**P Salucci** MD;  
**V Gasparroni** MD;  
**S Giannini** MD, Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, Italy.

*\*Correspondence to second author at Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Via di Barbiano 1/10, 40124, Bologna, Italy.  
E-mail: benedetti@ior.it*

*Dev Med Child Neurol.* 2003;45:758–762.

Prospektiv randomiserad studie....

Barn med CP, GMFCS I-II, 6.5 år( SD 2.7 år)

Grupp1: BxA + AFO

Grupp 2: BxA +gips

Uppföljning 1, 4, 12 månader

GMFM, ROM, gånganalys

# Botulinum toxin with and without casting in ambulant children with spastic diplegia: a clinical and functional assessment

*Dev Med Child Neurol.* 2003;45:758–762.

M Bottos MD, Childhood Neuromotor Disabilities Centre, Azienda USL;  
M G Benedetti\* MD;  
P Salucci MD;  
V Gasparroni MD;  
S Giannini MD, Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, Italy.

\*Correspondence to second author at Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Via di Barbiano 1/10, 40124, Bologna, Italy.  
E-mail: benedetti@ior.it

Grupp1: BxA + AFO      6 barn  
Grupp 2: BxA +gips      6 barn

## Resultat

GMFM: Grupp 2 bättre efter 1 och 4 mån (p= 0.002)  
Gånghastighet: Grupp 2 större ökning (p= 0.04)  
Kinematics, kinetic: Ingen skillnad



# Botulinum toxin with and without casting in ambulant children with spastic diplegia: a clinical and functional assessment

*Dev Med Child Neurol.* 2003;45:758–762.

M Bottos MD, Childhood Neuromotor Disabilities Centre, Azienda USL;  
 M G Benedetti\* MD;  
 P Salucci MD;  
 V Gasparroni MD;  
 S Giannini MD, Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, Italy.

Grupp1: BxA + AFO  
 Grupp 2: BxA +gips

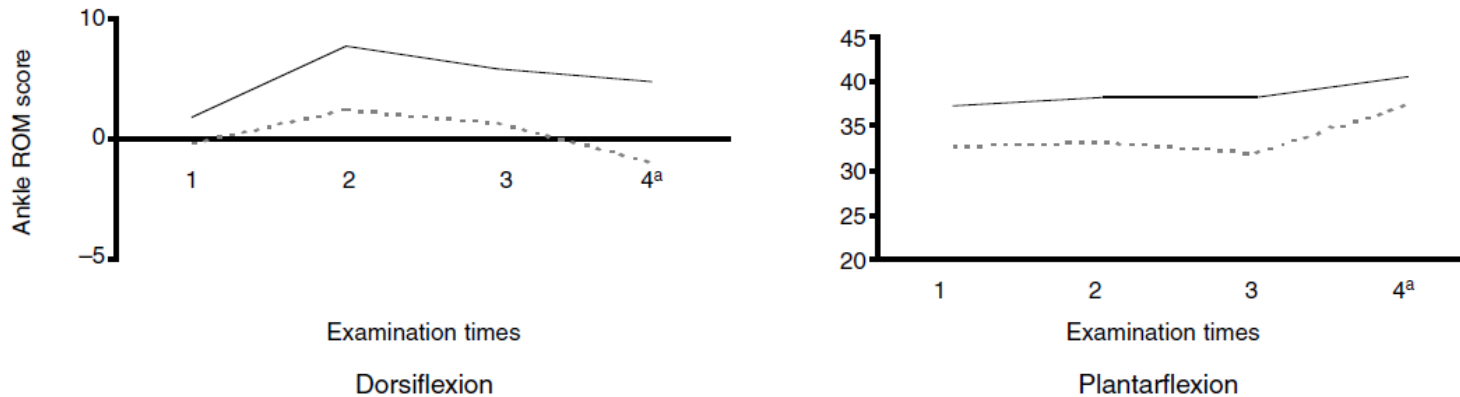


Figure 3: Ankle passive range of movement (ROM) for plantarflexion and dorsiflexion at different examination times. 1, examination before treatment; 2, examination after 1 month; 3, examination after 4 months; 4, examination after 12 months (<sup>a</sup>These data were obtained on six patients.) ---, BTX-A group; —, BTX-A+casting.

**Intermittent serial casting for wrist flexion deformity in children with spastic cerebral palsy: a randomized controlled trial**NIGAR DURSUN<sup>1</sup> | TUGBA GOKBEL<sup>1</sup> | MELIKE AKARSU<sup>1</sup> | MARCIN BONIKOWSKI<sup>2</sup> | WERONIKA PYRZANOWSKA<sup>2</sup> | ERBIL DURSUN<sup>1</sup><sup>1</sup> Faculty of Medicine Department of Physical Medicine and Rehabilitation, Kocaeli University, Kocaeli, Turkey. <sup>2</sup> Mazovian Neuropsychiatry Center, Zagórze n. Warsaw, Poland.

Correspondence to Nigar Dursun, Kocaeli University Faculty of Medicine, Department of Physical Medicine and Rehabilitation, Umuttepe, Kocaeli 41001, Turkey. E-mail: nigar@hotmail.com

Prospektiv randomiserad studie seriegipsning handled  
34 barn 11år (SD 4.5). Randomiserade 2:1.

Grupp 1: BxA                      N= 11

Grupp 2: BxA + gips            N=23

Uppföljning 4 och 12 veckor

Statistiskt signifikant bättre ökning av ROM i Grupp 2 (p< 0.05)

# Teknik

Gipsa inte i ytterläge

Gipsbyte efter 2-7 dagar

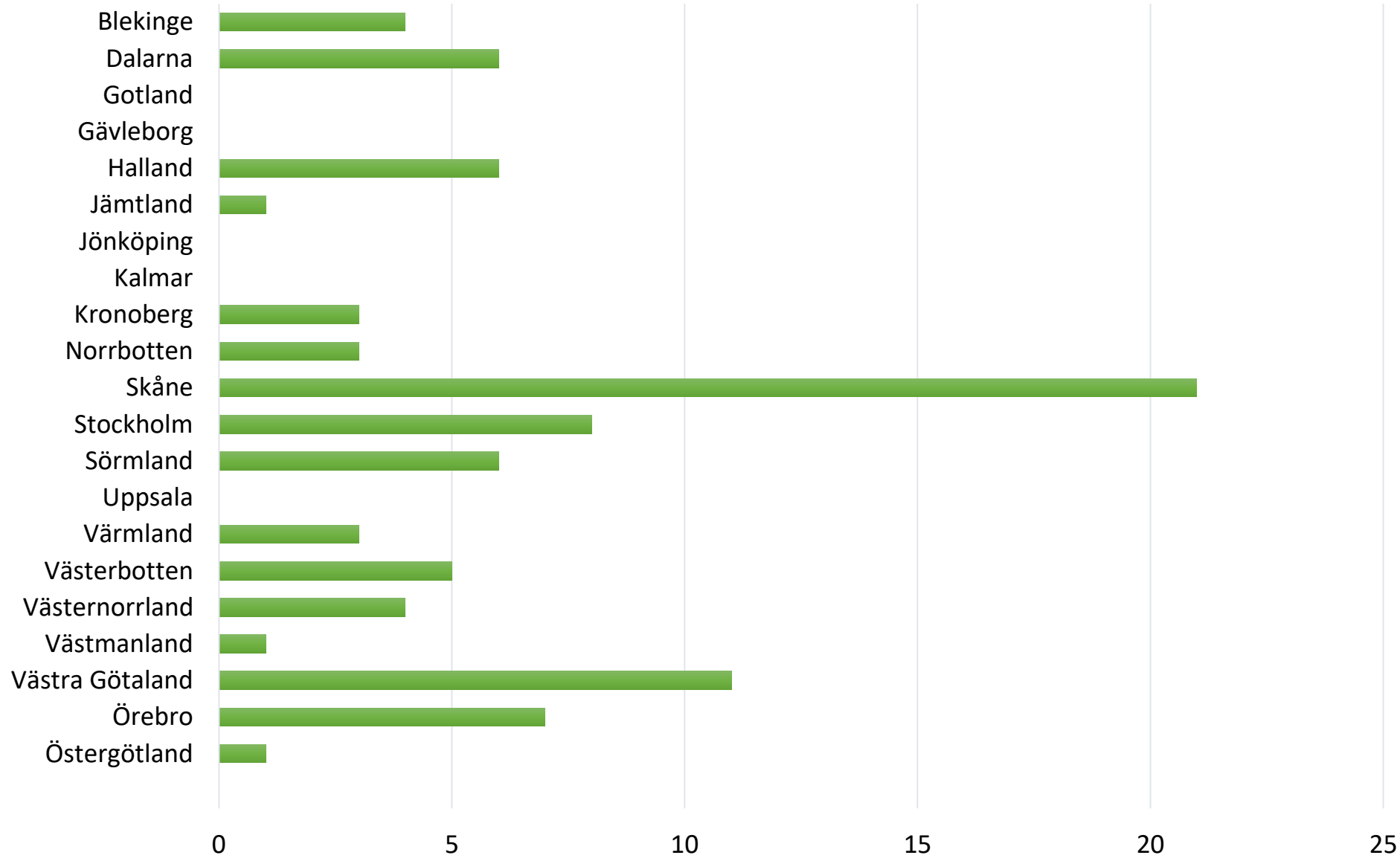
Behandlingstid beroende på resultat

Ortosavgjutning i samband med omgipsning

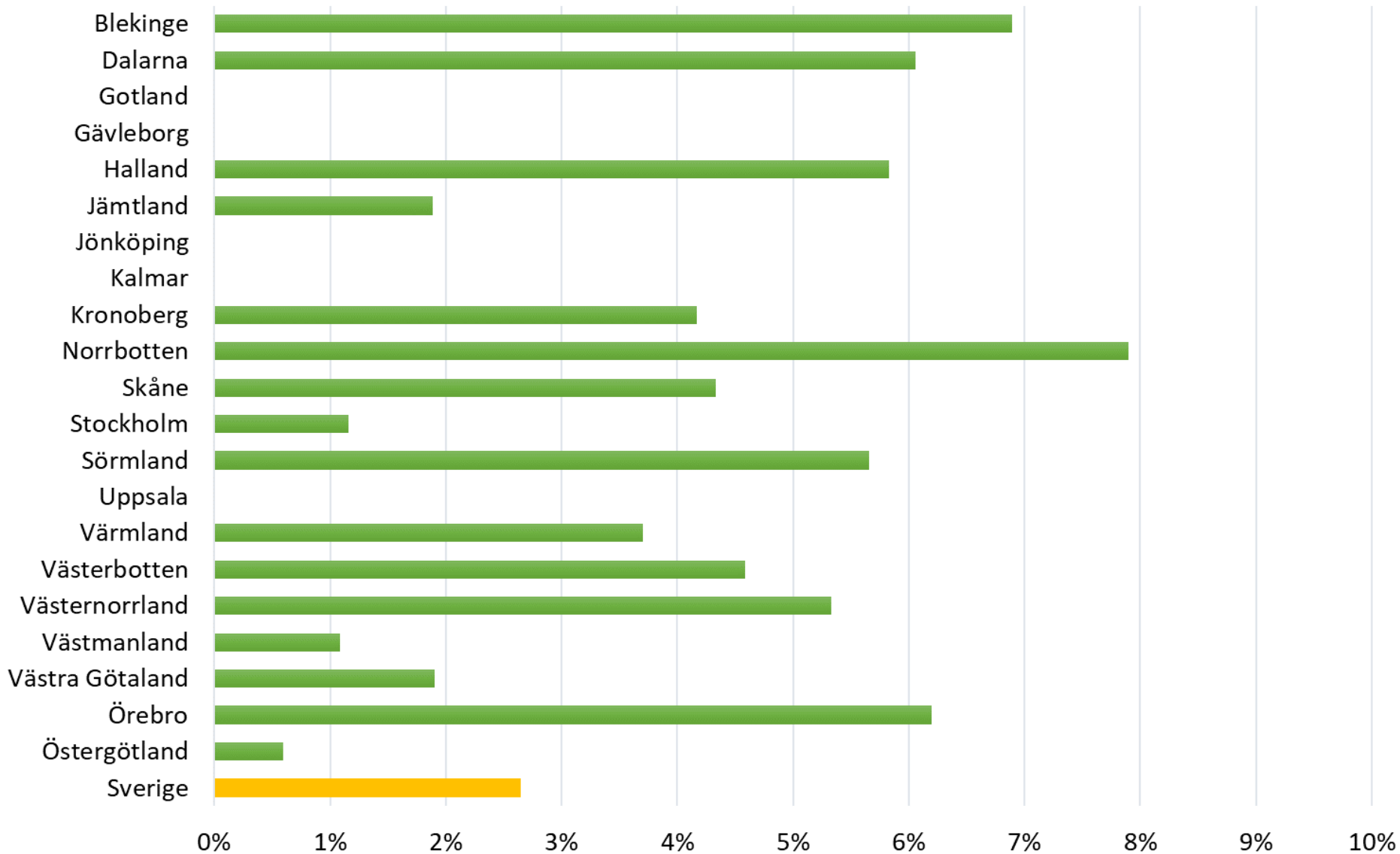
Botulinumtoxin + gips?



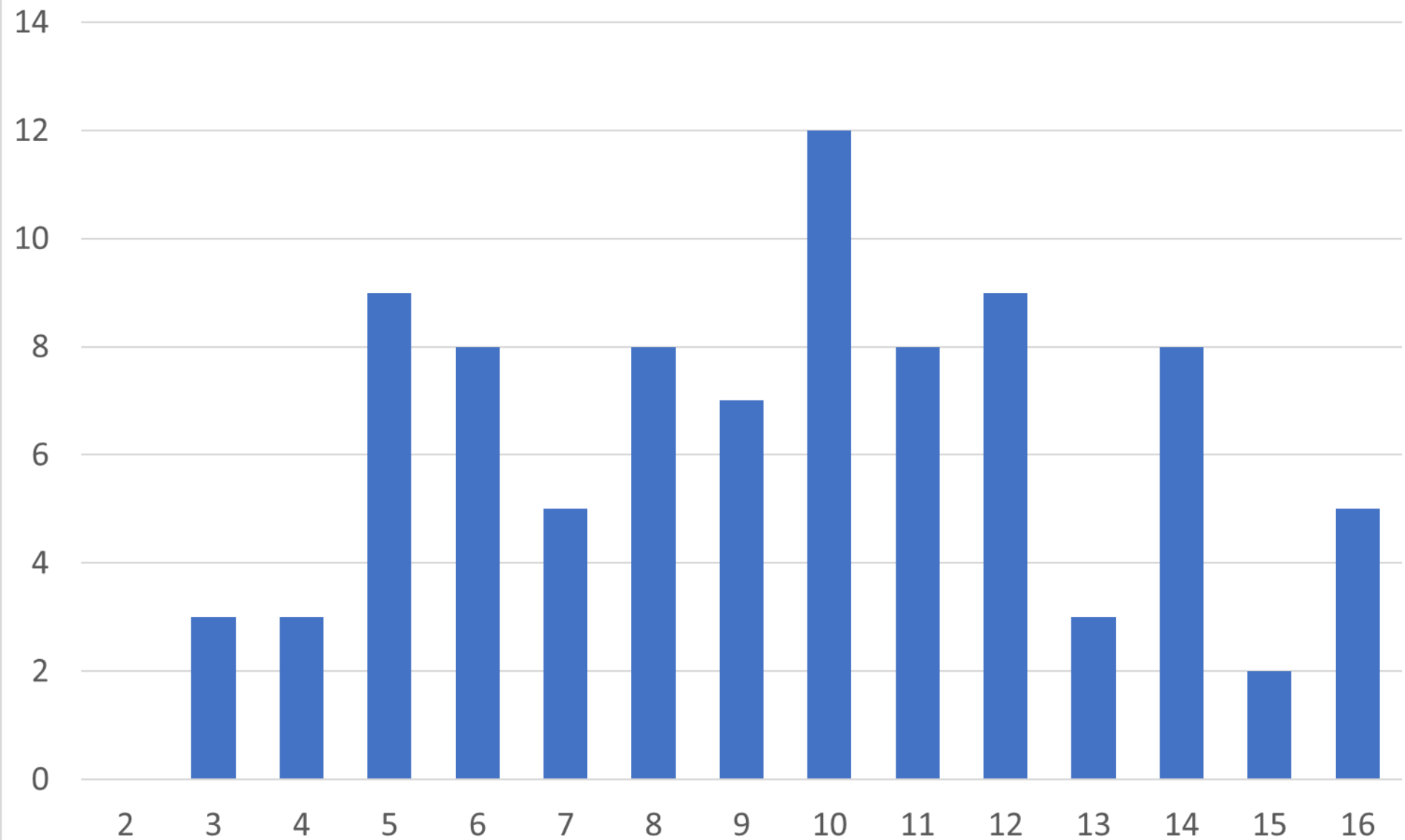
## Antalet barn behandlade med seriegipsning 2022



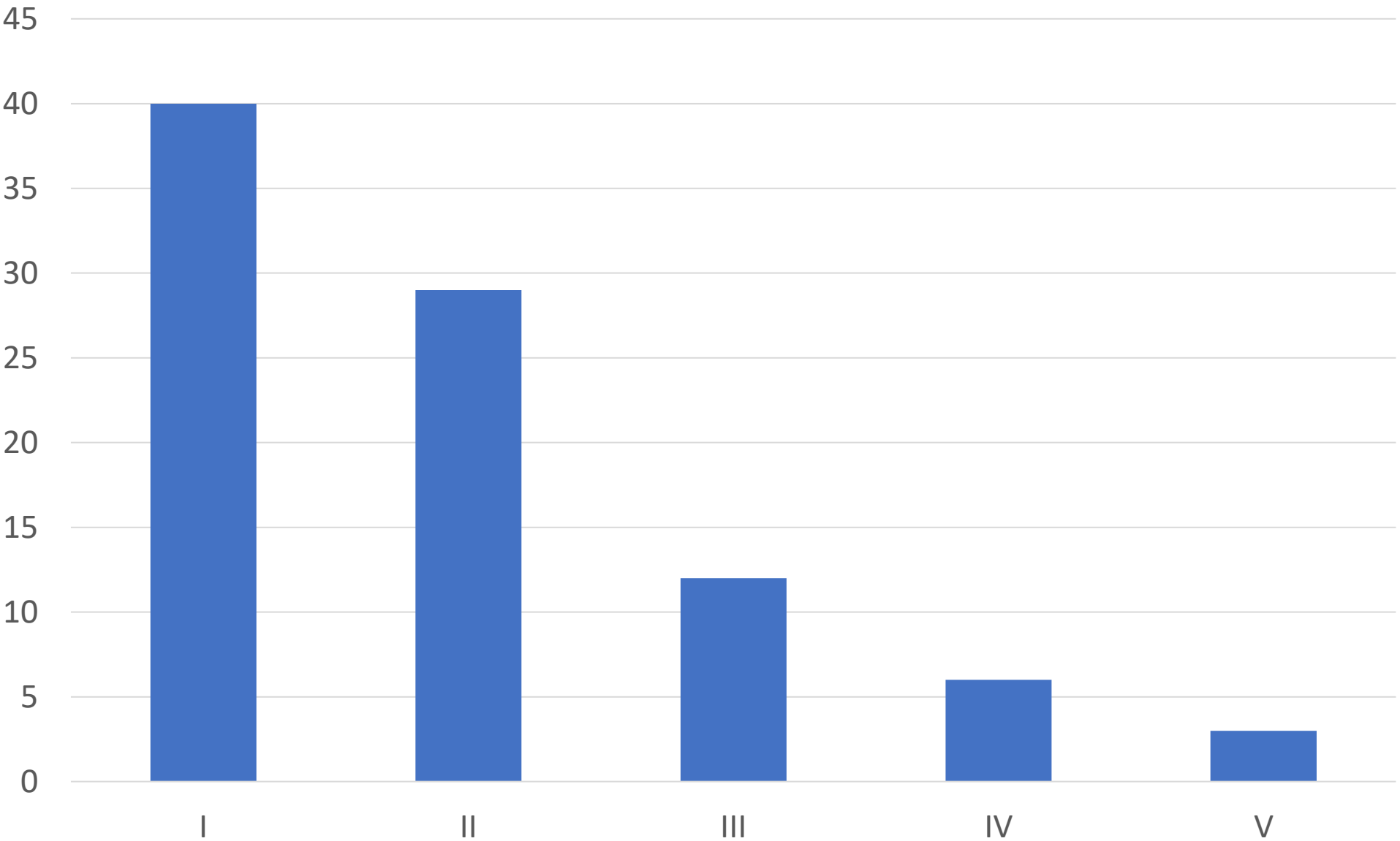
## Andelen barn behandlade med seriegipsning 2022



## Antal seriegipsade 2022 relaterat till ålder



## Antal seriegipsade 2022 relaterat GMFCS-nivå





# Behandlade leder

Fotled	82
Fotled + knäled	2
Knäled	5
Handled	?



Spasticitet?

BxA  
ITB  
SDR

Kontraktur?

Ortos  
Seriegipsning  
Operation



Spasticitet?

BxA  
ITB  
SDR

Kontraktur?

Ortos  
Seriegipsning  
Operation





Spasticitet?

BxA

ITB

SDR

Kontraktur?

Ortos

Seriegipsning

Operation



# Sammanfattning - råd

Seriegipsning reversibel – liten risk att försöka

Team med van gipstekniker/ortopedingenjör

FT eller ortoped med

Gipsa inte i ytterläge

Ortosavgjutning i samband med omgipsning

Om både tonusökning och kontraktur – bra att kombinera Bx och seriegipsning. Ev dessutom lättare acceptans om spasticitetsreduktion.