ARBOIS - POLIGNY - SALINS-LES-BAINS

Centre Hospitalier Intercommunal
PAYS DU REVERMONT

L’épaule spastique

La Charité sur Loire
14 mars 2025

François DROZ BARTHOLET
Salins-les-Bains

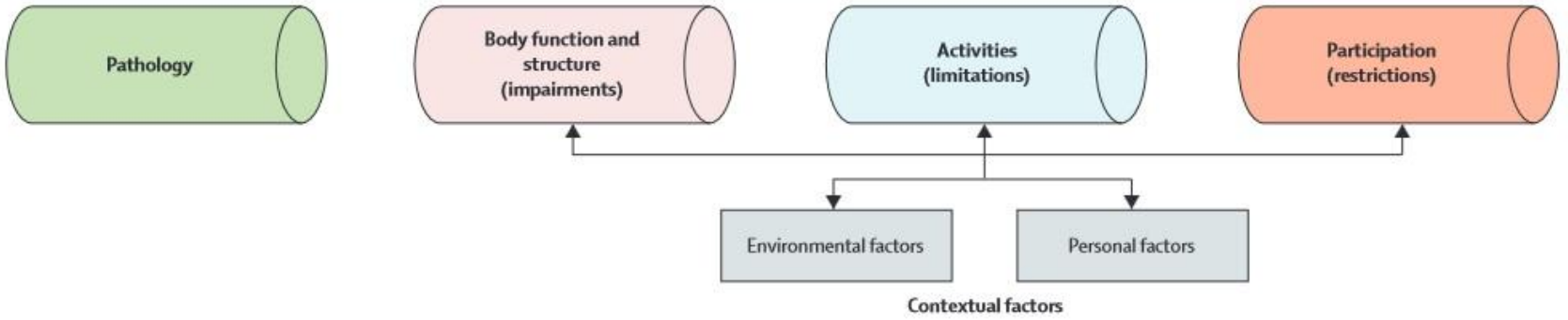
Liens d’intérêt

Consultant et orateur

Abbvie

Merz

IPSEN



Ischaemic stroke (about 80%)
Syndrome classified according to the Oxfordshire Community Stroke Project classification

Haemorrhagic stroke (about 15%)
- Intracerebral (about 10%)
- Subarachnoid (about 5%)

Not otherwise specified (about 5%)

Most relevant body functions affected
- Consciousness orientation and intellectual
- Temperament and personality
- Energy and drive
- Sleep, attention, and memory
- Psychomotor and perceptual
- Cognitive and seeing
- Proprioception and touch
- Voice and articulation
- Ingestion, defecation, urinary, and sexual
- Mobility and stability of joints
- Muscle power, tone, and reflexes
- Muscle endurance
- Control of (in)voluntary movement
- Gait pattern functions

Most relevant structures affected
- Brain
- Cardiovascular system
- Leg and arm
- Shoulder region

Most relevant activities affected
- Communicating with and speaking
- Reading, writing, and calculating
- Solving problems
- Undertake single and multiple tasks
- Transferring oneself
- Maintaining body position
- Walking
- Mobility
- Toileting
- Dressing
- Moving around, driving, and transportation
- Washing and self-care
- Hand and arm use
- Eating and drinking
- Preparation of meals
- Use of transportation
- Recreation and leisure
- Doing housework

Most common affected contextual factors (environmental and personal)
- Technology and products for personal use
- Health professionals
- Health services, system, and policies
- Products or substances for personal communication
- House services, systems, and policies
- Support and relationships

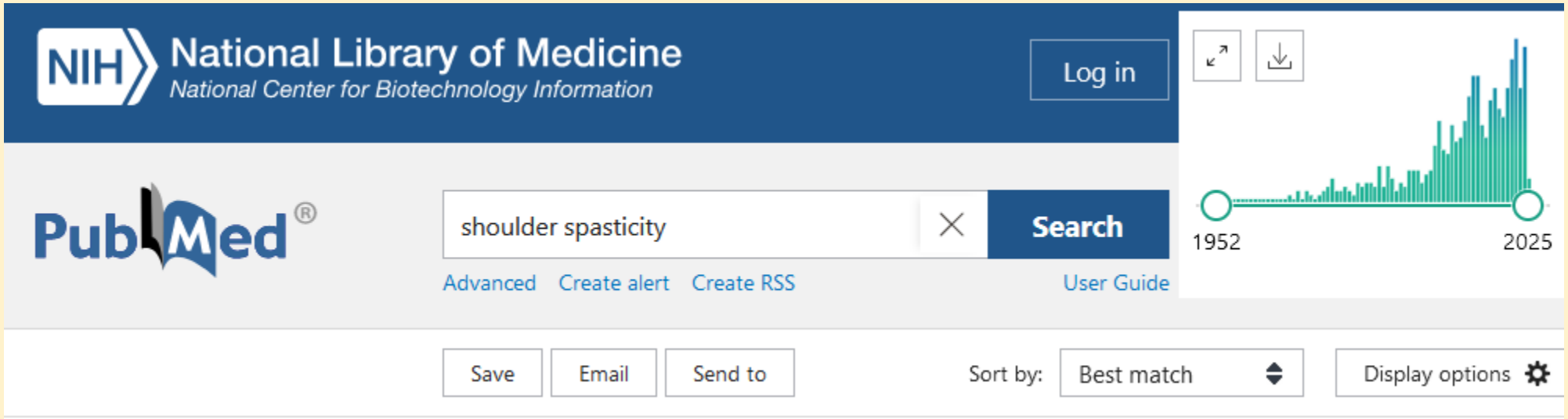
Most relevant restrictions in participation
- Acquisition of goods and services
- Doing housework
- Preparation of meals
- Basic interpersonal
- Recreation and leisure activities
- Remunerative employment

THE LANCET
Vol 377 May 14, 2011

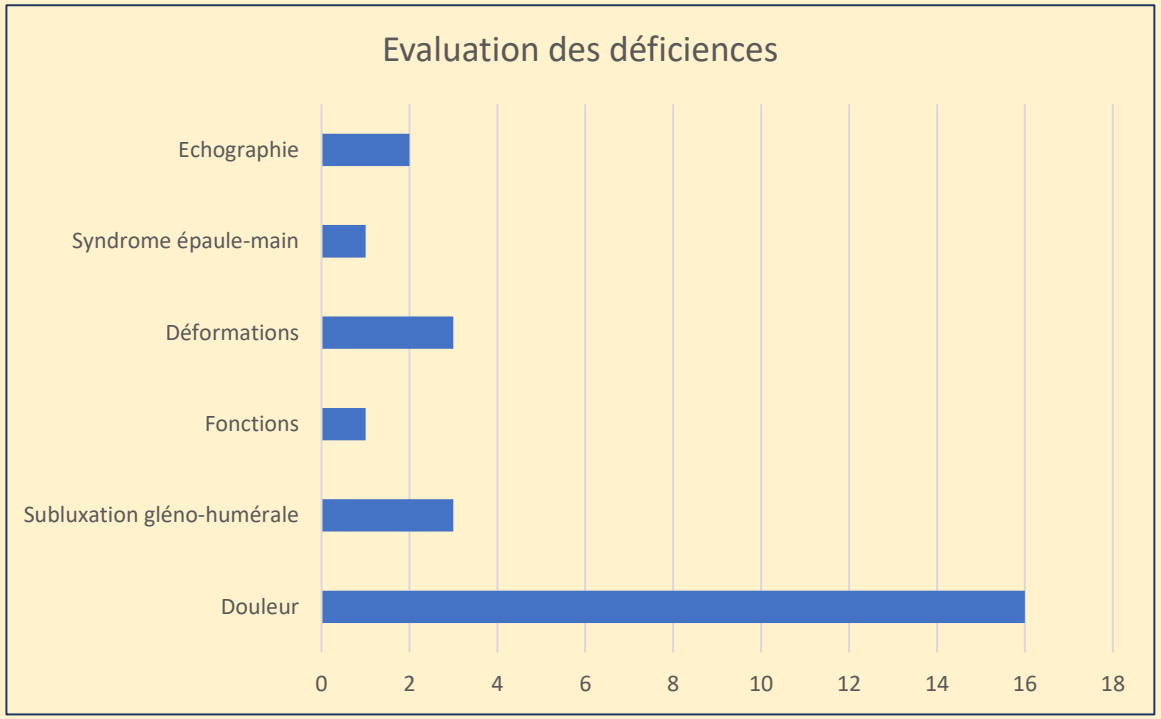
Stroke rehabilitation

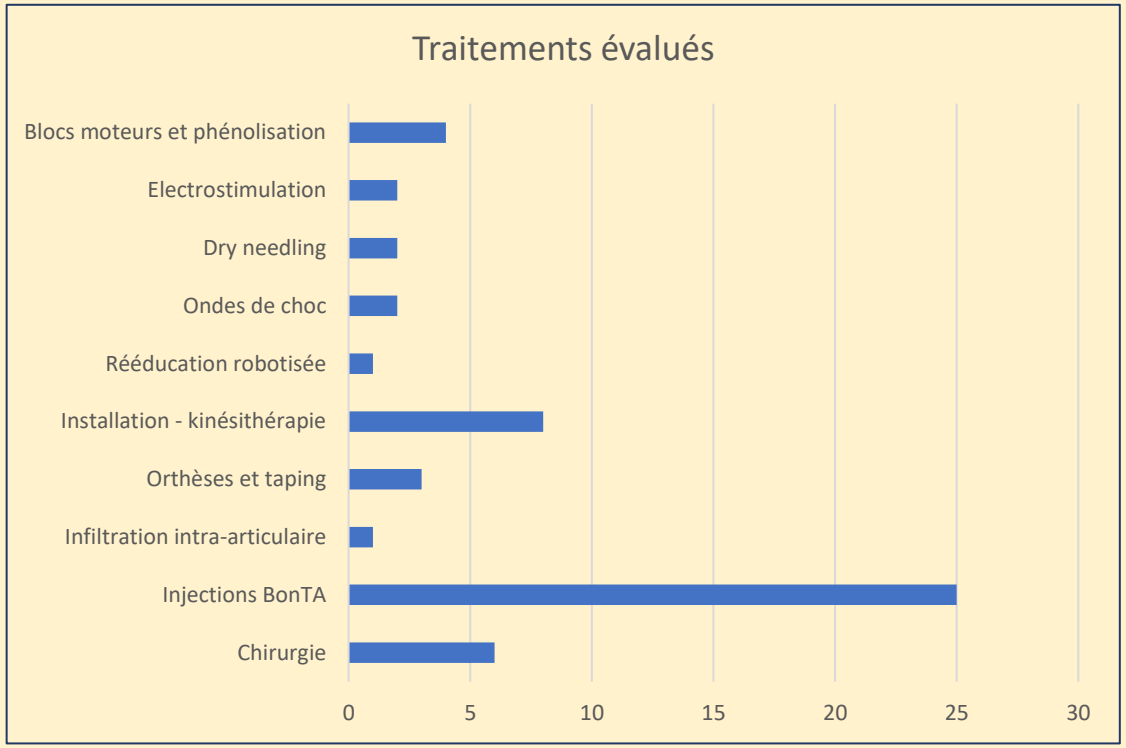
Peter Langhorne, Julie Bernhardt, Gert Kwakkel

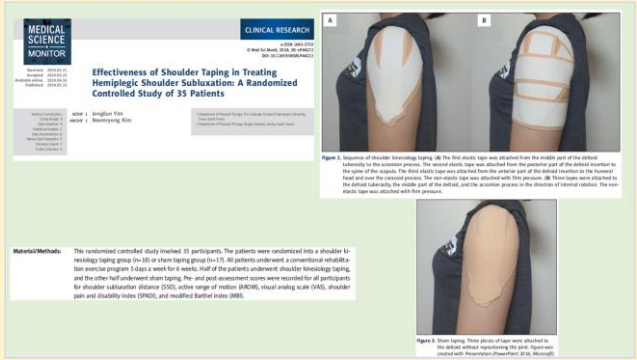
Plan

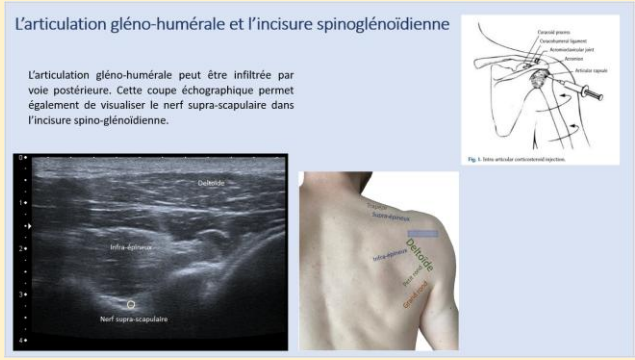

NIH
National Library of Medicine
National Center for Biotechnology Information
Log in
PubMed®
shoulder spasticity
Search
Advanced
Create alert
Create RSS
User Guide
1952
2025
Save
Email
Send to
Sort by:
Best match
Display options

Analyse des résultats (n=100)

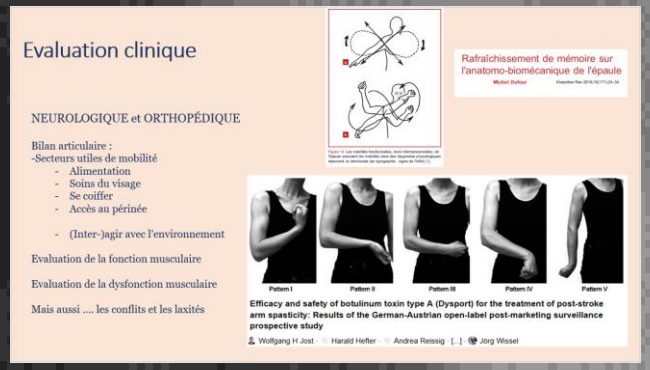


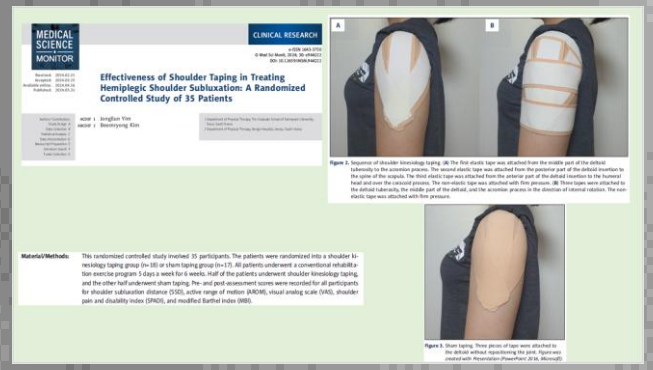


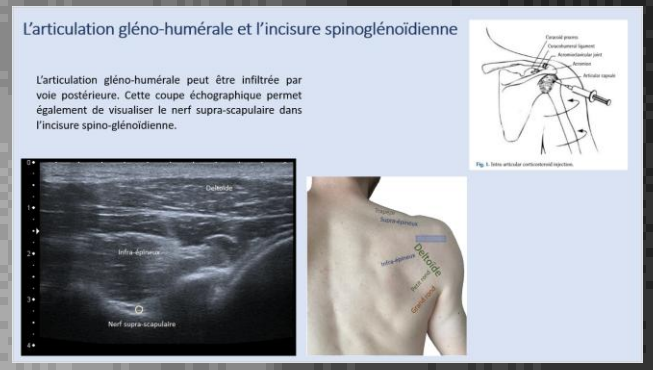




Plan


Evaluation clinique
NEUROLOGIQUE et ORTHOPÉDIQUE
Bilan articulaire :
-Secteurs utiles de mobilité
- Alimentation
- Soins du visage
- Se coiffer
- Accès au périnée
- (Inter-)agir avec l'environnement
Evaluation de la fonction musculaire
Evaluation de la dysfonction musculaire
Mais aussi .... les conflits et les laxités
Rafraîchissement de mémoire sur l'anatomo-biomécanique de l'épaule
Michel Dufour
Pattern I
Pattern II
Pattern III
Pattern IV
Pattern V
Efficacy and safety of botulinum toxin type A (Dysport) for the treatment of post-stroke arm spasticity: Results of the German-Austrian open-label post-marketing surveillance prospective study
Wolfgang H Jost · Harald Hefter · Andrea Reissig · [...] · Jörg Wissel


MEDICAL SCIENCE MONITOR
CLINICAL RESEARCH
Effectiveness of Shoulder Taping in Treating Hemiplegic Shoulder Subluxation: A Randomized Controlled Study of 35 Patients
Jongjun Yim
Beomyoung Kim
Material/Methods:
This randomized controlled study involved 35 participants. The patients were randomized into a shoulder kinesiology taping group (n=18) or sham taping group (n=17). All patients underwent a conventional rehabilitation exercise program 5 days a week for 6 weeks. Half of the patients underwent shoulder kinesiology taping, and the other half underwent sham taping. Pre- and post-assessment scores were recorded for all participants for shoulder subluxation distance (SSD), active range of motion (AROM), visual analog scale (VAS), shoulder pain and disability index (SPADI), and modified Barthel Index (MBI).


L'articulation gléno-humérale et l'incisure spinoglénoïdienne
L'articulation gléno-humérale peut être infiltrée par voie postérieure. Cette coupe échographique permet également de visualiser le nerf supra-scapulaire dans l'incisure spino-glénoïdienne.
Deltoïde
Infra-épineux
Nerf supra-scapulaire
Deltoïde
Supra-épineux
Infra-épineux
Grand rond

Clinique


Evaluation clinique
NEUROLOGIQUE et ORTHOPÉDIQUE
Bilan articulaire :
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MEDICAL SCIENCE MONITOR
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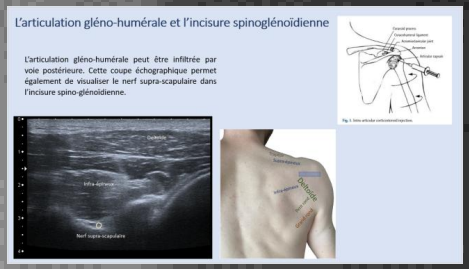
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Nerf supra-scapulaire

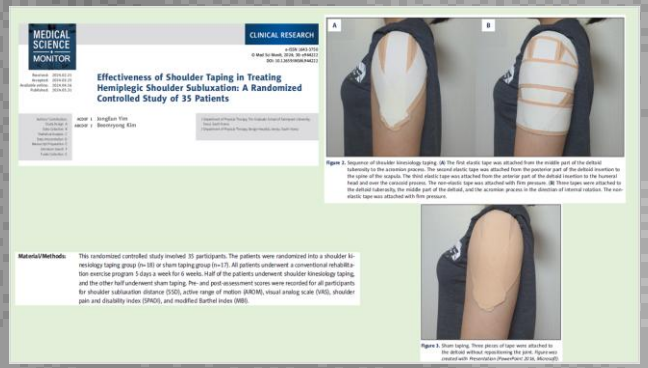
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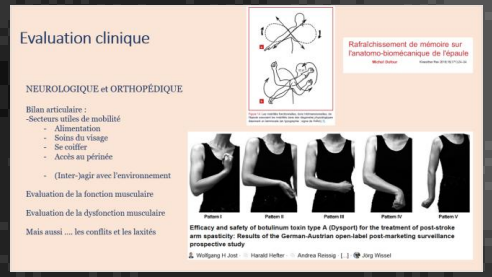
Figure 2. Sequence of shoulder kinesiology taping. (A) The first elastic tape was attached from the middle part of the deltoid tuberosity to the acromion process. The second elastic tape was attached from the posterior part of the deltoid insertion to the spine of the scapula. The third elastic tape was attached from the anterior part of the deltoid insertion to the humeral head and over the coracoid process. The non-elastic tape was attached with firm pressure. (B) Three tapes were attached to the deltoid tuberosity, the middle part of the deltoid, and the acromion process in the direction of internal rotation. The non-elastic tape was attached with firm pressure.

Figure 3. Sham taping. Three pieces of tape were attached to the deltoid without repositioning the joint. Figure was created with PowerPoint 2016, Microsoft.

Traitements non médicamenteux


Evaluation clinique

NEUROLOGIQUE et ORTHOPÉDIQUE

Bilan articulaire :
-Secteurs utiles de mobilité
- Alimentation
- Soins du visage
- Se coiffer
- Accès au périnée

- (Inter-)agir avec l'environnement

Evaluation de la fonction musculaire

Evaluation de la dysfonction musculaire

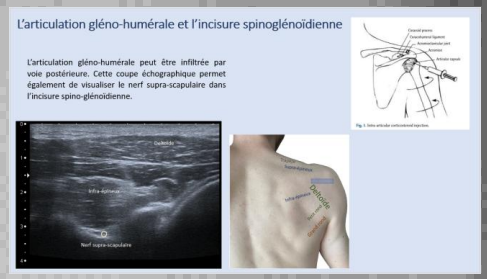
Mais aussi .... les conflits et les laxités

Rafraîchissement de mémoire sur l'anatomo-biomécanique de l'épaule

Pattern I | Pattern II | Pattern III | Pattern IV | Pattern V

Efficacy and safety of botulinum toxin type A (Dysport) for the treatment of post-stroke arm spasticity: Results of the German-Austrian open-label post-marketing surveillance prospective study

Wolfgang H Jost | Harald Hefter | Andrea Reissig | [ ] | Jörg Wissel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Deltoïde

Infra-épineux

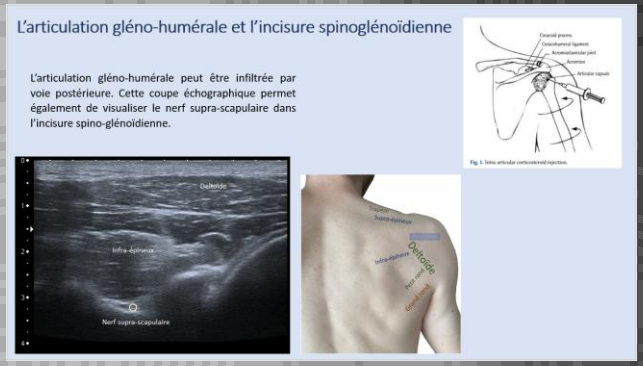
Nerf supra-scapulaire

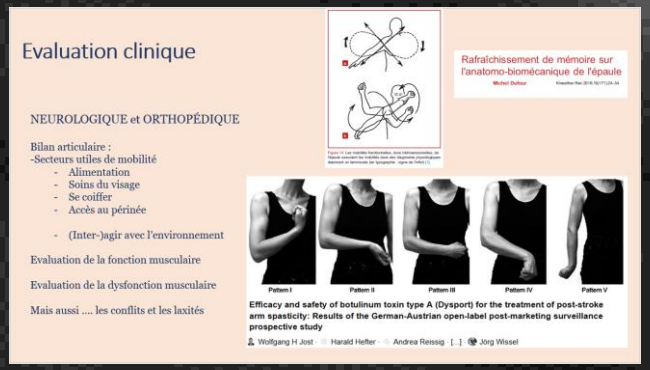
Supra-épineux

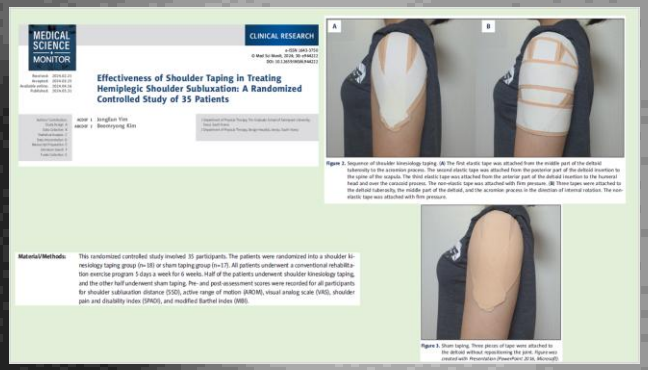
Deltoïde

Infra-épineux

Traitements médicamenteux et infiltratifs







Evaluation clinique

Evaluation clinique

NEUROLOGIQUE et ORTHOPÉDIQUE

Bilan articulaire :
-Secteurs utiles de mobilité
- Alimentation
- Soins du visage
- Se coiffer
- Accès au périnée

- (Inter-)agir avec l'environnement

Evaluation de la fonction musculaire

Evaluation de la dysfonction musculaire

Mais aussi .... les conflits et les instabilités

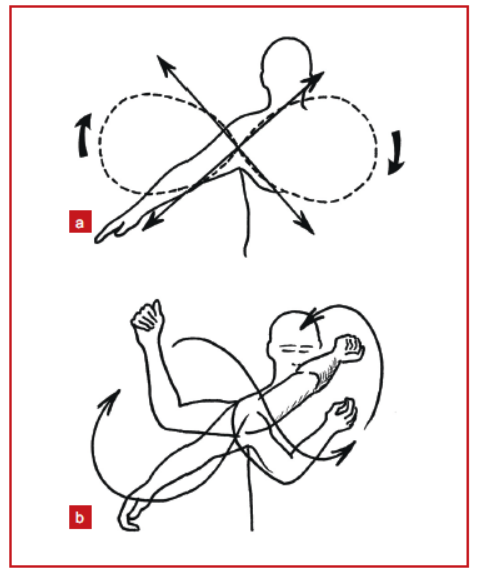


Figure 14. Les mobilités fonctionnelles, donc tridimensionnelles, de l'épaule associent les mobilités dans des diagonales physiologiques dessinant un lemniscate (en typographie : signe de l'infini) [1].

Rafraîchissement de mémoire sur l'anatomo-biomécanique de l'épaule

Michel Dufour Kinesither Rev 2016;16(171):24–34

Efficacy and safety of botulinum toxin type A (Dysport) for the treatment of post-stroke arm spasticity: Results of the German-Austrian open-label post-marketing surveillance prospective study

Wolfgang H Jost · Harald Hefter · Andrea Reissig · [...] · Jörg Wissel

Mesure des mobilités à l'aide d'une application de clinomètre

AROM of the Shoulder

AROM was assessed using smartphone clinometer application measurements for shoulder flexion and abduction. Shoulder flexion and abduction were measured with the patient in the standing position. This test tool has intra- and inter-rater reliability (ICC=0.80-0.89) and is appropriate for measuring the ROM of the shoulder [37].

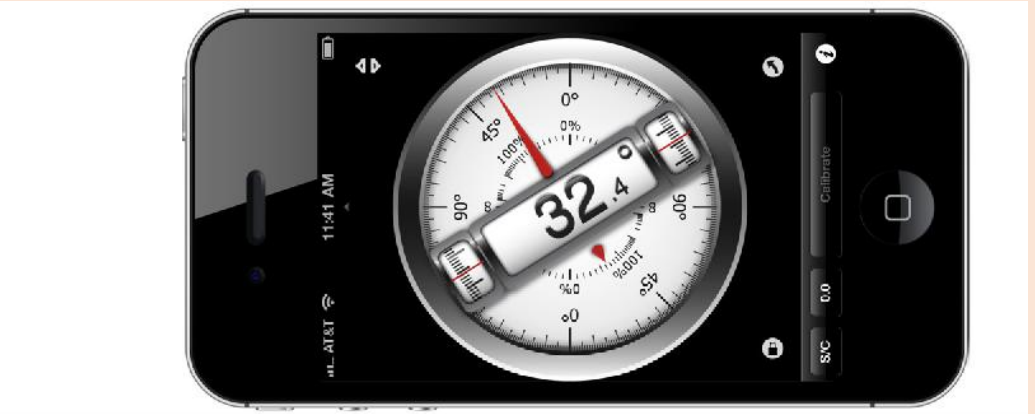
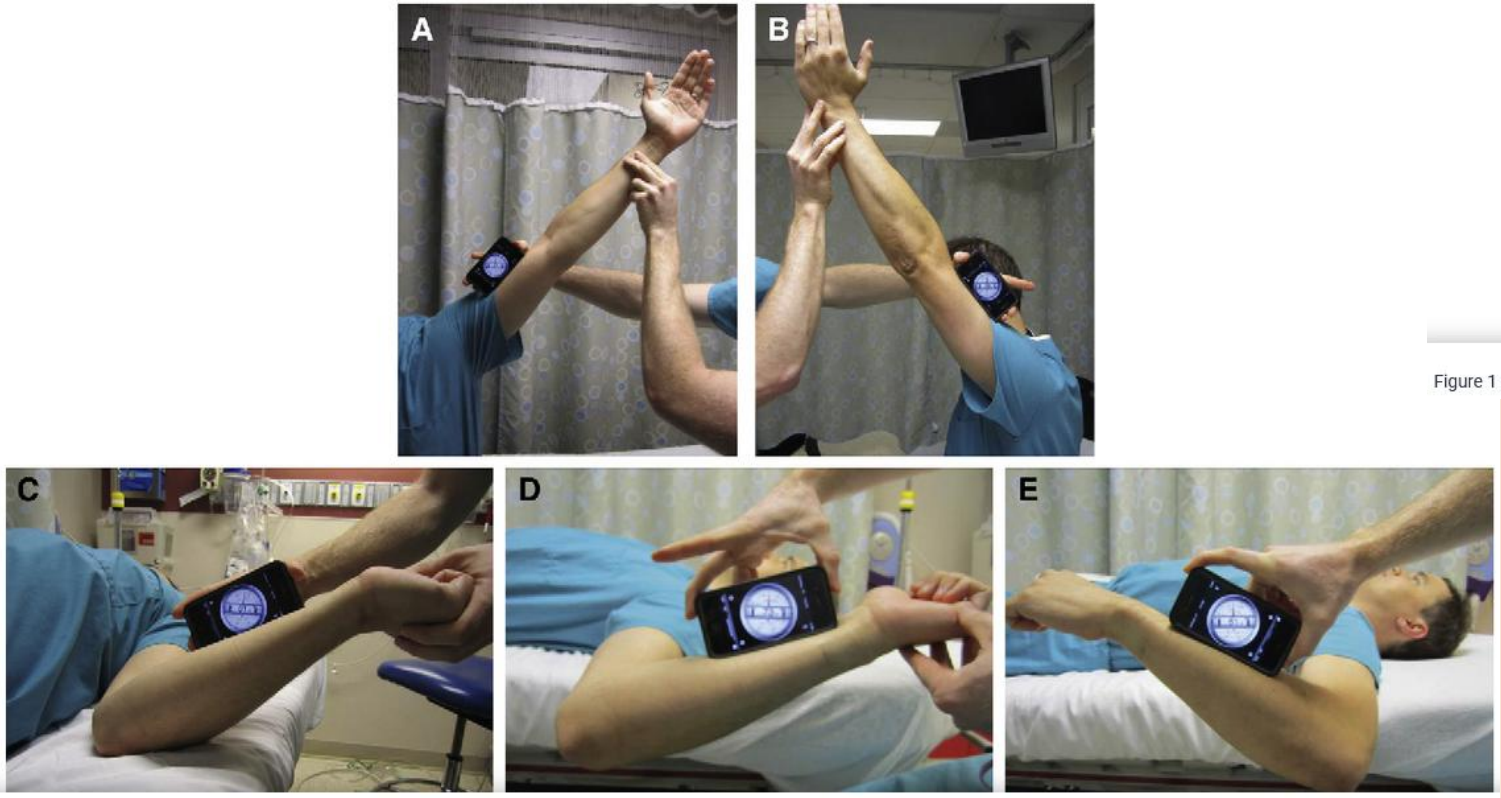
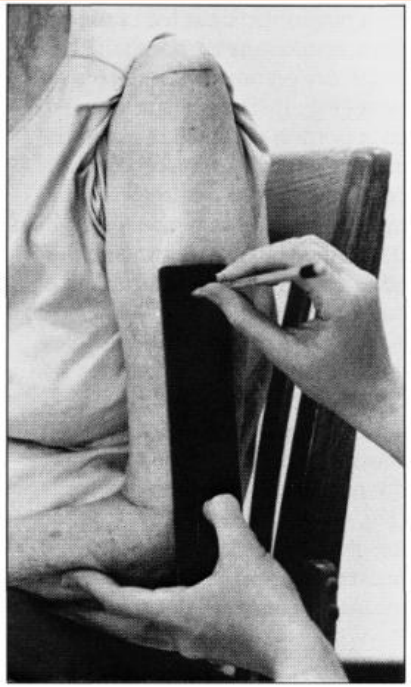


Figure 1 Smartphone clinometer application shown on an iPhone.



37. Werner BC, Holzgrefe RE, Griffin JW, et al. Validation of an innovative method of shoulder range-of-motion measurement using a smartphone clinometer application. J Shoulder Elbow Surg. 2014;23(11):e275-e82

Evaluation clinique – le JIG



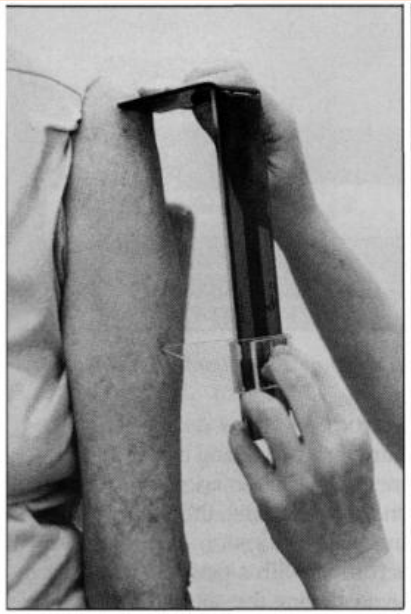


Fig. 3. *Short leg of jig placed on acromion; beak moved to dot on arm.*

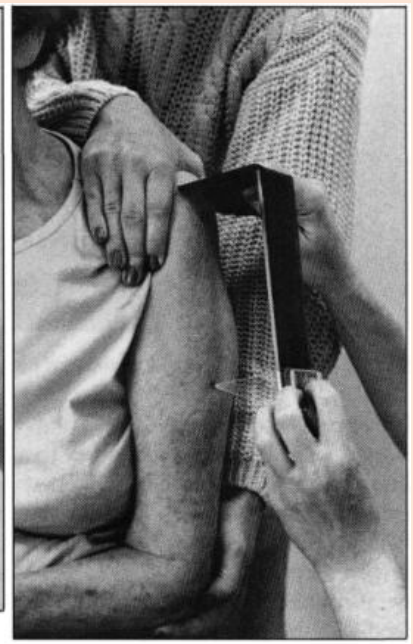


Fig. 4. *Subluxation manually reduced; measurement in Figure 3 is repeated.*

Fig. 2. *Acromion identified with an ink mark; jig used to locate a mark 20 cm above olecranon.*

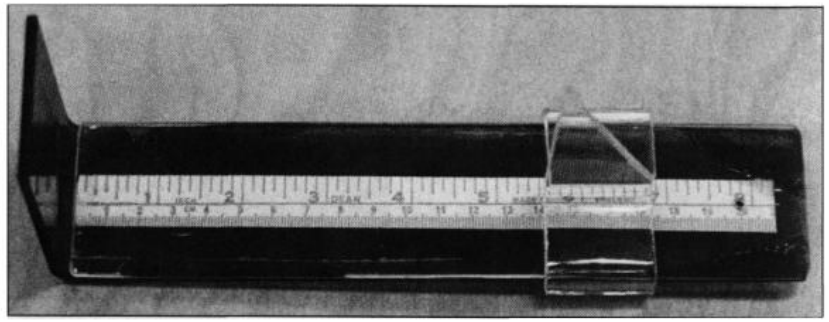


Fig. 1. *Thermoplastic jig developed by Ritt et al[7] to measure shoulder subluxation.*

The jig* is an L-shaped device constructed of thermoplastic material with a 21-cm tape measure, visible from only one side, embedded in it. A sliding beak-like marker, which can be anchored with a thumbscrew, is used to identify landmarks and to compute measurements (Fig. 1).

Reliability of a New Device Used to Measure Shoulder Subluxation

Karen W Hayes
Jane E Sullivan

Reliability of a New Device Used to Measure Shoulder Subluxation
Karen W Hayes and Jane E Sullivan
PHYS THER. 1989; 69:762-767.

Physical Therapy
Journal of the American Physical Therapy Association

Description initiale :

- Marquer les 2 repères :
  - Acromion
  - 20 cm au dessus de l'olécrâne
- Effectuer 2 mesures
  - Bras le long du corps
  - Réduction de la subluxation à l'aide d'un autre professionnel

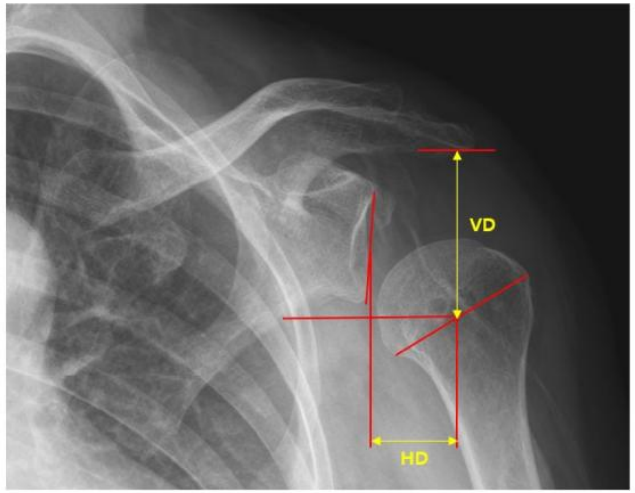


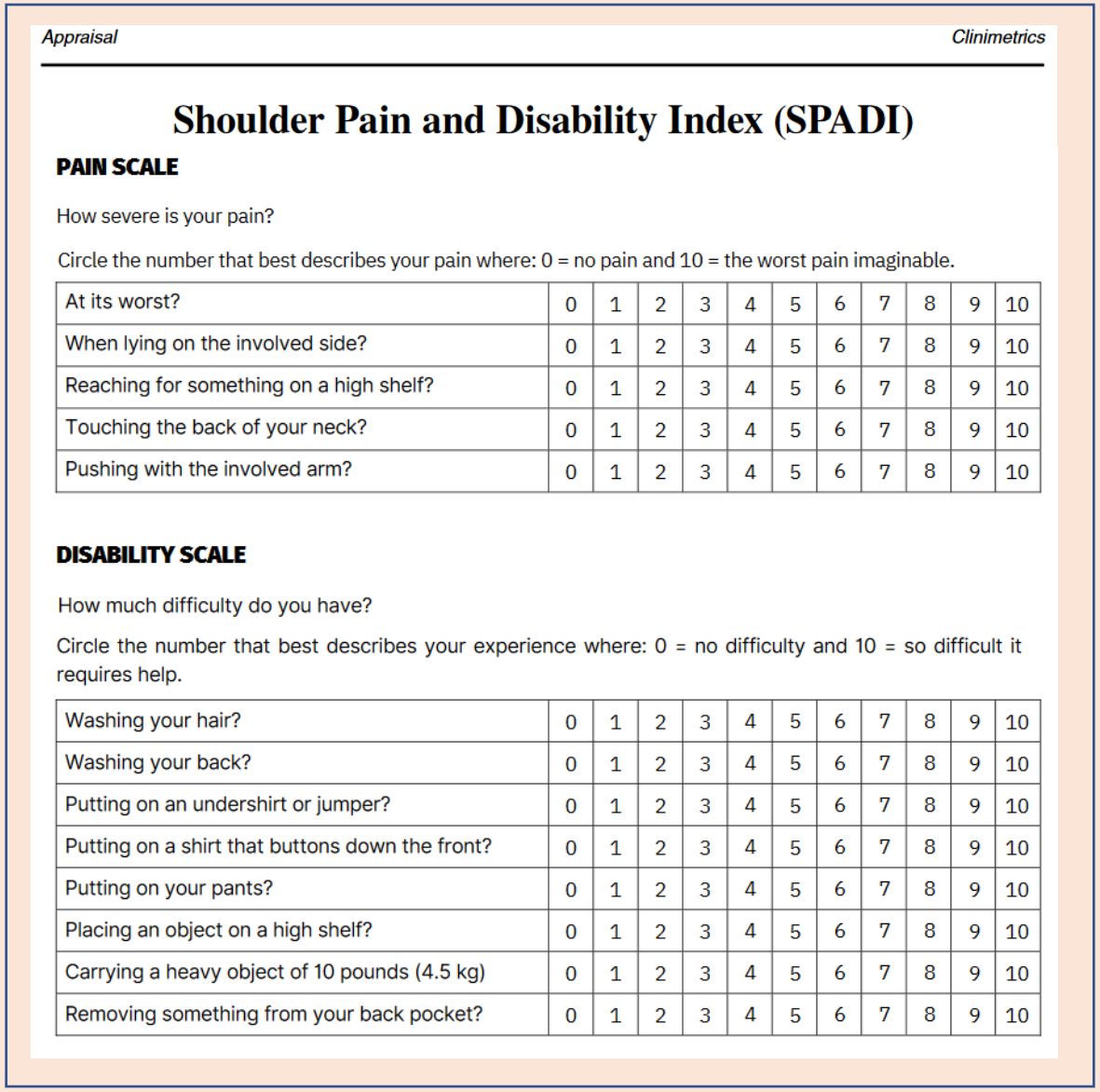
Figure 4. Measurement of horizontal distances (HD) and vertical distances (VD) in a true anteroposterior radiograph.

Evaluation clinique

Description initiale :
- Douleur d'épaule en soins primaires
- Population de patients en chirurgie (coiffe)
- Omarthrose
- Polyarthrite rhumatoïde
- Capsulite rétractile

Différence minimale cliniquement significative = 8 points (1)
(plus petit changement détectable important pour le patient)

Quand le SPADI est utilisé plus d'une fois chez le même patient (évaluation et réévaluation) le changement minimal détectable est de 18 points (2 et 3)



Appraisal *Clinimetrics*

Shoulder Pain and Disability Index (SPADI)

PAIN SCALE

How severe is your pain?

Circle the number that best describes your pain where: 0 = no pain and 10 = the worst pain imaginable.

At its worst?	0	1	2	3	4	5	6	7	8	9	10
When lying on the involved side?	0	1	2	3	4	5	6	7	8	9	10
Reaching for something on a high shelf?	0	1	2	3	4	5	6	7	8	9	10
Touching the back of your neck?	0	1	2	3	4	5	6	7	8	9	10
Pushing with the involved arm?	0	1	2	3	4	5	6	7	8	9	10

DISABILITY SCALE

How much difficulty do you have?

Circle the number that best describes your experience where: 0 = no difficulty and 10 = so difficult it requires help.

Washing your hair?	0	1	2	3	4	5	6	7	8	9	10
Washing your back?	0	1	2	3	4	5	6	7	8	9	10
Putting on an undershirt or jumper?	0	1	2	3	4	5	6	7	8	9	10
Putting on a shirt that buttons down the front?	0	1	2	3	4	5	6	7	8	9	10
Putting on your pants?	0	1	2	3	4	5	6	7	8	9	10
Placing an object on a high shelf?	0	1	2	3	4	5	6	7	8	9	10
Carrying a heavy object of 10 pounds (4.5 kg)	0	1	2	3	4	5	6	7	8	9	10
Removing something from your back pocket?	0	1	2	3	4	5	6	7	8	9	10

(1) Paul A et al (2004): Ann Rheum Dis 63: 1293–1299
(2) Angst F et al (2007): Rheumatology 46: 87–92
(3) Schmitt JS et al (2004): J Clin Epidemiol 57: 1008–1018

Evaluation échographique

Available online at www.sciencedirect.com

ScienceDirect

Journal of the Chinese Medical Association 81 (2018) 657–661

www.jcma-online.com

Original Article

Sonographic findings of painful hemiplegic shoulder after stroke

Pei-Hsin Lin*

Rehabilitation and Technical Aid Center, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Received July 24, 2017; accepted July 27, 2017

Table 1
Characteristics of the study population.

	Number	Percentage
Age		
Mean ± SD	66.52 ± 14.67	
Range	38.5–90.96	
Gender		
Female	8	30.77%
Male	18	69.23%
Type of stroke		
Ischemic	20	76.92%
Hemorrhagic	6	23.08%
Hemiplegic side		
Right	10	38.46%
Left	16	61.54%
Duration of stroke (day)		
Mean ± SD	78.15 ± 48.21	
Range	3–179	

Table 2
Sonographic and clinical findings of the study population.

Variables	Number	Percentage
Sonographic finding		
Biceps tendon lesion	18	69.23%
Supraspinatus tendon lesion	7	26.92%
SA-SD Bursitis	19	73.08%
Partial-thickness rotator cuff tear	6	23.08%
Full-thickness rotator cuff tear	3	11.54%
Cognition		
Intact	14	53.85%
Impaired	12	46.15%
Sensory function		
Intact	13	50%
Impaired	13	50%
Modified Ashworth Scale		
0	8	30.77%
1	12	46.15%
2	6	23.08%
Brunnstrom stage		
2	6	23.08%
3	9	34.62%
4	7	26.92%
5	4	15.38%

Conclusions :

- Pas de corrélation entre les lésions échographiques et la récupération motrice
- Pas de corrélation entre les lésions échographiques et la spasticité
- Mécanisme de la douleurs dans l'épaule de l'hémiplégique ?

Traitements médicamenteux et non médicamenteux

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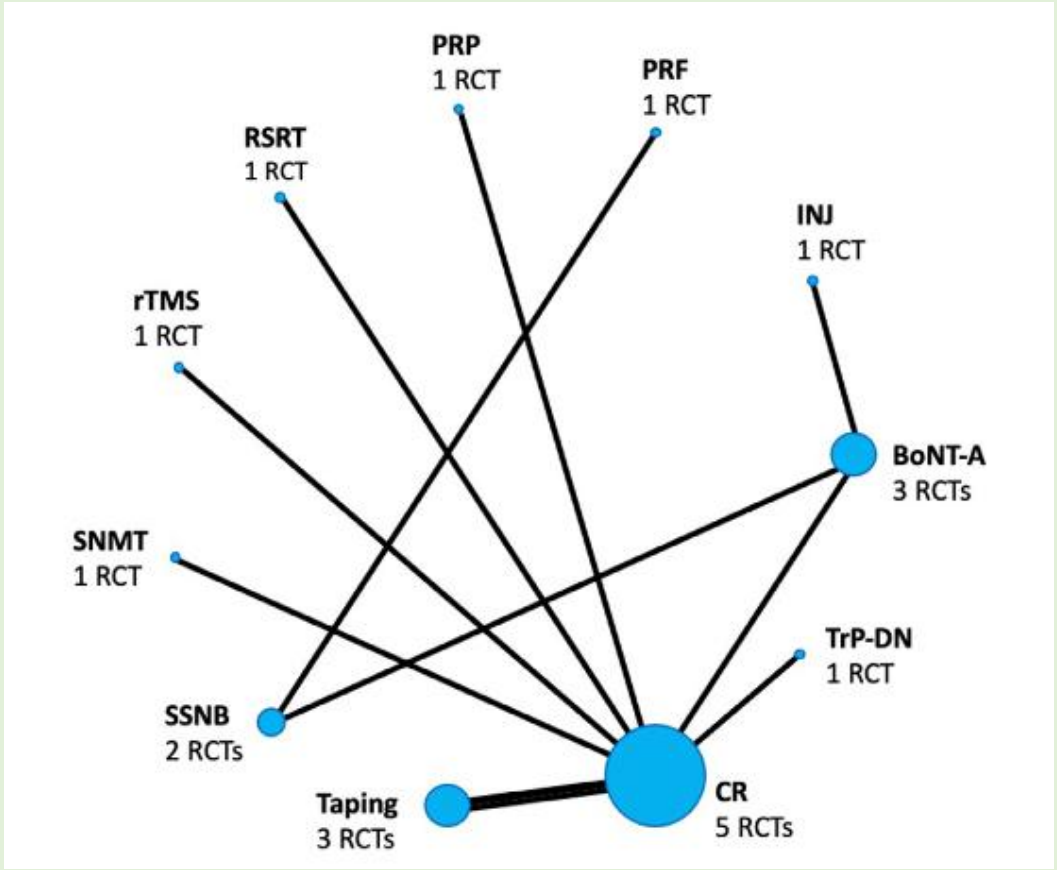
Meta-analyses

Efficacy of rehabilitative techniques in reducing hemiplegic shoulder pain in stroke: Systematic review and meta-analysis

Alessandro de Sire[a,1,*], Lucrezia Moggio[a,1], Andrea Demeco[a], Francesco Fortunato[b], Riccardo Spanò[a], Vincenzo Aiello[c], Nicola Marotta[a], Antonio Ammendolia[a]

[a] Physical and Rehabilitative Medicine, Department of Medical and Surgical Sciences, University of Catanzaro "Magna Graecia", 88100 Catanzaro, Italy
[b] Neurology Institute, Department of Medical and Surgical Sciences, University of Catanzaro "Magna Graecia", 88100 Catanzaro, Italy
[c] Rheumatology Unit, Department of Clinical Medicine and Surgery, University Federico II, Naples, Italy



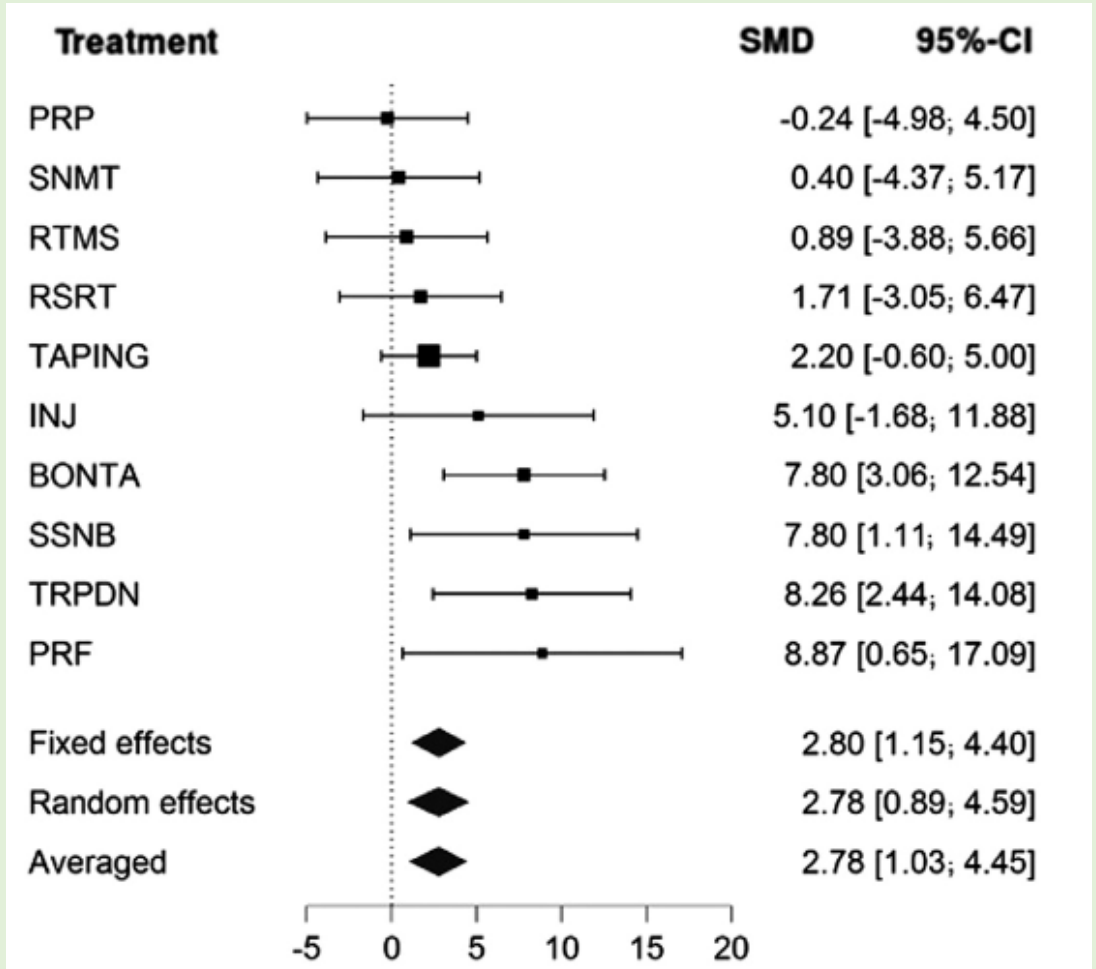


Fig. 3. Pairwise forest plot illustrating the direct and indirect comparisons between interventions versus conventional rehabilitation using a network meta-analysis approach. BONTA, botulinum toxin type A; CI, confidence interval; INJ, corticosteroid injection; PRF, pulsed radiofrequency; PRP, platelet-rich plasma; RSRT, robotic shoulder rehabilitation treatment; rTMS, repetitive transcranial magnetic stimulation; SMD, standard mean difference; SNMT, segmental neuromyotherapy; SSNB, suprascapular nerve block; TRPDN, trigger points dry needling.

Traitements non médicamenteux

Article

Elastic Dynamic Sling on Subluxation of Hemiplegic Shoulder in Patients with Subacute Stroke: A Multicenter Randomized Controlled Trial

Min Gyun Kim [1,2], Seung Ah Lee [1], Eo Jin Park [1], Min Kyu Choi [1], Ji Min Kim [1], Min Kyun Sohn [3], Sung Ju Jee [3], Yeong Wook Kim [4], Jung Eun Son [1], Seo Jun Lee [1], Keum Sun Hwang [1] and Seung Don Yoo [1,5,*]

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2.4. Intervention

The experimental group received elastic dynamic shoulder sling (Figure 1) and the control group received Bobath sling (Figure 2) to support affected upper extremity.

Figure 1. Elastic dynamic shoulder sling.

Figure 2. Bobath sling.

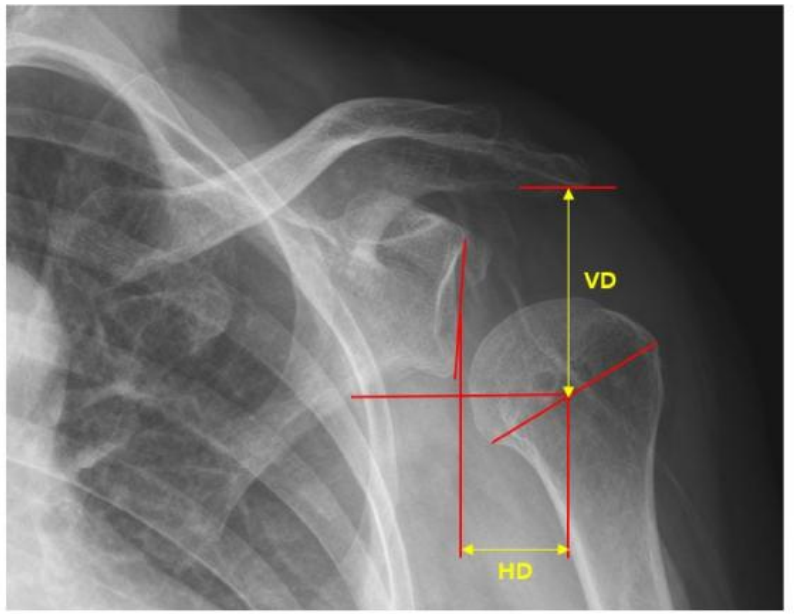
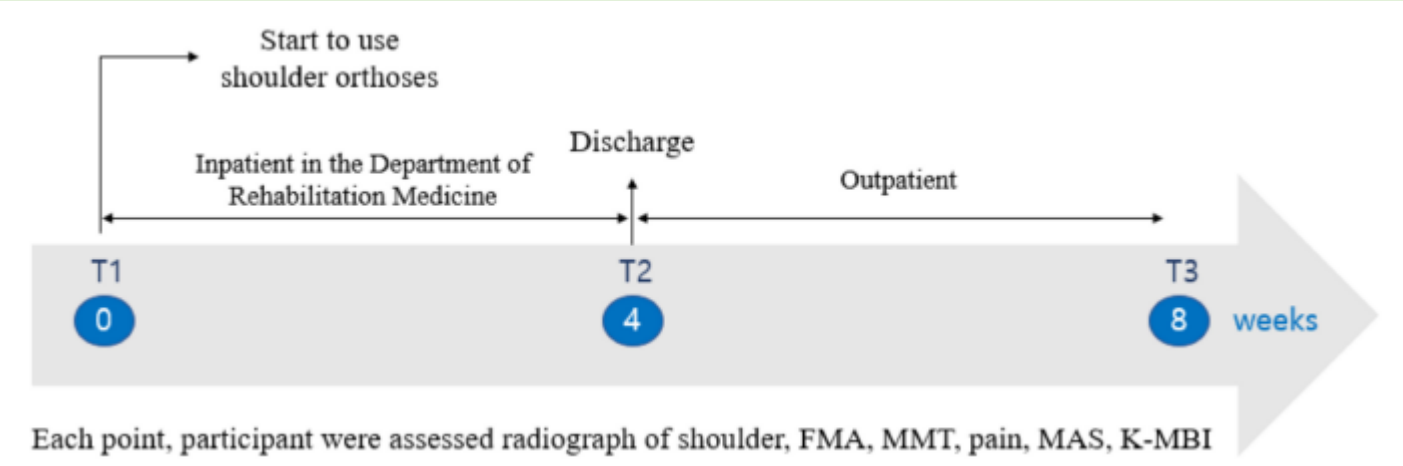


Figure 4. Measurement of horizontal distances (HD) and vertical distances (VD) in a true anteroposterior radiograph.



Article

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Table 4. Comparison of vertical and horizontal distances within the groups at four and eight weeks.

Measure	Baseline Mean ± SD	4 Weeks Mean ± SD	8 Weeks Mean ± SD	*p*1-Value	*p*2-Value
Elastic Dynamic Sling Group					
Vertical Distance	42.99 ± 8.41	43.66 ± 8.26	45.60 ± 9.05	0.7355 [a]	0.193 [a]
Horizontal Distance	28.02 ± 2.66	27.13 ± 2.21	27.22 ± 2.40	0.584 [a]	0.3309 [a]
Bobath Group					
Vertical Distance	41.44 ± 9.06	44.57 ± 7.16	42.87 ± 9.16	0.1666 [a]	0.4203 [a]
Horizontal Distance	27.44 ± 2.16	28.14 ± 2.52	29.73 ± 4.08	**0.0273** [a]	**0.0023** [a]

Analysis was based on intention to treat. Values are presented as the average ± standard deviation. [a] Linear mixed model for within-group comparison; *p*1, comparison between baseline and four weeks; *p*2, comparison between baseline and 8 weeks.

Table 5. Comparison of VAS, FMA-UE, MBI, MAS, and MMT within the groups at four and eight weeks.

Measure	Baseline Mean ± SD	4 Weeks Mean ± SD	8 Weeks Mean ± SD	*p*1-Value	*p*2-Value
Elastic Dynamic Sling Group					
FMA-UE	7.52 ± 5.62	12.24 ± 7.45	15.25 ± 8.81	**0.0001** [a]	**<0.0001** [a]
FMA-Wrist	1.05 ± 1.94	2.05 ± 3.26	2.26 ± 4.06	0.0691 [a]	**0.0045** [a]
FMA-Hand	1.14 ± 3.09	1.81 ± 2.89	2.85 ± 4.32	0.1081 [a]	**0.0003** [a]
FMA-Co	0.14 ± 0.65	0.33 ± 1.06	1.45 ± 2.39	0.6379 [a]	**0.0028** [a]
FMA-Total	10.05 ± 9.77	15.48 ± 13.28	22.15 ± 17.10	**0.0085** [a]	**<0.0001** [a]
MBI	35.00 ± 17.85	46.00 ± 17.98	58.80 ± 27.73	**0.0019** [a]	**<0.001** [a]
Pain (VAS)	1.52 ± 2.14	1.76 ± 2.47	1.86 ± 2.46	0.6332 [a]	0.5046 [a]
MAS	0.33 ± 0.58	0.67 ± 0.70	0.76 ± 0.87	**0.0444** [a]	**0.0109** [a]
MMT	1.55 ± 0.95	2.71 ± 1.88	3.19 ± 1.97	**<0.0001** [a]	**<0.0001** [a]
Bobath Group					
FMA-UE	6.70 ± 5.14	14.53 ± 8.52	16.65 ± 9.39	**0.0002** [a]	**<0.0001** [a]
FMA-Wrist	0.90 ± 2.10	2.26 ± 3.23	2.85 ± 3.38	**0.0071** [a]	**<0.0001** [a]
FMA-Hand	0.20 ± 0.62	2.58 ± 3.58	3.95 ± 4.87	**0.0109** [a]	**<0.0001** [a]
FMA-Co	0.30 ± 0.73	1.00 ± 1.73	1.00 ± 1.75	0.0522 [a]	**0.0420** [a]
FMA-Total	8.10 ± 7.08	20.11 ± 14.91	24.60 ± 17.16	**0.0005** [a]	**<0.0001** [a]
MBI	30.90 ± 20.50	44.70 ± 22.75	51.30 ± 27.18	**0.0004** [a]	**<0.001** [a]
Pain (VAS)	1.35 ± 2.64	1.20 ± 1.82	1.70 ± 2.60	0.7717 [a]	0.4994 [a]
MAS	0.25 ± 0.53	0.48 ± 0.55	0.65 ± 0.90	0.1840 [a]	**0.0211** [a]
MMT	1.35 ± 0.88	3.08 ± 1.66	3.35 ± 2.30	**<0.0001** [a]	**<0.0001** [a]

Analysis was based on intention to treat. Values were presented as the average ± standard deviation. [a] Linear mixed model for within-group comparison; *p*1, comparison between baseline and four weeks; *p*2, comparison between baseline and 8 weeks; FMA, Fugl-Meyer assessment scale; FMA-UE, upper extremity; FMA-Co, cooperation, MBI, modified Barthel index; MAS, modified Ashworth scale; VAS, visual analogue scale.

Conclusions :

- Efficacité de l'orthèse élastique
  - **Sur le diastasis horizontal de la subluxation**
  - **Sur l'incidence des tendinopathies du supra-épineux**
  - **Sur la douleur**
- Les deux orthèses sont efficaces :
  - **Sur le K-MBI (Korean Modified Barthel index)**
  - **Testing moteur manuel**
  - **Fonction (Fugl-Meyer)**

Groupe contrôle ?

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Effectiveness of Shoulder Taping in Treating Hemiplegic Shoulder Subluxation: A Randomized Controlled Study of 35 Patients

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Material/Methods: This randomized controlled study involved 35 participants. The patients were randomized into a shoulder kinesiology taping group (n=18) or sham taping group (n=17). All patients underwent a conventional rehabilitation exercise program 5 days a week for 6 weeks. Half of the patients underwent shoulder kinesiology taping, and the other half underwent sham taping. Pre- and post-assessment scores were recorded for all participants for shoulder subluxation distance (SSD), active range of motion (AROM), visual analog scale (VAS), shoulder pain and disability index (SPADI), and modified Barthel index (MBI).

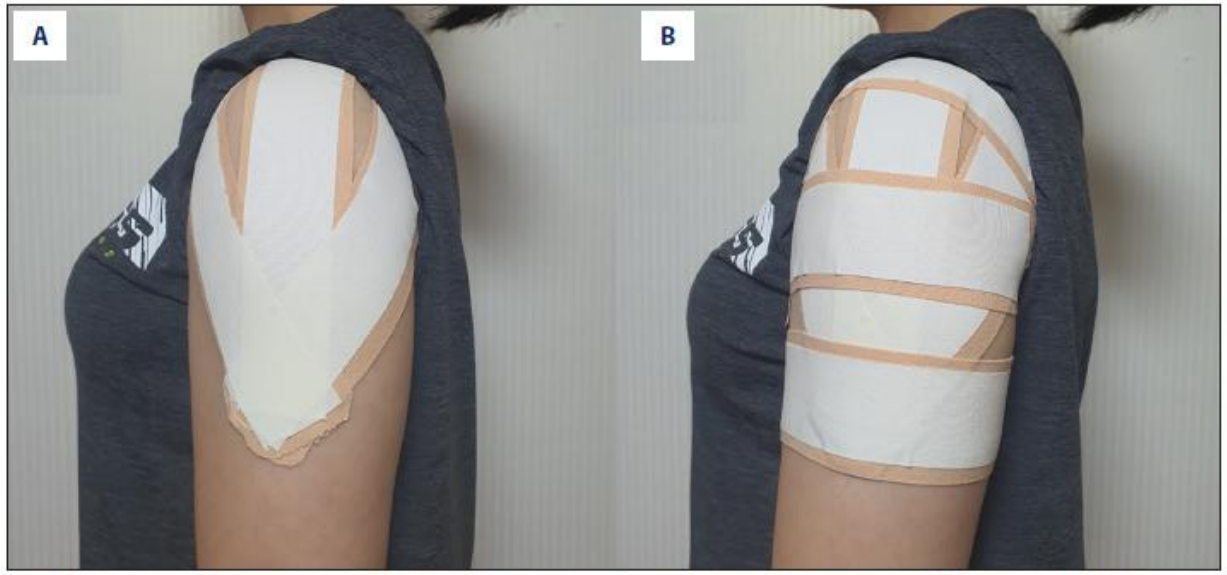

Figure 2. Sequence of shoulder kinesiology taping. (**A**) The first elastic tape was attached from the middle part of the deltoid tuberosity to the acromion process. The second elastic tape was attached from the posterior part of the deltoid insertion to the spine of the scapula. The third elastic tape was attached from the anterior part of the deltoid insertion to the humeral head and over the coracoid process. The non-elastic tape was attached with firm pressure. (**B**) Three tapes were attached to the deltoid tuberosity, the middle part of the deltoid, and the acromion process in the direction of internal rotation. The non-elastic tape was attached with firm pressure.

Figure 3. Sham taping. Three pieces of tape were attached to the deltoid without repositioning the joint. *Figure was created with Presentation (PowerPoint 2016, Microsoft).*

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Authors' Contribution:
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Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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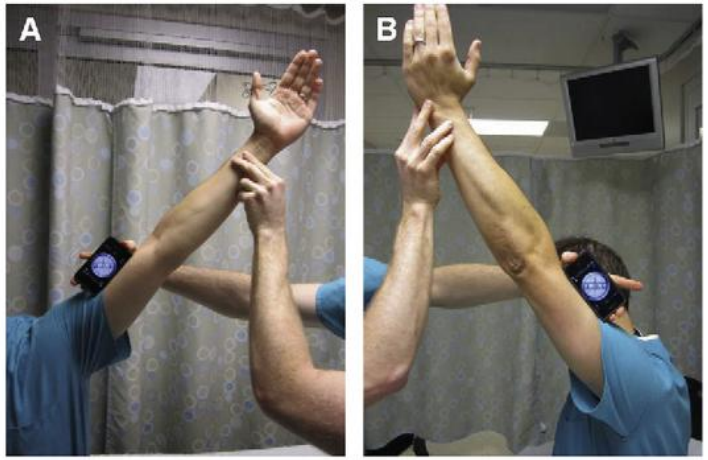

AROM of the Shoulder

AROM was assessed using smartphone clinometer application measurements for shoulder flexion and abduction. Shoulder flexion and abduction were measured with the patient in the standing position. This test tool has intra- and inter-rater reliability (ICC=0.80-0.89) and is appropriate for measuring the ROM of the shoulder [37].

Figure 1 Smartphone clinometer application shown on an iPhone.

37. Werner BC, Holzgrefe RE, Griffin JW, et al. Validation of an innovative method of shoulder range-of-motion measurement using a smartphone clinometer application. J Shoulder Elbow Surg. 2014;23(11):e275-e82

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1 Department of Physical Therapy, The Graduate School of Sahmyook University, Seoul, South Korea
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Comparaison des groupes :

Dans le groupe « kinésiologie taping » :

- réduction de la subluxation gléno-humérale (SSD)
- réduction de la douleur (VAS)
- augmentation de 10° de l'abduction

SPADI : différence significative ?

Table 2. Comparison of physical findings between and within the shoulder kinesiology taping and sham taping groups.

Variable		Shoulder kinesiology taping group (n=18) Mean (SD)	Sham taping group (n=17) Mean (SD)	t	*P*	95% CI
SSD	Pre	11.05 (0.88)	10.76 (0.95)	0.921	0.364	
	Post	6.07 (0.99)	9.67 (1.25)	-9.480	0.000*	-4.38 to -2.83
	t (P)	24.952 (0.000*)	7.230 (0.000*)			
	Difference	4.98 (0.85)	1.09 (0.62)	15.386	0.000*	3.37 to 4.40
AROM of the shoulder						
Flexion	Pre	126.48 (10.02)	127.78 (11.63)	-0.355	0.725	
	Post	138.91 (11.88)	131.62 (11.90)	1.812	0.079	-0.89 to 15.47
	t (P)	-12.550 (0.000*)	-9.753 (0.000*)			
	Difference	-12.43 (4.20)	-3.85 (1.63)	-7.879	0.000*	-10.80 to -6.37
Abduction	Pre	103.33 (14.36)	100.42 (12.90)	0.631	0.533	
	Post	112.62 (14.94)	103.19 (12.64)	2.009	0.053	-0.12 to 18.97
	t (P)	-14.830 (0.000*)	-10.475 (0.000*)			
	Difference	-9.29 (2.66)	-2.78 (1.09)	-9.377	0.000*	-7.93 to -5.10
VAS	Pre	5.01 (0.81)	5.09 (0.98)	-0.255	0.800	
	Post	3.48 (0.97)	4.66 (0.98)	-3.584	0.001*	-1.85 to -0.51
	t (P)	11.854 (0.000*)	5.345 (0.000*)			
	Difference	1.53 (0.55)	0.43 (0.33)	7.151	0.000*	0.79 to 1.42
SPADI	Pre	80.39 (5.94)	78.95 (6.44)	0.687	0.497	
	Post	68.84 (7.90)	76.87 (6.49)	-3.274	0.002*	-13.02 to -3.04
	t (P)	16.007 (0.000*)	7.688 (0.000*)			
	Difference	11.55 (3.06)	2.08 (1.12)	12.014	0.000*	7.87 to 11.07
MBI	Pre	66.78 (3.25)	67.29 (3.75)	-0.436	0.666	
	Post	72.11 (3.56)	69.06 (3.07)	2.707	0.011*	0.76 to 5.35
	t (P)	-10.564 (0.000*)	-3.853 (0.000*)			
	Difference	-5.33 (2.14)	-1.76 (1.89)	-5.216	0.000*	-4.96 to -2.18

SD – standard deviation; CI – confidence interval; SSD – shoulder subluxation distance; AROM – active range of motion; VAS – visual analog scale; SPADI – shoulder pain and disability index; MBI – modified Barthel index. * p<0.05.

Article

CLINICAL REHABILITATION

Functional orthosis in shoulder joint subluxation after ischaemic brain stroke to avoid post-hemiplegic shoulder–hand syndrome: a randomized clinical trial

Clinical Rehabilitation
26(9) 807–816

DOI: 10.1177/0269215511432355
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SAGE

Maik Hartwig[1], Götz Gelbrich[2] and Bernd Griewing[1]

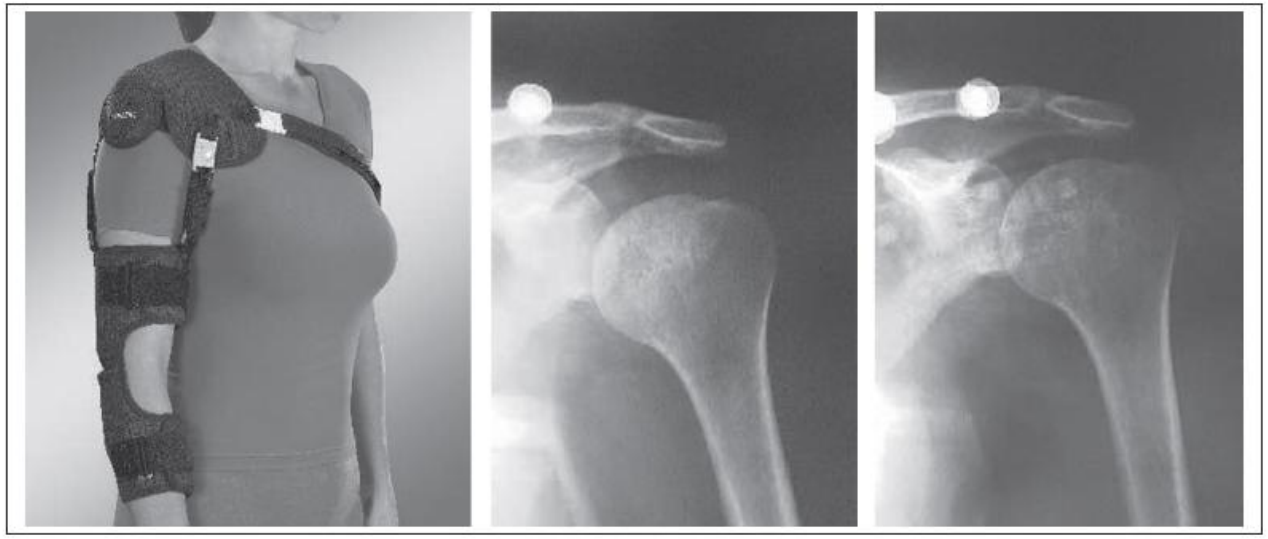


Figure 1. The Neuro-Lux shoulder joint functional orthosis in situ (left). The glenohumeral joint of a patient without (middle) and with orthosis (right). Reproduced with kind permission from Sporlastic.

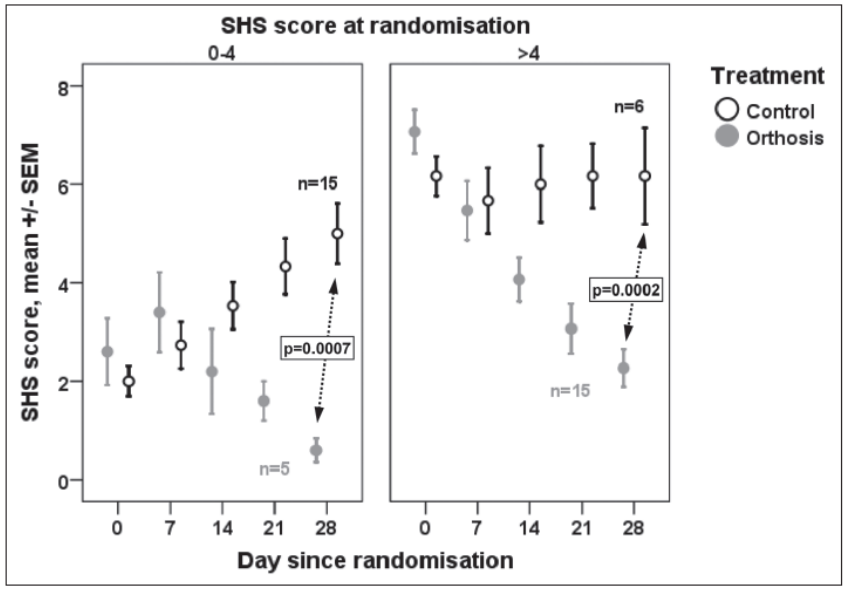


Figure 3. Changes of the shoulder–hand syndrome score from baseline to follow-up depending on baseline shoulder–hand syndrome score and treatment. Patients treated with the orthosis reached low scores after four weeks regardless of the initial levels, while controls starting with low scores continuously worsened and those with high baseline scores remained unchanged.

Clinical messages

- The functional orthosis Neuro-Lux proved to be efficacious for the prevention and treatment of the clinical symptoms of the shoulder–hand syndrome.
- Its application is well tolerated by the patients.

Traitements médicamenteux et infiltratifs

L’articulation gléno-humérale et l’incisure spinoglénoïdienne

L’articulation gléno-humérale peut être infiltrée par voie postérieure. Cette coupe échographique permet également de visualiser le nerf supra-scapulaire dans l’incisure spino-glénoïdienne.

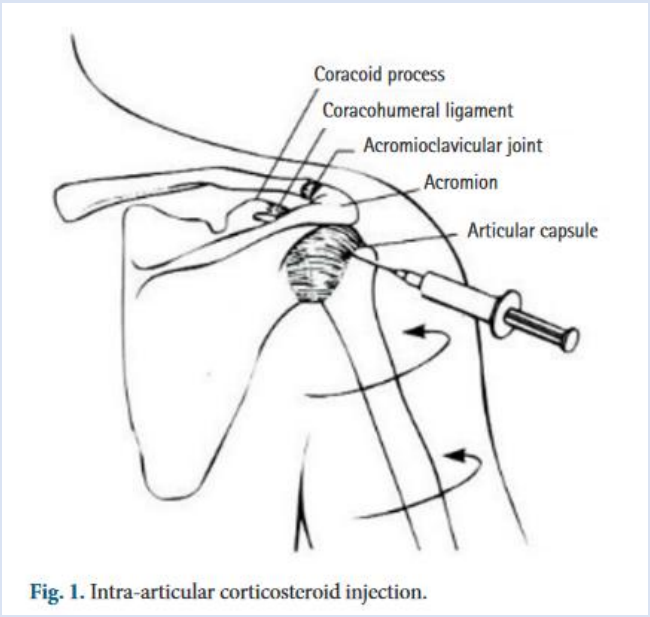
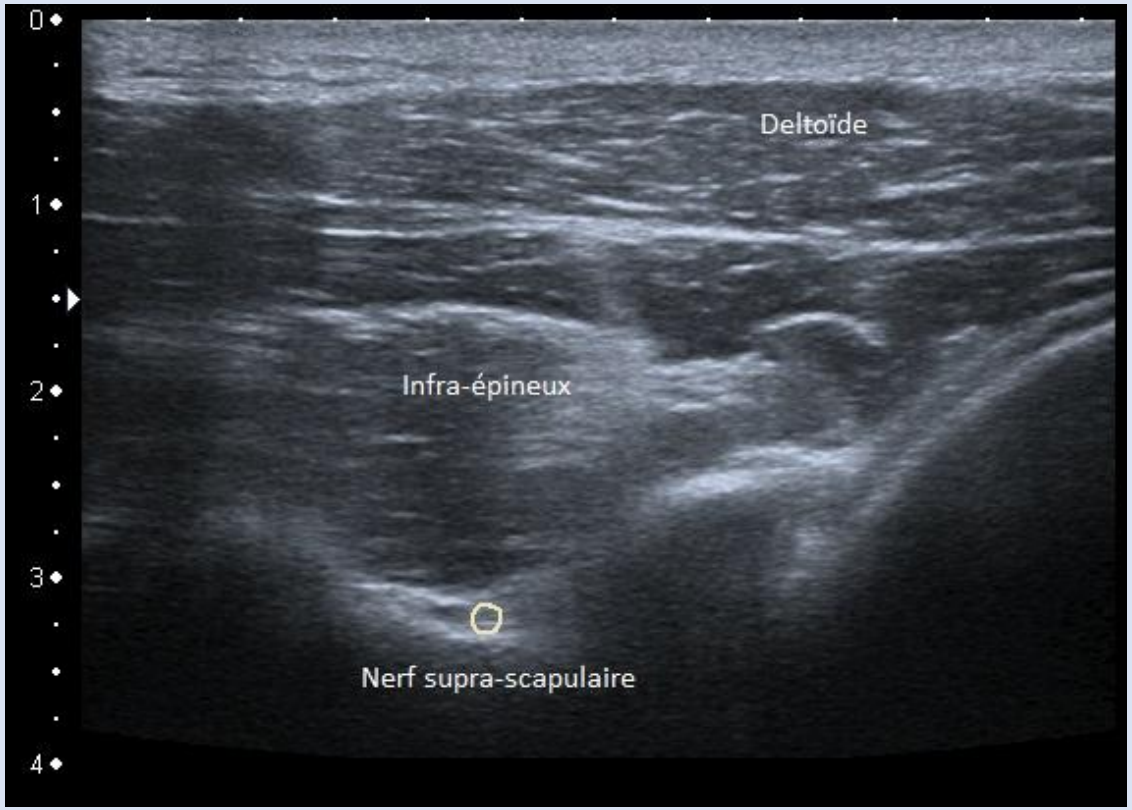
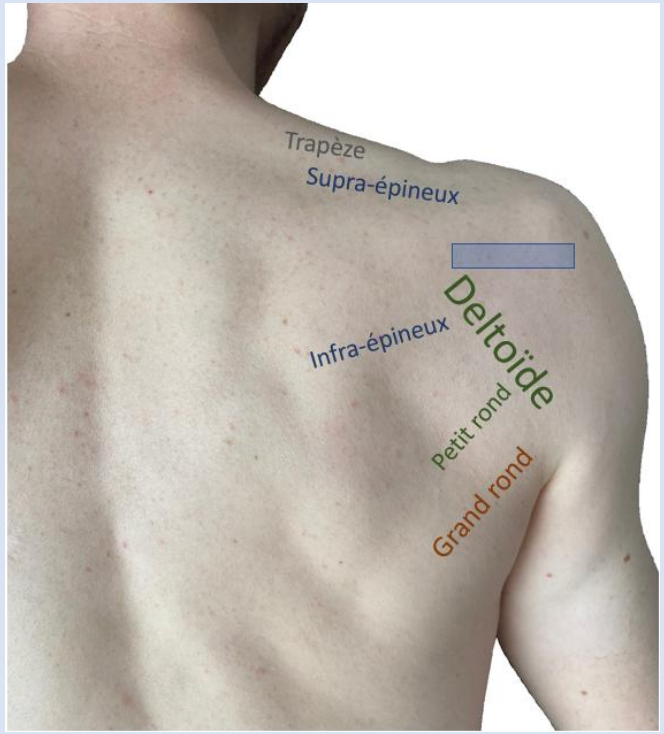


Fig. 1. Intra-articular corticosteroid injection.





Original Article

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Role of suprascapular nerve block in idiopathic frozen shoulder treatment: a clinical trial survey

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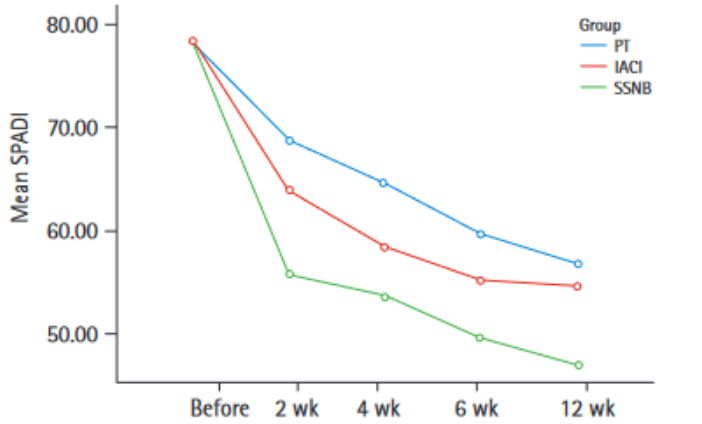

Fig. 5. Distribution of different degrees of shoulder pain and disability index (SPADI) in patients of the three groups divided by the time measurement. PT: physiotherapy, IACI: intra-articular corticosteroid injections, SSNB: suprascapular nerve block.

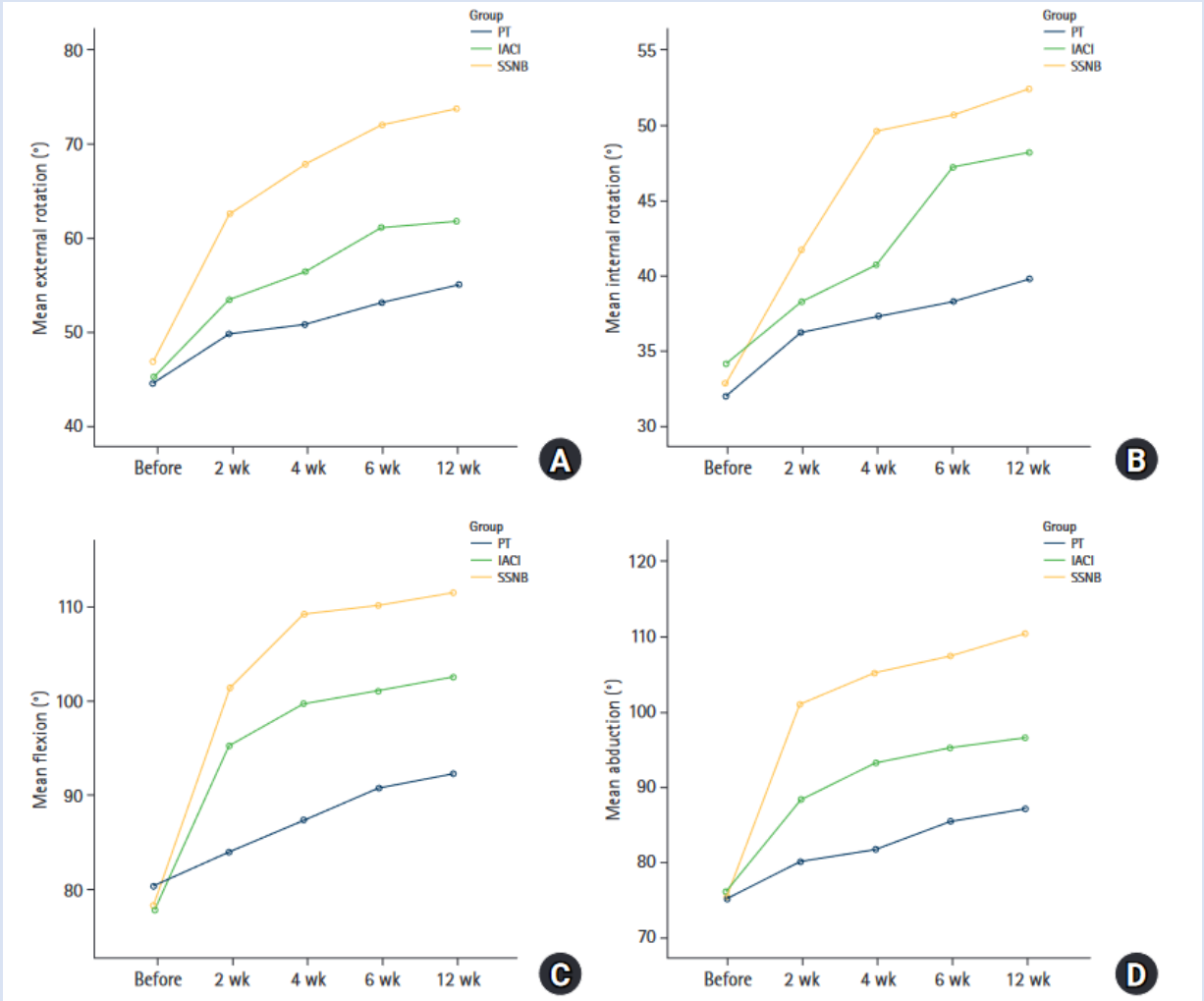

Fig. 4. Distribution of different degrees of range of motion (ROM) in patients in the three study groups divided by measurement times. (A) External rotation. (B) Internal rotation. (C) Flexion. (D) Abduction. PT: physiotherapy, IACI: intra-articular corticosteroid injections, SSNB: suprascapular nerve block.

Méta-analyse

frontiers in Neurology

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Effectiveness of Suprascapular Nerve Block in the Treatment of Hemiplegic Shoulder Pain: A Systematic Review and Meta-Analysis

*Yajing Hou[1,2], Yong Wang[2], Xiaojing Sun[3], Yake Lou[4], Ying Yu[5] and Tong Zhang[1]**

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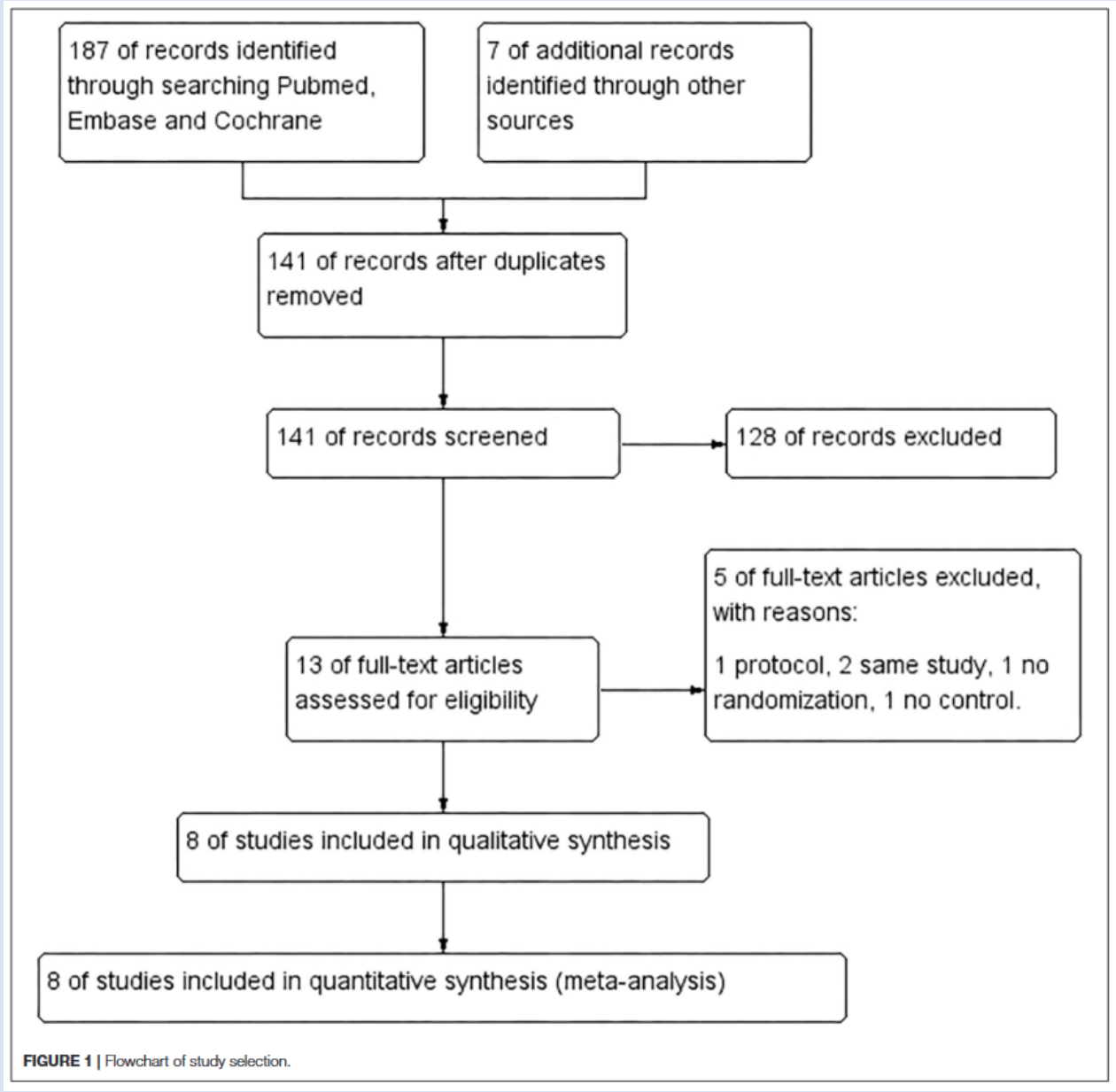

FIGURE 1 | Flowchart of study selection.

Efficacité du bloc en terme de douleur

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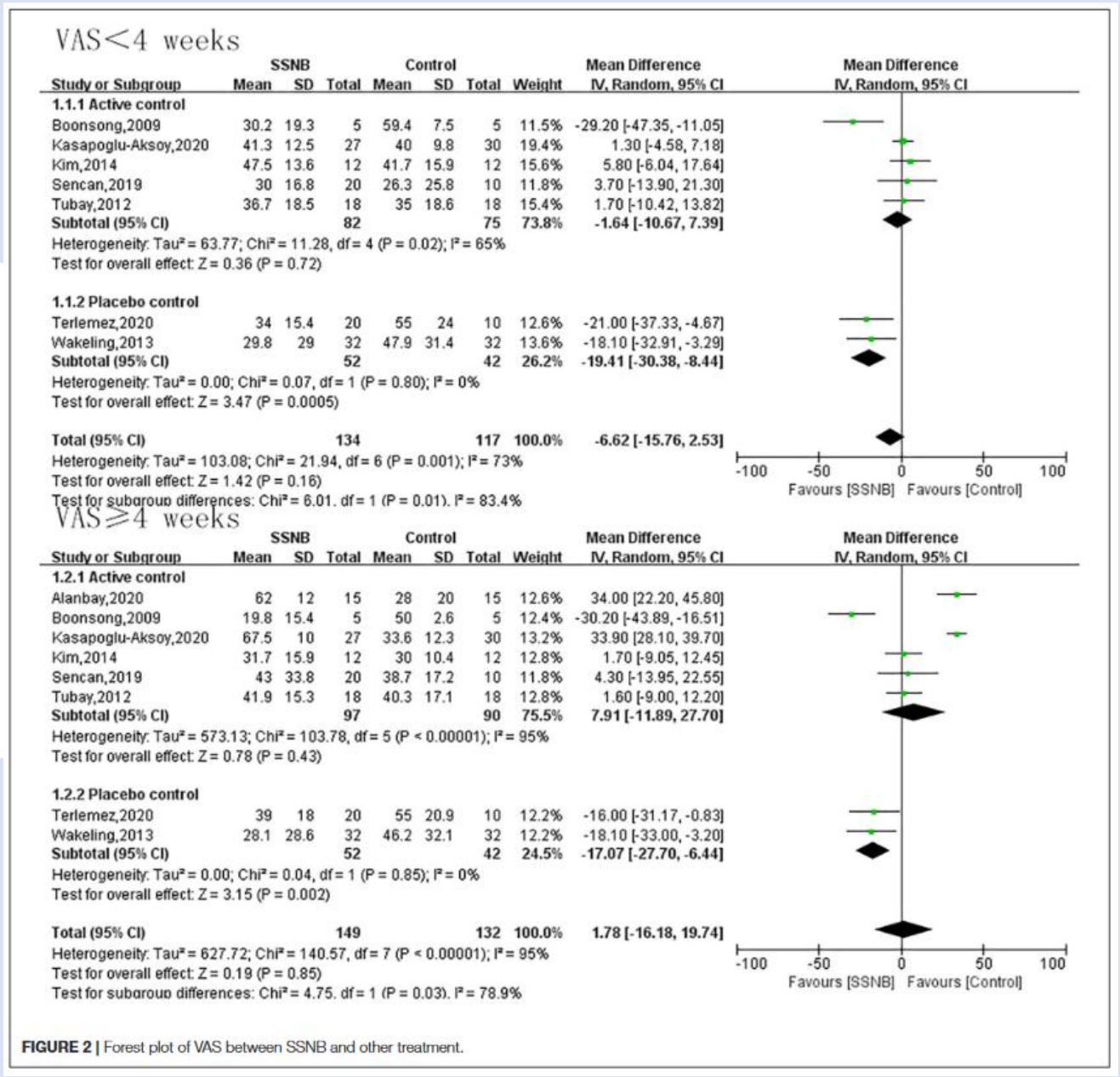

FIGURE 2 | Forest plot of VAS between SSNB and other treatment.

Efficacité du bloc en terme de mobilités

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Effectiveness of Suprascapular Nerve Block in the Treatment of Hemiplegic Shoulder Pain: A Systematic Review and Meta-Analysis

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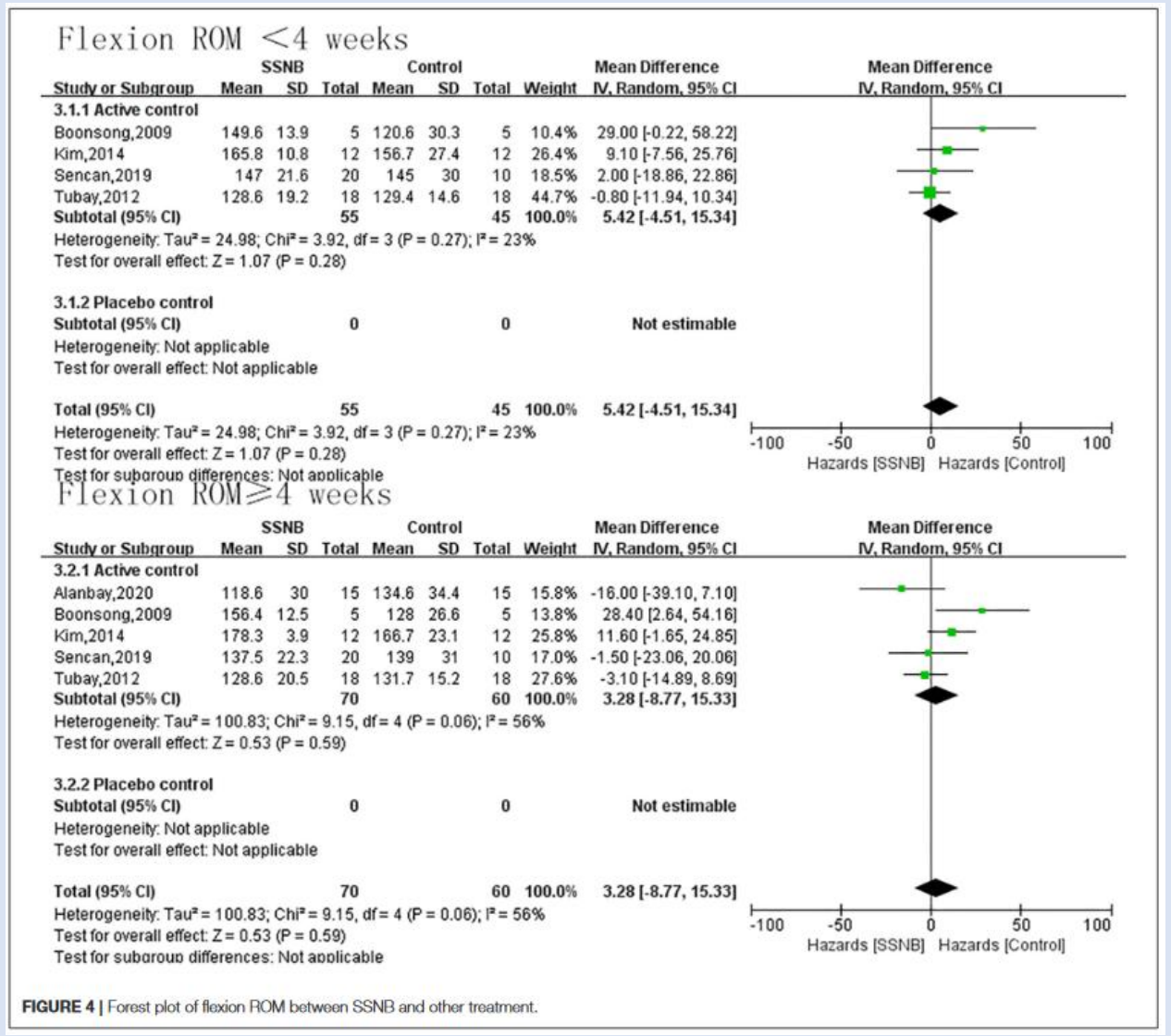

FIGURE 4 | Forest plot of flexion ROM between SSNB and other treatment.

Le bloc du nerf supra-scapulaire

Original Article

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Role of suprascapular nerve block in idiopathic frozen shoulder treatment: a clinical trial survey

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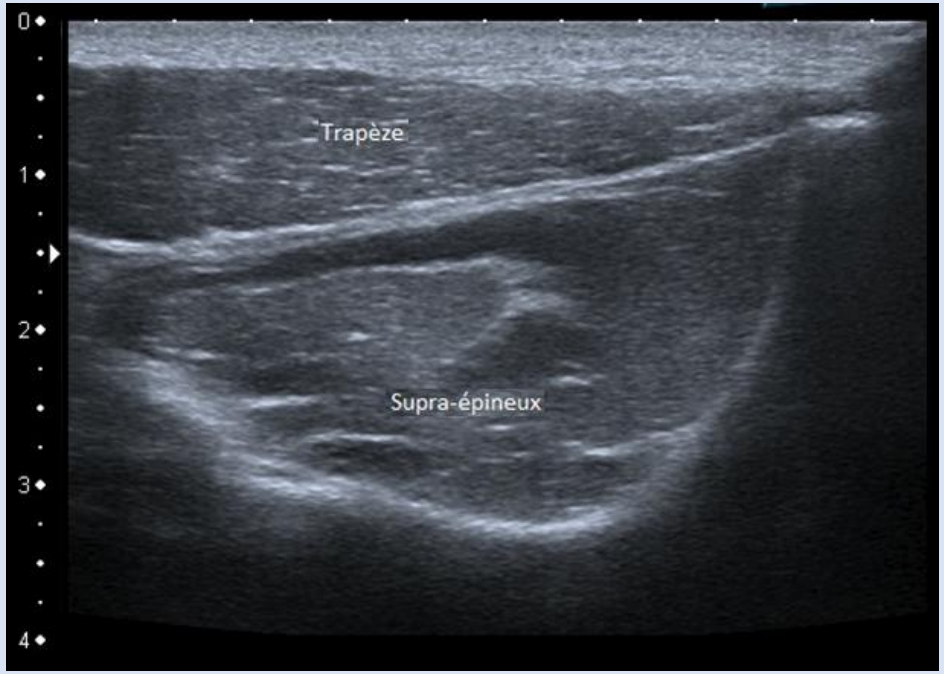

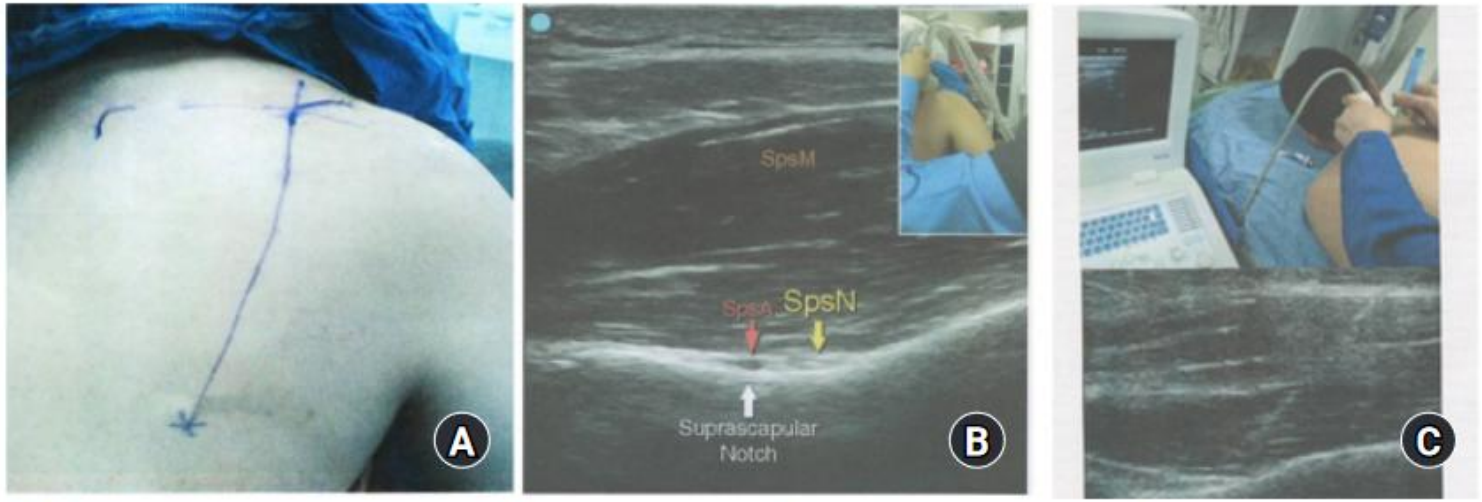

Fig. 2. Suprascapular nerve block method. (A) Injection site. (B) Identify the suprascapular nerve with an ultrasound probe. (C) Perform the injection under an ultrasound guide. SpsM: supraspinatus muscle, SpsA: suprascapular artery, SpsN: suprascapular nerve.

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CLINICAL TRIALS

Ultrasound-Guided BoNT-A (Botulinum Toxin A) Injection Into the Subscapularis for Hemiplegic Shoulder Pain: A Randomized, Double-Blind, Placebo-Controlled Trial

Botao Tan, MD, PhD, and Lang Jia, MD, PhD

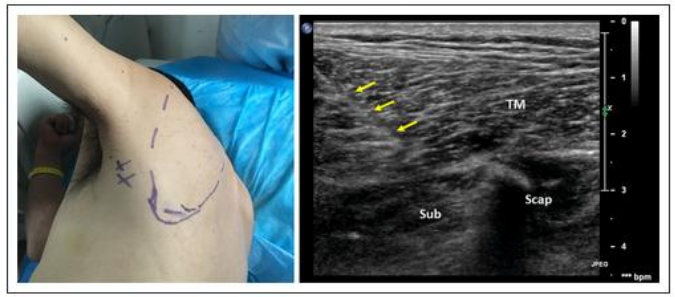


Figure 2. The shoulder was placed in an external rotation/abduction position to give the ultrasound (US) probe access to the posterior axillary fold. The needle (arrows) was inserted into the subscapularis (Sub) using a lateral approach under US guidance. Scap indicates scapula; and TM, teres major.

Table 4. VAS Scores, MAS Scores, and ROM Measures at the 12- and 24-Week Follow-Ups

Table 4. VAS Scores, MAS Scores, and ROM Measures at the 12- and 24-Week Follow-Ups

	BoNT-A				Control					
	Baseline	12 wk	24 wk	*P* value*	Baseline	12 wk	24 wk	*P* value	*P* value†	*P* value‡
VAS	7.11±0.96	3.33±1.41	4.22±1.70	0.000	7.33±1.14	4.67±1.28	5.17±1.34	0.000	0.006	0.073
MAS: external rotation	3.33±0.49	2.00±0.69	2.39±0.50	0.000	3.44±0.51	2.33±0.49	2.72±0.57	0.000	0.101	0.072
MAS: abduction	3.28±0.46	2.11±0.32	2.44±0.62	0.000	3.39±0.50	2.28±0.57	2.56±0.98	0.000	0.291	0.687
ROM: external rotation	18.50±8.62	42.61±7.88	39.50±11.63	0.000	17.39±8.75	31.22±7.96	33.93±10.44	0.000	0.000	0.106
ROM: abduction	55.06±16.53	79.22±15.95	76.50±23.24	0.000	52.44±18.80	71.11±22.00	70.83±26.30	0.023	0.214	0.754

BoNT-A indicates botulinum toxin A; MAS, modified Ashworth scale; ROM, range of motion; and VAS, visual analogue scale.
* *P* value: repeated measures ANCOVA was used to compare the VAS scores, MAS scores, and ROM at baseline and at the 12- and 24-wk follow-ups in each group.
† *P* value.
‡ *P* value: independent *t* tests were used to compare the VAS scores, MAS scores, and ROM at the 12- and 24-wk follow-ups between groups.

PAPER

Treatment of shoulder pain in spastic hemiplegia by reducing spasticity of the subscapular muscle: a randomised, double blind, placebo controlled study of botulinum toxin A

Alain P Yelnik, Florence M Colle, Isabelle V Bonan, Eric Vicaut

See Editorial Commentary, p 789

J Neurol Neurosurg Psychiatry 2007;**78**:845–848. doi: 10.1136/jnnp.2006.103341

Table 1 Demographic characteristics and disease history

	Placebo (n = 10)	Dysport (n = 10)
Age (y)*	55.2 (8.3)	53.0 (4.6)
Sex (n (%))		
Female†	2 (20%)	3 (30%)
Male	8 (80%)	7 (70%)
Aetiology		
Central stroke (n/N (%))	10/10 (100%)	10/10 (100%)
Haemorrhage (n/N (%))	6/10 (60%)	3/10 (30%)
Capsulothalamic (n/N)	5/6	2/3
Cortical/subcortical (n/N)	1/6	1/3
Ischaemia (n/N (%))	4/10 (40%)	7/10 (70%)
Middle cerebral artery (n/N)	4/4	7/7
Anterior cerebral artery (n/N)	0/4	1/7
Location of cerebral lesion (n/N (%))		
Right side	6/10 (60%)	4/10 (40%)
Left side	4/10 (40%)	6/10 (60%)
Time between lesion and Dysport treatment (days)*	794 (1050)	224 (187)

*Values are mean (SD).
†One female patient with childbearing potential in the placebo group and two in the Dysport group.

500 unités Speywood

Table 2 Median pain scores and passive range of motion, as assessed by patients at baseline and at the post-treatment time points

	Placebo (n = 10)	Dysport (n = 10)
Baseline		
Pain	5.5 [4 to 8]	7.5 [5 to 8]
Lateral rotation	0.0 [−10 to 5]	0 [−10 to 0]
Abduction	65.0 [50 to 70]	70.0 [55 to 75]
Week 1		
Pain	4 [3 to 6]	3 [1 to 6]
Lateral rotation	0.0 [−20 to 30]	10.0 [5 to 20]
Abduction	72.5 [60 to 80]	75.0 [60 to 80]
Week 2		
Pain	4 [3 to 5]	2.5 [1 to 3]
Lateral rotation	0.0 [−10 to 10]	10.0 [0 to 15]
Abduction	70.0 [60 to 80]	70.0 [70 to 80]
Week 4		
Pain	4 [4 to 7]	1.5 [1 to 3]
Lateral rotation	−2.5 [−15 to 10]	12.5 [0 to 20]
Abduction	70.0 [60 to 85]	72.5 [70 to 80]

Values are expressed as lower (Q1) and upper (Q3) quartiles in degrees.

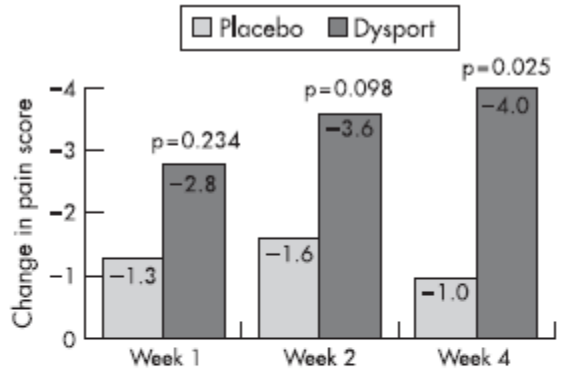
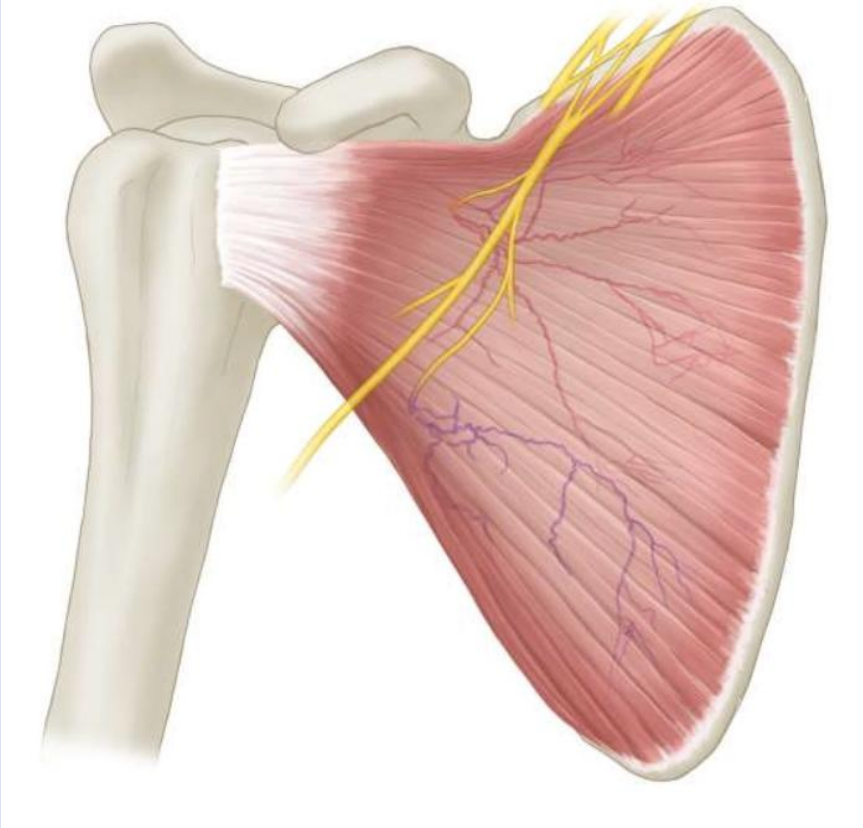


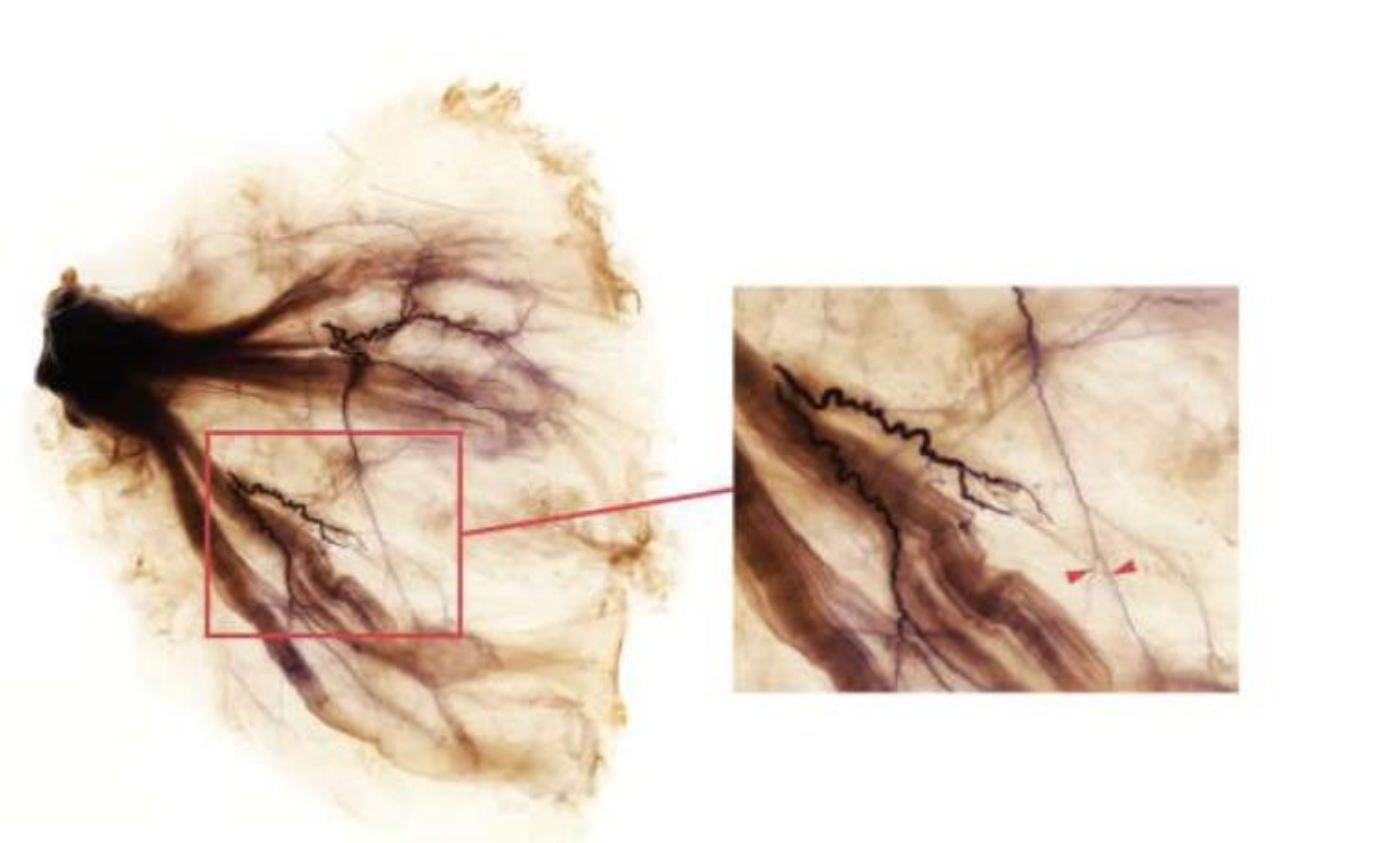
Figure 1 Median change from baseline in pain scores at the post-treatment time points in the placebo and Dysport groups.

Treatment

Treatment was allocated by computerised randomisation. Patients were seated on the edge of their bed, with the arm against the trunk, the shoulder being slightly pushed backward by an assistant to produce as much winging of the scapula as possible. An 0.8 mm diameter, 100 mm needle coated with Teflon, except for the tip, was inserted in the medial scapular border, slightly below the level of the spine of the scapula, along its anterior face, pointing at the acromion, as previously described.[18] Before the intramuscular injection, the needle was used as a stimulation electrode to detect the motor point where minimal stimulation induces maximum internal rotation, and then botulinum toxin A (Dysport, 500 Speywood units) or placebo (all constituents of Dysport solvent) was injected while pulling back the needle by 1–2 cm. In addition, all patients received after treatment, on weekdays—non-standardised physical therapy for stretching, spasticity inhibition and increasing active motion when possible.

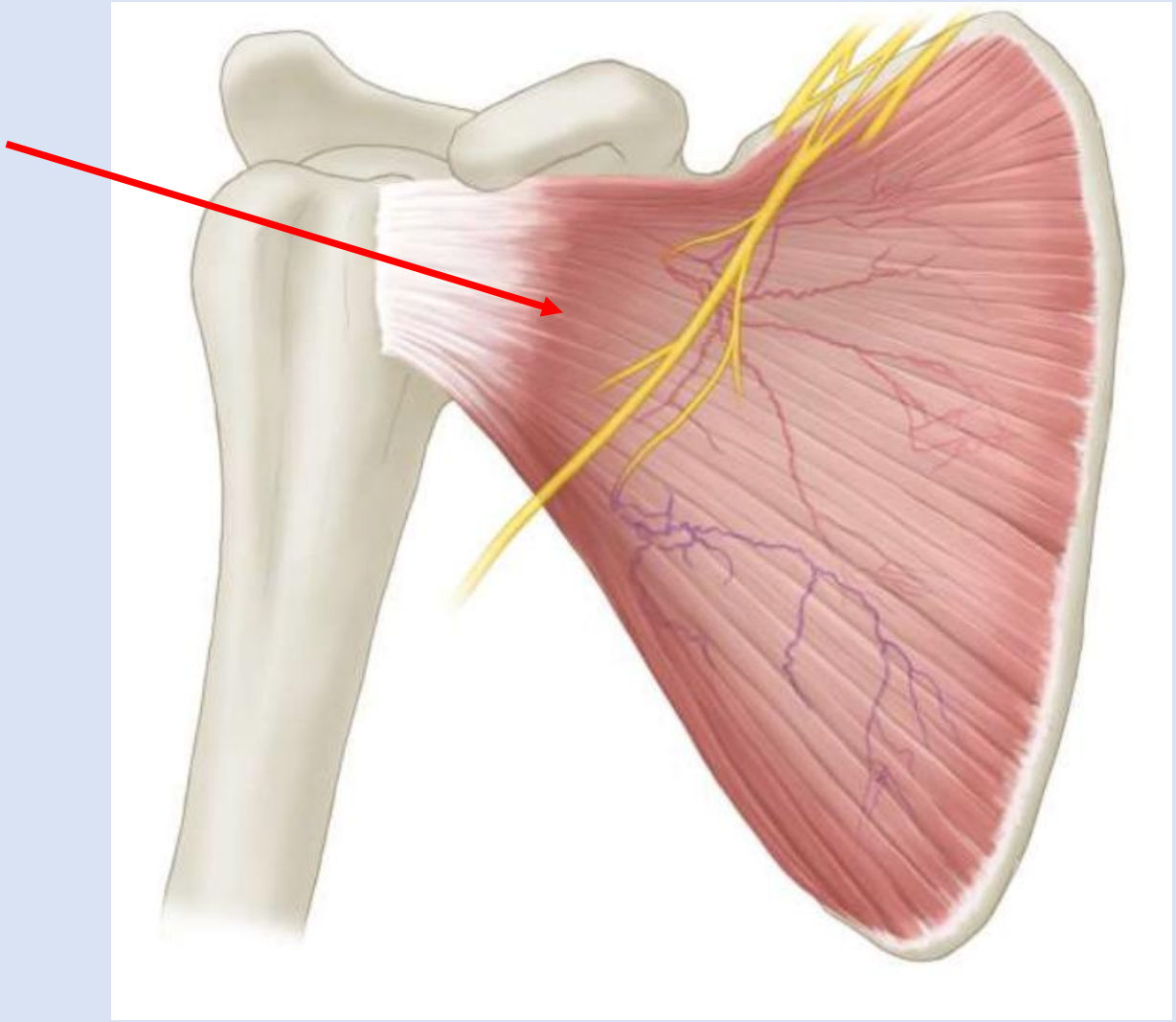
Muscle sub-scapulaire : quelle(s) voie(s) d'abord sous écho ?

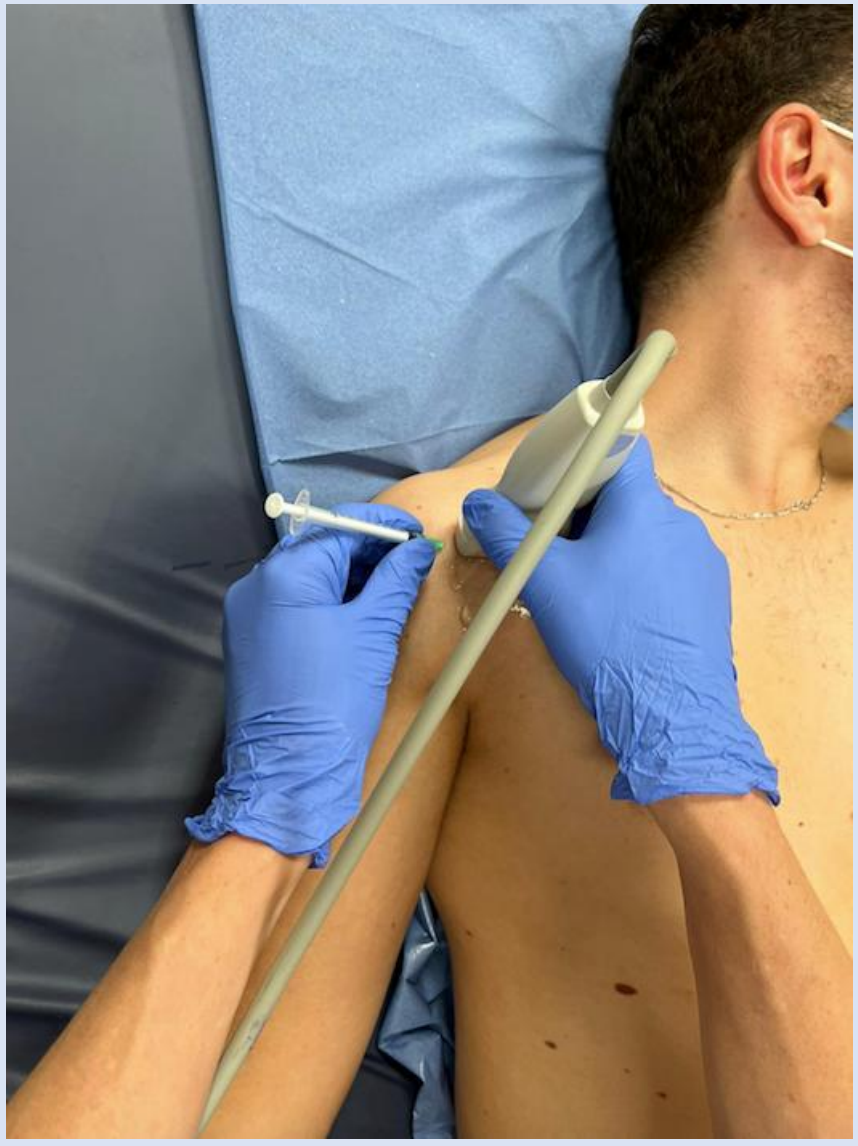


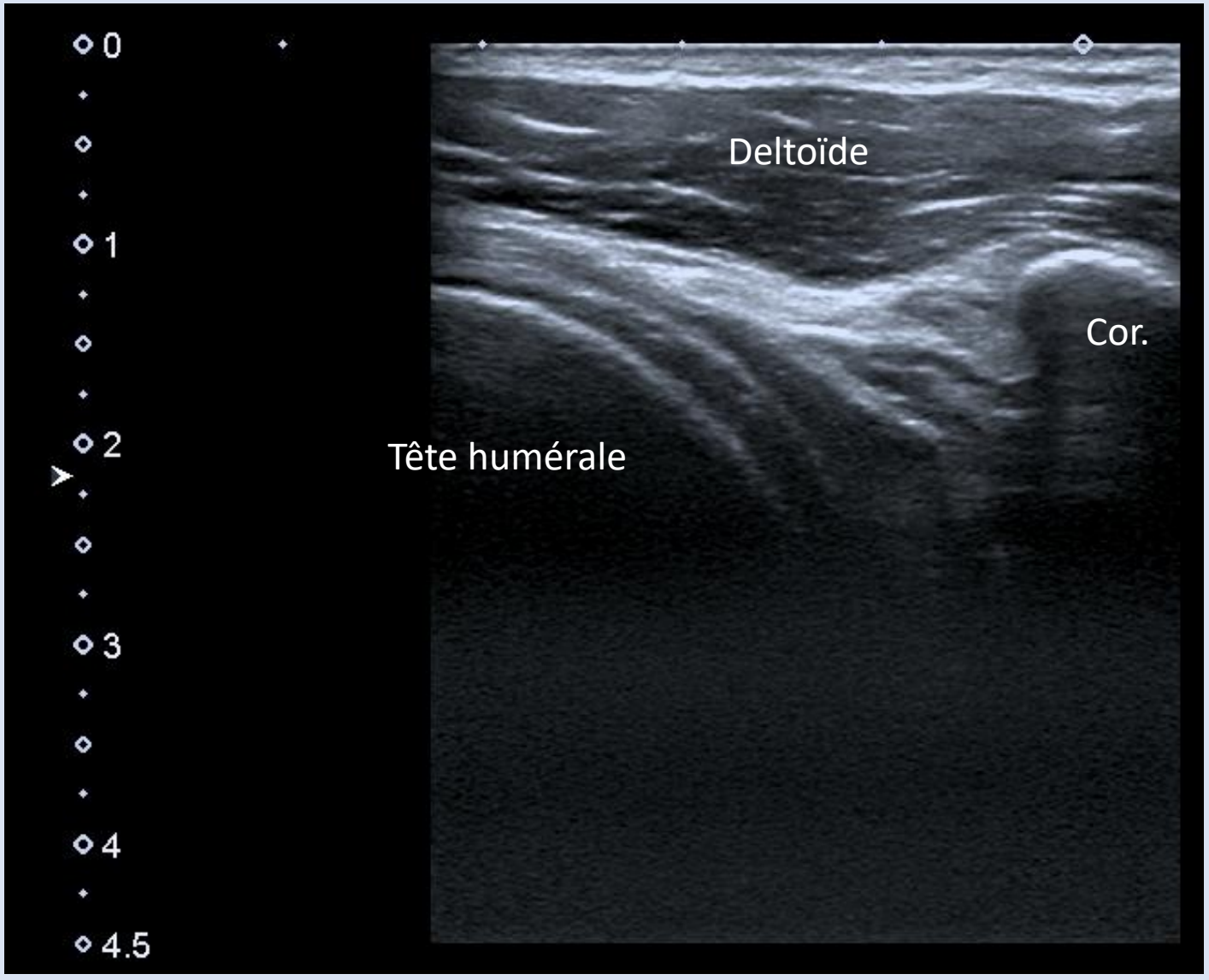


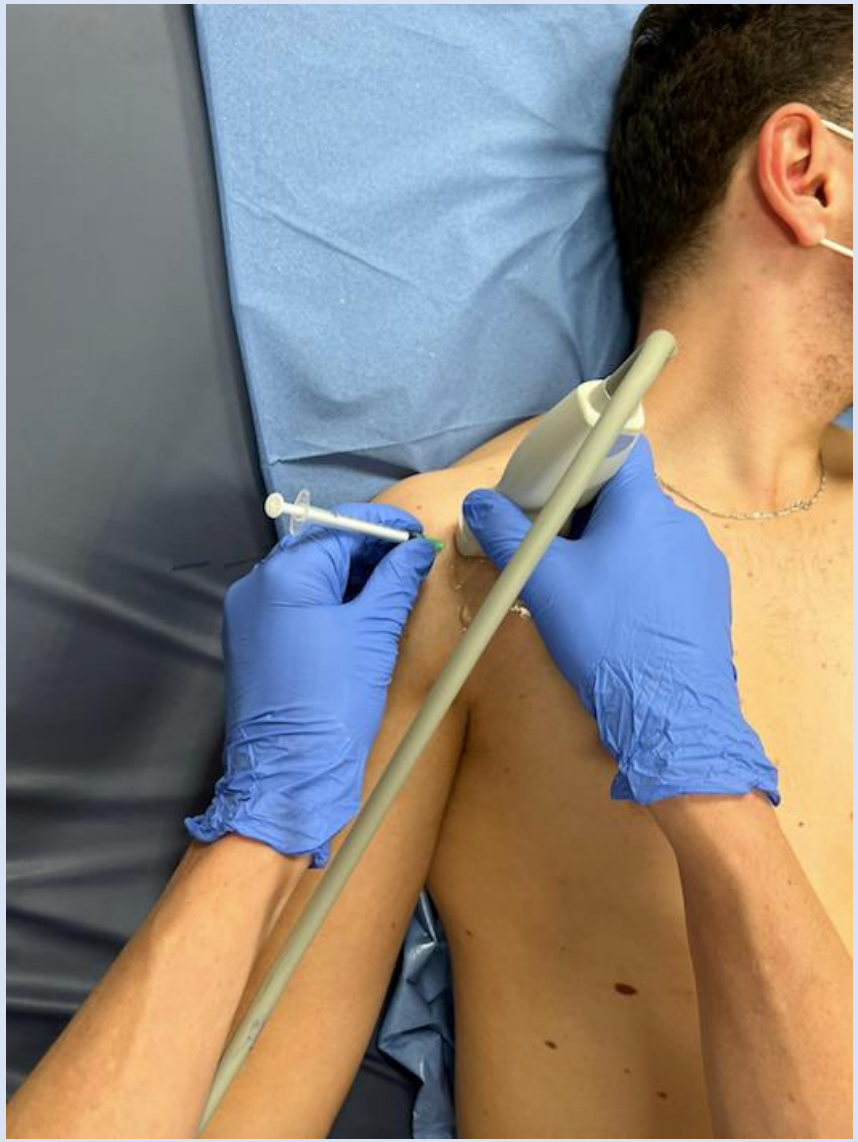
Cho et Al. Intramuscular innervation of the subscapularis muscle and its clinical implication for the BoNT injection: An anatomical study using the modified Sihler's staining, Clinical Anatomy, 2019

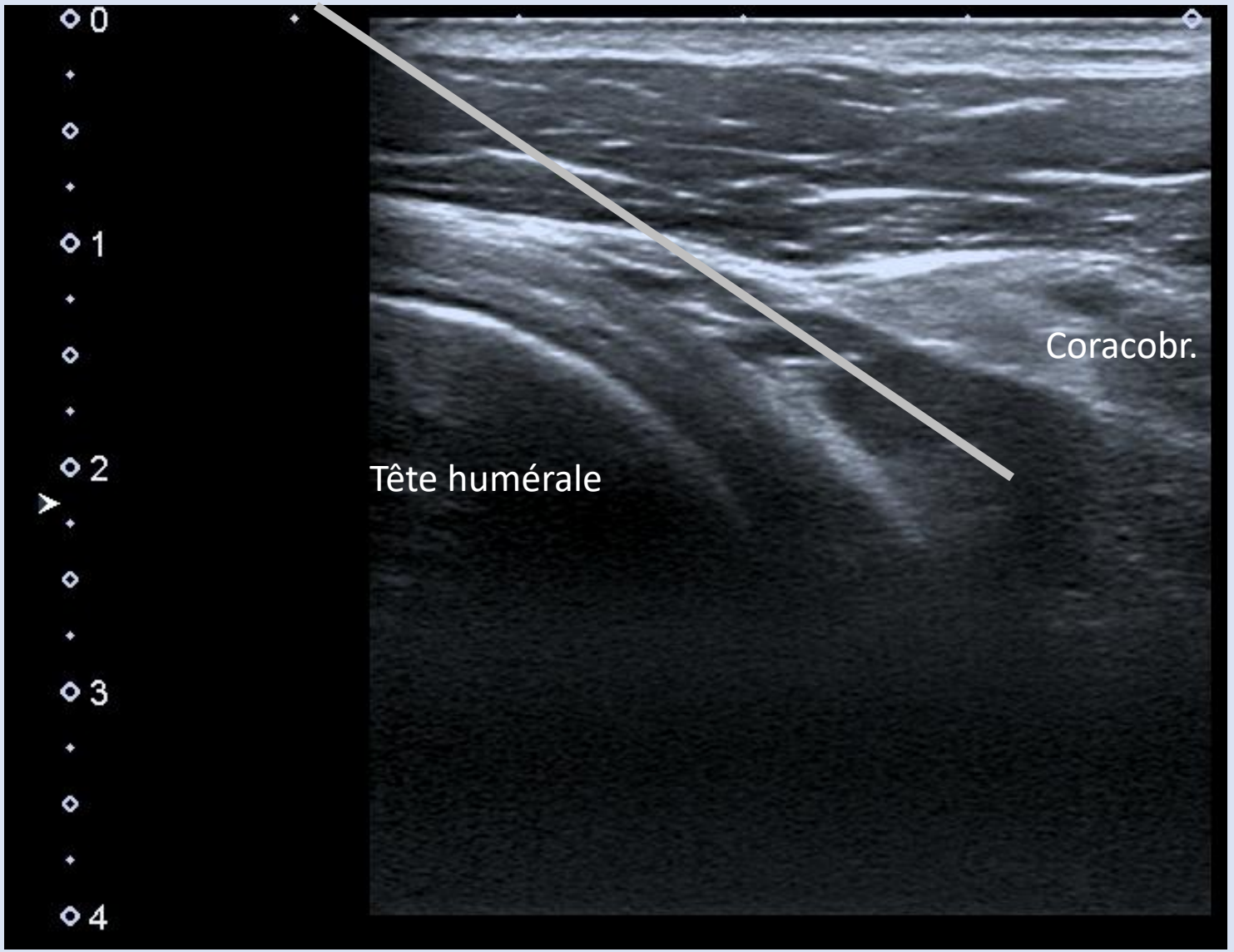
Subscapularis muscle : how to inject ?

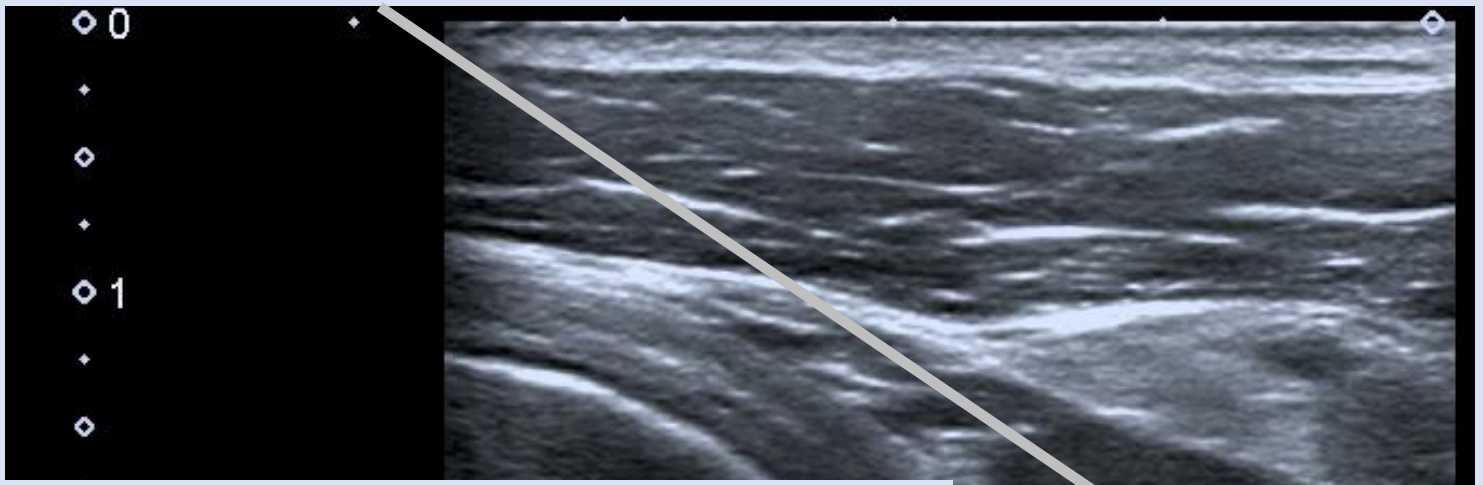





0
1
2
3
4
4.5
Deltoïde
Cor.
Tête humérale



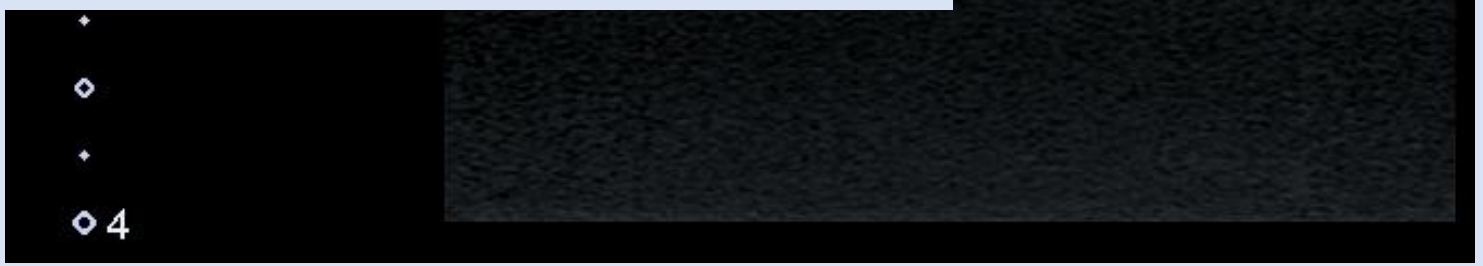

0
1
2
3
4
Tête humérale
Coracobr.

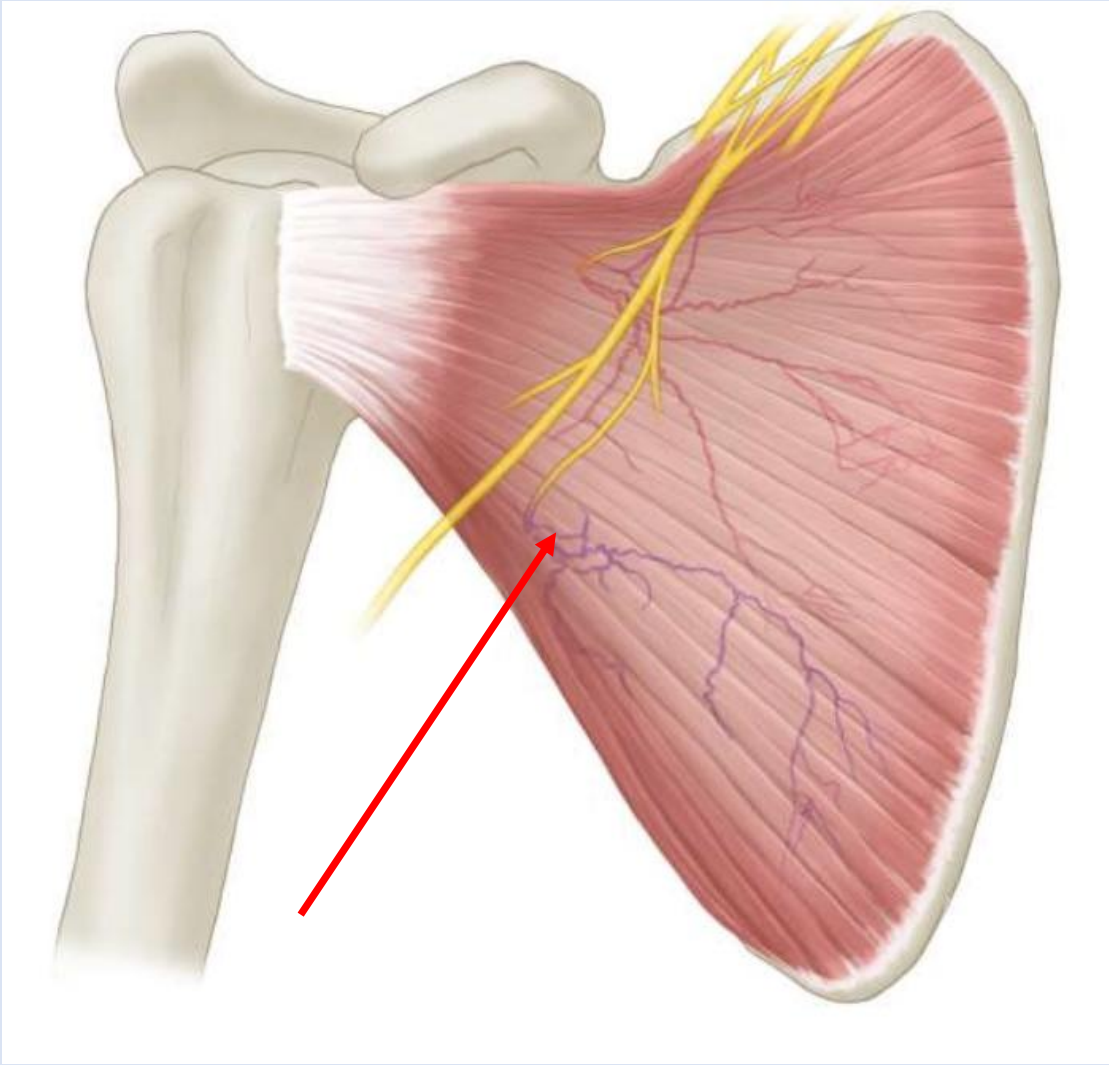


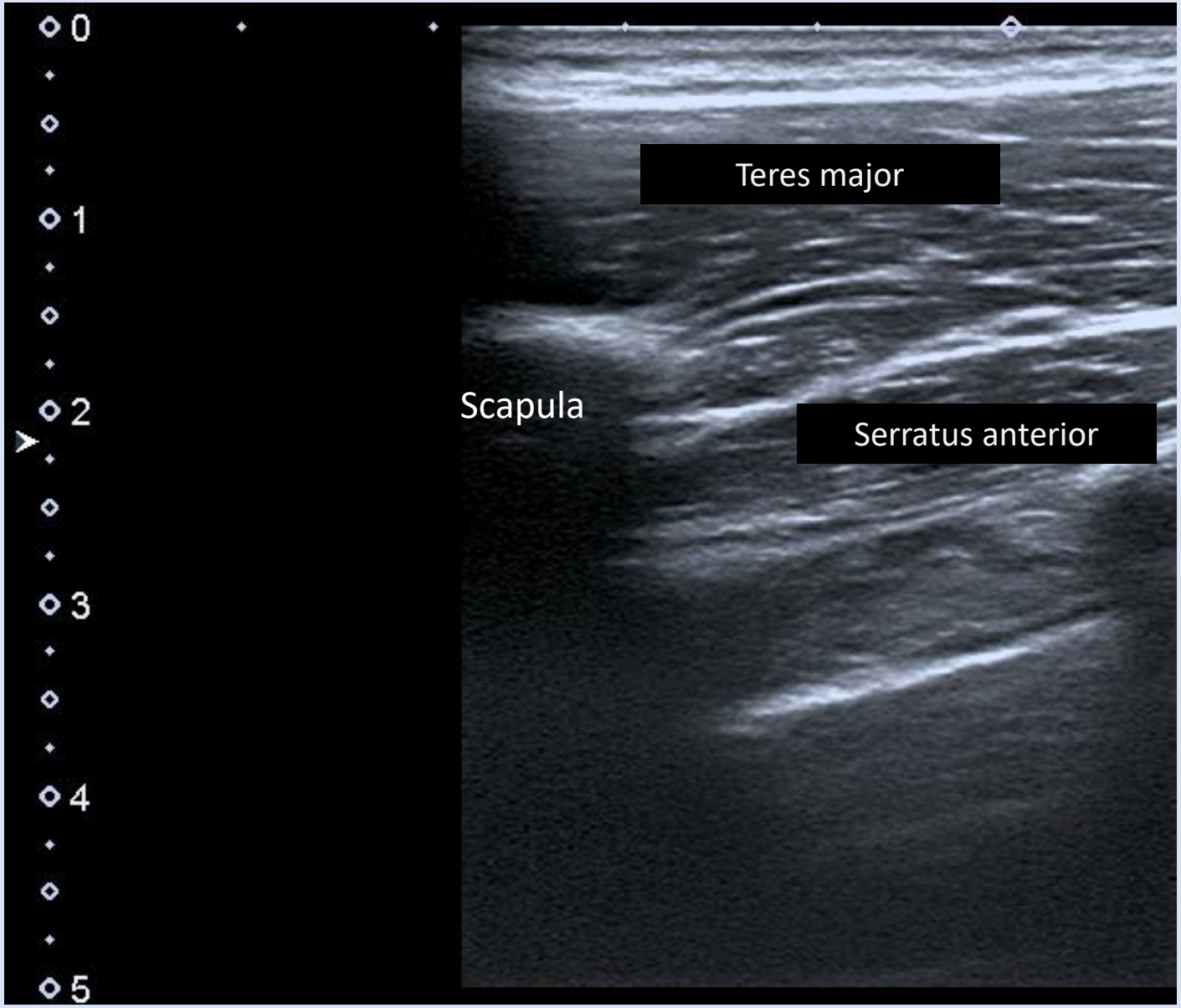
2 limites :

Lateral rotation of the shoulder

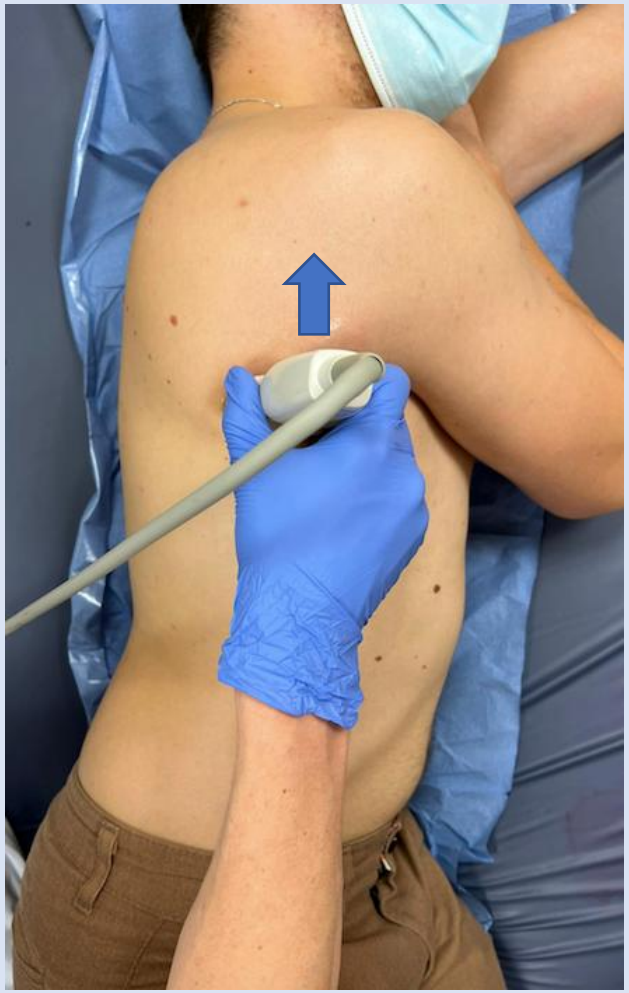
Near to the tendon of the muscle

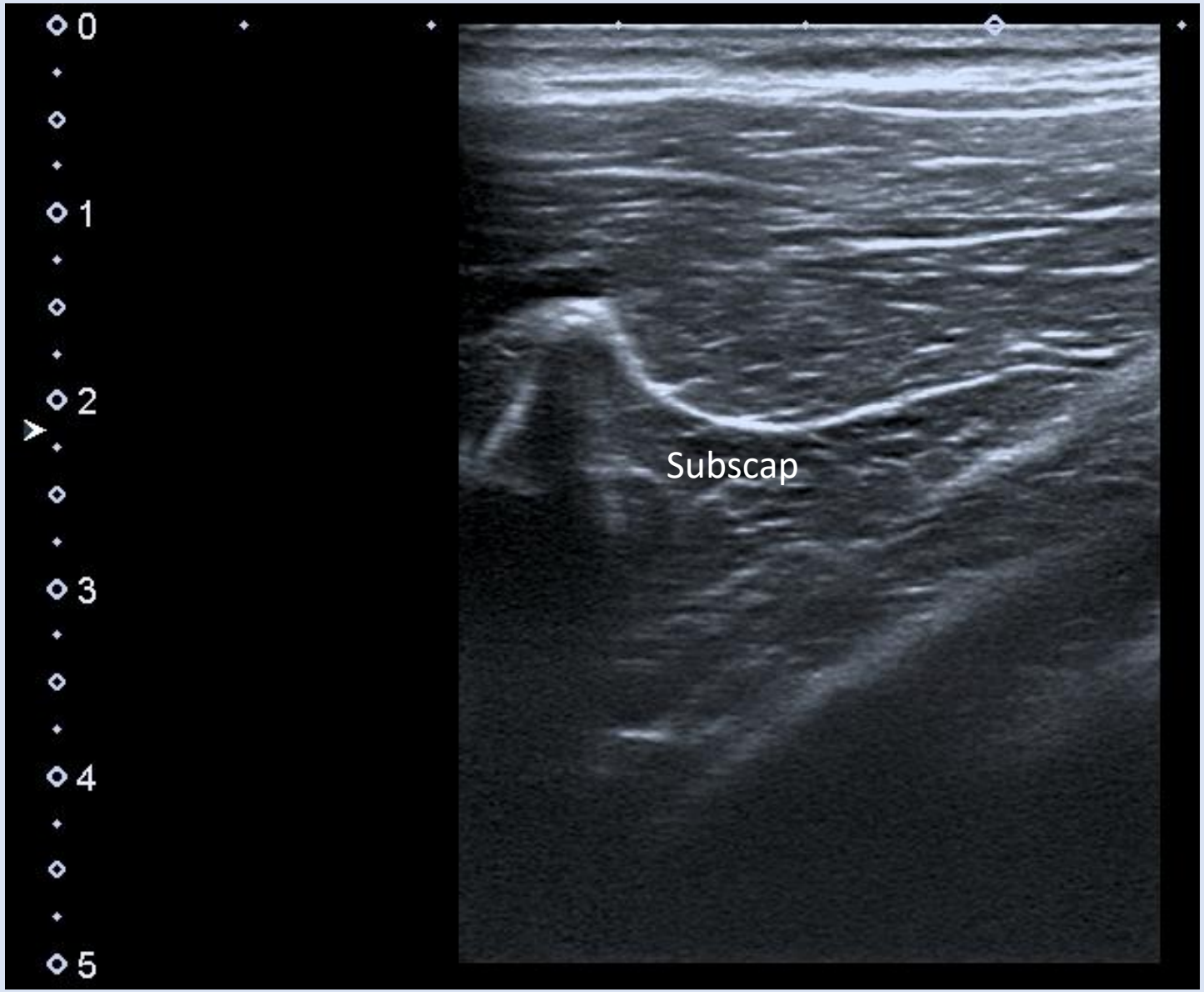




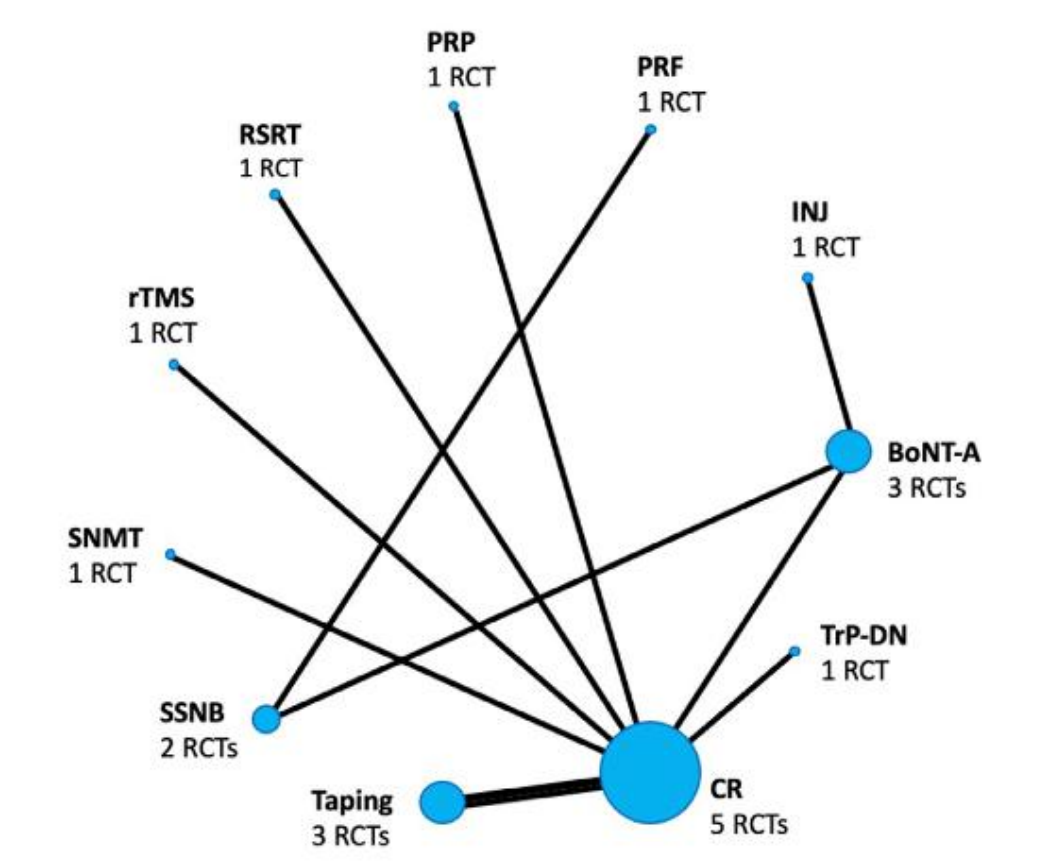

0
1
2
3
4
5
Teres major
Scapula
Serratus anterior

Muscle sub-scapulaire : 2nde proposition





Conclusion



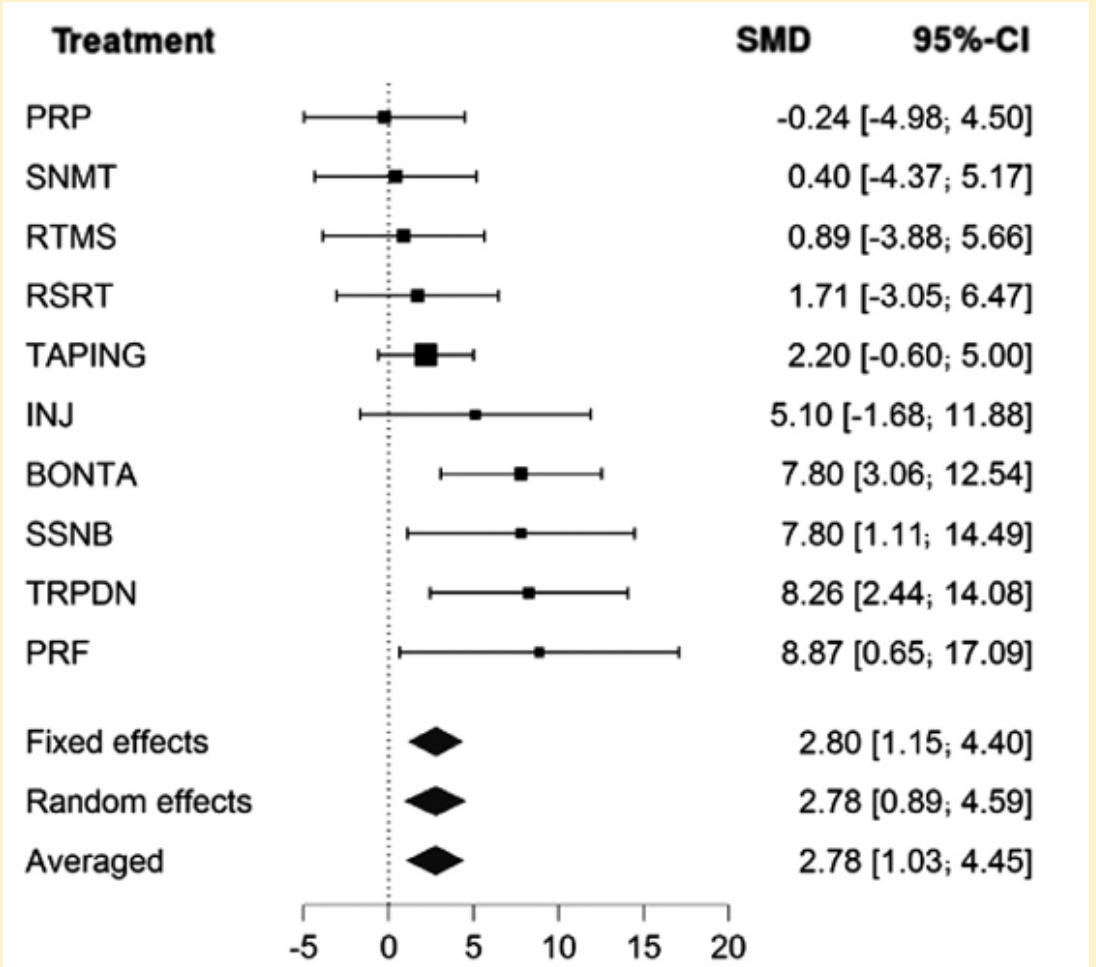


Fig. 3. Pairwise forest plot illustrating the direct and indirect comparisons between interventions versus conventional rehabilitation using a network meta-analysis approach. BONTA, botulinum toxin type A; CI, confidence interval; INJ, corticosteroid injection; PRF, pulsed radiofrequency; PRP, platelet-rich plasma; RSRT, robotic shoulder rehabilitation treatment; rTMS, repetitive transcranial magnetic stimulation; SMD, standard mean difference; SNMT, segmental neuromyotherapy; SSNB, suprascapular nerve block; TRPDN, trigger points dry needling.

Take home messages

Aspects cliniques et fonctionnels aidés d'outils : goniométrie – clinométrie, JIG, score SPADI…

Les déficiences de l'épaule ne se réduisent pas à la spasticité

Combiner les thérapeutiques non médicamenteuses et médicamenteuses pour améliorer la symptomatologie des patients

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