De Zin en Onzin van Dry Needling

Myofasciale Trigger Points

dr. Carel Bron, manueel fysiotherapeut
praktijk voor nek, schouder- en armklachten Groningen
IQ-Healthcare, Radboud UMC Nijmegen

Redskins' Dry Needles Speed Recovery Time

Posted Mar 20, 2013

Brian Tinsman
Lead Writer
Redskins.com

A A

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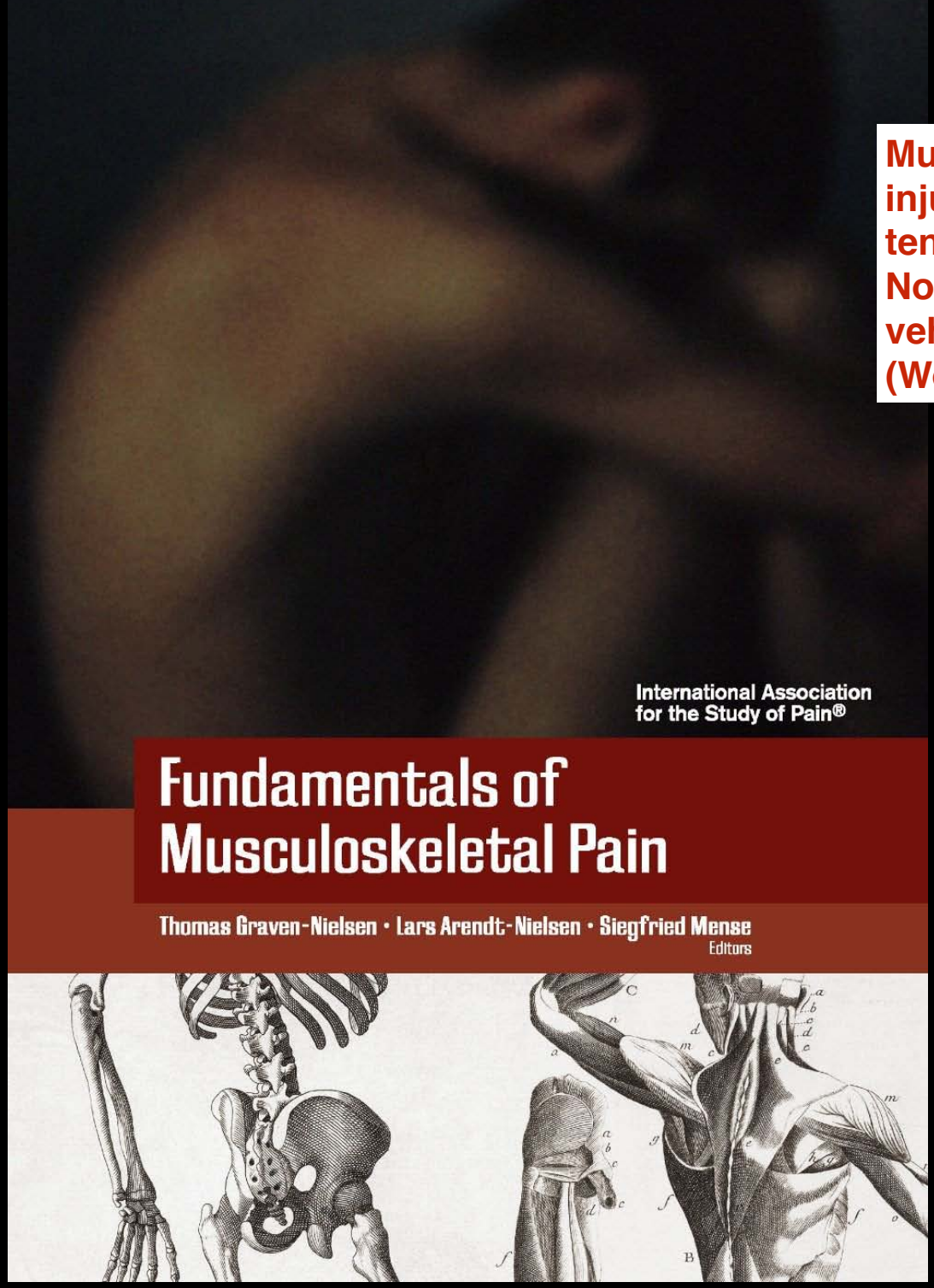
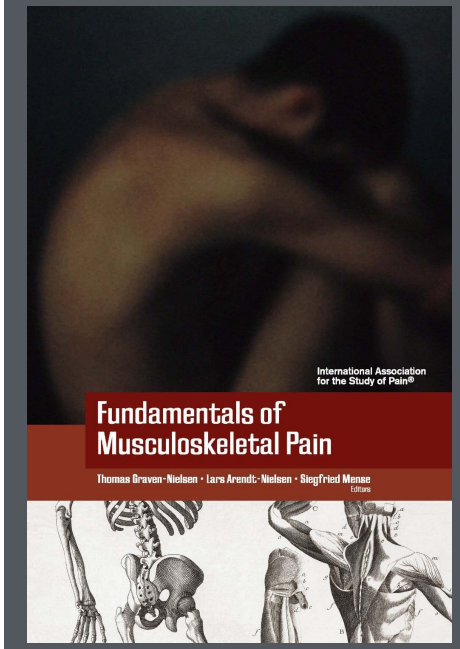
Comments:11

In 2012, the Redskins became one of just five teams in the NFL to embrace a revolutionary form of physical therapy called dry needling.



Musculoskeletal Disorders (MSD's) are injury or disorder of muscles, nerves, tendons, joints, cartilage, or spinal discs. Not caused by slips, trips, falls, motor vehicle accidents, or other accidents. (World Health Organization, 1985).


International Association
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Fundamentals of
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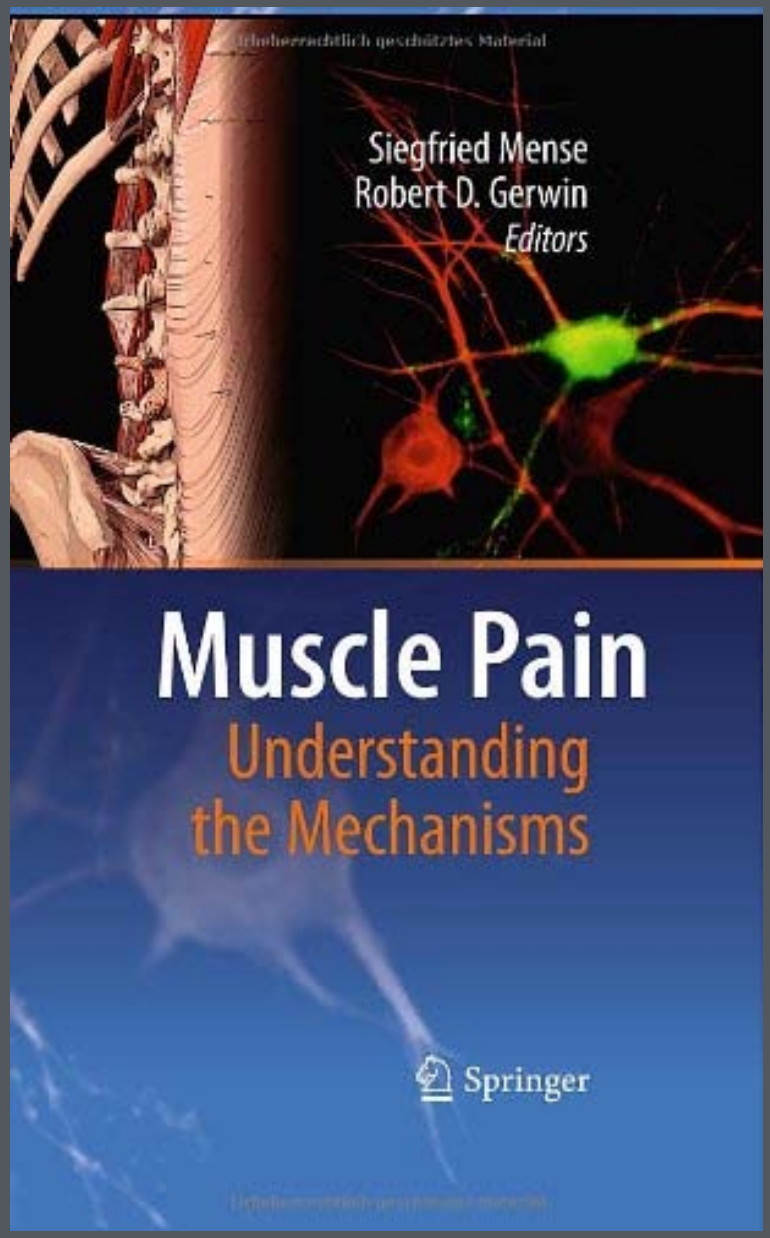
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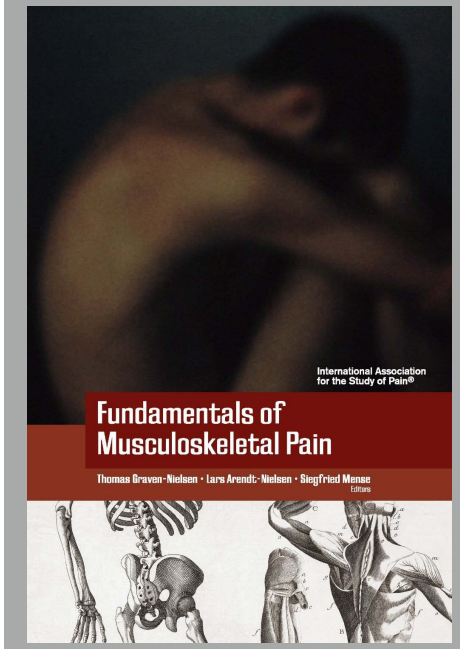
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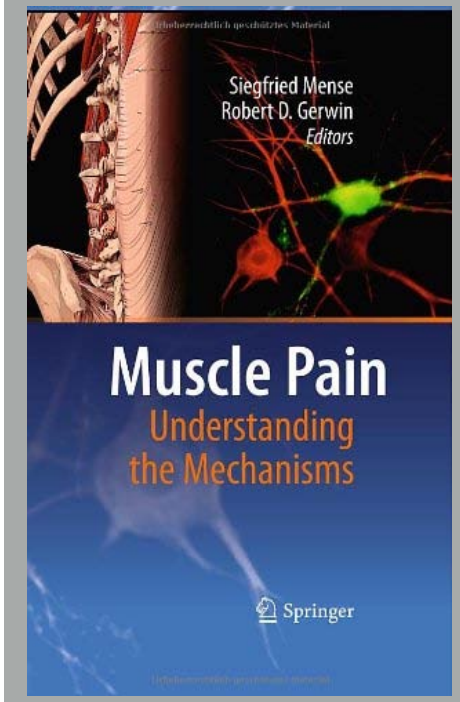
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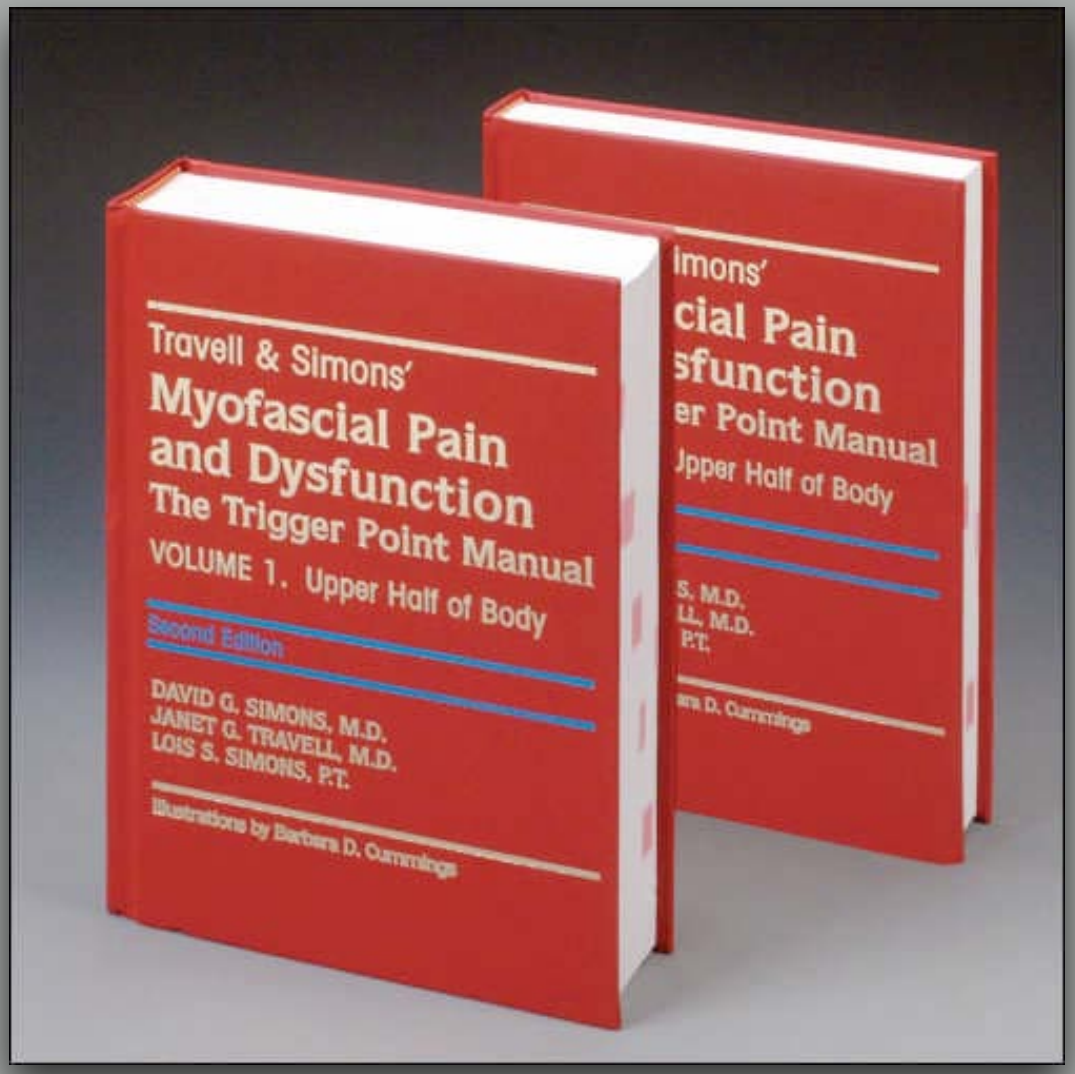
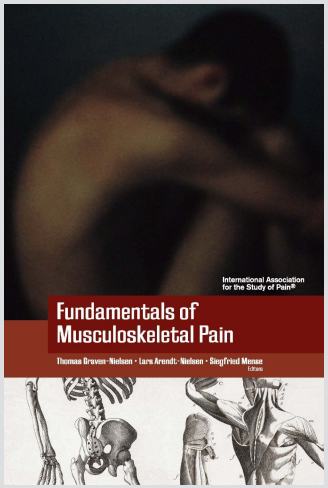

Travell & Simons'
Myofascial Pain and Dysfunction
The Trigger Point Manual
VOLUME 1. Upper Half of Body
Second Edition
DAVID G. SIMONS, M.D.
JANET G. TRAVELL, M.D.
LOIS S. SIMONS, P.T.
Illustrations by Barbara D. Cummings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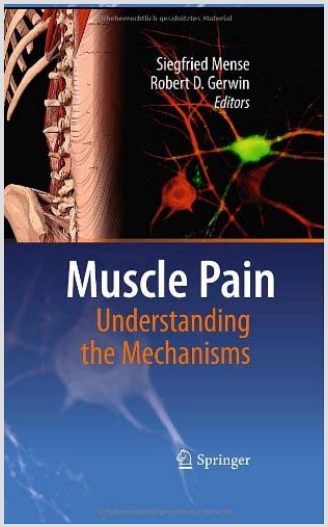
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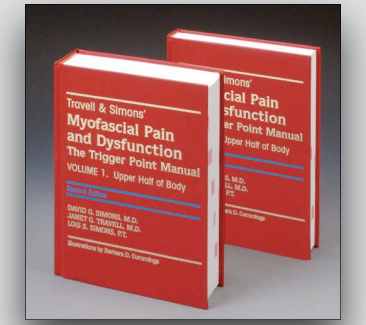
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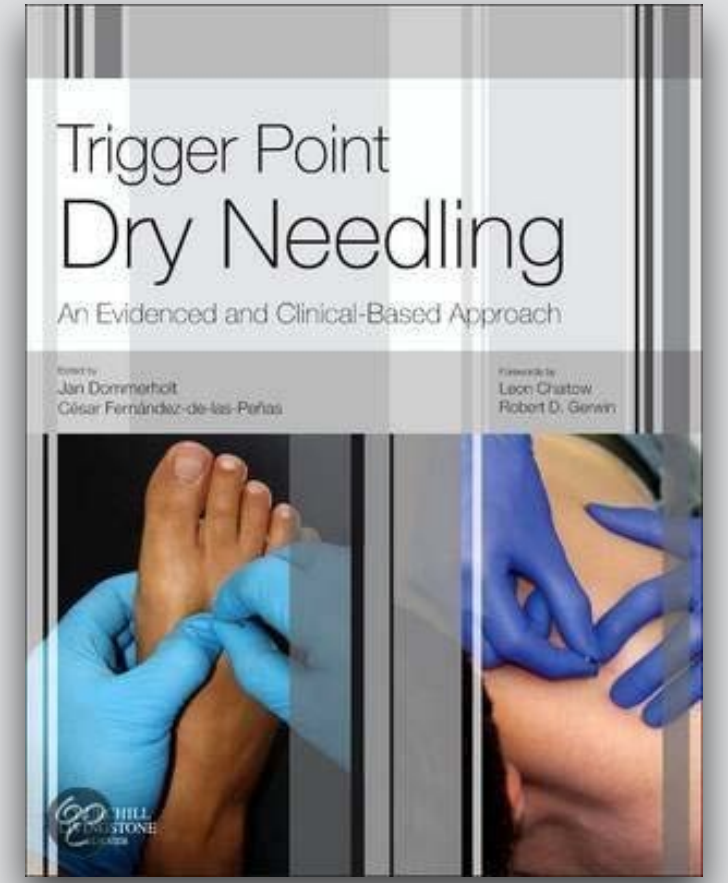
Trigger Point
Dry Needling
An Evidenced and Clinical-Based Approach
Jan Dommerholt
César Fernández-de-las-Peñas
Leon Chaitow
Robert D. Gerwin

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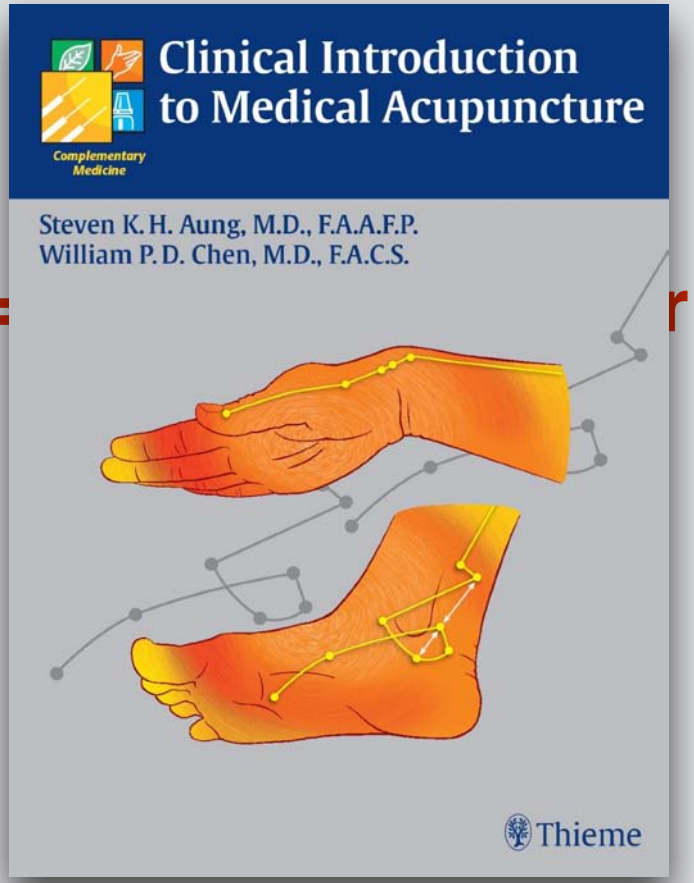
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Clinical Introduction to Medical Acupuncture
Steven K. H. Aung, M.D., F.A.A.F.P.
William P. D. Chen, M.D., F.A.C.S.
Thieme

Steinbrocker, JAMA , June 1944

Therapeutic injections in painful musculoskeletal disorders with special reference tot the saline-procaine test

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 125, No. 6 — Chicago, Illinois — June 10, 1944

THERAPEUTIC INJECTIONS IN PAINFUL MUSCULOSKELETAL DISORDERS

WITH SPECIAL REFERENCE TO THE SALINE-PROCAINE TEST

OTTO STEINBROCKER, M.D.

NEW YORK

Analgesic therapy with procaine hydrochloride and numerous other substances is being widely employed in a variety of painful disorders and has established its effectiveness in many of them.[1] Its field of usefulness has been steadily extended recently, particularly in acute and chronic musculoskeletal conditions—fibrositis (myositis), bursitis, neuritis and some arthritides.[2] Although every practitioner or student of these diseases must encounter some apparently suitable patients whose stubborn symptoms fail to respond to procaine or alcohol block, confusing differences in therapeutic results have been recorded by various investigators. The mere insertion of a needle somewhere in the region of pain, without introducing analgesic solutions, also has been reported to give frequent lasting relief.[3]

For the past several years I have been interested in ascertaining the causes of these discrepancies.[4] Naturally, a small percentage of technical failure is inherent in procedures which must be applied deeply and by precise methods, subject to the unpredictable variations of anatomy and tissue response. My purpose in this discussion is to emphasize some of the factors, apart from technic, that I have observed to present obstacles to effective analgesia, as well as sources of dramatic response to simple control measures.

DIAGNOSIS AS A SOURCE OF FAILURE

In therapeutic analgesia especially, correct diagnosis is a necessary prerequisite for successful treatment. The anesthetist or therapeutist is often asked to treat

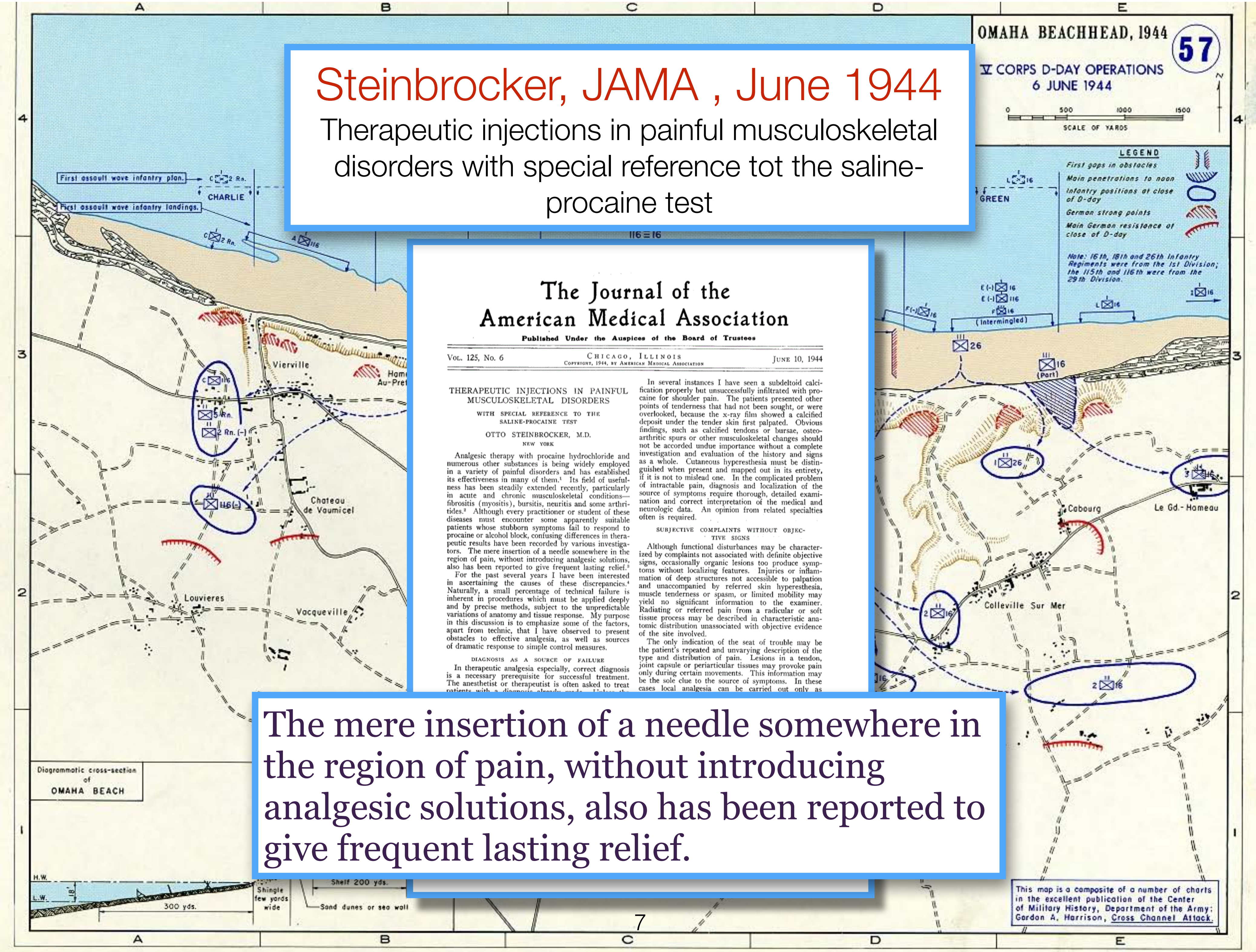
In several instances I have seen a subdeltoid calcification properly but unsuccessfully infiltrated with procaine for shoulder pain. The patients presented other points of tenderness that had not been sought, or were overlooked, because the x-ray film showed a calcified deposit under the tender skin first palpated. Obvious findings, such as calcified tendons or bursae, osteoarthritic spurs or other musculoskeletal changes should not be accorded undue importance without a complete investigation and evaluation of the history and signs as a whole. Cutaneous hyperesthesia must be distinguished when present and mapped out in its entirety, if it is not to mislead one. In the complicated problem of intractable pain, diagnosis and localization of the source of symptoms require thorough, detailed examination and correct interpretation of the medical and neurologic data. An opinion from related specialties often is required.

SUBJECTIVE COMPLAINTS WITHOUT OBJECTIVE SIGNS

Although functional disturbances may be characterized by complaints not associated with definite objective signs, occasionally organic lesions too produce symptoms without localizing features. Injuries or inflammation of deep structures not accessible to palpation and unaccompanied by referred skin hyperesthesia, muscle tenderness or spasm, or limited mobility may yield no significant information to the examiner. Radiating or referred pain from a radicular or soft tissue process may be described in characteristic anatomic distribution unassociated with objective evidence of the site involved.

The only indication of the seat of trouble may be the patient's repeated and unvarying description of the type and distribution of pain. Lesions in a tendon, joint capsule or periarticular tissues may provoke pain only during certain movements. This information may be the sole clue to the source of symptoms. In these cases local analgesia can be carried out only as

The mere insertion of a needle somewhere in the region of pain, without introducing analgesic solutions, also has been reported to give frequent lasting relief.



Frost et al. The Lancet March 1980

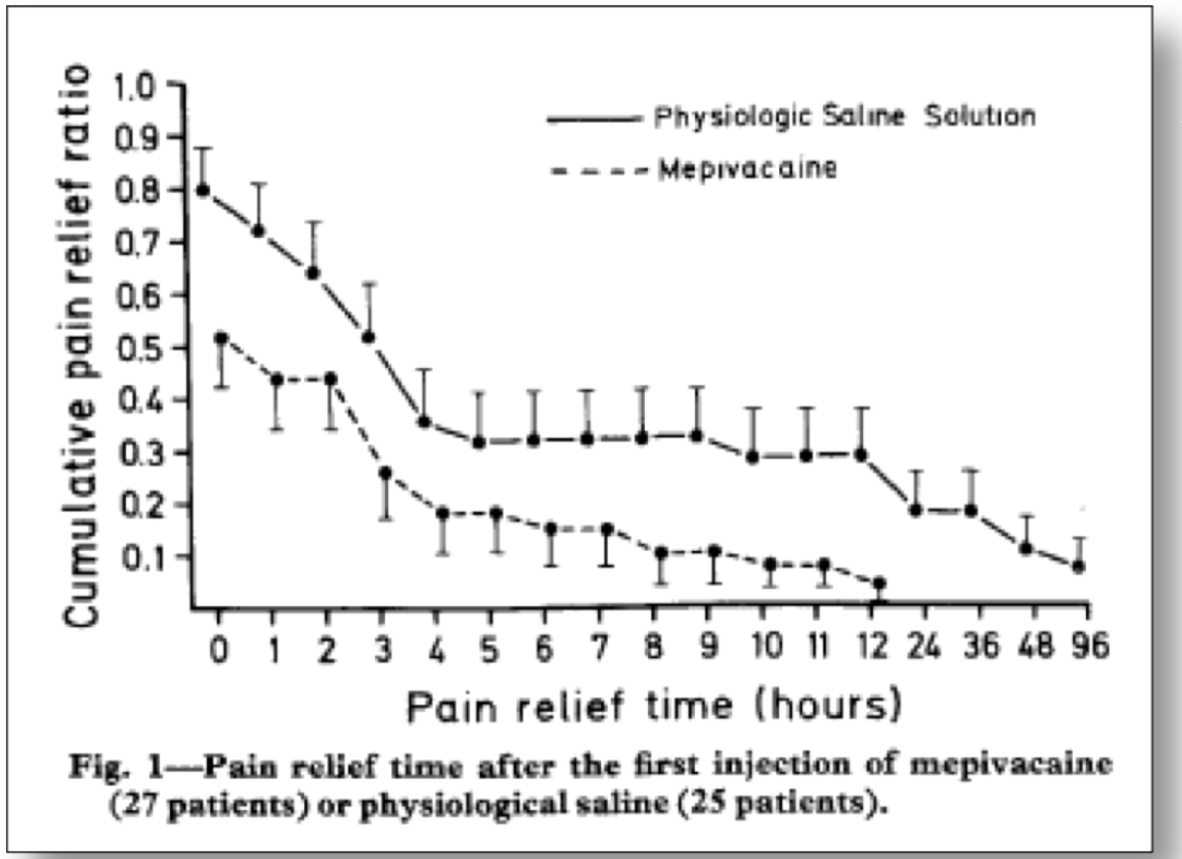


Fig. 1—Pain relief time after the first injection of mepivacaine (27 patients) or physiological saline (25 patients).

In a double-blind study 28 patients with acute, localised muscle pain received four local injections of mepivacaine 0·5%, and 25 patients with the same type of pain received local injections of an equivalent volume of physiological saline.

- The group receiving saline tended to have more relief of pain, especially after the first injection.
- The results thus show that pain relief is not due merely to the local anæsthetic.
- The study therefore raises questions about the mechanism by which local injections into muscle relieves pain, since there is the possibility that a similar effect might also be achieved by merely inserting a needle into the trigger point.

Merely inserting a needle into the trigger point

Botulinum Toxin, Lidocaine, and Dry-Needling Injections in Patients with Myofascial Pain and Headaches. Venancio. J. Craniomandibular Practice 2009

procentuele verbetering

	symptom severity index	Intensity of headache 10 minutes after injection
Dry Needling	30%	45%
Lidocaine	23%	43%
Botox	0%	48%

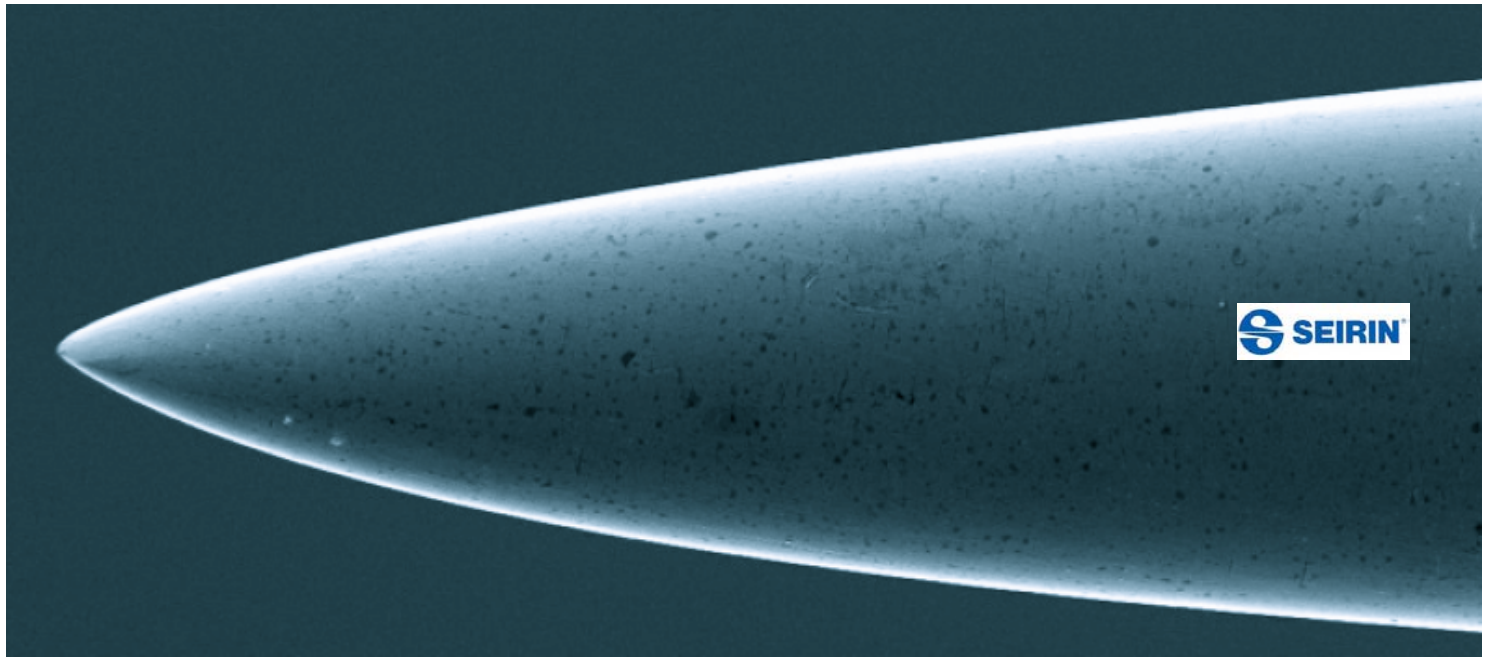
Pain, 6 (1979) 83—90

THE NEEDLE EFFECT IN THE RELIEF OF MYOFASCIAL PAIN

KAREL LEWIT

Central Railway Health Institute, Department of Vertebrogenic Disorders, Máchova 21, 120 00 Prague (Czechoslovakia)

(Accepted October 11th, 1978)



LIDOCAINE INJECTION VERSUS DRY NEEDLING TO MYOFASCIAL TRIGGER POINT

The Importance of the Local Twitch Response[1]

Chang-Zern Hong, MD[2]

Wat is een myofasciaal Trigger point (TrP)?

Een palpabele spierverharding in een strakke band in een skeletspier, die erg drukpijnlijk is.

(Simons, Travell en Simons, 1999)

ACTIEVE

LATENTE

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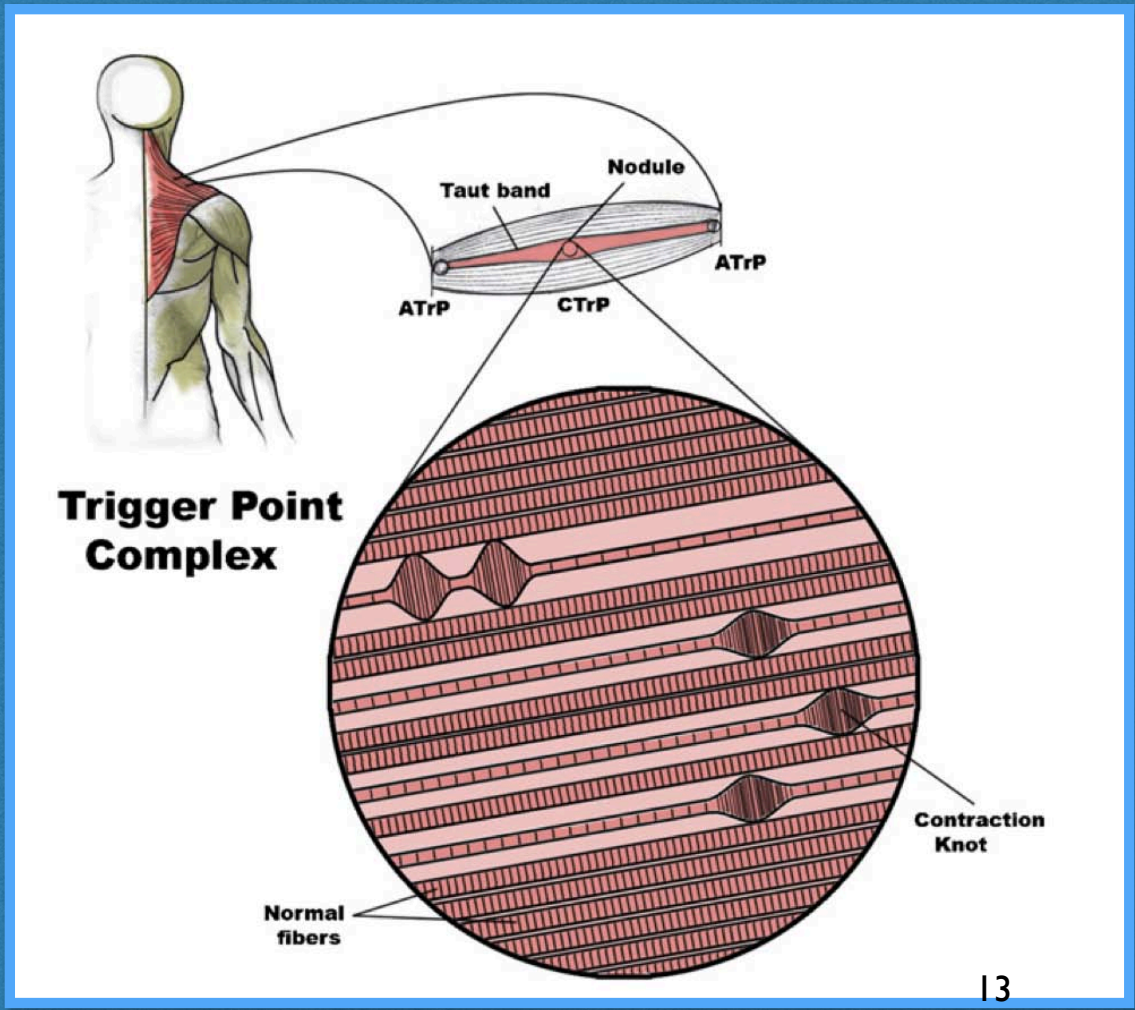
(Simons, Travell en Simons, 1999)



ACTIEVE

LATENTE

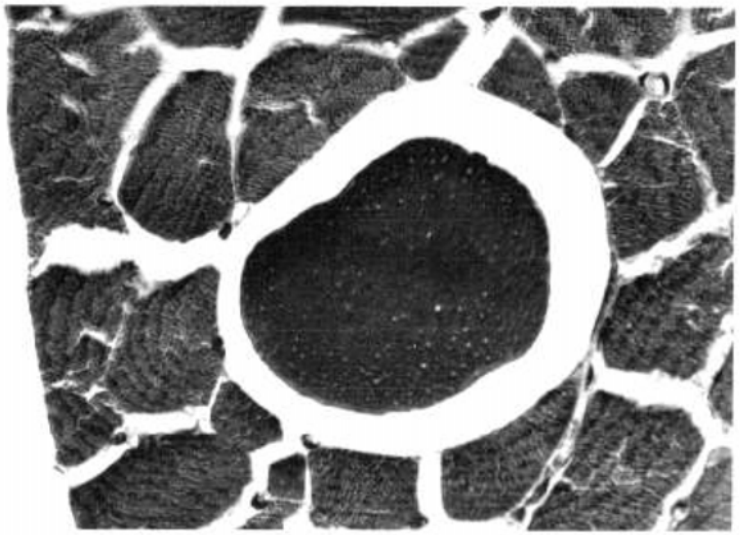
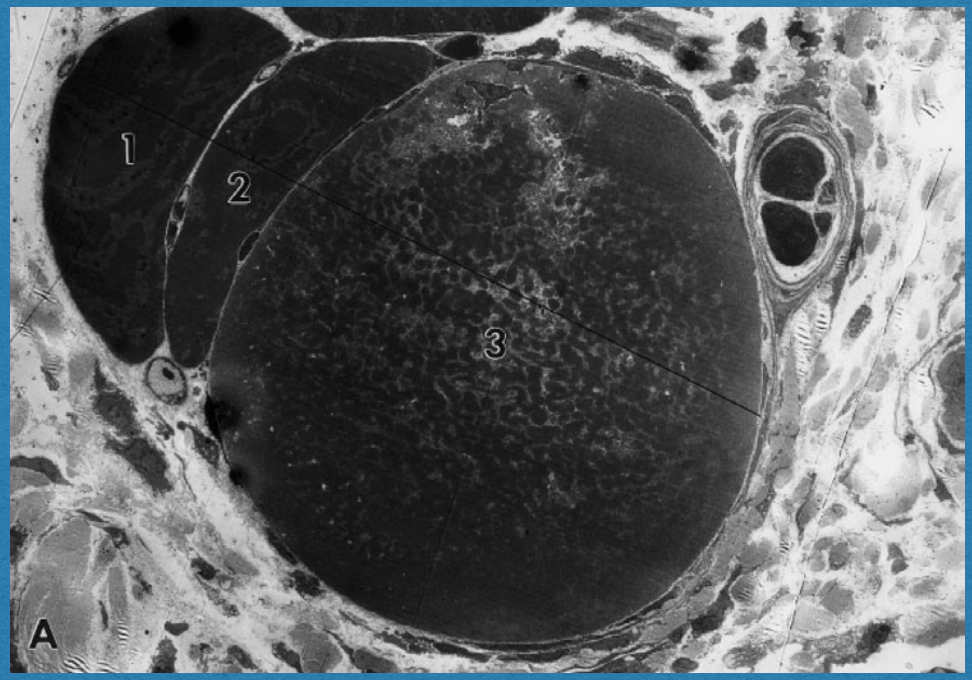


FIG. 8. Interior thick round muscle fiber within fasciculus. Thick round muscle fiber encroaches on space of adjacent normal fibers, shows a more condensed internal structure and stains more darkly than surrounding normal fibers which show a concentric pattern of their myofibrillar structure. Cross section from test biopsy, left sartorius. Trichrome, ×240.



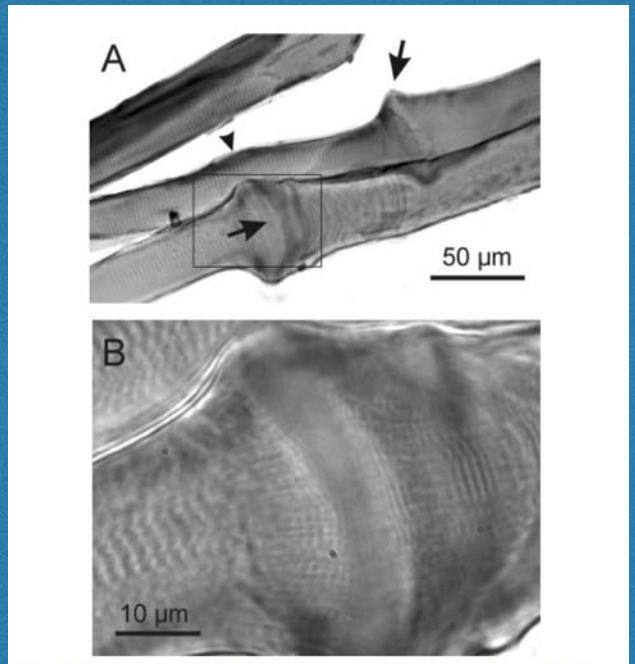


Fig. 3. Contraction disks in an area of the muscle where end plates were blocked as evidenced by a lack of cholinesterase stain [injection of 1×10^{-3} M diisopropylfluorophosphate (DFP), electrical stimulation for 60 min]. The blocked end plates were located outside the area

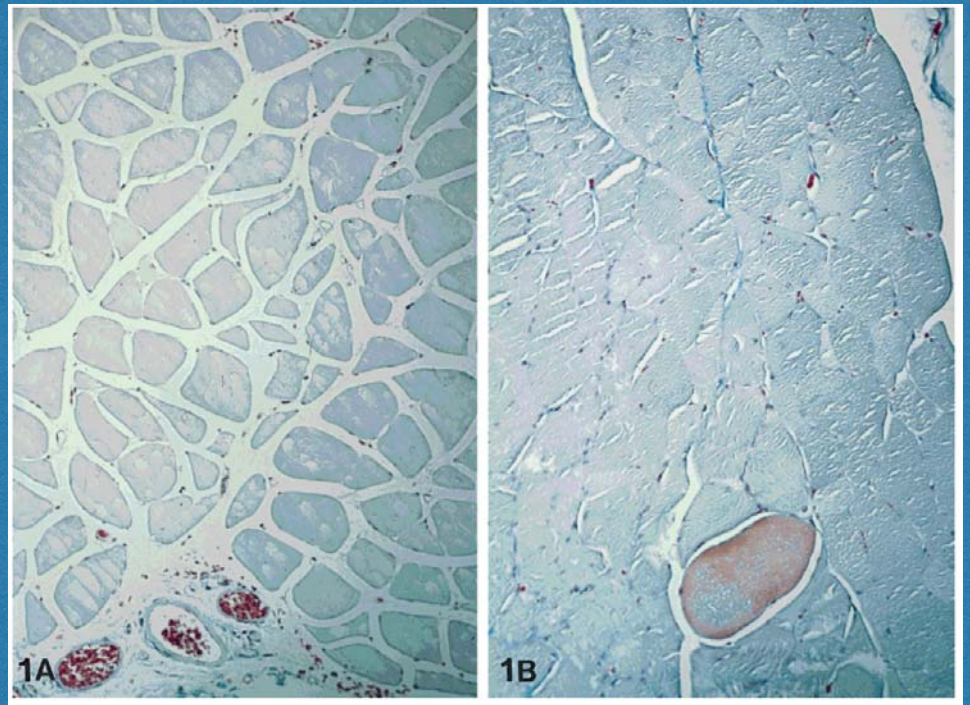


Fig. 1. A. Unchanged musculature (broad endomysial spaces). Paraffin section, trichromatic staining according to MASSON, ×225. **B.** Myogelosis, narrow endomysium. Hypertrophic fibers (orange-red). Paraffin section, trichromatic staining according to MASSON, ×225.

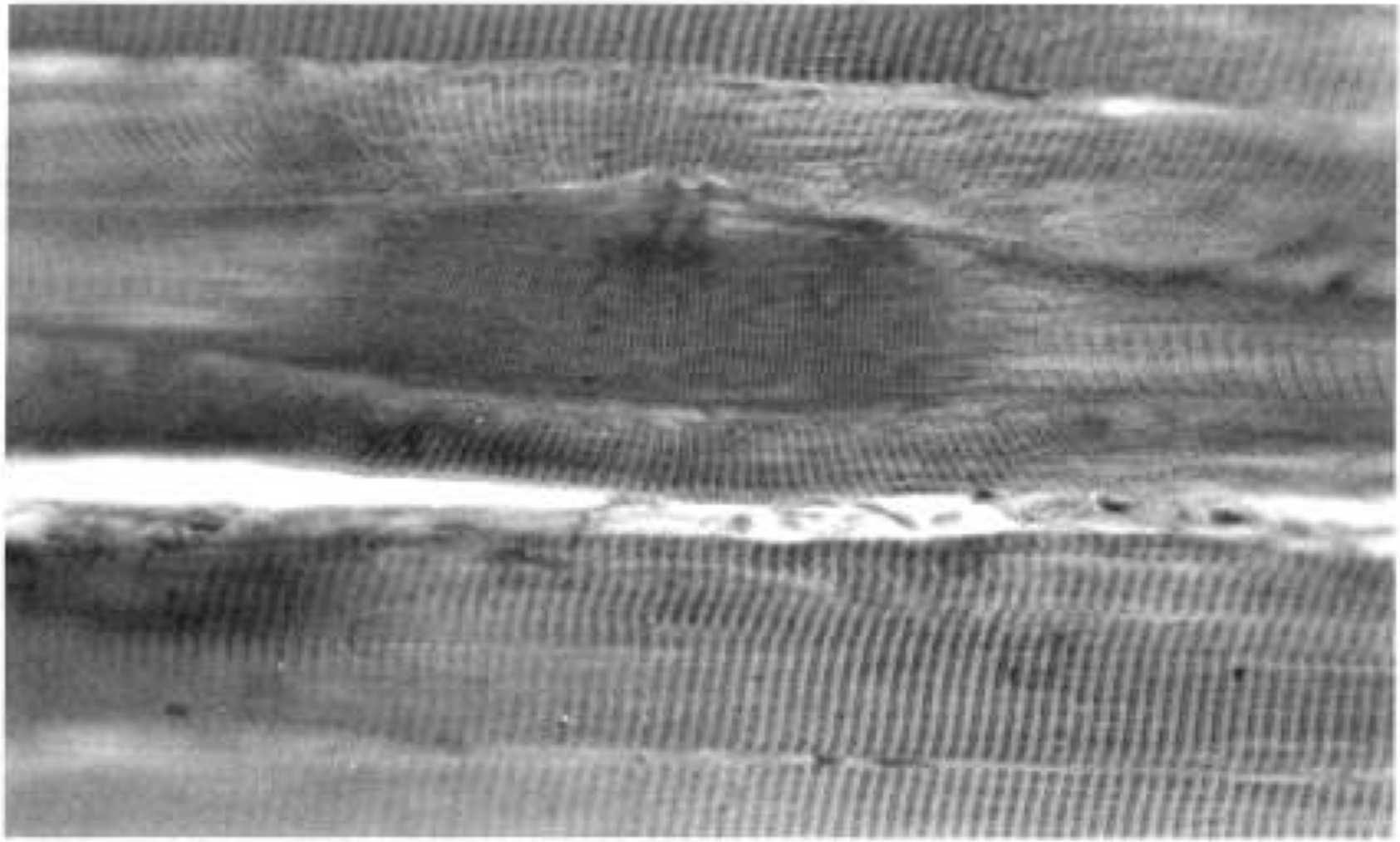
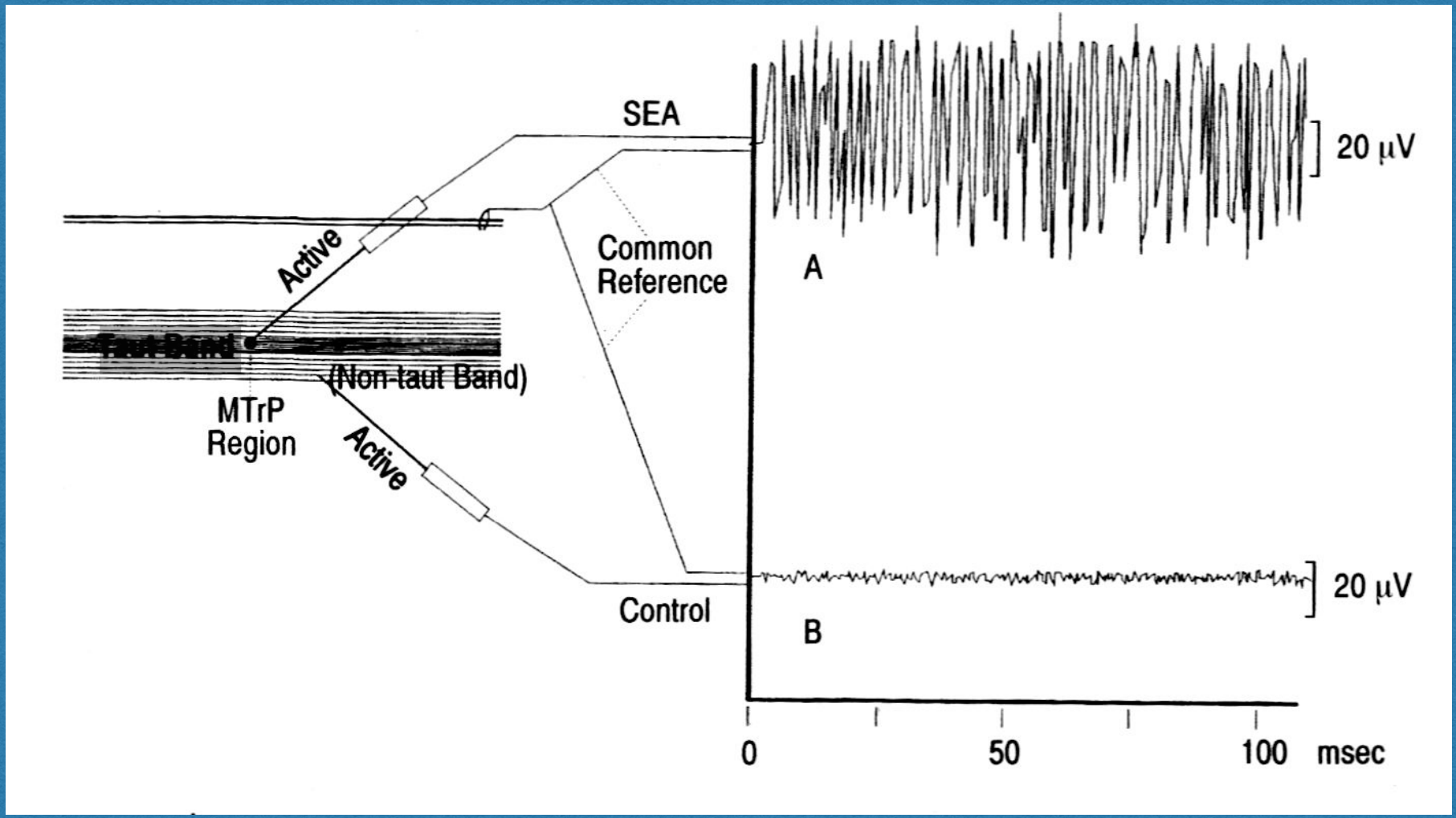


FIG. 12. Contraction knot encroaching upon, and distorting, striation pattern of adjacent fibers. Spacing of striations is closer within the knot, and more widely spaced on either side of it compared to normal spacing at bottom of figure. Longitudinal section, test biopsy of left gracilis. Trichrome, ×240.

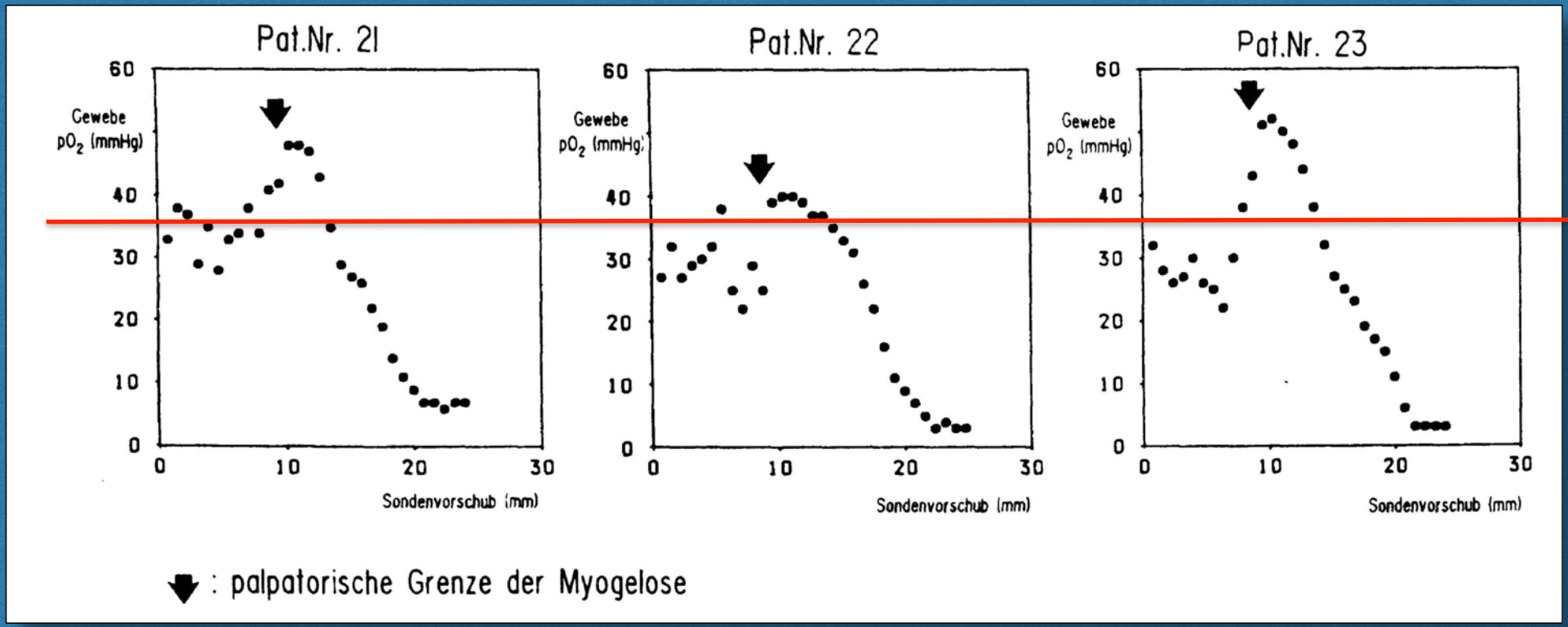
Simons, D.G., Stolov, W.C. American Journal of Physical Medicine, 55(2), 1976, 65-88

Trigger Point Endplate Noise

(SEA is EPN according to Simons)

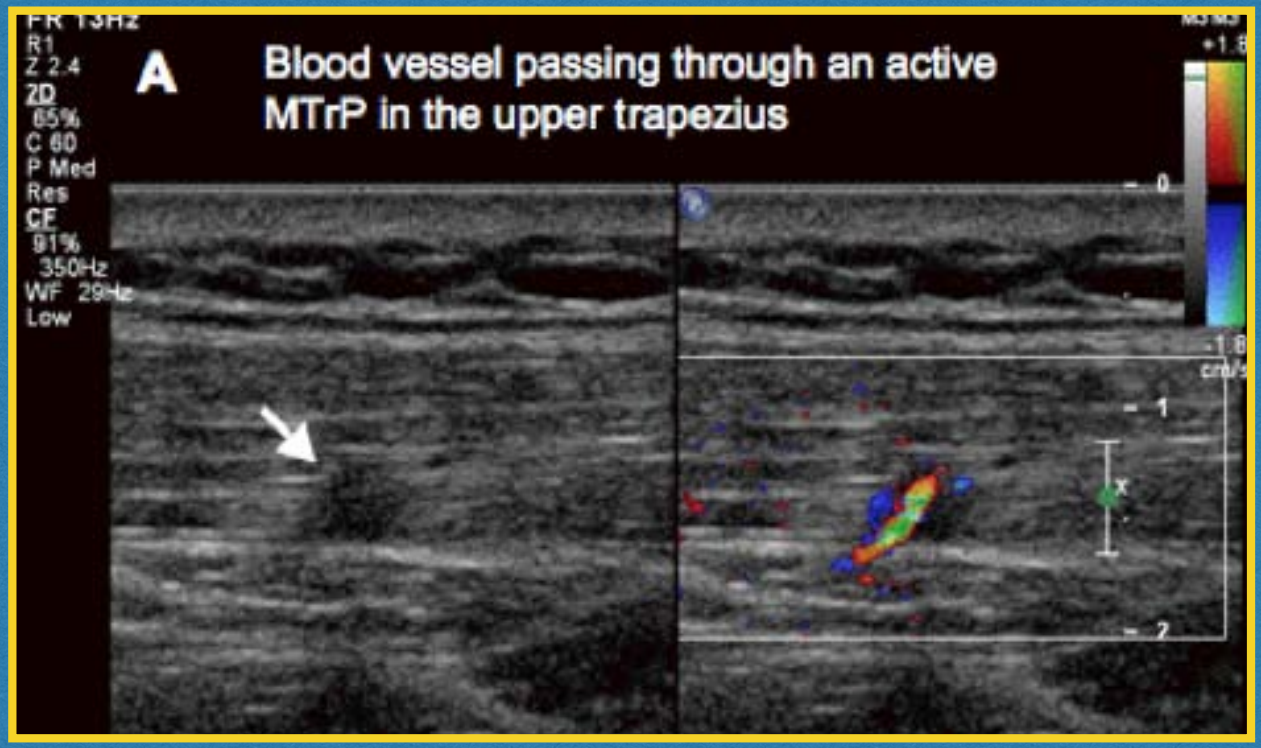


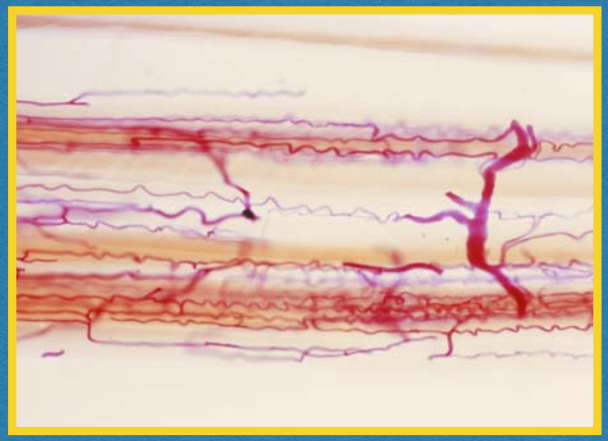
Zuurstof spanning in MTrPs



the mean oxygen saturation of adjacent normal muscle

Brückle, W., et al., Gewebe-pO2-Messung in der verspannten Rückenmuskulatur (m. erector spinae). Z. Rheumatol., 1990. 49: p. 208-216.





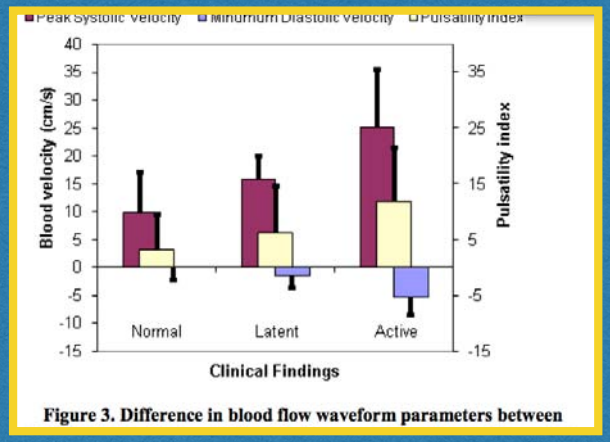
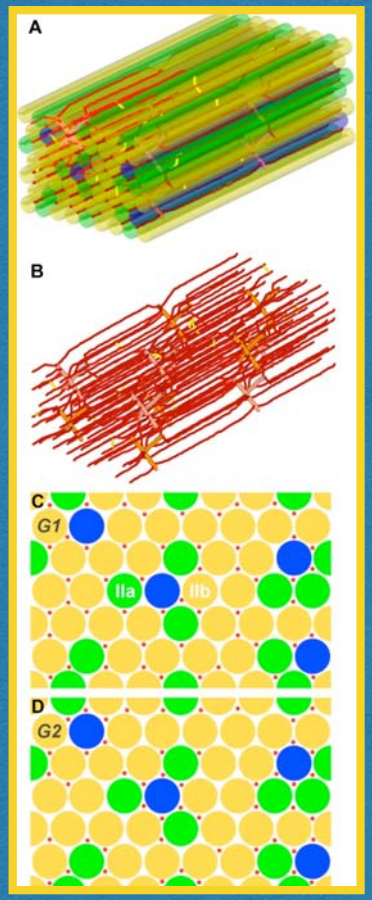


Figure 3. Difference in blood flow waveform parameters between



Understanding the Vascular Environment of Myofascial Trigger Points using Ultrasonic Imaging and Computational Modeling

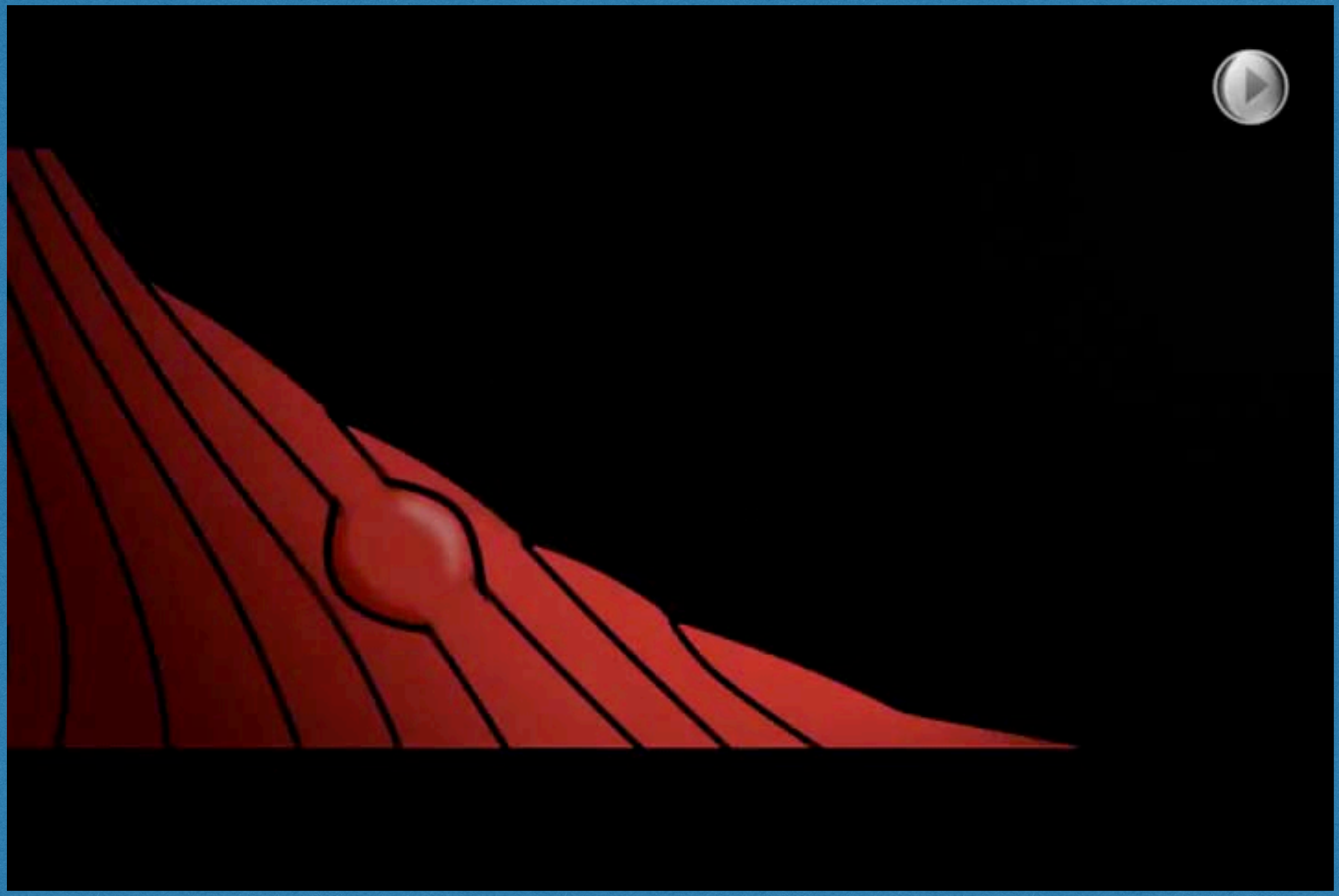
Siddhartha Sikdar et al 32nd Annual International Conference of the IEEE EMBS Buenos Aires, Argentina, August 31 – September 4, 2010

PLoS One. 2012; 7(9): e44375

verstoord biochemisch milieu

Shah, J.P., et al., An in-vivo microanalytical technique for measuring the local biochemical milieu of human skeletal muscle. J Appl Physiol, 2005. 99: p. 1980-1987

Shah JP, Danoff JV, Desai MJ, Parikh S, Nakamura LY, Phillips TM, and Gerber LH, Biochemicals associated with pain and inflammation are elevated in sites near to and remote from active myofascial trigger points. Arch Phys Med Rehabil. **89**(1): 16-23, 2008



TNF-α, IL-6 en 8

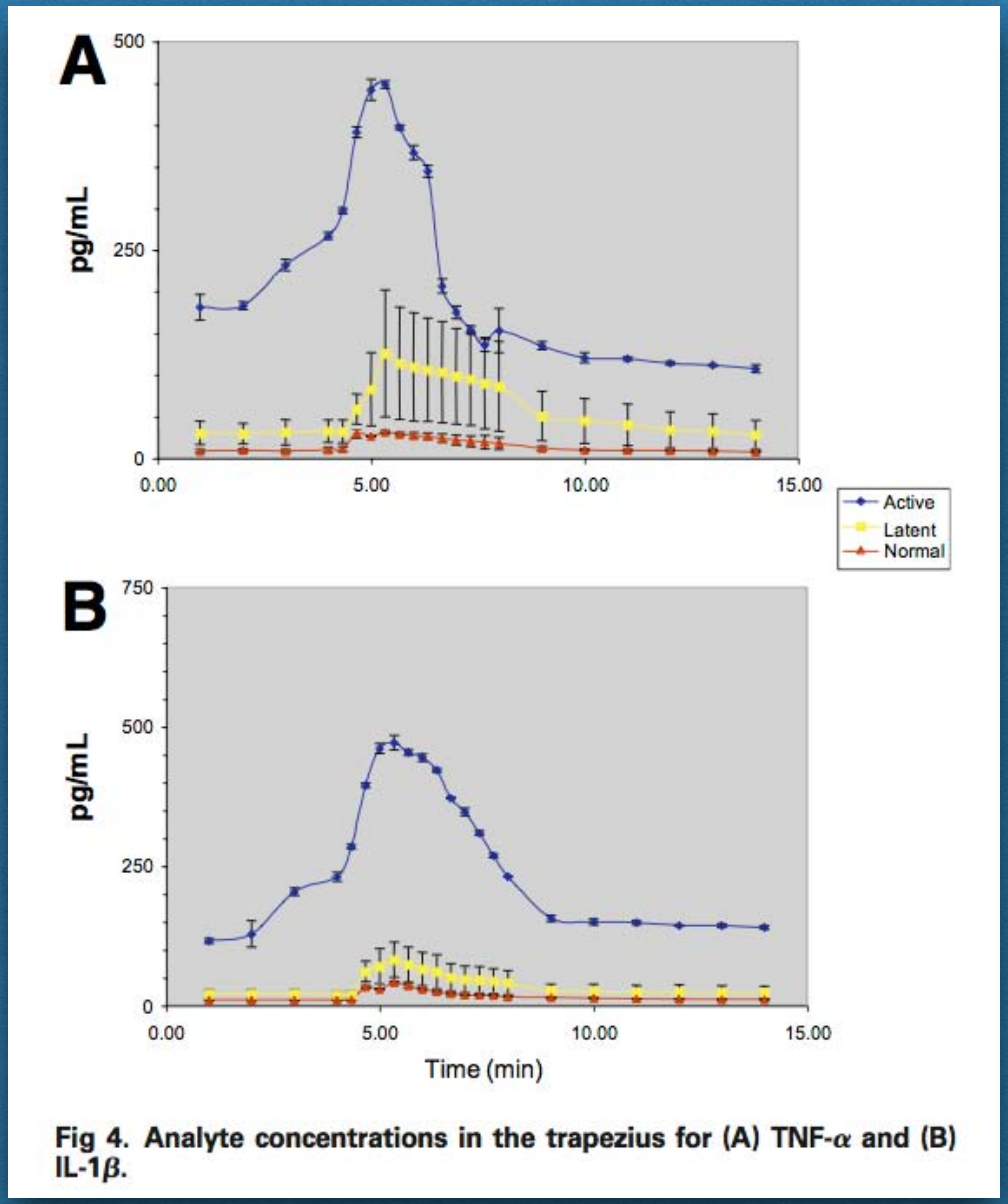


Fig 4. Analyte concentrations in the trapezius for (A) TNF-α and (B) IL-1β.

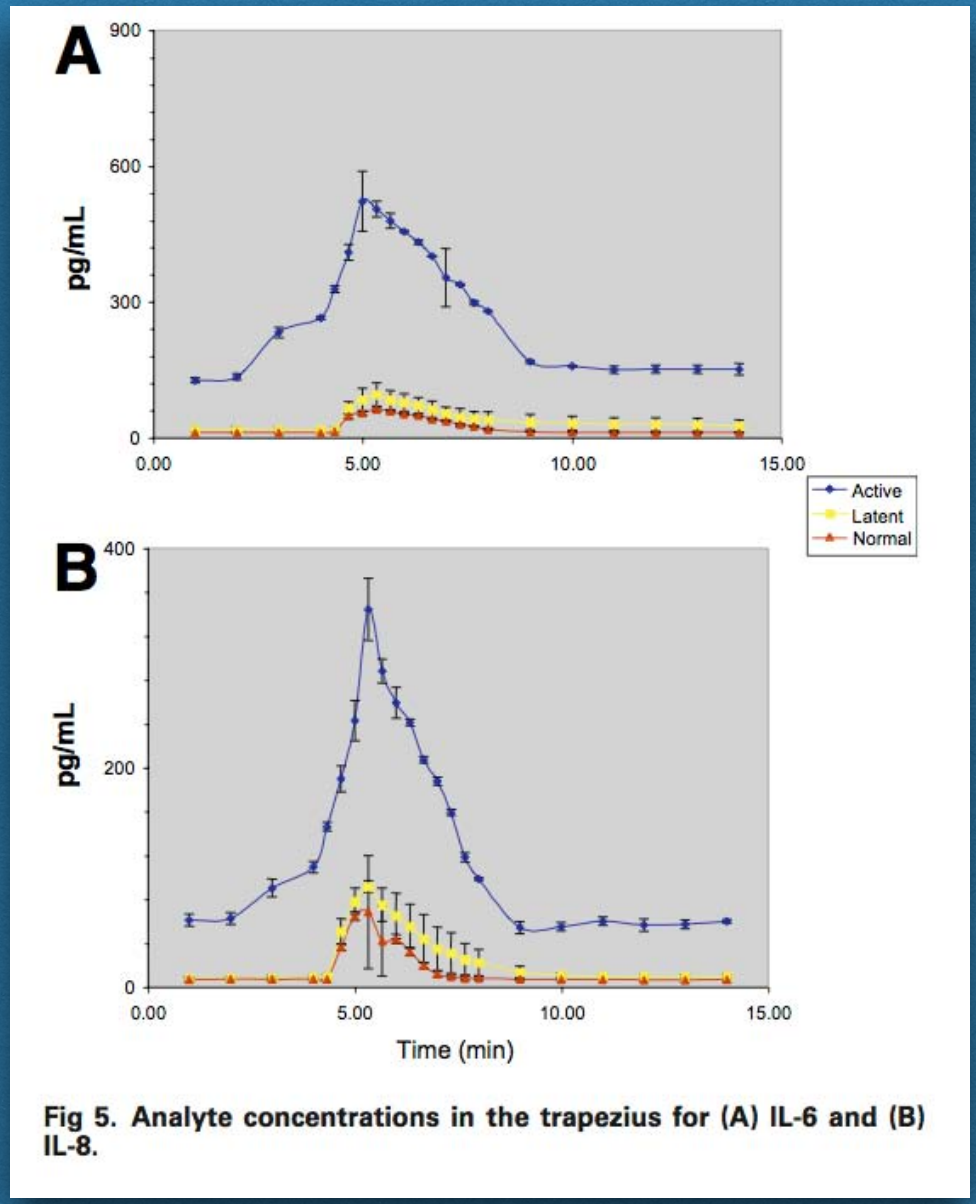


Fig 5. Analyte concentrations in the trapezius for (A) IL-6 and (B) IL-8.

pH, Substance P, CGRP en Bradykinine

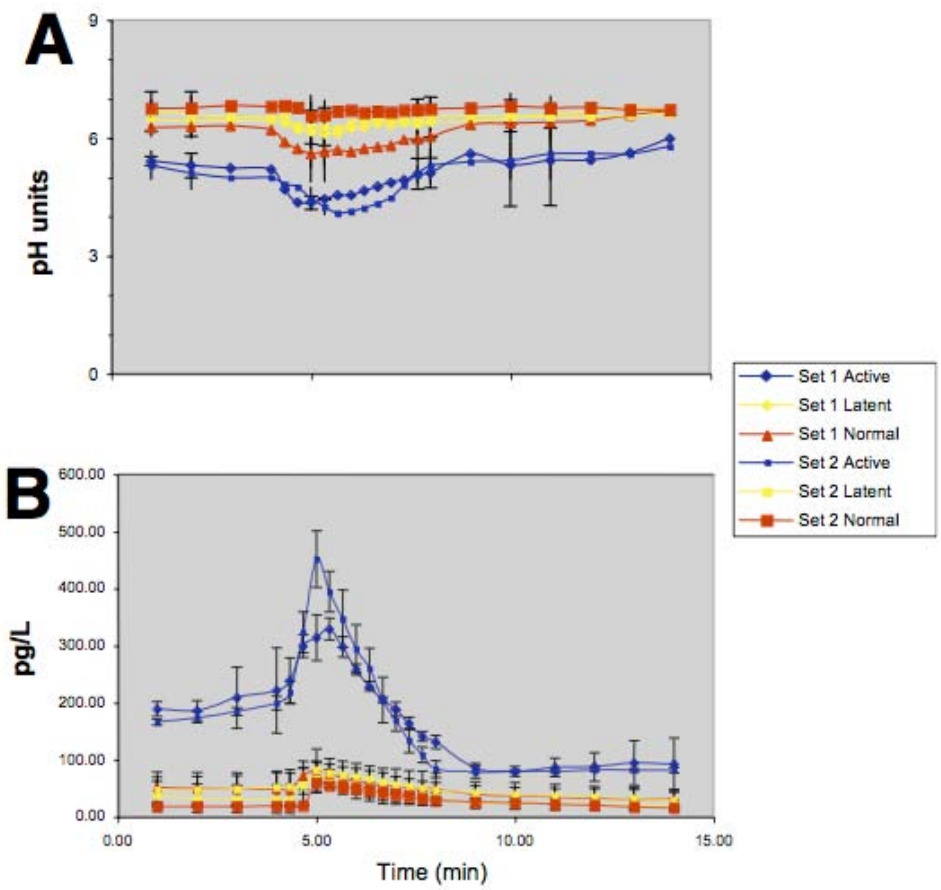


Fig 2. Analyte concentrations in the trapezius combining previous and current data. Collection for (A) pH and (B) SP.

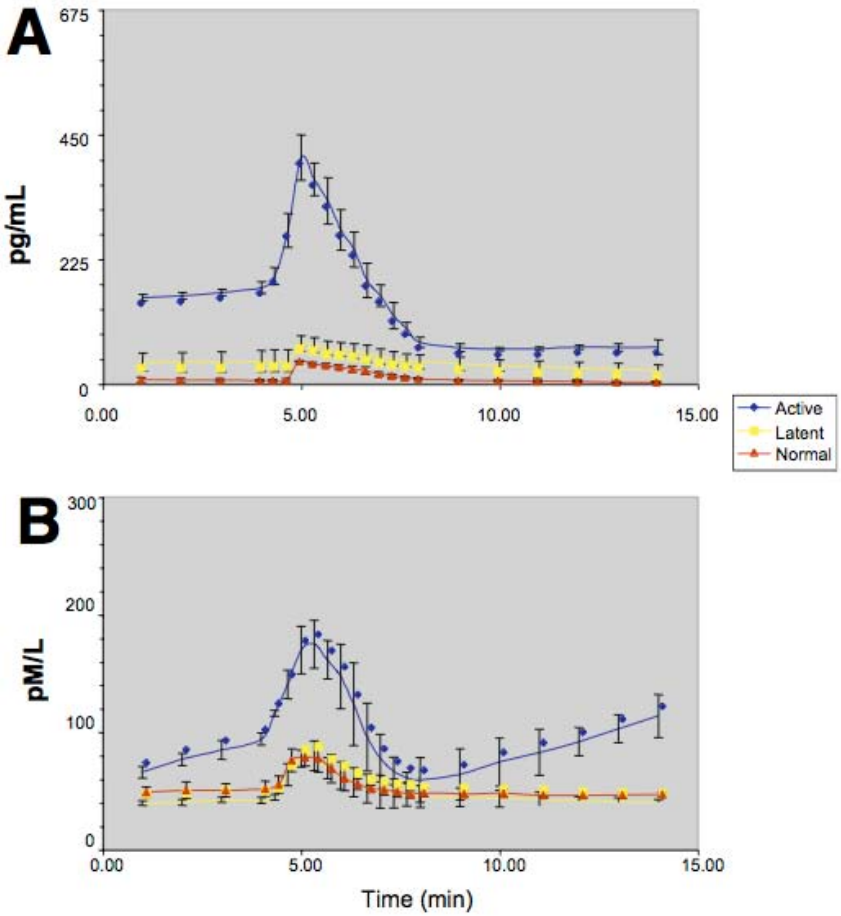
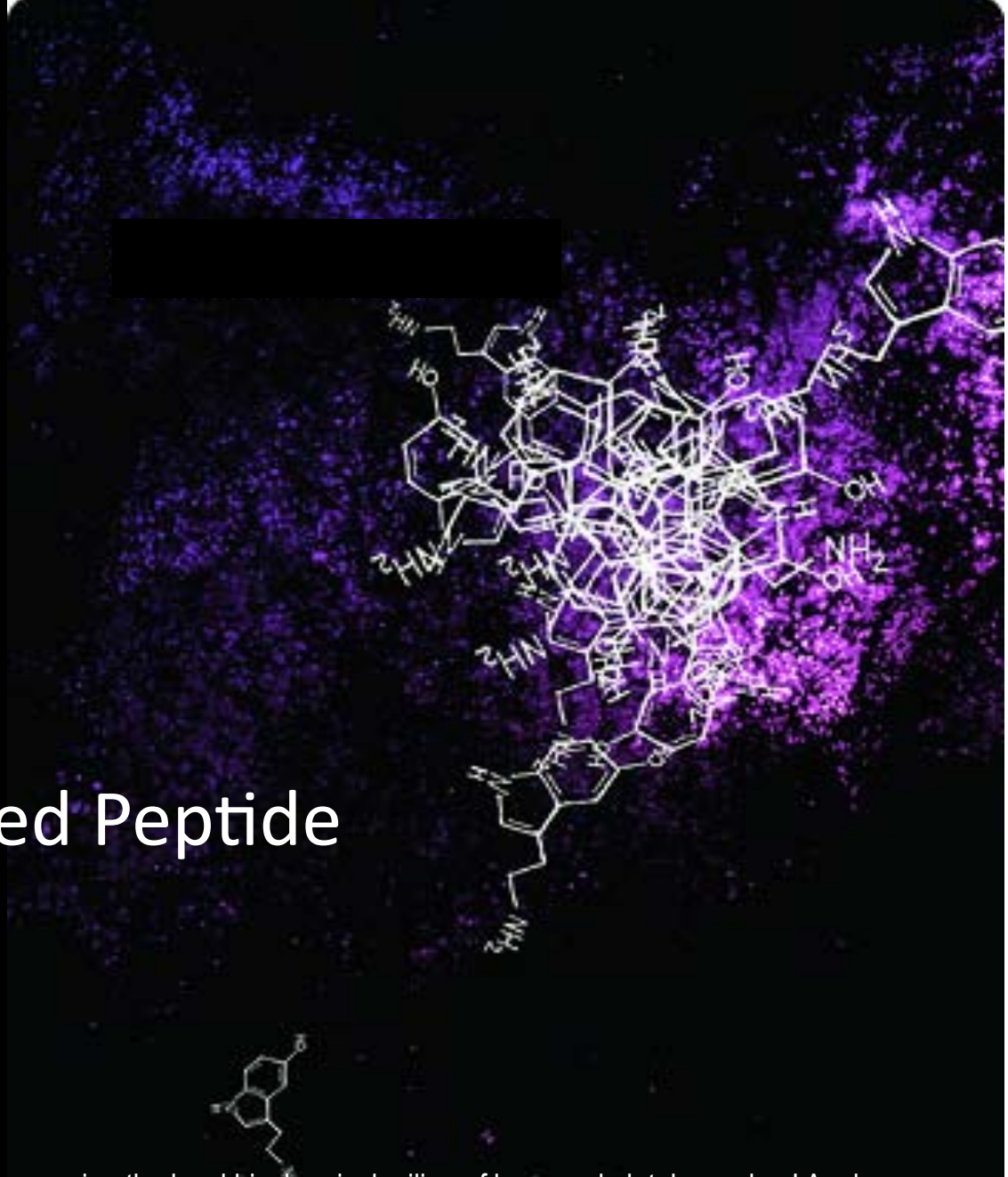


Fig 3. Analyte concentrations in the trapezius for (A) CGRP and (B) bradykinin.

- Norepinephrine
- TNF – α
- Interleukin 1, 6, 8, 12
- Substance P
- Serotonin
- Calcitonin Gene Related Peptide



Shah, J.P., et al., An in-vivo microanalytical technique for measuring the local biochemical milieu of human skeletal muscle. J Appl Physiol, 2005. 99: p. 1980-1987
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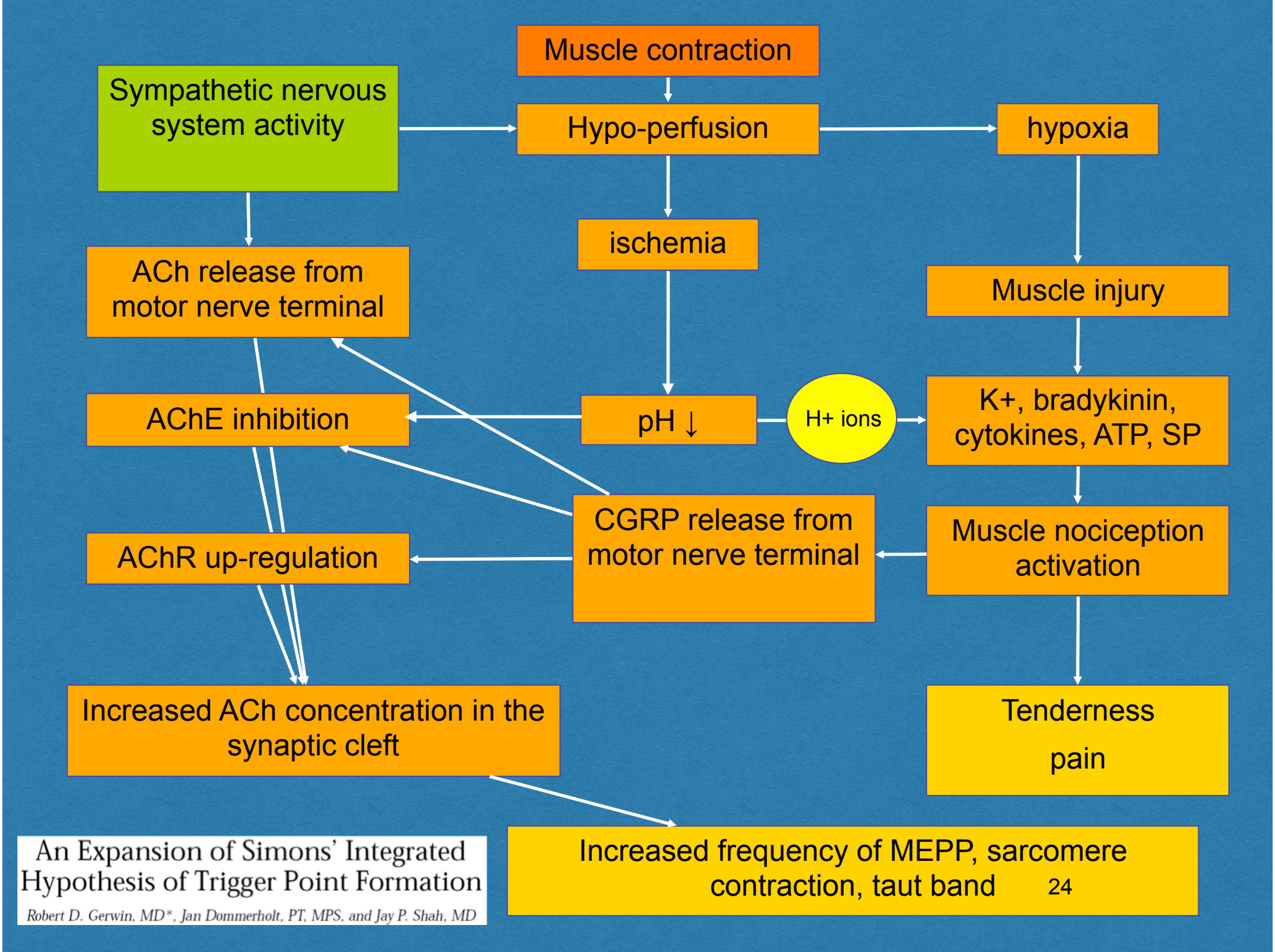


An Expansion of Simons' Integrated Hypothesis of Trigger Point Formation

Robert D. Gerwin, MD, Jan Dommerholt, PT, MPS, and Jay P. Shah, MD*

MTrPs veroorzaken:

Sensorisch

pijn
paresthesie

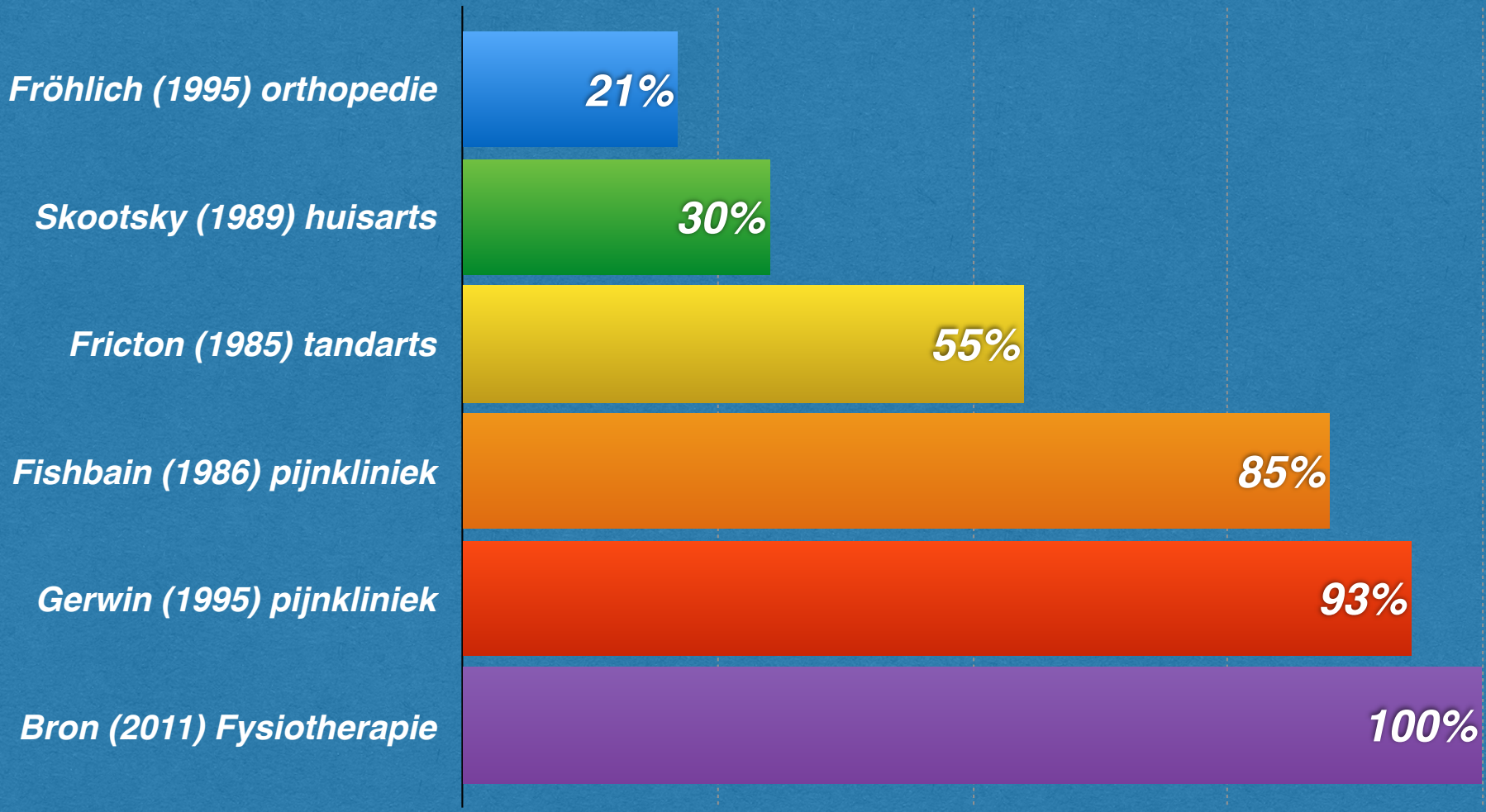
Motorisch

spierstijfheid
bewegingsbeperking
krachtsverlies
coördinatieverlies

Vegetatief

Duizeligheid, zweterigheid,
overmatig tranen
loopneus, verkleuring

Prevalentie



Myofasciale Trigger Point Therapy

Voorlichting

Klachtenonderhoudende factoren
identificeren en waar mogelijk verhelpen

therapie

Niet-invasieve therapie
massage, triggerpoint compressie
stretchen met of zonder ijs
warmte applicatie

Invasieve therapie

triggerpoint dry needling
injectie therapie

Alternatieven

TENS, Laser, Ultrageluid, Shockwave

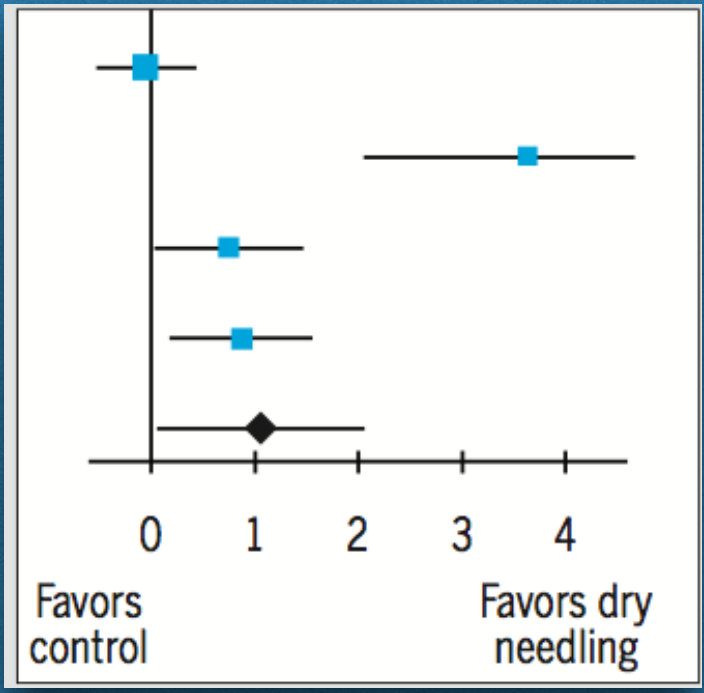
JOSPT Journal of Orthopaedic & Sports Physical Therapy

DAVID M. KIETRYS, PT, PhD, OCS[1] • KERSTIN M. PALOMBARO, PT, PhD, CAPS[2] • ERICA AZZARETTO, PT, DPT[3]
RICHARD HUBLER, PT, DPT[4] • BRET SCHALLER, PT, DPT[5] • J. MATHEW SCHLUSSEL, DPT • MARY TUCKER, PT, DPT[6]

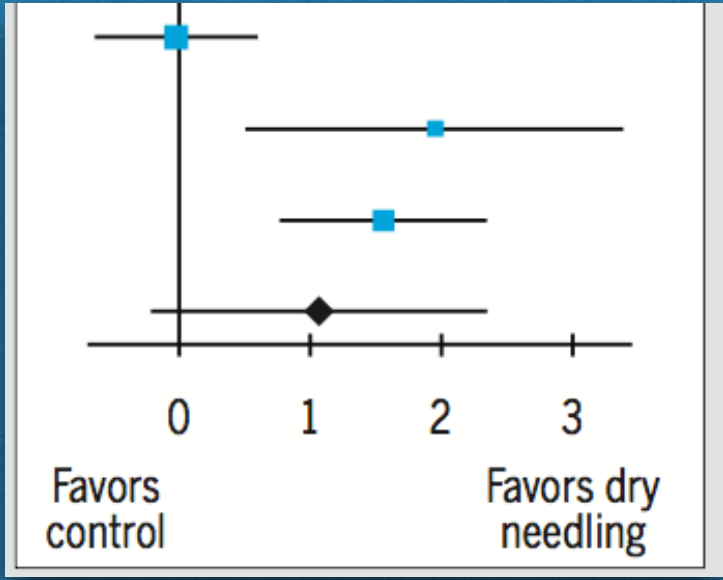
Effectiveness of Dry Needling for Upper-Quarter Myofascial Pain: A Systematic Review and Meta-analysis

CONCLUSION: Based on the best current available evidence (grade A), we recommend dry needling, compared to sham or placebo, for decreasing pain immediately after treatment and at 4 weeks in patients with upper-quarter MPS.

Due to the small number of high-quality RCTs published to date, additional well-designed studies are needed to support this recommendation.



immediate effects



approximately after 4 weeks

Research Article

Efficacy of Myofascial Trigger Point Dry Needling in the Prevention of Pain after Total Knee Arthroplasty: A Randomized, Double-Blinded, Placebo-Controlled Trial

Orlando Mayoral,[1] Isabel Salvat,[2] María Teresa Martín,[1] Stella Martín,[1] Jesús Santiago,[3] José Cotarelo,[3] and Constantino Rodríguez[3]

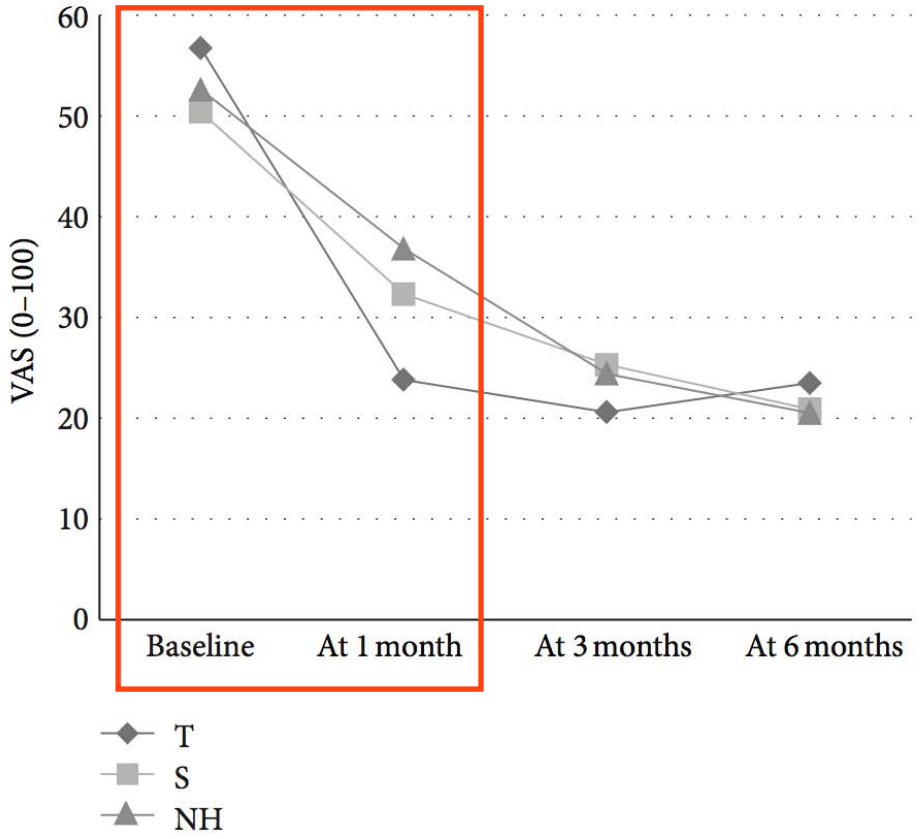
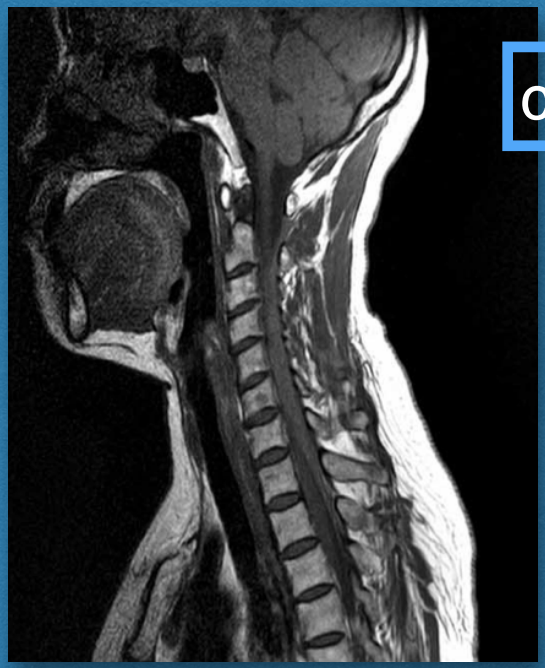


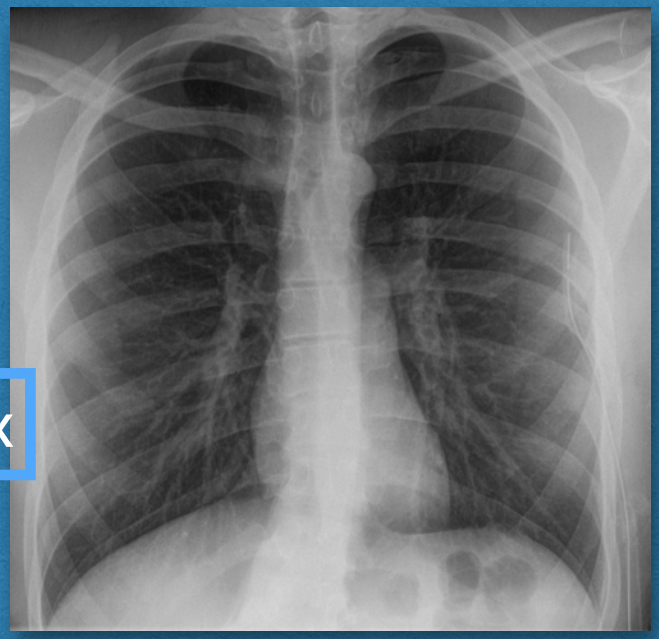
FIGURE 2: The graph shows average pain scores (VAS) at baseline, and at 1, 3, 6 months in the T group (true dry needling), in the S group (sham dry needling) and in the natural history (NH) [23].

A single, brief, and safe dry needling treatment applied under anaesthesia in lower limb MTrPs reduced the pain in the first month after total knee replacement surgery, when pain is highest.

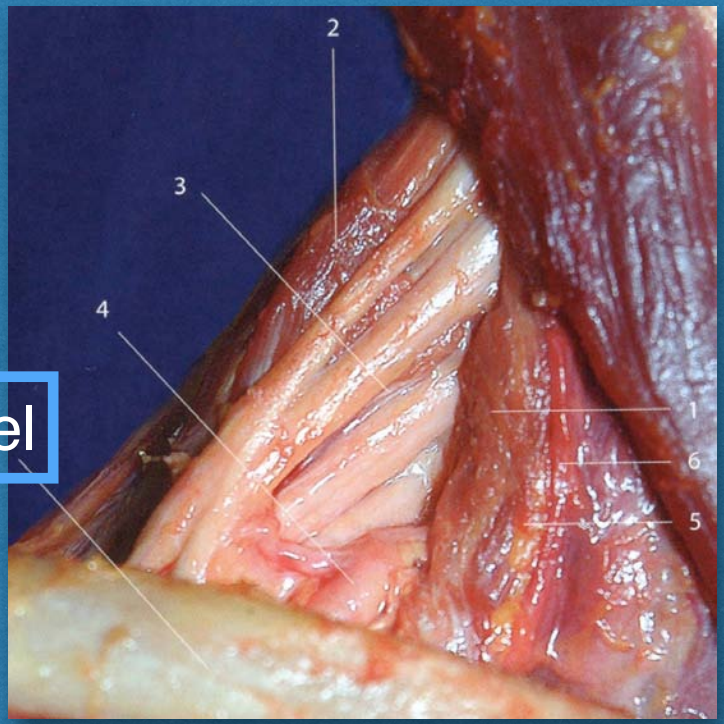
Complicaties en bijwerkingen



cervicaal epiduraal haematoon



pneumothorax



perifeer zenuw- of vaatletsel

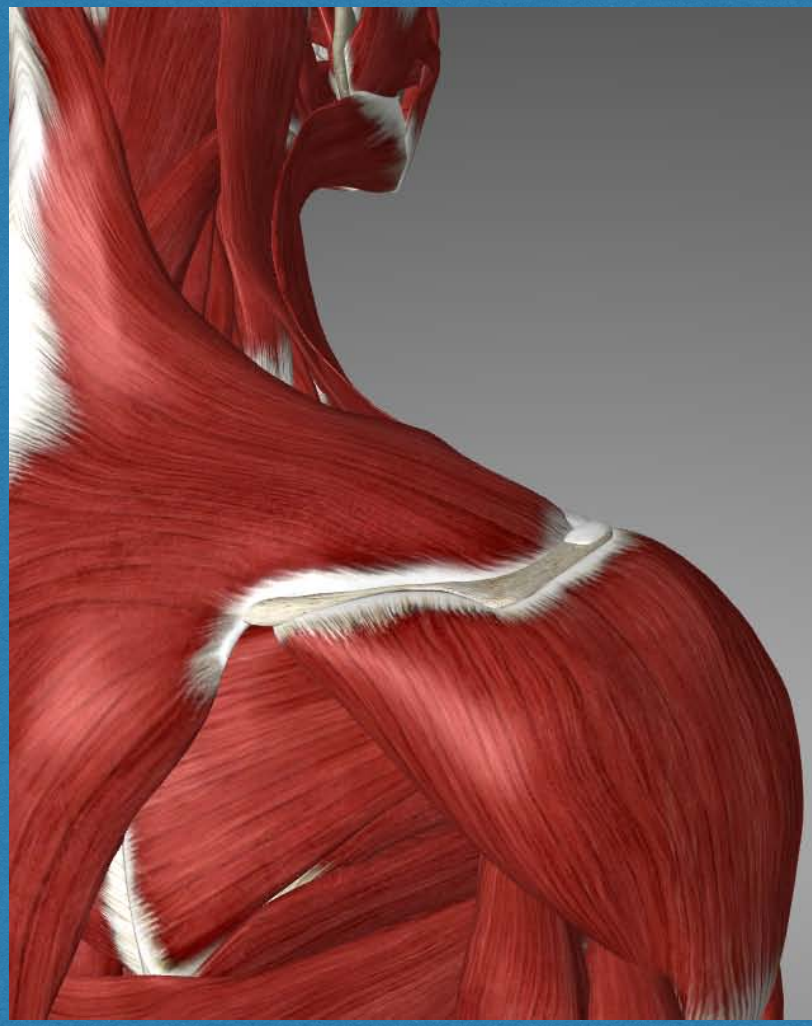
Adverse events following dry needling: A prospective survey of Chartered Physiotherapists

Brady S, McEvoy J, Dommerholt J, Doody C: Journal of Manual and Manipulative Therapy 2013.

Event	cases reported	Number per 100 treatments	
bleeding	576	7.55	vaak
bruising	355	4.65	
pain during treatment	230	3.01	
pain after treatment	167	2.19	
aggravation	67	0.88	soms
drowsiness	20	0.26	
feeling faint	17	0.22	
headache	11	0.14	
nausea	10	0.13	
fatigue	3	0.04	zelden
emotional	3	0.04	

Risk of a significant adverse event by physiotherapists:

0.04%




ZIJN ER NOG VRAGEN?