

Neural-therapy combined with ozone in cases of shoulder- or knee-pain due to synovitis

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basics of neural-therapy

- Neural-therapy is the diagnosis and therapy with local anesthetics in diseases.
- Local anesthetics induce G-alpha-q–protein-complex mediated intracellular anti-inflammatory mechanisms, deactivate overactive granulocytes and release of inflammatory mediators cytokines like TNF-alpha, IL1 and secondary prostaglandins and histamine.

basics of procaine

- The neural therapy favors the use of Procaine, due to the effect of its specific dissociation products paraaminobenzoic acid and diethylaminoethanol.
- Procaine induces vasodilatation, reduces a pathologically increased capillary permeability, has antimicrobial properties and exhibits a sympatholytic effect.

basics of ozone in medicine

- Ozone is an instable triatomic oxygen or powerful oxidant and is assigned to the biological group of reactive oxygen species ROS
- In the concentration under 200µg/ml ozone reduces inflammation.
- Molecules of medical ozone are able to stimulate the growth of cells in tissue, cells and mitochondria of interferon's, enzymes and other antimicrobial factors.

historical and basic-trials

- intra-articular injection in Osteoarthritis of the knee (*Fahmy 1981*)
- medical ozone increases the production of cytokines such as interferon's and interleukins 1,2 and 6 (*Bocci et al. 1990, Bocci et al. 2005*)
- low dose ozone regulates the angiogenesis (*Barakat et al. 2004*)
- interactive mechanism between ozone and rheumatoid arthritis synovial fibroblast cells (*Chang JD et al. 2005*)

actually clinical trials

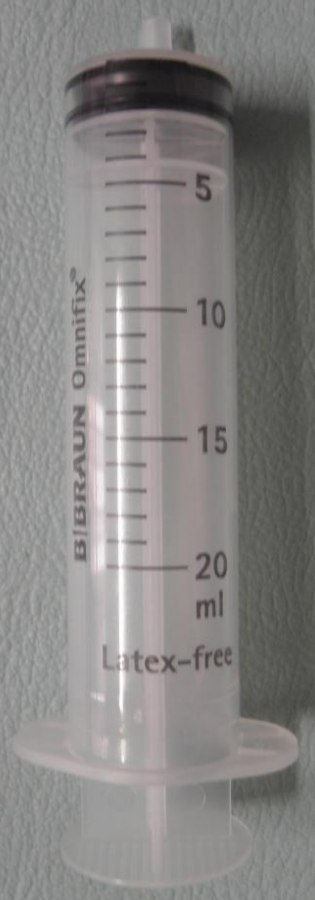
- combination of medical ozone and HA in treatment of Knee-Osteoarthritis after 2 months (*Giombini et al. 2016*)
- placebo-controlled study over 8 weeks in 98 patients with Knee-OA after injection of O₃ 20µg/ml (*Lopes de Jesus et al. 2017*)
- comparison postop. Knee-cases with or without intra-articular injection of O₃ (20µg/ml x 20ml) in 80 pat. (*Wang et al. 2018*)

[1] **Giombini** A et al. (2016) Comparison between intrarticular injection of hyaluronic acid, oxygen ozone, and the combination of both in the treatment of knee osteoarthritis. J Biol. Regul. Homeost. Agents 30(2): 621-5

[2] **Lopes de Jesus** CC et al. (2017) Comparison between intra-articular ozone and placebo in the treatment of knee osteoarthritis: A randomized, double-blinded, placebo-controlled study. PLoS one 12(7)

[3] **Wang** X et al. (2018) Effectiveness of intra-articular ozone injections on outcomes of post-arthroscopic surgery for knee osteoarthritis. Exp. Ther. Med. 15(6)

material



© Günter

- information and education
- room with disinfectable examination couch
- 2 x disinfection (with spray and wipe disinfection)
- sterile disposable gloves
- mouth guard during disconnection in the context of a puncture
- syringes with gastight stamp (e.g. Omnifix®)

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needles



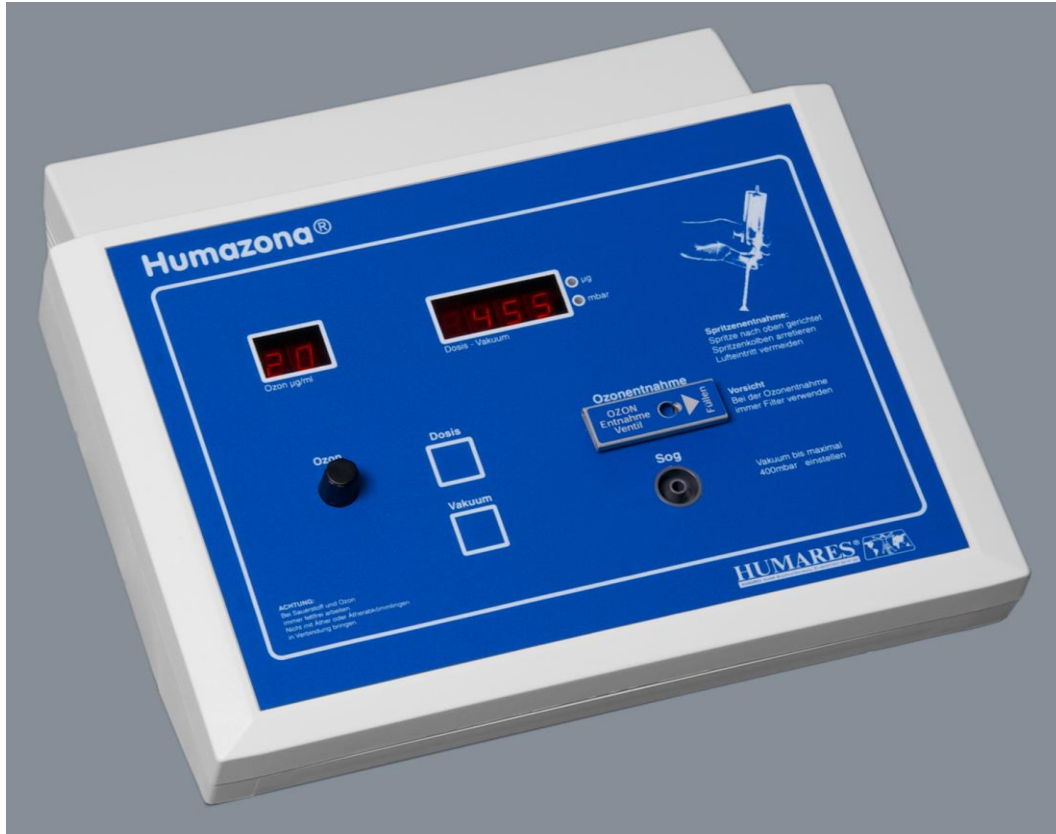
.0,4 x 40mm for i.c., s.c., i.m., i.a.
or small joints (grow long)

.0,5 x 40mm for i.m., i.a. or
moderate and big joints (orange)

.0,6 x 60mm for i.a. or gig joints
(blue middle)

.0,6 x 80mm for hips by
overweight (blue long)

generator



© Humares

- transformation of oxygen in ozone
- by electrical discharge via a high-frequency voltage in a gas tube
- while constantly measuring in the range of the desired concentration
- medical ozone = 0,5-5% pure ozone and 95-99,5% oxygen (©Humares)

preparation



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- sterile disposable set with syringe and needle
- release the stamp after adjusting the concentration (e.g. 20 μ g for joints)
- fill the syringe sitting on filter by push the button “Dosis” and control the ad

case of a knee-joint



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- Osteoarthritis of the knee
- injection in the knee-joint (intrapatellar approach)
- 1. step
- injection of procaine

case of a knee-joint



- 2. step
- injection of medical ozone

© Günter

special cases of knee-joints



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- Rheumatoid arthritis or pigmented villonodular synovitis
- injection in the knee-joint (1. step suprapatellar approach)
- 2. step the puncture of effusion
- 3. step the injection of medical ozone
- concentration 30-40 μ g/ml
- dose 20ml (600-800 μ g)

cases of shoulder-joints



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- frozen shoulder, Osteoarthritis of the shoulder...
- injection in the humeroscapular-joint (dorsal approach)
- here 2. step injection of medical ozone
- concentration 20-30 μ g/ml
- dose 5-10ml (100-300 μ g)

other cases of shoulder pain

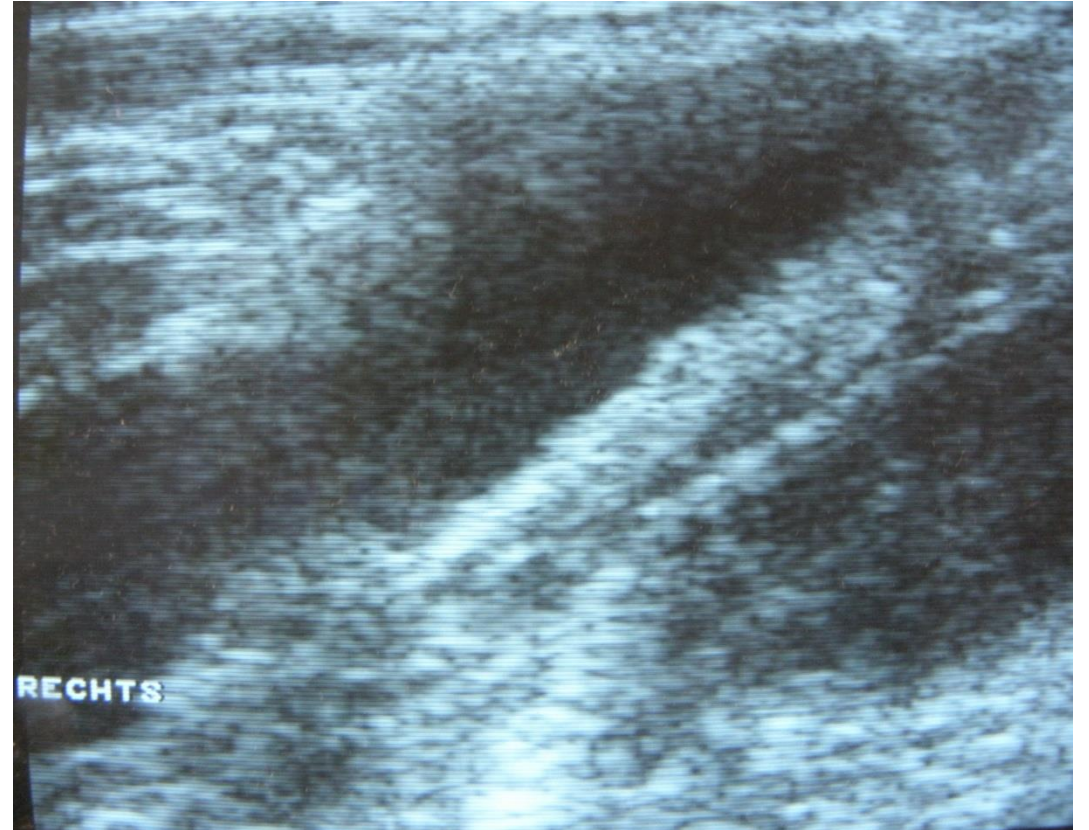


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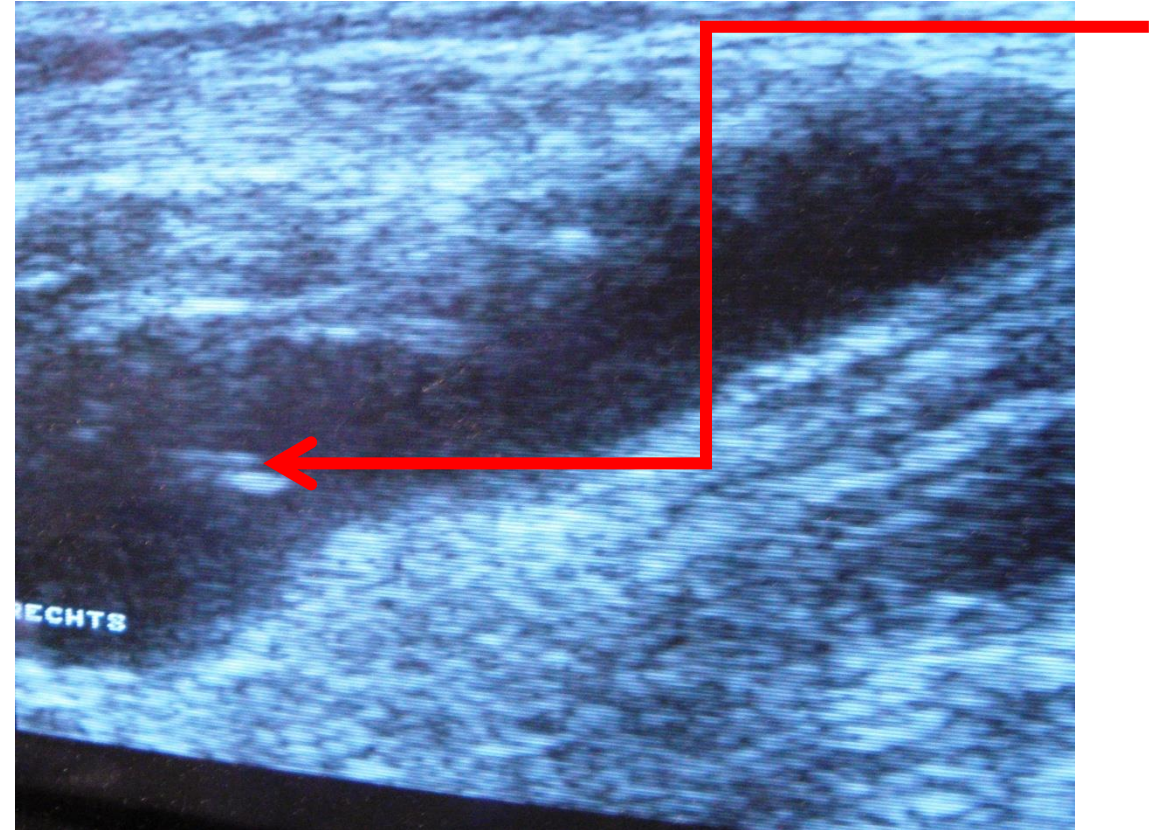
- Periarthropathia humeroscapularis with Impingement-syndrome
- injection in the subcoracoacromial bursa (cranial approach)
- 2. step injection of medical ozone
- concentration 20-30 μ g/ml
- dose 5-10ml (100-300 μ g)

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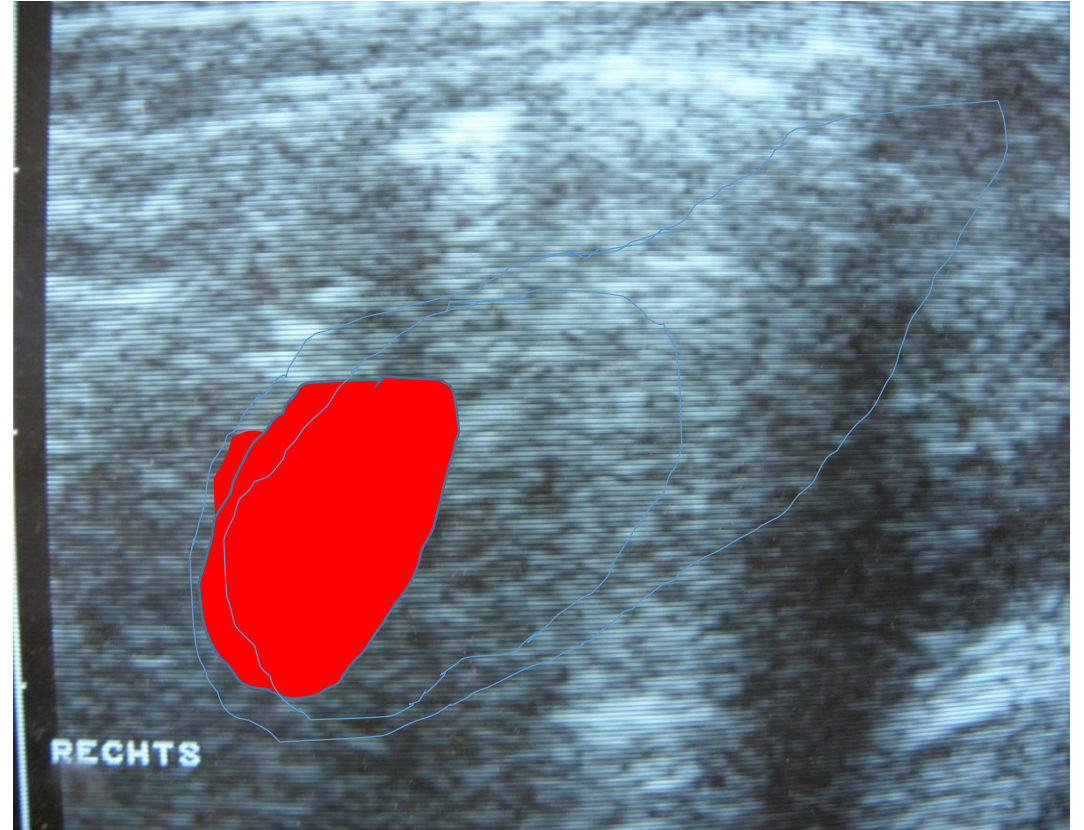
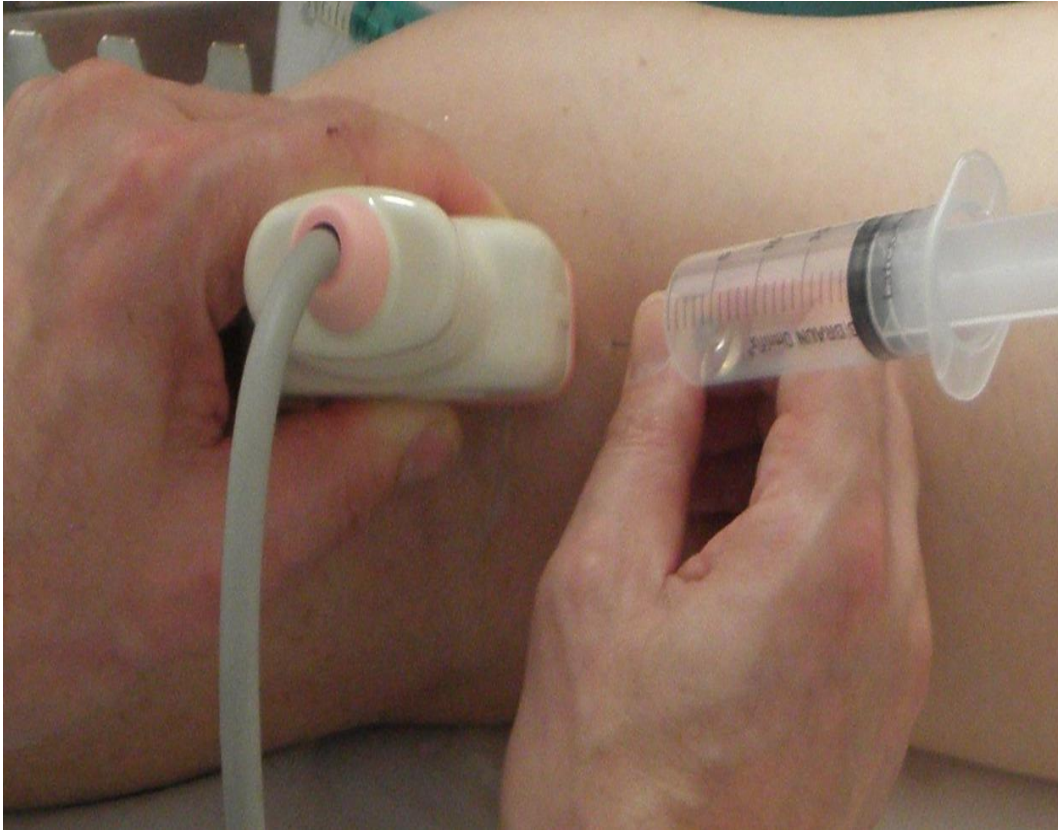
ultrasound supported method



ultrasound supported method



ultrasound supported method



combinations

systemic drugs, physiotherapy, diets, electro-magnetic and resonance therapy,
homeopathy

all variants of the acupuncture

all variants of segmental, peri- and intra-articular injections like

.hyaluron-acid (*Giombini A et al. 2016*)

.Traumeel[®], Arnica etc.

.autolog conditioned plasma and

.homeopathic synovia

Thank you for your kind attention

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