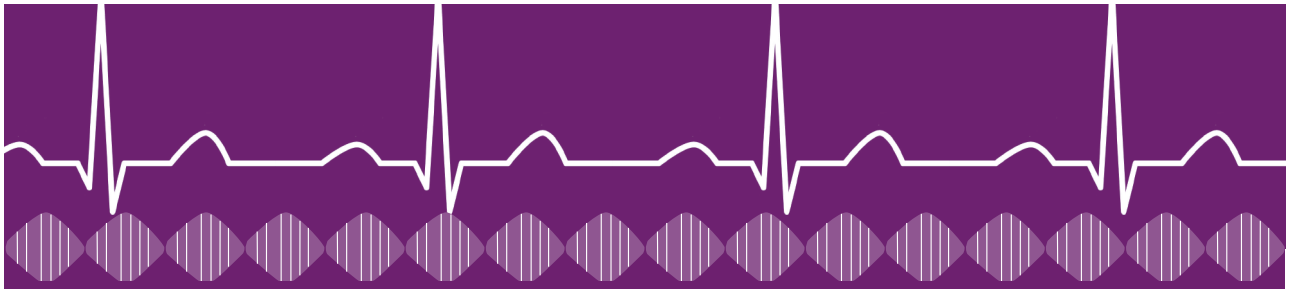
ACCELERATE YOUR PATIENTS' RECOVERY



EL PHYSIOTHERAPY INFORMATION BULLETIN

PHYSIOTHERAPY IN MUSCULOSKELETAL PATHOLOGIES

Bone Fractures

Bone fractures have a high epidemiological prevalence in various age groups around the world and are associated with substantial disability and socioeconomic costs (1, 2). There is evidence from randomised trials that the use of low-intensity pulsed ultrasound appears to promote accelerated fracture healing (3).

J. Busse with co-authors (3) performed a meta-analysis of the trials investigating the effect of low-intensity pulsed ultrasound on time to fracture healing. The internal validity of the trials was estimated using a 5-point scale that evaluates the quality of trial method on the basis of description and appropriateness of randomisation and double-blinding, and assessment of study withdrawals and likelihood of bias. The results of their studies are shown in Table 1.

Table 1: Summary of the trials included in the meta-analysis

Trial	Location of fracture	Sample size, no of fractures		Mean age (and SD), yr	Male; female ratio	Fracture		Mean time to healing (and SD), d		Effect size	Quality score†
		Treatment group	Control group			Open	Closed	Treatment group	Control group		
Heckman et al[39]	Tibial shaft	33	34	Treatment 36 (2) Control 31 (2)	54:13	3 (grade 1)	64	114 (7.5)	182 (15.8)	5.41	5
Kristiansen et al [40]	Distal radius	30	31	Treatment 54 (3) Control 58 (2)	10:51	0	61	61 (3)	98 (5)	8.82	5
Mayr et al [42]	Scaphoid	15	15	37 (14)	25:5	NA	NA	43 (11)	62 (19)*	1.20	4

Note: SD = standard deviation. NA = not applicable
Healing time was defined as the time from initiation of treatment to removal of the cast.
†Maximum score 5 (see Methods section).
CMAJ. 2002 February 19; 166(4): 437–441.

The data indicates that ultrasound therapy is efficient in fracture healing. The findings suggest that treatment with low-intensity pulsed ultrasound could significantly reduce healing time and yield substantial cost savings and decreases in disability associated with delayed union and nonunion of fractures (3).

References
1. Hannon M, Hadjizacharia P, Chan L, Plurad D, Demetriades D. Prognostic significance of lower extremity bone fractures after automobile versus pedestrian injuries. *J. Trauma* 2009; 67 (6): 1384-1388
2. Rewers A, Hedegaard H, Lezotte D, Meng K, Battan FK, Emery K, Hamman RF. Childhood femur fractures, associated injuries, and sociodemographic risk factors: a population based study. *Pediatrics* 2005; 115 (5): 543-552
3. Busse JW, Bhandari M, Kulkarni AV, Tunks E. The effect of low-intensity pulsed ultrasound therapy on time to fracture healing: a meta-analysis. *CMAJ* 2002; 166 (4): 437-441.

Fibromyalgia

Fibromyalgia is a common disorder of unknown aetiology characterised by chronic musculoskeletal pain and increased tenderness at standardised tender points. Additional symptoms are fatigue, sleep disturbances, deconditioning and reduced quality of life. Treatment of the disease and other painful conditions using individual physiotherapy modalities and their combinations was documented (1).

The effect of treatment using combined therapy including both ultrasound and interferential current on pain and sleep parameters in fibromyalgia (1) are shown in Tables 1 and 2.

Table 1. Subjective pre- and post-sleep pain parameters modified by treatment (T. Almeida et al., Pain, 2003)

Pain parameters	Sleep	Sham treatment		CIPI treatment		2 Way ANOVA *F* (1.15)		
		Before	After	Before	After	A	B	C
Body map (number)	Pre	21.1 ± 4.5	18.8 ± 11.8	17.8 ± 8.0	1.2 ± 1.1[a,b]	41.2*	49.8*	31.2*
	Post	19.6 ± 7.4	18.1 ± 10.7	15.6 ± 4.7	1.4 ± 1.2[a,b]	24.1*	47.4*	38.2*
Pain Intensity (VAS)	Pre	7.3 ± 1.5	7.2 ± 2.1	6.8 ± 1.4	3.0 ± 2.1[a,b]	6.7*	14.0*	12.6*
	Post	7.4 ± 1.45	7.3 ± 2.0	7.4 ± 1.5	2.8 ± 2.6[a,b]	5.8*	15.6*	13.3*

Mean±SD. Two-way ANOVA: A, factor group; B, factor time; C, Interaction factor. *P<0.001; #P<0.005.

Table 2. Subjective sleep parameters modified by treatment (T. Almeida et al., Pain, 2003)

Sleep parameters	Sham treatment		CIPI treatment		2 Way ANOVA *F* (1.15)		
	Before	After	Before	After	A	B	C
Refreshing sleep (VAS	2.8 ± 0.6	2.9 ± 0.6	2.1 ± 0.7	7.5 ± 0.7[a,b]	45.3*	229.0*	229.0*
Morning fatigue (VAS	8.0 ± 0.5	8.3 ± 0.5	7.0 ± 1.2	2.6 ± 1.0[a,b]	84.4*	71.7*	101.5*

Mean±SD. Two-way ANOVA: A, factor group; B, factor time; C, Interaction factor. *P<0.001.

The results show that pain manifestations and sleep disturbances were significantly improved after the treatment (1).

References
1. Almeida T, Roizenblatt S, Benedito-Silva A, Tufik S. The effect of combined therapy (ultrasound and interferential current) on pain and sleep in fibromyalgia. *Pain* 2003; 104 (3): 665-672

Some other musculoskeletal pathologies effectively treated using physiotherapy techniques

Pathology	Technique	Source
Knee osteoarthritis	Ibuprofen phonophoresis	Kozanoglu E et al. Swiss Medical Weekly 2003; 133: 333-338
Carpal tunnel syndrome	Ultrasound	Bakhtiary AH, Rashidy-Pour A. The Australian Journal of Physiotherapy 2004; 50: 147-151
Lateral epicondylitis	Naproxen phonophoresis and iontophoresis	Baskurt F et al. Clinical Rehabilitation 2003; 17 (1): 96-100

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