

CHAPTER 4

RESULTS

4.1 Demographic characteristics of the participants

The participants in this study consisted of 30 healthy volunteer females. The mean age of the participants was 22.93 ± 2.94 years old. For all participants, the average body weight, height and BMI were 49.40 ± 7.94 kg., 158.73 ± 5.66 cm. and 19.57 ± 2.64 kg./m², respectively (Table 4-1).

Table 4-1 Demographic characteristics of the participants (N=30)

	Mean	Std. Deviation	Minimum	Maximum
AGE (years)	22.93	2.94	19	30
HEIGHT (cm.)	158.73	5.66	143	168
WEIGHT (kg.)	49.40	7.94	40	78
BMI (kg./m ²)	19.57	2.64	16.22	28.30

4.2 Stability of thermal perception thresholds testing on three time intervals

Mean log- transformed data of thermal perception thresholds; cold detection thresholds (CDTs) and warm detection thresholds (WDTs), are presented in Table 4-2 for 30 participants who completed series 1. There were no statistically significant differences between the three time intervals (0 minute, 5th minutes and 24th hours) of CDTs ($F_{(2,58)}=0.806$, $p=0.452$) and WDTs ($F_{(2,58)}=1.133$, $p=0.329$).

Table 4-2 Summary of log- transformed data of CDTs and WDTs at 0 minute (LG-0 min.), 5th minutes (LG-5 min.) and 24th hours (LG-24 hr.)

TSTs	Time (minute)	Mean (log)	Std. Deviation	Minimum	Maximum	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
CDTs	LG-0 min.	-0.244	0.1809	-0.52	0.12	-0.3116	-0.1765
	LG-5 min.	-0.2104	0.2222	-0.57	0.39	-0.2934	-0.1275
	LG-24 hr.	-0.2315	0.2105	-0.7	0.26	-0.3101	-0.1528
WDTs	LG-0 min.	-0.1011	0.2333	-0.52	0.59	-0.1882	-1.40E-02
	LG-5 min.	-0.1477	0.198	-0.48	0.43	-0.2216	-7.38E-02
	LG-24 hr.	-0.1405	0.2286	-0.63	0.49	-0.2259	-5.51E-02

4.3 The effects of therapeutic ultrasound on thermal perception

thresholds

4.3.1 Cold detection thresholds (CDTs)

Average cold detection thresholds measured before and after three modes of ultrasound are presented in figure 4-1. Log- transformed data of CDTs values under each ultrasound condition are shown in Table 4-3. Pre-treatment CDTs (base) did not differ between control, placebo ultrasound, 20% pulse ultrasound, and continuous ultrasound ($F=0.138$, $p=0.937$). Between pre- and post-intervention in each condition, there were significant increase in cold detection thresholds from base to post-intervention following placebo ultrasound (mean= 0.21°C , $p<0.01$), 20% pulse ultrasound (mean= 0.20°C , $p<0.005$), and continuous ultrasound (mean= 0.19°C , $p<0.01$).

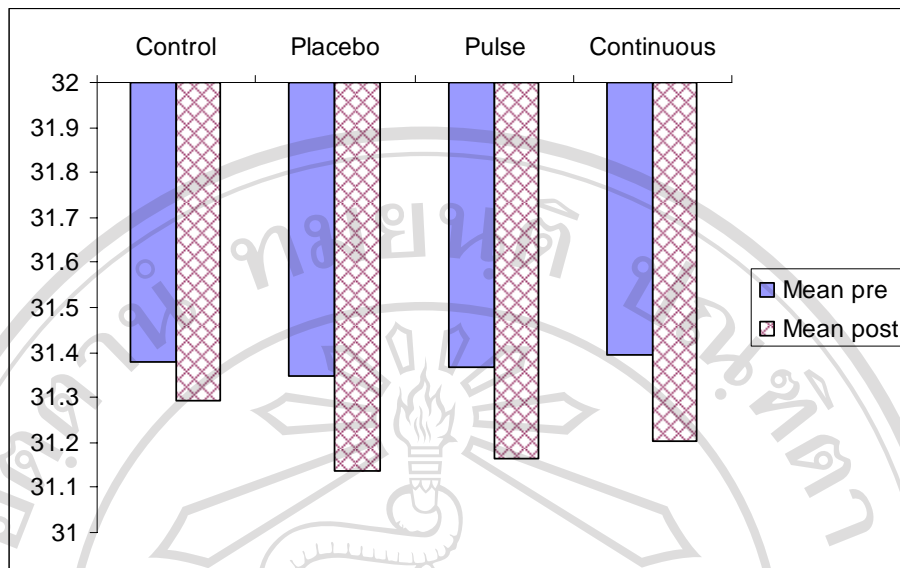


Figure 4-1 Cold detection thresholds measured before and after placebo ultrasound, 20%pulse ultrasound, and continuous ultrasound.

Table 4-3 Mean (SD) CDTs before (base) and after (post-) applications of four ultrasound conditions: control, placebo, 20%pulse, and continuous ultrasound

US conditions		Mean Log CDTs	(SD)	t(1,29)	Pair t test
control	base	-0.244	0.1809		
	post	-0.2104	0.2222	-1.249	0.222
Placebo US	base	-0.2349	0.2124		
	post	-0.1276	0.2344	-3.328	0.002
20%pulse US	base	-0.2416	0.1926		
	post	-0.1454	0.2244	-4.24	<0.001
Continuous US	base	-0.2528	0.1754		
	post	-0.1541	0.2170	-3.697	0.001

4.3.2 Warm detection thresholds (WDTs)

Average warm detection thresholds measured before and after three modes of ultrasound are presented in figure 4-2. Log- transformed data of WDTs values under

each ultrasound condition are shown in Table 4-4. Pre-treatment WDTs (base) did not differ between control, placebo ultrasound, 20% pulse ultrasound, and continuous ultrasound ($F=1.475$, $p=0.227$). WDTs between pre and post-intervention in each condition were not different.

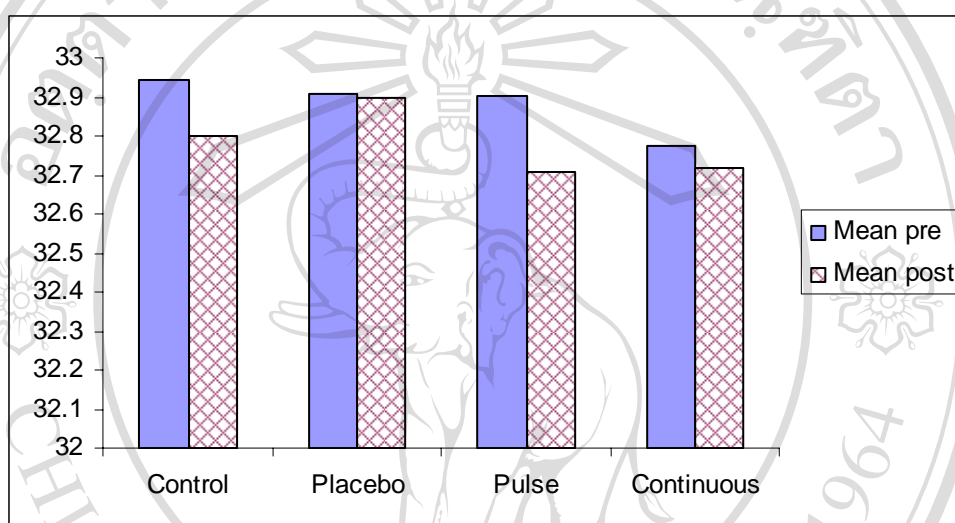


Figure 4-2 Warm detection thresholds measured before and after placebo ultrasound, 20% pulse ultrasound, and continuous ultrasound.

Table 4-4 Mean (SD) WDTs before (base) and after (post-) applications of four ultrasound conditions: control, placebo, 20% pulse, and continuous ultrasound

US conditions		Mean Log WDTs	(SD)	t(1,29)	Pair t test
control	base	-0.1011	0.2333	1.731	0.094
	post	-0.1477	0.1980		
Placebo US	base	-0.1348	0.2717	0.281	0.781
	post	-0.1434	0.2554		
20% pulse US	base	-0.1448	0.2777	1.926	0.064
	post	-0.202	0.2094		
Continuous US	base	-0.1795	0.2394	0.288	0.776
	post	-0.1893	0.2123		



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