CHAPTER IV
RESULTS

4.1 Participants Characteristics

Screening evaluations were performed on 30 patients in Scleroderma clinic, Srinagarind Hospital from November to December, 2009. Thirty patients with Scleroderma were excluded for 10, because participants were exclusion criteria. Twenty patients with Scleroderma met the inclusion criteria and participated in this study. Table 1 shows the clinical characteristics of the participants. Participants were divided into 2 groups equally by 4 male and 6 male in Traditional Thai Massage as same as the control group. There were no significant differences between the two groups on disease duration and time from the onset of Raynaud's phenomenon. The range of modified Rodnan skin score at upper extremity was between 5-6 and all participants were right-hander.

Table 1 Main clinical and demographic characteristic of SSc patients

Variables	Traditional Thai Massage (TTM) group	Control (CON) group	p value
Age (years): (median: Q1-Q3)	55.5 : 44.25-60.5	61 : 52.75-69.5	0.111
Gender	6 female, 4 male	6 female, 4 male	1.00
Disease duration (years) (median: Q1-Q3)	3 : 1.75-6	4 : 2.75-10	0.203
Time from the onset of Raynaud's phenomenon (years) (median: Q1-Q3)	3 : 1.75-6	4 : 2.75-10	0.203
Disease subset	10 dcSSc	10 dcSSc	1.00
The modified Rodnan Skin Score	5: 5-6	6: 5.75-6	0.075
Dominant hand	10 right hand	10 right hand	1.00
Vasodialator drugs	10 persons	10 persons	1.00

(* Statistical significant difference between group at $p<0.05$)

4.2 The immediate and time periods effect of Traditional Thai Massage on alteration of skin temperature for both groups.

Table 2 shows the immediate and time periods effect of Traditional Thai Massage on alteration of hand skin temperature in both hands. The immediate and time periods effect of Traditional Thai Massage on alteration of left hand temperature of the TTM group was significantly greater than control group (post-test 10, 20 and 30 minute, respectively) (Figure1). Figure 2 shows the immediate and time periods effect of Traditional Thai Massage on alteration of skin temperature of right hand. The alteration of right hand temperature of TTM group was significantly greater than control group (post-test 10, 20 and 30 minute, respectively). Increasing of hand temperature in the control group was not observed (Table 3).

Table 2 The alteration of hand skin temperature in TTM group

Temperature difference (mean±SD)	**Traditional Thai Massage (TTM) group**				**p value**			
	Pre/ Immediate	**Pre/ Post 10 min**	**Pre/ Post 20 min**	**Pre/ Post 30 min**	**Pre/ Immediate**	**Pre/ Post 10 min**	**Pre/ Post 20 min**	**Pre/ Post 30 min**
Left hand (oC)	2.53±0.96	2.41± 1.31	1.86± 1.23	1.49± 1.09	0.00*	0.002*	0.01*	0.02*
Right hand (oC)	1.59±0.91	1.81± 1.33	1.48± 1.15	1.33± 1.45	0.003*	0.02*	0.029*	0.176

(* Statistical significance at $p<0.05$)

Table 3 The alteration of hand skin temperature in the control group

Temperature difference (mean±SD)	Control (CON) group				p value			
	Pre/ Immediate	**Pre/ Post 10 min**	**Pre/ Post 20 min**	**Pre/ Post 30 min**	**Pre/ Immediate**	**Pre/ Post 10 min**	**Pre/ Post 20 min**	**Pre/ Post 30 min**
Left hand (oC)	0.18±0.38	0.26± 0.34	0.20± 0.27	0.05± 0.31	1.00	0.395	0.495	1.00
Right hand (oC)	0.19±0.38	0.16± 0.38	0.17± 0.31	0.05± 0.31	1.00	1.00	1.00	1.00

(* Statistical significant at $p<0.05$)

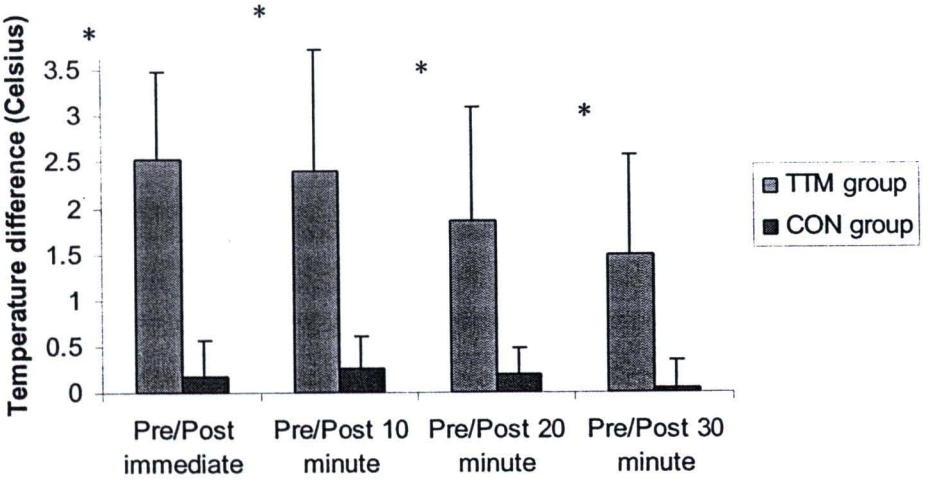

Figure 1 The immediate and time period's effect of the TTM and CON groups alteration of left hand skin temperature showed as mean±SD. (* Statistical significant difference between groups at $p<0.05$)

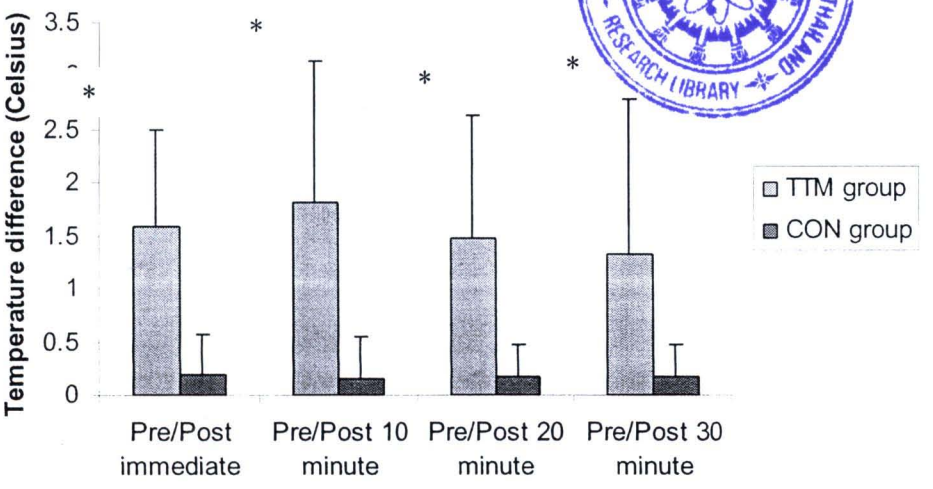

Figure 2 The immediate and time period's effect of the TTM and CON groups on alteration of right hand skin temperature between groups showed as mean±SD.

(* Statistical significant difference between groups at $p<0.05$)

4.3 The immediate and short term effects of Traditional Thai Massage on alteration of hand mobility in Scleroderma patients.

Table 4 shows that the HAMIS score reduce in both groups. The reduction of the results showed that HAMIS score in TTM group was higher than the control group. As indicate above, a high HAMIS score reduction denoted improvement of hand mobility and hand functioning. Thus, the immediate and short term effects (2 weeks follow up) of Traditional Thai Massage on alteration of hand mobility of both hands in TTM group were significantly greater than the control group (Figure 3, 4).

Table 4 The immediate and short term effect of Traditional Thai Massage on alteration of hand mobility in both groups.

Hand / Group	Traditional Thai Massage (TTM) group			Control (CON) group		
	Pre/Post Immediate	Pre/Post 2 weeks	p value	Pre/Post Immediate	Pre/Post 2 weeks	p value
Left hand (Score change) (median:Q1-Q3)	2: 1-2.25	1: 1-2.25	0.00*	0 : 0-0	0 : 0-0	1.00
Right hand (Score change) (median:Q1-Q3)	1.5: 0.75-3	1 : 0.75-3	0.00*	0 : 0-0	0 : 0-0	1.00

(* Statistical significant difference between groups at $p<0.05$)

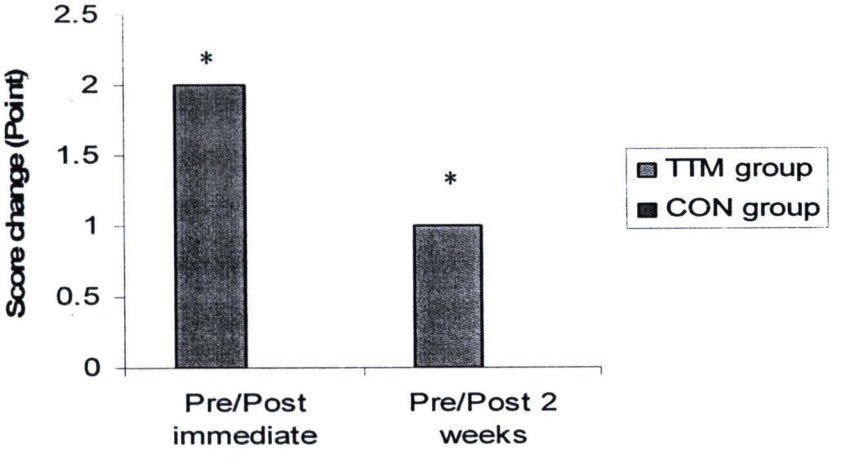

Figure 3 The immediate and short term effect of the TTM and CON groups on alteration of left hand mobility between groups.
(The score of CON group did not change; * Statistical significant difference between groups at $p<0.05$)

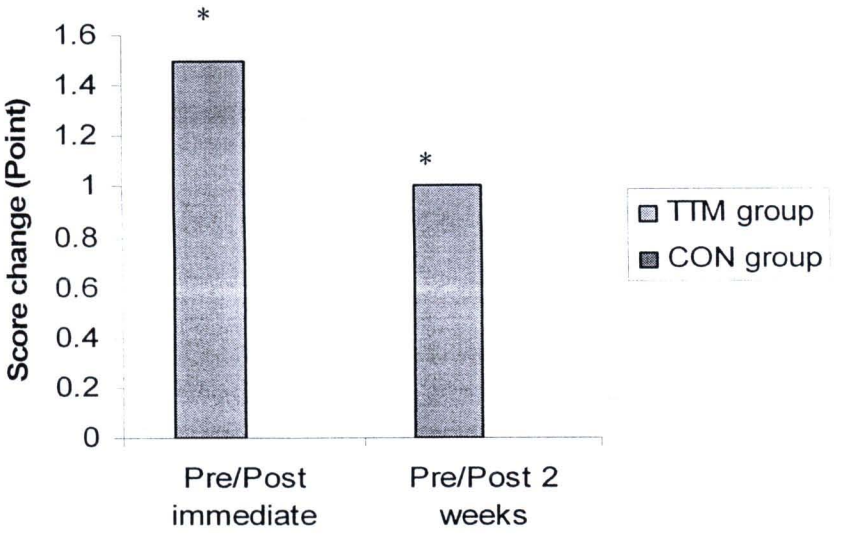

Figure 4 The immediate and short term effect of the TTM and CON groups on alteration of right hand mobility between groups

(The score of CON group did not change; * Statistical significant difference between groups at $p<0.05$)

4.4 Reliability of measurements

4.4.1 Thermography

Certification of Thermography (FlukeTi1) was showed in Appendix B. Certificate license present high reliable of this measurement. (Appendix B).

4.4.2 Hand Mobility in Scleroderma (HAMIS)

Interrater reliability for the total HAMIS was investigated in this study. The majority of the Cronbach's alpha was excellent (0.98). Data was showed that HAMIS is reliable measurement for evaluation of hand function on patients with SSc. (Appendix C).

4.5 Adverse effects

Do not detected adverse effects of TTM on patients with SSc in this study.