

EVALUATION OF HAEMOPHILIC ARTHROPATHY BY THERMAL IMAGES

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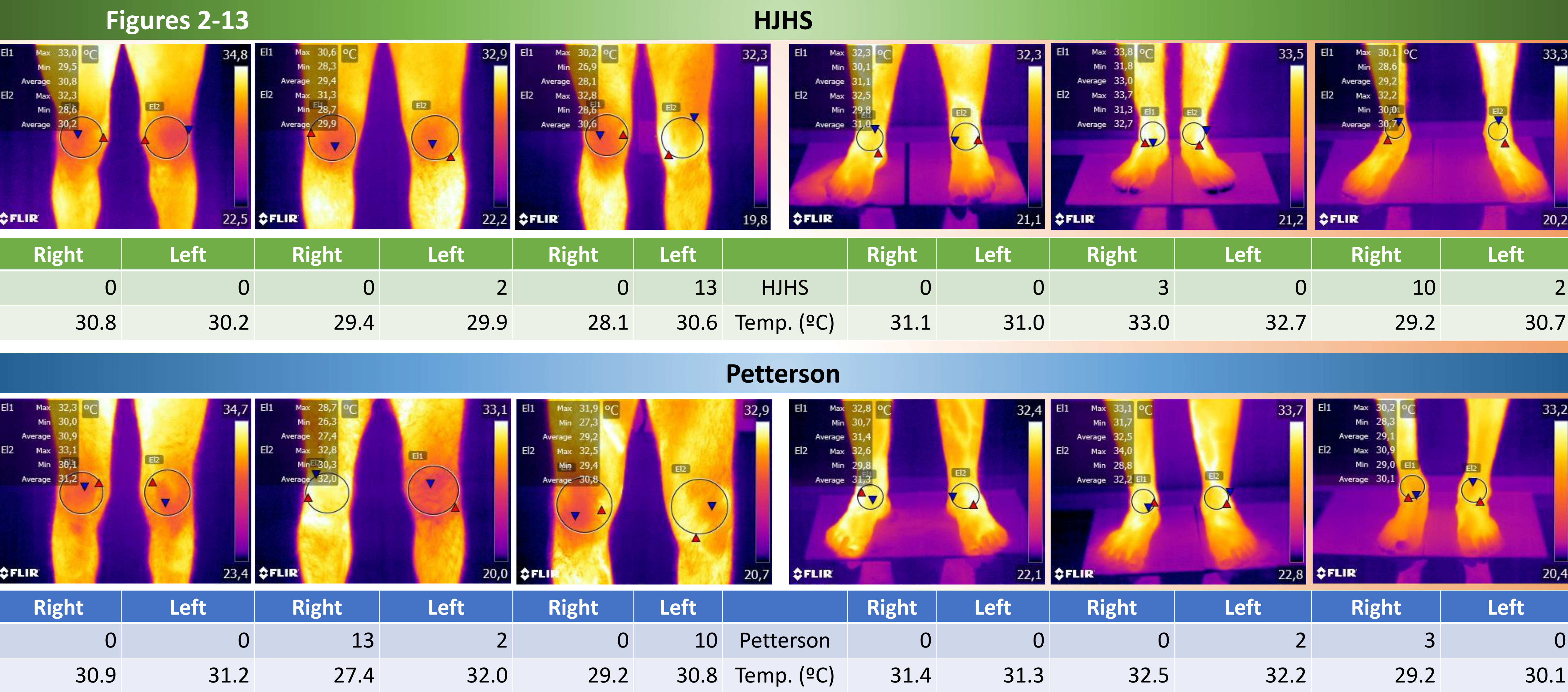
1. Introduction and Objectives:

Infrared thermography is a simple and non-invasive technique with many applications in the field of health sciences. This technique can detect variations in the corporal temperature due to inflammatory processes associated with musculoskeletal injuries.

The objective of this study is to evaluate if there exist differences in the joint temperature depending on the level of arthropathy in haemophilic patients assessed by HJHS and Pettersson scores.

2. Materials and Methods:

- 23 patients with severe A haemophilia [Age: 35.39 (9.40) years old; Weight: 75.68 (12.90) Kg; Height: 1.75 (0.08) m; IMC: 24.83 (3.74) Kg/m²; HJHS score in knees: 2.67 (3.92) and ankles: 5.46 (3.02); Pettersson score in knees: 2.50 (4.46) and ankles: 6.67 (5.26)] were included in the study.
- A total of 92 joints (ankles and knees) images were registered with thermal camera FLIR E60bx (FLIR Systems, Wilsonville, OR).
- Thermal images were taken at 1 meter of the patient in a room with constant temperature and relative humidity. Saved images were processed using FLIR Tools Plus software.
- Joint temperature was obtained as the mean temperature of the ROI areas selected in each image. Then, temperatures were grouped according to HJHS and Pettersson scores at 3 different levels of arthropathy (0; 1/2/3 and >3).
- Analysis of variance (ANOVA) was performed to determine the existence of significant differences in the joints temperatures among the established groups.



3. Results:

- As shown in Table 1, no significant differences were found between temperatures in the distinct levels of HJHS and Pettersson for knees and ankles.
- Figures 2-13 show examples of thermal images on knees and ankles, the selected ROI and the measures obtained.

4. Conclusions:

This findings suggest that the thermographic tool is not a useful technique in the diagnosis of chronic joint damage in haemophilic patients evaluated by HJHS and Pettersson.

Table 1. ANOVA results obtained.

	Knees			Ankles		
	Mean	SD	p	Mean	SD	p
HJHS						
0	29.11	1.45	0.17	31.10	0.96	0.42
1/2/3	29.93	1.03		30.48	1.19	
>3	28.98	1.49		30.99	1.41	
Pettersson						
0	29.29	1.43	0.13	30.55	1.32	0.23
1/2/3	31.07	0.81		30.07	1.71	
>3	29.58	1.54		31.14	1.33	

SD: Standard Deviation. Mean and SD in °C.



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