

冷却負荷手指血圧検査報告案

はじめに

振動障害療養者(以下、療養者)及び健常対照者(以下、対照者)を被験者とし、ISO/DIS 14835-2(現在:ISO 14835-2)に準じた冷却負荷手指血圧検査を HVLab 社製 Multi-channel Plethysmograph を用いて実施した。

1 対象

被験者および調査時期、調査医療機関は全体プロジェクトと同一である。当初の被験者予定数は療養者 名、対照者 名、全て男性であり、本検査を実施できた被験者は療養者??名、対照者??名であった。年齢、薬剤服用、振動曝露歴など調査計画時に設定した要件を満たさない被験者を除いた療養者 31 名、対照者 22 名を解析対象とした。なお、薬剤服用など一部の要件については条件を緩和し解析対象に含めた。

	人数 (人)	年齢 ($m \pm SD$)	検査医療機関		
			徳島	美唄	岩見沢
振動障害療養者	31	60.7 \pm 5.2	26	0	5
手指レイノー症状(+)	12	60.9 \pm 5.6	7	0	5
手指レイノー症状(-)	19	60.5 \pm 5.1	19	0	0
健常対照者	22	59.5 \pm 5.2	6	9	7

2 方法

ISO/DIS 14835-2(現在:ISO 14835-2)に準じた冷却負荷手指血圧検査を実施した。検査室温は 21 \pm 1 $^{\circ}$ C に維持し、室内部位による温度差をなくすために緩徐な気流を得ることとした。被験者は上下 2 枚の着衣と靴下を着用することとし、室温下で椅座位にて 30 分間安静にした後、検査を行なった。

測定装置として、HVLab 社製 Multi-channel Plethysmograph を用いた。冷水還流カフにより第 2 指～第 5 指の温度を調整した上で同カフによる圧迫によって血管を閉塞し、plethysmography 法によって手指の収縮期血圧(FSBP)を測定、第1指は温度調節を行わない対照指として測定した。還流水温は 30 $^{\circ}$ C、15 $^{\circ}$ C、10 $^{\circ}$ Cとしてその順で各 5 分間の負荷検査を行なった。当初は両手の検査を行なったが、検査時間を短縮するためその後は原則として利手、有症者の場合は症状の強い側のみを検査した。

3 成績

療養者と対照者において解析対象者の中で、両手の検査が行なわれたもの 12 名、1 名、右手のみ 11 名、24 名、左手のみ 10 名、1 名であった。ただし、このうち拇指あるいは他の指での測定が不可能で%FSBP の算出が全て不可能であった例を除くと、両手の評価が可能であったものは 10?名、0 名、右手のみ 10 名、22 名、左手のみ 7 名、0 名であった。また、厚生労働省 NL 分類では療養者のうち 1 名の評価がされていない。

3-1 基礎統計

Table 1~4 に冷却負荷温度 15 $^{\circ}$ C、10 $^{\circ}$ Cにおける%FSBP の平均 \pm 標準偏差および検定結果を示した。対照群は右手のみが検査されており、療養者は右手のみ症状・症度別の値を算出し検定を行なった。参考に療養者の左手の値を示したが検定は行なっていない。Table1 のように、手指レイノー症状有症者は対照者に比べて%FSBP が低い値を示した。測定・評価

できた全指でみると、15°C、10°C冷却負荷時とも統計的に有意な差が示されている。Table 2 のストックホルムワークショップスケール(Raynaud's phenomenon)による分類では、10°C冷却負荷時において症度 1-2 の示指および環指、症度 3 および症度 1-2 の全指で有意な差がみられた。ただし、これらの症度において測定・評価できた指数は各指で 3 または 4 指と少なかった。Table 3 の厚生労働省 VS 分類では症度 3 において、測定・評価できた全指で 10°C冷却負荷時に統計的に有意な差が示されている。Table 4 の厚生労働省 VL 分類でも症度 3 において、測定・評価できた全指で 10°C冷却負荷時に統計的に有意な差が示された。

3-2 分析結果

Table 5~16 に 15°C、10°Cそれぞれの冷却負荷における各指の鋭敏度と特異度、同様に各手単位で基準値を下回る%FSBPを有するか否かで判定した鋭敏度と特異度、さらに 15°C、10°Cのいずれかの冷却負荷で基準値を下回る%FSBPを有するか否かで判定した各手単位の鋭敏度と特異度を示した。ここでの基準値としては、対照者の 15°C、10°Cそれぞれの冷却負荷における右手%FSBPの平均-2SD(56.8%、56.2%)、平均-1.65SD(63.0%、61.8%)、平均-1SD(74.6%、72.2%)を算出し使用した。

Table 5~7 では手指レイノー症状の有無別に比較している。15°C、10°Cのいずれかの冷却負荷で基準値を下回る%FSBPを有する者は、平均-2SDの基準値では、対照者において 22 手中 2 手(特異度 90.9%)、手指レイノー症状有症者では 12 手中 7 手(鋭敏度 58.3%)、同症状を有しない療養者では 29 手中 6 手(鋭敏度 20.7%)、平均-1.65SDの基準値では、対照者において 22 手中 6 手(特異度 72.7%)、手指レイノー症状有症者では 12 手中 8 手(鋭敏度 66.7%)、同症状を有しない療養者では 29 手中 7 手(鋭敏度 20.7%)、平均-1SDの基準値では、対照者において 22 手中 12 手(特異度 45.5%)、手指レイノー症状有症者では 12 手中 10 手(鋭敏度 83.3%)、同症状を有しない療養者では 29 手中 14 手(鋭敏度 48.2%)であった。

Table 8~10 はストックホルムワークショップスケール(Raynaud's phenomenon)分類による比較である。15°C、10°Cのいずれかの冷却負荷で基準値を下回る%FSBPを有する者は、平均-2SDの基準値では、症度 3 で 5 手中 2 手(鋭敏度 40.0%)、症度 1-2 で 7 手中 5 手(鋭敏度 71.4%)、同様に、平均-1.65SDの基準値では、症度 3 で 5 手中 3 手(鋭敏度 60.0%)、症度 1-2 で 7 手中 5 手(鋭敏度 71.4%)、平均-1SDの基準値では、症度 3 で 5 手中 3 手(鋭敏度 60.0%)、症度 1-2 で 7 手中 7 手(鋭敏度 100%)であった。

Table 11~13 は厚生労働省 VS 分類による比較である。15°C、10°Cのいずれかの冷却負荷で基準値を下回る%FSBPを有する者は、平均-2SDの基準値では、症度 3 で 9 手中 3 手(鋭敏度 33.3%)、症度 2 で 23 手中 7 手(鋭敏度 30.4%)、症度 1 で 9 手中 3 手(鋭敏度 33.3%)、平均-1.65SDの基準値では、症度 3 で 9 手中 3 手(鋭敏度 33.3%)、症度 2 で 23 手中 8 手(鋭敏度 34.8%)、症度 1 で 9 手中 3 手(鋭敏度 33.3%)、平均-1SDの基準値では、症度 3 で 9 手中 6 手(鋭敏度 66.7%)、症度 2 で 23 手中 13 手(鋭敏度 56.5%)、症度 1 で 9 手中 5 手(鋭敏度 55.6%)であった。

Table 14~16 は厚生労働省 VL 分類による比較である。15°C、10°Cのいずれかの冷却負荷で基準値を下回る%FSBPを有する者は、平均-2SDの基準値では、症度 3 で 24 手中 9 手(鋭敏度 37.5%)、症度 2 で 11 手中 3 手(鋭敏度 27.3%)、症度 0-1 で 5 手中 1 手(鋭敏度 20.0%)、平均-1.65SDの基準値では、症度 3 で 24 手中 10 手(鋭敏度 41.7%)、症度 2 で 11 手中 3 手(鋭敏度 27.3%)、症度 0-1 で 5 手中 1 手(鋭敏度 20.0%)、平均-1SDの基準値では、症度 3 で 24 手中 15 手(鋭敏度 62.5%)、症度 2 で 11 手中 7 手(鋭敏度 63.6%)、症度 0-1 で 5 手中 2 手(鋭敏度 40.0%)であった。

3-3 症度分類

3-4 評価基準

4 考察

4-1 問題点

4-2 課題

5 まとめ

Table 1 %FSBP on right hand according to VWF hand-based classification

Cuff temperature	Finger	Grouping	Number	Mean \pm SD
15°C	Index	VWF(+)	6	80.3 \pm 19.3
		VWF(-)	16	95.5 \pm 14.2
		Control	22	89.6 \pm 18.2
		Left hand	18	83.8 \pm 19.8
	Middle	VWF(+)	7	72.4 \pm 29.4
		VWF(-)	15	93.2 \pm 17.3
		Control	22	91.3 \pm 21.4
		Left hand	17	84.5 \pm 24.6
	Ring	VWF(+)	7	76.8 \pm 22.1
		VWF(-)	16	94.0 \pm 12.4
		Control	22	92.7 \pm 17.1
		Left hand	18	84.9 \pm 17.3
	Little	VWF(+)	6	89.9 \pm 12.9
		VWF(-)	16	97.1 \pm 15.9
		Control	22	95.6 \pm 14.3
		Left hand	18	95.7 \pm 13.3
All	VWF(+)	26	79.4 \pm 21.8**	
	VWF(-)	63	95.0 \pm 14.7	
	Control	88	92.3 \pm 17.7	
	Left hand	71	87.2 \pm 19.4	
10°C	Index	VWF(+)	7	57.8 \pm 14.4**
		VWF(-)	15	85.1 \pm 15.4
		Control	22	86.1 \pm 15.6
		Left hand	16	77.4 \pm 16.5
	Middle	VWF(+)	6	67.4 \pm 21.3
		VWF(-)	14	81.1 \pm 19.6
		Control	22	87.0 \pm 19.2
		Left hand	15	76.3 \pm 24.2
	Ring	VWF(+)	7	64.0 \pm 24.1**
		VWF(-)	14	83.9 \pm 12.1
		Control	22	88.9 \pm 15.2
		Left hand	16	78.5 \pm 17.7
	Little	VWF(+)	7	80.2 \pm 12.9
		VWF(-)	15	90.4 \pm 12.2
		Control	22	90.7 \pm 14.3
		Left hand	15	84.9 \pm 11.7
All	VWF(+)	27	67.3 \pm 19.5**	
	VWF(-)	58	85.2 \pm 15.1	
	Control	88	88.2 \pm 16.0	
	Left hand	63	79.3 \pm 17.8	

**p<0.01 after Bonferroni correction (vs controls). Data of left hand were not included in the statistical analysis.

Table 2 %FSBP on right hand according to SWS, RP (current), hand-based classification

Cuff temperature	Finger	Grouping	Number	Mean \pm SD
15°C	Index	SW3	3	81.8 \pm 20.6
		SW1-2	3	78.8 \pm 22.3
		SW0	16	95.5 \pm 14.2
		Controls	22	89.6 \pm 18.2
		Left hand	18	83.8 \pm 19.8
	Middle	SW3	3	62.3 \pm 41.6
		SW1-2	4	79.9 \pm 19.8
		SW0	15	93.2 \pm 17.3
		Controls	22	91.3 \pm 21.4
		Left hand	17	84.5 \pm 24.6
	Ring	SW3	3	78.6 \pm 16.1
		SW1-2	4	75.4 \pm 28.3
		SW0	16	94.0 \pm 12.4
		Controls	22	92.7 \pm 17.1
		Left hand	18	84.9 \pm 17.3
	Little	SW3	3	91.4 \pm 15.0
		SW1-2	3	88.5 \pm 13.5
		SW0	16	97.1 \pm 15.9
		Controls	22	95.6 \pm 14.3
		Left hand	18	95.7 \pm 13.3
All	SW3	12	78.5 \pm 24.5	
	SW1-2	14	80.2 \pm 20.1	
	SW0	63	95.0 \pm 14.7	
	Controls	88	92.3 \pm 17.7	
	Left hand	71	87.2 \pm 19.4	
10°C	Index	SW3	3	65.1 \pm 16.5
		SW1-2	4	52.3 \pm 11.9**
		SW0	15	85.1 \pm 15.4
		Controls	22	86.1 \pm 15.6
		Left hand	16	77.4 \pm 16.5
	Middle	SW3	2	70.3 \pm 41.5
		SW1-2	4	66.0 \pm 13.2
		SW0	14	81.1 \pm 19.6
		Controls	22	87.0 \pm 19.2
		Left hand	15	76.3 \pm 24.2
	Ring	SW3	3	72.5 \pm 20.3
		SW1-2	4	57.7 \pm 27.5**
		SW0	14	83.9 \pm 12.1
		Controls	22	88.9 \pm 15.2
		Left hand	16	78.5 \pm 17.7
	Little	SW3	3	81.5 \pm 18.3
		SW1-2	4	79.3 \pm 10.3
		SW0	15	90.4 \pm 12.2
		Controls	22	90.7 \pm 14.3
		Left hand	16	84.9 \pm 11.7
All	SW3	11	72.5 \pm 20.4*	
	SW1-2	16	63.8 \pm 18.6**	
	SW0	58	85.2 \pm 15.1	
	Controls	88	88.2 \pm 16.0	
	Left hand	63	79.3 \pm 17.8	

*p<0.05, **p<0.01 after Bonferroni correction (vs controls). Data of left hand were not included in the statistical analysis.

Table 3 %FSBP on right hand according to VS hand-based classification

Cuff temperature	Finger	Grouping	Number	Mean \pm SD
15°C	Index	VS3	4	79.8 \pm 23.5
		VS2	13	95.5 \pm 15.8
		VS1	5	89.9 \pm 11.1
		Controls	22	89.6 \pm 18.2
		Left hand	18	83.8 \pm 19.8
	Middle	VS3	4	78.3 \pm 27.6
		VS2	13	89.1 \pm 25.6
		VS1	5	86.7 \pm 15.0
		Controls	22	91.3 \pm 21.4
		Left hand	17	84.5 \pm 24.6
	Ring	VS3	5	74.7 \pm 20.6
		VS2	13	92.7 \pm 16.5
		VS1	5	92.6 \pm 10.7
		Controls	22	92.7 \pm 17.1
		Left hand	18	84.9 \pm 17.3
	Little	VS3	4	94.7 \pm 12.1
		VS2	13	95.5 \pm 18.9
		VS1	5	94.4 \pm 5.5
		Controls	22	95.6 \pm 14.3
		Left hand	18	95.7 \pm 13.3
All	VS3	17	81.4 \pm 21.0	
	VS2	52	93.2 \pm 19.2	
	VS1	20	90.9 \pm 10.6	
	Controls	88	92.3 \pm 17.7	
	Left hand	71	87.2 \pm 19.4	
10°C	Index	VS3	5	66.4 \pm 17.6
		VS2	13	80.1 \pm 22.6
		VS1	4	77.1 \pm 6.4
		Controls	22	86.1 \pm 15.6
		Left hand	16	77.4 \pm 16.5
	Middle	VS3	5	66.1 \pm 23.1
		VS2	11	82.6 \pm 20.8
		VS1	4	75.3 \pm 14.4
		Controls	22	87.0 \pm 19.2
		Left hand	15	76.3 \pm 24.2
	Ring	VS3	5	68.8 \pm 30.4
		VS2	13	80.9 \pm 15.5
		VS1	3	75.5 \pm 6.4
		Controls	22	88.9 \pm 15.2
		Left hand	16	78.5 \pm 17.7
	Little	VS3	5	85.3 \pm 12.6
		VS2	13	89.4 \pm 13.7
		VS1	4	82.4 \pm 13.0
		Controls	22	90.7 \pm 14.3
		Left hand	16	84.9 \pm 11.7
All	VS3	20	71.7 \pm 21.7**	
	VS2	50	83.3 \pm 18.2	
	VS1	15	77.7 \pm 10.2	
	Controls	88	88.2 \pm 16.0	
	Left hand	63	79.3 \pm 17.8	

**p<0.01 after Bonferroni correction (vs controls). Data of left hand were not included in the statistical analysis.

Table 4 %FSBP on right hand according to VL hand-based classification

Cuff temperature	Finger	Grouping	Number	Mean \pm SD
15°C	Index	VL3	11	89.7 \pm 18.9
		VL2	7	96.2 \pm 16.8
		VL0-1	3	83.4 \pm 9.3
		Controls	22	89.6 \pm 18.2
		Left hand	18	83.8 \pm 19.8
	Middle	VL3	11	81.9 \pm 29.5
		VL2	7	94.2 \pm 13.0
		VL0-1	3	79.0 \pm 14.9
		Controls	22	91.3 \pm 21.4
		Left hand	17	84.5 \pm 24.6
	Ring	VL3	12	86.0 \pm 20.3
		VL2	7	91.7 \pm 15.9
		VL0-1	3	93.3 \pm 14.8
		Controls	22	92.7 \pm 17.1
		Left hand	18	84.9 \pm 17.3
	Little	VL3	11	95.7 \pm 20.1
		VL2	7	93.8 \pm 9.6
		VL0-1	3	91.8 \pm 4.7
		Controls	22	95.6 \pm 14.3
		Left hand	18	95.7 \pm 13.3
All	VL3	47	88.3 \pm 22.3	
	VL2	28	94.0 \pm 13.4	
	VL0-1	12	86.9 \pm 11.7	
	Controls	88	92.3 \pm 17.7	
	Left hand	70	87.2 \pm 19.4	
10°C	Index	VL3	12	76.7 \pm 22.0
		VL2	7	76.0 \pm 21.1
		VL0-1	2	72.8 \pm 6.9
		Controls	22	86.1 \pm 15.6
		Left hand	15	77.4 \pm 16.5
	Middle	VL3	11	73.3 \pm 24.8
		VL2	6	83.1 \pm 9.2
		VL0-1	2	67.5 \pm 19.5
		Controls	22	87.0 \pm 19.2
		Left hand	13	76.3 \pm 24.2
	Ring	VL3	12	75.6 \pm 23.7
		VL2	7	79.1 \pm 10.2
		VL0-1	1	68.1 \pm
		Controls	22	88.9 \pm 15.2
		Left hand	15	78.5 \pm 17.7
	Little	VL3	12	87.5 \pm 15.2
		VL2	7	86.3 \pm 9.9
		VL0-1	2	80.8 \pm 12.7
		Controls	22	90.7 \pm 14.3
		Left hand	15	84.9 \pm 11.7
All	VL3	47	78.4 \pm 21.7*	
	VL2	27	81.1 \pm 13.5	
	VL0-1	7	72.9 \pm 11.5	
	Controls	88	88.2 \pm 16.0	
	Left hand	58	79.3 \pm 17.8	

*p<0.05 after Bonferroni correction (vs controls). Data of left hand were not included in the statistical analysis.

Table 5 Sensitivity and specificity of the test involving FSBP% according to VWF hand-based classification

	Test conditions	Room t °C	VWF(+)	VWF(-)	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity (VWF(+ group) %)	Sensitivity (VWF(- group) %)	Specificity % (control group)	
Data from the right hands of the patients and controls										
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned										
15 and/or 10°C	right hand	30, 15, 10°C	21±1	7	16	22	56.8, 56.2	85.7	12.5	90.9
15°C	right hand	30, 15°C	21±1	7	16	22	56.8	42.9	0.0	100.0
10°C	right hand	30, 10°C	21±1	7	15	22	56.2	85.7	13.3	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	6	16	22	56.8	0.0	0.0	100.0
	middle	30, 15°C	21±1	7	15	22	56.8	28.6	0.0	100.0
	ring	30, 15°C	21±1	7	16	22	56.8	14.3	0.0	100.0
	little	30, 15°C	21±1	6	16	22	56.8	0.0	0.0	100.0
	together	30, 10°C	21±1	26	63	88	56.8	11.5	0.0	100.0
10°C	index	30, 10°C	21±1	7	15	22	56.2	57.1	0.0	100.0
	middle	30, 10°C	21±1	6	14	22	56.2	33.3	14.3	90.9
	ring	30, 10°C	21±1	7	14	22	56.2	42.9	0.0	100.0
	little	30, 10°C	21±1	7	15	22	56.2	0.0	0.0	100.0
	together	30, 10°C	21±1	27	58	88	56.2	33.3	3.4	97.7
Data from the left hands of the patients and right hands of the controls										
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned										
15 and/or 10°C	left hand	30, 15, 10°C	21±1	5	13	22	56.8, 56.2	20.0	30.8	90.9
15°C	left hand	30, 15°C	21±1	5	13	22	56.8	20.0	7.7	100.0
10°C	left hand	30, 10°C	21±1	4	12	22	56.2	25.0	33.3	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	5	13	22	56.8	20.0	0.0	100.0
	middle	30, 15°C	21±1	5	12	22	56.8	20.0	8.3	100.0
	ring	30, 15°C	21±1	5	13	22	56.8	20.0	0.0	100.0
	little	30, 15°C	21±1	5	13	22	56.8	0.0	0.0	100.0
	together	30, 10°C	21±1	20	51	88	56.8	15.0	2.0	100.0
10°C	index	30, 10°C	21±1	4	12	22	56.2	25.0	16.7	100.0
	middle	30, 10°C	21±1	4	11	22	56.2	25.0	18.2	90.9
	ring	30, 10°C	21±1	4	12	22	56.2	25.0	8.3	100.0
	little	30, 10°C	21±1	4	12	22	56.2	0.0	0.0	100.0
	together	30, 10°C	21±1	16	47	88	56.2	18.8	10.6	97.7

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-2SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 6 Sensitivity and specificity of the test involving FSBP% according to VWF hand-based classification

	Test conditions	Room t °C	VWF(+)	VWF(-)	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity (VWF(+)) %	Sensitivity (VWF(-)) %	Specificity % (control group)	
Data from the right hands of the patients and controls										
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned										
15 and/or 10°C	right hand	30, 15, 10°C	21±1	7	16	22	63.0, 61.8	85.7	12.5	72.7
15°C	right hand	30, 15°C	21±1	7	16	22	63.0	71.4	0.0	90.9
10°C	right hand	30, 10°C	21±1	7	15	22	61.8	85.7	13.3	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	6	16	22	63.0	33.3	0.0	100.0
	middle	30, 15°C	21±1	7	15	22	63.0	42.9	0.0	90.9
	ring	30, 15°C	21±1	7	16	22	63.0	42.9	0.0	95.5
	little	30, 15°C	21±1	6	16	22	63.0	0.0	0.0	100.0
	together	30, 10°C	21±1	26	63	88	63.0	30.8	0.0	96.6
10°C	index	30, 10°C	21±1	7	15	22	61.8	71.4	0.0	95.5
	middle	30, 10°C	21±1	6	14	22	61.8	50.0	14.3	90.9
	ring	30, 10°C	21±1	7	14	22	61.8	42.9	0.0	95.5
	little	30, 10°C	21±1	7	15	22	61.8	0.0	0.0	100.0
	together	30, 10°C	21±1	27	58	88	61.8	40.7	3.4	95.5
Data from the left hands of the patients and right hands of the controls										
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned										
15 and/or 10°C	left hand	30, 15, 10°C	21±1	5	13	22	63.0, 61.8	40.0	30.8	72.7
15°C	left hand	30, 15°C	21±1	5	13	22	63.0	40.0	15.4	90.9
10°C	left hand	30, 10°C	21±1	4	12	22	61.8	25.0	33.3	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	5	13	22	63.0	40.0	7.7	100.0
	middle	30, 15°C	21±1	5	12	22	63.0	20.0	8.3	90.9
	ring	30, 15°C	21±1	5	13	22	63.0	20.0	0.0	95.5
	little	30, 15°C	21±1	5	13	22	63.0	0.0	0.0	100.0
	together	30, 10°C	21±1	20	51	88	63.0	20.0	3.9	96.6
10°C	index	30, 10°C	21±1	4	12	22	61.8	25.0	16.7	95.5
	middle	30, 10°C	21±1	4	11	22	61.8	25.0	27.3	90.9
	ring	30, 10°C	21±1	4	12	22	61.8	25.0	8.3	95.5
	little	30, 10°C	21±1	4	12	22	61.8	25.0	0.0	100.0
	together	30, 10°C	21±1	16	47	88	61.8	18.8	12.8	95.5

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1.65SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 7 Sensitivity and specificity of the test involving FSBP% according to VWF hand-based classification

	Test conditions	Room temperature °C	VWF(+)	VWF(-)	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity (VWF(+)) %	Sensitivity (VWF(-)) %	Specificity % (control group)	
Data from the right hands of the patients and controls										
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned										
15 and/or 10°C	right hand	30, 15, 10°C	21±1	7	16	22	74.6, 72.2	85.7	43.8	45.5
15°C	right hand	30, 15°C	21±1	7	16	22	74.6	71.4	12.5	45.5
10°C	right hand	30, 10°C	21±1	7	15	22	72.2	85.7	40.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	6	16	22	74.6	50.0	12.5	72.7
	middle	30, 15°C	21±1	7	15	22	74.6	57.1	13.3	68.2
	ring	30, 15°C	21±1	7	16	22	74.6	42.9	6.3	81.8
	little	30, 15°C	21±1	6	16	22	74.6	16.7	6.3	100.0
	together	30, 10°C	21±1	26	63	88	74.6	42.3	9.5	80.7
10°C	index	30, 10°C	21±1	7	15	22	72.2	85.7	26.7	72.7
	middle	30, 10°C	21±1	6	14	22	72.2	66.7	28.6	77.3
	ring	30, 10°C	21±1	7	14	22	72.2	71.4	14.3	86.4
	little	30, 10°C	21±1	7	15	22	72.2	28.6	13.3	90.9
	together	30, 10°C	21±1	27	58	88	72.2	63.0	20.7	81.8
Data from the left hands of the patients and right hands of the controls										
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned										
15 and/or 10°C	left hand	30, 15, 10°C	21±1	5	13	22	74.6, 72.2	80.0	53.8	45.5
15°C	left hand	30, 15°C	21±1	5	13	22	74.6	60.0	38.5	45.5
10°C	left hand	30, 10°C	21±1	4	12	22	72.2	50.0	50.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	5	13	22	74.6	60.0	30.8	72.7
	middle	30, 15°C	21±1	5	12	22	74.6	40.0	16.7	68.2
	ring	30, 15°C	21±1	5	13	22	74.6	40.0	15.4	81.8
	little	30, 15°C	21±1	5	13	22	74.6	0.0	0.0	100.0
	together	30, 10°C	21±1	20	51	88	74.6	35.0	15.7	80.7
10°C	index	30, 10°C	21±1	4	12	22	72.2	25.0	41.7	72.7
	middle	30, 10°C	21±1	4	11	22	72.2	25.0	27.3	77.3
	ring	30, 10°C	21±1	4	12	22	72.2	40.0	25.0	86.4
	little	30, 10°C	21±1	4	12	22	72.2	25.0	16.7	90.9
	together	30, 10°C	21±1	16	47	88	72.2	31.3	27.7	81.8

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 8 Sensitivity and specificity of the test involving FSBP% according to SWS, RP (current), hand-based classification

	Test conditions	Room t °C	SW3	SW1-2	SW0	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity SW3 group %	Sensitivity SW1-2 group %	Sensitivity SW0 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	3	4	16	22	56.8, 56.2	66.7	100.0	12.5	90.9
15°C	right hand	30, 15°C	21±1	3	4	16	22	56.8	66.7	25.0	0.0	100.0
10°C	right hand	30, 10°C	21±1	3	4	15	22	56.2	66.7	100.0	13.3	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	3	3	16	22	56.8	0.0	0.0	0.0	100.0
	middle	30, 15°C	21±1	3	4	15	22	56.8	66.7	0.0	0.0	100.0
	ring	30, 15°C	21±1	3	4	16	22	56.8	0.0	25.0	0.0	100.0
	little	30, 15°C	21±1	3	3	16	22	56.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	12	14	63	88	56.8	16.7	7.1	0.0	100.0
10°C	index	30, 10°C	21±1	3	4	15	22	56.2	33.3	75.0	0.0	100.0
	middle	30, 10°C	21±1	2	4	14	22	56.2	50.0	25.0	14.3	90.9
	ring	30, 10°C	21±1	3	4	14	22	56.2	33.3	50.0	0.0	100.0
	little	30, 10°C	21±1	3	4	15	22	56.2	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	11	16	58	88	56.2	27.3	37.5	3.4	97.7
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	2	3	13	22	56.8, 56.2	0.0	33.3	30.8	90.9
15°C	left hand	30, 15°C	21±1	2	3	13	22	56.8	0.0	33.3	7.7	100.0
10°C	left hand	30, 10°C	21±1	2	3	12	22	56.2	0.0	25.0	33.3	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	2	3	13	22	56.8	0.0	33.3	0.0	100.0
	middle	30, 15°C	21±1	2	3	12	22	56.8	0.0	33.3	8.3	100.0
	ring	30, 15°C	21±1	2	3	13	22	56.8	0.0	33.3	0.0	100.0
	little	30, 15°C	21±1	2	3	13	22	56.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	12	51	88	56.8	0.0	25.0	2.0	100.0
10°C	index	30, 10°C	21±1	2	2	12	22	56.2	0.0	25.0	16.7	100.0
	middle	30, 10°C	21±1	2	2	11	22	56.2	0.0	33.3	18.2	90.9
	ring	30, 10°C	21±1	2	2	12	22	56.2	0.0	25.0	8.2	100.0
	little	30, 10°C	21±1	2	2	12	22	56.2	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	8	47	88	56.2	0.0	20.0	10.6	97.7

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-2SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 9 Sensitivity and specificity of the test involving FSBP% according to SWS, RP (current), hand-based classification

	Test conditions	Room t °C	SW3	SW1-2	SW0	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity SW3 group %	Sensitivity SW1-2 group %	Sensitivity SW0 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	3	4	16	22	63.0, 61.8	66.7	100.0	12.5	72.7
15°C	right hand	30, 15°C	21±1	3	4	16	22	63.0	66.7	75.0	0.0	90.9
10°C	right hand	30, 10°C	21±1	3	4	15	22	61.8	66.7	100.0	13.3	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	3	3	16	22	63.0	33.3	33.3	0.0	100.0
	middle	30, 15°C	21±1	3	4	15	22	63.0	66.7	25.0	0.0	90.9
	ring	30, 15°C	21±1	3	4	16	22	63.0	33.3	50.0	0.0	95.5
	little	30, 15°C	21±1	3	3	16	22	63.0	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	12	14	63	88	63.0	33.3	28.6	0.0	96.6
10°C	index	30, 10°C	21±1	3	4	15	22	61.8	66.7	75.0	0.0	95.5
	middle	30, 10°C	21±1	2	4	14	22	61.8	50.0	50.0	14.3	90.9
	ring	30, 10°C	21±1	3	4	14	22	61.8	33.3	50.0	0.0	95.5
	little	30, 10°C	21±1	3	4	15	22	61.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	11	16	58	88	61.8	36.4	43.8	3.4	95.5
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	2	3	13	22	63.0, 61.8	50.0	33.3	30.8	72.7
15°C	left hand	30, 15°C	21±1	2	3	13	22	63.0	50.0	33.3	15.4	90.9
10°C	left hand	30, 10°C	21±1	2	2	12	22	61.8	0.0	25.0	33.3	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	2	3	13	22	63.0	50.0	33.3	7.7	100.0
	middle	30, 15°C	21±1	2	3	12	22	63.0	0.0	33.3	8.3	90.9
	ring	30, 15°C	21±1	2	3	13	22	63.0	0.0	33.3	0.0	95.5
	little	30, 15°C	21±1	2	3	13	22	63.0	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	12	51	88	63.0	12.5	25.0	3.9	96.6
10°C	index	30, 10°C	21±1	2	2	12	22	61.8	0.0	25.0	16.7	95.5
	middle	30, 10°C	21±1	2	2	11	22	61.8	0.0	33.3	27.3	90.9
	ring	30, 10°C	21±1	2	2	12	22	61.8	0.0	25.0	8.3	95.5
	little	30, 10°C	21±1	2	2	12	22	61.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	8	47	88	61.8	0.0	20.0	12.8	95.5

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1.65SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 10 Sensitivity and specificity of the test involving FSBP% according to SWS, RP (current), hand-based classification

	Test conditions	Room temperature °C	SW3	SW1-2	SW0	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity SW3 group %	Sensitivity SW1-2 group %	Sensitivity SW0 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	3	4	16	22	74.6, 72.2	66.7	100.0	43.8	45.5
15°C	right hand	30, 15°C	21±1	3	4	16	22	74.6	66.7	75.0	12.5	45.5
10°C	right hand	30, 10°C	21±1	3	4	15	22	72.2	66.7	100.0	40.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	3	3	16	22	74.6	33.3	66.7	12.5	72.7
	middle	30, 15°C	21±1	3	4	15	22	74.6	66.7	50.0	13.3	68.2
	ring	30, 15°C	21±1	3	4	16	22	74.6	33.3	50.0	6.3	81.8
	little	30, 15°C	21±1	3	3	16	22	74.6	0.0	33.3	6.3	100.0
	together	30, 10°C	21±1	12	14	63	88	74.6	33.3	50.0	9.5	80.7
10°C	index	30, 10°C	21±1	3	4	15	22	72.2	66.7	100.0	26.7	72.7
	middle	30, 10°C	21±1	2	4	14	22	72.2	50.0	75.0	28.6	77.3
	ring	30, 10°C	21±1	3	4	14	22	72.2	66.7	75.0	14.3	86.4
	little	30, 10°C	21±1	3	4	15	22	72.2	33.3	25.0	13.3	90.9
	together	30, 10°C	21±1	11	16	58	88	72.2	54.5	68.8	20.7	81.8
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	2	3	13	22	74.6, 72.2	50.0	100.0	53.8	45.5
15°C	left hand	30, 15°C	21±1	2	3	13	22	74.6	50.0	66.7	38.5	45.5
10°C	left hand	30, 10°C	21±1	2	2	12	22	72.2	0.0	50.0	50.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	2	3	13	22	74.6	50.0	66.7	30.8	72.7
	middle	30, 15°C	21±1	2	3	12	22	74.6	50.0	33.3	16.7	68.2
	ring	30, 15°C	21±1	2	3	13	22	74.6	50.0	33.3	15.4	81.8
	little	30, 15°C	21±1	2	3	13	22	74.6	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	12	51	88	74.6	37.5	33.3	15.7	80.7
10°C	index	30, 10°C	21±1	2	2	12	22	72.2	0.0	25.0	41.7	72.7
	middle	30, 10°C	21±1	2	2	11	22	72.2	0.0	33.3	27.3	77.3
	ring	30, 10°C	21±1	2	2	12	22	72.2	0.0	50.0	25.0	86.4
	little	30, 10°C	21±1	2	2	12	22	72.2	0.0	25.0	16.7	90.9
	together	30, 10°C	21±1	8	8	47	88	72.2	0.0	33.3	27.7	81.8

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 11 Sensitivity and specificity of the test involving FSBP% according to VS hand-based classification

	Test conditions	Room t °C	VS3	VS2	VSI	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity VS3 group %	Sensitivity VS2 group %	Sensitivity VSI group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	5	13	5	22	56.8, 56.2	60.0	30.8	20.0	90.9
15°C	right hand	30, 15°C	21±1	5	13	5	22	56.8	40.0	7.7	0.0	100.0
10°C	right hand	30, 10°C	21±1	5	13	4	22	56.2	60.0	30.8	25.0	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	4	13	5	22	56.8	0.0	0.0	0.0	100.0
	middle	30, 15°C	21±1	4	13	5	22	56.8	25.0	7.7	0.0	100.0
	ring	30, 15°C	21±1	5	13	5	22	56.8	20.0	0.0	0.0	100.0
	little	30, 15°C	21±1	4	13	5	22	56.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	17	52	20	88	56.8	11.8	1.9	0.0	100.0
10°C	index	30, 10°C	21±1	5	13	4	22	56.2	40.0	15.4	0.0	100.0
	middle	30, 10°C	21±1	5	11	4	22	56.2	40.0	9.1	25.0	90.9
	ring	30, 10°C	21±1	5	13	3	22	56.2	40.0	7.7	0.0	100.0
	little	30, 10°C	21±1	5	13	4	22	56.2	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	20	50	15	88	56.2	30.0	8.0	6.7	97.7
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	4	10	4	22	56.8, 56.2	0.0	30.0	50.0	90.9
15°C	left hand	30, 15°C	21±1	4	10	4	22	56.8	0.0	20.0	0.0	100.0
10°C	left hand	30, 10°C	21±1	3	9	4	22	56.2	0.0	33.3	50.0	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	4	10	4	22	56.8	0.0	10.0	0.0	100.0
	middle	30, 15°C	21±1	4	9	4	22	56.8	0.0	22.2	0.0	100.0
	ring	30, 15°C	21±1	4	10	4	22	56.8	0.0	10.0	0.0	100.0
	little	30, 15°C	21±1	4	10	4	22	56.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	16	39	16	88	56.8	0.0	10.3	0.0	100.0
10°C	index	30, 10°C	21±1	3	9	4	22	56.2	0.0	11.1	50.0	100.0
	middle	30, 10°C	21±1	3	8	4	22	56.2	0.0	37.5	0.0	90.9
	ring	30, 10°C	21±1	3	9	4	22	56.2	0.0	22.2	0.0	100.0
	little	30, 10°C	21±1	3	9	4	22	56.2	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	12	35	16	88	56.2	0.0	17.1	12.5	97.7

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-2SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 12 Sensitivity and specificity of the test involving FSBP% according to VS hand-based classification

	Test conditions	Room t °C	VS3	VS2	VS1	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity VS3 group %	Sensitivity VS2 group %	Sensitivity VS1 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	5	13	5	22	63.0, 61.8	60.0	30.8	20.0	72.7
15°C	right hand	30, 15°C	21±1	5	13	5	22	63.0	60.0	15.4	0.0	90.9
10°C	right hand	30, 10°C	21±1	5	13	4	22	61.8	60.0	30.8	25.0	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	4	13	5	22	63.0	50.0	0.0	0.0	100.0
	middle	30, 15°C	21±1	4	13	5	22	63.0	50.0	7.7	0.0	90.9
	ring	30, 15°C	21±1	5	13	5	22	63.0	40.0	7.7	0.0	95.5
	little	30, 15°C	21±1	4	13	5	22	63.0	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	17	52	20	88	63.0	35.5	3.8	0.0	96.6
10°C	index	30, 10°C	21±1	5	13	4	22	61.8	60.0	15.4	0.0	95.5
	middle	30, 10°C	21±1	5	11	4	22	61.8	60.0	9.1	25.0	90.9
	ring	30, 10°C	21±1	5	13	3	22	61.8	40.0	7.7	0.0	95.5
	little	30, 10°C	21±1	5	13	4	22	61.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	20	50	15	88	61.8	40.0	8.0	6.7	95.5
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	4	10	4	22	63.0, 61.8	0.0	40.0	50.0	72.7
15°C	left hand	30, 15°C	21±1	4	10	4	22	63.0	0.0	30.0	25.0	90.9
10°C	left hand	30, 10°C	21±1	3	9	4	22	61.8	0.0	33.3	50.0	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	4	10	4	22	63.0	0.0	20.0	25.0	100.0
	middle	30, 15°C	21±1	4	9	4	22	63.0	0.0	22.2	0.0	90.9
	ring	30, 15°C	21±1	4	10	4	22	63.0	0.0	10.0	0.0	95.5
	little	30, 15°C	21±1	4	10	4	22	63.0	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	16	39	16	88	63.0	0.0	12.8	6.3	96.6
10°C	index	30, 10°C	21±1	3	9	4	22	61.8	0.0	11.1	50.0	95.5
	middle	30, 10°C	21±1	3	8	4	22	61.8	0.0	37.5	25.0	90.9
	ring	30, 10°C	21±1	3	9	4	22	61.8	0.0	22.2	0.0	95.5
	little	30, 10°C	21±1	3	9	4	22	61.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	12	35	16	88	61.8	0.0	17.1	18.8	95.5

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1.65SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 13 Sensitivity and specificity of the test involving FSBP% according to VS hand-based classification

	Test conditions	Room t °C	VS3	VS2	VS1	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity VS3 group %	Sensitivity VS2 group %	Sensitivity VS1 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
	15 and/or 10°C right hand	30, 15, 10°C	21±1	5	13	5	22	74.6, 72.2	60.0	53.8	60.0	45.5
	15°C right hand	30, 15°C	21±1	5	13	5	22	74.6	60.0	23.1	20.0	45.5
	10°C right hand	30, 10°C	21±1	5	13	4	22	72.2	60.0	53.8	50.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
	15°C index	30, 15°C	21±1	4	13	5	22	74.6	50.0	15.4	20.0	72.7
	middle	30, 15°C	21±1	4	13	5	22	74.6	50.0	23.1	20.0	68.2
	ring	30, 15°C	21±1	5	13	5	22	74.6	40.0	15.4	0.0	81.8
	little	30, 15°C	21±1	4	13	5	22	74.6	0.0	15.4	0.0	100.0
	together	30, 10°C	21±1	17	52	20	88	74.6	35.3	17.3	10.0	80.7
10°C	index	30, 10°C	21±1	5	13	4	22	72.2	60.0	46.2	25.0	72.7
	middle	30, 10°C	21±1	5	11	4	22	72.2	60.0	36.4	25.0	77.3
	ring	30, 10°C	21±1	5	13	3	22	72.2	40.0	30.8	33.3	86.4
	little	30, 10°C	21±1	5	13	4	22	72.2	20.0	7.7	50.0	90.9
	together	30, 10°C	21±1	20	50	15	88	72.2	45.0	30.0	33.3	81.8
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
	15 and/or 10°C left hand	30, 15, 10°C	21±1	4	10	4	22	74.6, 72.2	75.0	60.0	50.0	45.5
	15°C left hand	30, 15°C	21±1	4	10	4	22	74.6	50.0	50.0	25.0	45.5
	10°C left hand	30, 10°C	21±1	3	9	4	22	72.2	33.3	55.6	50.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
	15°C index	30, 15°C	21±1	4	10	4	22	74.6	50.0	40.0	25.0	72.7
	middle	30, 15°C	21±1	4	9	4	22	74.6	0.0	33.3	25.0	68.2
	ring	30, 15°C	21±1	4	10	4	22	74.6	0.0	40.0	0.0	81.8
	little	30, 15°C	21±1	4	10	4	22	74.6	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	16	39	16	88	74.6	12.5	28.2	12.5	80.7
10°C	index	30, 10°C	21±1	3	9	4	22	72.2	0.0	44.4	50.0	72.7
	middle	30, 10°C	21±1	3	8	4	22	72.2	0.0	37.5	25.0	77.3
	ring	30, 10°C	21±1	3	9	4	22	72.2	33.3	44.4	0.0	86.4
	little	30, 10°C	21±1	3	9	4	22	72.2	0.0	33.3	0.0	90.9
	together	30, 10°C	21±1	12	35	16	88	72.2	8.3	40.0	18.8	81.8

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 14 Sensitivity and specificity of the test involving FSBP% according to VL hand-based classification

	Test conditions	Room t °C	VL3	VL2	VL0-1	Controls	Diagnostic criteria. FSBP% Cutoff point	Sensitivity VL3 group %	Sensitivity VL2 group %	Sensitivity VL0-1 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	12	7	3	22	56.8, 56.2	50.0	14.3	33.3	90.9
15°C	right hand	30, 15°C	21±1	12	7	3	22	56.8	25.0	0.0	0.0	100.0
10°C	right hand	30, 10°C	21±1	12	7	2	22	56.2	50.0	14.3	50.0	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	11	7	3	22	56.8	0.0	0.0	0.0	100.0
	middle	30, 15°C	21±1	11	7	3	22	56.8	18.2	0.0	0.0	100.0
	ring	30, 15°C	21±1	12	7	3	22	56.8	8.3	0.0	0.0	100.0
	little	30, 15°C	21±1	11	7	3	22	56.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	45	28	12	88	56.8	6.7	0.0	0.0	100.0
10°C	index	30, 10°C	21±1	12	7	2	22	56.2	25.0	14.3	0.0	100.0
	middle	30, 10°C	21±1	11	6	2	22	56.2	27.3	0.0	50.0	90.9
	ring	30, 10°C	21±1	12	7	1	22	56.2	25.0	0.0	0.0	100.0
	little	30, 10°C	21±1	12	7	2	22	56.2	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	47	27	7	88	56.2	19.1	3.7	14.3	97.7
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	12	4	2	22	56.8, 56.2	25.0	50.0	0.0	90.9
15°C	left hand	30, 15°C	21±1	12	4	2	22	56.8	16.7	0.0	0.0	100.0
10°C	left hand	30, 10°C	21±1	10	4	2	22	56.2	30.0	50.0	0.0	90.9
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	12	4	2	22	56.8	8.3	0.0	0.0	100.0
	middle	30, 15°C	21±1	12	3	2	22	56.8	16.7	0.0	0.0	100.0
	ring	30, 15°C	21±1	12	4	2	22	56.8	8.3	0.0	0.0	100.0
	little	30, 15°C	21±1	12	4	2	22	56.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	48	15	8	88	56.8	8.3	0.0	0.0	100.0
10°C	index	30, 10°C	21±1	10	4	2	22	56.2	10.0	50.0	0.0	100.0
	middle	30, 10°C	21±1	10	3	2	22	56.2	30.0	0.0	0.0	90.9
	ring	30, 10°C	21±1	10	4	2	22	56.2	20.0	0.0	0.0	100.0
	little	30, 10°C	21±1	10	4	2	22	56.2	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	40	15	8	88	56.2	15.0	13.3	0.0	97.7

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-2SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 15 Sensitivity and specificity of the test involving FSBP% according to VL hand-based classification

	Test conditions	Room t °C	VL3	VL2	VL0-1	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity VL3 group %	Sensitivity VL2 group %	Sensitivity VL0-1 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
	15 and/or 10°C right hand	30, 15, 10°C	21±1	12	7	3	22	63.0, 61.8	50.0	14.3	33.3	72.7
	15°C right hand	30, 15°C	21±1	12	7	3	22	63.0	41.7	0.0	0.0	90.9
	10°C right hand	30, 10°C	21±1	12	7	2	22	61.8	50.0	14.3	50.0	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
	15°C index	30, 15°C	21±1	11	7	3	22	63.0	18.2	0.0	0.0	100.0
	middle	30, 15°C	21±1	11	7	3	22	63.0	27.3	0.0	0.0	90.9
	ring	30, 15°C	21±1	12	7	3	22	63.0	25.0	0.0	0.0	95.5
	little	30, 15°C	21±1	11	7	3	22	63.0	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	45	28	12	88	63.0	17.8	0.0	0.0	96.6
	10°C index	30, 10°C	21±1	12	7	2	22	61.8	33.3	14.3	0.0	95.5
	middle	30, 10°C	21±1	11	6	2	22	61.8	36.4	0.0	50.0	90.9
	ring	30, 10°C	21±1	12	7	1	22	61.8	25.0	0.0	0.0	95.5
	little	30, 10°C	21±1	12	7	2	22	61.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	47	27	7	88	61.8	23.4	3.7	14.3	95.5
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
	15 and/or 10°C left hand	30, 15, 10°C	21±1	12	4	2	22	63.0, 61.8	33.3	50.0	0.0	72.7
	15°C left hand	30, 15°C	21±1	12	4	2	22	63.0	25.0	25.0	0.0	90.9
	10°C left hand	30, 10°C	21±1	10	4	2	22	61.8	30.0	50.0	0.0	81.8
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
	15°C index	30, 15°C	21±1	12	4	2	22	63.0	16.7	25.0	0.0	100.0
	middle	30, 15°C	21±1	12	3	2	22	63.0	16.7	0.0	0.0	90.9
	ring	30, 15°C	21±1	12	4	2	22	63.0	8.3	0.0	0.0	95.5
	little	30, 15°C	21±1	12	4	2	22	63.0	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	48	15	8	88	63.0	10.4	6.7	0.0	96.6
	10°C index	30, 10°C	21±1	10	4	2	22	61.8	10.0	50.0	0.0	95.5
	middle	30, 10°C	21±1	10	3	2	22	61.8	30.0	33.3	0.0	90.9
	ring	30, 10°C	21±1	10	4	2	22	61.8	20.0	0.0	0.0	95.5
	little	30, 10°C	21±1	10	4	2	22	61.8	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	40	15	8	88	61.8	15.0	20.0	0.0	95.5

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1.65SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.

Table 16 Sensitivity and specificity of the test involving FSBP% according to VL hand-based classification

	Test conditions	Room t °C	VL3	VL2	VL0-1	Controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity VL3 group %	Sensitivity VL2 group %	Sensitivity VL0-1 group %	Specificity % (control group)	
Data from the right hands of the patients and controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	right hand	30, 15, 10°C	21±1	12	7	3	22	74.6, 72.2	66.7	42.9	66.7	45.5
15°C	right hand	30, 15°C	21±1	12	7	3	22	74.6	41.7	14.3	33.3	45.5
10°C	right hand	30, 10°C	21±1	12	7	2	22	72.2	66.7	42.9	50.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	11	7	3	22	74.6	27.3	14.3	33.3	72.7
	middle	30, 15°C	21±1	11	7	3	22	74.6	36.4	14.3	33.3	68.2
	ring	30, 15°C	21±1	12	7	3	22	74.6	25.0	14.3	0.0	81.8
	little	30, 15°C	21±1	11	7	3	22	74.6	9.1	14.3	0.0	100.0
	together	30, 10°C	21±1	45	28	12	88	74.6	24.4	14.3	16.7	80.7
10°C	index	30, 10°C	21±1	12	7	2	22	72.2	58.3	28.6	50.0	72.7
	middle	30, 10°C	21±1	11	6	2	22	72.2	54.5	16.7	50.0	77.3
	ring	30, 10°C	21±1	12	7	1	22	72.2	33.3	28.6	100.0	86.4
	little	30, 10°C	21±1	12	7	2	22	72.2	16.7	14.3	50.0	90.9
	together	30, 10°C	21±1	47	27	7	88	72.2	40.4	22.2	57.1	81.8
Data from the left hands of the patients and right hands of the controls												
Results of subjects' hand-based evaluation, positive if any finger of the hand concerned												
15 and/or 10°C	left hand	30, 15, 10°C	21±1	12	4	2	22	74.6, 72.2	58.3	100.0	0.0	45.5
15°C	left hand	30, 15°C	21±1	12	4	2	22	74.6	50.0	50.0	0.0	45.5
10°C	left hand	30, 10°C	21±1	10	4	2	22	72.2	40.0	100.0	0.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	12	4	2	22	74.6	41.7	50.0	0.0	72.7
	middle	30, 15°C	21±1	12	3	2	22	74.6	25.0	33.3	0.0	68.2
	ring	30, 15°C	21±1	12	4	2	22	74.6	25.0	25.0	0.0	81.8
	little	30, 15°C	21±1	12	4	2	22	74.6	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	48	15	8	88	74.6	22.9	26.7	0.0	80.7
10°C	index	30, 10°C	21±1	10	4	2	22	72.2	20.0	100.0	0.0	72.7
	middle	30, 10°C	21±1	10	3	2	22	72.2	30.0	33.3	0.0	77.3
	ring	30, 10°C	21±1	10	4	2	22	72.2	40.0	25.0	0.0	86.4
	little	30, 10°C	21±1	10	4	2	22	72.2	20.0	25.0	0.0	90.9
	together	30, 10°C	21±1	40	15	8	88	72.2	27.5	46.7	0.0	81.8

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1SD; the number of data from right hands of controls for each condition 15°C and 10°C = 88.