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## 冷却負荷手指血圧検査報告案

## 1 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。

## 2 対象、方法

## 2-1 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

## 2-2 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 $21 \pm 1^\circ\text{C}$ 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ず対照指として測定した。還流水温は $30^\circ\text{C}$ 、 $15^\circ\text{C}$ 、 $10^\circ\text{C}$ 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

## 3-1 解析対象

注:最終的な%FSBPの算出にはPCデータの分析が必要であるが、徳島での検査データのPCファイルがまだ検討不能であるため、下記の成績は暫定的なものでさらに修正されることに注意を要する。全PCデータの分析が可能になってからの、3診療機関を通じて統一した基準による判定、未判定であるいわゆる「0 pressure」が疑われるデータの判定後の再解析を要する。

## 3-2 基本統計、検定

Table 1~4に冷却負荷温度 $15^\circ\text{C}$ 、 $10^\circ\text{C}$ 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。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・評価できた全指で見ると、15°C、10°C冷却負荷時とも統計的に有意な差が示されており、10°C冷却負荷時には手指レイノー症状を有さない療養者も対照者より有意に低い値が示されている。

### 3-3 鋭敏度、特異度

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右手%FSBP の平均-2SD、平均-1.65SD、平均-1SD を 15°C、10°Cそれぞれの冷却負荷で算出した。

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(15°Cで 55.1%、10°Cで 58.3%)では、対照者において22手中1手(特異度95.5%)、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5手(鋭敏度17.2%)、平均-1.65SDの基準値(15°Cで 64.4%、10°Cで 60.9%)では、対照者において22手中7手(特異度68.2%)、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24.1%)、平均-1SDの基準値(15°Cで 75.7%、10°Cで 71.7%)では、対照者において22手中9手(特異度59.1%)、手指レイノー症状有症者では12手中9手(鋭敏度75.0%)、同症状を有しない療養者では29手中17手(鋭敏度58.6%)であった。

## 4 評価

### 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(+)	7	78.4 $\pm$ 17.6
		VWF(-)	16	91.7 $\pm$ 14.1
		Control	22	91.2 $\pm$ 16.5
		Left hand	18	83.9 $\pm$ 18.1
	Middle	VWF(+)	7	68.5 $\pm$ 27.7*
		VWF(-)	15	87.3 $\pm$ 12.3
		Control	22	91.6 $\pm$ 21.6
		Left hand	16	87.5 $\pm$ 16.0
	Ring	VWF(+)	7	72.4 $\pm$ 20.6**
		VWF(-)	16	90.3 $\pm$ 10.1
		Control	22	93.8 $\pm$ 17.1
		Left hand	18	82.0 $\pm$ 15.0
	Little	VWF(+)	7	85.5 $\pm$ 15.6
		VWF(-)	16	96.4 $\pm$ 15.1
		Control	22	95.7 $\pm$ 14.4
		Left hand	18	94.8 $\pm$ 10.3
	All	VWF(+)	28	76.2 $\pm$ 20.7**
		VWF(-)	63	91.5 $\pm$ 13.2
		Control	88	93.1 $\pm$ 17.4
		Left hand	70	87.1 $\pm$ 15.6
10°C	Index	VWF(+)	7	54.5 $\pm$ 19.1**
		VWF(-)	15	81.6 $\pm$ 14.9
		Control	22	85.6 $\pm$ 15.6
		Left hand	15	77.8 $\pm$ 17.0
	Middle	VWF(+)	6	67.6 $\pm$ 20.4
		VWF(-)	14	75.0 $\pm$ 17.1
		Control	22	87.8 $\pm$ 18.5
		Left hand	13	82.0 $\pm$ 15.6
	Ring	VWF(+)	7	60.3 $\pm$ 22.6**
		VWF(-)	14	80.4 $\pm$ 10.8
		Control	22	88.6 $\pm$ 15.7
		Left hand	15	78.3 $\pm$ 12.9
	Little	VWF(+)	7	78.9 $\pm$ 11.6
		VWF(-)	15	87.3 $\pm$ 12.7
		Control	22	90.9 $\pm$ 17.0
		Left hand	15	83.8 $\pm$ 11.5
	All	VWF(+)	27	65.2 $\pm$ 20.0**
		VWF(-)	58	81.2 $\pm$ 14.4*
		Control	88	88.2 $\pm$ 16.6
		Left hand	58	80.4 $\pm$ 14.2

\*p<0.05, \*\*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	77.9 $\pm$ 20.2
		SW1-2	4	78.8 $\pm$ 18.6
		SW0	16	91.7 $\pm$ 14.1
		Controls	22	91.2 $\pm$ 16.5
		Left hand	18	83.9 $\pm$ 18.1
	Middle	SW3	3	60.6 $\pm$ 42.0
		SW1-2	4	74.5 $\pm$ 15.8
		SW0	15	87.3 $\pm$ 12.3
		Controls	22	91.6 $\pm$ 21.6
		Left hand	16	87.5 $\pm$ 16.0
	Ring	SW3	3	73.7 $\pm$ 15.1
		SW1-2	4	71.3 $\pm$ 26.3
		SW0	16	90.3 $\pm$ 10.1
		Controls	22	93.8 $\pm$ 17.1
		Left hand	18	82.0 $\pm$ 15.0
	Little	SW3	3	89.7 $\pm$ 15.2
		SW1-2	4	82.3 $\pm$ 17.4
		SW0	16	96.4 $\pm$ 15.1
		Controls	22	95.7 $\pm$ 14.4
		Left hand	18	94.8 $\pm$ 10.3
All	SW3	12	75.5 $\pm$ 24.4**	
	SW1-2	16	76.7 $\pm$ 18.3**	
	SW0	63	91.5 $\pm$ 13.2	
	Controls	88	93.1 $\pm$ 17.4	
	Left hand	70	87.1 $\pm$ 15.6	
10°C	Index	SW3	3	63.4 $\pm$ 21.8
		SW1-2	4	47.8 $\pm$ 16.5**
		SW0	15	81.6 $\pm$ 14.9
		Controls	22	85.6 $\pm$ 15.6
		Left hand	15	77.8 $\pm$ 17.0
	Middle	SW3	2	70.9 $\pm$ 36.9
		SW1-2	4	65.9 $\pm$ 15.0
		SW0	14	75.0 $\pm$ 17.1
		Controls	22	87.8 $\pm$ 18.5
		Left hand	13	82.0 $\pm$ 15.6
	Ring	SW3	3	70.5 $\pm$ 18.5
		SW1-2	4	52.7 $\pm$ 24.8**
		SW0	14	80.4 $\pm$ 10.8
		Controls	22	88.6 $\pm$ 15.7
		Left hand	15	78.3 $\pm$ 12.9
	Little	SW3	3	82.6 $\pm$ 17.2
		SW1-2	4	76.1 $\pm$ 6.8
		SW0	15	87.3 $\pm$ 12.7
		Controls	22	90.9 $\pm$ 17.0
		Left hand	15	83.8 $\pm$ 11.5
All	SW3	11	71.9 $\pm$ 20.4*	
	SW1-2	16	60.6 $\pm$ 19.1**	
	SW0	58	81.2 $\pm$ 14.4	
	Controls	88	88.2 $\pm$ 16.6	
	Left hand	58	80.4 $\pm$ 14.2	

\*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 ± SD
15°C	Index	VS3	5	77.9 ± 20.4
		VS2	13	92.0 ± 15.3
		VS1	5	86.2 ± 10.9
		Controls	22	91.2 ± 16.5
		Left hand	18	83.9 ± 18.1
	Middle	VS3	4	72.5 ± 23.2
		VS2	13	83.4 ± 22.1
		VS1	5	83.1 ± 11.3
		Controls	22	91.6 ± 21.6
		Left hand	16	87.5 ± 16.0
	Ring	VS3	5	70.6 ± 21.8*
		VS2	13	88.6 ± 12.6
		VS1	5	89.4 ± 11.5
		Controls	22	93.8 ± 17.1
		Left hand	18	82.0 ± 15.0
	Little	VS3	5	90.4 ± 19.5
		VS2	13	95.8 ± 16.4
		VS1	5	88.8 ± 11.3
		Controls	22	95.7 ± 14.4
		Left hand	18	94.8 ± 10.3
All	VS3	19	78.1 ± 20.9**	
	VS2	52	89.9 ± 17.1	
	VS1	20	86.9 ± 10.6	
	Controls	88	93.1 ± 17.4	
	Left hand	70	87.1 ± 15.6	
10°C	Index	VS3	5	62.5 ± 22.8
		VS2	13	77.1 ± 22.2
		VS1	4	72.8 ± 4.6
		Controls	22	85.6 ± 15.6
		Left hand	15	77.8 ± 17.0
	Middle	VS3	5	63.7 ± 21.4
		VS2	11	78.0 ± 17.5
		VS1	4	69.9 ± 12.5
		Controls	22	87.8 ± 18.5
		Left hand	13	82.0 ± 15.6
	Ring	VS3	5	64.4 ± 29.6*
		VS2	13	77.5 ± 13.9
		VS1	3	72.7 ± 5.2
		Controls	22	88.6 ± 15.7
		Left hand	15	78.3 ± 12.9
	Little	VS3	5	82.7 ± 12.7
		VS2	13	87.1 ± 13.3
		VS1	4	79.0 ± 11.6
		Controls	22	90.9 ± 17.0
		Left hand	15	83.8 ± 11.5
All	VS3	20	68.3 ± 22.3**	
	VS2	50	80.0 ± 17.1*	
	VS1	15	73.6 ± 9.1*	
	Controls	88	88.2 ± 16.6	
	Left hand	58	80.4 ± 14.2	

\*p<0.05, \*\*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	12	84.5 $\pm$ 17.9
		VL2	7	95.0 $\pm$ 14.6
		VL0-1	3	80.0 $\pm$ 7.1
		Controls	22	91.2 $\pm$ 16.5
		Left hand	18	83.9 $\pm$ 18.1
	Middle	VL3	11	74.1 $\pm$ 23.6
		VL2	7	90.9 $\pm$ 11.5
		VL0-1	3	77.8 $\pm$ 11.3
		Controls	22	91.6 $\pm$ 21.6
		Left hand	16	87.5 $\pm$ 16.0
	Ring	VL3	12	81.3 $\pm$ 18.9
		VL2	7	89.1 $\pm$ 12.9
		VL0-1	3	89.5 $\pm$ 13.8
		Controls	22	93.8 $\pm$ 17.1
		Left hand	18	82.0 $\pm$ 15.0
	Little	VL3	12	92.9 $\pm$ 19.4
		VL2	7	92.8 $\pm$ 13.1
		VL0-1	3	89.9 $\pm$ 5.9
		Controls	22	95.7 $\pm$ 14.4
		Left hand	18	94.8 $\pm$ 10.3
All	VL3	47	83.4 $\pm$ 20.5*	
	VL2	28	91.9 $\pm$ 12.5	
	VL0-1	12	84.3 $\pm$ 10.3	
	Controls	88	93.1 $\pm$ 17.4	
	Left hand	70	87.1 $\pm$ 15.6	
10°C	Index	VL3	12	71.1 $\pm$ 23.0
		VL2	7	74.8 $\pm$ 21.2
		VL0-1	2	70.2 $\pm$ 3.4
		Controls	22	85.6 $\pm$ 15.6
		Left hand	15	77.8 $\pm$ 17.0
	Middle	VL3	11	69.2 $\pm$ 20.7*
		VL2	6	79.4 $\pm$ 9.1
		VL0-1	2	60.7 $\pm$ 10.9
		Controls	22	87.8 $\pm$ 18.5
		Left hand	13	82.0 $\pm$ 15.6
	Ring	VL3	12	71.5 $\pm$ 22.4
		VL2	7	76.0 $\pm$ 9.3
		VL0-1	1	66.7 $\pm$
		Controls	22	88.6 $\pm$ 15.7
		Left hand	15	78.3 $\pm$ 12.9
	Little	VL3	12	83.7 $\pm$ 14.4
		VL2	7	85.6 $\pm$ 10.3
		VL0-1	2	78.4 $\pm$ 9.8
		Controls	22	90.9 $\pm$ 17.0
		Left hand	15	83.8 $\pm$ 11.5
All	VL3	47	74.0 $\pm$ 20.6**	
	VL2	27	78.9 $\pm$ 13.5	
	VL0-1	7	69.3 $\pm$ 9.6*	
	Controls	88	88.2 $\pm$ 16.6	
	Left hand	58	80.4 $\pm$ 14.2	

\*p<0.05, \*\*p<0.01 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	58.3, 55.1	71.4	12.5	95.5
15°C	right hand	30, 15°C	21±1	7	16	22	58.3	57.1	0.0	100.0
10°C	right hand	30, 10°C	21±1	7	15	22	55.1	74.1	13.3	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	7	16	22	58.3	28.6	0.0	100.0
	middle	30, 15°C	21±1	7	15	22	58.3	42.9	0.0	100.0
	ring	30, 15°C	21±1	7	16	22	58.3	28.6	0.0	100.0
	little	30, 15°C	21±1	7	16	22	58.3	0.0	0.0	100.0
	together	30, 10°C	21±1	28	63	88	58.3	25.0	0.0	100.0
10°C	index	30, 10°C	21±1	7	15	22	55.1	57.1	0.0	100.0
	middle	30, 10°C	21±1	6	14	22	55.1	33.3	14.3	95.5
	ring	30, 10°C	21±1	7	14	22	55.1	14.3	0.0	100.0
	little	30, 10°C	21±1	7	15	22	55.1	0.0	0.0	100.0
	together	30, 10°C	21±1	27	58	88	55.1	25.9	3.4	98.9
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	58.3, 55.1	40.0	23.1	95.5
15°C	left hand	30, 15°C	21±1	5	13	22	58.3	40.0	15.4	100.0
10°C	left hand	30, 10°C	21±1	4	11	22	55.1	25.0	18.2	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	5	13	22	58.3	40.0	0.0	100.0
	middle	30, 15°C	21±1	4	12	22	58.3	0.0	8.3	100.0
	ring	30, 15°C	21±1	5	13	22	58.3	20.0	7.7	100.0
	little	30, 15°C	21±1	5	13	22	58.3	0.0	0.0	100.0
	together	30, 10°C	21±1	19	51	88	58.3	15.8	3.9	100.0
10°C	index	30, 10°C	21±1	4	11	22	55.1	0.0	9.1	100.0
	middle	30, 10°C	21±1	3	10	22	55.1	0.0	10.0	95.5
	ring	30, 10°C	21±1	4	11	22	55.1	25.0	0.0	100.0
	little	30, 10°C	21±1	4	11	22	55.1	0.0	0.0	100.0
	together	30, 10°C	21±1	15	43	88	55.1	6.7	4.7	98.9

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 both conditions at 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(+)) 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	64.4, 60.9	85.7	12.5	68.2
15°C	right hand	30, 15°C	21±1	7	16	22	64.4	71.4	0.0	81.8
10°C	right hand	30, 10°C	21±1	7	15	22	60.9	85.7	13.3	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	7	16	22	64.4	28.6	0.0	90.9
	middle	30, 15°C	21±1	7	15	22	64.4	42.9	0.0	90.9
	ring	30, 15°C	21±1	7	16	22	64.4	42.9	0.0	95.5
	little	30, 15°C	21±1	7	16	22	64.4	14.3	0.0	100.0
	together	30, 10°C	21±1	28	63	88	64.4	32.1	0.0	94.3
10°C	index	30, 10°C	21±1	7	15	22	60.9	71.4	6.7	90.9
	middle	30, 10°C	21±1	6	14	22	60.9	33.3	14.3	90.9
	ring	30, 10°C	21±1	7	14	22	60.9	42.9	0.0	95.5
	little	30, 10°C	21±1	7	15	22	60.9	0.0	0.0	95.5
	together	30, 10°C	21±1	27	58	88	60.9	37.0	5.2	93.2
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	64.4, 60.9	40.0	38.5	68.2
15°C	left hand	30, 15°C	21±1	5	13	22	64.4	40.0	23.1	81.8
10°C	left hand	30, 10°C	21±1	4	11	22	60.9	25.0	36.4	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	5	13	22	64.4	40.0	15.4	90.9
	middle	30, 15°C	21±1	4	12	22	64.4	0.0	8.3	90.9
	ring	30, 15°C	21±1	5	13	22	64.4	20.0	7.7	95.5
	little	30, 15°C	21±1	5	13	22	64.4	0.0	0.0	100.0
	together	30, 10°C	21±1	19	51	88	64.4	15.8	7.8	94.3
10°C	index	30, 10°C	21±1	4	11	22	60.9	0.0	18.2	90.9
	middle	30, 10°C	21±1	3	10	22	60.9	0.0	10.0	90.9
	ring	30, 10°C	21±1	4	11	22	60.9	25.0	9.1	95.5
	little	30, 10°C	21±1	4	11	22	60.9	0.0	0.0	95.5
	together	30, 10°C	21±1	15	43	88	60.9	6.7	9.3	93.2

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 both conditions at 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 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	75.7, 71.7	85.7	56.3	59.1
15°C	right hand	30, 15°C	21±1	7	16	22	75.7	71.4	25.0	59.1
10°C	right hand	30, 10°C	21±1	7	15	22	71.7	85.7	53.3	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	7	16	22	75.7	28.6	12.5	81.8
	middle	30, 15°C	21±1	7	15	22	75.7	71.4	20.0	77.3
	ring	30, 15°C	21±1	7	16	22	75.7	42.9	6.3	86.4
	little	30, 15°C	21±1	7	16	22	75.7	14.3	6.3	95.5
	together	30, 10°C	21±1	28	63	88	75.7	39.3	11.1	85.2
10°C	index	30, 10°C	21±1	7	15	22	71.7	71.4	26.7	77.3
	middle	30, 10°C	21±1	6	14	22	71.7	66.7	42.9	77.3
	ring	30, 10°C	21±1	7	14	22	71.7	71.4	21.4	72.7
	little	30, 10°C	21±1	7	15	22	71.7	28.6	20.0	86.4
	together	30, 10°C	21±1	27	58	88	71.7	59.3	27.6	78.4
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	75.7, 71.7	60.0	61.5	59.1
15°C	left hand	30, 15°C	21±1	5	13	22	75.7	40.0	38.5	59.1
10°C	left hand	30, 10°C	21±1	4	11	22	71.7	50.0	54.5	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)										
15°C	index	30, 15°C	21±1	5	13	22	75.7	40.0	23.1	81.8
	middle	30, 15°C	21±1	4	12	22	75.7	25.0	25.0	77.3
	ring	30, 15°C	21±1	5	13	22	75.7	40.0	23.1	86.4
	little	30, 15°C	21±1	5	13	22	75.7	0.0	7.7	95.5
	together	30, 10°C	21±1	19	51	88	75.7	26.3	19.6	85.2
10°C	index	30, 10°C	21±1	4	11	22	71.7	25.0	54.5	77.3
	middle	30, 10°C	21±1	3	10	22	71.7	0.0	20.0	77.3
	ring	30, 10°C	21±1	4	11	22	71.7	50.0	18.2	72.7
	little	30, 10°C	21±1	4	11	22	71.7	0.0	18.2	86.4
	together	30, 10°C	21±1	15	43	88	71.7	20.0	27.9	78.4

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 both conditions at 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	58.3, 55.1	66.7	75.0	12.5	95.5
15°C	right hand	30, 15°C	21±1	3	4	16	22	58.3	66.7	50.0	0.0	100.0
10°C	right hand	30, 10°C	21±1	3	4	15	22	55.1	66.7	75.0	13.3	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	3	4	16	22	58.3	33.3	25.0	0.0	100.0
	middle	30, 15°C	21±1	3	4	15	22	58.3	66.7	25.0	0.0	100.0
	ring	30, 15°C	21±1	3	4	16	22	58.3	33.3	25.0	0.0	100.0
	little	30, 15°C	21±1	3	4	16	22	58.3	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	12	16	63	88	58.3	33.3	18.8	0.0	100.0
10°C	index	30, 10°C	21±1	3	4	15	22	55.1	33.3	75.0	0.0	100.0
	middle	30, 10°C	21±1	2	4	14	22	55.1	50.0	25.0	14.3	95.5
	ring	30, 10°C	21±1	3	4	14	22	55.1	0.0	25.0	0.0	100.0
	little	30, 10°C	21±1	3	4	15	22	55.1	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	11	16	58	88	55.1	18.2	31.3	3.4	98.9
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	58.3, 55.1	50.0	33.3	23.1	95.5
15°C	left hand	30, 15°C	21±1	2	3	13	22	58.3	50.0	33.3	15.4	100.0
10°C	left hand	30, 10°C	21±1	2	2	11	22	55.1	0.0	50.0	18.2	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	2	3	13	22	58.3	50.0	33.3	0.0	100.0
	middle	30, 15°C	21±1	2	2	12	22	58.3	0.0	0.0	8.3	100.0
	ring	30, 15°C	21±1	2	3	13	22	58.3	0.0	33.3	7.7	100.0
	little	30, 15°C	21±1	2	3	13	22	58.3	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	11	51	88	58.3	12.5	18.2	3.9	100.0
10°C	index	30, 10°C	21±1	2	2	11	22	55.1	0.0	0.0	9.1	100.0
	middle	30, 10°C	21±1	2	1	10	22	55.1	0.0	0.0	10.0	95.5
	ring	30, 10°C	21±1	2	2	11	22	55.1	0.0	50.0	0.0	100.0
	little	30, 10°C	21±1	2	2	11	22	55.1	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	7	43	88	55.1	0.0	14.3	4.7	98.9

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 both conditions at 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	64.4, 60.9	66.7	100.0	12.5	68.2
15°C	right hand	30, 15°C	21±1	3	4	16	22	64.4	66.7	75.0	0.0	81.8
10°C	right hand	30, 10°C	21±1	3	4	15	22	60.9	66.7	100.0	13.3	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	3	4	16	22	64.4	33.3	25.0	0.0	90.9
	middle	30, 15°C	21±1	3	4	15	22	64.4	66.7	25.0	0.0	90.9
	ring	30, 15°C	21±1	3	4	16	22	64.4	33.3	50.0	0.0	95.5
	little	30, 15°C	21±1	3	4	16	22	64.4	0.0	25.0	0.0	100.0
	together	30, 10°C	21±1	12	16	63	88	64.4	33.3	31.3	0.0	94.3
10°C	index	30, 10°C	21±1	3	4	15	22	60.9	66.7	75.0	6.7	90.9
	middle	30, 10°C	21±1	2	4	14	22	60.9	50.0	25.0	14.3	90.9
	ring	30, 10°C	21±1	3	4	14	22	60.9	33.3	50.0	0.0	95.5
	little	30, 10°C	21±1	3	4	15	22	60.9	0.0	0.0	0.0	95.5
	together	30, 10°C	21±1	11	16	58	88	60.9	36.4	37.5	5.2	93.2
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	64.4, 60.9	50.0	33.3	38.5	68.2
15°C	left hand	30, 15°C	21±1	2	3	13	22	64.4	50.0	33.3	23.1	81.8
10°C	left hand	30, 10°C	21±1	2	2	11	22	60.9	0.0	50.0	36.4	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	2	3	13	22	64.4	50.0	33.3	15.4	90.9
	middle	30, 15°C	21±1	2	2	12	22	64.4	0.0	0.0	8.3	90.9
	ring	30, 15°C	21±1	2	3	13	22	64.4	0.0	33.3	7.7	95.5
	little	30, 15°C	21±1	2	3	13	22	64.4	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	8	11	51	88	64.4	12.5	18.2	7.8	94.3
10°C	index	30, 10°C	21±1	2	2	11	22	60.9	0.0	0.0	18.2	90.9
	middle	30, 10°C	21±1	2	1	10	22	60.9	0.0	0.0	10.0	90.9
	ring	30, 10°C	21±1	2	2	11	22	60.9	0.0	50.0	9.1	95.5
	little	30, 10°C	21±1	2	2	11	22	60.9	0.0	0.0	0.0	95.5
	together	30, 10°C	21±1	8	7	43	88	60.9	0.0	14.3	9.3	93.2

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 both conditions at 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 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	75.7, 71.7	66.7	100.0	56.3	59.1
15°C	right hand	30, 15°C	21±1	3	4	16	22	75.7	66.7	75.0	25.0	59.1
10°C	right hand	30, 10°C	21±1	3	4	15	22	71.7	66.7	100.0	53.3	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	3	4	16	22	75.7	33.3	25.0	12.5	81.8
	middle	30, 15°C	21±1	3	4	15	22	75.7	66.7	75.0	20.0	77.3
	ring	30, 15°C	21±1	3	4	16	22	75.7	33.3	50.0	6.3	86.4
	little	30, 15°C	21±1	3	4	16	22	75.7	0.0	25.0	6.3	95.5
	together	30, 10°C	21±1	12	16	63	88	75.7	33.3	43.8	11.1	85.2
10°C	index	30, 10°C	21±1	3	4	15	22	71.7	66.7	75.0	26.7	77.3
	middle	30, 10°C	21±1	2	4	14	22	71.7	50.0	75.0	42.9	77.3
	ring	30, 10°C	21±1	3	4	14	22	71.7	66.7	75.0	21.4	72.7
	little	30, 10°C	21±1	3	4	15	22	71.7	33.3	25.0	20.0	86.4
	together	30, 10°C	21±1	11	16	58	88	71.7	54.5	62.5	27.6	78.4
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	75.7, 71.7	50.0	66.7	61.5	59.1
15°C	left hand	30, 15°C	21±1	2	3	13	22	75.7	50.0	33.3	38.5	59.1
10°C	left hand	30, 10°C	21±1	2	2	11	22	71.7	0.0	100.0	54.5	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	75.7	50.0	33.3	23.1	81.8
	middle	30, 15°C	21±1	2	2	12	22	75.7	50.0	0.0	25.0	77.3
	ring	30, 15°C	21±1	2	3	13	22	75.7	50.0	33.3	23.1	86.4
	little	30, 15°C	21±1	2	3	13	22	75.7	0.0	0.0	7.7	95.5
	together	30, 10°C	21±1	8	11	51	88	75.7	37.5	18.2	19.6	85.2
10°C	index	30, 10°C	21±1	2	2	11	22	71.7	0.0	50.0	54.5	77.3
	middle	30, 10°C	21±1	2	1	10	22	71.7	0.0	0.0	20.0	77.3
	ring	30, 10°C	21±1	2	2	11	22	71.7	0.0	100.0	18.2	72.7
	little	30, 10°C	21±1	2	2	11	22	71.7	0.0	0.0	18.2	86.4
	together	30, 10°C	21±1	8	7	43	88	71.7	0.0	42.9	27.9	78.4

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 both conditions at 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	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	58.3, 55.1	60.0	23.1	20.0	95.5
15°C	Right hand	30, 15°C	21±1	5	13	5	22	58.3	60.0	7.7	0.0	100.0
10°C	Right hand	30, 10°C	21±1	5	13	4	22	55.1	60.0	23.1	25.0	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	5	13	5	22	58.3	40.0	0.0	0.0	100.0
	middle	30, 15°C	21±1	4	13	5	22	58.3	50.0	7.7	0.0	100.0
	Ring	30, 15°C	21±1	5	13	5	22	58.3	40.0	0.0	0.0	100.0
	Little	30, 15°C	21±1	5	13	5	22	58.3	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	19	52	20	88	58.3	31.6	1.9	0.0	100.0
10°C	index	30, 10°C	21±1	5	13	4	22	55.1	40.0	15.4	0.0	100.0
	middle	30, 10°C	21±1	5	11	4	22	55.1	40.0	9.1	25.0	95.5
	Ring	30, 10°C	21±1	5	13	3	22	55.1	20.0	0.0	0.0	100.0
	Little	30, 10°C	21±1	5	13	4	22	55.1	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	20	49	15	88	55.1	25.0	6.1	6.7	98.9
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	58.3, 55.1	0.0	40.0	25.0	95.5
15°C	left hand	30, 15°C	21±1	4	10	4	22	58.3	0.0	40.0	0.0	100.0
10°C	left hand	30, 10°C	21±1	3	8	4	22	55.1	0.0	25.0	25.0	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	4	10	4	22	58.3	0.0	20.0	0.0	100.0
	middle	30, 15°C	21±1	4	8	4	22	58.3	0.0	12.5	0.0	100.0
	Ring	30, 15°C	21±1	4	10	4	22	58.3	0.0	20.0	0.0	100.0
	Little	30, 15°C	21±1	4	10	4	22	58.3	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	16	38	16	88	58.3	0.0	13.2	0.0	100.0
10°C	index	30, 10°C	21±1	3	8	4	22	55.1	0.0	0.0	25.0	100.0
	middle	30, 10°C	21±1	3	6	4	22	55.1	0.0	16.7	0.0	95.5
	Ring	30, 10°C	21±1	3	8	4	22	55.1	0.0	12.5	0.0	100.0
	Little	30, 10°C	21±1	3	8	4	22	55.1	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	12	30	16	88	55.1	0.0	6.7	6.3	98.9

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 both conditions at 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	64.4, 60.9	60.0	30.8	20.0	68.2
15°C	right hand	30, 15°C	21±1	5	13	5	22	64.4	60.0	15.4	0.0	81.8
10°C	right hand	30, 10°C	21±1	5	13	4	22	60.9	60.0	30.8	25.0	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	5	13	5	22	64.4	40.0	0.0	0.0	90.9
	middle	30, 15°C	21±1	4	13	5	22	64.4	50.0	7.7	0.0	90.9
	ring	30, 15°C	21±1	5	13	5	22	64.4	40.0	7.7	0.0	95.5
	little	30, 15°C	21±1	5	13	5	22	64.4	20.0	0.0	0.0	100.0
	together	30, 10°C	21±1	19	52	20	88	64.4	36.8	3.8	0.0	94.3
10°C	index	30, 10°C	21±1	5	13	4	22	60.9	60.0	23.1	0.0	90.9
	middle	30, 10°C	21±1	5	11	4	22	60.9	40.0	9.1	25.0	90.9
	ring	30, 10°C	21±1	5	13	3	22	60.9	40.0	7.7	0.0	95.5
	little	30, 10°C	21±1	5	13	4	22	60.9	0.0	0.0	0.0	95.5
	together	30, 10°C	21±1	20	49	15	88	60.9	35.0	10.2	6.7	93.2
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	64.4, 60.9	0.0	50.0	50.0	68.2
15°C	left hand	30, 15°C	21±1	4	10	4	22	64.4	0.0	40.0	25.0	81.8
10°C	left hand	30, 10°C	21±1	3	8	4	22	60.9	0.0	37.5	50.0	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	4	10	4	22	64.4	0.0	30.0	25.0	90.9
	middle	30, 15°C	21±1	4	8	4	22	64.4	0.0	12.5	0.0	90.9
	ring	30, 15°C	21±1	4	10	4	22	64.4	0.0	20.0	0.0	95.5
	little	30, 15°C	21±1	4	10	4	22	64.4	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	16	38	16	88	64.4	0.0	15.8	6.3	94.3
10°C	index	30, 10°C	21±1	3	8	4	22	60.9	0.0	0.0	50.0	90.9
	middle	30, 10°C	21±1	3	6	4	22	60.9	0.0	16.7	0.0	90.9
	ring	30, 10°C	21±1	3	8	4	22	60.9	0.0	25.0	0.0	95.5
	little	30, 10°C	21±1	3	8	4	22	60.9	0.0	0.0	0.0	95.5
	together	30, 10°C	21±1	12	30	16	88	60.9	0.0	10.0	12.5	93.2

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1.65D; the number of data from right hands of controls for both conditions at 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	75.7, 71.7	80.0	53.8	80.0	59.1
15°C	right hand	30, 15°C	21±1	5	13	5	22	75.7	60.0	30.0	40.0	59.1
10°C	right hand	30, 10°C	21±1	5	13	4	22	71.7	80.0	53.8	75.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	5	13	5	22	75.7	40.0	7.7	20.0	81.8
	middle	30, 15°C	21±1	4	13	5	22	75.7	75.0	30.8	20.0	77.3
	ring	30, 15°C	21±1	5	13	5	22	75.7	40.0	15.4	0.0	86.4
	little	30, 15°C	21±1	5	13	5	22	75.7	20.0	0.0	20.0	95.5
	together	30, 10°C	21±1	19	52	20	88	75.7	42.1	13.5	15.0	85.2
10°C	index	30, 10°C	21±1	5	13	4	22	71.7	60.0	38.5	25.0	77.3
	middle	30, 10°C	21±1	5	11	4	22	71.7	80.0	36.4	50.0	77.3
	ring	30, 10°C	21±1	5	13	3	22	71.7	40.0	38.5	33.3	72.7
	little	30, 10°C	21±1	5	13	4	22	71.7	20.0	15.4	50.0	86.4
	together	30, 10°C	21±1	20	49	15	88	71.7	50.0	32.7	40.0	78.4
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	75.7, 71.7	50.0	70.0	50.0	59.1
15°C	left hand	30, 15°C	21±1	4	10	4	22	75.7	25.0	50.0	25.0	59.1
10°C	left hand	30, 10°C	21±1	3	8	4	22	71.7	33.3	62.5	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	75.7	25.0	30.0	25.0	81.8
	middle	30, 15°C	21±1	4	8	4	22	75.7	0.0	37.5	25.0	77.3
	ring	30, 15°C	21±1	4	10	4	22	75.7	0.0	50.0	0.0	86.4
	little	30, 15°C	21±1	4	10	4	22	75.7	0.0	10.0	0.0	95.5
	together	30, 10°C	21±1	16	38	16	88	75.7	6.3	31.6	12.5	85.2
10°C	index	30, 10°C	21±1	3	8	4	22	71.7	0.0	62.5	50.0	77.3
	middle	30, 10°C	21±1	3	6	4	22	71.7	0.0	16.7	25.0	77.3
	ring	30, 10°C	21±1	3	8	4	22	71.7	33.3	37.5	0.0	72.7
	little	30, 10°C	21±1	3	8	4	22	71.7	0.0	25.0	0.0	86.4
	together	30, 10°C	21±1	12	30	16	88	71.7	8.3	36.7	18.8	78.4

All subjects were in sitting position. Cooling condition: finger cooling only. Cutoff point = mean-1D; the number of data from right hands of controls for both conditions at 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 temperature °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	58.3, 55.1	41.7	14.3	33.3	95.5
15°C	right hand	30, 15°C	21±1	12	7	3	22	58.3	33.3	0.0	0.0	100.0
10°C	right hand	30, 10°C	21±1	12	7	2	22	55.1	41.7	14.3	50.0	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	12	7	3	22	58.3	16.7	0.0	0.0	100.0
	middle	30, 15°C	21±1	11	7	3	22	58.3	27.3	0.0	0.0	100.0
	ring	30, 15°C	21±1	12	7	3	22	58.3	16.7	0.0	0.0	100.0
	little	30, 15°C	21±1	12	7	3	22	58.3	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	47	28	12	88	58.3	14.9	0.0	0.0	100.0
10°C	index	30, 10°C	21±1	12	7	2	22	55.1	25.0	14.3	0.0	100.0
	middle	30, 10°C	21±1	11	6	2	22	55.1	27.3	0.0	50.0	95.5
	ring	30, 10°C	21±1	12	7	1	22	55.1	8.3	0.0	0.0	100.0
	little	30, 10°C	21±1	12	7	2	22	55.1	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	47	27	7	88	55.1	14.9	3.7	14.3	98.9
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	58.3, 55.1	33.3	25.0	0.0	95.5
15°C	left hand	30, 15°C	21±1	12	4	2	22	58.3	33.3	0.0	0.0	100.0
10°C	left hand	30, 10°C	21±1	9	4	2	22	55.1	22.2	25.0	0.0	95.5
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
15°C	index	30, 15°C	21±1	12	4	2	22	58.3	16.7	0.0	0.0	100.0
	middle	30, 15°C	21±1	11	3	2	22	58.3	9.1	0.0	0.0	100.0
	ring	30, 15°C	21±1	12	4	2	22	58.3	16.7	0.0	0.0	100.0
	little	30, 15°C	21±1	12	4	2	22	58.3	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	47	15	8	88	58.3	10.6	0.0	0.0	100.0
10°C	index	30, 10°C	21±1	9	4	2	22	55.1	0.0	25.0	0.0	100.0
	middle	30, 10°C	21±1	8	3	2	22	55.1	12.5	0.0	0.0	95.5
	ring	30, 10°C	21±1	9	4	2	22	55.1	11.1	0.0	0.0	100.0
	little	30, 10°C	21±1	9	4	2	22	55.1	0.0	0.0	0.0	100.0
	together	30, 10°C	21±1	35	15	8	88	55.1	5.7	6.7	0.0	98.9

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 both conditions at 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	64.4, 60.9	50.0	14.3	33.3	68.2
15°C right hand	30, 15°C	21±1	12	7	3	22	64.4	41.7	0.0	0.0	81.8
10°C right hand	30, 10°C	21±1	12	7	2	22	60.9	50.0	14.3	50.0	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)											
15°C index	30, 15°C	21±1	12	7	3	22	64.4	16.7	0.0	0.0	90.9
15°C middle	30, 15°C	21±1	11	7	3	22	64.4	27.3	0.0	0.0	90.9
15°C ring	30, 15°C	21±1	12	7	3	22	64.4	25.0	0.0	0.0	95.5
15°C little	30, 15°C	21±1	12	7	3	22	64.4	8.3	0.0	0.0	100.0
15°C together	30, 10°C	21±1	47	28	12	88	64.4	19.1	0.0	0.0	94.3
10°C index	30, 10°C	21±1	12	7	2	22	60.9	41.7	14.3	0.0	90.9
10°C middle	30, 10°C	21±1	11	6	2	22	60.9	27.3	0.0	50.0	90.9
10°C ring	30, 10°C	21±1	12	7	1	22	60.9	25.0	0.0	0.0	95.5
10°C little	30, 10°C	21±1	12	7	2	22	60.9	0.0	0.0	0.0	95.5
10°C together	30, 10°C	21±1	47	27	7	88	60.9	23.4	3.7	14.3	93.2
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	64.4, 60.9	33.3	75.0	0.0	68.2
15°C left hand	30, 15°C	21±1	12	4	2	22	64.4	33.3	25.0	0.0	81.8
10°C left hand	30, 10°C	21±1	9	4	2	22	60.9	22.2	75.0	0.0	77.3
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)											
15°C index	30, 15°C	21±1	12	4	2	22	64.4	25.0	25.0	0.0	90.9
15°C middle	30, 15°C	21±1	11	3	2	22	64.4	9.1	0.0	0.0	90.9
15°C ring	30, 15°C	21±1	12	4	2	22	64.4	16.7	0.0	0.0	95.5
15°C little	30, 15°C	21±1	12	4	2	22	64.4	0.0	0.0	0.0	100.0
15°C together	30, 10°C	21±1	47	15	8	88	64.4	12.8	6.7	0.0	94.3
10°C index	30, 10°C	21±1	9	4	2	22	60.9	0.0	50.0	0.0	90.9
10°C middle	30, 10°C	21±1	8	3	2	22	60.9	12.5	0.0	0.0	90.9
10°C ring	30, 10°C	21±1	9	4	2	22	60.9	11.1	25.0	0.0	95.5
10°C little	30, 10°C	21±1	9	4	2	22	60.9	0.0	0.0	0.0	95.5
10°C together	30, 10°C	21±1	35	15	8	88	60.9	5.7	20.0	0.0	93.2

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 both conditions at 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	75.7, 71.7	75.0	42.9	100.0	59.1
	15°C right hand	30, 15°C	21±1	12	7	3	22	75.7	50.0	28.6	33.3	59.1
	10°C right hand	30, 10°C	21±1	12	7	2	22	71.7	75.0	42.9	100.0	63.6
Calculations considering result(s) of subjects' finger(s) (finger-based evaluation)												
	15°C index	30, 15°C	21±1	12	7	3	22	75.7	25.0	0.0	33.3	81.8
	middle	30, 15°C	21±1	11	7	3	22	75.7	54.5	14.3	33.3	77.3
	ring	30, 15°C	21±1	12	7	3	22	75.7	25.0	14.3	0.0	86.4
	little	30, 15°C	21±1	12	7	3	22	75.7	8.3	14.3	0.0	95.5
	together	30, 10°C	21±1	47	28	12	88	75.7	27.7	10.7	16.7	85.2
	10°C index	30, 10°C	21±1	12	7	2	22	71.7	50.0	28.6	50.0	77.3
	middle	30, 10°C	21±1	11	6	2	22	71.7	63.6	16.7	100.0	77.3
	ring	30, 10°C	21±1	12	7	1	22	71.7	41.7	28.6	100.0	72.7
	little	30, 10°C	21±1	12	7	2	22	71.7	25.0	14.3	50.0	86.4
	together	30, 10°C	21±1	47	27	7	88	71.7	44.7	22.2	71.4	78.4
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	75.7, 71.7	58.3	100.0	0.0	59.1
	15°C left hand	30, 15°C	21±1	12	4	2	22	75.7	41.7	50.0	0.0	59.1
	10°C left hand	30, 10°C	21±1	9	4	2	22	71.7	44.4	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	75.7	33.3	25.0	0.0	81.8
	middle	30, 15°C	21±1	11	3	2	22	75.7	27.3	33.3	0.0	77.3
	ring	30, 15°C	21±1	12	4	2	22	75.7	33.3	25.0	0.0	86.4
	little	30, 15°C	21±1	12	4	2	22	75.7	8.3	0.0	0.0	95.5
	together	30, 10°C	21±1	47	15	8	88	75.7	25.5	20.0	0.0	85.2
	10°C index	30, 10°C	21±1	9	4	2	22	71.7	33.3	100.0	0.0	77.3
	middle	30, 10°C	21±1	8	3	2	22	71.7	12.5	33.3	0.0	77.3
	ring	30, 10°C	21±1	9	4	2	22	71.7	33.3	25.0	0.0	72.7
	little	30, 10°C	21±1	9	4	2	22	71.7	11.1	25.0	0.0	86.4
	together	30, 10°C	21±1	35	15	8	88	71.7	22.9	46.7	0.0	78.4

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 both conditions at 15°C and 10°C = 88.

Reported sensitivity and specificity of the test involving FSBP%

	Test conditions	Room t °C	VWF(+)	VWF(-)/ controls	Diagnostic criteria, FSBP% Cutoff point	Sensitivity (VWF(+ group) %)	Specificity (VWF(-)+ control) %
Ekenvall (1986) <sup>a</sup>	30, 15, 10°C	16	111	15/14	<60	74	Not reported
Bovenzi (1993) <sup>bc</sup>	30, 15, 10°C	22-23	65	31	<60	84	98
Bovenzi (1998) <sup>c</sup>	30, 15, 10°C	21-23	141	681/455	<70, <60	100, 85.8	90, 93.7
Bovenzi (1998) <sup>c</sup>	30, 15, 10°C	21-23	151	723/455	<60	87	94
Virokannas (1991) <sup>c</sup>	30, 10°C	20-23	37	20/17	<60, <76	38, 50	97, 84
Olsen (1982) <sup>ac</sup>	30, 15, 6°C	15			<57	100	58
Olsen (1988) <sup>ac</sup>	30, 15, 6°C	18	23	56/15	<58	96	64
Olsen (2000) <sup>a</sup>					<58	99	94
Kurozawa (1991) <sup>a</sup>					<90	82	90
Kurozawa (1992) <sup>a</sup>					<80	88	77

<sup>a</sup>Body and finger cooling; <sup>b</sup>Finger cooling only; <sup>c</sup>Supine.