

Supplementary Information for Paper “StressPose - Detection of Acute Psychosocial Stress from Body Posture and Movements”

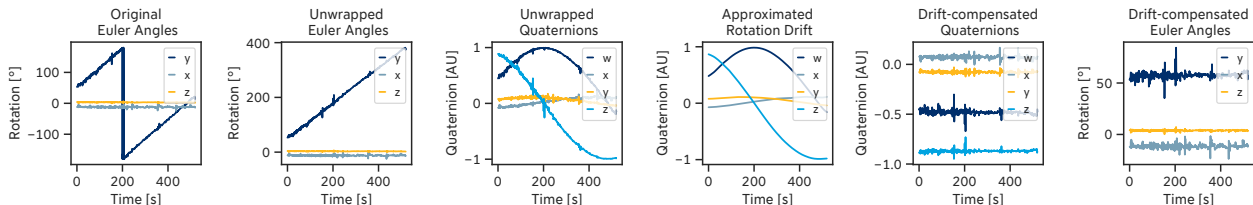
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1 Additional Information

Perception Neuron Preprocessing Pipeline

As the motion capture data were suffering from sensor drifts in position and rotation, we first preprocessed the data before further processing. We removed position drifts by filtering the `pos` channel with a third-order Butterworth high-pass filter and a cutoff frequency of $f_c = 0.01$ Hz. Due to the hierarchical structure of the motion capture data format, we only filtered data from the root node (*Hips*) as the positions of all other body parts were defined relative to the root node. As a similar approach was not possible to filter the rotation drifts of Euler angles, we developed the following rotation drift filtering pipeline (Figure 1):

1. Unwrap the rotation values given as radian phases $\varphi, \varphi \in [-\pi, +\pi]$ by adding multiples of $\pm 2\pi$ such that adjacent angle differences $\Delta\varphi$ are never greater than π .
2. Convert rotation data from Euler angles to quaternions.
3. Approximate the rotation drift by applying high-pass Butterworth filters with cutoff frequencies f_c in the range 0.01–0.06 Hz and subtracting the filtered data from the original data.
4. Remove drift by rotating the original data by the approximated drift.
5. Convert quaternions back to Euler angles.



Filtering pipeline to remove rotation drifts from the motion capture data.

Since the rotation drifts were different for each recording regarding the magnitude and the affected body parts, we empirically determined and applied custom filter parameters for each recording. A list of the individual filter parameters can be found in the dataset description [1, 2, 3]. Afterwards, we computed the frame-wise global position `pos_global` of each body part from the drift-corrected data according to

$$x'^j = \mathbf{M}_{global}^j \cdot x^j, \quad (1)$$

where $x^j, x \in \mathbb{R}^4$ and $x'^j, x' \in \mathbb{R}^4$ describe the *local* and *global* position for one body part j in homogeneous coordinates, respectively, and $\mathbf{M}_{global}^j, \mathbf{M} \in \mathbb{R}^{4 \times 4}$ is the transformation matrix consisting of rotation R and translation T (Equation 2).

$$\mathbf{M}_{global} = \begin{bmatrix} R_{11} & R_{12} & R_{13} & T_x \\ R_{21} & R_{22} & R_{23} & T_y \\ R_{31} & R_{32} & R_{33} & T_z \\ 0 & 0 & 0 & 1 \end{bmatrix} \quad (2)$$

Due to the hierarchical structure for the motion capture data format, the global transformation matrix \mathbf{M}_{global}^j for a given body part j is obtained by recursively multiplying the local transformation matrix \mathbf{M}_{local}^j

with the global transformation matrix of the parent $\mathbf{M}_{global}^{j-1}$ as depicted in Equation 3, where $i = 0$ indicates the root node of the hierarchy (*Hips*).

$$\mathbf{M}_{global}^j = \prod_{i=0}^j \mathbf{M}_{local}^i \quad (3)$$

Additionally, we extracted the global rotation `rot_glo` as Euler angles from the rotation information R in the global transformation matrix \mathbf{M}_{global} .

2 Additional Tables

Overview on Extracted Generic Features

Supplementary Table S1.1: Pilot Study

Pilot Study: Overview of generic features computed per body part (group) from the *Perception Neuron* system.

Body Part (Group)	Channels			Axes		Generic Features
	vel	ang_vel	rot	x, y, z	L2-norm	
Head	✓	✓	✓	✓	✓	<i>all</i>
Chest	✓	✓	✓	✓	✓	
{Left/Right} Hand	✓	✓	✓	✓	✓	
{Left/Right} ForeArm	✓	✓	✓	✗	✓	mean, std, cov, max_val
{Left/Right} Leg	✓	✓	✓	✗	✓	
Trunk	✓	✓	✗	✗	✓	<i>all, except z_cross and m_cross</i>
Upper Extremities	✓	✓	✗	✗	✓	
Lower Extremities	✓	✓	✗	✗	✓	
Total Body	✓	✓	✗	✗	✓	

Supplementary Table S1.2: Main Study

Main Study: Overview of generic features computed per body part (group) from the *Xsens* system.

Body Part (Group)	Channels			Axes		Generic Features	
	acc	vel	ang_vel	rot	x, y, z		L2-norm
Head	✓	✓	✓	✓	✓	✓	<i>all</i>
Chest (T8)	✓	✓	✓	✗	✓	✓	
{Left/Right} Hand	✓	✓	✓	✓	✓	✓	
{Left/Right} ForeArm	✓	✓	✓	✓	✗	✓	mean, std, cov, max_val
{Left/Right} Leg	✓	✓	✓	✓	✗	✓	
Trunk	✓	✓	✓	✗	✗	✓	<i>all, except z_cross and m_cross</i>
Upper Extremities	✓	✓	✓	✗	✗	✓	
Lower Extremities	✓	✓	✓	✗	✗	✓	
Total Body	✓	✓	✓	✗	✗	✓	

Overview on Extracted Expert Features

Supplementary Table S1.3: Pilot Study

Pilot Study: Overview of expert features computed per body part (group) from the *Perception Neuron* system.

Body Part (Group)	Channels			Expert Features
	rot_glo	vel	ang_vel	
Chest	✗	✓	✓	Static Periods
Left Hand & Right Hand	✗	✓	✓	
Head	✓	✓	✓	Absolute Movement, Static Periods
Trunk	✓	✓	✓	
Upper Extremities	✓	✓	✓	
Lower Extremities	✓	✓	✓	

Supplementary Table S1.4: Main Study

Main Study: Overview of expert features computed per body part (group) from the *Xsens* system.

Body Part (Group)	Channels		Expert Features
	vel	ang_vel	
Chest (T8)	✓	✓	Static Periods
Left Hand & Right Hand	✓	✓	
Head	✓	✓	Absolute Movement, Static Periods
Trunk	✓	✓	
Upper Extremities	✓	✓	
Lower Extremities	✓	✓	

Supplementary Table S2: Hyperparameter Search Space

Grid-search space for the individual feature selection and classification algorithms of the *StressPose* pipeline.

Type	Algorithm	Parameter	Values
Feature Selection	SkB	k	{2, 4, ..., 18}
	RFE	n_features	{2, 4, ..., 18}
Classifier	NB	–	–
	kNN	n_neighbors	{1, 3, ..., 19}
		weights	["uniform", "distance"]
	DT	criterion	["gini", "entropy"]
		max_depth	{1, 3, ..., 19}
		min_samples_leaf	{0.1, 0.2, 0.3, 0.4}
		min_samples_split	{0.1, 0.2, ..., 0.7}
	SVM-lin	max_features	{0.1, 0.2, 0.3, 0.4, 0.5, "auto", "log2", None}
		C	{ 10^{-2} , 10^{-1} , ..., 10^4 }
		SVM-rbf	C
	gamma		{ 10^{-4} , 10^{-3} , ..., 10^3 }
	SVM-poly	C	{ 10^{-2} , 10^{-1} , ..., 10^4 }
		degree	{2, 3, 4, 5}
	MLP	hidden_layer_sizes	[(1), (1, 1), (1, 1, 1), (2), (2, 2), (2, 2, 2), (5), (5, 5), (5, 5, 5)]
		activation	["identity", "tanh", "relu"]
		solver	["lbfgs", "adam"]
alpha		{ 10^{-2} , 10^{-1} , ..., 10^2 }	
Ada	base_estimator	[DT, SVC]	
	n_estimators	{10, 20, ..., 500}	
RF	learning_rate	{0.01, 0.02, ..., 0.1, 0.2, ..., 1.5}	
	criterion	["entropy"]	
	max_depth	{4, 8, 12, ..., 48, None}	
	max_features	{0.1, 0.2, 0.3, 0.4, "sqrt"}	
	min_samples_leaf	{0.05, 0.1, 0.15, 0.20}	
	min_samples_split	{0.1, 0.2, 0.3, 0.4}	
	min_weight_fraction_leaf	{0.1, 0.2, 0.3, 0.4}	
	max_leaf_nodes	{2, 4, ..., 18}	
	min_impurity_decrease	{0, 0.01, ..., 0.09}	
	n_estimators	{10, 20, ..., 390}	
ccp_alpha	{0, 0.01, ..., 0.09}		

Supplementary Table S3: Statistical Test Results – *Pilot Study*

Features over entire (f-)TSST

Results of statistical tests of extracted body posture and movement features between TSST and f-TSST from the *Pilot Study*. p-values are corrected for multiple comparisons using the Bonferroni method. *Note*: Only motion features with statistically significant ($p < 0.05$) differences are shown.

Feature Type	Body Part	Channel	Type	Metric	W	p	Hedges' g	
Expert	Lower Extremities	Ang. Vel.	Static Periods	Std. Duration (s)	0	<0.001***	0.746	
				Max. Duration (s)	0	<0.001***	0.741	
				Mean Duration (s)	0	<0.001***	0.934	
Generic	Right Fore Arm	Ang. Vel.	CoV	CoV	0	<0.001***	1.421	
	Right Hand	Ang. Vel.	CoV	CoV	0	<0.001***	1.421	
Expert	Head	Velocity	Static Periods	Std. Duration (s)	0	<0.001***	1.159	
	Left Hand & Right Hand	Velocity	Static Periods	Std. Duration (s)	0	<0.001***	1.122	
	Head	Velocity	Static Periods	Mean Duration (s)	0	<0.001***	1.065	
	Left Hand & Right Hand	Velocity	Static Periods	Mean Duration (s)	0	<0.001***	1.020	
	Lower Extremities	Velocity	Static Periods	Std. Duration (s)	0	<0.001***	0.843	
	Head	Ang. Vel.	Static Periods	Std. Duration (s)	0	<0.001***	1.066	
				Mean Duration (s)	0	<0.001***	1.524	
				Max. Duration (s)	0	<0.001***	0.904	
		Lower Extremities	Velocity	Static Periods	Mean Duration (s)	0	<0.001***	0.659
	Generic	Right Fore Arm	Ang. Vel.	Mean	Mean	1	0.002**	-1.549
Expert	Chest	Ang. Vel.	Static Periods	Mean Duration (s)	1	0.002**	1.496	
Generic	Right Fore Arm	Velocity	Mean	Mean	1	0.002**	-1.085	
	Right Hand	Ang. Vel.	Mean	Mean	1	0.002**	-1.549	
Expert	Lower Extremities	Velocity	Static Periods	Max. Duration (s)	1	0.002**	1.064	
	Left Hand & Right Hand	Velocity	Static Periods	Max. Duration (s)	1	0.002**	1.089	
	Upper Extremities	Velocity	Static Periods	Ratio (%)	1	0.002**	1.321	
Generic	Right Hand	Ang. Vel.	Abs. Energy	Abs. Energy	1	0.002**	-0.957	
Expert	Head	Ang. Vel.	Static Periods	Ratio (%)	1	0.002**	1.478	
	Trunk	Ang. Vel.	Static Periods	Mean Duration (s)	2	0.002**	1.283	
	Chest	Ang. Vel.	Static Periods	Std. Duration (s)	3	0.004**	0.963	
	Trunk	Ang. Vel.	Static Periods	Max. Duration (s)	3	0.004**	1.499	
				Ratio (%)	3	0.004**	1.375	
	Lower Extremities	Ang. Vel.	Static Periods	Ratio (%)	3	0.004**	0.978	
	Left Hand & Right Hand	Ang. Vel.	Static Periods	Mean Duration (s)	3	0.004**	0.888	
	Trunk	Ang. Vel.	Static Periods	Std. Duration (s)	3	0.004**	1.181	
	Head	Velocity	Static Periods	Max. Duration (s)	3	0.004**	1.168	
	Trunk	Velocity	Static Periods	Max. Duration (s)	4	0.006**	1.097	
	Left Hand & Right Hand	Velocity	Static Periods	Ratio (%)	4	0.006**	1.242	
	Upper Extremities	Velocity	Static Periods	Max. Duration (s)	4	0.006**	1.444	
	Lower Extremities	Velocity	Static Periods	Ratio (%)	5	0.008**	0.980	
	Chest	Ang. Vel.	Static Periods	Max. Duration (s)	5	0.008**	1.120	
	Head	Velocity	Static Periods	Ratio (%)	5	0.008**	1.230	
	Upper Extremities	Velocity	Static Periods	Mean Duration (s)	6	0.011*	1.622	
	Trunk	Velocity	Static Periods	Std. Duration (s)	6	0.011*	1.376	
	Left Hand & Right Hand	Ang. Vel.	Static Periods	Std. Duration (s)	6	0.011*	0.581	
				Max. Duration (s)	6	0.011*	0.772	
	Chest	Velocity	Static Periods	Max. Duration (s)	7	0.015*	1.137	
	Upper Extremities	Ang. Vel.	Static Periods	Ratio (%)	7	0.015*	1.433	
	Left Hand & Right Hand	Ang. Vel.	Static Periods	Ratio (%)	7	0.015*	1.484	
Generic	Left Fore Arm	Rotation	Max. Value	Max. Value	7	0.015*	-1.012	
Expert	Chest	Ang. Vel.	Static Periods	Ratio (%)	7	0.015*	1.296	
		Velocity	Static Periods	Std. Duration (s)	8	0.020*	1.341	
Generic	Trunk	Velocity	Mean	Mean	8	0.020*	-0.903	
Expert	Trunk	Velocity	Static Periods	Mean Duration (s)	8	0.020*	1.462	
		Velocity	Static Periods	Std. Duration (s)	9	0.027*	1.528	
Generic	Total Body	Ang. Vel.	CoV	CoV	9	0.027*	0.869	
Expert	Upper Extremities	Ang. Vel.	Static Periods	Counts per Minute	9	0.027*	1.281	
Generic	Left Fore Arm	Rotation	Std. Dev.	Std. Dev.	10	0.035*	-1.083	
	Total Body	Velocity	Mean	Mean	10	0.035*	-0.856	
	Head	Rotation	Zero Crossings	Zero Crossings	10	0.035*	-1.063	
	Trunk	Ang. Vel.	CoV	CoV	11	0.045*	0.901	
	Total Body	Ang. Vel.	FFT Aggregated Skewness	FFT Skewness	11	0.045*	-0.968	

Supplementary Table S4: Classification Results – *Pilot Study*

Features over entire (f-)TSST

Mean \pm standard deviation of classification performance metrics over the 5-fold model evaluation CV with features computed over the complete (f-)TSST procedure. For each evaluated classifier, the classification pipeline combination with the highest mean accuracy is shown. The classification pipelines scoring the highest metrics are highlighted in **bold**.

Scaler	Feature Selection	Classifier	Accuracy [%]	F1-score [%]	Precision [%]
Min-Max	RFE	RF	92.5 \pm 6.1	92.7 \pm 6.1	92.0 \pm 9.8
Standard	RFE	kNN	87.5 \pm 0.0	86.3 \pm 1.3	96.0 \pm 8.0
Standard	SkB	MLP	85.0 \pm 12	85.4 \pm 10	88.0 \pm 10
Min-Max	SkB	Ada	82.5 \pm 6.1	80.4 \pm 8.3	91.0 \pm 11
Standard	SkB	SVM	82.5 \pm 10	83.8 \pm 8.7	80.0 \pm 12
Standard	SkB	NB	80.0 \pm 10	78.7 \pm 9.9	88.0 \pm 10
Min-Max	RFE	DT	77.5 \pm 9.4	73.9 \pm 17	84.3 \pm 13

Statistical Test Results – *Main Study*

Supplementary Table S5.1: Features over entire (f-)TSST

Results of statistical tests of extracted body posture and movement features between TSST and f-TSST from the *Main Study*. p-values are corrected for multiple comparisons using the Bonferroni method. *Note*: Only motion features with statistically significant ($p < 0.05$) differences are shown.

Feature Type	Body Part	Channel	Type	Metric	W	p	Hedges' g	
<i>Expert</i>	<i>Upper Extremities</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	17	<0.001***	0.823	
	<i>Left Hand & Right Hand</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	17	<0.001***	0.825	
<i>Generic</i>	<i>Total Body</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	34	<0.001***	0.711	
	<i>Head</i>	<i>Ang. Vel.</i>	<i>CoV</i>	<i>CoV</i>	35	<0.001***	0.611	
<i>Expert</i>	<i>Upper Extremities</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	39	<0.001***	0.618	
	<i>Total Body</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	39	<0.001***	0.906	
	<i>Left Hand & Right Hand</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	47	<0.001***	0.581	
	<i>Total Body</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	50	<0.001***	0.858	
	<i>Head</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	56	<0.001***	0.672	
	<i>Total Body</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	58	<0.001***	0.799	
	<i>Left Hand & Right Hand</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	62	<0.001***	0.598	
	<i>Upper Extremities</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	63	<0.001***	0.757	
	<i>Trunk</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	68	<0.001***	0.696	
				<i>Mean Duration (s)</i>	70	<0.001***	0.646	
	<i>Generic</i>	<i>Head</i>	<i>Ang. Vel.</i>	<i>Entropy</i>	<i>Entropy</i>	73	<0.001***	-0.548
	<i>Expert</i>	<i>Trunk</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	73	<0.001***	0.524
<i>Total Body</i>		<i>Velocity</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	74	<0.001***	0.834	
				<i>Max. Duration (s)</i>	40	<0.001***	0.835	
	<i>Head</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	76	0.001**	0.857	
	<i>T8</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Counts per Minute</i>	79	0.001**	-0.601	
<i>Generic</i>	<i>Upper Extremities</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	81	0.002**	0.780	
	<i>Head</i>	<i>Ang. Vel.</i>	<i>Mean</i>	<i>Mean</i>	82	0.002**	-0.475	
<i>Expert</i>	<i>Head</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	85	0.003**	0.637	
	<i>Upper Extremities</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	87	0.003**	0.553	
	<i>Trunk</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	89.500	0.004**	0.692	
			<i>Velocity</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	89.500	0.004**	0.664
	<i>Left Hand & Right Hand</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	90.500	0.004**	0.408	
	<i>Total Body</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	91	0.004**	0.528	
	<i>Head</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	92	0.005**	0.776	
	<i>Trunk</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	92	0.005**	0.672	
	<i>Upper Extremities</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	63	0.005**	0.821	
				<i>Mean Duration (s)</i>	94	0.006**	0.660	
	<i>Head</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	95	0.006**	0.742	
	<i>Total Body</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	96	0.007**	0.734	
<i>Left Hand & Right Hand</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	102	0.011*	0.589		
			<i>Std. Duration (s)</i>	104	0.013*	0.617		
			<i>Max. Duration (s)</i>	104	0.013*	0.614		
<i>Generic</i>	<i>Upper Extremities</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Max. Duration (s)</i>	81	0.016*	0.631	
	<i>Head</i>	<i>Acc.</i>	<i>Mean</i>	<i>Mean</i>	107	0.016*	-0.478	
<i>Expert</i>	<i>Head</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Std. Duration (s)</i>	107	0.016*	0.669	
	<i>Left Hand & Right Hand</i>	<i>Velocity</i>	<i>Static Periods</i>	<i>Ratio (%)</i>	108	0.018*	0.521	
	<i>T8</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Mean Duration (s)</i>	119	0.040*	0.510	
	<i>Total Body</i>	<i>Ang. Vel.</i>	<i>Static Periods</i>	<i>Counts per Minute</i>	120	0.043*	0.453	

Supplementary Table S5.2: Features per Phase

Results of statistical tests of extracted body posture and movement features between TSST and f-TSST from the *Main Study*, computed separately over *Interview* and *Mental Arithmetics* phases of the (f-)TSST. p-values are corrected for multiple comparisons using the Bonferroni method. *Note*: Only motion features with statistically significant ($p < 0.05$) differences are shown.

Phase	Feature Type	Body Part	Channel	Type	Metric	W	p	Hedges' g
<i>Mental Arithmetics</i> <i>Interview</i>	Generic	Head	Ang. Vel.	Entropy	Entropy	51	<0.001***	-0.722
		Trunk	Ang. Vel.	Static Periods	Max. Duration (s)	68	<0.001***	0.873
	Expert	Upper Extremities	Ang. Vel.	Static Periods	Std. Duration (s)	68	<0.001***	0.770
		Left Hand & Right Hand	Ang. Vel.	Static Periods	Std. Duration (s)	72	0.001**	0.838
			Max. Duration (s)	77	0.002**	0.837		
		Upper Extremities	Velocity	Static Periods	Mean Duration (s)	82	0.004**	0.654
		Left Hand & Right Hand	Velocity	Static Periods	Mean Duration (s)	88	0.007**	0.620
			Ang. Vel.	Static Periods	Mean Duration (s)	88	0.007**	0.754
		Trunk	Ang. Vel.	Static Periods	Std. Duration (s)	89	0.007**	0.770
		Upper Extremities	Ang. Vel.	Static Periods	Max. Duration (s)	53.500	0.008**	0.763
<i>Mental Arithmetics</i> <i>Interview</i>	Generic	Head	Ang. Vel.	CoV	CoV	93	0.010*	0.646
		Upper Extremities	Ang. Vel.	Static Periods	Mean Duration (s)	93	0.010*	0.716
<i>Mental Arithmetics</i> <i>Interview</i>	Expert	Total Body	Ang. Vel.	Static Periods	Max. Duration (s)	95	0.012*	0.703
		Upper Extremities	Ang. Vel.	Static Periods	Ratio (%)	97	0.014*	0.569
<i>Interview</i>	Expert	Head	Ang. Vel.	Static Periods	Ratio (%)	97	0.014*	0.648
		Total Body	Ang. Vel.	Static Periods	Max. Duration (s)	99	0.017*	0.789
<i>Mental Arithmetics</i> <i>Interview</i>	Expert	Total Body	Ang. Vel.	Static Periods	Ratio (%)	102	0.022*	0.653
		Head	Ang. Vel.	Mean	Mean	102	0.022*	-0.522
<i>Interview</i>	Expert	Upper Extremities	Ang. Vel.	Static Periods	Max. Duration (s)	104.500	0.028*	0.574
		Head	Ang. Vel.	Static Periods	Std. Duration (s)	105	0.028*	0.977
	Trunk	Velocity	Static Periods	Max. Duration (s)	106	0.030*	0.956	
	Head	Ang. Vel.	Static Periods	Max. Duration (s)	106.500	0.032*	0.879	
<i>Mental Arithmetics</i> <i>Interview</i>	Expert	T8	Ang. Vel.	Static Periods	Counts per Minute	108	0.035*	-0.535
		Head	Ang. Vel.	Static Periods	Max. Duration (s)	108	0.035*	0.471
		Total Body	Ang. Vel.	Static Periods	Mean Duration (s)	109	0.038*	0.677

Supplementary Table S6 Classification Results – *Main Study*

Features over entire (f-)TSST

Main Study: Mean \pm standard deviation of classification performance metrics over the 5-fold model evaluation CV, trained on features extracted over the complete (f-)TSST, respectively. For each evaluated classifier, the classification pipeline combination with the highest mean accuracy is shown. The classification pipelines scoring the highest metrics are highlighted in **bold**.

Scaler	Feature Selection	Classifier	Accuracy [%]	F1-score [%]	Precision [%]
Standard	SFM	RF	71.6 \pm 5.9	71.2 \pm 4.2	75.1 \pm 13.1
Min-Max	RFE	kNN	67.0 \pm 8.4	64.9 \pm 11.2	68.1 \pm 8.5
Min-Max	SkB	MLP	66.8 \pm 6.7	62.4 \pm 7.5	75.4 \pm 14.8
Min-Max	RFE	DT	65.2 \pm 9.2	65.9 \pm 7.7	66.3 \pm 11.3
Min-Max	SkB	NB	64.1 \pm 10.0	57.3 \pm 12.2	70.3 \pm 13.3
Standard	SkB	Ada	63.0 \pm 9.3	61.9 \pm 7.3	66.3 \pm 13.2
Min-Max	SkB	SVM	62.9 \pm 5.6	53.8 \pm 11.9	69.7 \pm 7.0

References

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