ROSA – Rapid Office Strain Assessment

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Rapid Office Strain Assessment

- ROSA is a picture based posture checklist designed to quantify exposure to risk factors in an office work environment.

- ROSA is modelled after other picture based checklists and chart scoring systems such as RULA and REBA.

- The goal of the ROSA process is to serve as a screening tool to identify areas of priority in large office based organizations.

ROSA - Usage

- The end user will take a paper or electronic version of the ROSA score sheet with them during an assessment.
- The user selects postures that they observe, and records durations that are reported by the person they are assessing.

ROSA Results

- Research has shown a correlation between discomfort levels and increasing ROSA scores.

- Inter and intra-rater reliability has also been shown to be good to very good.

- **Scores of greater than 5 are deemed to be "high risk" and the workstation should be assessed further.**

ROSA Methods

- The following are instructions on how to select postures using the ROSA checklist.
- A full page example is at the back of this package, as well as a blank ROSA assessment sheet that can be used to conduct assessments.

Scoring within ROSA

Section A - Chair						
Chair Height					**AREA SCORE**	0

				Non-Adjustable (+1)
Knees at 90° (1)	Too low - Knee Angle <90° (2)	Too High - Knee Angle >90°(2)	No foot contact on ground (3)	Insufficient Space Under Desk - Ability to Cross Legs(+1)

Pan Depth			**AREA SCORE**	0

			Non-Adjustable (+1)
Approximately 3 inches of space between knee and edge of seat (1)	Too Long - Less Than 3" of space (2)	Too Short - More than 3" of Space(2)	

		Arms / Back rest						
seat pan height /depth		2	3	4	5	6	7	8	9
	2	1	2	3	4	5	6	7	8
	3	2	2	3	4	5	6	7	8
	4	3	3	3	4	5	7	7	8
	5	4	5	4	4	5	7	7	8
	6	5	5	5	5	5	8	8	9
	7	6	6	6	7	7	8	9	9
	8	7	7	7	8	8	9	9	9

Section A – The Chair
Chair Height and Pan Depth

Select the position of the seat height and chair pan. The first position in the left column indicates the neutral position. This corresponds with a score of "1". The remaining positions are marked with increasing scores. Those sections with scores such as (+1) (ie., Insufficient Space Under Desk) are additive scores. These can be added on to the other scores. For Example, if the chair height is too high (2), and it is non-adjustable (+1), this becomes a score of 3.
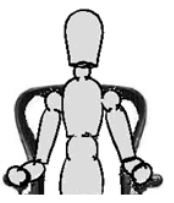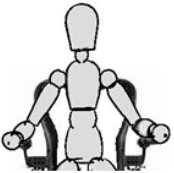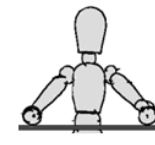
The score from the Chair Height is then added to the Pan Depth to receive the final score from this section. This score will correspond with the vertical axis along the Section A scoring chart.

Scoring Examples – Chair Height

Risk Factor	Example	Picture
Too low	The height adjustment cylinder is set to its lowest height, and the worker is tall.	
Too high	The knee angle is greater than 90 degrees, and there is pressure under the thigh.	
Too high – no foot contact	The worker is using a stool or lab height chair, so the feet cannot physically touch the floor.	
Insufficient space under the desk	The keyboard tray or a computer tower blocks the legs from moving freely under the desk.	

Scoring Examples – Chair Depth

Risk Factor	Example	Picture
Seat pan depth – too long	There is less than 2-3" of space behind the knee when the person sits back in the chair.	
Seat pan depth – too short	There is more than 2-3" of space behind the knee when the person sits back in the chair. This may focus pressure on the underside of the thigh, and the thigh will not be supported.	

				Non-Adjustable (+1)
			1	
Elbows supported in line with shoulder, shoulders relaxed (1)	Too High (Shoulders Shrugged) /Low (Arms Unsupported) (2)	Hard/damaged surface (+1)	Too Wide (+1)	

Back Support   AREA SCORE   0

					Back Rest Non-Adjustable (+1)
Adequate Lumbar Support - Chair reclined between 95°-110° (1)	No Lumbar Support OR Lumbar Support not Positioned in Small of Back (2)	Angled Too Far Back (Greater than 110°) OR Angled Too far forward (Less than 95°) (2)	No Back Support (ie Stool, OR Worker Leaning forward) (2)	Work Surface too High (Shoulders Shrugged)(+1)	

DURATION		1	CHAIR SCORE	#N/A

Scoring chart:

	Arms / Back rest							
seat pan height /depth	2	3	4	5	6	7	8	9
2	1	2	3	4	5	6	7	8
3	2	2	3	4	5	6	7	8
4	3	3	3	4	5	7	7	8
5	4	5	4	4	5	7	7	8
6	5	5	5	5	5	8	8	9
7	6	6	6	7	7	8	9	9
8	7	7	7	8	8	9	9	9

Section A – The Chair, Continued
Arm Rests, Back Support and Duration of Sitting
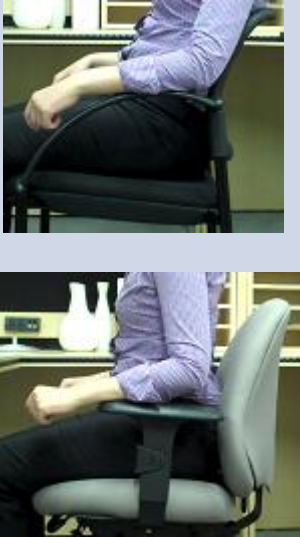
Select the position of the arm rests. Once again, the scores that can be added on to postures are indicated by a (+) in front of the number. The scores from both the arm rest section and the backrest section combined will amount to the score across the top axis on the scoring chart.

Scoring Examples - Armrest

Risk Factor	Example	Picture
Armrests too low	There armrests do not support the forearms with the elbows bent to 90 degrees	
Armrests too high	The shoulders are shrugged when the forearm is on the armrest and the elbow is at 90 degrees.	
Hard or Damaged Surface	The armrest is made of a hard plastic/wood or metal, and this creates a pressure point on the forearm.	

Scoring Examples – Backrest

Risk factor	Example	Picture
No lumbar support	The chair has a flat backrest, possibly a plastic or board room chair. This is usually seen in less expensive models. The chair may have lumbar support and it is not positioned correctly in the lower back	
Angled too far back	The backrest recline is too far back, causing the person to either sit forward, or reach to the keyboard.	
No Back Support	The worker is using a stool or the backrest is not positioned against the back	

	Arms / Back rest							
	2	**3**	**4**	**5**	**6**	**7**	**8**	**9**
2	1	2	3	4	5	6	7	8
3	2	2	3	4	5	6	7	8
4	3	3	3	4	5	7	7	8
5	4	4	4	4	5	7	7	8
6	5	5	5	5	5	8	8	9
7	6	6	6	7	7	8	9	9
8	7	7	7	8	8	9	9	9

Seat Pan Height /Depth (vertical axis label)

Duration	CHAIR SCORE
1	5

The combined score from the arm and back rest section will then be compared on the horizontal axis against the seat pan depth and height on the vertical axis. The square in which the scores land will then be the score for the chair.

To account for the duration that the worker spends in the chair per day, a score of -1 will be assigned if the worker spends less than 1 hour a day in the chair throughout the day, or for less than 30 minutes consecutively. If the worker spends 1-4 hours a day intermittently, or between 30 minutes to 1 hour continuously in the chair, the duration score is 0. If the worker spends more than 4 hours a day in the chair intermittently, or greater than 1 hour consecutively, the duration score will be +1. Add the duration score to the chair score to receive your final chair score.

This will represent your score for section A, which will be used later to achieve a final score for the office.

Section B - Monitor and Telephone

Monitor — AREA SCORE: 1

Arm's Length Distance (40-75cm) / Screen at Eye Level (1)	Too Low (below 30°) (2) Too Far (+1)	Too High (Neck Extension) (3)	Neck Twist Greater than 30° (+1)	Glare on Screen (+1)	Documents - No Holder (+1)

DURATION | Monitor Score: 1

Telephone — AREA SCORE: 0

No Hands-Free Options (+1)

Headset / One Hand on Phone & Neutral Neck Posture (1)	Too Far of Reach (outside of 30cm) (2)	Neck and Shoulder Hold (+2)

Phone Score: 0

DURATION | ROSA SCORE: 1

Scoring matrix:

Phone \ Monitor	0	1	2	3	4	5	6	7
0	1	1	1	2	3	4	5	6
1	1	1	2	2	3	4	5	6
2	1	2	2	3	3	4	6	7
3	2	2	3	3	4	5	6	8
4	3	3	4	4	5	6	7	8
5	4	4	5	5	6	7	8	9
6	5	5	6	7	8	8	9	9

Section B – Telephone and Monitor

Select the scores as present related to the monitor position for the worker. With this score, add 1 for use of the monitor of greater than 4 hours per day intermittently, or 1 hour consecutively. Add a duration score of 0 if the work is between 1-4 hours intermittently, or 30minutes to 1 hour consecutively. Subtract 1 if there is less than 1 hour of work done per day intermittently, or less than 30 minutes consecutively. This score is then to be used along the horizontal axis

Select a score related to the position and usage of the telephone. Add in a duration factor of +1, 0 or -1 based on the amount of time the worker spends on the phone per day. This score is then to be used along the vertical axis.

Compare the score between the horizontal and vertical axis as done with the chair score. This score becomes the Section B ROSA score, which will be used again later to receive the grand score.

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Scoring examples - Monitor

Risk Factor	Example	Picture
Monitor too low	The top of the screen is 30 degrees below the sitting eye height causing neck flexion	
Monitor too high	The top of the screen is above eye level, causing the neck to be extended while viewing the screen.	
Neck twist	The monitor is positioned to the side of the worker, or dual screens may cause the worker to rotate the head back and forth.	
Documents used – no document holder	The worker has to flex and twist the neck in order to view papers positioned on the desk	

Scoring Examples - Telephone

Risk factor	Example	Picture
Too far – reach	The phone is positioned at the back of the desk, and when it rings, the worker has to extend and bend over the surface to grab the handset.	
Neck and Shoulder hold	The worker has to use the phone and computer at the same time, and in order to type, they will pinch the handset between the neck and the shoulder.	

Section C - Mouse and Keyboard

Mouse

AREA SCORE: 0

Mouse in Line with Shoulder (1)	Reaching to Mouse (2)	Mouse/Keyboard on Different Surfaces (+2)	Pinch Grip on Mouse (+1)	Palmrest in Front of Mouse (+1)
		DURATION	MOUSE SCORE	0

Keyboard

AREA SCORE: 0

Wrists Straight, Shoulders Relaxed (1)	Wrists Extended/ Keyboard on Positive Angle (>15° Wrist extension) (2)	Deviation while Typing (+1)	Keyboard Too High - Shoulders Shrugged (+1)	Reaching to Overhead Items (+1)	Platform Non-Adjustable (+1)
DURATION		KEYBOARD SCORE	0	ROSA SCORE	1

Mouse \ Keyboard	0	1	2	3	4	5	6	7
0	1	1	1	2	3	4	5	6
1	1	1	2	3	4	5	6	7
2	1	2	2	3	4	5	6	7
3	2	3	3	3	5	6	7	8
4	3	4	4	5	5	6	7	8
5	4	5	5	6	6	7	8	9
6	5	6	6	7	7	8	8	9
7	6	7	7	8	8	9	9	9

Section C – Keyboard and Mouse

Select a score based on the position of the keyboard. If the keyboard is used for greater than 4 hours per day intermittently, or 1 hour consecutively, use a duration score of +1. For between 1-4 hours intermittently, or 30minutes to 1 hour consecutively, use a score of 0. For 1 hour or less intermittently, or less than 30 minutes consecutively, use a score of -1.

Select a score based on the mouse position. If the mouse is used for greater than 4 hours per day intermittently, or 1 hour consecutively, use a duration score of +1. For between 1-4 hours intermittently, or 30minutes to 1 hour consecutively, use a score of 0. For 1 hour or less intermittently, or less than 30 minutes consecutively, use a score of -1.

Select a score by finding the intersection between the keyboard and mouse scores. This score will now be used to retrieve a score for the peripherals, monitor and telephone.

Scoring Examples - Mouse

Risk Factor	Example	Picture
Pinch grip on mouse	The mouse is small (such as a notebook mouse) leading to a pinching of the mouse.	
Reach to mouse	The mouse is out to the side of the keyboard, causing abduction of the arm. This may because the person is small through the shoulders, and the numeric keypad causes further mouse position.	
Different surfaces	Mouse reach may also be cause if the keyboard tray is too small, and the mouse is on a separate surface.	

Scoring Examples – Keyboard

Risk Factor	Example	Picture
Wrists extended	The tray may be angled, or the legs on the back of the keyboard may be up causing the wrists to be extended while typing.	
Deviation while typing	A small keyboard can cause wrist deviation while typing (ie, laptop keyboards)	
Keyboard tray too high	When typing, the shoulders are shrugged in order to rest the arms or hands on the appropriate desk surface.	

Monitor								
Phone	0	1	2	3	4	5	6	7
0	1	1	1	2	3	4	5	6
1	1	1	2	2	3	4	5	6
2	1	2	2	3	3	4	6	7
3	2	2	3	3	4	5	6	8
4	3	3	4	4	5	6	7	8
5	4	4	5	5	6	7	8	9
6	5	5	6	7	8	8	9	9

Keyboard								
Mouse	0	1	2	3	4	5	6	7
0	1	1	1	2	3	4	5	6
1	1	1	2	3	4	5	6	7
2	1	2	2	3	4	5	6	7
3	2	3	3	3	5	6	7	8
4	3	4	4	5	5	6	7	8
5	4	5	5	6	6	7	8	9
6	5	6	6	7	7	8	8	9
7	6	7	7	8	8	9	9	9

Mouse and Keyboard									
Monitor and Telephone	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	2	3	4	5	6	7	8	9
3	3	3	3	4	5	6	7	8	9
4	4	4	4	4	5	6	7	8	9
5	5	5	5	5	5	6	7	8	9
6	6	6	6	6	6	6	7	8	9
7	7	7	7	7	7	7	7	8	9
8	8	8	8	8	8	8	8	8	9
9	9	9	9	9	9	9	9	9	9

Peripherals and Monitor/Phone Score

Using the score retrieved from the Monitor and Phone score in Section B, highlight the correct number on the horizontal axis. Using the correct score retrieved from the monitor and telephone section, highlight the correct number on the vertical axis. Find the corresponding value within the scoring chart.

The value found from this scoring chart will now be used to find a final score by comparing it against the value retrieved from Section A – The Chair.

Arms / Back rest

seat pan height /depth	2	3	4	5	6	7	8	9
2	1	2	3	4	5	6	7	8
3	2	2	3	4	5	6	7	8
4	3	3	3	4	5	7	7	8
5	4	4	4	4	5	7	7	8
6	5	5	5	5	5	8	8	9
7	6	6	6	7	7	8	9	9
8	7	7	7	8	8	9	9	9

Mouse and Keyboard

Monitor and Telephone	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	2	3	4	5	6	7	8	9
3	3	3	3	4	5	6	7	8	9
4	4	4	4	4	5	6	7	8	9
5	5	5	5	5	5	6	7	8	9
6	6	6	6	6	6	6	7	8	9
7	7	7	7	7	7	7	7	8	9
8	8	8	8	8	8	8	8	8	9
9	9	9	9	9	9	9	9	9	9

Peripherals and Monitor

Chair	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	2	3	4	5	6	7	8	9	10
3	3	3	3	4	5	6	7	8	9	10
4	4	4	4	4	5	6	7	8	9	10
5	5	5	5	5	5	6	7	8	9	10
6	6	6	6	6	6	6	7	8	9	10
7	7	7	7	7	7	7	7	8	9	10
8	8	8	8	8	8	8	8	8	9	10
9	9	9	9	9	9	9	9	9	9	10
10	10	10	10	10	10	10	10	10	10	10

The score from Section A is seen along the vertical axis, and the score from section B and C is seen along the horizontal axis. These scores are then combined through this final scoring chart to receive the ROSA final score from the office.

The ROSA final score is broken into two areas: further assessment not immediately required, and further assessment required as soon as possible.

ROSA Example 1

Section A - Chair

Chair Height
AREA SCORE: **2** | 0

Knees at 90° (1)	Too low - Knee Angle <90° (2)	Too High - Knee Angle >90°(2)	No foot contact on ground (3)	Insufficient Space Under Desk - Ability to Cross Legs(+1)	Non-Adjustable (+1)
	2				

Pan Depth
AREA SCORE: **3** | 0

Approximately 3 inches of space between knee and edge of seat (1)	Too Long - Less Than 3" of space (2)	Too Short - More than 3" of Space(2)	Non-Adjustable (+1)
	2	**1**	

Armrests
AREA SCORE: **3** | 1

Elbows supported in line with shoulder, shoulders relaxed (1)	Too High (Shoulders Shrugged) /Low (Arms Unsupported) (2)	Hard/damaged surface (+1)	Too Wide (+1)	Non-Adjustable (+1)
	2			**1**

Back Support
AREA SCORE: **3** | 0

Adequate Lumbar Support - Chair reclined between 95°-110° (1)	No Lumbar Support OR Lumbar Support not Positioned in Small of Back (2)	Angled Too Far Back (Greater than 110°) OR Angled Too far forward (Less than 95°) (2)	No Back Support (ie Stool, OR Worker Leaning forward) (2)	Work Surface too High (Shoulders Shrugged)(+1)	Back Rest Non-Adjustable (+1)
	2				**1**

DURATION: **1** | CHAIR SCORE: #N/A

Section B - Monitor and Telephone

Monitor
AREA SCORE: 0

Arm's Length Distance (40-75cm) / Screen at Eye Level (1)	Too Low (below 30°) (2) Too Far (+1)	Too High (Neck Extension) (3)	Neck Twist Greater than 30° (+1)	Glare on Screen (+1)	Documents - No Holder (+1)
	2				**1**

DURATION: **1** | Monitor Score: 0

Telephone
AREA SCORE: 0

Headset / One Hand on Phone & Neutral Neck Posture (1)	Too Far of Reach (outside of 30cm) (2)	Neck and Shoulder Hold (+2)	No Hands-Free Options (+1)
		2	

DURATION: **-1** | Phone Score: 0

ROSA SCORE: #N/A

Section C - Mouse and Keyboard

Mouse
AREA SCORE: 0

Mouse in Line with Shoulder (1)	Reaching to Mouse (2)	Mouse/Keyboard on Different Surfaces (+2)	Pinch Grip on Mouse (+1)	Palmrest in Front of Mouse (+1)
0	**2**	0	0	

DURATION: **1**

Keyboard
AREA SCORE: 0

Wrists Straight, Shoulders Relaxed (1)	Wrists Extended/ Keyboard on Positive Angle >15° Wrist extension) (2)	Deviation while Typing (+1)	Keyboard Tray Too High (+1)	Reaching to Overhead Items (+1)	Platform Non-Adjustable (+1)
	2				**1**

DURATION: **1** | ROSA SCORE: #N/A

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Example 1

seat pan height /depth \ Arms / Back rest	2	3	4	5	6	7	8	9
2	1	2	3	4	5	6	7	8
3	2	2	3	4	5	6	7	8
4	3	3	3	4	5	7	7	8
5	4	4	4	4	5	7	7	8
6	5	5	5	5	5	8	8	9
7	6	6	6	7	7	8	9	9
8	7	7	7	8	8	9	9	9

Chair Score = 5 +1 FOR DURATION = 6

Mouse = 2 + 1 = 3
Keyboard = 3 +1 = 4

Mouse \ Keyboard	0	1	2	3	4	5	6	7
0	1	1	1	2	3	4	5	6
1	1	1	2	3	4	5	6	7
2	1	2	2	3	4	5	6	7
3	2	3	3	3	5	6	7	8
4	3	4	4	5	5	6	7	8
5	4	5	5	6	6	7	8	9
6	5	6	6	7	7	8	8	9
7	6	7	7	8	8	9	9	9

Monitor = 2 +1 = 3

SCORE

Phone \ Monitor	0	1	2	3	4	5	6	7
0	1	1	1	2	3	4	5	6
1	1	1	2	2	3	4	5	6
2	1	2	2	3	3	4	6	7
3	2	2	3	3	4	5	6	8
4	3	3	4	4	5	6	7	8
5	4	4	5	5	6	7	8	9
6	5	5	6	7	8	8	9	9

Phone = 2 -1 = 1

Monitor and Telephone \ Mouse and Keyboard	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	2	3	4	5	6	7	8	9
3	3	3	3	4	5	6	7	8	9
4	4	4	4	4	5	6	7	8	9
5	5	5	5	5	5	6	7	8	9
6	6	6	6	6	6	6	7	8	9
7	7	7	7	7	7	7	7	8	9
8	8	8	8	8	8	8	8	8	9
9	9	9	9	9	9	9	9	9	9

Example 1

Chair Score = 5 +1 FOR DURATION = 6

Arms / Back rest (columns) × **seat pan height /depth** (rows)

	2	3	4	5	6	7	8	9
2	1	2	3	4	5	6	7	8
3	2	2	3	4	5	6	7	8
4	3	3	3	4	5	6	7	8
5	4	4	4	4	5	6	7	8
6	5	5	5	5	6	7	8	9
7	6	6	6	7	7	8	8	9
8	7	7	7	8	8	9	9	9

Mouse and Keyboard (columns) × **Monitor and Telephone** (rows)

	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	2	3	4	5	6	7	8	9
3	3	3	3	4	5	6	7	8	9
4	4	4	4	4	5	6	7	8	9
5	5	5	5	5	5	6	7	8	9
6	6	6	6	6	6	6	7	8	9
7	7	7	7	7	7	7	7	8	9
8	8	8	8	8	8	8	8	8	9
9	9	9	9	9	9	9	9	9	9

Peripherals and Monitor (columns) × **Chair** (rows)

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	2	3	4	5	6	7	8	9	10
3	3	3	3	4	5	6	7	8	9	10
4	4	4	4	4	5	6	7	8	9	10
5	5	5	5	5	5	6	7	8	9	10
6	6	6	6	6	6	6	7	8	9	10
7	7	7	7	7	7	7	7	8	9	10
8	8	8	8	8	8	8	8	8	9	10
9	9	9	9	9	9	9	9	9	9	10
10	10	10	10	10	10	10	10	10	10	10

The Grand ROSA score for Example 1 is 6.

Reference

- Sonne, M.W.L., Villalta, D.L., and Andrews, D.M., 2012. Development and Evaluation of an Office Ergonomic Risk Checklist: The Rapid Office Strain Assessment (ROSA). Applied Ergonomics *43(1), 98-108*