

LAMPIRAN





Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...

If shoulder is raised: +1;
If upper arm is abducted: +1;
If arm is supported or person is leaning: -1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...

If arm is working across midline of the body: +1;
If arm out to side of body: +1

Step 3: Locate Wrist Position

Step 3a: Adjust...

If wrist is bent from the midline: +1

Step 4: Wrist Twist

If wrist is twisted mainly in mid-range = 1;
If twist at or near end of twisting range = 2

Step 5: Look-up Posture Score in Table A

Use values from steps 1,2,3 & 4 to locate Posture Score in table A

Step 6: Add Muscle Use Score

If posture mainly static (i.e. held for longer than 1 minute) or;
If action repeatedly occurs 4 times per minute or more: +1

Step 7: Add Force/load Score

If load less than 2 kg (intermittent): +0;
If 2 kg to 10 kg (intermittent): +1;
If 2 kg to 10 kg (static or repeated): +2;
If more than 10 kg load or repeated or shocks: +3

Step 8: Find Row in Table C

The completed score from the Arm/Wrist analysis is used to find the row on Table C

SCORES

Table A

Upper Arm	Lower Arm	Wrist							
		1		2		3		4	
		Wrist Flex	Wrist Ext	Wrist Dev	Wrist Dev	Wrist Dev	Wrist Dev	Wrist Dev	Wrist Dev
1	1	1	2	2	2	2	3	3	3
	2	2	2	2	2	3	3	3	3
	3	2	3	3	3	3	4	4	4
2	1	2	3	3	3	3	4	4	4
	2	3	3	3	3	3	4	4	4
	3	3	4	4	4	4	5	5	5
3	1	3	4	4	4	4	5	5	5
	2	4	4	4	4	4	5	5	5
	3	4	4	4	4	4	5	5	5
4	1	4	4	4	4	4	5	5	5
	2	4	4	4	4	4	5	5	5
	3	4	4	4	4	4	5	5	5
5	1	5	5	5	5	5	6	6	6
	2	5	5	5	5	5	6	6	6
	3	5	5	5	5	5	6	6	6
6	1	6	6	6	6	6	7	7	7
	2	6	6	6	6	6	7	7	7
	3	6	6	6	6	6	7	7	7
7	1	7	7	7	7	7	8	8	8
	2	7	7	7	7	7	8	8	8
	3	7	7	7	7	7	8	8	8

Table C

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

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position

Step 9a: Adjust...

If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...

If trunk is twisted: +1; If trunk is side-bending: +1

Step 11: Legs

If legs & feet supported and balanced: +1;
If not: +2

Trunk Posture Score

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

Table B

	Legs		Legs		Legs		Legs				
Neck	1	2	1	2	1	2	1	2			
1	1	3	2	3	3	4	5	5	6	7	7
2	2	3	2	3	4	6	5	5	6	7	7
3	3	3	3	4	4	5	5	6	6	7	7
4	4	5	5	6	6	7	7	7	7	8	8
5	7	7	7	7	7	8	8	8	8	8	8
6	8	8	8	8	8	8	8	8	8	8	8

Step 12: Look-up Posture Score in Table B

Use values from steps 8,9,8 & 10 to locate Posture Score in Table B

Step 13: Add Muscle Use Score

If posture mainly static or;
If action 4/minute or more: +1

Step 14: Add Force/load Score

If load less than 2 kg (intermittent): +0;
If 2 kg to 10 kg (intermittent): +1;
If 2 kg to 10 kg (static or repeated): +2;
If more than 10 kg load or repeated or shocks: +3

Step 15: Find Column in Table C

The completed score from the Neck/Trunk & Leg analysis is used to find the column on Chart C

Final Score =

Subject: _____ Date: / / _____
 Company: _____ Department: _____ Scorer: _____

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 Investigate further; 5 or 6 Investigate further and change soon; 7 Investigate and change immediately

Source: McAtamney, L. & Corlett, E.N. (1993) RULA: a survey method for the investigation of work-related upper limb disorders, Applied Ergonomics, 24(2) 91-99.

LAMPIRAN

1. Perhitungan kegiatan membawa *crate* sebelum perbaikan dengan menggunakan software RULA

Rapid Upper Limb Assessment (RULA)

Category	Process	Result
WRIST and ARM Process	Upper Arm Position	1
	Lower Arm Position	2
	Wrist Position	3
	Wrist Twist	2
	Posture Score A	3
	Muscle Use Score	1
	Force / Load Score	3
FINAL WRIST and ARM SCORE : 7		
NECK, TRUNK and LEG Process	Neck Position	4
	Trunk Position	4
	Leg Position	2
	Posture Score B	7
	Muscle Use Score	1
	Force / Load Score	3
	FINAL NECK, TRUNK, LEG SCORE : 11	
FINAL SCORE (Using Table C) : 7		

Investigate and Change Immediately

2. Perhitungan kegiatan membawa *crate* sesudah perbaikan dengan menggunakan software RULA

Rapid Upper Limb Assessment (RULA)

Category	Process	Result
WRIST and ARM Process	Upper Arm Position	1
	Lower Arm Position	2
	Wrist Position	2
	Wrist Twist	2
	Posture Score A	2
	Muscle Use Score	1
	Force / Load Score	3
FINAL WRIST and ARM SCORE : 6		
NECK, TRUNK and LEG Process	Neck Position	1
	Trunk Position	2
	Leg Position	1
	Posture Score B	2
	Muscle Use Score	1
	Force / Load Score	3
	FINAL NECK, TRUNK, LEG SCORE : 6	
FINAL SCORE (Using Table C) : 7		

Investigate and Change Immediately

3. Perhitungan kegiatan menyusun *crate 2* sebelum perbaikan dengan menggunakan software RULA

Rapid Upper Limb Assessment (RULA)

WRIST and ARM Process		NECK, TRUNK and LEG Process	
Upper Arm Position ✓ Process 1 Result: 4		Neck Position ✓ Process 1 Result: 4	
Lower Arm Position ✓ Process 2 Result: 1		Trunk Position ✓ Process 2 Result: 4	
Wrist Position ✓ Process 3 Result: 4		Limb Position ✓ Process 3 Result: 2	
Wrist Twist ✓ Process 4 Result: 2		Posture Score B ✓ Process B Result: 7	
Posture Score A ✓ Process A Result: 5		Muscle Use Score ✓ Process Result: 1	
Muscle Use Score ✓ Process Result: 1		Force / Load Score ✓ Process Result: 3	
Force / Load Score ✓ Process Result: 3			
FINAL WRIST and ARM SCORE : ✓ Process 9		FINAL NECK, TRUNK, LEG SCORE : ✓ Process 11	
FINAL SCORE Process FINAL SCORE (Using Table C) : ✓ Final Process 7 Investigate and Change Immediately			

4. Perhitungan kegiatan menyusun *crate 2* sesudah perbaikan dengan menggunakan software RULA

Rapid Upper Limb Assessment (RULA)

WRIST and ARM Process		NECK, TRUNK and LEG Process	
Upper Arm Position ✓ Process 1 Result: 3		Neck Position ✓ Process 1 Result: 3	
Lower Arm Position ✓ Process 2 Result: 1		Trunk Position ✓ Process 2 Result: 4	
Wrist Position ✓ Process 3 Result: 3		Limb Position ✓ Process 3 Result: 1	
Wrist Twist ✓ Process 4 Result: 2		Posture Score B ✓ Process B Result: 5	
Posture Score A ✓ Process A Result: 4		Muscle Use Score ✓ Process Result: 1	
Muscle Use Score ✓ Process Result: 1		Force / Load Score ✓ Process Result: 3	
Force / Load Score ✓ Process Result: 3			
FINAL WRIST and ARM SCORE : ✓ Process 9		FINAL NECK, TRUNK, LEG SCORE : ✓ Process 9	
FINAL SCORE Process FINAL SCORE (Using Table C) : ✓ Final Process 7 Investigate and Change Immediately			

5. Perhitungan kegiatan menyusun *crate* 4 sebelum perbaikan dengan menggunakan software RULA

Rapid Upper Limb Assessment (RULA)

WRIST and ARM Process		NECK, TRUNK and LEG Process	
Upper Arm Position ✓ Process 1 Result: 5		Neck Position ✓ Process 1 Result: 3	
Lower Arm Position ✓ Process 2 Result: 2		Trunk Position ✓ Process 2 Result: 2	
Wrist Position ✓ Process 3 Result: 1		Leg Position ✓ Process 3 Result: 2	
Wrist Twist ✓ Process 4 Result: 1		Posture Score B ✓ Process B Result: 4	
Posture Score A ✓ Process A Result: 5		Muscle Use Score ✓ Process Result: 1	
Muscle Use Score ✓ Process Result: 1		Force / Load Score ✓ Process Result: 3	
Force / Load Score ✓ Process Result: 3			
FINAL WRIST and ARM SCORE : ✓ Process 9		FINAL NECK, TRUNK, LEG SCORE : ✓ Process 8	
FINAL SCORE Process FINAL SCORE (Using Table C) : ✓ Final Process 7 Investigate and Change Immediately			

6. Perhitungan kegiatan menyusun *crate* 4 sesudah perbaikan dengan menggunakan software RULA

Rapid Upper Limb Assessment (RULA)

WRIST and ARM Process		NECK, TRUNK and LEG Process	
Upper Arm Position ✓ Process 1 Result: 2		Neck Position ✓ Process 1 Result: 2	
Lower Arm Position ✓ Process 2 Result: 1		Trunk Position ✓ Process 2 Result: 2	
Wrist Position ✓ Process 3 Result: 1		Leg Position ✓ Process 3 Result: 1	
Wrist Twist ✓ Process 4 Result: 1		Posture Score B ✓ Process B Result: 2	
Posture Score A ✓ Process A Result: 2		Muscle Use Score ✓ Process Result: 1	
Muscle Use Score ✓ Process Result: 1		Force / Load Score ✓ Process Result: 3	
Force / Load Score ✓ Process Result: 3			
FINAL WRIST and ARM SCORE : ✓ Process 6		FINAL NECK, TRUNK, LEG SCORE : ✓ Process 6	
FINAL SCORE Process FINAL SCORE (Using Table C) : ✓ Final Process 7 Investigate and Change Immediately			