

Occupational Health Clinics for Ontario Workers Inc. Centres de santé des travailleurs (ses) de l'Ontario Inc.

RSI Day 2023

Introduction to Job Demands Analysis (JDA) in Beta

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Presentation overview

- Explain need for capturing cognitive and psychosocial demands
- Process of visualization and creation of our JDA tool
- Introduction to Job Demands Analysis (JDA)







Why Assess Cognitive and Psychosocial Demands?

- "Associations between physical or psychosocial risk factors and work-related musculoskeletal disorders in construction workers based on literature in the last 20 years: A systematic review" (Anwer et al., 2021)
- "A systematic overview on the risk effects of psychosocial work characteristics on musculoskeletal disorders, absenteeism, and workplace accidents" (Taibi et al., 2021)
- "Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: A systematic review and meta-analysis" (Bernal et al., 2015)
- "The impact of work-related psychosocial stressors on the onset of musculoskeletal disorders in specific body regions: A review and meta-analysis of 54 longitudinal studies" (Hauke et al., 2011)

There is extensive research that shows how cognitive and psychosocial demands in the workplace contribute to the development of MSDs



How is PDD information used?

- Adjudication of claims (by the WSIB in Ontario)
- Accommodation of a worker
- Educate treating healthcare practitioners
- Inform prevention efforts

Including cognitive and psychosocial demands paints a whole picture



Intro to Job Demands Analysis (JDA)

A Physical Demands Description (PDD) is a detailed, objective description of the physical demands required to complete the essential and nonessential tasks of a job.

> A Cognitive Demands Analysis (CDA) is a detailed, objective evaluation of the specific cognitive, emotional, and psychological skills required to perform essential and non-essential tasks of a job.

Job Demands Analysis - A Job Demands Analysis (JDA) includes both a physical demands description as well as a cognitive (mental) demands analysis. A JDA aims to systematically quantify and evaluate the physical, cognitive (mental), and environmental demands of a task or job (CCOHS, 2022).



Visualization and Creation of JDA format

- Initiated from necessity
- Reviewed "An improved physical demand analysis framework based on ergonomic risk assessment tools for the manufacturing industry" by Li et al., (2019).
- Designed to be used best with mobile phones or tablets
- Spreadsheet has been used to increase accessibility



Introduction to JDA Tool

https://www.ohcow.on.ca/posts/job-demands-analysis-beta-version/



Ergonomic **APPS, TOOLS and CALCULATORS**

Long popular with workers and workplaces OHCOW tools and calculators translate knowledge into action by defining a problem and/or contributing to solutions. Try one today!



Note: Click on the post title to view the complete post.

Job Demands Analysis (Beta version)



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This Job Demands Analysis (JDA) includes both a Physical Demands Description (PDD), as well as an analysis of Cognitive and Psychosocial

Demands (CDA). This JDA template has been developed to be best used on a mobile device such as a phone or tablet, to accurately and efficiently capture the demands.

Overview Page

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Job	Demands A	nalysis (J	DA) Template Be	ta
PasitioniJub Title:	Orywaller			
Date:	08-1+6-23			
Company/Department Name:	Orywall Inc.			
Employer Contact:	Jane Smith			
Telephone	313-505-1115			
Email	doweldstawel.co			
Work Hours Schedule/Shift	8.00 am - 6.30 pm			
Overtime Policy:	After 42.5 hours			
Job Overview:	metal or wooden stur indentations, holes ar taping muchine and e	to or joints; Cut and of cracks with joint mbed tape in comp	stallation on walls and cellings; I install corner beads to protect e compound using trowel and two ound; Smooth out excess compo- cand exams and points.	iterior corners; Fill joint ed knife; Tape over joint
Job Skills and Training:	Tale Intification			
Name of Assessor:	John Smith			
		_		
Primary Job Task 1	Duration	Frequency	Descr	
	up to 8 hours	Weekly	Measure, out and fit drywall i walls and cellings; position a or wooden studs or joints	meets for installation of secure sheets to m
Hang Drywall Sheets		Height (m)	Desct	ption
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Tank Elements	Weight (hig)	NA.	Use a lape measure, drywall drywall as needed	square, and knife to o
Task Elements		NA 0.2 m	Use a lape measure, drywall drywall as needed Alone or with a co-worker, M location and M to place	

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Beta Job Demands Analysis (JDA) Template

Position/Job Title:	
Date:	
Company/Department Name:	
Employer Contact:	
Telephone:	
Email:	
Work Hours/Schedule/Shift:	
Overtime Policy:	
Job Overview:	
Job Skills and Training:	
Name of Assessor:	

Primary Job Task 1	Duration	Frequency		Description	
Task Elements	(Select Measure)				
Element Description:					
Element Description					
Element Description:		-			
PDA and CD/	A Drop Down	Lists			

Primary Job Tasks

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	Primary Job Task 1	Duration	Property	Description
	Hang Drynall Drants	up to E hours	Westly	Measure, cut and 10 drywall alreads for installation or walk, and collings, position and secure sheets to ne or ecoder study or joints.
	Task Elements	Weight (hg)	Paright (m)	Desctiption
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	UR sheets into position	49.6214	02=	Along or with a collective, M and camp styped ones location and M to place
	Decure sheet to stude	-349	03 m	One dell and screen is secure the dynail sheet to t state
	雨く	-	Task 1 Photos	12
	Primary Job Task 2	Outstion	Programp	Description
	Primary Job Task 2 Multing and sping	Duration up to 1 hours	Frequency	Fill parts, sprew inderitations, and participask with
				F8 jumls, some inderlations, and prelational with compound using tower, tope prets, remove excess
	Moting and sping	up to It hours	weathly	Fit parts, some inderlations, and performant with compound array travel, tage parts, remove excess allow tool to dy Description
	Nucling and saying Test Demants	up to 1 hours Mergin (hup)	wastly Registrati	Fit parts, some indentations, and particularial with conjuousd samp from to the parts, remove excess aflow code of the Description Transfe large of buckets of composed to pour and m

Primary Job Task 1 Frequency Description Duration Measure, cut and fit drywall sheets for installation on walls up to 5 days/week and ceilings; position and secure sheets to metal or wooden Hang Drywall Sheets up to 8 hours studs or joists **Task Elements** Height (m) Weight (kg) Force (kg) Distance (m) Time (min) 10 1.5 10 <10 Measure and Cut 60-120 Use a tape measure, drywall square, and knife to cut drywall as needed Element Description: Lift drywall sheet to position 25 1.8 25 <10 60-120 **Element Description** Alone or with a co-worker, lift and carry drywall sheet to location and lift to place <3 0-2 <2 60-120 Secure sheet to studs na Use a tape measure, drywall square, and knife to cut drywall as needed Element Description: Element Description: Element Description: Task 1 Photos

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Selecting Demand Categories





Considerations

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Considerations					
Are the necessary people			_	_	_
available?					
What is the most physically					
challenging part of the job?					
When is the highest					
workload?					
When is the lowest workload?					
					_
Is there a difference in					
workload between days/shifts?					
Are there variations in					
staffing levels?					_
Is there variability in job tasks between individuals of					
the same job title?					
· · ·					_
Will all tasks be performed					
during observation and data collection?					
collection?					
List of Personal Protective Equipment U	ed (Safety glasses, safety boots, hearing protection, glo	oves, masks, e	tc.)		
List most frequently handled tools, equi	ment, and materials (Vibrating, loud, pneumatic, tool l	belt, manual or	power t	tools, shi	ор о
office equipment, materials/products, etc.)					

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Considerations	
Are the necessary people available?	
What is the most physically challenging part of the job?	
When is the highest workload?	
When is the lowest workload?	
Is there a difference in workload between days/shifts?	
Are there variations in staffing levels?	
Is there variability in job tasks between individuals of the same job title?	
Will all tasks be performed during observation and data collection?	

List of Personal Protective Equipment Used (Safety glasses, safety boots, hearing protection, gloves, masks, etc.)

List most frequently handled tools, equipment, and materials (Vibrating, loud, pneumatic, tool belt, manual or power tools, shop or office equipment, materials/products, etc.)

Strength Demands of Job



			Str	ength Demands o	of Job				
Activity	Force Load Avg (kg)	Force/ Load Max (kg)	Frequency N 0% R 1-5% O 6-33% F 34-66% C 67-100%)	Efforts Per Min or Cycle	Duration (Sustained/ intermittent)	Height (m)	Moving Distance (m)	Comments (Description of handled objects, coupling, hand, grip	Borg Scale (Rating of perceived exertion)
Lifting							•		
Low Level Lifting	5	35	Occasional 6-33%	NA	Intermittent	0-0.5	up to 10	lift drywall, tools, materials	4
Waist Level Lifting	15	35	Frequent 34-66%	NA	Intermittent	0.6-1.2	up to 10	lift drywall, tools, materials	5
Above Shoulder Lifting	3	18	Occasional 6-33%	NA	Intermittent	na	up to 10	lift drywall, tools, materials	7
Carrying						•			
Front Carry	3	10	Frequent 34-66%	NA	Intermittent	~1.3	up to 10	carry drywall, tools, materials	6
Side Carry (Right Hand)	2	10	Occasional 6-33%	NA	Intermittent	~1.3	up to 10	carry drywall, tools, materials	8
Side Carry (Left Hand)	2	10	Rare 1-5%	NA	Intermittent	~1.3	up to 10	carry drywall, tools, materials	6
On Shoulder	6	8	Rare 1-5%	NA	Intermittent	na	up to 10	carry drywall, tools, materials	4
Pushing/Pulling							-		
Pushing (tools, objects, etc.)	1.5	40	Rare 1-5%	NA	Intermittent	1.2-1.4	<0.5	Pushing on drill, pushing drywall into position	4
Pulling (tools, objects, etc.)	1.5	40	Rare 1-5%	NA	Intermittent			Pushing on drill, pushing drywall into position	4
Grasping and Pinching							•		
Left hand use	0.1	10	Constant 67-100%	NA	Sustained	NA	NA	handling tools and materials	3
Right hand Use	0.1	10	Constant 67-100%	NA	Sustained	NA	NA	handling tools and materials	5
Forceful Gripping (Right Hand)	3	12	Frequent 34-66%	NA	Intermittent	NA	NA	handling tools and materials	7
Forceful Gripping (Left Hand)	3	12	Occasional 6-33%	NA	Intermittent	NA	NA	handling tools and materials	6
Manual Dexterity	na	na	Frequent 34-66%	NA	Intermittent	NA	NA	handling tools and materials	2
Finger Dexterity	na	na	Occasional 6-33%	NA	Intermittent	NA	NA	handling tools and materials	2

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Body Posture Frequency

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	Frequency							
Activity		Activities Per Min / Cycle	Duration	Des	cription/Comm	ents		
scony		Min / Cysle	(sustained) intermittent	69	vity, handled of upling, hand, g	rip)		
	C 67-100%)							
Mobility Walking (terrain/surface?)	Constant 67-802%	Frequ	ency of Wo	rkd	a labella labera			
Standing (flooring/surfaces hi	Constant (2-5)//s				id jobskie, interio obskie, interior f	1000		
Siting Criving (type of seat' Char?)		Never	0%	1	NA			
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Other (pitcols, etc.) Counting Societing	Occasional 6-325 Occasional 6-325				olding for high to a drywell or mut	dangs dang kow		
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Back Forward Banding	Occasional 8-335	Occas	sional 6-331		o moosee low na			
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	Frequent 34-58%	Frequ	ent 34-66		ching to mudies	-		
Forward bending while alling Side bending while alling	Mexer 0% Mexer 0%	0.000000		10000	NA NG	5.01		
Twist Trunk Rotation	Frequent 34-08 %	Const	ant 67-100	×. i	ie working on st scattoking	ls or		
Shoulder			0111107 100	-	ocaffolding			
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	Frequerit 34-00%							
Below Shoulder Reaching	Frequent 34-58%	NA	Sustained		drywell, maddin			
Sideways Shoulder Reaching	and the second second second	NA.	Internibert	Hanging	drywal, matdin	, writing		
Behind Bhoulder Readning	Newsr O'S	NA.	Insenitari		NA			
Across body reaching	Frequent 34-56%	N4.	internitent.	Handing	drywali, muddin	L sanding		
Shoulder Internaliesternal	Frequent 34-50%	NA	internitient		deparal, maddin			
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Body Posture Frequency				
Activity	Frequency N 0% R 1-5% O 6-33% F 34-66% C 67-100%)	Activities Per Min / Cycle	Duration (sustained/ intermittent	Description/Comments (Activity, handled objects, coupling, hand, grip)
Mobility				
Walking (terrain/surface?)	Constant 67-100%	NA	Sustained	around jobsite, interior flood
Standing (flooring/surfaces?)	Constant 67-100%	NA	Sustained	at jobsite, interior flood
Sitting/Driving (type of seat/Chair?)	Never 0%	NA	NA	NA
Climbing	Rare 1-5%	NA	Intermittent	to access jobsite/location
Stairs	Rare 1-5%	NA	Intermittent	to access jobsite/location
Ladders	Occasional 6-33%	NA	Intermittent	to access high reaches
Other (stools, etc.)	Occasional 6-33%	NA	Intermittent	scaffolding for high ceilings
Crouching/Squatting	Frequent 34-66%	NA	Intermittent	hanging drywall or mudding low
Kneeling/Crawling	Rare 1-5%	NA	Intermittent	hanging drywall or mudding low
Back			•	
Forward Bending	Occasional 6-33%	NA	Intermittent	to access low work
Backward Bending	Occasional 6-33%	NA	Intermittent	drywalling/mudding overhead
Side Bending	Frequent 34-66%	NA	Intermittent	reaching to mud/screw
Forward bending while sitting	Never 0%	NA	NA	NA
Side bending while sitting	Never 0%	NA	NA	NA
Twist/Trunk Rotation	Frequent 34-66%	NA	Intermittent	while working on stilts or scaffolding
Shoulder				
Above Shoulder Reaching	Frequent 34-66%	NA	Sustained	Hanging drywall, mudding, sanding
Forward Shoulder Reaching	Constant 67-100%	NA	Sustained	Hanging drywall, mudding, sanding
Below Shoulder Reaching	Frequent 34-66%	NA	Sustained	Hanging drywall, mudding, sanding
Sideways Shoulder Reaching	Frequent 34-66%	NA	Intermittent	Hanging drywall, mudding, sanding
Behind Shoulder Reaching	Never 0%	NA	Intermittent	NA
Across body reaching	Frequent 34-66%	NA	Intermittent	Hanging drywall, mudding, sanding
Shoulder internal/external rotation	Frequent 34-66%	NA	Intermittent	Hanging drywall, mudding, sanding
Neck				
Forward Bending	Occasional 6-33%	NA	Intermittent	Hanging drywall, mudding, sanding
Backward Bending	Occasional 6-33%	NA	Intermittent	Working overhead
Twist/Tilt	Occasional 6-33%	NA	Intermittent	Working in tight spaces
Elbow				
Flex/Extend	Constant 67-100%	NA	Intermittent	Hanging drywall, mudding, sanding

Cognitive Demands

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76 Psychosocial factors	S						
PDA and CDA Drop Down Lists +							

Psychosocial Factors & Additional Photos





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178	* Demand intensity: 1 =	no requi	rement	, 2 = lo	w requiren	nent, 3	= modera	ate requirer	ment, 4	= high r	equireme	ent	
179	Degree of self-supervision required		4 Responsible to self-supervise and ensure high quality of work										
180	Degree of supervision exercised		2		Only infrequently when training new workers								
181	Deadline pressures (time pressures)		3		Responsible to complete work in timely manner								
182	Need to work co-operatively with others		4		Have to work co-operatively while handling very heavy material								
183	Exposure to emotional situations		1		NA								
184	Exposure to confrontational situations		2		Disagreements with co-workers								
185	Responsibility and accountability required		4 Responsible for quality of work										
	Need to work under high levels		3 Unlikely unless working in strict deadlines or with unknown new m									w materi	als
186	of stress												



Add a Saved Photo

f>	Task 1 Photos			
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16	Primary Job Task 1	Duration	Frequency	Description
17	Hang Drywall Sheets	up to 8 hours	Weekly	Measure, cut and fit drywall sheets for installation on walls and ceilings; position and secure sheets to metal or wooden studs or joists
18	Task Elements	Weight (kg)	Height (m)	Desctiption
19	Measure and Cut	up to 25 kg	NA	Use a tape measure, drywall square, and knife to cut drywall as needed
20	Lift sheets into position	up to 25 kg	0-2 m	Alone or with a co-worker, lift and carry drywall sheet to location and lift to place
21	Secure sheet to studs	<3 kg	0-2 m	Use drill and screws to secure the drywall sheet to the studs
22				
23				
24			Task 1 Photos	s
25	Primary Job Task 2	Duration	Frequency	Description
26	Mudding and taping	up to 8 hours	weekly	Fill joints, screw indentations, and joints/crask with compound using trowel, tape joints, remove excess and allow coat to dry
27	Task Elements	Weight (kg)	Height (m)	Description
28	Mix drywall compound	up to 25	0-2	Handle bags of buckets of compound to pour and mix with water using a drill and mixer
29	Apply compound to needed areas using trowel	3	0-3	Use trowel to apply compound over screw heads, joints etc.
30	Apply tape over mudded joints	2	0-4	Apply paper or mesh tape over mudded joints and remove excess mud with trowel
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Add a Live Capture Photo

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16	Hang Drywall Sheets	up to 8 hours	Weekly	Measure, cut and fit drywall sheets for install walls and ceilings; position and secure sheet or wooden studs or joists	ation on s to metal			l	
18	Task Elements	Weight (kg)	Height (m)	Desctiption					
19	Measure and Cut	up to 25 kg	NA	Use a tape measure, drywall square, and kni drywall as needed	fe to cut				
20	Lift sheets into position	up to 25 kg	0-2 m	Alone or with a co-worker, lift and carry drywa location and lift to place	all sheet to				
21	Secure sheet to studs	<3 kg	0-2 m	Use drill and screws to secure the drywall sh studs	eet to the				
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			Task 1 Photo	s					
24	Primary Job Task 2	Duration	Frequency	Description					
26	Mudding and taping	up to 8 hours	weekly	Fill joints, screw indentations, and joints/cras compound using trowel, tape joints, remove a allow coat to dry					
27	Task Elements	Weight (kg)	Height (m)	Description					
28	Mix drywall compound	up to 25	0-2	Handle bags of buckets of compound to pour with water using a drill and mixer	r and mix				
29	Apply compound to needed areas using trowel	3	0-3	Use trowel to apply compound over screw he etc.	eads, joints,				
30	Apply tape over mudded joints	2	0-4	Apply paper or mesh tape over mudded joint remove excess mud with trowel	s and				
31	Apply additional compound coats	3	0-2	Once dried compound is sanded (following ta apply additional coats as needed	ask 3),				

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SOBANE: Levels of Hazard Identification

Screening: is when **workers** identify hazards based on their first-hand experience

<u>OB</u>servation: is qualitatively organized investigations using checklists, can be done by JHSC

ANalysis: is the quantitative evaluation traditionally associated with H&S professionals, internal OH practitioners (safety officers, occupational physicians, industrial hygienists, ergonomists)

Expertise: is the outside help that is needed to solve a particularly difficult problem, outside OH practitioners/experts.





Future Direction

- JDA released in "Beta" with additional features on the way
- A user guide for the JDA tool is in process
- The PDD handbook and tool is still available
- We want to hear from you! (aflanagan@ohcow.on.ca)

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Thank You

If you have any questions about this presentation, please contact me at the email below aflanagan@ohcow.on.ca

Or visit the OHCOW website @ www.ohcow.on.ca

