

# Understanding the Elements of a Physical Demand Description (PDD)

How we complete, how they can be used, and how to make sense of them

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### **Goals and Objectives**

- 1. To define what a PDD is, and what it is NOT
- 2. To understand how PDD's are completed from the Ergonomist's perspective
- **3**. To understand the many uses of PDD's
- 4. Differentiate between good PDD vs. Not so good PDD information



# **PDD Definition**

What is a Physical Demands Description?

- A detailed, objective description of the required physical demands
- Tied to the essential and non-essential tasks of a job
- Systematically quantifies and evaluates physical, cognitive, environmental demands



![](_page_3_Picture_6.jpeg)

### **PDD Definition**

- What a Physical Demands Description is <u>NOT</u>?
  - $\times$  Not a risk assessment
  - Solution Not an ergonomics assessment
  - Not an assessment of a worker's abilities

![](_page_4_Picture_5.jpeg)

# **Physical Demands Descriptions: Why?**

![](_page_5_Figure_1.jpeg)

![](_page_6_Figure_0.jpeg)

![](_page_6_Figure_1.jpeg)

![](_page_6_Picture_2.jpeg)

### **Types of PDDs**

![](_page_7_Picture_1.jpeg)

#### **Checklist/Chart Format**

Good for repeatable, cyclical jobs Sufficient for most jobs Encompasses all tasks into same chart

![](_page_7_Picture_4.jpeg)

#### **Task Based**

Good for complicated, non-cyclical jobs More in depth and specific to the task Separates tasks and details demands for that task

I.e. Maintenance jobs,

![](_page_7_Picture_8.jpeg)

#### AI / Technology

Beginning to see use of AI motion capture software, wearable devises, and more web-based report technology

![](_page_7_Picture_11.jpeg)

# **Data Collection 'Toolkit'**

![](_page_8_Picture_1.jpeg)

Interview – job details, process flow, production

![](_page_8_Picture_3.jpeg)

Clip board / tablet – taking notes, data collection

Stopwatch – cycle times, frequencies

![](_page_8_Picture_5.jpeg)

Scale – weigh parts, tools, etc.

![](_page_8_Picture_7.jpeg)

Force Gauge – weigh items, collect push/pull forces, control activation force

![](_page_8_Picture_9.jpeg)

Tape Measure – heights, reaches, distances

![](_page_8_Picture_11.jpeg)

![](_page_8_Picture_12.jpeg)

Camera – video, still images of process, tools, equipment

![](_page_8_Picture_14.jpeg)

# **PDD COMPONENTS**

![](_page_9_Picture_1.jpeg)

#### **Title Page**

- Job Data: hours/shifts/breaks, PPE
- Production requirements
- Purpose/ job details
- Essential and non-essential tasks
- Tools, equipment used

#### Collection Methods

![](_page_10_Picture_8.jpeg)

	PHYSICAL DEMANDS DESCRIPT
Job Title: Mixer Tech	Date: February 2, 2021
Job Data Department: Bakery Work Hours: 4 x 10 hr shifts, Monday – Thursday. Shifts: 5 am - 3:30 pm, 3:30 pm - 1:30 am. Breaks: 2 x 10 minutes, 1 x 30 minute lunch. Personal Protective Equipment: Safety boots, safety glas hearing protection. Special Training Requirements: N/A <b>Production/Productivity Requirements</b> ~8-10 batches per day, 60-90 minutes per batch <b>Purpose &amp; Nature of Job</b> To fill the large miner with raw material ingredients such	sses,
Essential Tasks of the Job Provide % of time for each task performed: 1. Handling of raw ingredients- 20-30% of shift 2. Monitoring mixer – 50-60% of shift 3. Transferring items – 5-10% of shift 4. Cleaning – 5-10% of shift	
Non-essential Tasks Performed N/A Additional Job Details (e.g. task, product, materials, v There are 3 mixers on the mix mezzanine area and there production requirements. Each worker monitors a HMI correctly to the required specifications. All workers acc pallets and carts is completed on an as needed basis as completed once per day and is usually completed on nig the course of the day but may rotate from day to day.	vorkstation and/or equipment details) e is usually 1 worker assigned to each mixer depending o control touch screen ensuring that the mixer is operatin ess ingredients from the same pallets and totes. Transfe ingredients run out. The cleaning process is generally tht shift. Workers do not generally rotate between other
Hand Tools Used Aluminum scraping tool (0.9 kg), plastic scraper (1.3 kg) (0.9 kg).	, shovel (2.1 kg), water spray gun (1.2 kg, 1.7 kg), sanitiz
Equipment Used HMI touch screen to operate mixer.	

![](_page_10_Picture_10.jpeg)

## **PDD Frequency Categories**

![](_page_11_Picture_1.jpeg)

Determine frequencies – may require some calculations, production data, video analysis

Not Required	Rare	Occasional	Frequent	Constant
<ul> <li>Item not required/ or performed</li> </ul>	<ul> <li>&lt;2% of shift</li> </ul>	<ul> <li>3-33% of shift</li> </ul>	<ul> <li>34-66% of shift</li> </ul>	<ul> <li>&gt;66% of shift</li> </ul>

May come across other frequency categories (i.e. never, seldom, minor, major)

![](_page_11_Picture_5.jpeg)

# Mobility Demands

Indicates applicable tasks, frequency, relevant details for:

![](_page_12_Picture_3.jpeg)

- floor surface, distance
- floor surface, duration
- type of seat, duration

![](_page_12_Picture_7.jpeg)

(9)

- distance, duration
- vehicle, duration

							BENDING BACKWAR	DS 🛛 🖓 🖓 🖓 🖓 🖓 🖓 🖓 🖓 Not required.
PHYSICAL DEMAND			FRE	QUE	NCY		Dist. (m) / Duration	DESCRIPTION OF ACTIVITY
MOBILITY	TASK #	N	R	0	F	С	(min)	(Note distances, durations and surfaces)
WALKING	1-8				$\boxtimes$		30m	On smooth concrete floors up to 30 m.
STANDING	3,5,6			X			10 sec	On concrete floors, mostly dynamic with weight.
SITTING		X						Not required.
CRAWL		X						Not required.
DRIVING								Not required.

Workplace Safety

Physical Demands Description

VALKING

STANDING

SITTING

CRAWL

DRIVING

revention Services

FOREARM ROTATION	1-7				+/-80°	80°	Changing grips.			
WRIST FLEXION/EXTENSION	5				+/-15° 15° Operating the keyboard.					
WRIST ULNAR/RADIAL		$\boxtimes$					Not required.			
POSTURE – HIP/ KNEE/ANKLE/FOOT	TASK #				DESCRIPTION OF ACTIVITY (Describe task, beights, # of steps, etc.)					
CROUCHING/SQUATTING	1,2				To access ra	ack carts w	hile de-stacking, and transferring.			
KNEELING					Not require	d.				
CLIMBING LADDERS		$\boxtimes$			Not require	d.				
CLIMBING STAIRS		$\boxtimes$			Not required.					
JUMPING		$\boxtimes$			Not required.					
FOOT PEDAL/ACTION					Not required.					

egend: N – Not Required | R – Rarely (<2%) | O – Occasional (3-33%) | Frequent (34-66%) | Constant (66-100%) R.O.M. (Rage of Motion)

FREQUENC

1,2 🗆 🗆 🖾

Collection Methods:

![](_page_12_Picture_13.jpeg)

![](_page_12_Picture_14.jpeg)

![](_page_12_Picture_15.jpeg)

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DESCRIPTION OF ACTIV

On smooth concrete floors up to 30 m

On concrete floors, r

Not required

Not required

Not required

## **Postural Demands**

Indicates applicable tasks, frequency, range of motion, relevant posture details for:

- Back
- Neck
- Shoulders
- Elbows/forearm/wrist
- Hip/knee/ankle
- Reaching parameters

Collection Methods: ()

![](_page_13_Picture_10.jpeg)

![](_page_13_Picture_11.jpeg)

										R.O.M.	R.O.M.			
	POSTURE - B	ACK		TASK #	N	R	0	F	С	(usual)	(max)	DESCRIPTION OF ACTIVITY		
	BENDING FOR	WARD		1,2		Ц				0-80*	80*	De-stacking carts.		
	BENDING BAC	KWARDS										Not required.		
	SIDE BENDING	6										Not required.		
	TWISTING											Not required.		
										R.O.M.	R.O.M.			
	POSTURE – N	ECK		TASK #	N	R	0	F	С	(usual)	(max)	DESCRIPTION OF ACTIVITY		
	FORWARD BE	NDING		1,2,5						10-30°	30°	Printing labels and managing carts.		
	BACKWARD B	ENDING		3		$\boxtimes$				0-15°	30°	Observing the lifter.		
	TWISTING/TU	RNING/ TI	LTING	2,3		$\boxtimes$				0-20°	45°	While operating lifter controls.		
										R.O.M.	R.O.M.			
	POSTURE - SI	HOULDER		TASK #	N	R	0	F	С	(usual)	(max)	DESCRIPTION OF ACTIVITY		
	FLEXION			1-7						0-60°	90°	Various tasks. Max to access label.		
	EXTENSION											Not required.		
	ABDUCTION			1.2.4.6.7						0-45°	90°	Various tasks. Max to access label.		
	ADDUCTION			1.2.4.6.7						0-15°	30°	Various tasks.		
	ROTATION											Not required.		
	POSTURE -									R.O.M.	R.O.M.			
	ELBOW/FORE	ARM/		TASK #	N	R	0	F	С	(usual)	(max)	DESCRIPTION OF ACTIVITY		
	ELBOW FLEXI	ON/EXTEN	SION	1-7						0-90°	120°	Handling racks, operating controls, and		
	(0 is full exten	ision)										handling rack carts.		
	FOREARM RO	TATION		1-7						+/-80°	80°	Changing grips.		
	WRIST FLEXIO	N/EXTENS	ION	5						+/-15°	15°	Operating the keyboard.		
	WRIST ULNAR	RADIAL			$\boxtimes$							Not required.		
	DOSTURE - U	in/												
	KNEE/ANKLE			TASK #	N	R	0	F	c		Describ	a task heights # of stans atr )		
	CROUCHING/	SOUATTIN	G	1.2						To access r	ack carts w	hile de-stacking, and transferring		
	KNEELING		-	-,-	M					Not require	d	inte de Stacking, and transferring.		
	CUMBING LA	DERS			N N					Not require	d.			
, /	ctivity	DENS	_						<u> </u>	Hotrequire	.u.			
· ·	lectivity		EDEC	NUT NICK										
			PREC	NGE										
			(Rer	ns/Min	Horiz	ontal		Verti	ical					
		Task #	or	Hour)	Rang	e (cm	) R	ange	(cm)		DESCR	IPTION OF ACTIVITY		
E	SHOULDER	11	As n	eeded	45	-50		154-:	169	Accessing control panel.				
9 (	CM)									necessing control parter.				
S	HOULDER	2,4,8	~8	/min	40	-67		109-3	139	Pick/set motors and X-bracket.				
9-:	139 CM)													
ΗE	WAIST (109	1,2,3,4,5	~10	5/min	18	-67		84-1	08	Pick/set/install worm gears, motors, clips, springs.				
		,6,7												
		9	1-	2/hr	2	5		35-1	09	Restock parts, set trays to rack.				
HE	BODY	N/A												
		8	2/	/min	25	-38		84-1	00	Set x-brad	ket to tot	e.		

![](_page_13_Picture_13.jpeg)

#### **Strength Demands**

Indicates weight, frequency, parameters (height, reach), and relevant details about the lift (items lifted, type of lift)

![](_page_14_Picture_3.jpeg)

Lifting/Carrying

![](_page_14_Picture_5.jpeg)

Strength Demands of the Job PHYSICAL TASK FORCE / WEIGHT FREQUENCY **HEIGHT/REACH** DESCRIBE ACTIVITY/POSTURE DEMAND (Kg.) (CM) # (Reps/Min or Hour) MAX AVG. START FINISH LIFTING 9.3 9.3 2/min 57 26 One end of the rack cart is lifted at a time 1 twice every cycle (300-400x's per shift) FREQUENCY AND APPRO) DESCRIBE ACTIVITY/POSTU FORCE DEMAND DURATION

GRIPPING/

GRASPING

PUSHING (pa

press/ finger)

PINCHING

FINE FINGER

MOVEMENT WRITING OTHER

Reaching

ABOVE THE SHOULDER

WAIST TO SHOULDER

LEVEL (109-139 CM)

BEHIND THE BODY

LATERAL

BELOW THE WAIST (109

Strength Demands of the Job

LEVEL (139 CM)

RANGE (Reps/Min

or Hour)

2/mir

6/min

2/mir

2/mir

3.4.5.6.7

1,2

(Kg.)

2kg

<1 kg

Negligib

Negligible

HORIZONTAL

RANGE (CM)

0-45

0-45

0-45

0-65

NROFC

VERTICAL

RANGE (CM

139-160

109-139

28-109

109-139

(CM)

DESCRIPTION OF

n where the label is located on the rack

Handling racks, operating the computer, operatir

De-stacking carts (28-90cm) and transferring cart

One end of the rack cart is lifted at

May be required to reach up to 160 cm

May be required while managing rac

lifter controls

Not required.

To hold the label roll during change out.

Grasping labels and tape

Type of Push(es): Palm Press Finger Press Othe

Type of Pinch(es): Chuck 🛛 Tip 🗆 Lateral 🗆 Other

Finger push or thumb push to activate lifter co

Keying required using computer keyboard

inder racks (62 cm)

Note: best to use frequency units such as lifts/min, lifts/hr, or lifts/shift instead of rare, occasional, frequent, constant

![](_page_14_Picture_8.jpeg)

![](_page_14_Picture_9.jpeg)

#### Hand Activity

# Detail forces, frequency, type and activity description

- Gripping/Grasping/Pinching
- Pushing (palm/finger press)
- Fine finger movement
- Writing/ Keying

#### Reaching

REACHING	TASK #	FREQUENCY RANGE (Reps/Min or Hour)	HORIZONTAL RANGE (CM)	VERTICAL RANGE (CM)	DESCRIPTION OF ACTIVITY
ABOVE THE SHOULDER LEVEL (139 CM)	2	2/min	0-45	139-160	May be required to reach up to 160 cm depending on where the label is located on the rack.
WAIST TO SHOULDER LEVEL (109-139 CM)	3,4,5,6,7	6/min	0-45	109-139	Handling racks, operating the computer, operating lifter controls.
BELOW THE WAIST (109 CM)	1,2	2/min	0-45	28-109	De-stacking carts (28-90cm) and transferring carts under racks (62 cm).
BEHIND THE BODY					Not required.
LATERAL	1,2,3	2/min	0-65	109-139	May be required while managing racks.

#### Strength Demands of the Job

PHYSICAL DEMAND	TASK #	FORCE / (Ke	WEIGHT ;-)	FREQUENCY (Reps/Min	HEIGHT/REACH (CM)		DESCRIBE ACTIVITY/POSTURE
		MAX	AVG.	or Hour)	START	FINISH	
LIFTING	1	9.3	9.3	2/min	57	26	One end of the rack cart is lifted at a time twice every cycle (300-400x's per shift).
PHYSICAL	TASK	FORCE /	WEIGHT	FREQUENCY	DIST	ANCE	DESCRIBE ACTIVITY/POSTURE/SURFACE

PHYSICAL DEMAND	TASK #	APPROX. FORCE	FREQUENCY DURATIO			y ani On	)	DESCRIBE ACTIVITY/POSTURE						
		(Kg.)	Ν	R	0	F	С	Describe type of grip/pinch, object being gripped, etc.						
GRIPPING/	5	~2kg		$\boxtimes$				Type of Grip(s): Power Hook Wide Other						
GRASPING								To hold the label roll during change out.						
PUSHING (palm	3	<1 kg						Type of Push(es): □Palm Press ⊠Finger Press □Other						
press/ finger)								Finger push or thumb push to activate lifter controls.						
PINCHING	5,6	Negligible		X				Type of Pinch(es): Chuck 🛛 Tip 🗆 Lateral 🗆 Other						
								Grasping labels and tape.						
						_	MO	Grasping labels and tape.						

# Collection Methods:

![](_page_15_Picture_14.jpeg)

#### **Environmental Conditions**

![](_page_16_Picture_2.jpeg)

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![](_page_16_Picture_4.jpeg)

![](_page_16_Picture_5.jpeg)

					-			-			
ENVIRONMENTAL	х	Hot			Glare			Comments	50		
CONDITIONS		Cold			Inadequate lightin	g		<ul> <li>Hot ar</li> </ul>	nd h	numid in summertime.	
		Outdoor			Working at Height	s		Hearing		votection required in area	
	х	Indoor			Slippery Surfaces			Mewing protection required in area			
		Drv			Congested Area			• WOVIN	ig i	acks on the line as well as to	w
	x	Humid		x	Sharn Edges			motor	r tra	affic.	
	x	Noise			Sharn Tools			<ul> <li>Parts</li> </ul>	may	y be sharp. Cut resistant	
	-	Whole Body V	/ibration		Eumes/vanours/ea			gloves	s re	quired.	
		whole body v	riviation		rumes/vapours/ga	ises	•				
		Hand/Arm Vi	bration		Electromagnetic F	eld	s				
	X	Moving object	ts								
				X	overlapping Tasks	X	Verbal Con	imunication	1	instructions is required.	
				X	Attention to Detail	х	Computer	Literacy	•	Must be diligent in maintaining quality.	
					Adaptability & Flexibility		Technolog	/ Use	•	Overtime may be required.	
				X	Time Pressures	X	Reading Lit	eracy	•	Worker performs work alone with	
					Distracting Stimuli		Writing Lite	eracy	-	support from material handling staff to	
					Problem Solving & Analysis		Education	SKIIIS	1	move racks into the area, and empty	
					Working Relationships		Motivation	al Factors	1	carts out of the area.	
				1	Exposure to Emotional Situations				1		
			SENSORY DEMANDS	X	Hearing	х	Spatial per	ception	Com	nments:	
					Speech		Tactile		•	Must be able to hear alarms.	
					Colour vision		Smell		•	Spatial perception required to navigate	
				XI	Near vision		Taste		4	area.	
				- I	Far vision				•	Visual acuity required.	

**Collection Methods:** 

![](_page_16_Picture_8.jpeg)

![](_page_16_Picture_9.jpeg)

#### **Cognitive Demands**

Indicates generally what cognitive demands are present such as:

(କ୍ରି (କ୍ରି

- Attention to detail
- Adaptability / flexibility
- Time pressures
- Problem solving / analysis
- Memory recall
- Technology / literacy

Collection Methods:

![](_page_17_Picture_10.jpeg)

![](_page_17_Picture_11.jpeg)

#### COMPANY LOGO HERE

#### Additional Conditions and Demands

			ENVIRONMENTAL	X	Hot		Glare	p- lisheis-	Comments:			
COGNITIVE		Self-Supervisio	n		Memory/Recall	Memory/Recall						
DEMANDS		Supervise Othe	ers	Х	Decision Making			<ul> <li>Attention to detail and following work instructions is required.</li> </ul>				
	Х	Overlapping Ta	sks	Х	Verbal Communicat	ion						
	х	Attention to D	etail	Х	X Computer Literacy			<ul> <li>Must be diligent in maintaining quality</li> </ul>				
		Adaptability &	Flexibility		Technology Use			<ul> <li>Overtime may be required</li> </ul>				
	Х	Time Pressures	;	Х	Reading Literacy			• Overtin	ne may be required.			
		Distracting Stir	nuli		Writing Literacy			<ul> <li>worker performs work alone with</li> </ul>				
		Confrontationa	al Situations		Numerical Skills			suppor	t from material handling staff to			
		Problem Solvin	g & Analysis		Education Requiren	nent	ts	move r	acks into the area, and empty			
		Working Relati	onships		Motivational Factor	s		carts o	ut of the area.			
		Exposure to En	notional					1				
		Situations										
					Exposure to Emotional Situations			•				
			SENSORY DEMANDS	х	Hearing	Х	Spatial pe	erception	Comments:			
					Speech		Tactile		<ul> <li>Must be able to hear alarms.</li> </ul>			
				~	Colour vision		Smell		Spatial perception required to navigate			
				×	Far vision		Table		<ul><li>area.</li><li>Visual acuity required.</li></ul>			

![](_page_17_Picture_15.jpeg)

![](_page_18_Figure_0.jpeg)

Collection Methods:

![](_page_18_Picture_2.jpeg)

![](_page_18_Picture_3.jpeg)

#### 20

### **Components of a PDD**

![](_page_19_Picture_3.jpeg)

#### Important Considerations: The Worker

- Differentiate between required and worker habit
- Consider workers of varying statures
- Experienced vs. new workers
- Take video and photos from various angles and distances

![](_page_19_Picture_9.jpeg)

![](_page_19_Picture_10.jpeg)

# 

#### **Important Considerations: The Work**

- Be aware of the normal vs. abnormal conditions
- Various times of day, shifts, seasonal
- Surrounding/adjacent workstations

![](_page_20_Picture_6.jpeg)

Photo credit: Getty Images

![](_page_20_Picture_8.jpeg)

# HOW CAN A PDD BE USED?

![](_page_21_Picture_1.jpeg)

#### **Uses of PDDs**

# Reactively for rehabilitation and return to work purposes

# Proactively to prevent injury and improve working conditions

![](_page_22_Picture_3.jpeg)

## Uses of PDDs (cont'd)

# *Reactive*:

Communicate	Clarify	Identify
Communicate the requirements of a job to the WSIB and health care providers to assist with decisions and rehab	Clarify benefit entitlement	Identify suitable alternate work or modified work

![](_page_23_Picture_3.jpeg)

![](_page_24_Picture_1.jpeg)

**PSW:** Will Power

- Works in Long-Term Care
- Sustained a low back injury from performing patient care duties (i.e. transfers, turning patient)

![](_page_24_Picture_4.jpeg)

Assembler: Anita Knapp

- Works in repetitive automotive assembly plant on line
- Sustained a rotator cuff injury from above shoulder work

![](_page_24_Picture_8.jpeg)

Sanitation Worker: Mo Degrass

- Works as a garbage truck driver
- Sustained a knee injury, reporting cause to be getting in and out of the truck

![](_page_24_Picture_12.jpeg)

Photo credits: Pixabay

#### Reactive PDD use:

![](_page_25_Picture_2.jpeg)

**PSW:** Will Power

- Provide WSIB w/ PSW PDD
   ID modified duties/ jobs/ tasks within restrictions/ functional abilities (FAF,FAE)
- Assist in creating RTW plan
- Focus on:
  - bending
  - twisting
- lifting
- push/pull
- reaching

		Program	Personal Suppo	ort Worker (H932)	Date	June 2017
		Co-Ordinator			Chairperso	on la
	WEI	GHT			* FREQUE	NCY
Physical Demands	Maximum	Usual	Never	Seldom	Minor	Pequired ajor
	(in lbs)	(in lbs)	Never	Seluolii	WITTOT	Required
Lifting	< 50 lbs	20 lbs				
Carrying	< 50 lbs	5-20 lbs				
Pushing	< 50 lbs	5-20 lbs				
Pulling	< 50 lbs	5-20 lbs				
Fine Finder Movements						

			MOBILITY		SENSORY / PERCEPTUAL		
				* FREQUENCY		* FREQUENCY	
Bending/Stooping				Major Required	Physical Demands	Never Seldom	Required
Crouching			$\square$		Hearing – Conversation Hearing – Other Sounds		
Kneeling			$\boxtimes$		Vision – Naar Vision – Colour Vision – Colour		
Crawling					Perception – Spatial Perception – Form		
Twisting					Reading Writing		
		Commenta:			Comments:		
			WORK ENVIRON	* FREQUENCY	CONDITIONS	OF WORK * FREQI	JENCY
		Physical Dem	ands b	Seldom Minor Required Major	Physical Demands	Never Seldom	Required
		Inside Work Outside Work			Travelling Work Alone		
I Interact with Lubic	,	Hot/Cold Humid/Dry			Work Independent but in group Deadline Pressures		
Operate Equipment	t/ Machine	ery				$\boxtimes$	
Commente		Pharn Tools ato					
		Radiant/Thermal E	Energy		Accessit	allfy	
		Congested Works Comments:	ite 🗖		Wheelchair accessible Comments:	yes	⊠ no

![](_page_25_Picture_14.jpeg)

#### *Reactive PDD use:*

![](_page_26_Picture_2.jpeg)

- Assembler: Anita Knapp
- Provide WSIB w/ Assembler PDD
- ID modified duties/ jobs/ tasks within restrictions/ functional abilities (FAF, FAE)
- Assist in creating RTW plan
- Focus on:
  - above shoulder work
  - reaching
  - repetitive waist to shoulder work
  - lifting
  - push/pull

					PHYSICAL DEMANDS DESCRIPTION									
				Job Tit	le:				Date: Nov	ember 19, 2021				
				Job Da	ata				Job Photo					
				Depart	tment:	_								
		1 .	3 11 11	Shifts:	7:00 am - 3:15 pr	n_ 3:00 pm – 1 -50	115 Millie picking from the and setting completed of							
POSTU	RF - SHOULD	FR Tas	k# N I		FC R.O.M.			DESCRIPTION OF ACTIVITY						
FLEXIO	N	3.4.6	.7.8		□ 0-1	100°	To acc	ess part	s and equ	ipment controls.				
EXTENS	SION	N/	/A 🛛 🖸											
ABDUC	TION	2.	3 1	키리리	1 0-70°		While	picking	from	tote and setting completed parts.				
ADDUC	TION	N/						1						
ROTAT	Reaching A	ctivity			_									
	8	,		FREQUE	NCY									
				RANG	E									
				(Reps/N	vin Hori	Horizontal		tical						
	REACHING		Task #	or Hou	ır) Rang	ge (cm)	Range	e (cm)	DESCRIPTION OF ACTIVITY					
	ABOVE THE SHOULDEF		3	~2/mi	n 42	2-60	139-	9-152 Picking the		e x-assembly from the tote				
	LEVEL (139 CM)		4	8/mir	n 42	42-66		-142	Picking the washers, limit stops, and spindle nut					
			8	Rare		50	158-	-175	Operating	control panel.				
	WAIST TO SH	OULDER	4	8/mir	n 42	42-66		-139	Picking washers, limit stops, and spindle nuts.					
	LEVEL (109-1	39 CM)	40050	201		25.25		00						
		Strength A	ctivity											
	PHYSICAL TASK FORCE / WEI		/ WEIGHT	IGHT FREQ		HEIGH	IT/REACH	DESCRIBE ACTIVITY/POSTURE						
		DEMAND	#	()	(g.)	RA	NGE	(	CM)					
				MAX	AVG.	AVG. (Reps/		START	FINISH					
		LIFTING	7	2.1	2.1	1-2	2/hr	35/25	120-	Lift full tote of spindle nuts from refill				
									134/54	location to above machine.				
			7	2.5	2.5	1/9	shift 35/25		120- 134/54	Lift full tote of white washers from refill				
			7	6.2	6.2	1/	shift 35/2		120-	location to above machine.				
			/	0.2	0.2	0.2 1/s		55/25	134/54	to above machine.				
	PUSH		1	1.8-3.0	N/A	8/1	min	103 cr	m/ 30-40	One handed lateral push/pull to open and				
		PULLING					C		/ level	close machine access doors.				
			6	1.5	N/A	4/1	min 93 c		/~5 cm /	One handed lateral push to set nut runner to				
									evei	spinale nut.				

Workplace Safety & Prevention Services<sup>a</sup>

![](_page_26_Picture_14.jpeg)

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Department: Engineering

#### Job Demands Analysis : Swamper/Operator - Summary Table

![](_page_27_Figure_3.jpeg)

#### **Reactive PDD use:**

![](_page_27_Picture_5.jpeg)

S

- Provide WSIB with Sanitation Worker PDD
- ID modified duties/ jobs/ tasks within restrictions/ functional abilities (FAF, FAE)
- Assist in creating RTW plan
- Focus on:
  - climbing stairs/ ladders/ steps
  - walking
  - lifting
  - push/pull

	a. Physical Demands			F	Frequency During Shift					Weight Comment		Comments					
								Never	Rare	Infrequent	Occasional	Frequent	Constant	Usual (kg)	Max (kg)		
			Ľ	fting –	Floor to	o Knud	kle		×					13.7	80	D3-tipped over tote or additional service pick up NOTE: weight of tote may be 159kg (max) but force to tilt it up calculated to be ~ 80kg	
T				fting –	Knucki	e to W	aist			х	_			15	20	D3- additional service	
		Throwing	х														
	Ē	Sitting					x		D	2 -	dri	vin	g				
	pil	Standing			х				D3 - operating hopper controls and lift							controls and lift	
	¥	Walking				х			D	3 -	mo	vin	ıg t	otes,	walk	ing behind truck	
		Running/Jumping	х														
		Climbing		х					D1,D3 - on/off back of truck, in/out						truck, in/out of cab		
		Bending/Stooping		х					D1 - inspecting low parts of truck								
		Crouching		х					D	1 -	ins	peo	ecting underneath of vehicle				
		Kneeling	Х														
	Crawling		X														
			N	Neck - Static Flexion Neck - Static Neutral					х		~	_		D2 - driving			
	a. Physical Demands			Frequency Durin Shift				g	g Weight						IVIIIE	Comments	
			Never	Rare	Infrequent	Occasional	Frequent	Constant Usual (kg)		Usual (kg)		Max (Kg)					
		Lifting – Floor to Knuckle		x					1	13.	7	8	0	D3-1 add NOT 159 up (	tippe ition FE: v kg (r calcu	ed over tote or al service pick up /eight of tote may be nax) but force to tilt it ilated to be ~ 80kg	

On site assessment conducted: Mar 13 & 14, 2008; Final Report submitted Mar 27, 2008 Report prepared for City of Vancouver by Mandy Gallant, ErgoRisk Management Gp. Page 3

![](_page_27_Picture_16.jpeg)

Sanitation Worker Mo Degrass

## Uses of PDDs (cont'd)

# **Proactive**:

Identify	Prioritize	Modify	Rotation	Hiring / Training
<ul> <li>ID jobs/tasks /equipment for further ergonomic assessment/ intervention</li> </ul>	<ul> <li>Assist in ID and prioritization of concerns</li> </ul>	<ul> <li>Help discover ways to modify jobs and tasks</li> </ul>	<ul> <li>Use to help with job rotation planning</li> </ul>	<ul> <li>Provide information for hiring / training</li> <li>Post-Offer Employment Testing (POET)</li> </ul>

![](_page_28_Picture_3.jpeg)

#### **Proactive PDD use:**

![](_page_29_Picture_2.jpeg)

- Preliminary MSD hazard ID
  Back bending dressing
  - Force / awkward back postures transfer patients
  - Force push/pull patients in wheelchair / commode

Prioritize tasks for improvement OR in-depth ergo assessment

- Is the bending, reaching a problem/ likely to cause an MSD?
- Invest in lift assists/ equipment

 Build a job rotation plan for all PSWs

(2)

**8**-

- alternate light / heavy care
- Use to develop POET: lift, carry, push/pull, bending, reaching tasks

![](_page_29_Picture_12.jpeg)

#### **Proactive PDD use:**

![](_page_30_Picture_2.jpeg)

![](_page_30_Picture_3.jpeg)

- Preliminary MSD hazard ID
   Frequent above shoulder work with cordless gun up to 185 cm
  - Forward reaching up to 70 cm
  - Tool weighing 4.5 kg

- Prioritize tasks for improvement OR in-depth assessment
  - How much above shoulder work is tolerable?
  - Reduce above shoulder work (rebalance, assist arm, automate, etc.)
  - Move items closer
  - Substitute for lighter tool

![](_page_30_Picture_12.jpeg)

- Build a job rotation plan for all assemblers:
  - Rotate jobs with diff demands for diff body areas
- Use to develop POET: above shoulder reaching tasks

![](_page_30_Picture_16.jpeg)

#### **Proactive PDD use:**

![](_page_31_Picture_2.jpeg)

![](_page_31_Picture_3.jpeg)

- Sanitation Worker: Mo Degrass
- Preliminary MSD hazard ID
   Frequent climbing up and down steps
  - Frequent lifting / throwing garbage bags 5-23 kg
  - Potential for twisting/ pivoting of the knee while getting up/down and collecting garbage

- Prioritize tasks for improvement OR in-depth assessment
  - Assess steps for improvement
  - Investigate process improvements
  - Training for mount/dismount
  - Stretching/warm-up program

![](_page_31_Picture_13.jpeg)

- Build a job rotation plan:
  - Consider alternating routes with higher vs. lower collection density
  - Consider routes of heavy single family home area vs. townhouse complex areas
- Use to develop POET protocol: including lifting, climbing steps

![](_page_31_Picture_18.jpeg)

## Good Vs. Not So Good PDD

![](_page_32_Figure_1.jpeg)

#### **Summary**

- 1. A PDD is detailed, objective description of the required physical demands of a job, quantifying physical, cognitive, environmental demands.
- PDD is an important part of the RTW toolbox, but there are many uses of PDD's in both the reactive and proactive realms
- 3. PDD's done right can reduce costs, time, and stress!

![](_page_33_Picture_4.jpeg)

#### **Question and Answer**

![](_page_34_Picture_1.jpeg)

https://www.wsps.ca/ergonomics-consulting https://www.wsps.ca/ergonomics

![](_page_34_Picture_3.jpeg)