



JOB DEMANDS ANALYSIS

Company: City of Burnaby

Location: Indoor/Outdoor Pools,
Barnet Beach

Job Title: Lifeguard/Instructor

Classification: Regular Duty

Purpose of Activities

The Lifeguard/Instructor is responsible for guarding patrons in the pool, on the pool deck or the beach; instructing swimming lessons for patrons of all ages in either a group or private setting; regular pool maintenance and first aid and patient rescue in the facilities in which they work. Testing and monitoring of pool chemicals may be required at some pools.

Tools and Equipment

The Lifeguard/Instructor will regularly use the following tools and equipment to perform their duties:

- Clothing – shorts, t-shirt, sweat shirt, whistle, non-slip footwear, long pants
- First aid kit, backboard, fanny pack with barrier mask and rubber gloves
- Floatation devices (flutter boards, foam dumb bells, foam tubes, life jackets, etc.)
- Mop and bucket, water hose and squeegee, disinfectant, brooms
- Paper, pencil, participant evaluations
- Small hand tools (outdoor pool, beach)
- Pogo (garbage picker, outdoor pools and beach)
- Pool test reagents and pool chemicals (Bonsar, C.G. Brown and outdoor pools)

Usual Methods

Lifeguard

The Lifeguard/Instructor will rotate through Lifeguard Stations on the pool deck or beach during the course of the shift. The Lifeguard/Instructor will perform a standing or walking patrol. The standing patrol involves standing at a particular Lifeguard Station or roving on the pool deck or beach and scanning the pool, pool deck or beach for patrons that require assistance. This assistance can include verbal communication (no running, no horseplay, etc.), administering first aid and/or performing a rescue of a conscious or unconscious patient. A walking patrol will involve scanning the bottom of the pool, beach, sauna, etc., while walking from one Lifeguard Station to another or between Lifeguard Stations.

Swim Instruction

The Lifeguard/Instructor will teach group or private swimming lessons during the course of a shift. The groups may range in size from one to fifteen patrons depending on their age and



skill. Swim Instruction may be provided for small children, adolescents, teens, adults and seniors. The Lifeguard/Instructor will spend most of the instructional time in the water with the group. Several lessons may be taught back to back before the Lifeguard/Instructor receives a break from swim instruction.

Pool Maintenance

During the course of a shift, when not guarding or providing swim instruction, the Lifeguard/Instructor is required to perform pool maintenance duties and in some instances perform water quality tests, add chemicals (chlorine gas, granular chlorine, Diatomaceous Earth, etc.) to the water and fill slurry tanks. These duties may involve disinfecting and hosing down the locker rooms, shower stalls and washroom facilities; clean and stack chairs and tables on the pool deck; empty garbage containers and/or any other tasks that are considered pool maintenance. The Outdoor Pools do not have Pool Janitors. The Pool Janitor may not be available during open hours at the indoor pools. See Physical Job Demands Analysis for the Pool Janitor for more information.

First Aid and Rescue

The Lifeguard/Instructor is required to attend minor and major first aid and rescue situations in the pool, at the beach and in the indoor pool building (locker room, sauna, fitness area or the lobby). The Lifeguard/Instructor is typically responding to an unknown situation where the patient may be conscious or unconscious and in or out of the water. The Lifeguard/Instructor will take charge of the situation until the patient is treated (minor first aid) or Emergency Medical Services arrives (major injury or rescue).

The presence of ** indicates non-value added tasks. These are tasks that do not contribute to the stated purpose of the work.

Administrative Issues

The Lifeguard/Instructor works a variety of shifts that range from two to eight hours in length. The Lifeguard/Instructor receives a ten-minute rest period after three hours of work and a 30-minute unpaid lunch break after five consecutive hours of work. The Lifeguard/Instructors rotate their duties between guarding (15-75 minutes at one station), instructing lessons (30-90 minute lessons) and pool maintenance. There is one Lifeguard/Instructor for approximately every 60 patrons in the pool. All Lifeguards must have successfully completed the requirements of the National Lifeguard Service (NLS), hold a current CPR-C Basic Rescuer certificate, have first aid training, hold a Water Safety and Lifesaving Instructor Certificate and be a minimum of 16 years of age.

The Lifeguard/Instructor, as part of NLS training, is required to meet four physical standards before NLS certification is awarded. They four physical requirements are:

1. Retrieve a 9.1-kg (20-lbs.) dead weight from the bottom of the pool and bring it to the surface. The 9.1-kg (20-lbs.) deadweight in the water is equivalent to a 91-kg (200-lbs.) person on dry land.
2. Perform a supportive "Pia Carry" for ten-metres on a person of equal size and weight to the Lifeguard/Instructor.



3. Remove a person of equal size and weight to the Lifeguard/Instructor from the pool to the pool deck.
4. Demonstrate competent “ABC” management (airway, breathing and circulation).

Activity Demand Variables

These variables are tasks that must be carried out by the employee and are implicitly or explicitly required as objectives of the job.

- Visually scan the pool and pool deck for patrons requiring assistance
- Perform a walking patrol of the pool deck, sauna area, and change rooms on a regular basis
- Perform minor and major first aid on patrons including CPR
- Perform a rescue of any patron in the facility whilst maintaining personal safety
- Teach group and private swim lessons
- Stand in pool water (28-29 deg. C.) for extended periods (up to two hours) during swim instruction
- Crouch and lift (to pool deck from the water) children during swim instruction
- Support children and adults during front and back floating drills during swim instruction
- Perform regular pool maintenance duties
- Stand and walk on concrete pool deck or sand beach
- Perform required duties for specific time rotation
- Communicate with public during guarding, swim instruction and public complaints

Worker Decision Variables

These variables are the sub-routines and cognitive/physical decisions made by the worker in carrying out the objectives of the job.

- Choice of foot wear will contribute to the risk of slip and fall injuries on the pool deck and in the change rooms
- Maintain a minimum level of fitness away from work that will provide an adequate fitness level (aerobic, anaerobic, range of motion, muscular strength and muscular endurance) to perform this job safely and effectively
- Perform walking or standing patrol at designated station
- Body posture while performing a standing or walking patrol

Accommodative Considerations

1. Lifeguard/Instructor must be a minimum of 16 years old and hold a valid NLS certification with first aid and CPR-C Basic Rescuer training.
2. People with injuries to the spine, in any region, may have difficulty with the static and dynamic movements to perform the duties of this position, specifically during swim instruction and patient rescue.
3. Individuals who do not cope in open low-autonomy work environments would have difficulty with this position.
4. People who can not maintain focus and attention for prolonged periods of time will have difficulty with the Lifeguard aspect of this position.
- 5.

Prepared By: Jeffrey J. McGinn, Kinesiologist

February 11, 1999



Summary of Stresses

Metabolic Stresses

The aerobic energy systems will be the major source of energy requirement while performing the duties and responsibilities of the Lifeguard/Instructor. This energy system will be required to maintain the low level energy requirements necessary for guarding, instructing lessons, first aid and pool maintenance. The anaerobic energy systems may be required to supply energy for brief intense periods of that may occur in the event of a patient rescue situation.

Structural Stresses

Spine – the static and dynamic nature of this position will require concentric, static and eccentric muscle contractions of the cervical, thoracic and lumbar spine in flexion, extension, lateral flexion and rotation. Typically, these movements will be performed during swim instruction, pool maintenance, first aid and rescue situations. The spine is also at risk for injury due to the passive postures adopted by the Lifeguard/Instructor while standing on the pool deck. These passive postures promote spinal ligament creep and decrease the stability of the spine. This can also contribute to disc integrity problems as well as decondition the torso support musculature. In the event of an emergency response, the Lifeguard/Instructor has increased her risk for incurring a spine injury

Shoulders and Upper Extremity– will be taxed during the dynamic and static movements required during swim instruction, pool maintenance, first aid and rescue situations.

Hips and Lower Extremities – will be taxed in the many dynamic movements associated with walking, standing, climbing in and out of the pool, while performing pool maintenance, first aid and in rescue situations. The Lifeguard/instructor will stand and walk on the concrete pool deck, in the pool and in the locker facilities. During the summer, the Lifeguard/Instructor may be required to perform duties in the sand at Barnet Beach. The concrete pool decks dramatically increase the forces transferred up through the ankles, knees and hips into the Lifeguard/Instructors spine, which will increase the pressure on the intravertebral discs and associated structures of the spine.

INTERVENTIONS

Recommendations that could be implemented to increase productivity and lessen the risk of injury are listed below:

1. Teach postural awareness sessions that will focus on the importance of proper body posture and how it relates to ultimate physical comfort and fatigue level.
2. Investigate a non-slip footwear that is lightweight, will not impede a rescue nor cause skin irritation or allergic reaction from prolonged use.
3. Increase the frequency of guarding rotations (30 minutes maximum at a station). This will likely decrease the physical and mental fatigue reported during periods of prolonged standing on the concrete pool deck and improve visual attention while guarding.



4. Investigate the use of a small footstool like device on the pool deck for the Lifeguard/Instructors to use while standing at a station. This device will allow the Lifeguard/instructor to change standing positions frequently and unload the spine (one foot on the device with the other foot on the concrete pool deck). It will be extremely important to ensure that this device is not a hazard to the pool patrons. It could be made from the same or similar material as the flutter boards, tubes, etc.
5. Encourage the Lifeguard/Instructors to maintain an increased level of fitness away from work that will focus on cardiovascular endurance, muscular strength, muscular endurance and flexibility.

Referral: Lana Ho			Organization: City of Burnaby							Title: Lifeguard/Instructor	
Dept.: Park, Rec & Cultural Services			Division: Recreation							Contact:	
PHYSICAL DEMANDS			R E Q D E	S I D E	FREQUENCY*				Max. Weight (kg)	Usual Weight (kg)	Date: February 4, 1999
					Sel 1	Low 2	Mod 3	High 4			
S T R E N G T H	Lifting - Floor to Knuckle	X	Dom		X			100	>1-3	pool maint..., first aid, rescue victim	
	Lifting - Knuckle to Waist	X	Dom			X		100	<1-3	pool maint..., first aid, rescue victim	
	Lifting - Waist to Shoulder	X	Dom	X				10	<1-3	support patron in pool during lesson	
	Lifting - Over Head										
	Carrying - With Handles	X	Dom	X				100	<1-3	first aid kit, back board, victim	
	Carrying - Without Handles	X	Dom			X		100	<1-3	pool maint.. Equip., unconscious victim	
	Pushing - Upper Extremity	X	Dom			X		10	<1-3	pool maint.. Swim stroke, chest comp	
	Pushing - Hip/Leg Assist	X	Dom			X		10	<1-3	poll maint.. Swim stroke, chest comp	
	Pulling - Upper Extremity	X	Dom			X		10	<1-3	pool maint..., swim strike, victim	
	Pulling - Hip/Leg Assist	X	Dom			X		10	<1-3	pool maint..., swim stroke, victim	
	Reach - Shoulder or Above	X	Dom		X			10	<1-3	support patron in water during lesson	
	Reach - Sho. or Above extnd										
	Reach - Below Shoulder	X				X		100	<1-3	pool maint..., first aid, victim	
	Reach - Bel. Shoulder extnd	X		X				100	<1-3	rescue victim	
	Handling	X				X		100	<1-3	pool maint.. patrons, first aid, victim	
E N E R G Y	Gripping	X			X		35	<1-5	pool maint.. Equip, first aid, victim		
	Fine Finger Movements	X				X	max.	low	hand signals, first aid, finger sweep		
	Aerobic (percent)	X				90	guard/instruct pool maintenance, low level requirement				
	Anaerobic (percent)	X		10			rescue victim, heavy lift				
	High Energy Expenditure	X		X			rescue victim, heavy lift				
	Low Energy Expenditure	X				X	guard/instruct, pool maintenance, low level requirement				
	Neck - Static Flexion	X									
	Neck - Static Neutral	X					X	walking patrol, scan pool, pool maintenance, first aid			
	Neck - Static Extension	X			X			during instruction from water to deck			
	Neck - Rotation	X	L/R				X	scan pool while guarding, instruction/pool maint., rescue			
	Throwing	X	Dom	X				throw conscious victim line, pfd, etc,			
	Sitting				X			may sit in guard chair at some pools			
	Standing	X					X	while guarding, during instruction in pool, pool maint..			
	Walking	X					X	walking patrol, pool maintenance, instruction, first aid			
	Running/Jumping			X				possibly during rescue			
M O B I L I T Y	Climbing - Arms and Legs	X			X			in and out of pool at side or using ladder			
	Climbing - Legs Only							in and out of pool			
	Bending/Stooping	X					X	instruction to patrons, pool maintenance, rescue			
	Crouching	X				X		instruction to patrons, pool maintenance, rescue			
	Kneeling	X			X			instruction to patrons, pool maintenance, rescue			
	Crawling										
	Twisting	X				X		instruction, rescue, first aid, pool maintenance			
	Balancing	X			X			at pool edge			
	Traveling										
	Work Alone	X			X			on deck alone at times, in building with others			
	Interact with Public	X					X	guarding, lessons, young children to seniors			
	Operate Equip/Machinery										
	Irregular/Extended Hours	X					X	2-8 hour shifts depending on location and job function			

* Frequency Legend 1 = Seldom; Not Daily 2 = Low Daily Activity; < 1hr
 3 = Moderate Demand; Repetition 1 - 3 hrs daily 4 = High Frequency Demand; Repetition > 3 hrs daily
 The following shading denotes a HIGH RISK TASK: Modifications should be considered

REQD is marked with an X if the particular demand or category is relevant to the purpose of the job.

SIDE refers to the side or limb required to execute a task. If it is marked **E**, it indicates either side, the most common choice is listed first. **D** refers to dominant and **B** to both sides.

Referral:		Organization:				Title: see 1st page header			
Dept.:		Division:				Contact:			
PHYSICAL DEMANDS		R E Q D	S I D E	FREQUENCY*				COMMENTS	
				Sel. 1	Low 2	Mod. 3	High 4		
P E R C E P T I O N	Hearing - Conversations	X				X	coworkers, public		
	Hearing - Other Sounds	X				X	chlorine, ozone alarms, overhead P.A.		
	Vision - Far	X				X	scan pool and pool deck, instruction, pool maint., rescue		
	Vision - Near								
	Vision - Colour	X				X	chlorine, ozone alarms, water testing, victim identification		
	Vision - Depth	X				X	scan pool/pool deck, pool maintenance, rescue		
	Perception - Spatial	X				X	walking patrol, scan pool&deck, pool maint., rescue		
	Perception - Form	X				X	patron recognition for instruction/guarding, alarms		
	Feeling (Tactile)	X				X	pool maint., first aid, instruction		
	Reading	X		X			NLS material, city SOP's		
W O R K E N V I R O N M E N T	Writing	X		X			NLS exams		
	Speech	X				X	patrons and coworkers		
	Inside Work	X				X	in pool building		
	Outside Work	X		X			outdoor pool, beach		
	Hot Conditions >25 deg. C	X				X	on indoor pool deck		
	Cold Conditions <10 deg.C	X		X			possibly when working at outdoor pool or beach		
	Humid	X				X	on pool deck 65% humidity		
	Dust								
	Vapor Fumes	X		X			chlorine or ozone gas leaks		
	Hazardous Machines								
E N V I R O N M E N T	Proximity to Moving Object	X				X	children, adults during instruction and while guarding		
	Noise	X				X	on pool deck, locker rooms		
	Electrical Hazard								
	Sharp Tools								
	Radiant/Thermal Energy	X		X			sun at outdoor pools and beach		
	Slippery Conditions	X				X	on pool deck and in locker rooms		
	Vibration and Related								
	Chemical Irritants	X				X	chlorine gas and ozone leak risk at pool		
	Organic Substances	X				X	feces, urine in the pools		
	Medical Waste								
T	Blood Products	X		X			first aid, rescue		
	Congested Worksite	X				X	peak times at pools		
	Lighting - Direct	X				X	sunlight, overhead lights		
	Lighting - Indirect	X				X	sunlight, overhead lights		
	Lighting - Adjustable								
	Lighting - Fluorescent								
	Lighting - Incandescent								
	Lighting - Shadows etc.	X				X	depends on time of day and pool location		

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For detailed descriptions of each of the different categories, please refer to the reference guide or inquire with Human Effort at 1-888-4EFFORT