



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

Lifeguard 2 is a more senior position that requires all of the above with more supervisory and administrative activity.

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 (reacting to crisis)
- Perform a rescue of any patron in the facility while 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
- Climb stairs and inside slides
- Perform required duties for specific time rotation
- Communicate with public during guarding, swim instruction and public complaints (often reactive)

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
- Approaches to retrieving a victim (can be limited in some circumstances)



- Order of some activities (especially maintenance and cleaning)
- Posture and technique when handling equipment or moving the bulkhead

Accommodative Considerations

1. Lifeguard 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 and related structures, 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 as well as some lifting and pulling activities.
3. Due to the unpredictable nature of rescues, individuals with a variety of joint and muscle issues may be challenged by the more extreme elements of the job.
4. Persons with significant shoulder difficulties will be challenged by the pushing, pulling and lifting in this job since much of it is awkward.
5. Individuals with lower extremity problems may have difficulty with the extensive standing and walking in this job.
6. Individuals who do not cope in open low-autonomy work environments would have difficulty with this position.
7. People who can not maintain focus and attention for prolonged periods of time will have difficulty with the Lifeguard aspect of this position.
8. People who have difficulty with large crowds and noisy, chaotic environments will have difficulty with this job.
9. People who are uncomfortable with high consequences of error may have difficulty with this job.
10. People with a fear of water or heights will have difficulty with this job.

Prepared By: Greg Hart, Kinesiologist

January 20, 2003



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. 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 or a heavy lift.

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, equipment movement, first aid and rescue situations. The spine is also at risk for injury due to the passive postures adopted by the Lifeguard while standing on the pool deck. These passive postures promote spinal ligament creep and may contribute to decreased motor control and muscular stability of the spine in high load activities. This can also contribute to disc integrity problems as well as deconditioning of the torso support musculature.

Shoulders and Upper Extremity– will be taxed during the dynamic and static movements required during swim instruction, pool maintenance, first aid and rescue situations. This is especially true for movements that require either high force or sustained low level force with the arms away from the body.

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 will stand and walk on the concrete pool deck, in the pool and in the locker facilities.. The concrete pool decks reflect the vast majority of ground reaction force back into the body through the feet, increasing the forces transferred up through the ankles, knees and hips into the Lifeguards 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. Teach technique for equipment removal and installation. For example, ensuring that the bulkhead is properly balanced before it is moved and that the appropriate postures are maintained throughout the move.



3. Investigate the use of a small footstool like device on the pool deck for the Lifeguards to use while standing at a station. This device will allow the Lifeguard 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.
4. Encourage the Lifeguards to maintain an increased level of fitness away from work that will focus on cardiovascular endurance, muscular strength, muscular endurance and flexibility.