



LOOKING AHEAD WITH PROPER EYE IRRIGATION

By Rob Wolff, MD



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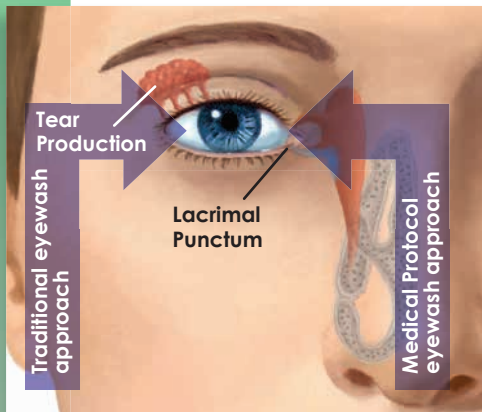
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Workplace safety is a growing concern to employers. Stringent regulation, increased employee health education and awareness have led to advancements in processes, safety procedures and first-aid protocols to better treat the injured. This movement has had a profound impact on the emergency equipment industry.

A prime example of these advancements is the eyewash. During the first half of the 20th century, the commercial eyewash was invented. Urban legend has it that an industrial plant manager devised the first "steady stream" eyewash by adapting two drinking fountain bubbler heads and valves mounted to opposing sides of a sink. When activated, the streams formed a double arch that aimed water from the outer perimeter of the sink to its center. An injured victim could place their face into the double streams and irrigate both eyes simultaneously. It was a great concept and it took the safety industry to a new level over the ensuing half century. There was, however, one limitation to this early prototype. Irrigating with streams that contact the eye at its outer canthus, or corner, and flow inward toward the nose is diametrically opposed to the way we healthcare professionals irrigate eyes!

THE STEADY STREAM EYEWASH

was first devised by adapting two drinking fountain bubblers and valves mounted to opposite sides of a sink.



THE LACRIMAL SYSTEM

To comprehend the logic behind the medical community's approach to eye contamination situations requires a passing understanding of the eye's lacrimal system. The human eye is equipped with an automatic lubricating and cleansing mechanism called the lacrimal system. It consists of the lacrimal gland, which produces tears, the ducts that channel tears from the lacrimal gland to the ocular surface and the lacrimal puncta, which are drains that channel excess fluids out of the ocular surface. Importantly, the lacrimal puncta drain excess fluids directly into the nasal cavity. This process is the reason your nose runs when you cry.

The eyelid also plays a key role. As we blink, the eyelid wipes the cornea and pushes contaminants and excess fluids toward the lacrimal puncta, or the ocular surface's drains. If a hazardous material is introduced into the eye, nature's own cleansing mechanism can serve to force the contaminant into the nasal cavity, where it can be passed into the lungs or swallowed. Clearly, this is not ideal for any victim.

MEDICALLY ACCEPTED EYE IRRIGATION

Accordingly, the medical profession teaches and practices eye irrigation by introducing the flushing fluid at the inner corner of the eye – adjacent to the nose – and letting it run across the eye to the outer edge. In effect, we irrigate by moving the fluid away from the lacrimal puncta. This is opposite the flow direction of traditional plumbed-in eyewash products. Pushing contaminants toward the nose not only risks introducing them into the nasal cavity, but can also introduce the same contaminant into the other eye.



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The best method of irrigating eyes in a commercial or industrial setting is to use plumbed-in products that mirror approved medical protocols. Inverted eyewash streams versus the traditional eyewash contact the eyes at the inner canthus, adjacent to the bridge of the nose. Contaminants are thus swept to the outer edge of the eye and then into the eyewash bowl.

THE BEST METHOD of irrigating eyes is to use plumbed-in products that mirror approved medical protocols, by sweeping contaminants to the outer edge of the eye.

LAMINAR FLOW is an absence of turbulence in the flushing stream, providing an even and comfortable flushing process.

LAMINAR FLOW EYEWASHES

The use of laminar flow design in the eyewash streams is another great idea. A laminar flow is one in which there is an absence of turbulence, because the stream is "built" in layers. Turbulence or inconsistencies in the flow stream can strike the eye as a change in total pressure, making the victim much less comfortable during the flushing process. The best approach is to provide an even, comfortable, predictable stream height and circumference. This can be accomplished using laminar design principles.

Times are changing, as are the protocols and practices of emergency equipment providers. Irrigating eyes in a manner that is consistent with medical procedures is not only the right thing to do, it shows consideration of an employee's comfort and safety.

AXION MSR – Medically Superior Response®

The AXION MSR eye/face wash uses an inverted stream design which sweeps chemical and particulate contaminants away from the lacrimal punctum, consistent with medical irrigation protocols.

Additional features that set AXION MSR apart from any other eyewash on the market:

- **LAMINAR FLOW FOR GREATER STREAM CONSISTENCY**
Laminar flow creates an even, comfortable, predictable stream height and circumference in the eyewash streams due to the absence of turbulence, as the stream is "built" in layers.
- **"ZERO VERTICAL VELOCITY" ENGINEERING**
AXION MSR eyewash streams are almost vertically oriented, causing them to "stall" at a prescribed height. This action causes a slight puddling of the flow in midair and occurs at the optimal contact point with the eye, making for a more pleasant and effective irrigation experience.

Rob Wolff, MD, is a Board Certified ophthalmologist and principal of the Sierra Nevada Eye Center, Ltd. He received his medical degree from Vanderbilt University and completed his ophthalmology training at the University of Minnesota, during which time he received the prestigious Minnesota Sight and Hearing Association Research Award.

