



Healthy Swimming Pools – Frequently Asked Questions

1. *Can I get sick from using a swimming pool?*

Yes. Recreational water illnesses (RWIs) can be spread by swallowing, breathing, or having contact with contaminated water from swimming pools, spas, lakes, rivers, or oceans. Although swimming pools are treated to protect swimmers, contaminated water can still spread illnesses. RWIs cause a wide variety of symptoms, including skin, ear, respiratory, eye, and wound infections. The most commonly reported RWI is diarrhea, which can be caused by germs such as *Cryptosporidium*, *Giardia*, *E. coli* and *Shigella*. The U.S. Centers for Disease Control and Prevention (CDC) report that the number of RWI outbreaks has increased over the past decade. The CDC also warns that children, pregnant women and people with compromised immune systems are particularly at risk of more severe illness if infected.

However, both pool operators and swimmers can help maintain healthy water conditions with proper treatment and healthy swimming behaviors. Learn how in the answers below.

2. *What can I do to help decide if a pool is “healthy” before I take a swim?*

Use your sense of sight, touch, smell, sound -- and your common sense too:

- **Sight:** Pool water should look clean, clear and blue – free from algae and unclouded. From the perimeter of the pool, you should be able to clearly see the drain or painted stripes on the pool floor. Also, look for drainage grills at the top of pool walls. Water should be constantly lapping over the grills to be filtered.
- **Touch:** The sides of the pool should be smooth, not slippery or sticky. A hand full or scoop of water should disperse quickly and not stick to your hands.
- **Smell:** Chlorine does not have a strong “chlorine” smell in a healthy pool. Strong chemical odors are caused by the presence of *chloramines*, and indicate an unhealthy pool. Chloramines form when chlorine combines with perspiration, urine, saliva, feces, body oils, lotions and other wastes introduced into pools by swimmers.



Chloramines are less effective for killing germs, and high levels may cause skin, eye, or respiratory irritation. Surprisingly, the pool may actually need additional chlorine treatment to get rid of chloramines and sanitize the water.

- **Sound:** The sound of pool cleaning equipment is the sound of an active pool maintenance program. Properly operating pumps make sure that clean, chlorinated water reaches all parts of the pool, while filters physically remove debris.
- **Common Sense:** Protect others. Do not swim if you are ill with diarrhea. Be a good consumer. Report problems to the pool manager. Ask to see the pool's maintenance records. You have a right to know how often the water is being checked and if chlorine levels and pH are being properly maintained. Contact your local health department, if problems persist.

3. How can I protect myself and other swimmers?

Healthy swimming behaviors help prevent germs from contaminating the water in the first place. To protect yourself, your children and other swimmers from RWIs, follow these six recommendations from the CDC:

- Don't swim when you have diarrhea. This is especially important for kids in diapers.
- Don't swallow the pool water. In fact, try to avoid getting it in your mouth at all.
- Take a shower before swimming and wash your hands after using the toilets or changing diapers.
- Take your kids on bathroom breaks or check diapers often. Waiting to hear "I have to go" may mean that it's too late.
- Change diapers in a bathroom and not at poolside. Germs can spread to surfaces and objects in and around the pool.
- Wash your child thoroughly (especially the rear end) with soap and water before swimming.



4. How do pool operators keep a swimming pool healthy?

Chlorine and pH are the first defense against germs that can make swimmers sick. Swimming pool operators should vigilantly monitor chlorine levels and pH, and make adjustments accordingly. The chlorine level in a pool should ideally be maintained between 2 and 4 parts per million (ppm), and should never fall below 1 ppm. The pH should be maintained between 7.2 and 7.8. Many states require public pools to be tested hourly, while home pools should be tested at least daily.

Occasionally, when chloramine levels are high (see the explanation of chloramines in #2 above), your pool operator should perform a “shock treatment.” Shock treatment adds a larger than normal amount of oxidizing chemicals to destroy chloramines and organic contaminants in pool water. A chlorine-based shock treatment also destroys disease-causing germs and leaves a chlorine “residual” for continued cleaning. The need for shock treatments will vary depending on how heavily the pool is being used.

The pool manager should also educate staff and swimmers about recreational water illnesses and develop policies concerning showering, restroom use and diaper changing that promote healthy swimming behaviors.

5. Does chlorine prevent all recreational water illnesses?

Chlorine in swimming pools kills the germs that may make people sick, but it takes time. While chlorine in properly disinfected pools kills most germs that cause RWIs within minutes, it takes longer to kill some germs such as *Cryptosporidium* that can survive for days in even a properly disinfected pool. Also, many things can reduce chlorine levels in pool water. Some examples are sunlight, dirt, debris, and material from swimmer’s bodies.

Healthy swimming behaviors and good hygiene are needed to protect you and your family from RWIs and will help stop germs from getting in the pool.



6. What causes “chlorine” odor, red eyes and itchy skin?

These unpleasant conditions indicate that the pool water has not been properly treated. A common cause of eye and skin irritation is high chloramine levels. As discussed above, a strong chemical odor is a clear signal that chloramine levels are too high and that “shock treatment” may be needed.

Another important factor for swimmer comfort is the pH of the water. A swimmer’s body has a pH between 7.2 and 7.8. If the pool water isn’t kept in this range then swimmers will start to feel irritation of their eyes and skin. In addition, the germ-killing power of chlorine varies with pH. As contaminants enter the pool, pH goes up and the ability of chlorine to kill germs goes down. Keeping the pH in the proper range will balance chlorine’s germ-killing power while minimizing skin and eye irritation.

Skin irritation can also be caused by germs. These skin infections (dermatitis) are caused by the germ *Pseudomonas aeruginosa*. Infection can cause a bumpy red rash that usually appears within a few days of swimming in contaminated water. Proper pool maintenance is likely to control the spread of dermatitis.

7. Is chlorine safe for swimming pools?

Yes. Chlorine sanitizers have been used safely and successfully as pool and spa disinfectants for over a century. The majority of public pools and 9 out of 10 residential pools are sanitized with chlorine. Chlorine sanitizers are safe when used according to package directions approved by the U.S. Environmental Protection Agency.

Chlorine levels within the recommended range for swimming pool water do not pose any known health risks. As discussed above, high levels of *chloramines* (formed when chlorine combines with contaminants introduced by swimmers) can irritate eyes and skin. In indoor pools, excessive chloramine levels in the air may also cause respiratory irritation. However, sound indoor pool management with adequate chlorination and proper air ventilation plus healthy swimming behaviors will significantly lower chloramine levels. Most medical experts agree that swimming is a healthy form of exercise for children and adults.



8. What should I be asking my pool operator?

A few basic questions to ask are:

1. What specialized training was taken to prepare the operator and staff for running the pool?
2. How often are the chlorine and pH levels checked?
3. Are these levels checked during the time when the pool is most heavily used?
4. Most health departments inspect pools -- What was the health inspector's grade for the pool in its last inspection?

Be proactive with just a few easy steps.

- Learn about recreational water illnesses and make sure your operator knows, too.
- Ask that pool management spread the word about RWIs to the pool staff and to pool users.
- Let your pool operator know that the health and well being of all swimmers is a priority.

9. How can I learn more about swimming pool health and safety?

Swimmers, pool operators and public health officials can learn a wealth of information geared to their specific interests from:

CDC's Healthy Swimming web site:

<http://www.cdc.gov/healthyswimming/index.htm>

The National Spa and Pool Institute:

<http://www.nspi.org/>