HEALTHY POOLS

Harold Brown an experienced pool technician led this session into discussing the proper way to care for pools. He began with a wonderful short pool quiz to test the knowledge of the audience. After going over the short quiz, Mr. Brown proceeded to discussing the three elements of a Health Pool, which are circulation, filtration and disinfection. A circulation system provides the means of cleaning the pool water and distributing water treatment chemicals. For a good filtration system, there are two requirements, proper sizing and proper cleaning. He also discussed the reason for floor drains and the different types of filtration system requirements and the proper ways to clean different systems. He illustrated the possible factors in choosing the right type of filtration system based on the facility and monetary regulations. Disinfecting agents are discussed were chlorine, bromine and UV. He also defined different types of disinfecting agents and their advantages and disadvantages, which included price and efficiency.
Healthy Pools
Just What the Doctor Ordered

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Pool Knowledge Quiz  (True or False)

1. Samples taken from two different places in a pool will not differ more than 0.2 ppm.
2. The proper water level in a pool is ¼” below the gutter.
3. The sand in sand filters should always be changed every 5 or 6 years.
4. 10 ppm chlorine in a pool will kill all germs within 24 hours.
5. When testing for chlorine with a DPD test kit, a clear sample always indicates no chlorine in the water.
6. Proper pH in a pool is necessary for good disinfection.
Elements of a Health Pool

1. Circulation
2. Filtration
3. Disinfection
Circulation System

Provides the means of cleaning the pool water and distributing water treatment chemicals.

- Commonly use centrifugal pumps

1. Samples taken from two different places in a pool will not differ more than 0.2 ppm.  
   False

1. Samples taken from two different places in a pool will normally not differ more than 0.2 ppm.  
   False
Surface skimming removes floating debris and stale water.
- At least 50% of water should come from the surface
- Proper water level is essential

- Two basic types of surface collection systems
  - Skimmers
  - Perimeter Gutters
Skimmer Operation
2. The proper water level in a pool is ¼” below the gutter. False
Circulation System – Floor Drain

Floor drains remove heavy particles from the pool floor. Flow through main drains must be controlled for optimum circulation.

Surge or Balance Tank Diagram
Filtration

Requirements for good filtration

• **Proper sizing**
  – Manufacturer data usually gives maximum flow rate, for commercial applications use 50% to 75% of max.
  – Match filter with pump

• **Proper Cleaning**
  – Sand: adequate backwash rate
  – DE: adequate amounts of filter media
  – Cartridge: proper replacement cycle
3. The sand in sand filters should always be changed every 5 or 6 years. False
Filter Selection

Filter types
- Pressure sand
- Vacuum sand
- Pressure DE
- Vacuum DE
- Pressure perlite
- Cartridge

Selection Factors
- Space requirements
- Media cost
- Labor for cleaning
- Labor for media replacement
- Handling and disposal of media
- Energy use
- Water loss
- Purchase cost
Filter Selection Example

Space Requirements for Regenerative Media Filters vs. Sand Filters

1 reg. media filter = 4 sand filters
Disinfection

- Disinfecting agents
  - Chlorine
    - Provides residual disinfection in the pool
    - Slow to kill crypto (1500 contact time)
    - Produces Oxidation by-products
  - Bromine
    - Works same as chlorine but weaker oxidizer
  - UV
    - Disables all dangerous pool bacteria and most viruses
    - Reduces oxidation by-products
    - Provides no residual disinfectant in pool

4. 10 ppm chlorine in a pool will kill all germs within 24 hours. False
Full Flow UV System

Disinfection time is dependent on circulation rate.
Disinfection

Testing pool water
- DPD liquid reagents have a short shelf life, check them every time you test your pool
- DPD reagents give false readings with high chlorine levels
- pH reagents give false readings with high chlorine levels

5. When testing for chlorine with a DPD test kit, a clear sample always indicates no chlorine in the water. **False**
Disinfection

Factors that diminish disinfection in your pool

- High levels of chloramines
- High pH
- High levels of stabilizer
- Poor circulation
- Dirty filters

6. Proper pH in a pool is necessary for good disinfection. True