

A REVIEW OF HYGIENIC MAINTENANCE TECHNIQUES IN FLOAT SPAS ACROSS CANADA

BACKGROUND

Float spas are places that contain sensory deprivation chambers or float pods/rooms/tanks that are filled with water, and around 450-700 kg of salt (figure 1). It gives its users the ability to float, relax, adjust the body, and destress. The chambers were invented in the 50s, slowly gaining popularity and in the 80s dropping out of favour due to the AIDS crisis. However, that was thirty years ago and this relaxation tool is getting more popular than ever. This rise in popularity, the encouragement of vulnerable populations (pregnant women) to use the float pods, and lack of legislation and regulatory enforcement for most of Canada poses a unique public health problem.

PURPOSE

The purpose of this study was to examine different hygienic maintenance techniques in Float Spas across Canada. The comparison was made between the techniques employed at the Float Spas and legislation, studies, and other evidence based research to determine if techniques were efficient and reliable enough to prevent potential outbreaks and infections.

METHODOLOGY

Preliminary Search

Search engine Google was used to locate and examine the practices at fifty 'Float Spas' across Canada. The keywords that were used to find the places were 'Float Spa' followed by the name of the province being examined at the time. The provinces that were looked at were: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia, New Brunswick, and Quebec. Once a location was identified it was cross-referenced two to three times, depending on the province to determine if the places were still in fact operational, that their address was in fact in that province, and in Canada. The second check was on the website itself, under the tab, 'services,' 'FAQ,' or any tab with the word 'floating.' The third check was through the public dissemination of inspection reports for those provinces that inspect float spas regularly such as British Columbia.

Data Gathering

Data on the maintenance of float spas was gathered from mostly from the 'FAQ' tab/section of the websites. The six variables examined were: type of disinfectant used, filters, restrictions to floating (medical or physical), the shower requirements, general maintenance (water testing, cleaning, how often water is changed), and status of use/restriction amongst vulnerable groups such as expecting mothers and children (<16 years of age). Data was compiled on a chart and then tallied up examined to see which practices were the most prominent in Canada. The leading methods were then compared with current legislation, industry practice, and other related studies, to determine if the current practices were satisfactory prevent public health problems.

RESULTS

Table 1: Self-Reported Hygienic Maintenance Techniques from 50 Canadian Float Spas

Hygienic Maintenance Techniques	N	Percentage
Filter		
1 Micron Filter	6	12 %
10 Micron Filter	3	6 %
Micron Filter	1	2 %
Skimmer	4	8 %
Other	7	14 %
Disinfectants		
UV	32	64 %
Ozone	18	36%
Hydrogen Peroxide	16	32 %
Chlorine	3	6 %
Bromine	6	12 %
Epsom Salt Only	6	12 %
Other	10	20 %
Restrictions/Reconsiderations to Floating		
Freshly Shaved/Waxed/Tattooed Skin	27	54 %
Chronic Medical Conditions *1	13	26 %
Open Wounds/ Skin Ailments	15	30 %
Communicable Infections/Viral/Cold	6	12 %
Menstruation	6	12 %
Vulnerable Population		
Restricted use during first term of pregnancy	3	6 %
Restricted use during late term of pregnancy	1	2 %
Facility recommends doctors consultation	22	44 %
Permitted for use of children under age of 16	10	20 %
Shower Requirement	9	18 %
General Maintenance		
Water Testing *2	6	12 %
Weekly Cleaning	2	4 %
Water Changed	3	6 %
10 weeks	2	4 %
6 months+	1	2 %

*1. Chronic Medical Conditions refers to: epilepsy, heart disease, incontinence, asthma, allergies, chronic renal disease/failure, low blood pressure, respiratory issues, diabetes, and, ear, nose, or throat conditions.

*2 Water testing performed: pH, alkaline, water temperature, and gravity

1. The filtration system and the filters are used in combination with each other
2. Chlorine and bromine are the typical chemicals associated with pool, hot tub, and overall recreational water maintenance. Half of the facilities that mentioned using these chemicals were in BC where the use is required by the legislation
3. The restriction or reconsiderations for floating were for the protection of the health of individual floating, and other customers' health following them. The accountability factor for individuals using the tub to not contaminate it was in the form of a fee; this was only mentioned in terms of menstruation and not the other conditions.
4. Pregnant women were heavily encouraged to float, with many facilities stating that it helps relieve back pain that occurs with pregnancy
5. A low number of locations explicitly mentioned the requirement of showering before hand, but in fact all of the locations claimed that they possessed showers, shampoo, and body washes for their customers to use while at the facility; there was no follow up on if, and how they enforce it.
6. Information on general maintenance of float spas such as water testing, cleaning or even water change was sparse; there wasn't any mention of biological, or chemical testing

DISCUSSION

Concerns for Public Health

The popular use of hydrogen peroxide instead of chlorine or bromine is a concern as bacteria can still remain and grow even in the high salinity; ex. *Pseudomonas aeruginosa*: while highly reduced can still remain in high salinity conditions (NSF International, 2015) and *Enterococcus faecium*: high resistance to high salt conditions (NSF International, 2015). Middlesex-London Health Unit tested the water at the float spas in their jurisdiction and the tests found high counts of *Pseudomonas Aeruginosa*, and presumptive *Staphylococcus Aureus* (Quin & Pavletic, 2013). The encouragement of vulnerable populations (pregnant women) to float; they are more susceptible/vulnerable to picking up infections from poorly maintained premises. The lack of consistency in legislation and regulations. BC is one province that has set out consistent and clear guidelines for float spas to follow. Inspection of these float spas is regular, and takes place under their personal service settings legislation (Ministry of Health, 2016). Other provinces' legislation are more vague and open to interpretation; the lack of consistency results in use of hydrogen peroxide over chlorine or bromine for disinfection, and inconsistent water schedules.

Practices to continue

The use of UV (figure 2), and ozone disinfection kills bacteria and maintains hygiene of the water (Public Health Ontario, 2016). Placement of restriction on use for those with open wounds, or communicable diseases prevents the accumulation of bacteria and spread of disease.

Solutions to the concerns for public health

Adding float spas to the legislation and regulation, and enforcing the regulation. Mandatory use of either chlorine or bromine would kill off/inhibit growth of any remaining bacteria in the water that was not killed or inhibited in the filtration process. A more consistent/water changing schedule would allow and give opportunity to clean the pods, and get rid of any remaining growth.

CONCLUSION

Float spas can present a public health risk. Legislation should be updated with clear and concrete expectations for safe float spa operation, followed by proper enforcement to prevent any possible outbreaks or public health concerns. Further research is needed in the form of a survey, as the websites provided limited information.



Figure 1: Float Pod/Chamber

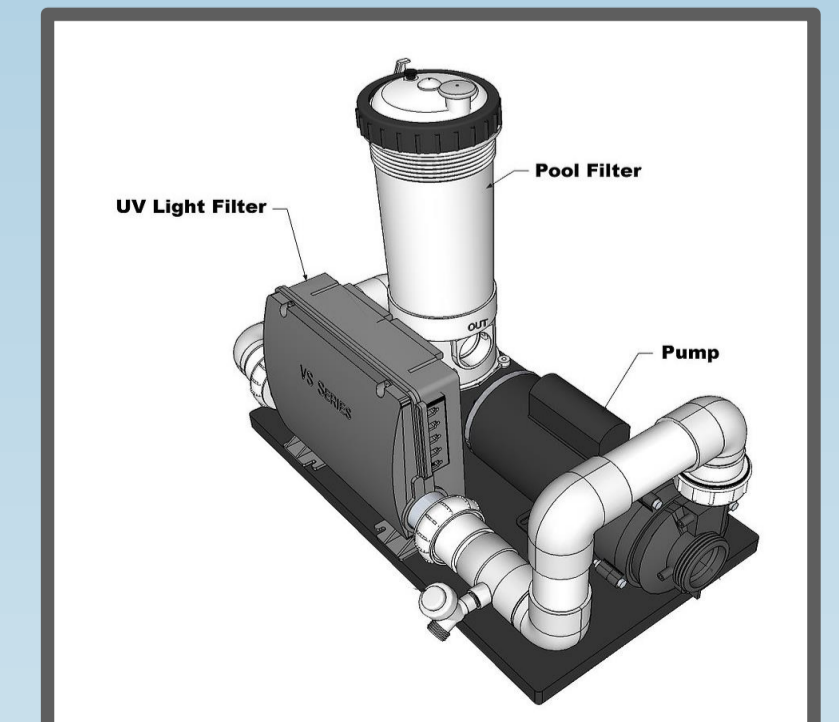


Figure 2: Float Tank Filter

REFERENCES

- Ministry of Health (2016). Guidelines for flotation tanks. *Health Protection Branch-BC*.
Public Health Ontario (2016). Risk of infection in the use of floatation tanks. *Disinfection Digest... Focused on Science*.
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