



# OHIO FAMILY FITNESS CENTER: SURFACE HYGIENE STUDY RESULTS

## Industry Report

### Ohio Family Fitness Center: Surface Hygiene Evaluation Study Results

Recent statistics demonstrate the importance of surface cleaning in reducing the transmission of infectious disease in all commercial facilities, including fitness centers. In fact, in a recent presentation by Dr. Charles Gerba, University of Arizona microbiologist, recreation/gym facilities were included as one of the environments most contaminated with body fluids – with 28 percent of the surfaces testing positive for contamination.<sup>1</sup>

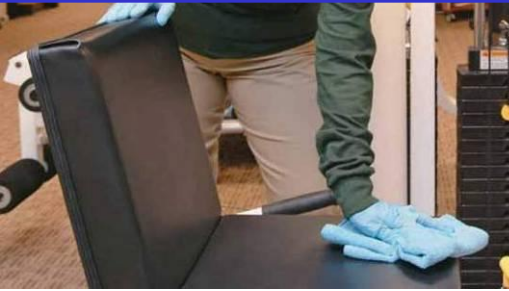
According to the Centers for Disease Control and Prevention, up to 80 percent of all infections can be spread by hand – indirectly through objects touched by an infected person.<sup>2</sup> Because these illness-causing germs may survive on hard surface areas for as long as 72 hours, the proper cleaning of fitness center facilities and equipment is an important component in programs to keep fitness club patrons healthy.

In an Ohio family fitness center, Coverall Health-Based Cleaning System recently undertook a study to determine standard rates of production (cleaning times) for hard surface areas to achieve aseptic cleaning. The study also determined high germ transmission points for surfaces in the fitness center as scientifically measured through ATP readings.

**Facility Overview** – The testing facility utilized in this study is a family fitness center located in Ohio. The physical structure of the test areas encompasses approximately 10,000 square feet and includes a cardio and weight training area, spinning/bike area, locker/restroom area, aerobic room, common areas, and child care areas. The facility also contains furnishings and floor/wall coverings consistent with a modern fitness facility design. Currently, the cleaning protocol for the facility consists of members and some company staff executing cleaning tasks throughout the day in all areas with the exception of the locker room area. Once per night, the locker room areas are cleaned with both traditional cleaning methods and the use of a touch-free cleaning machine. The subjective perception of the facility overall indicates that it is fairly well maintained, but there are concerns with the aesthetic appearance of cleanliness in some areas during periods of high volume usage.

**ATP Testing Methodology** – From February 1-3, Coverall conducted a comprehensive study of surface hygiene levels at the facility using ATP (Adenosine Tri-Phosphate) readings. The ATP measurement tool provides rapid detection capabilities to read the levels of biological contamination of surfaces. The process





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consisted of swab sampling of a number of surface areas within the facility to determine levels of ATP presence and compilation of an overall risk factor evaluation. Four sample intervals over a three-day period were conducted and a total of 109 ATP samples were collected and analyzed from the following locations:

- Treadmills
- Ellipticals
- Mats
- Lat pull down machine
- Bicep curl machine
- Incline bench
- Dumbbells
- Bikes
- Shower floors and benches
- Locker room door handles, floors, sink handles and toilets
- Common area water fountains, door handles and push plates
- Children's care area cubbies
- Children's care activity tables
- Children's care computer mice
- Children's care sinks, toilets, counters and sign in book

In addition to the ATP surface hygiene evaluation, productivity testing was also conducted to evaluate and establish efficiency rates within fitness facilities that represent unique surfaces in that market segment. Testing focused around six key surfaces:

- Cardio and weight training machines
- Free bars and dumbbells
- Mats
- Lockers
- Showers
- Locker room floors

**Productivity Testing Methodology** – From February 1-3, Coverall conducted a series of comprehensive time studies of unique and distinct surfaces within fitness facilities for the establishment of standard rates of production for future bidding reference. Each surface was tested uniformly with no less than three intervals per surface, and times were recorded.





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**ATP Data Review** – The average ATP RLU reading for all surfaces over the entire study was 498

1. 15 readings collected were at a low risk level of 99 or below ATP RLU  
30 readings were at a moderate risk level between 100 and 300 ATP RLU  
30 readings were at a moderate-high risk level between 301 and 500 ATP RLU  
27 readings were at a high risk level between 501 and 1000 ATP RLU  
7 readings were at an extremely high risk level at or above 1001 ATP RLU
2. The highest singles readings were collected from the following areas:
  - Interior entrance door handles
  - Shower floor
  - Incline bench headrest
  - Dumbbells
3. The lowest single readings were collected from the following areas:
  - Treadmill
  - Elliptical
  - Bicep curl machine

**Opinions and Conclusions** – The physical environment of the test facility represents an average hygiene level, as compared to similar fitness facilities. Still, specific surfaces represent key points of potential germ transmission as they relate to high levels of overall ATP sample readings. Based on the data set, surfaces that presented an average ATP reading in excess of 300 or more RLUs represent a significant opportunity to decrease risk levels for the facility occupants. These surfaces represent critical control points that should be considered to reduce health risks:

- Interior entrance door handles
- Shower floor
- All cardio and weight training machine touch points
- Dumbbells
- Free weight bars
- All door handles and plates
- Fit facts pad
- Front check in counter





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- Child care sign in book
- Child care multi-child stroller
- Child care area activity tables
- All mats in all areas
- All common area and lobby tables
- Water fountains
- Child care area computer key board and mouse

Of greatest concern are surfaces that consistently showed readings in excess of 1000 ATP RLU that should be addressed immediately, and daily, to ensure decreased risk of disease transmission.

- Door handles and push plates
- Shower floors
- Free weight benches and bars
- Dumbbells

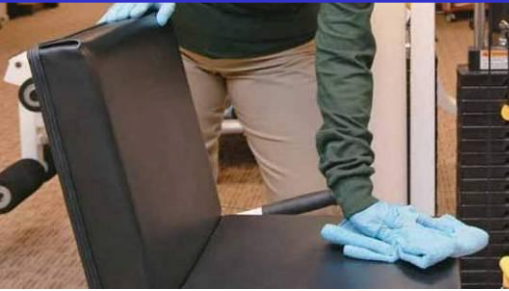
Based on analysis of the data set, we are of the opinion that the cleaning tasks being executed by the members and staff are resulting in fair removal of soils and material on most surfaces. However, the data would also indicate that outside the locker room areas, cleaning applications provided for less than effective results on many critical touch points and are not removing existing soils, but are actually contributing to cross-contamination and the potential for the spread of disease causing organisms.

In analyzing the locker room surfaces in isolation, the results were mixed. While the current cleaning protocol is reducing levels on many surfaces, those levels are not being reduced significantly. Many surfaces are either being missed completely or the current method is simply not removing sufficient soils and material. The greatest example of which is the shower floors that, even after cleaning, showed reduction only down to the 1200 ATP RLU level, still in the high risk range.

The execution of the touch-free system was also observed and found that the personnel lacks sufficient training to utilize the machine appropriately to effectively reduce levels to acceptable levels. The current use of this machine is not producing results better than known traditional methods due to lack of proper usage of chemical dispensation and physical agitation of surfaces before thorough rinsing and vacuum removal. The machine platform itself is in need of maintenance to ensure it is working effectively.

**Recommendation** – In order to address areas of the facility that represent critical control points of potential germ transfer, it is recommended that additional tasks should be added to both the staff and nightly locker





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room cleaning protocol. While the center provides for disinfectant disposable wipes, personnel should be assigned during the day to address areas such as light switches, door handles, sink handles, dumbbells, machine handles and all surfaces within the child care areas.

It is further recommended that the locker room cleaning system execution be reviewed and additional training provided to personnel on the proper use of the touch-free cleaning system and that such system be reviewed by a qualified service representative.

## Frequently Asked Questions

**Question:** What is ATP?

**Answer:** ATP (adenosine triphosphate) is present in all organic material, and is the universal unit of energy used in all living cells. ATP is produced and/or broken down in metabolic processes in all living systems. Processes such as photosynthesis in plants, muscle contraction in humans, respiration in fungi and fermentation in yeast are all driven by ATP. Therefore, most foods and microbial cells will contain some level of naturally occurring ATP. A luminometer uses bioluminescence to detect residual ATP as an indicator of surface cleanliness. The presence of ATP on a surface indicates improper cleaning and the presence of contamination, including food residue, allergens and/or bacteria. This implies a potential for the surface to harbor and support bacterial growth.

**Question:** Why is ATP a good measurement of the cleanliness of a surface or water sample?

**Answer:** The relationship between the amount of ATP on the sample and the RLU result reading on the luminometer is simple:

High contamination (improper cleaning)  
=  
Large amount of ATP  
=  
More light produced in chemical reaction  
=  
High RLU reading on luminometer

The RLU reading is directly proportional to the amount of ATP collected from the sample. A high RLU reading indicates a large amount of ATP at the test location. This, in turn, indicates improper cleaning and the presence of contaminants.





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Cleaning properly results in less ATP at the location. Less ATP results in less light output during the bioluminescent reaction and, consequently, a lower RLU reading.

**Question:** What are the standards for ATP readings, how do I know what an acceptable number is?

**Answer:** ATP is a fairly new method of measurement for surface cleanliness and while standards for specific surfaces are still being developed, we know that the lower the amount of ATP, the cleaner a surface is. This technology has been in use for quite some time in the food service industry and some of their recognized standards are a reading of 10 for food contact surfaces and 30 for food handler's hands. These standards may or may not be applicable to specific surfaces; the industry is still determining what is an acceptable reading, based on a specific surface in a specific environment.

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<sup>1</sup> Gerba, Charles, P., Ph.D., University of Arizona, Department of Soil, Water and Environmental Science and Epidemiology and Biostatistics, "Importance of Fomites in the Transmission of Infectious Disease."

[http://www.fda.gov/OHRMS/DOCKETS/ac/05/slides/2005-4184S1\\_12\\_CTFA-Gerba\\_files/frame.htm](http://www.fda.gov/OHRMS/DOCKETS/ac/05/slides/2005-4184S1_12_CTFA-Gerba_files/frame.htm)

<sup>2</sup>Centers for Disease Control and Prevention Podcast: <http://www2c.cdc.gov/podcasts/player.asp?f=10109#transcript>

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### About Coverall Health-Based Cleaning System<sup>SM</sup>

Founded in 1985, Coverall Health-Based Cleaning System is one of the world's leading commercial cleaning franchising companies with a worldwide network of more than 90 Support Centers and 9,000 franchisees currently servicing more than 50,000 customers in over 90 metropolitan areas. Coverall Health-Based Cleaning System is revolutionizing the commercial cleaning industry with its science-based cleaning processes and procedures designed to reduce cross-contamination and aid infection control. For more information, visit [www.coverall.com](http://www.coverall.com).

**Peter J. Sheldon Sr.**, CBSE, brings over 18 years of experience in the Building Services Contracting industry to his position as Vice President of Operations of Coverall Health-Based Cleaning System. Sheldon works closely with the Coverall sales and operations teams to spearhead initiatives that further the Company's strategic objectives and help the Company develop the most efficient and innovative cleaning processes available. Sheldon is among the elite group of building service professionals to qualify for the Certified Building Service Executive designation.

