



MEDICAL SCIENCES GROUP

**FITNESS
FACILITIES
STUDY**

COMPARING 2 CLEANING METHODOLOGIES

Chrisal Probiotics vs. Standard Products

At

**Sports Facilities, Public & Private School Gyms,
and Membership Fitness Centers**

March 15, 2011



THE PROBLEM

Health clubs, gyms, sport locker rooms, schools, and many other public facilities have traditionally had problems with odours, fungus, and related problems as well as being sources of infection.

However, over the last few years there has been a rapid rise in what was first seen as hospital acquired infections. These have now rapidly spread to other public sectors, specifically gyms, spas, and other locations where people both congregate and have close contact with each other and/or with surfaces touched by others.

Now that MRSA, VRSA and many other infections are on the rise, many Public Health Departments are starting to look more closely at gyms, spas, and tanning parlors as a route that these organisms are spread. Furthermore, some very well-known news programs and magazines as well as the “pulp” have published stories about the dangers of gyms and other health type centers. This is a global problem.

Therefore, the question now is how to solve these problems and improve the cleanliness of these facilities without incurring additional labor and supply costs.

REPORT OBJECTIVE

Due to the growing problem of MRSA and other infections in sports locker rooms, gyms, and fitness facilities, a number of organizations have requested Chrisal Inc. undertake testing of these facilities to determine the differences between commonly used cleaning and disinfecting products and the new type of Chrisal probiotic products.

These organizations include

1. A group of 55 professional cleaning franchises that have been cleaning school gymnasiums and other facilities, and school busses.
2. A group of fitness centers and other interested parties. All of them have interest in a common study to study to improve safety and cleanliness, as well as remove “gym” odours. For the commercial fitness facilities, being able to provide peace of mind to their customers is essential, as well as providing fresh-smelling and sparking facilities while controlling costs.

These studies have been conducted over the past year in a number of locations in the North East and South East US. In one major group of tests, Chrisal products have now been used in a dozen locations of a major national chain of fitness centers, with a large amount of test and usage data generated. Comparative data generated from a Catholic School gymnasium study, as well as at dozens of additional locations have all confirmed the same results. To assure the independence of the data, most of the testing was gathered and processed by totally different groups, and for the chain of fitness facilities, two independent outside laboratories were used to do the before and after testing.

TESTING PROCEDURES

The facilities to be tested, and the access and testing times to those facilities were selected by the management of the different organizations.

TESTING PERFORMED BY CHRISAL LTD. AT VARIOUS FITNESS CLUBS

BEFORE SAMPLES

- ❑ A range of test sites were selected in each facility. At the commercial fitness facilities the testing sites were different locations within the facility, including public areas, bathrooms and the areas for children. The handles and railings of exercise machines were also tested.
- ❑ All of the sites had been well cleaned by the local staff with the normal products used by all the fitness centers. Each test site was numbered, and ATP samples were taken. A photograph was made of the ATP reading and the site where the reading was taken.
- ❑ Bacteriological swabs were also taken at these sites for culture testing, and were transported in coolers to two external laboratories. The two laboratories selected were: (1) PRO-LABS, which is also a manufacturer of safety test kits and provides testing services with certifications in many of the States and in Canada; (2) ACAM Laboratories, which was recommended by 3M and is accredited by ISO/IEC. The results from the independent external laboratories were posted within 48 hours.

AFTER SAMPLES

- ❑ Once the “BEFORE” testing was completed, the facility staff started cleaning with the Chrisal Products for one week. After that period of time the “AFTER SAMPLES” were taken. In order to properly compare the “BEFORE and “AFTER” samples, the sample locations were identical.

RESULTS The detailed results of the testing follow. In addition, the copies of the laboratories' test results are also attached along with other items of interest.

- ❑ There was a major reduction in bacteria at all of the sites ranging from 89.65% to 99.62% with an average reduction of 90.95%. It also has been shown from studies conducted at other centers that continued regular use of Chrisal products results in total control of the bacterial environment.
- ❑ A major reduction in odours was also observed. This same reduction has been accomplished in all of the dozens of gyms, school locker rooms, and fitness centers that have used the Chrisal products.

SUMMARY CHART OF THE ATP RESULTS- FITNESS FACILITIES

Test Site	Test Site Description	Before Chrisal	After Chrisal	Before-After Reduction In Bacterial Contamination %
		ATP Readings	ATP Readings	
1	Kids Room front door handle	144	6	95.83%
2	Front desk - middle front	128	3	97.66%
3	Small sink area in Men's room	298	2	99.33%
4	Men's room middle urinal	154	4	97.40%
5	Men's Shower - first on right	6,243	633	89.86%
6	Spinning Bike	187	16	91.44%
7	Seated Fly Machine	262	15	94.27%
8	Seated Lat Raise Machine	341	17	95.01%
9	Other side shower 1	6,097	631	89.65%
10	Hall way floor Men's area	522	2	99.62%
11	Kids Room Jungle Jim	307	**x	x

A major reduction in the bacterial contamination was observed after only one week of use.

See photos of the readings shown directly on the ATP Meter on the page following the summary results.

**Note, due to a number of parents and kids in the children's room when follow up testing was done, samples were not taken in front of the parents to avoid any questions or concern.

All of the original test reports from the laboratories as well as the charts, photos, and other data can be examined by qualified interested parties.

SUMMARY CHART OF THE BACTERIAL TESTING- FITNSS FACILITIES

Test Site	Test Site Description	BEFORE CHRISAL	AFTER CHRISAL
		Pro-Lab Results Total cfu*	Pro-Lab Results Total cfu*
1	Kids Room front door handle	Too many to count	8 cfu
3	Small sink area in Men's room	29 cfu	8 cfu
5	Men's Shower - first on right	Too many to count	18 cfu
6	Spinning Bike	Too many to count	11 cfu
7	Seated Fly Machine	17 cfu	4 cfu
8	Seated Lat Raise Machine	Too many to count	6 cfu
9	Other side shower 1	7 cfu ?	x
10	Hall way floor Men's area	Too many to count	7 cfu
11	Kids Room Jungle Jim	52 cfu	**

Test Site	Test Site Description	BEFORE CHRISAL	AFTER CHRISAL
		ACAM Lab Results Aerobic PC /cfu	ACAM Lab Results Aerobic PC /cfu
2	Front desk - middle front	2,600	40
3	Small sink area in Men's room	50	< 10
4	Men's room middle urinal	< 10	< 10
5	Men's Shower - first on right	23,000	< 10
8	Seated Lat Raise Machine	60	30
9	Other side shower 1	25,000	< 10
10	Hall way floor Men's area	30	< 10

The above figures show a major reduction in contamination from all sources.

Note: This table is a summary of the BEFORE and AFTER results from the two laboratories. See the original master log sheet with all the data.

It should be noted that having more than one lab process the test swabs is worthwhile, as there was an invalid result in test number 9 from PRO-LABS. All of the other testing results showed extremely high readings for this location.

PHOTOS OF BEFORE & AFTER ATP METER TEST READINGS AT TEST SITE #1012-SE



3.1
Small Sink
In Men's
Room



3.2



5.1
Men's
Shower
1st on
Right



5.2



10.1
Hallway
Floor
Men's
Area



10.2



8.1
Seated
Lat-Raise
Machine



8.2



Photos of some of the

additional areas tested

RESULTS OF TESTING BY LOCATION- FITNESS FACILITIES

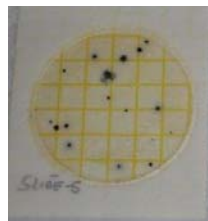
The following are the results of a number of tests performed at health/wellness related facilities that are part of the past year's overall testing group.

PHASE I TESTING – AUGUST, 2010

Test location CM001

This club is fairly active and had the normal gym odours, some specific needs, and a few problems. ATP Meter testing was done, and the results, especially in the children's area, were surprisingly high compared to the rest of the gym. Readings in a number of locations ranged from the 500's to well over 900 (any reading over 30 is normally considered a failure). Cultures were also done using the 3-M culture swabs and 24 hour plates.

However, it should be noted that these high figures are also sometimes found on school buses (see the study just done by JanPro Cleaning on school buses and school gyms) and in kindergarten rooms. This is one of the reasons that young children are considered to act as disease vectors. These readings were found in a number of locations, with the highest readings being on the play things, on the electronic devices, and in seating areas.



Readings in the general club areas, outside of the children's section were lower, though still high; and there were high readings on a number of the mats (both sides) and also on some of the equipment handles.



Test location C002

This facility was fairly active and appeared well run, but it had the normal gym odours and cleaning problems found in all such type facilities. After a walk-through of the club, the standard ATP Meter testing was done. The results were in the range normally found in gyms and sports locker rooms. There were several areas that the odor was stronger as well.



Since the initial reception and at the first facilities went well, a large number of additional facilities then started using the products.

Note: To assure that there was a true and accurate test of the difference between Chrisal Probiotic Products and the standard type products that were currently in use at the facilities, all the old supplies were put away so that there would be no mix-up of products.

In this phase the key test objectives were:

- (a) That the Chrisal probiotic products significantly lowered the level of bacterial contamination, like they did in hospitals and other facilities – and just as importantly, that they continued to protect surfaces for days at a time after each cleaning.
- (b) That the Chrisal products cleaned far better than other cleaners – and removed biofilm producing organisms. The gym had a cleaner look and feel with improved cleanliness on surfaces (including the grout in tiles). The Chrisal products were unique in that they kept on cleaning between applications.
- (c) The Chrisal Probiotics removed odours and mustiness and took away that “gym” smell as well as other odours.
- (d) Chrisal Probiotic products reduced labor and material costs and delivered additional cleaning and other benefits. Dangerous and unpleasant chemicals were no longer needed, and probiotic cleaning ensured better customer retention and sales. In addition to the reduction in other costs, the Chrisal products were economical to use.

Note that the culture testing was consistent from club to club. In some areas there was very little contamination, however mats and machines tended to have greater contamination as well as in locker room areas.

PHASE II TESTING- AUGUST, 2010 THROUGH JANUARY 2011

It is interesting that all of the dozen test locations have reported similar results with little or no variation between facility locations even though the clubs are in different cities, have different types of locations, and ranged in the size and the type of clientele served.

All of the facilities showed a significant reduction in ATP readings when tested with a Hygiene ATP Meter, and excellent results when sampled with 3M standard swabs and culture plates.



TIME FACTOR:

The average times that it took to control the environment, rid the gym of all odours, and observe a real improvement in cleanliness and physical improvement was often measured in days. .

The cleaning staff of all the facilities not only liked the results, they were all extremely enthusiastic about the Chrisal probiotic products. They have stated that they never want to go back to the old products. One facility reported it was now easier to deal with and retain cleaning people because the probiotic products are so pleasant to work with.

NOTES

- ❑ On the attached reports, the Location Code is the code for the facility being tested. The Sample Numbers are the chain of evidence coding. For instance, the 1-1 indicates location number, 1 and the second 1 indicates this is the first test. The 1-2 shows location 1 and the 2 is the second test. The rest of the test swabs follow the same format.
- ❑ The ATP luminometer and all of the ATP test swabs were from Hygeina and all the culture swabs were all from 3-M or from Pro-Labs. In the reports, the attached reports from the laboratories break down each sample by types and amounts of culture forming units. Refer to the summary table (Table X), for a fast overall picture of what is happening. In that table the different types of culture forming units are combined to give one total number.
- ❑ Following is a partial list of the qualifications of the two selected laboratories:
 - AAB American Association of Bioanalysts
 - AIA Americas Inspector Alliance
 - AIAQC American Indoor Air Quality Council
 - AIHA American Industrial Hygiene Association (AIHA EMPAT # 163230)
 - ASHI American Society of Home Inspectors
 - ASHRAE American Society of Heating, Refrigerating and Air Conditioning Engineers
 - ESA Environmental Solutions Association
 - FABI Florida Association of Home Inspectors
 - IAQA Indoor Air Quality Association
 - IESO Indoor Environmental Standards Organization
 - LEHA The Lead and Environmental Hazards Association
 - MDOHC State of Maine Department of Human Services
 - NACHI National Association of Certified Home Inspectors
 - NADCA National Air Duct Cleaners Association
 - NAHI National Association of Home Inspectors
 - NEHA National Environmental Health Association
 - NFPA National Fire Protection Association
 - ODOH State of Ohio Department of Health
 - WQA Water Quality Association

PHASE-III TESTING-JANUARY 2011- MARCH 2011

After several months of successful testing in the first group of gym facilities, Chrisal Ltd. was commissioned to perform testing in an additional groups of facilities.

Test Location P0010

The first of the new facilities (#-P0010) was nothing like any of the locations tested to date and proved to have many challenges as well as higher odor levels and other problems. From the condition of the facility it appears that several thousand people a day use this location, however we do not have accurate usage information.

There also appeared to be some cleaning problems at this location and it took more time to bring this facility under control; a total of about three (3) weeks. Once stabilized the facility was easy to maintain by regular fogging with the Chrisal PEC.

A REDUCTION IN THE FREQUENCY OF CARPET CLEANING

During a conversation with local management, they asked two interesting questions:

1. Why did the carpet seem to clean better than before Chrisal was initiated?
2. Why did the odours go away if the carpet had not been shampooed since Chrisal was first applied?

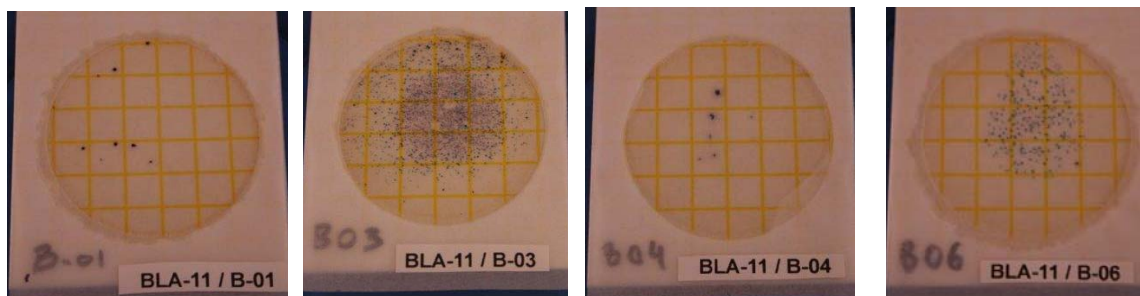
The reason for the improved condition of the carpets was that:

1. The Chrisal bacteria break down and consume the biofilm that holds dirt and contamination. This allows simple vacuuming to be much more effective.
2. The Chrisal bacteria had penetrated the carpet and had consumed the material that caused the odours in the first place; thus expensive carpet cleaning was needed less frequently.

Management concluded that by using Chrisal products there was a reduced need for carpet cleaning services which represented a large additional cost savings. This additional benefit meant that the Chrisal products really would cost little to nothing, while delivering large benefits in terms of cleanliness, odour reduction, and bacterial contamination.

Test Location BL-011

This SE facility testing was started on January 11, 2011, with initial normal testing and results as per the below:



Though this facility had some of the same positive readings that most gyms do, there was nothing out of the ordinary compared to other facilities as far as any contamination. As for odor, that varied from area to area. It was noted that the cleaning crew were very receptive to using the new Chrisal products as soon as they understood the difference. The original and second group

of testing done after a few weeks showed the normal variations found in most locations. In all cases a significant improvement was noted in the first week and normally within two to three weeks, total control of the environment was accomplished by the Chrisal probiotic products. There was only one exception, and that site was highly contaminated and did not have a cleaning crew that paid the proper attention to their duties. That location took over three weeks to stabilize.

FACILITY TESTING STUDY

Location Code	Sample Number	Test Site	Type Test	Results	Addendum
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NOTE: FIRST GROUP OF SAMPLES

		Men's bath-3rd black tile in middle from entrance	Culture	Positive - Med	ATP reading: 293
B-01		Men's bathroom - Middle urinal	Culture	Positive - Low	
B-02		Back machine handle	Culture	Positive - High	
B-03		Bike room - tagged spot	Culture	Positive - Med	ATP reading: 351
B-04		Men's dressing room carpet - first row	Culture	Positive - High	ATP reading: 472
B-05		Kid's table	Culture	Positive - High	
B-06		Kid's House Entrance	Culture	Positive - High	
B-07		Kid's chair (tagged underneath with tape)	Culture	Positive - Med	
B-08		Front desk - middle front	Culture	Positive - Low	
B-09					

ID: SECOND GROUP OF SAMPLES - FOLLOW-UP - FROM THE SAME LOCATION:

		Men's bath-3rd black tile in middle from entrance	Culture	Negative	Taken after 2nd week & Pro-Lab negative
BLA-11	B-10	Men's bathroom - Middle urinal	Culture	Negative	
BLA-11	B-11	Back machine handle	Culture	Borderline Visible	Prolab @ 1 CFU
BLA-11	B-12	Bike room - tagged spot	Culture	Borderline Visible	Prolab @ 1 CFU
BLA-11	B-13	Men's dressing room carpet - first row	Culture	Borderline Visible	
BLA-11	B-14	Kid's table	Culture	Negative	& Pro-Lab negative
BLA-11	B-15	Kid's House Entrance	Culture	Borderline Visible	
BLA-11	B-16	Kid's chair (tagged underneath with tape)	Culture	Borderline Visible	
BLA-11	B-17	Front desk - middle front	Culture	n/a	
BLA-11	B-18				

STUDY CONCLUSIONS

1. In all of the fitness centers that have been using Chrisal, all have proven to have extremely positive results reported by all users.
2. Every one of the facilities odours were eliminated to the point that there no longer any "gym" smell in any of the facilities.
3. There was a major reduction in the levels of bacterial contamination, as well as a very visible difference in cleanliness. The staff in all of the locations reported that the clubs looked and smelled much better and that customer satisfaction was higher. The staff now has more cleaning product to work with since Chrisal works effectively at higher rates of dilution than other products. The staff have more product to work with and no long have to "Push mud".

4. A number of health conscious members, have asked about the new cleaning system and are very happy with the probiotic track. They feel that the gyms care about their health and have become supporters who would also buy the product if it were offered.
5. One interesting result is demonstrated by a simple test. If you walked into any normal professional gym and asked the staff “what do you use for your cleaning products” they would normally tell you to go talk to the cleaning person in the back. However, now, when you walk into any of the facilities using the Chrisal probiotic products, most of the staff know about the products, and are excited about how much it helps the club and the people using it.

RESULTS IN THE REDUCTION OF BACTERIAL LEVELS:

In every single case, using Chrisal probiotic products resulted in a major reduction, if not total elimination of bacterial contamination. It has been seen in many studies that the longer the products are used, the effect is cumulative and the results keep getting better.

RESULTS FOR CLEANING

Far superior results are obtained when using the PIP probiotic products. There are the added advantages of ease and safety of use (no chemicals, no odours, and good for the skin), and faster and longer lasting cleaning power. This is the only cleaning product that removes biofilm, stops its re-growth, protects surfaces, and keeps on cleaning for up to three days at a time.

All of the gymnasiums, facilities, and clubs have reported far better and easier cleaning with Chrisal.

ECONOMICS:

The Chrisal products are economical to use. They work effectively at higher dilutions than many other products, and because of their high level of cleaning efficiency, they provide a great deal of additional direct and indirect cost savings. These include reductions in labor, services and materials. It is also important to factor in the far greater customer satisfaction plus a feeling of safety for their children.

As part of the reference for the work done to date, a number of studies and user reports will be attached. These are from many series of formal testing at universities, hospitals, medical facilities, restaurants, schools and many other types of facilities.