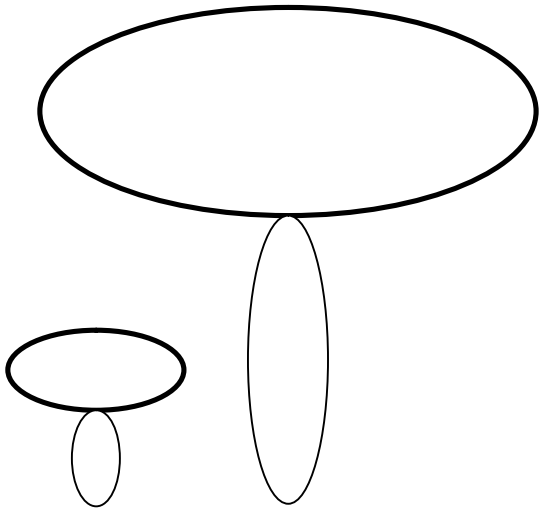
Silvia Steuck **SHG Pilze**

Diagnosis and therapy of mycotoxicosis



Help for self-help for people with fungal infections

Statistical study on the health effects of mycotoxins based on the experiences of the group members

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Introduction

The SHG Pilze - help for self-help for people with fungal diseases was founded in January 2007. At this time, I had already 8 years experience with my own disease and a well documented disease progression. Since then, the group has grown steadily, and many members also have many years of experience. Medical records, reports, report developments and therapeutic experiences I have successively and statistically evaluated and in 2010 and 2011 compared with faeces examination reports of people who feel healthy.

The results of the analysis depend on the quality of the underlying data. I would therefore like to thank the members and volunteers for the confidence they have shown me and the patient answers to my questions. The laboratory of Dr. Richter, the DAK, the AOK Berlin-Brandenburg as well as the Ardeypharm GmbH I thank for the financial support for the study of healthy people.

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Summary of the results

History

1. Striking is the large number of symptoms, the impression of being a diffuse disease. A slight tendency is to digestive problems.

Complete microbiological examination of faeces

2. Mould in the place of residence or work area, as well as the use of antibiotics and some other medicaments can obviously lead to growth of pathogenic micro-organisms in the intestinal flora.

3. The type of the pathogenic germs indicates an exogenous or endogenous factor.

4. The total of pathogenic bacteria tends to decrease at initial detection with the severity of the disease, as measured by the number of symptoms and the ability to work. The larger the damage of the mucosas, the less likely is the ability of the immune system to recognize pathogenic germs, and excrete (cf. Normal intestinal flora 7. Result and Serology 15. Result).

5. The more pathogenic species appear in the course of the disease/therapy, the harder is/was, as measured by the number of symptoms and the ability to work, the disease: The more pathogenic species are present, the more symptoms occur (cf. History).

6. Values of the normal intestinal flora at 4+ should be classified as increased and thus pathological.

7. When you are in the presence of a serious disease at initial detection, only one or two values of the normal intestinal flora increased and no pathogens present, so this is probably a sign that the immune system does not work anymore: Pathogenic germs are not eliminated (cf. Pathogenic germs 4. Result).

8. After the initiation of therapy rising values of the normal intestinal flora show the onset of regeneration.

9. The more abnormal values (0, 1+, 4+) in the findings, the more serious the disease is, whereas reduced values (0, 1+) tend to be less favorable than increased values.

10. Against the background that the natural counterpart to mould is the yeast fungus, should be taken into account that problems with mould or mycotoxins could be the cause for a recurring yeast fungus infection.

11. A pH-value in the stool sample, the acidic or basic range, is a relatively reliable indicator for a disordered intestinal flora with an impact on the state of health.

12. The decisive factor for a disease caused by pathogenic germs in the intestinal flora is the ability to form adequate defenses. A probiotic therapy to combat these germs and aimed at the regeneration of the intestinal mucosa is useful.

13. The normal flora of our members hardly differs from healthy people's intestinal flora on average. Probiotic therapies aimed at the addition of missing healthy intestinal bacteria remain ineffective in our experience.

14. Increased occurrence of yeasts in the stool sample is an indication of a disordered intestinal flora with an impact on the state of health. Due to side effects, the use of antifungal agents before or in addition to the probiotic therapy should be carefully weighed on a case-by-case basis.

Aspergillus and candida serology

15. Increased IgA-values in the serology give an indication of the severity of the mucosal damage.

16. Especially the pathogenic bacteria in the intestinal flora which could settle here due to antibiotic therapies or mycotoxins because of a mouldy environment are the main cause for the symptoms in the long term.

Therapy

17. In view of the fact that the members' intestinal flora has not regenerated itself sufficiently, a drug therapy, especially with the preparation Mutaflor, is indispensable.

18. The (change of) diet is individually different. The need depends on the symptoms and the severity of the mucosal damage which can be assessed the most reliable on the basis of serology.

19. Living and working areas as low as possible contaminated with mycotoxins and pollutants are an integral part of a successful therapy for exogenous and endogenous caused mycotoxicosis.

20. Certain personal conditions and the social environment influence decisively the chances for a cure.

21. Long lasting disease can be observed for all group members. The therapy is a long-term therapy at which the consistent compliance with all treatment recommendations induces the largest clinical success. Regular, at least annual check-ups are essential in order to prevent relapse. Especially the damage caused by the use of antibiotics seems to be irreversible.

1 Diagnosis

1.1 History

6 % of our members had permanently resided in mouldy living or working spaces. They didn't take any antibiotics.

19% of the members didn't reside in mouldy living or working spaces. However these people received antibiotics.

Most, however, 72 % lived in mouldy rooms and also received antibiotics. One member takes blood pressure lowering agents regularly.

Concerning one member (No. 22) we could not find out whether it lived in polluted areas or had received antibiotics.

A dose-response relationship between the concentration of **colony-forming units in the air** and health reactions is not medically proven. Many mould species set toxic substances (mycotoxins) free as secondary metabolites. A release of the mycotoxins in the indoor air can be carried out by evaporation or through spores. Medical health risks caused by mycotoxins be discussed.[1]

Antibiotics are in the original sense naturally formed low molecular weight metabolites of fungi or bacteria, which in low concentration already inhibit the growth of other micro-organisms or kill them.

Antibiotics and their derivatives are often used as medicinal products in the treatment of infectious diseases. In the broader sense antimicrobial substances that do not exist in nature but formed part-synthetic, fully synthetic or genetically are also called antibiotics.

In general usage the term antibiotics means usually drugs or medicines for treatment of bacterial infectious diseases.[2]

Altogether **more than 100 different disorders** were mentioned by the group members.

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[1] PROKON GmbH Gutachten Raumluftuntersuchung zur Schimmelpilzbestimmung

[2] Antibiotic - Wikipedia, the free encyclopedia

The members complain most frequently on the following disorders:

Tiredness, weakness: 59 %
General food intolerance: 44 %
Diarrhea: 44 %
Flatulence: 41 %
Limb pain: 41%
Insomnia: 34%
Impaired concentration: 34 %
Nasal congestion: 31 %

24 % of all the above symptoms fall under the heading "indigestion" and thus make the largest part of the disorders (without "Other").

1. Result:
Striking is the large number of symptoms, the impression of being a diffuse disease. A slight tendency is to digestive problems.

1.2 Complete microbiological examination of faeces

1.2.1 Examination subject

With the help of microbiological laboratory techniques (including colony count) is a complex examination of a stool sample to assess certain specified parameters carried out, which in turn allow inferences to be drawn on the condition of the body's own intestinal flora and the microecological gut environment.[1]

1.2.2 Findings of the members

1.2.2.1 Pathogenic germs

Only three of the investigated members had no pathogenic germs after initial detection.

All the other members had the following pathogenic germs in the stool sample:

[1] Laboratory of Dr. Richter: http://www.mikrolab-berlin.de

	Number of the concerned members		
	Total	Mouldy rooms*	Antibiotics**
Clostridium sp.	16	1	4
E. coli (atyp.)	11		1
Staphylococcus sp.	4		
Enterobacter sp.	4	1	
Bacillus sp.	3	1	
Klebsiella sp.	3		
Proteus sp.	3		
ß-hemolyzing Streptococcus	2		1
Citrobacter sp.	2		
Hafnia alvei	1		1
	49		

* Faeces samples of 2 members (No. 1, 18) according to its own data had taken no antibiotics.
** Faeces samples of 5 members (No. 2, 4, 6, 12, 21) where no mould growth of the residential or work premises was known.

In the course of therapy more pathogenic germs became visible:

	Number of the concerned members		
	Total	Mouldy rooms*	Antibiotics**
Clostridium sp.	22	1	6
E. coli (atyp.)	16		3
ß-hemolyzing Streptococcus	9		3
Bacillus sp.	7	2	1
Staphylococcus sp.	6		1
Klebsiella sp.	6		
Proteus sp.	4		
Enterobacter sp.	5	2	
Citrobacter sp.	3		
Hafnia alvei	2		2
	80		

* Faeces samples of 2 members (No. 1, 18) according to its own data had taken no antibiotics.
** Faeces samples of 6 members (No. 2, 4, 5, 6, 12, 21) where no mould growth of the residential or work premises was known, including 1 member (No. 5) who had no pathogens after initial detection.

2. Result:

Mould in the place of residence or work area, as well as the use of antibiotics and some other medicaments can obviously lead to growth of pathogenic micro-organisms in the intestinal flora.

Clostridia, pathogenic E. coli and ß-hemolyzing streptococci appeared mainly or exclusively if the members had taken antibiotics.

3. Result:
The type of the pathogenic germs indicates an exogenous or endogenous factor.

Dividing the members on the basis of the number of symptoms and the ability to work and comparing the total microbial counts of pathogenic bacteria after initial detection as well as the number of pathogenic bacteria species in the course of the disease/therapy, it is possible to draw conclusions as to the severity of the disease.

4. Result:
The total of pathogenic bacteria tends to decrease at initial detection with the severity of the disease, as measured by the number of symptoms and the ability to work. The larger the damage of the mucosa, the less likely is the ability of the immune system to recognize pathogenic germs, and excrete (cf. Normal intestinal flora 7. Result and Serology 15. Result).

5. Result:
The more pathogenic species appear in the course of the disease/therapy, the harder is/was, as measured by the number of symptoms and the ability to work, the disease: The more pathogenic species are present, the more symptoms occur (cf. History).

1.2.2.2 Normal flora

Values in the range of 2+ to 4+ are classified as normal for adults by the laboratory.[1]

In three cases were no pathogenic germs in the initial findings of our members. The progress of one of these members is as follows:

Member No. 5

	22.03.99	07.02.00	23.04.01	02.04.02	14.04.03	05.01.04
pH-value	8,5+	6,5	7,5+	6,5	6,5	7,5+
Sprout cells		1+	2+		3+	2+
Candida albicans		2+		1+	1+	2+
Geotrichum sp.						
Yeasts (not diff.)						
Normal flora						
Lactobacillus	2+	1+	3+	3+	2+	2+
Bifidobacteria	0	4+	4+	1+	1+	2+
Bacteroides species	3+	4+	4+	4+	4+	4+
Enterococcus	1+	4+	1+	3+	2+	3+
E. coli	4+	4+	4+	4+	4+	4+
Pathogenic germs						
E. coli (atyp.)		2+		4+		
Clostridium sp.				3+		2+
ß-hem. Streptococcus			3+	3+	2+	2+
Parasitology	negative	-	-	-	-	-
Number value 4+	1	4	3	2	2	2

[1] Laboratory of Dr. Richter feaces report 12.01.09

Member No. 5

	13.01.05	09.01.06	03.01.07	14.01.08	12.01.09
pH-value	6,0	7,0	7,5+	7,0	6,5
Sprout cells	3+	1+			
Candida albicans	2+		2+	2+	
Geotrichum sp.		1+			
Yeasts (not diff.)		1+			1+
Normal flora					
Lactobacillus	3+	4+	4+	3+	2+
Bifidobacteria	1+	2+	1+	3+	4+
Bacteroides species	4+	4+	4+	4+	4+
Enterococcus	1+	1+	3+	1+	3+
E. coli	4+	4+	1+	1+	1+
Pathogenic germs					
E. coli (atyp.)			4+	4+	4+
Clostridium sp.					
ß-hem. Streptococcus	2+	2+	3+		
Parasitology	-	-	-	-	-
Number value 4+	2	3	2	1	2

Striking is the reduction of the bifidobacteria to the value zero after initial detection and at the same time only one value is 4+. It is seen that at the beginning of therapy the number of 4+ - values increases but then tends to fall again. Obviously increased values (4+) of the normal flora should also be classified as abnormal.

In the case of a further member the progress shows the same trend:

Member No. 10

	09.10.98	07.04.00	28.02.02	07.11.02	20.08.03	25.11.03
pH-value	6,0	6,5	6,5	6,5	6,0	6,5
Sprout cells						
Candida albicans						
Geotrichum sp.						
Yeasts (not diff.)					1+	
Moulds					1+	
Normal flora						
Lactobacillus	3+	4+	3+	4+	4+	4+
Bifidobacteria	3+	1+	1+	3+	1+	1+
Bacteroides species	4+	4+	4+	4+	4+	4+
Enterococcus	1+	3+	2+	1+	4+	1+
E. coli	4+	4+	3+	1+	4+	4+
Pathogenic germs						
Bacillus sp.				2+		
Clostridium sp.		2+				1+
Number value 4+	2	3	1	2	4	3

At the time of the initial proof of pathogenic germs the values of the normal flora also increase, whereas in 2002 probably a temporary deterioration in the situation in the intestine has occurred. Unfortunately in this case, there are no further checks carried out.

At first glance the third case points also in this direction:

Member No. 11

	10.04.04	31.08.06	28.01.11
pH-value	7,0	6,5	6,5
Sprout cells			
Candida albicans			
Geotrichum sp.			
Yeasts (not diff.)			1+
Normal flora			
Lactobacillus	1+	4+	1+
Bifidobacteria	2+	1+	1+
Bacteroides species	4+	4+	4+
Enterococcus	2+	4+	1+
E. coli	4+	4+	4+
Pathogenic germs			
Citrobacter sp.			4+
Number value 4+	2	4	

The treatment with medicaments was carried out in 2004 but only for 6 months. Against this background the finding of 2006 is to value as initial detection. Antibiotic therapy, mould and a deterioration of the condition are known due to the history. Thus the increase in the values leads to the conclusion of a less favorable situation of the immune system. Although it seemed to work so well that at this time no pathogens could settle. Finally in 2011 was carried out a further examination. Now both a pathogenic germ as well as yeasts had settled.

6. Result:
Values of the normal intestinal flora at 4+ should be classified as increased and thus pathological.

7. Result:
When you are in the presence of a serious disease at initial detection, only one or two values of the normal intestinal flora increased and no pathogens present, so this is probably a sign that the immune system does not work anymore: Pathogenic germs are not eliminated (cf. Pathogenic germs 4. Result).

8. Result:
After the initiation of therapy rising values of the normal intestinal flora show the onset of regeneration.

Dividing the members on the basis of the number of symptoms and the ability to work and comparing the number of abnormal values, it is possible to draw conclusions as to the severity of the disease.

9. Result:
The more abnormal values (0, 1+, 4+) in the findings, the more serious the disease is, whereas reduced values (0, 1+) tend to be less favorable than increased values.

1.2.2.3 Mycology

In 75 % of all cases yeasts were found in the stool sample. The yeast is the natural counterpart to the mould.[1]

10. Result:
Against the background that the natural counterpart to mould is the yeast fungus, should be taken into account that problems with mould or mycotoxins could be the cause for a recurring yeast fungus infection.

In two stool samples (members No. 1, 10) were also found moulds.

1.2.3 Results of healthy people

1.2.3.1 Assumptions

All examined people feel healthy and their living or working area is free of mould.

[1] Consultation Dr. Oeder

1.2.3.2 pH-value

The most striking feature in comparison to 65 members is (with one exception) the neutral pH-value of 6.5 of the stool samples of 11 healthy feeling people. Our members have 20 % values in acidic or basic area.

11. Result:
A pH-value in the stool sample, the acidic or basic range, is a relatively reliable indicator for a disordered intestinal flora with an impact on the state of health.

1.2.3.3 Pathogenic germs

1.2.3.3.1 Findings

Only one report has no pathogenic germs on. It belongs to the only examined person, who has never taken an antibiotic. The 15-year drug treatment of her hypothyroidism, as well as dehydration therapy and the taking of a drug to combat increased cholesterol seem to have little impact on the gut.

Person G3
70 years old

	25.09.10
pH-value	6,5
Leukocytes	positive
Sprout cells	1+
Candida albicans	
Geotrichum sp.	
Yeasts (not diff.)	
Normal flora	
Lactobacillus	1+
Bifidobacteria	1+
Bacteroides species	4+
Enterococcus	4+
E. coli	4+

The following people have occasionally taken antibiotics, with the last dose at least 2 years ago. G1 takes a drug for hormone replacement therapy, G11 an iron preparation. The remaining volunteers regularly take no drugs. These people already show some of the pathogenic germs that typically occur with the members who suffer from endogenous mycotoxicosis.

Person	**G1**	**G10**	**G6**	**G8**	**G11**
	68 years	41 years	52 years	50 years	42 years
	05.03.10	14.06.11	31.05.11	09.06.11	21.06.11
pH-value	6,5	5,5	6,5	6,5	6,5
Sprout cells		1+	1+	1+	2+
Candida albicans					
Geotrichum sp.	1+				
Yeasts (not diff.)		1+	1+	1+	
Normal flora					
Lactobacillus	2+	4+	1+	3+	4+
Bifidobacteria	4+	1+	1+	1+	3+
Bacteroides species	4+	4+	4+	4+	4+
Enterococcus	2+	3+	1+	3+	4+
E. coli	3+	4+	4+	4+	4+
Pathogenic germs					
ß-hem. Streptococcus			2+		
Clostridium sp.	1+	1+			
E. coli (atyp.)				4+	4+

In the intestinal flora of the next two people 2 pathogenic bacteria species have already settled. Both volunteers have allergies and take appropriate medicines. G9 has taken an antibiotic 5 years ago for the last time, G4 cannot remember more specifically.

Person	**G9** 39 years 14.06.11	**G4** 66 years 28.09.10
pH-value	6,5	6,5
Sprout cells	1+	1+
Candida albicans		
Geotrichum sp.		
Yeasts (not diff.)	1+	
Normal flora		
Lactobacillus	4+	2+
Bifidobacteria	1+	1+
Bacteroides species	4+	4+
Enterococcus	4+	4+
E. coli	4+	4+
Pathogenic germs		
Clostridium sp.	1+	1+
E. coli (atyp.)		4+
Enterobacter sp.	3+	

The results of the last 3 people do not differ from those of our members. There are various pathogenic bacteria species in their intestinal flora in partially high number. These volunteers apparently could constitute sufficient defenses, meaning that they still are not ill. Most likely, their intestinal mucosa has little or no damage.[1]

G5 received antibiotics several times in childhood and the last taking was at least 5 years ago. G5 has no allergies and is not taking any medication regularly.

G2 received antibiotics more frequently up to the age of 25 and responds among other things allergic to penicillin. G2 has lived in an apartment with mould many years ago for approx. 6 months.

[1] Consultation Dr. Oeder

G7 has taken antibiotics for the last time at least 3 years ago and takes a medication against high blood pressure regularly.

Person	**G5** 30 years	**G2** 50 years	**G7** 47 years
	10.03.11	25.08.10	06.06.11
pH-value	6,5	6,5	6,5
Sprout cells			
Candida albicans			
Geotrichum sp.		1+	
Yeasts (not diff.)	1+		1+
Normal flora			
Lactobacillus	1+	1+	1+
Bifidobacteria	4+	1+	1+
Bacteroides species	4+	4+	4+
Enterococcus	4+	4+	2+
E. coli	4+	1+	1+
Pathogenic germs			
Acinetobacter sp.	3+		
ß-hem. Streptococcus	2+		
Citrobacter			4+
Clostridium sp.		1+	1+
E. coli (atyp.)	3+	4+	2+
Enterobacter sp.		4+	
Klebsiella sp.			4+

1.2.3.3.2 Conclusions for the therapy

Treatment with antibiotics is not a good idea, since the pathogenic bacteria have survived previous antibiotic therapies and furthermore the affected often have developed excessive immune responses against mould, from which these drugs are produced (cf. 1.3).

Instead, a probiotic therapy to combat pathogenic germs and aimed at the regeneration of the intestinal mucosa is recommended.

12. Result:

The decisive factor for a disease caused by pathogenic germs in the intestinal flora is the

ability to form adequate defenses. A probiotic therapy to combat these germs and aimed at the regeneration of the intestinal mucosa is useful.

1.2.3.4 Normal flora

1.2.3.4.1 Findings

Healthy people have no value of the normal flora reduced to zero which was the case with two members after initial detection. In total, reduced values concerning the volunteers were found almost as frequently (29%) as concerning our members (30%). 4+ -values can be found in the healthy people a little more frequently (55%) than in the diseased (51 %) (cf. also 9. Result). The ratio of acidification to putrefactive flora is approx. 2:1 in both groups.

1.2.3.4.2 Conclusions for the therapy

Since the average normal flora of the ill hardly differs from healthy people probiotic therapies that are intended to add the missing healthy intestinal bacteria appear not to make sense. In our experience these therapies are ineffective.

13. Result:
The normal flora of our members hardly differs from healthy people's intestinal flora on average. Probiotic therapies aimed at the addition of missing healthy intestinal bacteria remain ineffective in our experience.

1.2.3.5 Mycology

1.2.3.5.1 Findings

Yeasts and sprout cells appear in the stool samples of healthy people on average even in slightly higher number (1.5) than in our members' samples (1.4). However, there are significant differences on the case-by-case basis. The findings of the healthy people have maximum values of up to 2+ but a good fifth of our members' values are above. The maximum value for the members will be 8 if the values of all yeasts species and sprout cells of the initial detection were added.

There were no moulds in the samples of healthy volunteers.

1.2.3.5.2 Conclusions for the therapy

From values of 3+ in the field of mycology you could consider an antifungal therapy. As more toxins are released and expected that the immune system of the sick can handle them less well than the healthy, the use of antifungal agents should be on a carefully weighed case-by-case basis.

14. Result:
Increased occurrence of yeasts in the stool sample is an indication of a disordered intestinal flora with an impact on the state of health. Due to side effects, the use of antifungal agents before or in addition to the probiotic therapy should be carefully weighed on a case-by-case basis.

1.3 Aspergillus and candida serology

An immunological confrontation with fungi, e.g. yeasts such as candida albicans or moulds of the genus aspergillus and/or their metabolites, leads to a specific immune response that on the humoral side of the immune system is characterized by **reactions of specific antibodies** of the immunoglobulin classes IgA, IgG, IgE and IgM[1]. Serological tests can demonstrate specific antibodies against aspergilli.[2]

Parameters of the serological diagnosis of aspergillus:[3]

Antigen: Systemic fungal infections; macromolecule of cell membranes or immunogenic from the inner cell of the fungi[4]

IgA: Mucosa infection; IgA immunoglobulins serve the body's immune response on mucosal surfaces. Increased values indicate a complex fungi contamination or immunological deficiency, to compensate for this.

IgG: System defense titer that remains persistent for a long time also after an experienced immunological conflict. After switching an initial IgM-production they are used as the main support of the immune system in the sense of a protective function against systemic fungal infections.

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[1] Dr. Bayer GmbH: http://www.labor-bayer.de/untersuchungsprogramm.html#, Background Information
[2] Dr. Bayer GmbH: http://www.labor-bayer.de, commentaries for diagnosis
[3] Dr. Bayer GmbH: http://www.labor-bayer.de, commentaries for diagnosis
[4] Jost Dumrese: Pilzdiagnostik in der Praxis

IgM: Early antibodies - high values for initial infection and acute recurrent

IgE: Allergies

Some members have results of aspergillus and candida serologies:

Member No.	2	5	10	11	12	13	15	
Aspergillus	10.01.02	10.10.01	28.01.99	12.04.02	10.01.01	21.05.03	07.06.01	critical value
Antigen	0,6	0,4	0,7	0,4		0,5	0,7	1,0 U/l
IgA	17	205	43	6	20	9	55	30 U/l
IgG	738	1.202	1.242	272	1.473	585	310	1000 U/l
IgM	24	19	19	4	24	16	9	20 U/l
IgE		0,26	0,25				0,1	0,35 U/l

Candida	14.01.02	05.10.01	27.01.99	12.04.02	10.01.01	31.03.03	12.06.01	critical value
Antigen	0,25	< 0,25	negative	0,25		negative	0,25	0,5 ng/ml
IgA	111	83	13	24	16	33	52	60 U/l
IgG	2.771	796	6.322	310	635	2.974	499	500 U/l
IgM	33	20	24	4	3	54	4	50 U/l

Concerning Member No. 5 who didn't reside in polluted areas but received antibiotics several times over the years, it is to be observed that, in particular, the mucosal titer of aspergillus is greatly increased. Against the background that the candida fungus is the natural opponent of the mould fungus, explain the increased candida values of IgA and IgG.

Concerning 4 other members (No. 2, 10, 12, 13) a similar trend can be stated. It has to be noted, however, that the IgA-values of 3 members (No. 2, 12, 13) are more or less significantly below the critical value. An additional comparison with the results of the examination of faeces makes it clear that at initial detection Members No. 5 and 10 had no pathogens because the immune system was no longer working. The IgA-value of the serology shows therefore the severity of the mucosal damage.

15. Result:

Increased IgA-values in the serology give an indication of the severity of the mucosal damage.

The critical values for the aspergillus serology have been changed in the meantime. The measurement unit has remained the same, the reference ranges were lower.[1]

The following overview is only based on the new limits for uniformity:

[1] Laboratory of Dr. Bayer: Call 17.06.2008

	Medicines												
Member No.	2		12			5							
Aspergillus	10.01.02	15.10.09	10.01.01	22.05.02	01.07.03	15.10.99	02.11.00	10.10.01	17.10.02	13.01.04	22.07.08	14.01.10	critical value
Antigen	0,6	0,2				0,5	0,3	0,4	0,6	0,5	0,4	0,8	0,5 U/l
IgA	17	18	20	20	17	105	145	205	23	21	64	53	50 U/l
IgG	738	11	1.473	1.339	716	749	1.294	1.202	902	1.206	58	6	50 U/l
IgM	24	65	24	24		11	15	19	33	26	22	40	50 U/l
IgE		0,39				0,13	0,19	0,26	0,25	0,32	0,36	0,36	0,35 U/l
Candida	14.01.02	16.10.09	10.01.01			11.10.99	27.10.00	05.10.01	10.10.02	09.01.04	21.07.08	13.01.10	critical value
Antigen	0,25	< 0,25				negativ	< 0,25	< 0,25	< 0,25	negativ	< 0,25	< 0,25	0,5 ng/ml
IgA	111	45	16			135	239	83	208	265	243	334	60 U/l
IgG	2.771	4.210	635			931	979	796	740	633	324	1.905	500 U/l
IgM	33	17	3			18	10	20	30	37	46	40	50 U/l
IgE						0,16							0,35 U/l
Findings													
Yeasts	2+	2+		1+		1+	1+	1+	2+	4+	2+	2+	
Pathogenic germs	4+	6+	1+	3+	4+	3+	2+	6+	8+	4+	3+	5+	
Symptoms	7		13			34						7	

Between the number of symptoms and the amount and the number of increased titers no connection can be seen in the overall comparison.

Concerning Member No. 5 the symptoms were declining with falling aspergillus IgA and IgG titers as well as lower pathogenic microbial counts, while the candida titers, regardless of the bacteria count in the stool sample, even increased. The titers increase is more likely a sign that the immune system can attend more to the combat of yeasts after the decline of the aspergillus and pathogenic bacteria.

	Mould + Medicines													
Member No.	46	13	48		11		53			16	10		15	
Aspergillus	29.04.10	21.05.03	14.11.00	16.09.02	12.04.02	13.09.06	14.11.00	16.09.02	11.08.10	13.11.09	28.01.99	01.06.01	07.06.01	critical value
Antigen	0,3	0,5	0,4	0,3	0,4	0,6	0,4	0,4	0,6	0,4	0,7	0,5	0,7	0,5 U/l
IgA	74	9	66	18	6	26	50	103	57	16	43	21	55	50 U/l
IgG	50	585	3.361	4.381	272	72	6.066	4.951	193	8	1.242	1.245	310	50 U/l
IgM	152	16	12	8	4	20	7	7	21	38	19	41	9	50 U/l
IgE	0,47		-	-			-	-	0,34	0,45	0,25	-	0,1	0,35 U/l
Candida	28.04.10	31.03.03	14.11.00	16.09.02	12.04.02	08.09.06	10.11.00	11.09.02			27.01.99	01.06.01	12.06.01	critical value
Antigen	< 0,25	negativ	< 0,25	< 0,25	0,25	negativ	< 0,25	< 0,25		0,25	negativ	0,25	0,25	0,5 ng/ml
IgA	20	33	1.133	561	24	19	50	35		59	13	11	52	60 U/l
IgG	913	2.974	354	415	310	452	8.174	2.907		2.472	6.322	4.783	499	500 U/l
IgM	11	54	4	4	4	4	3	4		15	24	6	4	50 U/l
IgE	0,41													0,35 U/l
Findings														
Yeasts	1+	8+		3+					1+	1+			1+	
Path. germs	6+	4+	5+	2+			4+	7+	4+	7+	2+		4+	
Symptoms	5	7	12		2		7		9	13	69		6	

16. Result:

Especially the pathogenic bacteria in the intestinal flora which could settle here due to antibiotic therapies or mycotoxins because of a mouldy environment are the main cause for the symptoms in the long term.

1.4 Diagnostic procedure

Diagnostically the following procedure has proved successful:

1. Take the seeking for advice **seriously** if they suspect that they could be ill by mould in residential or working space and make a “complete microbiological examination of faeces”.

2. In case of a **diffuse disease**, if the person concerned complains of a wide variety of symptoms, yeast or other infections that are resistant to traditional therapies, think of a possible illness because of mould. This applies in particular if already - even long ago - antibiotic therapies were carried out.

The same is recommended for unexplained fatigue, indigestion or food intolerances, flu-like symptoms such as body aches, insomnia and impaired concentration. After analyzing the intestinal flora in most cases can be passed on further examinations.

3. If the **stool sample shows pathogenic micro-organisms** consider this seriously as a probable cause of the disease.

4. If there are no pathogenic germs detectable have a closer look at the **condition of the normal flora**. In particular, if some parameters have the value zero and/or only one or two values are at 4+ and the person concerned makes the impression of being seriously ill, consider that in such cases the immune system may not work any longer.

5. In case of serious illness it is advisable to carry out an aspergillus serology to get more detailed information about the cause and the severity of the disease.

1.5 Final result: Mycotoxicosis

Our members suffer from exogenous and/or endogenous mycotoxicosis depending on whether the triggering factors were mouldy rooms or medicines.

Mould in living or working space/medicine -> damage of the intestinal flora + settlement of pathogenic germs -> mycotoxins and endotoxins -> weakening of the immune system

An official acceptance of these diseases as an autonomous disease and the inclusion of the diagnosis "mycotoxicosis" in the International Classification of Diseases (ICD) would be preferable.

2 Therapy

2.1 Drug therapy

To support the regeneration of the intestinal flora we use Paidoflor and Mutaflor.

Paidoflor contains the bacterium Lactobacillus acidophilus. This bacterium is one of the most important germs of human small intestine flora and is here, as well as in the female genital, counted among the physiological protective flora.

Mutaflor contains viable bacteria E. coli strain Nissle 1917 and helps to regenerate the intestinal flora in the large intestine. This bacterium belonging to the normal intestinal flora has strong antagonistic capabilities against pathogenic micro-organisms and thus supports the barrier function of the physiological intestinal flora against penetrating foreign germs. Its metabolic products are vital energy suppliers for the cells of the intestinal mucosa.[1] Mutaflor also has like all Gram-negative bacteria a natural resistance against certain mycotoxins[2].

59 % of our members have taken both products in the course of therapy, 31% only Mutaflor. 2 members (No. 19, 20) have taken neither Paidoflor nor Mutaflor. Of Member No. 22 is no information available on the drug therapy.

Just over half of the members have, at the beginning of therapy, taken additional preparations, including food supplements and charcoal tablets as well as by non-medical practitioners prescribed products. Member No. 5 has taken Ampho-Moronal, an antifungal agent, for 1 year-and-a-half.

The therapeutic benefit or damage of the additional preparations cannot be statistically proven with the existing data. Almost all the members have in common however, the taking of Paidoflor and/or Mutaflor, at which the product Mutaflor seems to have the largest share of clinical success.

[1] ARDEYPHARM GmbH
[2] http://www.ardeypharm.de/de_neu/index.php?seite=fragen#faq94

17. Result:
In view of the fact that the members' intestinal flora has not regenerated itself sufficiently, a drug therapy, especially with the preparation Mutaflor, is indispensable.

2.2 Diet

Based on body responses we are trying to find out what types of food contain how many mycotoxins and other pollutants or are the most compatible. These body responses include e.g. swelling of the mucous membrane in the mouth and throat, chest tightness on swallowing, increased salivation, burning on the tongue and in the mouth, cough, hoarseness, sneezing, holes in the tongue film, furry feeling of the tongue, fits of dizziness and diarrhea. An exemplary diet list, irregularly updated and made available to the members, is used as a guide. We also have a special cookbook.

72 % of the members have changed nutrition individually according to their own statements. 9% have not changed their eating habits and 19 % have not commented on this.

18. Result:
The (change of) diet is individually different. The need depends on the symptoms and the severity of the mucosal damage which can be assessed the most reliable on the basis of serology.

2.3 Refurbishment of living and working area; body care

It is seen that members (No. 2, 3, 5) who were not ill because of mouldy rooms originally also respond on rooms contaminated with mycotoxins or pollutants due to the endogenous contamination.

44 % of the members have moved, 25 % have carried out remedial measures, 28 % have arranged for nothing. Member No. 22 didn't comment on this.

We make sure that as little mycotoxins or other pollutants as possible are released by the furniture and at cleaning. Many cleaning products contain substances which lead to increased symptoms.

Pollutants are also absorbed through the skin. That's why we try to use low-pollutant and compatible personal care products as much as possible.

19. Result:
Living and working areas as low as possible contaminated with mycotoxins and pollutants are an integral part of a successful therapy for exogenous and endogenous caused mycotoxicosis.

2.4 Personality and social environment

The information in this chapter is not based on a systematic evaluation of data, but my personal experience and evaluation.

Sufficiently competent support from medical practitioners can rather not be expected yet. The **will and the capacity to acquire** the theoretical **knowledge** about the causes of the own disease are therefore not negligible for the success of the therapy.

The practical implementation of the therapeutic measures is a challenge.

The easiest way to do this is the drug therapy at which **good organizational skills** are also required yet to make sure that the cold chain is not interrupted, e.g. at traveling or during the working day.

Complying with the dietary recommendations is much more difficult. No longer able to eat everything means renunciation and requires very much **self-discipline**.

Each celebration with family or friends, each working lunch implicates making sure whether or not the offered food could be suitable. No later than when asked at the table, you are forced to mention the restrictions on the diet. The reactions range from stubborn, curious queries up to total incomprehension and rejection. Tacit acceptance is very rare. You need very much **self-confidence** in order to cope with this social pressure.

Regardless of whether the disease was caused by exogenous or endogenous factors, attention must be paid to an environment that is contaminated as low as possible. The most necessary separation of home and familiar surroundings, furniture and items such as the beloved book collection and houseplants hurts apart from the financial consequences. If you don't live alone the required unwillingness to compromise that is crucial for the success of the therapy will lead quickly to an insoluble problem in the partnership. The **psychological strength** it costs to live with these consequences is remarkable.

Working people are faced with the problem that the workspaces usually don't comply with the health needs and the employer is not required to provide an office tailored to the specific needs. This problem can be solved on an individual basis with **negotiating skills** and **assertiveness**. In most cases, however, the affected have only the choice either to lose their job or to remain sick. The decision for unemployment may be useful but only as long as there is enough money to pay for the expensive, non-prescription drugs Paidoflor and/or Mutaflor.

Environmental and room contamination can induce MCS-symptoms[1]. The discomfort becomes the worse, the better the immune system is working again under the therapy. Cigarette smoke or perfumes are perceived as intolerable. The use of public transport, the stay in theaters, post offices, department stores, supermarkets, swimming pools, gymnasiums etc., but also in parks and forests becomes a torment or completely impossible for a long time. Fainting happens. Here is a huge portion of **flexibility** in demand especially in the recreation activities until these symptoms cease with recovery progress.

The therapy is a long-term therapy (cf. 2.5) that requires a lot of **patience** and **perseverance**. Disease and corresponding therapy will affect all areas of life. They have to be accepted as a

[1] Multiple chemical sensitivity (MCS)

part of life but should not become the only purpose in life. A **positive attitude towards life** and the ability to find the best possible balance are very important.

20. Result:
Certain personal conditions and the social environment influence decisively the chances for a cure.

2.5 Clinical response

50 % of the members followed all treatment recommendations (medication, diet, home renovation), 34% implemented two parts of the recommended therapy. 4 members (No. 6, 7, 14, 19) realized only one measure. Member No. 22 didn't comment on this.

Member No. 13 doesn't need any more medicaments after about 5 years of therapy. Member No. 17 was free of discomfort after 2 years of treatment and also doesn't need drugs any more. Both members had followed all therapy recommendations.

For 69 % of the members discomfort improved. Among them with two exceptions (Member No 2 and 16 were worse) are all members who followed all the recommended measures, but also 2 members (No. 6, 7) who realized only one measure could achieve an improvement.

For 4 members (No. 19, 20, 23, 24) the condition remained unchanged. 2 of these members had started only recently with the entire treatment (No. 23) or with the home renovation (No. 24) so that no improvement was to be expected. The other two members had also moved recently (No. 19) or continued to live in a renovated living area and changed the diet (No. 20) but didn't decide for the drug therapy so far.

4 members (No. 2, 11, 14, 16) were worse. The aggravation of the condition of Member No. 16 despite previous and supposedly completed therapy has been caused most likely by re-mould in the living room and new antibiotics. The other members (No. 2, 11, 14) had discontinued therapy.

For 2 members (No. 22, 32) no information was available for the evaluation of therapy.

21. Result:
Long lasting disease can be observed for all group members. The therapy is a **long-term**

therapy at which the **consistent compliance with all treatment recommendations** induces the largest clinical success. Regular, **at least annual check-ups** are essential in order to prevent relapse. Especially the damage caused by the use of antibiotics seems to be irreversible.

Symptoms

	Symptoms		Kinds
	Mentions	%	
Circulation	**32**	**7**	**6**
Respiratory system	**51**	**11**	**14**
Nasal congestion	10	31	
Muscles/joints	**35**	**7**	**5**
Limb pain, muscle pain, stiff neck/joints, dorsal pain	13	41	
Digestion	**114**	**24**	**18**
General food intolerance, loss of weight	14	44	
Flatulence	13	41	
Diarrhea	14	44	
Psyche/Nerves	**73**	**15**	**13**
Tiredness, weakness	19	59	
Impaired concentration	11	34	
Insomnia	11	34	
Skin	**31**	**7**	**10**
Other	**130**	**27**	**39**
Viruses et al.	**7**	**1**	**4**
Total	**473**	**100**	**109**

Findings, Therapy

Member No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Initial detection																									
pH-value	6,5	5,5	7,5+	6,0	8,5+	7,5+	6,5	6,5	6,5	6,0	7,0		6,5	7,0	6,0	6,5	6,5	6,5	6,5	7,0	6,5	7,5	7,5+	7,5+	6,5
Leukocytes	pos.																								
Mycology																									
Sprout cells	1+	1+											3+			1+	1+								
Candida albicans													2+				2+			2+	1+		2+		
Geotrichum sp.	1+					2+		1+					3+											1+	1+
Yeasts (not diff.)	1+	1+		1+		1+	1+							1+											
Moulds	1+																								
Normal flora																									
Lactobacillus	3+	4+	1+	4+	2+	4+	4+	4+	1+	3+	1+	2+	1+	1+	4+	1+	1+	3+	3+	2+	1+	3+	2+	1+	1+
Bifidobacteria	4+	2+	3+	1+	0	1+	1+	1+	1+	3+	2+	2+	1+	1+	1+	4+	4+	1+	4+	1+	1+	1+	4+	1+	3+
Bacteroides species	4+	4+	4+	4+	3+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+
Enterococcus	3+	2+	4+	3+	1+	4+	3+	4+	1+	1+	2+	4+	4+	4+	2+	4+	4+	4+	2+	3+	2+	1+	4+	4+	2+
E. coli	1+	2+	4+	4+	4+	1+	4+	4+	4+	4+	4+	2+	2+	4+	1+	4+	4+	4+	1+	1+	4+	4+	4+	1+	3+
Pathogenic germs																									
Bacillus sp.	2+																								
ß-hem. Streptococcus																			1+		3+				
Citrobacter sp.																4+									3+
Clostridium sp.				1+		1+	2+	2+	1+			1+		1+				1+		2+	4+	2+			
E. coli (atyp.)		4+	4+												4+					4+		3+	4+	4+	
Enterobacter sp.	1+								3+					1+			4+								
Hafnia alvei						4+																			
Klebsiella sp.							2+						4+			3+									
Proteus sp.							3+																4+		
Staphylococcus sp.			1+				2+		1+					1+											
Parasitology																									
Endolimax nana	pos.																								
Blastocystis hominis	pos.																								
Pancreatic elastase 1						117																			

Findings, Therapy

Member No.	26	27	28	29	30	31	32	
Initial detection								
pH-value	6,5	6,5	6,5	6,5	7,5+	6,5	6,5	
Leukocytes								
Mycology								
Sprout cells	2+		2+			1+	1+	
Candida albicans								
Geotrichum sp.			1+					
Yeasts (not diff.)						1+	1+	
Moulds								
Normal flora								
Lactobacillus	1+	1+	3+	2+	1+	2+	1+	
Bifidobacteria	2+	1+	1+	1+	2+	1+	2+	
Bacteroides species	4+	4+	4+	4+	4+	4+	4+	
Enterococcus	1+	1+	4+	1+	4+	1+	4+	
E. coli	4+	4+	3+	1+	1+	1+	4+	
Pathogenic germs								**Number**
Bacillus sp.			1+				1+	3
ß-hem. Streptococcus								2
Citrobacter sp.								2
Clostridium sp.	2+	1+			2+	1+	2+	16
E. coli (atyp.)			4+	4+	4+	3+		11
Enterobacter sp.								4
Hafnia alvei								1
Klebsiella sp.								3
Proteus sp.		3+						3
Staphylococcus sp.								4
								49

Findings, Therapy

Member No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	**Members: 32**	
Following reports																																		
Leukocytes	x											x																						
Sprout cells	x	x			x		x					x	x		x	x	x				x					x	x	x			x	x		
Candida albicans					x								x				x	x		x	x		x											
Candida famata																					x													
Candida sake															x																			
Candida krusei															x																			
Geotrichum sp.	x				x	x	x	x				x	x		x									x	x		x	x						
Yeasts (not diff.)	x	x	x	x	x	x	x	x		x				x	x			x							x			x			x	x		
Moulds	x									x																							**Number**	**%**
Yeasts	x	x		x	x	x	x	x		x		x	x	x	x	x	x	x		x	x		x	x	x		x	x			x	x	24	75
Moulds	x									x																							2	6
Bacillus sp.	x									x		x			x			x										x				x	7	
ß-hem. Streptococcus					x		x	x	x			x	x						x		x					x							9	
Citrobacter sp.			x													x									x								3	
Clostridium sp.		x	x	x	x	x	x	x	x	x		x		x	x			x		x	x	x					x	x	x		x	x	x	22	
E. coli (atyp.)		x	x		x		x	x				x			x					x		x		x	x			x	x	x	x	x		16	
Enterobacter sp.	x								x					x			x	x															5	
Hafnia alvei						x															x													2	
Klebsiella sp.							x	x	x				x		x	x																		6	
Proteus sp.							x								x								x				x							4	
Staphylococcus sp.		x	x				x		x					x													x							6	
Number path. germs	**2**	**3**	**4**	**1**	**3**	**2**	**6**	**4**	**5**	**2**	**0**	**4**	**2**	**3**	**5**	**2**	**1**	**3**	**1**	**2**	**3**	**2**	**2**	**1**	**1**	**1**	**5**	**3**	**1**	**2**	**2**	**2**	**80**	
History																																		
Contamin. living room	x																	x															2	6
Medicines		x		x	x	x						x									x												6	19
Con. LR + medicines			x				x	x	x	x	x		x	x	x	x	x		x	x			x	x	x	x	x	x	x	x	x	x	23	72
No report																						x											1	3
																																	32	**100**

Findings, Therapy

Member No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	**Members: 32**	
Therapy																																	**No.**	**%**
Paidoflor																																	0	0
Mutaflor	x				x			x				x						x					x				x	x	x		x		10	31
Both		x	x	x	x		x	x		x	x	x		x	x	x	x				x			x	x	x				x		x	19	59
No Paidoflor/Mutaflor																			x	x													2	6
Unknown																						x											1	3
Other medicaments		x		x	x	x	x	x	x	x		x				x			x		x		x		x	x	x	x					17	53
Diet change	x	x	x	x	x			x	x	x		x	x		x	x	x			x	x		x		x	x	x	x	x	x	x		23	72
No diet change							x											x														x	3	9
Unknown						x					x			x					x			x		x									6	19
																																	32	**100**
Refurbishment								x	x		x									x				x	x	x	x						8	25
Move		x			x					x		x	x			x	x	x	x		x							x		x	x	x	14	44
Nothing arranged	x		x	x		x	x							x	x								x						x				9	28
Unknown																						x											1	3
																																	32	**100**
No. therapeutic measures	2	3	2	2	3	1	1	3	3	3	2	3	3	1	2	3	3	2	1	2	3	0	2	2	3	3	3	3	2	3	3	2		
1					x	x								x					x														4	13
2	x		x	x						x					x			x		x			x	x					x			x	11	34
3		x			x			x	x	x		x	x			x	x					x			x	x	x	x		x	x		16	50
Unknown																						x											1	3
																																	32	**100**
Clinical response																																		
Improvement	x		x	x	x	x	x	x	x	x		x	x		x		x	x			x				x	x	x	x	x	x	x		22	69
Unchanged																			x	x			x	x									4	13
Aggravation		x									x			x		x																	4	13
Unknown																						x										x	2	6
																																	32	**100**

Findings: Disease severity (results 4, 5, 9)
Symptoms below average

	Mould				Number	Σ	Medicines										Number	Σ
Member No.	1	18	34	35	**4**		36	2	12	37	38	39	41	4	6	42	**10**	
Initial detection																		
Normal flora																		
Lactobacillus			4+	1+	2		4+	4+		4+	4+	4+	4+	4+	4+		8	
Bifidobacteria	4+	1+	4+	4+	4		4+			1+	1+	1+	1+	1+	1+	4+	8	
Bacteroides species	4+	4+	4+	4+	4		4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	10	
Enterococcus		4+			1		4+		4+	1+	4+	4+	4+		4+	1+	8	
E. coli	1+	4+	4+	4+	4		1+			4+	1+	4+	4+	4+	1+	1+	8	
Pathogenic germs																		
Bacillus sp.	2				1	2											0	0
ß-hem. Streptococcus					0	0											0	0
Citrobacter sp.					0	0	3						4				2	7
Clostridium sp.		1			1	1			1	2	1		2	1	1	1	7	9
E. coli (atyp.)					0	0	4	4			4					4	4	16
Enterobacter sp.	1				1	1	4										1	4
Enterobacteriaceae sp.			1		1	1											0	0
Gram-neg. bact.					0	0											0	0
Hafnia alvei					0	0									4		1	4
Klebsiella sp.					0	0											0	0
Morganella morganii					0	0											0	0
Proteus sp.					0	0											0	0
Raoultella sp. planticola					0	0											0	0
Staphylococcus sp.					0	0											0	0
					4	**5**											**15**	**40**

Findings: Disease severity (results 4, 5, 9)
Symptoms below average

	Mould + Medicines																								Number	Σ
Member No.	20	8	25	26	9	28	29	44	45	46	47	13	48	49	50	31	51	11	19	53	24	16	32	15	17	**25**	
Initial detection																											
Normal flora																											
Lactobacillus		4+	1+	1+	1+			4+		4+	4+	1+	4+	1+	1+			1+		1+	1+	1+	1+	4+	1+	18	
Bifidobacteria	1+	1+			1+	1+	1+	4+		4+	1+	1+	4+	1+	4+	1+	1+		4+	1+	1+	4+		1+	4+	20	
Bacteroides species	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	4+	25	
Enterococcus		4+		1+	1+	4+	1+	4+	1+	1+		4+	1+	4+	1+	1+	1+			1+	4+	4+	4+		4+	19	
E. coli	1+	4+		4+	4+		1+	4+	4+	1+	1+			4+	1+	1+	4+	4+	1+	4+	1+	4+	4+	1+	4+	21	
Pathogenic germs																											
Bacillus sp.						1									1								1			3	3
ß-hem. Streptococcus																			1							1	1
Citrobacter sp.			3												4							4				3	11
Clostridium sp.	2	2		2	1						2				1	1	1						2			9	14
E. coli (atyp.)	4					4	4			4	4		3		1	3	2			4	4			4		12	41
Enterobacter sp.					3			4																	4	3	11
Enterobacteriaceae sp.																										0	0
Gram-neg. bact.										2																1	2
Hafnia alvei																										0	0
Klebsiella sp.											3	4										3				3	10
Morganella morganii													2													1	2
Proteus sp.																										0	0
Raoultella sp. planticola									4																	1	4
Staphylococcus sp.					1			1																		2	2
																										39	**101**

Findings: Disease severity (results 4, 5, 9)

Symptoms below average

	No report			Number	Σ	Total	Σ	0, 1+	4+	Σ
Member No.	55	22	57	**3**		**42**				
Initial detection										
Normal flora										
Lactobacillus	4+			1		29		13	16	
Bifidobacteria	1+	1+		2		34		22	12	
Bacteroides species	4+	4+	4+	3		42		0	42	
Enterococcus	4+	1+	1+	3		31		14	17	
E. coli	4+	4+	4+	3		36		14	22	
Pathogenic germs								**63**	**109**	172
Bacillus sp.				0	0	4	5	36,6	63,4	**%**
ß-hem. Streptococcus				0	0	1	1			
Citrobacter sp.				0	0	5	18			
Clostridium sp.	2	2	1	3	5	20	29			
E. coli (atyp.)		3		1	3	17	60			
Enterobacter sp.	4			1	4	6	20			
Enterobacteriaceae sp.				0	0	1	1			
Gram-neg. bact.				0	0	1	2			
Hafnia alvei				0	0	1	4			
Klebsiella sp.	4			1	4	4	14			
Morganella morganii				0	0	1	2			
Proteus sp.				0	0	0	0			
Raoultella sp. planticola				0	0	1	4			
Staphylococcus sp.				0	0	2	2			
				6	**16**	**64**	**162**			

Findings: Disease severity (results 4, 5, 9)

Symptoms below average

	Mould				Number	%	Medicines										Number	%
Member No.	1	18	34	35	4		36	2	12	37	38	39	41	4	6	42	10	
Following reports																		
Bacillus sp.	x	x			2				x								1	
ß-hem. Streptococcus					0				x								1	
Citrobacter sp.					0		x						x				2	
Clostridium sp.		x			1			x	x	x	x		x	x	x	x	8	
E. coli (atyp.)					0		x	x	x		x					x	5	
Enterobacter sp.	x				1		x										1	
Enterobacteriaceae sp.		x	x		2												0	
Gram-neg. bact.					0												0	
Hafnia alvei					0										x		1	
Klebsiella sp.					0												0	
Morganella morganii					0												0	
Proteus sp.					0												0	
Raoultella sp.					0												0	
Staphylococcus sp.					0			x									1	
Number path. germs	**2**	**3**	**1**	**0**	**6**		**3**	**3**	**4**	**1**	**2**	**0**	**2**	**1**	**2**	**2**	**20**	
History																		
Number																		
Initial Symptoms	5	3	6	5			13	7	13	10	10	2	3	7	2	8		
Unfit for work					**0**	**0**						x					**1**	**10**

Findings: Disease severity (results 4, 5, 9)
Symptoms below average

	Mould + Medicines																								Number	%
Member No.	20	8	25	26	9	28	29	44	45	46	47	13	48	49	50	31	51	11	19	53	24	16	32	15	17	**25**	
Following reports																											
Bacillus sp.						x									x					x			x	x		5	
ß-hem. Streptococcus		x			x							x	x						x							5	
Citrobacter sp.			x												x							x				3	
Clostridium sp.	x	x		x	x	x					x		x		x	x	x			x			x	x		13	
E. coli (atyp.)	x	x				x	x			x	x		x		x	x	x			x	x			x		13	
Enterobacter sp.					x			x												x					x	4	
Enterobacteriaceae sp.					x															x						2	
Gram-neg. bact.										x																1	
Hafnia alvei																										0	
Klebsiella sp.		x			x						x	x	x							x		x		x		8	
Morganella morganii													x													1	
Proteus sp.																								x		1	
Raoultella sp.									x											x						2	
Staphylococcus sp.					x			x					x							x						4	
Number path. germs	**2**	**4**	**1**	**1**	**6**	**3**	**1**	**2**	**1**	**2**	**3**	**2**	**6**	**0**	**4**	**2**	**2**	**0**	**1**	**8**	**1**	**2**	**2**	**5**	**1**	**62**	
History																											
Number																											
Initial symptoms	2	5	2	7	8	4	3	3	6	5	8	7	12	2	14	10	13	2	11	7	5	13	9	6	9		
Unfit for work													x		x				x	x			x			**5**	**20**

Findings: Disease severity (results 4, 5, 9)

Symptoms below average

	No report			Number	%	Total	%	∅
Member No.	55	22	57	**3**		**42**		
Following reports								
Bacillus sp.				0		8		
ß-hem. Streptococcus				0		6		
Citrobacter sp.				0		5		
Clostridium sp.	x	x	x	3		25		
E. coli (atyp.)		x		1		19		
Enterobacter sp.	x			1		7		
Enterobacteriaceae sp.				0		4		
Gram-neg. bact.				0		1		
Hafnia alvei				0		1		
Klebsiella sp.	x			1		9		
Morganella morganii				0		1		
Proteus sp.				0		1		
Raoultella sp.				0		2		
Staphylococcus sp.				0		5		
Number path. germs	**3**	**2**	**1**	**6**		**94**		
History								
Number								
Initial symptoms	4	5	2					**7**
Unfit for work				**0**	**0**	**6**	**14**	

Findings: Disease severity (results 4, 5, 9)

Symptoms above average

	M.	No.	Σ	Medicines				No.	Σ	Mould + Medicines									No.	Σ	No r.	No.	Σ	Total	Σ	0, 1+	4+	Σ
Member No.	33	**1**		21	40	5	43	**4**		7	27	3	14	30	23	52	10	54	**9**		56	**1**		**15**				
Initial detection																												
Normal flora																												
Lactobacillus		0		1+				1		4+	1+	1+	1+	1+		1+			6			0		7		6	1	
Bifidobacteria	1+	1		1+	1+	0		3		1+	1+		1+		4+			4+	5		1+	1		10		8	2	
Bacteroides species	4+	1		4+	4+		4+	3		4+	4+	4+	4+	4+	4+	4+	4+	4+	9		4+	1		14		0	14	
Enterococcus		0			1+	1+		2			1+	4+	4+	4+	4+	4+	1+	4+	8		4+	1		11		4	7	
E. coli	4+	1		4+	1+	4+	4+	4		4+	4+	4+	4+	1+	4+	4+	4+	1+	9		4+	1		15		3	12	
Pathogenic germs																										**21**	**36**	57
Bacillus sp.		0	0					0	0										0	0		0	0	0	0	36,8	63,2	**%**
ß-hem. Streptococcus		0	0	3				1	3										0	0		0	0	1	3			
Citrobacter sp.		0	0					0	0										0	0		0	0	0	0			
Clostridium sp.		0	0	4	3		1	3	8	2	1		1	2					4	6		0	0	7	14			
E. coli (atyp.)		0	0		4			1	4			4		4	4			2	4	14		0	0	5	18			
Enterobacter sp.		0	0					0	0									2	1	2		0	0	1	2			
Enterobacteriaceae sp.	1	1	1					0	0				1						1	1		0	0	2	2			
Gram-neg. bact.		0	0					0	0										0	0		0	0	0	0			
Hafnia alvei		0	0					0	0										0	0		0	0	0	0			
Klebsiella sp.		0	0					0	0	2								2	2	4		0	0	2	4			
Morganella morganii		0	0					0	0										0	0		0	0	0	0			
Proteus sp.		0	0					0	0	3	3				4				3	10		0	0	3	10			
Raoultella sp. planticola		0	0					0	0										0	0		0	0	0	0			
Staphylococcus sp.		0	0					0	0	2		1	1						3	4		0	0	3	4			
		1	**1**					**5**	**15**										**18**	**41**		**0**	**0**	**24**	**57**			

Findings: Disease severity (results 4, 5, 9)
Symptoms above average

		Number	%					Number	%										Number	%		Number	%	Total	%	∅
Member No.	33	**1**		21	40	5	43	**4**		7	27	3	14	30	23	52	10	54	**9**		56	**1**		**15**		
Following reports																										
Bacillus sp.		0						0									x		1			0		1		
ß-hem. Streptococcus		0		x		x		2		x	x								2			0		4		
Citrobacter sp.		0						0				x							1			0		1		
Clostridium sp.		0		x	x	x	x	4		x	x	x	x	x			x		6		x	1		11		
E. coli (atyp.)		0			x	x		2		x	x	x		x	x			x	6		x	1		9		
Enterobacter sp.		0						0										x	1		x	1		2		
Enterobacteriaceae sp.	x	1						0					x						1		x	1		3		
Gram-neg. bact.		0						0											0			0		0		
Hafnia alvei		0		x				1											0			0		1		
Klebsiella sp.		0						0		x								x	2			0		2		
Morganella morganii		0						0											0			0		0		
Proteus sp.		0						0		x	x				x				3			0		3		
Raoultella sp.		0						0											0			0		0		
Staphylococcus sp.		0				x		1		x	x	x	x						4		x	1		6		
Number path. germs	**1**	**1**		**3**	**2**	**4**	**1**	**10**		**6**	**5**	**4**	**3**	**2**	**2**	**0**	**2**	**3**	**27**		**5**	**5**		**43**		
History																										
Number																										
Initial symptoms	33			35	23	34	19			47	66	19	24	29	36	19	69	37			15					**34**
Unfit for work		**0**	**0**		x	x		**2**	**50**	x					x	x			**3**	**33**		**0**	**0**	**5**	**33**	

Findings: Disease severity (results 4, 5, 9)

Unfit for work

	Medicines			Number	Σ	Mould + Medicines									Number	Σ	No r.	Number	Σ	Total	Σ	0, 1+	4+	Σ
Member No.	39	40	5	**3**		7	14	48	50	23	52	19	53	32	**9**		56	**1**		**13**				
Initial detection																								
Normal flora																								
Lactobacillus	4+			1		4+	1+	4+	1+		1+		1+	1+	7			0		8		5	3	
Bifidobacteria	1+	1+	0	3		1+	1+	4+	4+	4+		4+	1+		7		1+	1		11		7	4	
Bacteroides species	4+	4+		2		4+	4+	4+	4+	4+	4+	4+	4+	4+	9		4+	1		12		0	12	
Enterococcus	4+	1+	1+	3			4+	1+	1+	4+	4+		1+	4+	7		4+	1		11		5	6	
E. coli	4+	1+	4+	3		4+	4+		1+	4+	4+	1+	4+	4+	8		4+	1		12		3	9	
Pathogenic germs																						**20**	**34**	54
Bacillus sp.				0	0				1					1	2	2		0	0	2	2	37,0	63,0	**%**
ß-hem. Streptococcus				0	0							1			1	1		0	0	1	1			
Citrobacter sp.				0	0				4						1	4		0	0	1	4			
Clostridium sp.		3		1	3	2	1		1					2	4	6		0	0	5	9			
E. coli (atyp.)		4		1	4			3	1	4			4		4	12		0	0	5	16			
Enterobacter sp.				0	0										0	0		0	0	0	0			
Enterobacteriaceae sp.				0	0		1								1	1		0	0	1	1			
Gram-neg. bact.				0	0										0	0		0	0	0	0			
Hafnia alvei				0	0										0	0		0	0	0	0			
Klebsiella sp.				0	0	2									1	2		0	0	1	2			
Morganella morganii				0	0			2							1	2		0	0	1	2			
Proteus sp.				0	0	3				4					2	7		0	0	2	7			
Raoultella sp. planticola				0	0										0	0		0	0	0	0			
Staphylococcus sp.				0	0	2	1								2	3		0	0	2	3			
				2	**7**										**19**	**40**		**0**	**0**	**21**	**47**			

Findings: Disease severity (results 4, 5, 9)
Unfit for work

	Medicines			Number	Mould + Medicines									Number	No r.	Number	Total	∅
Member No.	39	40	5	**3**	7	14	48	50	23	52	19	53	32	**9**	56	**1**	**13**	
Following reports																		
Bacillus sp.				0				x				x	x	3		0	3	
ß-hem. Streptococcus			x	1	x		x				x			3		0	4	
Citrobacter sp.				0				x						1		0	1	
Clostridium sp.		x	x	2	x	x	x	x				x	x	6	x	1	9	
E. coli (atyp.)		x	x	2	x		x	x	x			x		5	x	1	8	
Enterobacter sp.				0								x		1	x	1	2	
Enterobacteriaceae sp.				0		x						x		2	x	1	3	
Gram-neg. bact.				0										0		0	0	
Hafnia alvei				0										0		0	0	
Klebsiella sp.				0	x		x					x		3		0	3	
Morganella morganii				0			x							1		0	1	
Proteus sp.				0	x				x					2		0	2	
Raoultella sp.				0								x		1		0	1	
Staphylococcus sp.			x	1	x	x	x					x		4	x	1	6	
Number path. germs	**0**	**2**	**4**	**6**	**6**	**3**	**6**	**4**	**2**	**0**	**1**	**8**	**2**	**32**	**5**	**5**	**43**	
History																		
Number																		
Initial symptoms	2	23	34		47	24	12	14	36	19	11	7	9		15			**19**

Findings: Disease severity (results 4, 5, 9)

Values total:

< Average: 210

> Average: 75

Unfit for work: 65

Values outside the standard:

< Average: 172 -> 172/210 = 82%

-> 172/42 =4.1

> Average: 57 -> 57/75 = 76%

-> 57/15 =3.8

Unfit for work: 54 -> 54/65 = 83%

-> 54/13 =4.2

Numbers of pathogenic germs at initial detection:

< Average: 162 -> 162/42 =3.9

> Average: 57 -> 57/15 =3.8

Unfit for work: 47 -> 47/13 =3.6

Numbers of pathogenic bacteria species in the course:

< Average: 94 -> 94/42 =2.2

> Average: 43 -> 43/15 =2.9

Unfit for work: 43 -> 43/13 =3.3