Racing Pigeon Sport

National II

Dr. VANDERSANDEN FERDY  DVM
WANG PING YIN  BVSc5
DUCHATEL JEAN-PIERRE  Ing. MSc
Dr Vandersanden, Ferdy DVM (Belgium)

Dr. Vandersanden, Ferdy received the veterinary degree in Gent University in Belgium in 1983. He followed a specialisation in avian medicine in 1985 in Utrecht University in the Netherlands. He currently owns two small animal clinics in Belgium and the Netherlands respectively. He is also the private vet for many well-known fanciers in Europe. He established the first station for racing pigeon artificial insemination - BIFS in the world in 2000. He's a member of AAV.

Wang, Ping-Yin, BVSc5

Ping-Yin Wang is a 5th year veterinary student in Massey University in New Zealand. She is expected to receive the degree in 2010. She had the first degree in Zoology in National Taiwan University in 2003. She received a master degree in animal behaviour and welfare in Edinburgh University in 2005. She knows Dr. Vandersanden by a friend of her father who is doing pigeon business in Taiwan. She has been doing seeing practice in Dr. Vandersanden's clinics since 2007 during summer holidays. She's a member of AAV.

Duchatel, Jean- Pierre

Engeneer, Master in Sciences
D.E.A in Veterinary Sciences
Master in Ethics and Animal experimentation
Member of A.A.V.

Has been more than 30 years reseacher at the Avian Clinic of the Veterinary Faculty of the University of Liege (Belgium) where he has contributed to develop the vaccines for paratyphus and for paramyxovirus and poxvirus (combine vaccine). Now he is working on the young pigeon sickness disease associated with circovirus infection.
PIGEON SPORT

There are three important factors within pigeon sport:

1. Good quality of the pigeons
2. Good quality of the pigeon loft/circumstances
3. Good management

These three factors determine the chance that problems have a great influence on the results.

1. The hereditary quality of racing pigeons are determined by the qualities of the parents. A strong selection on results, pedigree, anatomy and resistance to all kind of diseases plays an important role to create breeding pairs. The quality of parents can increase life quality of the youngsters. Otherwise, a racing pigeon with very good results does not have to be a good breeding bird. Only the fancier can create a good breeding pair.

2. A good loft must be warm, dry without draught. The temperature, humidity and draught in the loft are influenced by the location, the isolation, the ventilation and the number of pigeons in the loft. There is a difference in climate in a garden loft and a loft above the house. The fancier must pay attention that there is not too much ventilation. The south-east direction of the loft is the best. During the summer, when we have hot and dry periods, a lot of lofts have insufficient ventilation. Then it becomes hot and dusty and this creates respiratory problems. In most of the lofts, we can find airflow on the same level or even below the level of the pigeons. Most of the time, this creates draught and ventilation problems. The airflow should be above the level of the pigeons. Also the quantity of pigeons in the racing and breeding loft plays an important role in the health of the birds. Too many pigeons give more agitation in the flock, higher susceptibility for diseases (especially respiratory problems) and higher losses. In winter or springtime you can hold more just independent pigeons together because you create better climatic effects when you have low temperature and high humidity. There is a great variation in pigeon lofts. So for each loft it is necessary to look to the positive points and negative points and to give advices and suggestions about the climate in the loft.

3. General management is the third factor. Racing success is dependent on a regular routine of feeding, exercise, basket training, loft discipline and a regular research of pigeons by a veterinary surgeon. Here plays the fancier an important part. He must make decisions on the right moment. He knows the qualities of the individual pigeons. He must motivate his pigeons, coach his racing team. Feeding the pigeons is very important. Pigeons may be offered a measured amount (30gr) of food once or twice daily. 1 kg food for 30 pigeons. The food should be a mixture of vegetables and cereals. The current practice in the racing season is to feed cereals (wheat, barley) in the beginning of the week (depurative, easy to digest) and increase the proteins and the energy (maize) as the race day approaches. It’s essential to feed your stock birds, racing birds and youngsters twice a week animal proteins (egg food, insects, colostrums, pellets). It is important that the pigeons remain in appetite until in the last days before basketing. Grit, very important
for the assimilation of the feed, is offered together with mineral salts or clay minerals. Grit must be changed every week. Green food should be offered regularly because it’s rich in vitamins, minerals and oligo- elements. It is important to regularly give your pigeons vitamins, minerals, tonics, herbs or essential oils. Normal pigeon food is poor on vitamins. In warm, sunny circumstances, you never put vitamins in the water because they oxidize. The best is to mix the vitamins in the food. Normal water consumption is about 30-60 ml per bird/day. It means 1 liter for 20 birds. Clinical examination by a veterinary can be approached with safety and confidence. During the consultation the vet can discuss with the fancier about different factors that can play a role in bad achievements.

- Location of the loft.
- Direction of the loft.
- Roof material.
- Ventilation.
- Light in the loft.
- Material used in the loft for separation, isolation, floor.
- How many pigeons are held?
- How many youngsters are bred?
- What are the racing results?
- Vaccination status of the pigeons.
- What racing system is used (racing on nest cycle or on widowhood)?
- Is something changed in the loft?
- What medication the pigeons received preventive or curative.
1. The Head
The observation of the head, followed by a look in the beak and the throat can give a lot of information about the health of the pigeon. At the head we can find the eyes, cere, wattles, nares and ears. The cere and wattles should be clear and almost white.

The eyes, cere, wattles and nares must be white.
Inflamed eyelids become red and swollen. A typical example is “one eye cold” that is caused by herpes virus, mycoplasma or chlamydophyla. When you open the beak you can see the tongue and the tonsils. There are two tonsil areas in the beak. The first one is located on the floor of the mouth around the windpipe and the second one is large and includes 2/3 of the soft palate. Numerous glandular ducts open on the palate lateral and caudal. The swelling of the tonsils on the palate is an indication of an infection. They become swollen and redder and contrast with the surrounding tissues. The swelling can be caused by a respiratory disease or a canker infection. Sometimes you can see small white spots in the tonsil tissue in the throat. These spots are lymphoid aggregates and an indication of an old herpes virus infection or another inflammation. The spots take weeks or even months to disappear but cannot affect race condition. Mucus in the throat is also an indication of a respiratory problem and is many times associated with stress-producing circumstances. The throat appears red and inflamed and white slime accumulates in the throat. White slime is a sign of a secondary bacterial infection and is usually due to E. coli or Mycoplasma. The windpipe opening (glottis) must be narrow and elongated with sharp edges. To receive more oxygen the pigeon can breathe deeper and faster.

2. The crop
The crop lies subcutaneously at the opening of the thorax. It’s a thin walled very elastic organ. The crop plays a role in the digestion of food but is very important as a secretion organ in the production from crop milk. The crop is the first natural resistance system for a pigeon. Natural Lactobacillus are found in the crop and protects itself through the maintenance of an acid environment. A low acid pH (4-4.5) protects the pigeons the introduction of pathogens and against diseases because organisms like Escherichia coli, Salmonella, Trichomonas and pathogen yeast don’t survive in this acid medium. The addition of controlled levels of various acids like Vior to the drinking water excerpts a positive effect with pathogen germs. By acidifying the water, Vior enhances the natural production of lactobacilli; offer an effective natural way of combating the pathogen bacteria without the need for antibiotics.
3. The Proventriculus and gizzard
The proventriculus or glandular stomach is the first part of a pigeon’s stomach where digestive enzymes are mixed with food before it goes to the gizzard. The gizzard can grind the food with stones. This gravel in the gizzard breaks down seeds and helps the digestion. Two important digestive products are produced in the proventriculus: the enzyme pepsin that break down protein and hydrochloric acid to produce the acidic conditions under which this enzyme works best. Hydrochloric acid provide also an antiseptic defense against fungal and bacterial organisms.

4. The liver
The liver is situated between the heart and the stomach. It’s the largest single vital organ with a wide range of functions:

- Detoxification (removing toxic substances from the blood and converting them to safer substances).
- Protein synthesis who are found in the blood plasma like albumin, globulin.
- Production of biochemical’s necessary for digestion.
- Production of vitamin A.
- Storing iron.
- Control of blood sugar levels.

It produces bile which aids in the digestion via the emulsification of lipids. Bile is not a digestive enzyme. It breaks up large globules of fat into smaller ones.

5. The Intestines
The action of the grit in conjunction with the contraction of the gizzard turns the grain in a thin porridge that is mixed with acidic gastric juice. This chime passes down the small intestine who consists of three parts: the duodenum, the jejunum and the ileum. The small intestine produces enzymes that digest fats, proteins and carbohydrates. The small intestine, richly supplied with blood vessels provide a greatly surface through which the nutrients can be absorbed into the bloodstream. The indigestible remains of the food are passed in the large intestine (colon and caecum) and excreted via the cloaca. The pigeon digestive system contains a population of intestinal bacterial flora who has a continuous effect on the host’s gut and systemic immune system. The intestinal flora aid in the absorption of indigestible food, stimulate the cell growth, repress the growth of harmful bacteria, train the immune system to respond only to pathogens and play a role in the production of vitamins such as vitamin K, vitamin B6, vitamin B12 and folium acid.
6. The kidney

The pigeon has two kidneys and the urine is transported to the cloaca by the ureters. The role of the kidney is very important, it performs 3 main functions: filtration, excretion and absorption. By filtration of the blood, it eliminates some used substances, wastes products of metabolism with water. It reabsorbs some substances necessary for the body. So it is important to take care of the kidneys and don’t damage them with a lot of blind treatments. Kidneys play a major role in the condition of the pigeon for races.
D'après Le Pigeon Voyageur, Vindevogel H., Duchatel JP, Pastoret PP
Editions du point Vétérinaire. Maisons-Alfort FRANCE
RESPIRATORY SYSTEM

The respiratory system differs totally from this from mammals. The system is made up of 2 lungs and 8 air sacs. The air passes through the nares and the nasal cavity into the oropharynx and goes as down the trachea to the syrinx where the trachea divides into 2 primary bronchi which extend in the lungs. Pigeons have no diaphragm. The lungs are fixed and unexpansible. Muscular contractions of the abdomen cause a negative pressure in the air sacs so that air is inspirited over the lungs into the air sacs. In the same way muscular contractions of the abdomen blow the air back from the air sacs over and through the lungs. This means that the air passes the lungs by inspiration and expiration. The air sacs can hold 80% from the capacity of the respiratory system. The gaseous exchange occurs in the lungs. Pigeons lungs are 10 times more effective than the lungs of mammals.

The orange lung with air sacs around.
CLINICAL RESEARCH OF PIGEONS

You need a lot of experience to research pigeons. Pigeons have a very high metabolic rate and that’s the reason that an auscultation from heart and lungs is very difficult. The temperature is between 40-42°.

- Observation of the pectoral muscles is very important. Pigeons in good condition have full pink muscles.

![Skin is not pink and the muscles are not full.](image1) ![Pink skin](image2)

- Examination consists of a thorough inspection of the feathered areas. The underlying skin should be clean and the plumage itself bright with a lot of feather powder. The plumage gives an indication of old intercurrent diseases. A disease, a strong race, a food deficit or a treatment with medication can cause “fretted” feathers. These feathers miss normal structure, color, strength and elasticity. Pigeons must be free from parasites because they could disturb the night rest of the pigeons.

- Quality of the droppings. Normal faeces seem like green/brown marbles with a cap of white urine. Abnormal faeces can develop another color if there are problems of the intestinal or urinary tract or polydipsia. Soft or fluid droppings will be considered as diarrhea.

![Normal droppings.](image3) ![Diarrhea.](image4)
• Inflammation of the crop can be detected immediately. The crop is normally a thin, very elastic organ. Thickening is an abnormal indication.

• Inspection of the head and the neck is very important. Pigeons must have a clear, lively eye with no swelling of discharge. The ceres and wattles should be clear and white. The plumage around the ear must be smooth. The tonsils on the palate should be pink. Mucus in the throat, black nares, conjunctivitis, discolored ceres, sneezing etc. are an indication of a respiratory problem.

The eye is bright, clear and lively. The beak is closed and the nares are white.

• Collection of diagnostic samples:
  • Impressive smears from crop for Trichomonas.
  • Impressive smears from cloaca for worms, coccidiosis, hexamithen.
  • Bacteriological swabs from throat, from crop and from cloaca to detect fungi and bacteria and to choice the adequate antibiotica
  • Aspirates from soft tissue swellings or articulations.
  • Endoscopy.
  • Radiology.
  • Haematology: research from blood samples.

Selection of the appropriate antibiotic against a bacteria pathogen from the throat.
**VIRAL INFECTIONS**

**POXVIRUS**

- Caused by Avipoxvirus columbae.
- The virus is very resistant and will remain infective for months.
- Spread by direct contact between pigeons in lofts and basket or by insects like mosquitoes.
- Incubation time, between the moment of infection and the first symptoms: 4-12 days.
- Outbreak starts in the early weeks of the flying season.
- Two forms:
  - External form, with lesions on the cere, wattles and beak commissures.
  - Internal form, with diphtheritic yellowish membranes in the throat. The internal form can be so severe that feeding and breathing are very difficult.

- The course of the disease is 3-4 weeks.
- Recovered birds are strongly immune to further infections Diagnosis is based on the clinical signs but must be differentiated from cancer, herpes virus and Candida albicans.
There is no specific treatment:
- Preventive vaccination.
- Disinfection of the lesions.
- Treatment of insects.

HERPES VIRUS

- Caused by PHV1 virus.
- Incubation time: 1-3 days.
- Contagious persistent virus.
- Infected pigeons become carrier pigeons.
- Symptoms:
  - “Conjunctivitis”: One eye cold.
  - Reddening of cere.
  - Nasal discharges.
  - Cheese like membranes in mouth.
  - Respiratory problems.
  - All pigeons in the loft are infected.
- There is no cure for the disease and only through improved management you can try to achieve control.
- Most of the time is a herpes virus infection complicated by a chlamydophyla or a mycoplasma infection.
- Let the pigeons build up a natural immunity.
- Passive immunity (received via crop milk) protects the youngsters until weaned.
- Elimination of the carriers.
• Prevention and treatment often depends on cleanliness, good nutrition, preventing overcrowding and stress. Corylyse eye- and nose drops before basketting give a preventive protection.

**PARAMYXOVIRUS**

• Caused by PMV1 virus (Newcastle disease).
• Spread by direct contact form bird to bird and indirect through pathogen dust, insects.
• Morbidity is between 30 and 70%.
• Incubation time varies from 3-6 days till 3-4 weeks.
• Very resistant to humidity, hot temperature and light.
• Symptoms:
  ✓ Increased water intake.
  ✓ Watery droppings (the faeces appear as a pool of clear urine surrounding a sigar of green droppings).
  ✓ Central nervous symptoms: the bird is unable to hold its head normal. The head may rotate upon the neck.

*Paramyxovirus: torticolis, the head may rotate upon the neck.*

*Watery droppings.*
• Treatment:
  ✓ Pigeons with visible signs should be separated.
  ✓ Emergency vaccination of the other birds.
  ✓ Hygienic measures and disinfection of the loft.
  ✓ Administration of B vitamins and electrolytes like Recup Forte.

ADENOVIRUS

• Caused by
  ✓ Adenovirus type 1 in young pigeons.
  ✓ Adenovirus type 2 in old pigeons.

• Type 2:
  ✓ Only old pigeons.
  ✓ Sudden death without symptoms.
  ✓ Morbidity is between 1 and 20%.
  ✓ Liver necrosis.
  ✓ Hepatomegaly

• Type 2:
  ✓ Young bird sickness.
  ✓ Age of 6 weeks to 4 months.
  ✓ Incubation time: 3-5 days.
  ✓ Morbidity: 10-100%.
  ✓ Mortality: 10-80%.
  ✓ Very sudden illness.
  ✓ Loss of appetite.
  ✓ Loss of weight.
  ✓ Failure of the crop to empty properly.
  ✓ Excessive drinking.
  ✓ Heavily vomiting.
  ✓ Slimy green diarrhea.

Slimy green diarrhea.

✓ Multiply in the intestinal wall and causes the development of secondary bacterial diseases like E. coli, septicemia.
Treatment:

- No vaccine available.
- Avoid stress and overpopulation.
- Acidify drinking water with Vior to reduce E coli in the crop and CCK to avoid E coli explosion.
- Protection of the intestinal wall with Enterocur.
- With holding of food for 24-36 hours.
- Thereafter light food.
- Electrolytes like Recup Forte and Puravital.
- Antibiotics to reduce secondary bacterial infections.

CIRCOVIRUS

- Caused by PiCV virus.
- Incubation time: 3-4 weeks.
- Morbidity: 1-100%.
- Mortality: 1-100%.
- Suppress the immunity system.
- Destruction of cells in spleen, thymus and bursa of Fabricius.
- Horizontal (from pigeon to pigeon) and vertical (from pigeon to egg) transmission.

Symptoms:

- Weight loss.
- Stop eating.
- Bad condition.
✓ Respiratory problems.
✓ Diarrhea.
✓ Die in 2-5 days.
✓ Often in combination with other diseases like adenovirus, herpes virus, Paratyphus, ornithosis, coccidiosis etc.

- Very resistant to heat, disinfectants and detergents.
- Virus is able to exist in a carrier state in some adult birds.
- Frequently detection of very pathogen concurrent infections like trichomoniasis, adenovirus infection, paramyxovirus infection, herpes virus infection, Paratyphus, coccidiosis, ornithosis etc.

- Treatment:
  ✓ There is no vaccine.
  ✓ Preventive avoiding stress till the age of 4 months.
  ✓ Stimulate the immunity system with SB Special.
  ✓ Treat preventive secondary infections.
  ✓ Gift of vitamins like Vigoramine and Oligofertil.

- Diagnosis:
  ✓ PCR cloaca swab.
  ✓ Autopsy
  ✓ Histology: classical botryoid inclusions

Classical botryoid inclusions (V) in the bursa.

Bursa of Fabricius in the dorsal wall of the cloaca.
PROTOZOAL INFECTIONS

TRICHOMONAS INFECTION: PIGEON CANCER

Trichomonas infection is the most common disease of racing pigeons. Pigeons appear to be the most susceptible to this disease and are the main carriers. Trichomonas is a flagellate.

There are different strains of these protozoa, and they vary greatly in pathogenic effect. You can say we have good and bad strains of Trichomonas. Some strains are involved in high mortality and some strains give soft symptoms like a low condition. Approximately 70-80% of the pigeons are infected with this parasite. The parasite lives in the mouth, throat, crop, esophagus, intestine and liver. Pigeons can transmit the infection in contaminated crop milk. But during transport, water contaminated with saliva can be the most imported source of infection. Stress can cause serious growth of Trichomonas producing cancer.

Symptoms:

- Loss of condition.
- Open mouth.
- Cheese-like plaques in the beak and the crop.

Cheese-like plaques at the left side of the tongue.
Lesions in the throat.
Ruffled plumage, weight loss.
Repeated swallowing movements of the throat.
The crop can be covered by a yellowish, diphteritic membrane.

Youngsters are the most infected.

Pigeons can have:

- The pharyngeal form: with yellow plaques in the beak.
- The umbilical form: the parasite enter the body through the unhealed navel.
- The organ form: the parasite attacks internal organs like the liver. You can find yellowish necrosis areas on the liver surface.

Diagnosis:

- Microscopic demonstration of flagellates in crop fluids are suggestive of this disease. Yellowish plaques in the beak and the throat are also very suggestive. But the yellowish plaques should be differentiated from herpes virus, pigeon pox, candida albicans.
Treatment: (important during 3 to 5 days )

- Ronidazole 10%: 1 gr/liter water.
- Metronidazole: 1 gr/liter water.
- Dimetridazole: 0,4 gr/liter water.
- Carnidazole: 10 mg/pigeon.

Acidifying drinking water with Vior suppresses the development of trichomonas in the crop. With a treatment of Ronidazole, you can better acidify the water.

**COCCIDIOSIS**

It’s a intestinal disease caused by a protozoon parasite named Eimeria Labbeana or Eimeria columbarum. Coccidiosis is most commonly seen in youngsters. The parasite lives in the intestines and multiply in the intestinal cells but destroys the cells in the intestinal wall. The oocysts (egg form of coccidiosis) come free in the intestines and passes out in the faeces. Pigeons can only be infected by ripe oocysts in contaminated food or drinking water. Stress can produce outbreaks of coccidiosis. Pigeons are able to build up resistance against the parasite. That will be the reason that we don’t treat the pigeons in wintertime.

**Symptoms:**

- Weight loss because the digestion will be less efficient.
- Bad condition.
- Watery, even bloody droppings.
- Bad growth of the youngsters.
- Bad performance.

**Diagnosis:**

- Microscopic examination of fresh droppings.
Treatment:

- Preventive:
  - ✓ Clean the loft regularly.
  - ✓ With Enterocur, Vigoramine and Vichol to protect the intestinal mucosa and to prevent vitamins shortness.

- Curative:
  - ✓ ESB3 1 gr/liter
  - ✓ Baycox 5 ml/liter
  - ✓ Appertex 1 tab/pigeon
  - ✓ Cosumix 1 gr/liter

**HEXAMITHIASIS**

Hexamitha Columbae is a protozoon parasite of pigeons. Young pigeons are especially susceptible. Hexamitha occurs in pigeon flocks in the springtime and early summer. Adult pigeons don’t show visible symptoms but can excrete large quantities of parasites in the droppings. Newly weaned squabs who have a low resistance, are very sensitive.

Incubation time is 4 – 5 days.

Often seen in combination with adeno-coli disease.

Symptoms:

- Inappetance.
- Depression.
- Loss of weight.
- Watery, even bloody droppings.

*Watery, bloody droppings.*
Diagnosis:

- Microscopic examination of a fresh cloaca swab or body warm droppings.

Treatment:

- Preventive
  - Preventive treatment with Enterocur, Vigoramine and Vichol to protect the intestinal mucosa and to prevent vitamins shortness.

- Curative
  - Ronidazole 10%: 1 gr/liter water.
  - Metronidazole: 1 gr/liter water.
  - Dimetridazole: 0.4 gr/liter water.
**BACTERIAL INFECTIONS**

**ORNITHOSIS**

Ornithosis is a bacterial infection disease. It’s caused by Chlamydophyla psittaci. Ornithosis is recognized as a zoonotic infection. This means that the infection spreads from pigeon to human. Transmission appears through direct or close contact with contaminated secretions or droppings. Infected pigeons can become carriers without visible symptoms but these pigeons are a source of infection for the fancier and other pigeons. The incubation period is known to be very variable. Pigeons receive ornithosis in the basket by breathing infected dust, by ingesting contaminated food, water or by contact with contaminated droppings or saliva. The infection can also spread from parents to squab whilst crop feeding. Ornithosis is like paratyphus a general infection which means that all the organs can be infected. A carrier pigeon can develop the disease in a stress situation (moulting, breeding, racing etc.).

**Symptoms:**

- Poor performance.
- Swollen eyelids.
- Discoloration of the cere.
- The nostrils become to be grey.

![Discoloration of the cere and grey nostrils.](image1)

- Nasal catarrh with yellowish exudates.
- Conjunctivitis.

![Conjunctivitis complicated with sinusitis](image2)
• Breathing noise.
• Sneezing.
• Scratching the head.
• Pneumonia.
• Weight loss.
• Anorexia.
• Diarrhea.

The respiratory disorders remain a frequent cause for bad performances in racing pigeons. Why some pigeons are more susceptible for infection than other is difficult to say. There is a balance between the natural resistance of the pigeon and the pathogenesis from the germs.

The natural resistance is influenced by:

• Age: Young pigeons are more susceptible.
• Stress: Overpopulation, weaning, breeding, racing, temperature fluctuations, unfavourable climate on the loft.
• Deficit of vitamins undermines directly and indirectly the immunity system. Give the pigeons twice a week Vigoramine and Oligofertil.

Diagnosis:

• ELISA test or a bacteriological stamp coloration of an impression smear can give a fast result
• PCR test of droppings.
• Some clinical signs or post mortem findings are pathognomic like splenomegaly, air sacculitis.

Therapy:

• Doxycyline (1 gr/liter water) for 6 weeks.
• Tetracycline (1gr/liter water).
• Enrofloxacin (10 mg/kg) up to 10 days.
**SALMONELLOSIS (PARATYPHOID)**

Paratyphus is caused by a bacteria *Salmonella typhimurium var. Copenhagen*. The disease is recognized as a zoonotic infection. This means that the infection spreads from pigeon to human. Transmission appears through direct or close contact with contaminated secretions or droppings. Infected pigeons can become carriers without visible symptoms but this pigeons are a source of infection for the fancier and other pigeons. Salmonella can be introduced into a loft by an healthy carrier bird that can excrete the organism in faeces or saliva. A carrier pigeon can develop the disease in a stress situation (molting, breeding, racing etc.) Young birds can be affected from crop milk or affected faeces.

Paratyphus is a general infection what means that all the organs can be infected.

**Symptoms:**

- Sudden death of squabs in the nest.
- Infertile eggs.
- Embryonic death.
- Diarrhea.
- Loss of appetite.
- Loss of weight.

*Skinny pigeon in bad condition.*

- Bad condition.
- Swollen articulations.

*Swollen articulation*
• Panofthalmia.
• Nervous symptoms.

Diagnosis:
• Bacterial culturing from a tissue smear or droppings.
• Serum agglutination test on a blood smear can give a very fast result but is only possible when the pigeon is not vaccinated.
• Pathologic research of a dead bird: hepatomegaly with granulomas in the liver and in the wall of the intestines, swollen testicles, arthritis from the articulations, panofthalmitis, abscesses in the pectoral muscles.

![White granulomas in the intestinal wall](image)

• Paratyphoid must be differentiated from streptococcus infection and paramyxovirus.

Treatment:
• Preventive:
  ✓ Disinfection from the baskets, the lofts, drink boxes with atlantol.
  ✓ Regular bacteriological research from droppings or from cloaca swabs. You must sample the droppings from 2-3 days for research. Acidification of the drinking water with Vior might help to suppress the development of salmonella. This can help to control the reappearance of the disease and higher the immunity against salmonella vaccination with inactivated or living vaccine. Protection of the intestinal wall with Enterocur.

• Curative:
  ✓ You can only treat the positive pigeons after antibiogram tests.
  ✓ Amoxycilline with clavulic acid: 50 mg / kg twice a day, 7 days
  ✓ Trimethoprim-sulfa: 20 mg trimeth – 100 mg Sulfa/liter water, 10 days
  ✓ ESB3: 1 gr/liter water, 10 days
  ✓ Enrofloxacine: 200 mg/liter water, 10 days
**STREPTOCOCCUS GALLOLYTICUS**

Streptococcus gallolyticus is one of the most important bacterial infections in pigeons at this moment. It’s a gram + cocci. This bacterium is a part of the normal intestinal flora of healthy pigeons. In a stress situation the intestinal balance between good and pathogen bacteria will be broken and the streptococcus will multiply and invade the bloodstream.

The symptoms caused by streptococcus mimic those of salmonella.

- Sudden death of squabs.
- Embryonic death.
- Septicemia.
- Swelling of the joints.
- Arthritis.
- Areas of necrosis in the pectoral muscles.

![Rachitis of the breast bone with necrosis in the pectoral muscles.](image)

- Infection of the shoulder joint.
- Inability to fly.

Very typical is that the pigeon flies very well in the race on Sunday and is not able to fly 2 meter high the day after. From time to time you can find in the breeding loft hens who lose weight and have no appetite.

Treatment:

- Preventive:
  - SB Special is a plant extract that enlarges the immunity system and suppresses the development of streptococcus in the intestines.

- Curative:
  - Amoxicilline-clavulic acid: 50 mg/kg, twice a day, 5 days.
  - Ampicilline: 1 gr/liter water.
  - Amoxycilline: 1 gr/liter water.
MYCOPLASMA INFECTION

This bacteria plays a very important role in respiratory problems because mycoplasma is endemic in pigeon population. There are 3 species of mycoplasma. Stress conditions can stimulate the development of the disease. The incubation time is 7-14 days. Transmission passes by inhalation of contaminated dust or contact with exudates.

Symptoms:

- Bad performance.
- Sneezing.
- Rhinitis.
- Clear nasal discharge.
- Nostril pus.
- Mucus files in the throat.
- One eye cold (conjunctivitis).

![Typical one eye cold conjunctivitis](image)

Diagnosis:

- When you see the symptoms you must also think on herpes virus, ornithosis, bacteriological research of a throat swab in a transport medium can give the most sensitive diagnostic mean together with the symptoms. The appearance of a mycoplasma infection of mucus files in the throat is mostly secondary to another problem. In this situation we must treat the two problems.

Treatment:

- Let's make a resistance test before treatment.
- Doxycycline: 500 mg/liter water, 6 days.
- Tylosine: 500 mg/liter water, 6 days.
- Enrofloxacin: 10% / 2 ml/liter water.
- Linco-Spectin 100: 1 gr/liter water.
CORYZA

It’s an infection of the upper respiratory tract and most of the time it’s a combination of different pathogen agents like herpes virus, ornitosis, mycoplasma, E coli.

The stimulating factor to receive coryza is:

- Overpopulation in the flock.
- Bad ventilation in the loft.
- Stress.
- Bad hygiene.
- The transmission way is inhalation of contaminated particles, dust or contact with infected exudates.

Symptoms:

- Bad performance.
- Sneezing.
- Rattling.
- Conjunctivitis, sinusitis

Chronic sinusitis

Chronic respiratory disease due to E. coli

- Ears stand outside (owl head).
Treatment:

- Doxycycline 500 mg/liter water, 6 days.
- Tylosine: 500 mg/liter water, 6 days.
- Enrofloxacine: 10% / 2 ml/liter water.
- Linco-Spectin 100: 1 gr/liter water.

**STAPHYLOCOCCUS, STREPTOCOCCUS INFECTION**

When we take bacteriological swabs we can find regular (> 30%) these bacteria. These bacteria are gram + cocci. Fighting in the basket or damage of the beak, nostrils in the racing basket are a source of infection. The infection is possible by inhalation of infected exudates, dust. It’s many times the cause of respiratory problems.

Symptoms:

- Sneezing.
- Scratching at the nostrils.
- Pus in the beak.

*Red throat with exudates in the beak*

- Red throat.
- Discoloration of the cere.

Treatment:

- Preventive:
  - Loft management.
  - Ventilation.
  - No overpopulation.
  - Gift of vitamins like Oligofertil, Vigoramine.

- Curative:
  - Amoxicilline-Clavulic acid: 50 mg/kg twice a day, 5 days.
  - Ampicilline: 1 gr/liter water.
  - Amoxycilline: 1 gr/liter water.
**Fungal Infections**

**Candida Albicans**

is a yeast and multiply by elongation of the individual yeast cells. Infections can be initiated by immunosuppression or by long term antibiotic therapy. We can find sometimes candida in throat swabs. Sometimes you find white exudates or crusts in the beak and the throat. Candida can be caused by circovirus because the virus kills the immunity system.

Treatment:

- CCK works preventive against candida
- Terbanafeine or amphotericin works curative.

**Aspergillus**

Is caused by aspergillus fumigatus. Transmission through inhalation of infected fungal spores in dust and in food. Stress seems to be a very predisposing factor to the development of the disease. Vitamin deficiency and long term antibiotic treatment are also predisposing factors.

Symptoms:

- Dyspnoea.
- Depression.
- Rattling.
- Death.
- Granulomas in the airsacs.

Treatment is very difficult because most of the time because we have airsacculitis with granulomas.

- Preventive:
  - Strict hygiene

- Curative:
  - Amphotericine

**Parasitic Infections**
ENDOPARASITES

The most important endoparasites in pigeons are the roundworms, treadworms and the flukes. Endoparasites cause a suppression of performance; weight loss, badly moulting, difficulty to put “weight on”. The infected pigeons don’t come in top form. Regular microscopical fecal examination for the presence of worm eggs is very useful. When you find eggs, you are sure that your pigeons are infected. Pay attention that infections with immature worms may be missed by microscopic research.

ASCARIDIA

Is a roundworm. The eggs are excreted in the droppings and need 14 days to be infectious. The parasite lives in the intestines and take a lot of nutrients from the pigeon. Infection can cause:

- Loss of condition.
- Poor performance.
- Obstruction of the intestines and rupture.

![Obstruction and rupture of the intestines.](image)

CAPILLARIA

Is a treadworm. The prepatent period (wormcyclus) is 3-4 weeks. The worm egg looks like a citron. This worm causes:

- Damage of the intestinal wall.
- Loss of blood.
- Enteritis.
- Bad performance.

![Loss of blood](image)
• Diarrhea.

To prevent worm infestation you must take strict hygiene, clean the floor regularly, drinkers, boxes etc. Advisable is to place a mesh floor in aviaries so that droppings fall through. Your veterinarian will be able to carry out a regular microscopic fecal examination for the presence of worm eggs.

Flukes
Intestinal fluke occurs only in grassy areas near rivers and canals. Pigeons become infested when they eat snails. Only solution is to take away the pigeons from rivers and grassy areas.

Cestodes
Are not commonly diagnosed and is most of the time an individual problem from pigeons who live outside for a period of time.

Treatment:
• Febantel: 15 mg tablet/pigeon.
• Ivermectine: 1% / 4 ml/liter water.
• Tetramisole: 20 mg tablet.
• Praziquantel: 10 mg/pigeon.
ECTOPARASITES

LONG FEATHER LOUSE

- Columbicola columbae lives on the flight and guard feathers and feeds on scurf.

![Long feather louse](image1)

COCCYC LOUSE

- Campanulotes bidentatus which is parasitizing the feathers of the tails
- Causes irritation and agitation from the pigeons.
- Pigeons have no rest at night and have lower performance

![Louse research on the tail.](image2) ![Louse near the shaft.](image3)

FEATHER MITE

- Falculifer Rostratus

- It habitats inside of the feather shaft.
- The feather breaks down and the pigeons are presented with a deplumed area in the neck or on the breast.
RED MITE

- *Dermenyssus gallinae*
- Is a very destructive blood sucking parasite.
- This mite causes anemia because she sucks a lot of blood at night and can cause death in squabs

Treatment:

- Ivermectine drops on the pigeon
One part of the photographs is of Professor Vindevogel (Ulg; Belgium) with the permission of the Moureau laboratories of Chantilly (France)