

Foundation for History of Physiotherapy **Physiotherapy in perspective, 50 years past - present.**



STICHTING GESCHIEDENIS FYSIOTHERAPIE
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Triptych collection equipment Dutch heritage Physiotherapy.

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Collection of respiratory therapy and pandemic (part 1)

Introduction

The heritage of physiotherapy in The Netherlands is administered by the The History of Physiotherapy Foundation and has exhibited its collection in the Medical History meeting point in Urk.

The exhibition contains a variety of books, magazines, articles, but also a very fine collection of equipment in the field of physical therapy, exercise therapy, traction and measuring instruments.

Heritage development in full flight In **1989**, PJBuijs and Dr. TJATerlouw took the initiative to set up the "Foundation for the Preservation of a Heilgymnastic Library" with the aim of collecting books about physiotherapy. This on the occasion of the 100th anniversary of the KNGF. The oldest physiotherapy-related book that the SGF has in its collection dates from 1797 (then still called medical gymnastics).¹

The name "Stichting tot Behoud ener Heilgymnastic Bibliotheek" was changed in **1996** to "Foundation for History of Physiotherapy (SGF)" and the aim was expanded to promote historical knowledge and interest in physiotherapy.¹ From that time on, books also collected equipment and in **2018** the collection from Amsterdam (AUAS) of the remedial gymnastics library was added to this.¹

Due to the multitude of books and more and more equipment, a thorough redesign took place in **2019**, among others with the cooperation of Prof. dr. Mart van Lieburg, professor of medical history.

Due to the extensive and sorted collection of books and the beautifully displayed equipment, this collection is increasingly taking on a museum appearance.



The Dutch heritage physiotherapy of the SGF on Urk

Trilogy

We would like to take you on a journey over the next three months through an editorial Triptych where we want to show some devices from the heritage at Urk, of which sometimes no one seems to know anymore which 'illnesses and defects' our forerunners in the field tried to cure. .

- Part 1 collection of respiratory therapy in physiotherapy
- Part 2 collection of curiosities in physiotherapy
- Part 3 Collection Arsonvalization Devices with Experience Expert

Respiratory Therapy COLLECTION (Part 1)

Social context

In previous articles we have paid attention to the history of spas, sanatoriums and the emergence of rehabilitation centers in the Netherlands. It discussed how the social context played a major role in the development of these centers as a result of epidemics such as tuberculosis (TB) and poliomyelitis, which at the time had a major impact on the population and were decisive in the development of the current Intensive Care Unit. departments (ICU) and lung equipment.

Now that we are embroiled in a global pandemic due to the coronavirus, we would like to take a look back at our collection of lung equipment in this area.

iron lung

The first device we know of in the field of lung devices is the *famous iron lung*. The iron lung was developed in 1928 by Philip Drinker (USA) and was used exclusively for ventilating patients with poliomyelitis. The head remained outside this machine and a piston was released

negative pressure applied to the thorax and alternating with positive pressure to allow ventilation. The action of the diaphragm was taken over by the iron lung (due to paralysis of the respiratory muscles due to polio).



The first 'iron lung' in the Netherlands that was used for many years to ventilate patients infected by the virus that caused *acute poliomyelitis*, which could cause serious respiratory problems (Radboud UMC collection).

Epidemic poliomyelitis

In 1952, a major epidemic broke out due to the virus that caused poliomyelitis caused. The epidemic started in Denmark and in a short time there had to be 2300 patients are admitted, of which 349 with severe

respiratory disorders due to the paralysis symptoms present^{2,3}.

Denmark had an IRON LUNG and doctors in the Netherlands were faced with an impossible task. The Netherlands was eventually also hit by a polio epidemic in 1956. In 1965,

the government to care about epidemics organize nationally as a result^{2,3} To a chain of respiration centers

was created in the large hospitals.

Over time, these respiration centers have been transferred to intensive care units (ICU) where physiotherapists also play a role, among other things in the

respiratory therapy. How recognizable are all these states in the current corona epidemic!



Impression of current equipment in ICU for viral pneumonia



Collection respiratory therapy SGF.

Nebulizers for respiratory problems. The SGF has some of these in its possession. Below is a beautiful antique copy.1



Dr. Lucas Championnière, French arts, developed the nebulizer in the late 19th century.

Officially, the device is called the Pulvérisateur.

The device was used, among other things, to nebulize (nebulize) medicines for respiratory problems, including asthma.

Verneverlaar-Lucas-Championniere from 1899 (collection SGF).

There is also a varied collection at Urk of inhalation devices that were used for respiratory problems (with or without medicinal applications).1



inhaler. The porcelain "Hygienic inhaler" with the Boots® brand name from 1920 (SGF collection).

Inhaler devices were designed to make inhalation therapy easier, more effective, and safer (or so it was suggested). With traditional inhalation (head over a bowl of hot water), the steam doesn't enter the airways effectively and the hot water cools down too quickly (or so it was argued).

De 'Dr. Nelson inhaler®



Last but not least, we still have the croup boiler of the inhalation equipment type (i.e. the steam boiler). Croup is a respiratory disease due to



Krup kettle (collection SGF).

of a viral infection where barking cough is one of the most characteristic symptoms. It still occurs in children (only at a young age)¹.

The boiling water in the croup kettle was used to reduce barking cough, however, due to the advent of the shower and lack of scientific evidence of effectiveness, the croup kettle has only historical significance.



Inhalation methods (Photo Coll SGF)

In addition to respiratory equipment aimed at nebulization and inhalation therapy, the collection also includes measuring instruments used by patients with respiratory disorders (vital

capaciteitsmeter, spirometer etc.). Below we see a nice example of a device that can measure the vital capacity to measure.¹



Vital capacity meter (collection SGF)

We are still familiar with the measurement of vital capacity from the practicals during biology lessons.

Professional measuring equipment is used for this in remedial gymnastics and later in physiotherapy and this measuring method is still very current in patients with COPD.

We also know the Vibrax that was placed on the chest for respiratory problems due to sputum retention. This vibration device fell into disuse for this purpose because breathing exercises improved were found to work in sputum retention than the 'vibration' of the sputum by the Vibrax. Yet we still know the stories that people recovered from this. The only question is why did she feel better then? Research did not demonstrate this 'perceived effect'.

Every physiotherapist from the 70s-90s heard the basics of lung function to know flawlessly. Not an optional subject! If problems arose with the airways, the physiotherapist was immediately called in. For example, it was learned how important the role of the airways is in the clearing of the 'inhaled'

airborne oxidants (e.g. O₃, NO₂, tobacco smoke,...) and other foreign particles (e.g. dust particles, bacteria,...).⁵

In order to be able to perform this function, the airways are covered with a liquid layer (= double mucus layer).

In addition to the antibiotic, an anti-oxidative and an anti-protease activity of the mucus, it together with the cilia (= cilia) the mucociliary transport mechanism.⁵ If sputum retention occurs here, there is an increased risk of all kinds of complications and the physiotherapist had to work with tapoten or with the Vibrax. So is a

virus infection very destructive to the function of the cilia with sputum retention as a result.⁵

The latter is not superfluous knowledge in this Corona time!



Vibrax (collection SGF)

For example, the Vibrax (photo left) served as we call it the 'Bronchial toilet' and the following techniques were also used:

1. Cleaning the upper airways
2. Administering an aerosol
3. Learning to breathe correctly
4. Learning to breathe functionally
5. Choosing a drainage technique
6. Relaxation
7. Mobilization
8. General condition / Muscle training*

* 2012 NPI quote and course: Airways clearance techniques in people with sputum retention.

Other more recent respiratory attributes from the SGG collection



Mini peak flow meter (SGF collection)

Here on the left we see a mini peak flow meter from the SGF collection. This kind of instrumentation is still in use.

The leading rehabilitation center in the field of pulmonary rehabilitation "Dekkerswald in Groesbeek" refers in 1987 to this mini peak flow meter when using the 'dead space' (article by Rik Gosselink "Dead space enlargement, a physiotherapeutic agent").⁶

Below, more recent lung volume measuring equipment (the spirometer is still in use).



Spirometer Voldyne 5000 (Coll SGF)



Triflo II Spirometer (Coll SGF)

What can we learn from it?

That these equipment are often silent witnesses of all kinds of ailments in a certain era in which epidemics as we know now with the Coronavirus also reigned. Those who know its history are much better equipped against the next epidemic. We're not quite there yet.⁴

We also see from the devices how technical ingenuity has increased, such as the current highly advanced IC equipment. The physiotherapists are also currently using other measuring and treatment instruments. This seems to require exponentially more technical knowledge than in the past. In the daily crisis images on TV we see how

human lives depend on this equipment (associated with a lot of emotion from the people who operate this equipment). Perhaps we should think the dualistic that 'technical people know less emotion, just give up' and that technical basic knowledge of the functioning of the airways should never become optional for the physiotherapist! Here too there is a role for the domain discussion for physiotherapy.

Could we prepare for another new pandemic with a "think tank" of colleagues?

Be prepared!

Sources

1. Wim Schoemans, MSc, MA. Physiotherapist, philosopher. Secretary SGF, 2019. Ronald Valk PT, geriatric physiotherapist. Board member SGF. Rob Karstens PT, board member SGF.
2. Looking at J. Threat new Polio epidemic real. Medical Contact, opinion section: October 2019.
3. van Asbeck of FWA. The Dutch poliomyelitis epidemic 1992/'93; disability and rehabilitation. Ned. Journal Medicine. 1996; 140:1178-82.
4. Bommel van J. When Corona has worn off... Medical Contact, section opinion: March 2020.
5. Ceulaer de Filip. 'Airway Clearance Techniques' In People With Sputum Retention. Employ Physiotherapy NPi 2012.
6. Gosseling R. Dead space augmentation, a physiotherapeutic agent. NGF vol. 98 no.12 Dec.1981 p. 375 380."

For information about the **History of Physiotherapy Foundation** , we refer you to the [website of the SGF](#).





Other services of the SGF with regard to the collection

The SGF offers practices or institutions the opportunity to borrow attributes from the collection.

A condition is that you become a sponsor of the SGF for a minimum of 25 euros per year and an additional contribution of 25 euros for a year of loan.



An example of a practice with atti neighbors of the SGF on loan

The History of Physiotherapy Foundation (SGF) has an ANBI status and is completely dependent on support. You can support us as a sponsor (€ 25 p/y) or as a patron (€ 100 p/y).