

## Paracelsus Plasma Apheresis

Welcome to the latest newsletter! In this issue, we will take an in-depth look at the topic of plasma and plasma apheresis. We will explain what plasma is, how plasma apheresis works and which substances are removed in the process. You will also learn who would benefit from this procedure and how to proceed step by step. Let's explore the possibility to reset your health!

### What is Plasma?

Human blood is a fascinating structure of cells - both white and red blood cells - suspended in a vital fluid called plasma.

Since it was founded over 65 years ago, the Paracelsus Clinic Lustmühle has been intensively involved with plasma. We not just see plasma as the fluid in which blood cells drift, but as the milieu (matrix) for all crucial nutrients, proteins, fats, vitamins, minerals, and hormones. Within this balanced environment, organs and tissues exchange essential substances and information.

Nonetheless, plasma also presents challenges as it contains substances that might cause problems or diseases. These encompass heavy metals, toxins, fats that have undergone oxidation, immune elements, inflammatory triggers like cytokines, and antibodies – notably during autoimmune processes.

Especially when the intestine is disturbed, following vaccinations, encountering dental issues, or facing unclear health complaints, substances can accumulate within the plasma that the body lacks the ability to effectively eliminate on its own.

### What is plasma apheresis?

Plasma apheresis works by separating plasma from blood cells, then following specific steps to process it. The main goal of this method is to remove harmful substances while keeping the important parts safe and untouched.

### How does plasma apheresis work?

In the simplest method, the plasma is just discarded. However, this not only removes harmful substances but also the beneficial components. Because of this, this procedure is rarely used anymore.

The other commonly used plasma apheresis methods, which we'll explain here, are as follows:

- Double filtration plasma apheresis
- Immune adsorption apheresis
- H.E.L.P. apheresis

### Double filtration plasma apheresis

Double filtration plasma apheresis is the technique used at the Paracelsus Clinic, but it is also used by other providers, e.g. INUS.

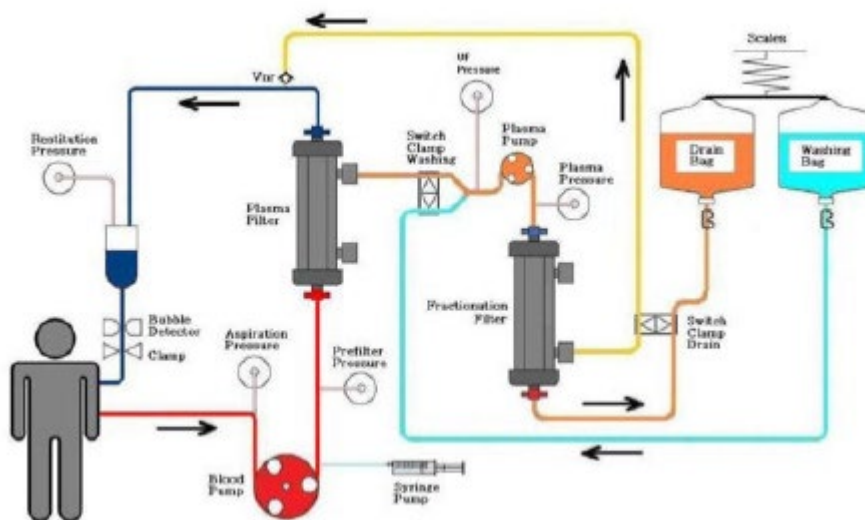
In the double filtration plasma apheresis method, blood cells are separated from the plasma in the first step using a filter with slightly smaller pores than the blood cells. These cells are then returned to the body right away. Anything larger than the pores of this initial filter, which is similar in size to blood cells, remains untouched.

Next, the plasma separated in the first filter goes through a second filter. The pores in this second filter are chosen to allow minerals and small proteins, like albumin, which are vital in the blood, to pass through. However, larger molecules, especially fats such as cholesterol, and proteins like immunoglobulins, antigen-antibody complexes, microthrombi, and possibly even microplastics, are at least partially caught in the filter.

Certain toxins also have a specific size or are attached to larger molecules, causing them to be filtered out. This applies, for instance, to pesticides, fungal toxins, and insecticides.

The advantage of this method is that it can remove many substances that cause diseases, even in cases where the cause isn't clear. However, the downside could be that some smaller harmful substances might escape the filter, while some "beneficial" substances might remain trapped within it.

*Graphic: Double filtration apheresis diagram*



### **Immuno-Absorption Apheresis**

Here, as in double filtration plasma apheresis, the cells of the blood are separated from the plasma in the first step. The second filter has somewhat larger pores than the one used in double filtration plasma apheresis.

In principle, all "good" substances fit through it. The filter is coated on the inside and, depending on the coating, certain substances "stick" to this coating. There is a separate filter for each target substance.

Thus, there are also filters that specifically filter out substances that are responsible for Long Covid, for example. The advantage of the procedure is that even very small substances can be filtered out, and actually all other components of the plasma remain in the body. The disadvantage can be that other pathogenic substances also remain in the body.

### **H.E.L.P.-Apheresis**

This procedure is no longer in use, but we're discussing it here due to recent buzz. A doctor in Germany has reported positive outcomes with Long Covid using this method.

Similar to double filtration plasma apheresis, the first step involves separating blood cells from plasma. Then, substantial amounts of heparin are introduced, and the plasma's acidity is significantly adjusted in the tubes. This alteration causes fats, especially LDL cholesterol, to cluster together, making them easy to remove almost entirely. Consequently, the second filter's pores can be larger in size, preserving most of the "beneficial substances" within the body.

However, the harmful substances relevant to Long Covid are likely proteins, not fats. Hence, it remains uncertain whether the substances implicated in Long Covid are effectively eliminated using this approach.

An additional drawback is that the administration of heparin and adjusting acidity might, at least theoretically, lead to more issues with this type of apheresis.

### **How do the various methods differ?**

The nuances between different suppliers are marginal. Any companies strive for the optimal pore size to efficiently screen out harmful components and preserve the valuable elements in the body. In fact, there are only a few companies that manufacture these specific filters, which means that many vendors end up using the same filtering solutions, albeit under different names.

Paracelsus Clinic has conducted extensive research to identify the process that we believe ensures the highest standard, in combination with the best filters available and independent partners. We are committed to continue to use with selective precision the procedures that are best suited for our patients.

### **When is double filtration plasma apheresis used?**

The filtering process leads to the conditions approved in traditional medicine (mentioned at the end of this newsletter), which are primarily utilized in intensive care settings for exceptional cases. Over the past few years, this technique has gradually extended to private clinics and medical practices. The growing reach and acceptance of double-filtration plasma apheresis can be attributed to the achievements of nephrologist Dr Straube in Cham, Germany. He broadened the scope of indications and demonstrated that even smaller molecules, like heavy metals or nearly all toxins, can be effectively removed in specific amounts through plasma apheresis.

Thus, the indications now include:

- Heavy metal exposure
- Exposure to any toxins
- All unclear diseases (1)
- Diseases with suspected immune system dysfunction such as post-Covid/long-Covid (2,3)
- Prevention

Nevertheless, the filtration of smaller molecules, like heavy metals, has its limitations. This mainly hinges on the size of the toxins, particularly when these substances are linked to larger compounds like fats or immunoglobulins. Furthermore, the presumed benefits are largely grounded in real-world observations that still require confirmation through clinical investigations.

However, we frequently witness favourable outcomes from plasma apheresis. Doctors and experts surmise that the improvement of health for various conditions, such as those following chronic infections or unclear disease,

might stem from the removal of immunoglobulins or the enhancement of blood flow properties (known as rheology).

### **Does plasma apheresis have any side effects?**

Despite plasmapheresis being generally associated with few side effects and sometimes even considered nearly devoid of them, this isn't entirely accurate. Firstly, precious proteins are minimally removed. Additionally, contact between the blood and foreign substances can lead to issues for certain individuals.

To address the temporary shortage of proteins, we administer a restorative infusion after the procedure. Moreover, we utilize top-notch materials to minimize the risk of harm to veins and any undesirable reactions to the materials used.

### **How often should plasma apheresis be performed?**

This varies depending on the disease. For some diseases it is enough to have one or two apheresis in a short succession where the body experiences a reset and the problem is solved.

In some diseases, the body constantly produces the disease-causing substances or it continues to be loaded with toxins or pathogens from the outside, and then plasma apheresis must be done regularly until the disease or toxin load is stopped in another way.

### **Is plasma apheresis enough to get better?**

Definitely a clear "no" from our perspective. Plasma apheresis is undoubtedly an effective method, but it is only one piece of the puzzle within a holistic therapy, such as that anchored in the four pillars of Biological Medicine of the Paracelsus Clinic.

Minimizing exposure to toxins is incredibly important. A significant portion of these harmful substances actually stem from the mouth, including dental metals like amalgam, gum inflammation, or interference fields within the jaw. This is why, at the Paracelsus Clinic, we have a biological dental department. We strongly advise all our patients to undergo these assessments before considering plasma apheresis and to receive any necessary treatments to enhance its effects.

In addition to maintaining a healthy digestive system, we firmly believe that a wholesome diet, regular physical activity, and a comprehensive holistic therapy program are essential components for the treatment's success.

### **How do you find out if plasma apheresis is right for you?**

The easiest way is to contact the Paracelsus Clinic and arrange an initial information consultation with one of the doctors. Further diagnostics (blood values, dark field microscopy, etc.) can then be initiated if necessary.

In a detailed discussion with you, we will clarify whether plasma apheresis is suitable for you, what you should do to accompany it, what the exact procedure is, and much more.

### **For therapists: What do I do if I suspect my patient might benefit from plasma apheresis?**

The same applies to therapists. If you have patients for whom you consider plasma apheresis to be useful, please send them to us so that we can clarify the indication or possible contraindications in a direct discussion. In these cases, we will of course leave the accompanying therapy to apheresis in the hands of the referring therapist.

Yours sincerely,

Dr Johannes Naumann (MD)

Internist

Occupational and Environmental Medicine Specialist

#### References:

1. LeRoy AS, Murdock KW, Jaremka LM, Loya A, Fagundes CP. Loneliness predicts self-reported cold symptoms after a viral challenge. *Health Psychol* 2017; 36:512–520.
2. Achleitner, M., et al. Clinical improvement of Long-COVID is associated with reduction in autoantibodies, lipids, and inflammation following therapeutic apheresis. *Mol Psychiatry* 2023; 1476-5578.
3. Ruhe J, Gizzas B, Schlosser M, Reuken PA, Wolf G, Stallmach A: Immune adsorption for the treatment of fatigue-dominant long-/post-COVID syndrome—a case series of standardized individual experimental therapy. *Dtsch Arztebl Int* 2023; 120.

#### Official indications for Plasma-Apheresis

- Eye diseases like macular degeneration, Refsum's disease etc.
- Haemophilia
- Ulcerative colitis
- Muscle disorders like ALS, dermatomyositis, Charcot-Marie-Tooth disease, multiple sclerosis, muscular dystrophy, myasthenia gravis, myopathy, myositis, including polymyositis and dermatomyositis.
- Heart muscle diseases like myocarditis, dilated cardiomyopathy, polymyositis
- Polyneuropathy and other neuro-degenerative diseases like CIDP, diabetic foot with risk of limb amputation, Guillain Barre Syndrome, Stiff-Person-syndrome, Eaton-Lambert syndrome (neuromuscular junction disorder) etc.
- Metabolic disease like hypercholesterolaemia, atherosclerosis, Lp(a) hyperlipoproteinaemia, Hypertriglyceridemia (especially if conventional therapy failed and/or risk of premature and progressive or heart attack or stroke or renal vessel infarction)
- Kidney diseases like glomerulonephritis, nephrotic syndrome etc.
- Hearing loss
- Pancreatitis (inflammation of the pancreas)
- Blood cancers like Erdheim-Chester-syndrome, Non-Hodgkin lymphoma etc.
- Blood vessel diseases like cryoglobulinemia, Behcet's disease, Raynaud's disease, vasculitis, Hyperviscosity syndrome (HVS), Plasmacytoma, third nerve palsy etc
- Skin disease like psoriasis, lichen etc.
- Autoimmune diseases like rheumatoid arthritis, Sjögren's syndrome, systemic sclerosis, SLE (systemic Lupus erythematosus) etc.
- Xanthogranulomatosis (inflammatory disease of the gallbladder)