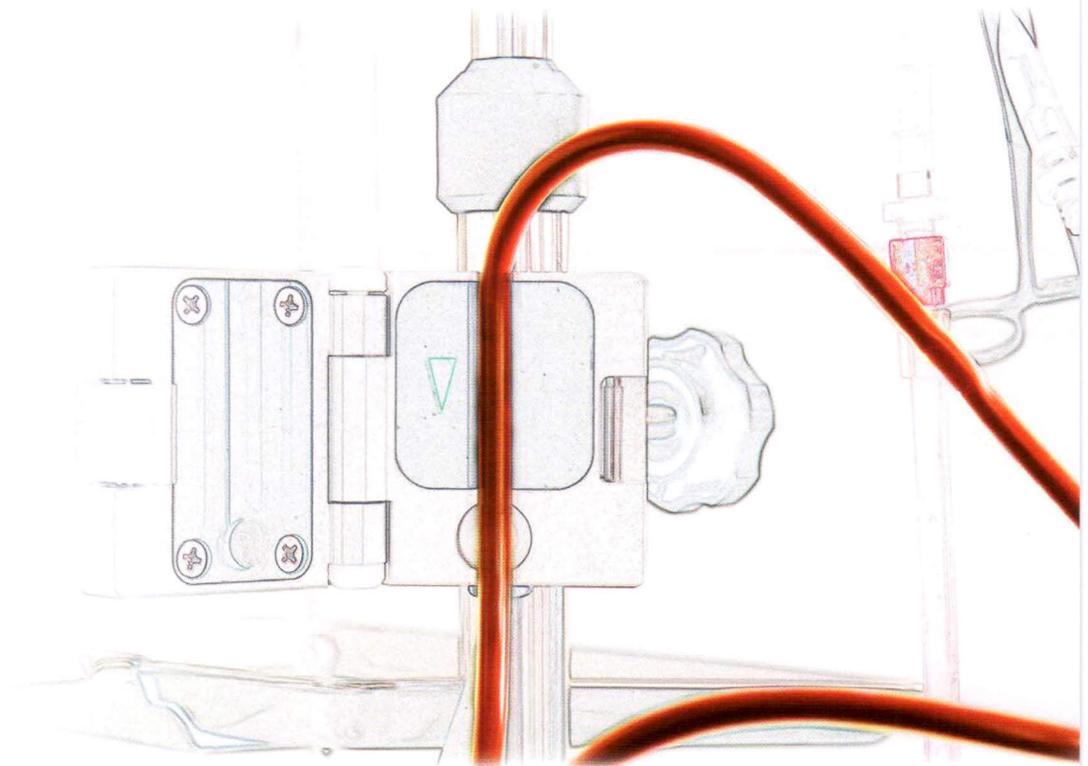




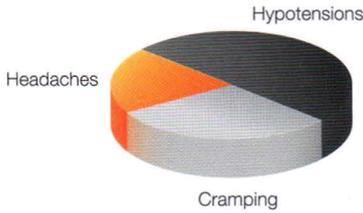
Fewer complications

Haemo-Master



Haemo-Master option

Complications during dialysis treatments



Complications during dialysis treatment

Various complications can occur during a dialysis treatment. Incidents during dialysis sessions occur in approximately 30 % of all treatments.

Roughly half of all episodes during dialysis treatments are caused by hypotensions. The majority of these problems are caused by the seemingly necessary fluid extraction.

The balancing of body fluid is an essential requirement during dialysis

Excessive fluids are ultra-filtered from the intravascular area (plasma) via the dialyzer. Only approximately 7 % of the total body fluid, however, is found in this area. The ultra-filtration volume is chosen so that a defined "dry weight" is reached. Natural fluctuations in the dry weight and in the patient refilling rate can lead to undesired reductions in plasma volume and therefore in a blood pressure drop.



Plasma
approx. 7 %

Interstitial fluids
approx. 31 %

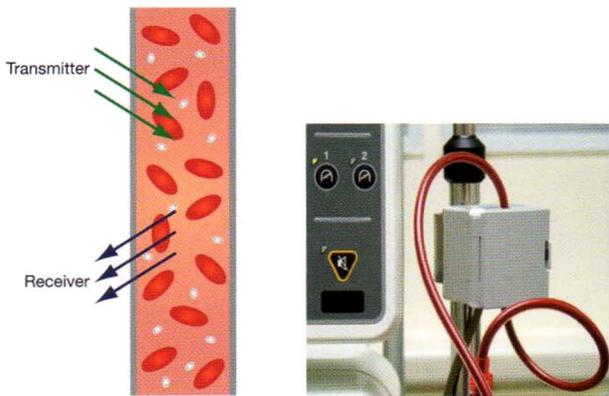
Intracellular
area
approx. 60 %

Distribution of fluids in the human body

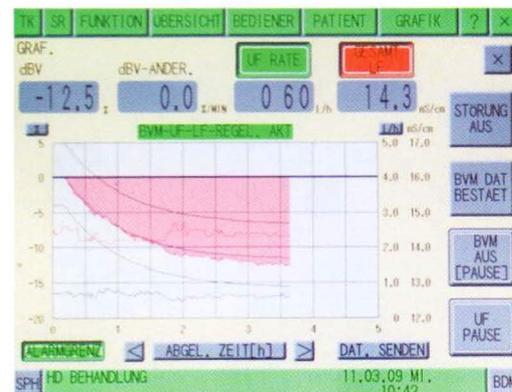
The Haemo-Master option reduces complications during treatments

Measuring principle of the Haemo-Master

The relative blood volume is measured via an infrared measuring section during the dialysis treatment, and is displayed graphically on the screen.



The Haemo-Master measuring principle and measuring chamber



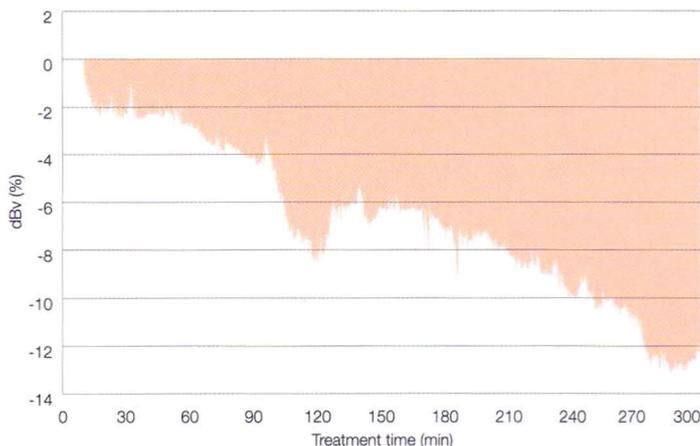
DBB-05 screen with the trend in the blood volume average (dBV) with the Haemo-Master option

Treatment without Haemo-Master

Blood volume trends without regulation

If the patient takes nourishment during the treatment, changes position or if the refill rate is too low, then this can lead to massive undesired reductions in the blood volume.

The dialysis patient's body often reacts to this with a drop in blood pressure. For the patient, this can result in headaches, cramping or hypotension, amongst other problems.

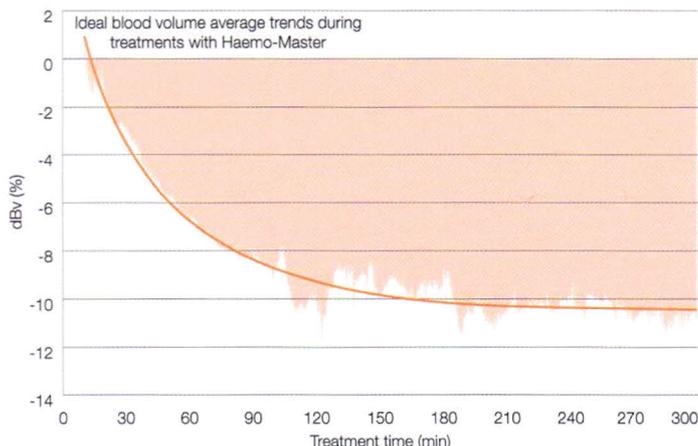


Treatment with Haemo-Master

Blood volume trend with dynamic regulation

For each patient an individual chart for the ideal blood volume changes is established. The Haemo-Master continually measures the relative blood-volume during the dialysis treatment. This is the basis for the automatic regulation of the conductivity and ultra-filtration rate (UF rate).

The intelligent interplay of the regulation of the conductivity and UF rate adapts the blood-volume-changes to the ideal trend. This means it is possible to prevent drops in blood pressure from occurring during the dialysis treatment.



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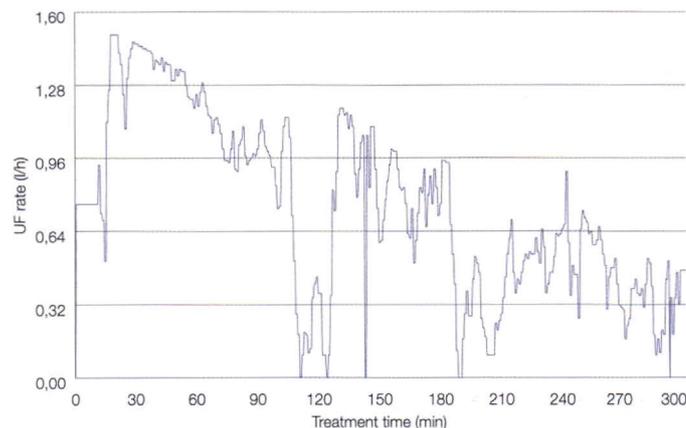
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Regulation of the UF rate

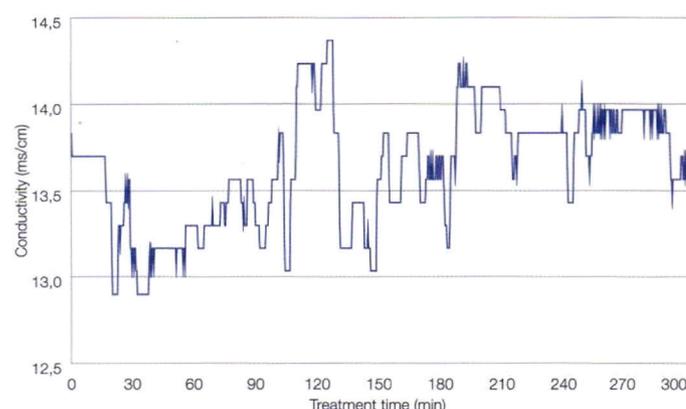
If the blood volume changes vary from the prior established ideal trend, then the UF rate is altered correspondingly.

This change in the UF rate has an immediate stabilising effect on the blood volume changes.



Regulation of conductivity

The blood volume changes during the haemodialysis are determined by the difference between the UF rate and refilling rate. Manipulation of the refilling rate can be achieved directly, to a limited extent, via a dynamic conductivity control.



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Manufacturer

NIKKISO CO., LTD.
43-2, Ebisu 3-chome, Shibuya-ku
Tokyo 150-8677, Japan
Telephone: +81-3-3443-3727
Fax: +81-3-3470-0681
Website: www.nikkiso.co.jp

EU representative

NIKKISO Europe GmbH
Desbrocksriede 1
D-30855 Langenhagen
Telephone: +49 (0) 511 - 67 9999 - 0
Fax: +49 (0) 511 - 67 9999 - 11
Email: info@nikkiso-europe.eu
Website: www.nikkiso-europe.eu

Local partner