



SUPRA HFR

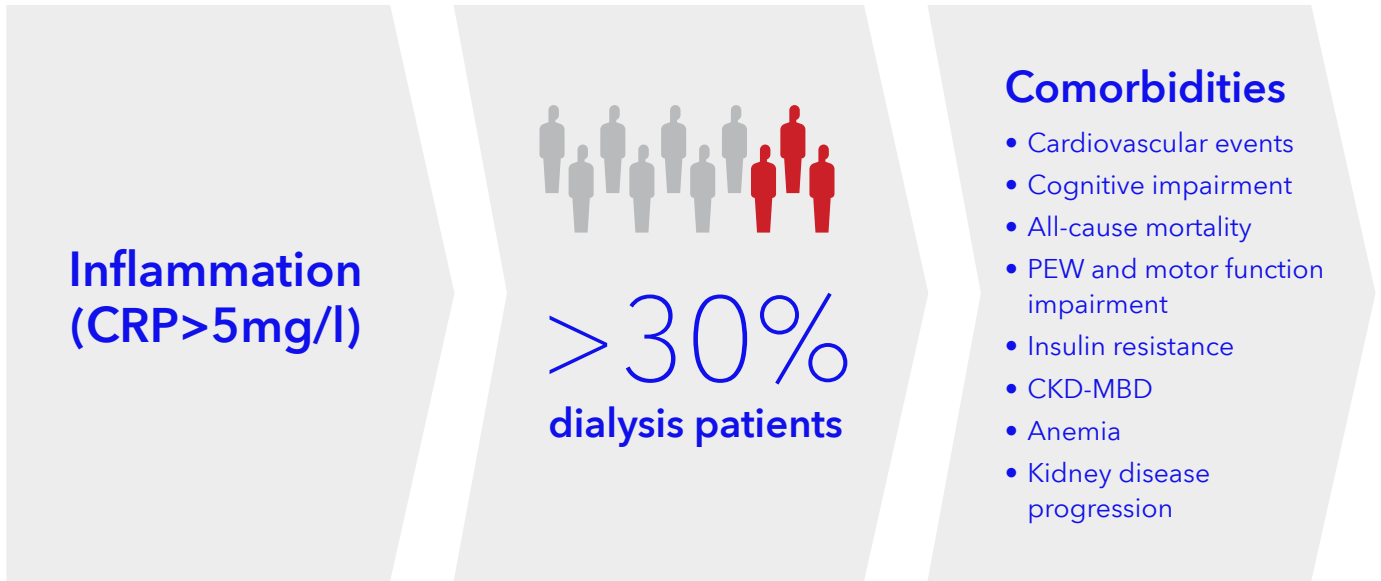
# Designed to replicate a healthy kidney

Delivering personalized treatment  
beyond the standard for chronic care

**Medtronic**

## Facing the challenges

The survival rate of dialysis patients continues to be negatively impacted by high symptoms burden and comorbidities, that may be explained by the high prevalence of inflammation and high molecular weight toxins not properly addressed by standard hemodialysis treatment.<sup>1</sup>



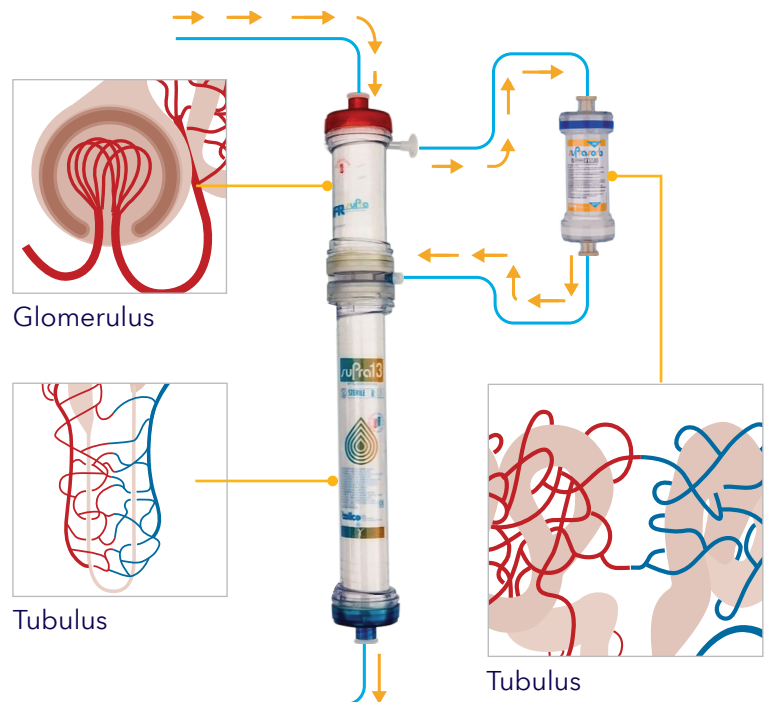
## The need

**A physiological and biocompatible therapeutic** solution able to replicate blood purification of the healthy human kidney functions with endogenous fluid substitution to minimize inflammation level.

## Our solution

To replicate the healthy human kidney, we designed our **exclusive SUPRA HFR therapy** (HemodiaFiltration with endogenous Reinfusion) to mimic the body's purification processes.

SUPRA HFR therapy **exceeds** expectation in blood purification improving the range of filtering toxin size, preserving beneficial molecules, improving the ability to remove a broader range of toxins, reducing inflammation, altogether improving quality of life.<sup>2,3,6</sup>

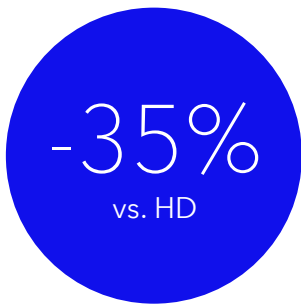


## Exceeding expectations in blood purification

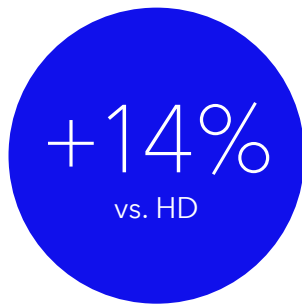
Looking for treatable causes of inflammation is mandatory in order to suppress the vicious cycle of inflammation, malnutrition, and atherosclerosis triggered by pro-inflammatory cytokine.<sup>1</sup>



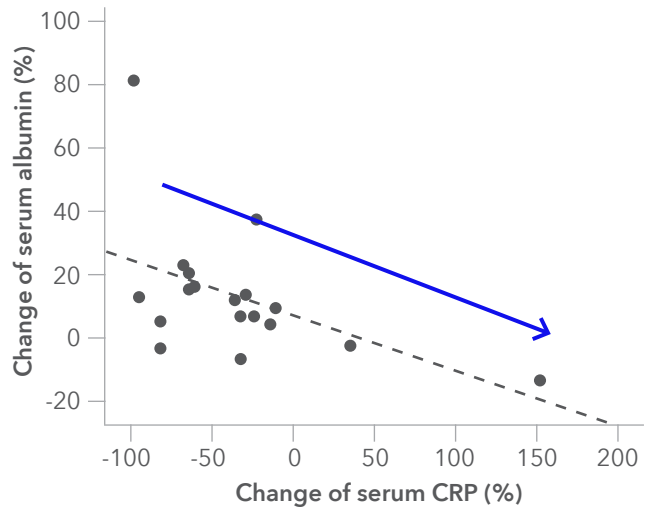
### Inflammation and malnutrition<sup>1</sup>



Serum C-reactive Protein (CRP)

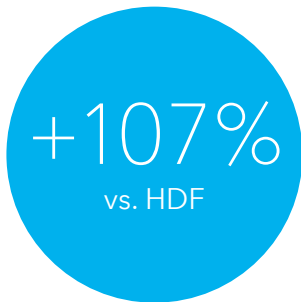


Serum albumin

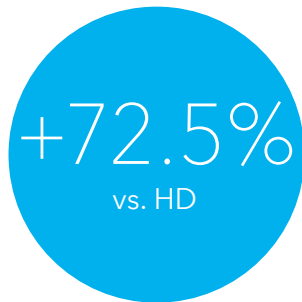


Correlation between percentage change of (CRP) and percentage change of serum albumin in 8 months of hemodiafiltration with endogenous reinfusion (HFR).

### Cytokines Reduction Ratio (RR)

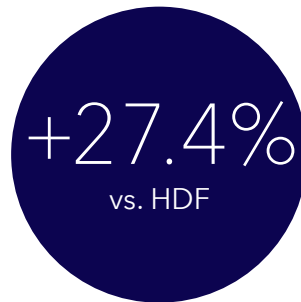


IL-6

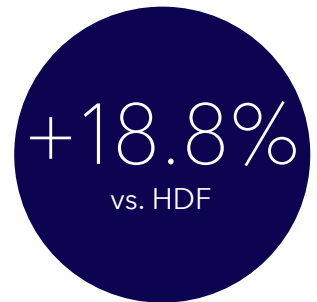


TNF alpha

### Protein bound uremic toxins RR%<sup>1,3</sup>



P-cresol

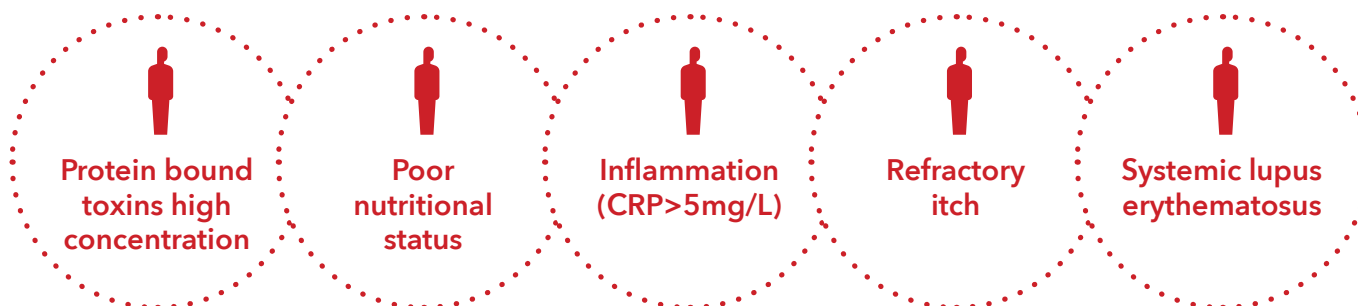


Inoxyl solfato

## State of the art: Purification levels<sup>4</sup>

	<b>LMW toxins</b> up to 500 Da	<b>MMW toxins</b> 500 Da - 16 kDa	<b>HMW toxins</b> 16 kDa - 50 kDa	<b>Protein-bound toxins</b>
	<ul style="list-style-type: none"> <li>• Urea</li> <li>• Creatinine</li> <li>• <math>\beta</math>-Lipotropin General uremic toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• <math>\beta</math> 2 M Amyloidosis CTS</li> <li>• Leptin Malnutrition</li> </ul>	<ul style="list-style-type: none"> <li>• Leptin Malnutrition</li> <li>• Myoglobin Ox. stress &amp; mitochondrial dysfunction</li> </ul>	<ul style="list-style-type: none"> <li>• <math>\kappa</math>-FLC Multiple toxicity</li> <li>• Interleukin-6 Inflammation</li> <li>• TNF-<math>\alpha</math> Sepsis inflammation</li> <li>• Heparin Anemia</li> <li>• Pentraxin-3 Acute phase pr.</li> <li>• <math>\lambda</math>-FLC CV compl. inflammation</li> </ul>
<b>HD HF</b> Reduction of low molecular weight toxin	<b>Effective removal</b>	<b>Appropriate removal</b>	<b>Not appropriately removed</b>	
<b>HDF</b> Reduction of moderate inflammation and partial control of blood pressure	<b>Effective removal</b>		<b>Limited by technology</b>	
<b>SUPRA HFR</b> Reduction of severe inflammation and correction of malnutrition	<b>Effective removal</b>	<b>Appropriate removal</b>		

## Consider SUPRA HFR for your patients with the following conditions:



1. Borrelli S, Minutolo R, De Nicola L, et al. Effect of hemodiafiltration with endogenous reinfusion on overt idiopathic chronic inflammation in maintenance hemodialysis patients: a multicenter longitudinal study. *Hemodial int.* 2014;18(4):758-766.
2. Riccio E, Cataldi M, Minco M, et al. Evidence that pcrsol and IL-6 are adsorbed by the HFR cartridge: towards a new strategy to decrease systemic inflammation in dialyzed patients? *PLoS One.* 2014;9(4):e95811.
3. Esquivias-Motta E, Martín-Malo A, Buendia P, et al. Hemodiafiltration with endogenous reinfusion improved microinflammation and endothelial damage compared with online-hemodiafiltration: a hypothesis generating study. *Artif Organs.* 2017;41(1):88-98.
4. Ronco C, Marchionna N, Brendolan A, et al. Expanded haemodialysis: from operational mechanism to clinical results. *Nephrol Dial Transplant.* 2018;33(suppl\_3):iii4-iii47.
5. Scaparrotta G, Gobbi L, Calò LA. Switching to HFR SUPRA resolved refractory itch and quality of life in a chronic dialysis with liver transplant patient. *Artif Organs.* 2021;45(3):320-321.
6. Solano FG, Bellei E, Cuoghi A, Caiazza M, Bruni F. Radical improvement of signs and symptoms in systemic lupus erythematosus when treated with hemodiafiltration with endogenous reinfusion dialysis. *Case Rep Nephrol Dial.* 2015;5(1):106-112.

## Medtronic

Bellco S.r.l.  
Via Camurana, 1 - 41037 Mirandola (MO) Italy  
Tel: +39 0535 29111 [www.bellco.net](http://www.bellco.net)

Important: SUPRA HFR therapy is provided through procedure packs. Please refer to their Instruction for Use for the available instruction, contraindications, warnings and precautions.

© 2023 Medtronic. Medtronic, Medtronic logo, and Engineering the extraordinary are trademarks of Medtronic. All other brands are trademarks of a Medtronic company.  
EMA-RC-2200042 - 22-weu-supra-hfr-brochure-7480461