RENAL CARE

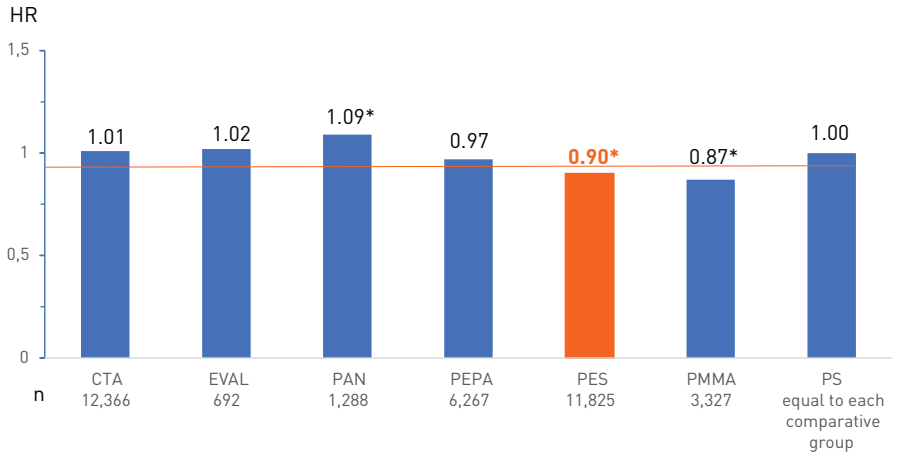
ELISIO™ HX

A NOVEL SHARP CUT-OFF DIALYZER

NIPRO MEDICAL EUROPE

The polyethersulfone membrane type improves the survival rate for dialysis patients

A study by Abe et al showed a 10% reduction of mortality for the group who received polyethersulfone (PES) membranes compared to the polysulfone (PS) membrane group.[1]



Hazard ratio (HRs) of all-cause mortality after propensity score matching for 6 types of dialyzer groups compared to the PS group using Cox proportional hazards regression. * p < 0.01 vs. PS.

Elisio™ HX: A novel super high flux sharp cut-off membrane with optimal membrane material and increased removal capacity

Elisio HX, the new Polynephron™ membrane made with polyethersulfone offers bigger pore size and a specific geometry allowing higher performance compared to a standard high flux membrane.[2] As all Nipro dialyzers, Elisio HX is not made with Bisphenol A.

Japanese classification of dialyzers

Elisio HX, belonging to the super high flux class V high performance dialyzers, offers an optimal HD treatment for patients not eligible for on-line HDF.[2]

Uremic toxin	Molecular weight*
Urea	60 Da
Phosphate	96 Da
PTH	9500 Da
Beta-2 microglobulin	11.8 kDa
Myoglobin	17 kDa
Complement factor D	23.7 kDa
Interleukin-6	24.5 kDa
Kappa free light chain	25 kDa
Alpha-1 microglobulin	33 kDa
YKL-40	40 kDa
Pentraxin 3	41 kDa
Lambda free light chain	45 kDa
Albumin	67 kDa

Low flux class I

Mid-high flux class II and III

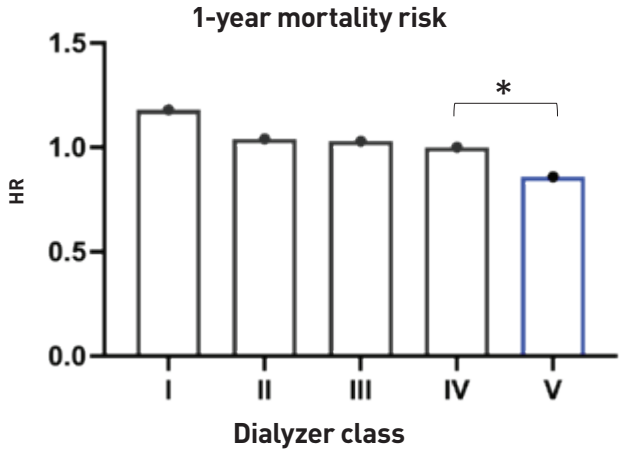
High flux class IV + HDF

Super high flux sharp cut-off class V

*approximate values

Elisio HX's membrane permeability improves the survival rate for dialysis patients

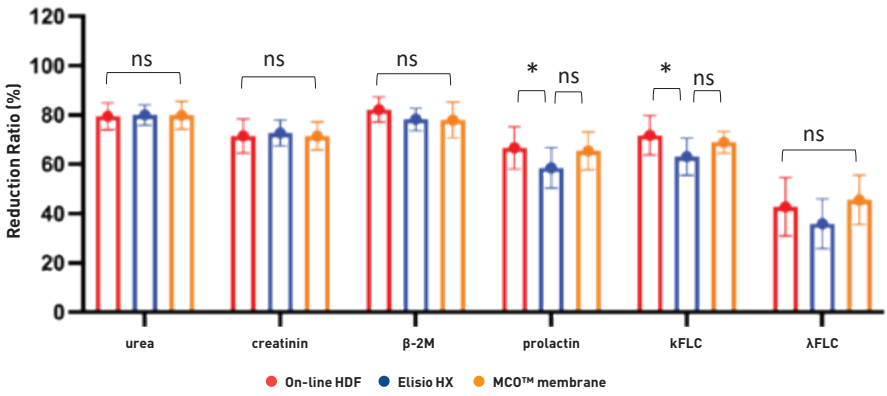
In another study by Abe et al, a reduction rate of more than 10% was observed for patients receiving the high performant class V dialyzers compared to class IV dialyzers as a reference.[3]



Hazard ratio (HRs) of all-cause mortality for the 4 dialyzer groups versus the type IV dialyzer group after propensity score matching using a Cox proportional hazards regression. *P<0.05 versus the type IV dialyzer group.

Higher permeability: optimal performance, similar to HDF, and a medium cut-off membrane

This prospective, randomized, cross-over study demonstrates that the removal of the middle molecules was generally similar between Elisio HX and the medium cut-off membrane as well as between Elisio HX and on-line HDF.[2]



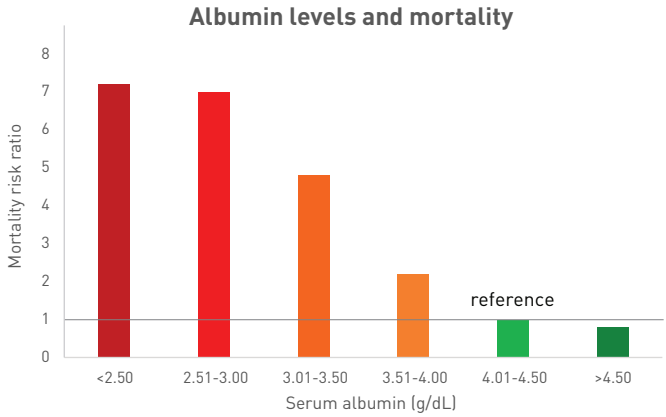
N=14; blood flow > 370 mL/min; replacement volume > 21 L; *p< 0.05; ns: not significant

Elisio HX is a suitable alternative to on-line HDF and can be utilized for patients for whom HDF treatment is not possible.[2]

Should you be concerned about more albumin loss with the bigger pore size of Elisio HX?

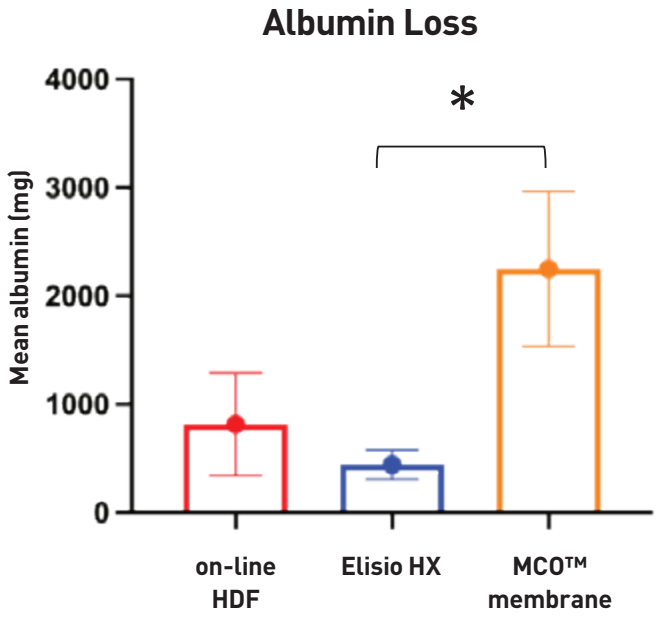
Minimal albumin loss despite bigger pore size

Hypoalbuminemia is common amongst the CKD patients and is a strong predictor of mortality.[4, 5] Dialysis can increase this condition by the extra loss of albumin through the dialyzer's pores.[5] The type of therapy and the type of membrane can impact patients' albumin levels.[6]



Elisio HX, a sharp cut-off membrane, permits the lowest albumin loss within the range of medium cut-off dialyzers[2]

Elisio HX, despite its bigger pore size, loses less than 1g/session of albumin.[2]



N=14; blood flow > 370 mL/min; replacement volume > 21 L; *p< 0.05; ns: not significant

ELISIO- HX

Clearance: Qf = 0 mL/min*	Qb/Qd (ml/min)	11HX	13HX	15HX	17HX	19HX	21HX
Urea	200/500	191	195	197	198	199	200
	300/500	255	266	275	281	287	290
	400/500	296	313	327	338	348	355
Creatinine	200/500	179	185	190	194	197	198
	300/500	230	244	255	266	275	280
	400/500	260	280	297	310	321	331
Phosphate	200/500	173	180	186	190	194	196
	300/500	212	227	241	252	261	268
	400/500	235	253	272	286	299	310
Vitamin B_{12}	200/500	126	139	150	159	167	174
	300/500	146	163	179	192	203	214
	400/500	158	178	196	210	223	235
Myoglobin	200/500	69	80	92	102	112	121
	300/500	76	88	100	110	122	132
	400/500	81	96	108	119	130	142

Clearance Qf = 10 mL/min*	Qb/Qd (ml/min)	11HX	13HX	15HX	17HX	19HX	21HX
Urea	200/500	193	197	199	199	200	200
	300/500	257	268	276	282	288	292
	400/500	298	316	329	341	351	358
Creatinine	200/500	181	188	193	196	198	199
	300/500	233	247	258	270	277	283
	400/500	263	284	300	314	325	334
Phosphate	200/500	175	182	187	191	194	197
	300/500	216	232	245	255	264	271
	400/500	239	256	274	290	302	314
Vitamin B_{12}	200/500	129	142	153	162	170	177
	300/500	150	168	183	195	206	217
	400/500	162	182	200	214	226	240
Myoglobin	200/500	74	88	97	108	118	128
	300/500	81	94	105	116	127	139
	400/500	86	100	113	124	137	148

Ultrafiltration Coefficient**

KUF (mL/hr/mmHg)	47	53	60	67	75	82

Sieving Coefficient***

Vitamin B_{12}	1.00	β_2-microglobulin	1.00	Albumin	0.0024
Inulin	0.97	Myoglobin	0.86		

Effective Surface Area (m^2)	1.1	1.3	1.5	1.7	1.9	2.1
Priming Volume (ml)	68	80	90	102	114	125
Effective Length (mm)	228	245	259	271	281	290
Inner Diameter (µm)	200	200	200	200	200	200
Membrane Thickness (µm)	40	40	40	40	40	40
Maximum TMP (mmHg)	500	500	500	500	500	500

Material	Membrane: Polynephron™	Housing and Header: Polypropylene	Potting Compound: Polyurethane
Sterilization Method	Dry Gamma		
Package	24 pcs/box		

* *In vitro* test condition (EN1283/ ISO8637-1:2017): Qd 500 mL/min, Qf 0 mL/min & Qf 10 mL/min.
Clearance data obtained in Japan. Clearance data can vary slightly depending on the test setup, lot nr. and production site.
** KUF: Bovine blood (Hct 32 ±2%, Protein 60 g/L, 37°C), Qb 300 mL/min
*** SC (EN1283/ ISO8637-1:2017): Qb 300 mL/min, Qf 60 mL/min.

1. Abe M, et al. High-Performance Membrane Dialyzers and Mortality in Hemodialysis Patients: A 2-Year Cohort Study from the Annual Survey of the Japanese Renal Data Registry. Am J Nephrol. 2017
2. Puyol and Martinez Miguel et al. Abstract submitted to EDTA 2022
3. Abe M, et al. High-performance dialyzers and mortality in maintenance hemodialysis patients. Sci Rep. 2021
4. Owen WF, Jr., et al. The urea reduction ratio and serum albumin concentration as predictors of mortality in patients undergoing hemodialysis. N Engl J Med. 1993
5. Kalantar-Zadeh K, et al. Slipping Through the Pores: Hypoalbuminemia and Albumin Loss During Hemodialysis. Int J Nephrol Renovasc Dis. 2021
6. van Gelder MK, et al. Albumin handling in different hemodialysis modalities. Nephrol Dial Transplant. 2018

Nipro Renal Care is part of Nipro Corporation Japan, a leading global healthcare company established in 1954. With over 35.000 employees worldwide, Nipro serves the Medical Device, Pharmaceutical, and Pharmaceutical Packaging industries.

Nipro Renal Care is a global market leader with over 6 decades providing renal solutions for dialysis and dialysis-related treatment. We specialize in developing dialysis machines, water treatment systems, and a comprehensive portfolio of disposable medical equipment.

In order to address the needs of patients, healthcare professionals, and procurement managers alike, Nipro Renal Care is driven by innovation and patient safety to offer the highest quality products that optimize time, effort, and costs.

BECAUSE EVERY LIFE DESERVES AFFORDABLE CARE

www.nipro-group.com/en-en/our-company/our-locations

TriFold - MM-2902 - Elisio HX - EN - 21 Apr 2022

NIPRO MEDICAL EUROPE

Nipro Medical Europe : European Headquarters, Blokhuisstraat 42, 2800 Mechelen, Belgium
T: +32 (0)15 263 500 | F: +32 (0)15 263 510 | medical@nipro-group.com | www.nipro-group.com