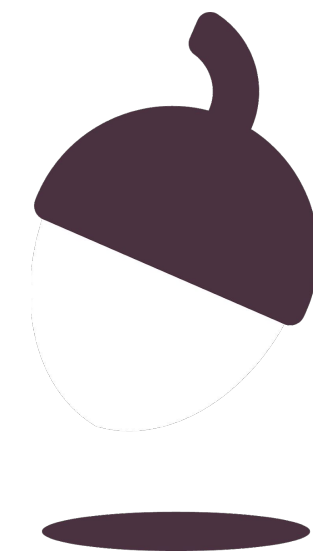


Biology - KS4

Homeostasis and Response

Kidney Failure

Miss Ray

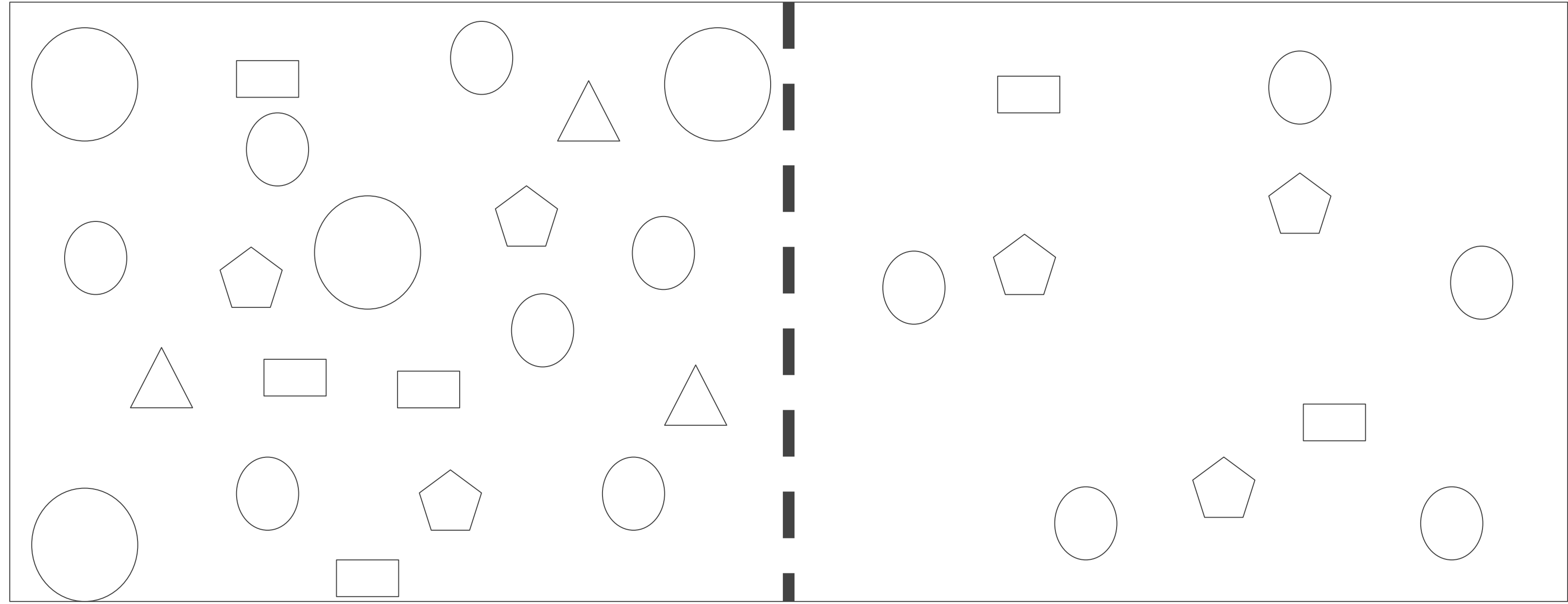


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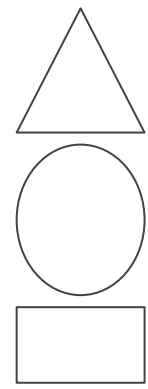
Blood

Dialysis fluid



Ella Ray, Oak National Academy

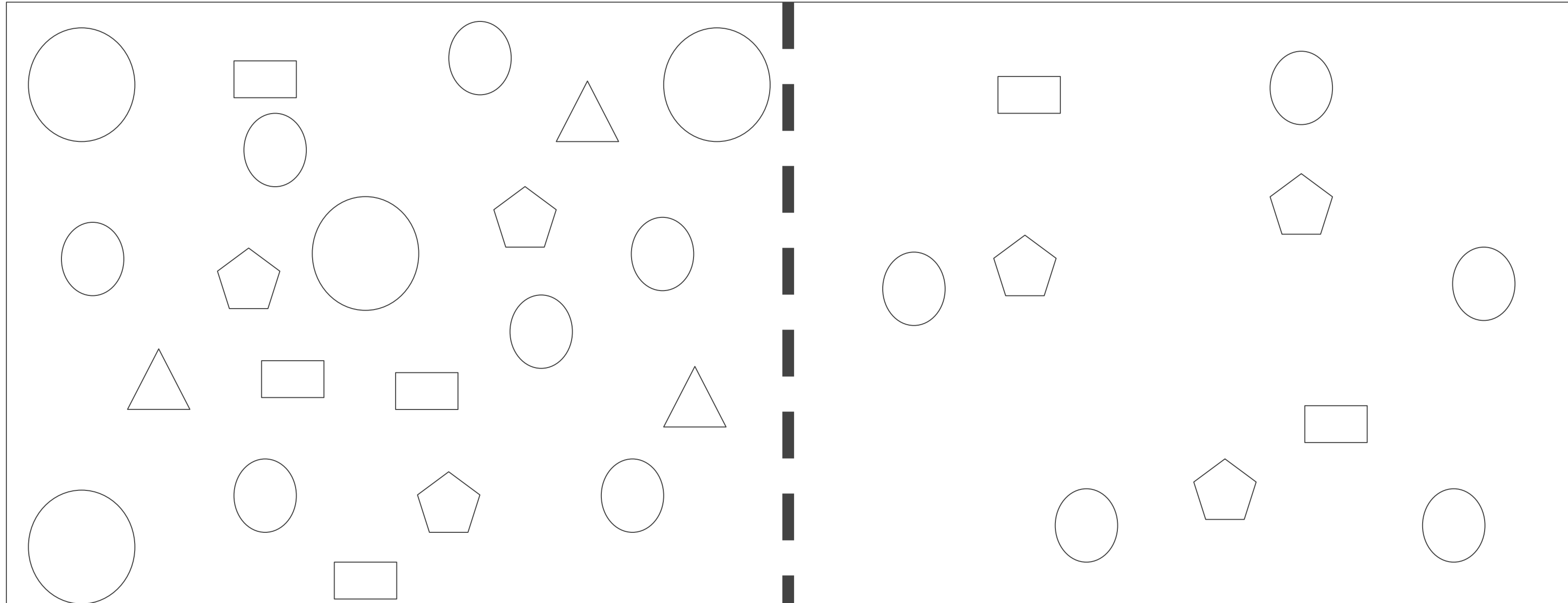




All diffuse from the blood into the dialysis fluid as there is a high concentration of these substances in the blood and a low concentration of these substances in the dialysis fluid.

Blood

Dialysis fluid



Ella Ray, Oak National Academy



During dialysis, the patient's mass often decreases. Why?



During dialysis, the patient's mass often decreases. Why?

Answer

Water is lost from the blood into the dialysis fluid therefore the mass of the person decreases.





Substance	Concentration in blood plasma (g/dm ³)	
	Before dialysis	After dialysis
Proteins	3.00	3.00
Glucose	0.80	0.80
Urea	2.00	0.10

Example questions

1. Why did the concentration of glucose in the blood plasma remain the same?
2. Why did the concentration of urea in the blood plasma decrease?





Substance	Concentration in blood plasma (g/dm ³)	
	Before dialysis	After dialysis
Proteins	3.00	3.00
Glucose	0.80	0.80
Urea	2.00	0.10

Example questions

1. Why did the concentration of glucose in the blood plasma remain the same?

The concentration of glucose is the same in the blood as it is in the dialysis fluid.

2. Why did the concentration of urea in the blood plasma decrease?

The urea moved from an area of high concentration in the blood to an area of low concentration in the dialysis fluid.





Discuss the advantages and disadvantages of using dialysis or kidney transplants to treat kidney failure. [6]

Aim for 3 points for dialysis treatment and 3 points for kidney transplant treatment.



Points in favour of a kidney transplant:

- Patients are able to live a relatively normal life/more convenient/less time consuming;
- Patients do not have to follow a restricted diet;
- There is a lower risk of infection;
- There is a lower risk of developing blood clots;
- Transplants are a longer term treatment;
- Transplants are less expensive for the NHS.

Points in favour of dialysis:

- There may be a long wait for a suitable kidney/there is a shortage of organ donors;
- Risk of rejection;
- Patient must take immunosuppressant drugs for their entire life - increased risk of illness;
- Antigens/tissues of kidney cells must match the patients;
- Risks associated with surgery.

