RENATA,
my nephrologist





KIDNEYS DON'T HURT

RENATA, my nephrologist

is a project by
Fundación Renal Española.

FUNDACIÓN **RENAL**
ESPAÑOLA

Authors
Xavier Altimiras · writer and illustrator
Mª Dolores Arenas · nephrologist writer

Child consultants:
Martina Altimiras · Adriana Guinea Sandín · Elena López Lorente ·
Fabian Andrés Martínez García · Hugo Ricardo Barrios Ventura

Thanks to an idea by Tino Soengas and Elena Gómez



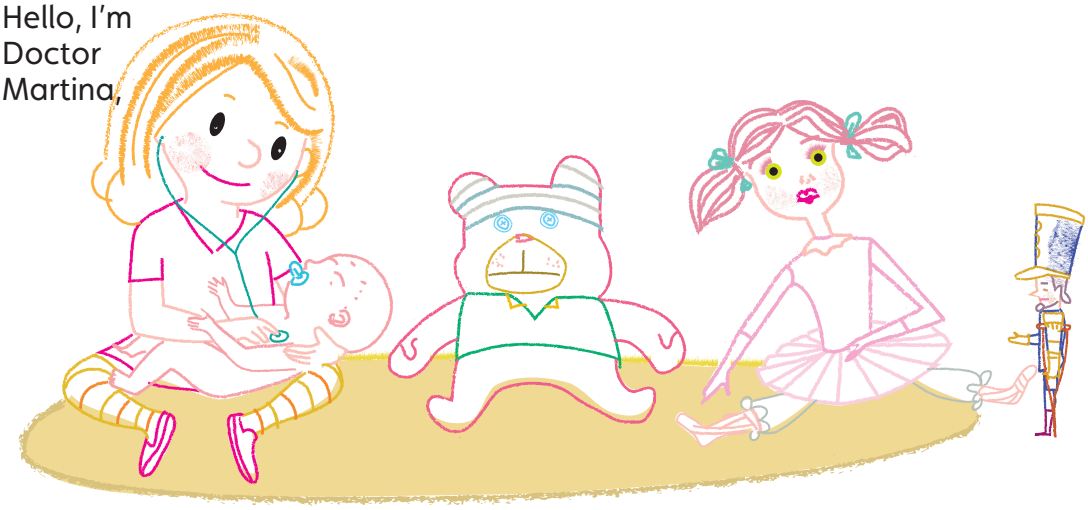
Kidney disease can happen without us noticing for a long time, as kidneys don't hurt. That's why, by the time it's detected, it's sometimes too late. The good news is that we can prevent it if we find out about it in time and if we avoid the factors that cause it.

And what better time to learn about it than at a young age? While it's true that kidney disease more commonly affects older people, it's also true that it is the result of habits that we have had since we were children. That's why it's particularly important to start preventing it early in life.

To that end, the **Fundación Renal Española**, which has been striving to care for people with kidney disease and promoting prevention for over forty years, wanted to publish this book aimed at children so that they know from a young age how to live healthily and what they need to do to look after and protect their kidneys. And once they have learned that, to give them the powerful mission of conveying the message.

Even though we always think that children and young people learn and adults teach, children can be excellent educators of their parents, their grandparents, a whole neighborhood or a community. Children are, and can be, the most powerful agents of change in adults, and it is to them that this book is dedicated.

Hello, I'm
Doctor
Martina,



the doctor for all my dolls.





However, this week I am also looking after my dad. When he gets home, he is so tired that he no longer plays with me.
My mum is very worried and all day long she says to him:
“It’s not normal that you are so tired.
You need to go to the doctor. Tomorrow, without fail”.





Since I'm a doctor, I asked them to let me come with them.
The doctor asked him a whole lot of things, and she pricked him with a needle to take some blood.
I really don't like it when they take my blood.
Tomorrow we'll find out the result.
I'm so nervous!

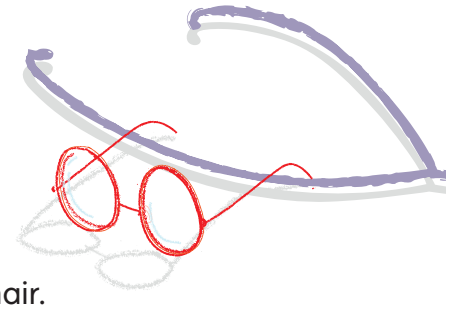


The doctor called this morning.



My dad has something in his kidneys. He has to go to the nephrologist. That's such a funny name! It would be easier to call her a "kidney-ologist".

We finally went to see
the kidney doctor.
She is a doctor and
she's called Renata.



I love her short, blue hair.
She wears very cool, round, red glasses.



She explained that dad's kidneys have stopped working.
But, how does she know that?
It looks like he has lots of **creatinine**, or whatever it's called, in his blood.
What was that?
Crea... what? So many new words!



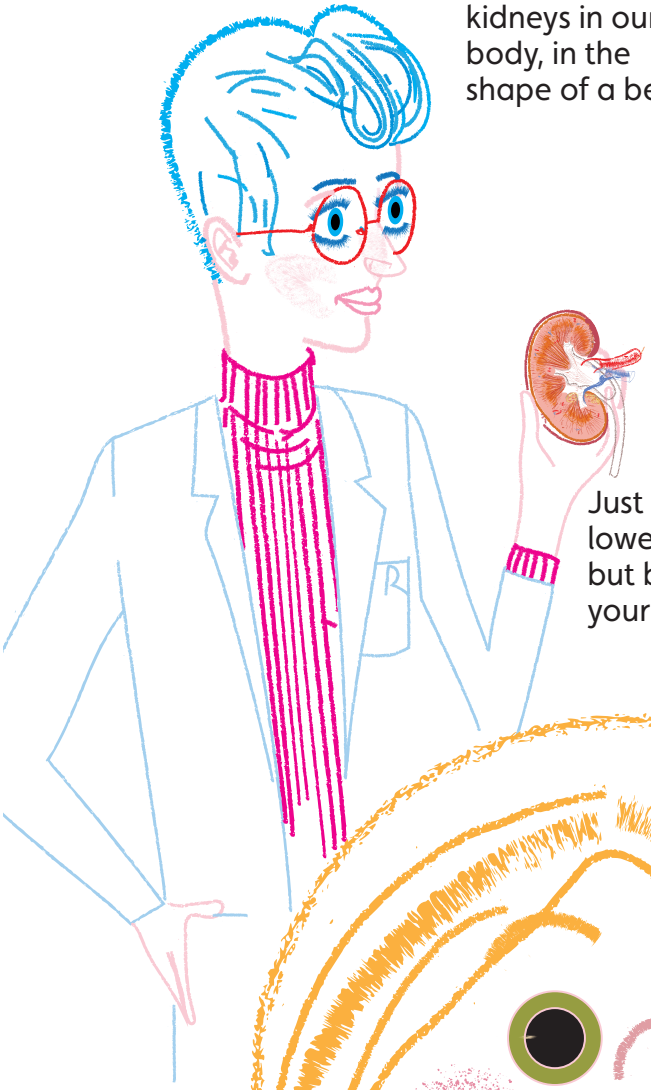


Doctor Renata, I'm doctor Martina and I always treat my dolls.
Could you explain everything to me, please? What's wrong with my dad?

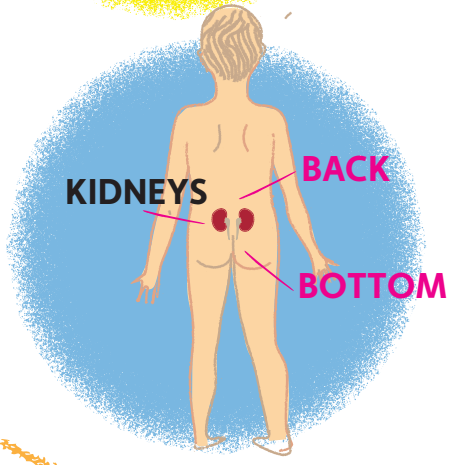


We have two kidneys in our body, in the shape of a bean.





Just at the lower back, but before your bottom



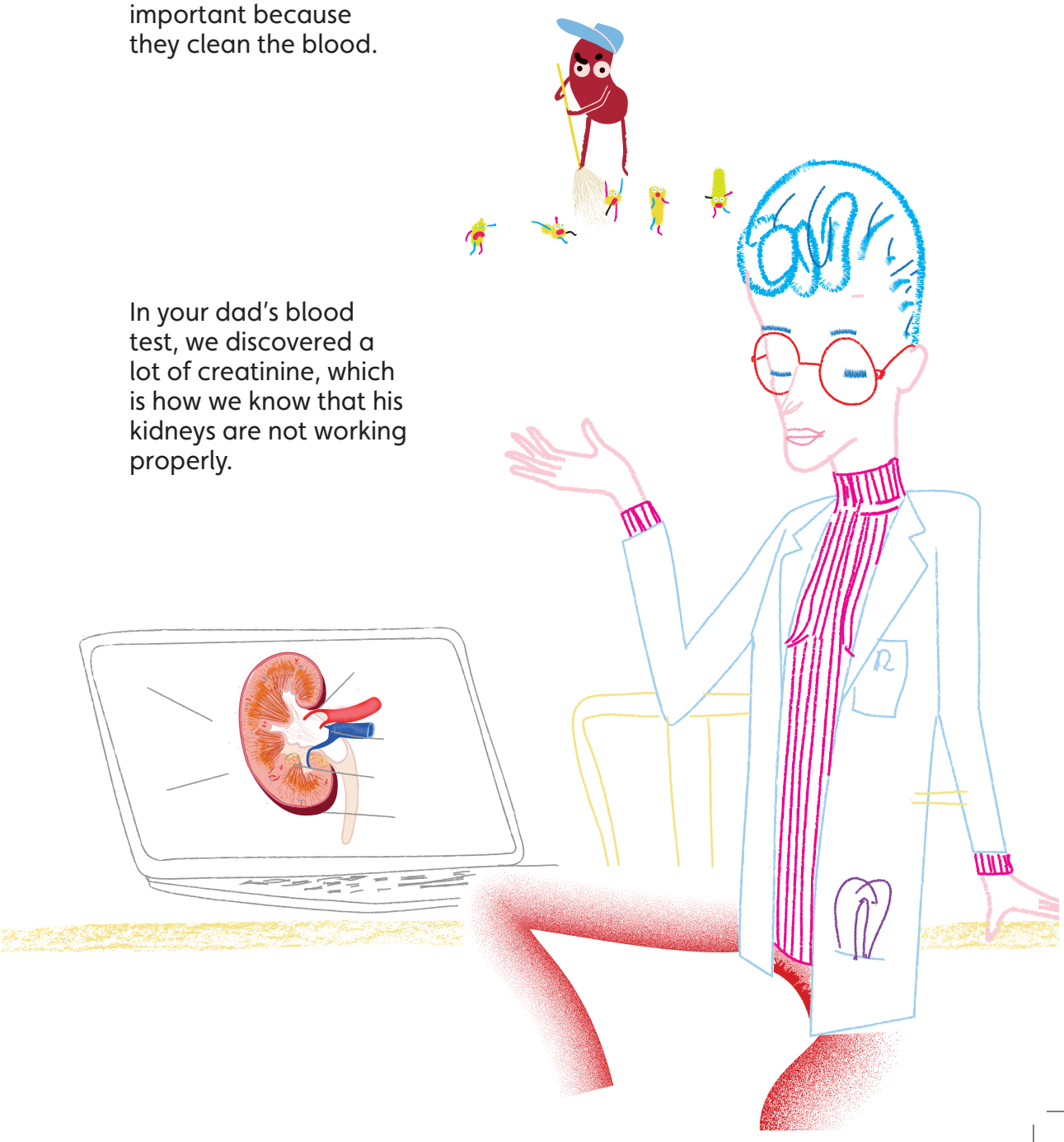


She said bottom

When we eat, part of that food makes us grow and the rest is waste that we need to get rid of. This waste in the blood is called creatinine, and the kidneys are responsible for removing it when we pee.

The kidneys are important because they clean the blood.

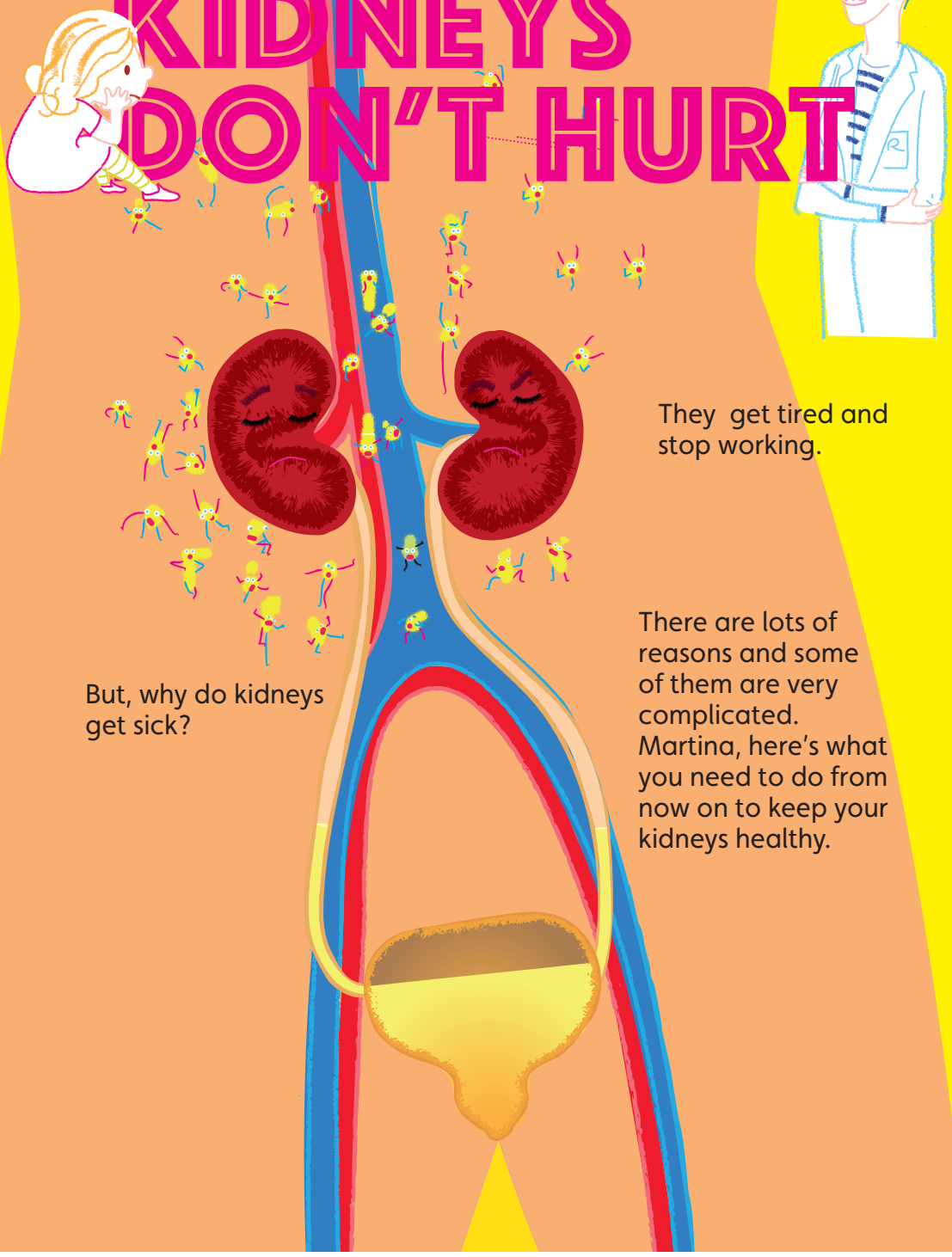
In your dad's blood test, we discovered a lot of creatinine, which is how we know that his kidneys are not working properly.



KIDNEYS DON'T HURT

But my dad's kidneys don't hurt.

Kidneys are very strong. Just one kidney can do all the work. The problem is that when they get tired, they both get tired at the same time!



They get tired and stop working.

But, why do kidneys get sick?

There are lots of reasons and some of them are very complicated. Martina, here's what you need to do from now on to keep your kidneys healthy.





Eat healthy, natural food.
Avoid industrial pastries, as well as fast food or pre-prepared food. These foods contain a substance that kidneys don't like: inorganic phosphorus.



Don't eat too much salt.
It's hard for the kidneys to remove excess salt.
That's it for the salt shaker!
Fries! Olives!
Eat them, but without going overboard, okay?



Do sports and drink water.
George, you need to exercise and drink water.

Every medicine has its job.
Ask your doctor. They'll know.





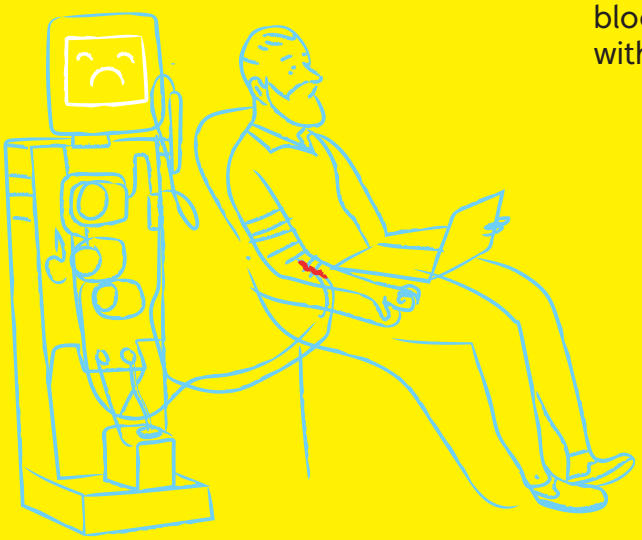
We need to do these things every day to keep our kidneys healthy.
So, what do we do now?

So, what do we do now?

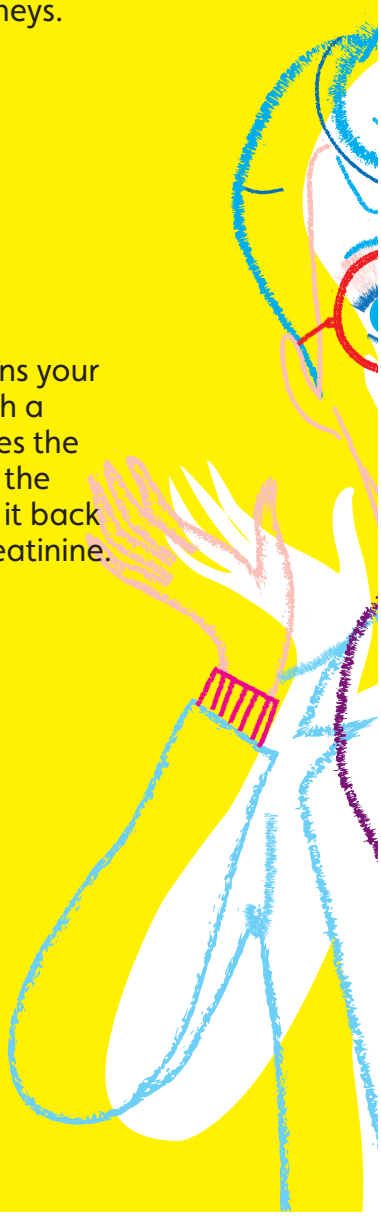


We have several options for doing the kidneys' job when they don't want to do it. Martina, these are the treatments that replace the kidneys.

HEMODIALYSIS

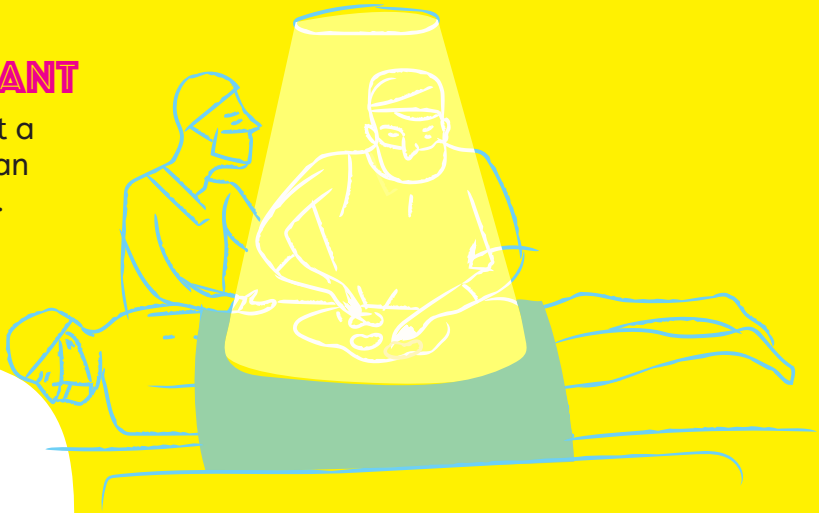


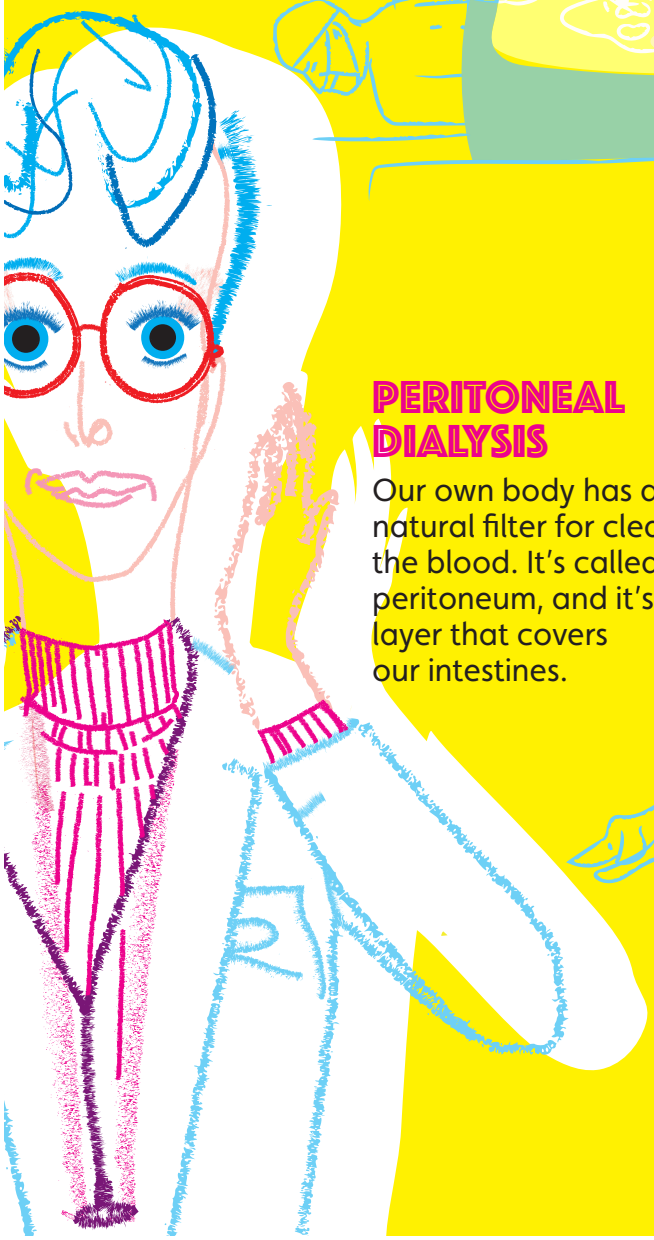
A machine cleans your dad's blood with a filter. It separates the creatinine from the blood and puts it back without that creatinine.



TRANSPLANT

We transplant a kidney so it can start working.





PERITONEAL DIALYSIS

Our own body has a natural filter for cleaning the blood. It's called the peritoneum, and it's a layer that covers our intestines.



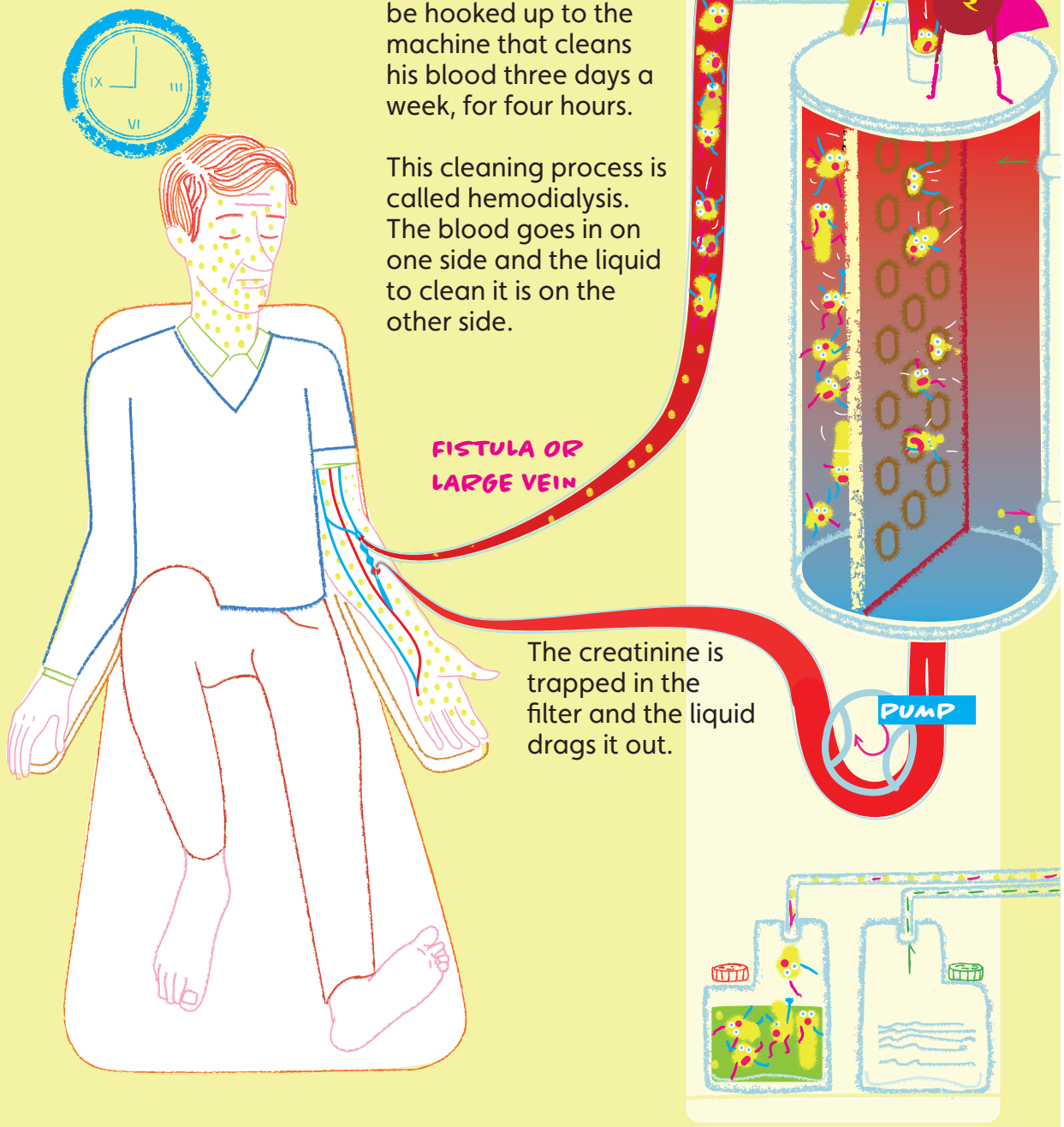
The first option is

HEMODIALYSIS

Hemo means "blood".

Your dad needs to be hooked up to the machine that cleans his blood three days a week, for four hours.

This cleaning process is called hemodialysis. The blood goes in on one side and the liquid to clean it is on the other side.



The creatinine is trapped in the filter and the liquid drags it out.

4 HOURS LATER

THE FLUID GOES IN

THE FILTER TRAPS CREATININE

THE FLUID GOES OUT

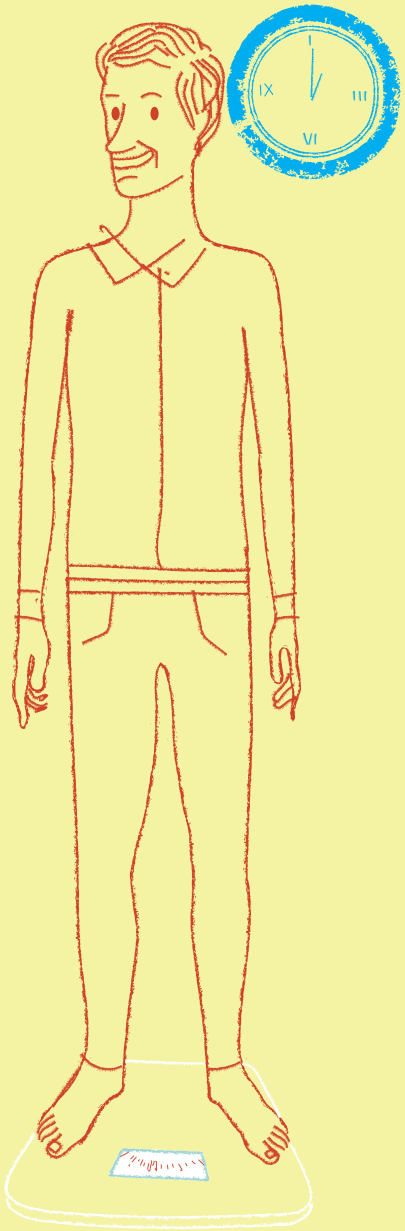
While we clean your dad's blood, we'll give him medicines so that he gets strong, such as erythropoietin, a substance produced by the kidneys which helps to make blood.

It's incredible what kidneys do!

They not only clean the blood, but they also help to make it.

To find out if the dialysis has worked properly and if we have got rid of all the accumulated fluid, we'll weigh your dad.

Sometimes sick kidneys don't let you pee.





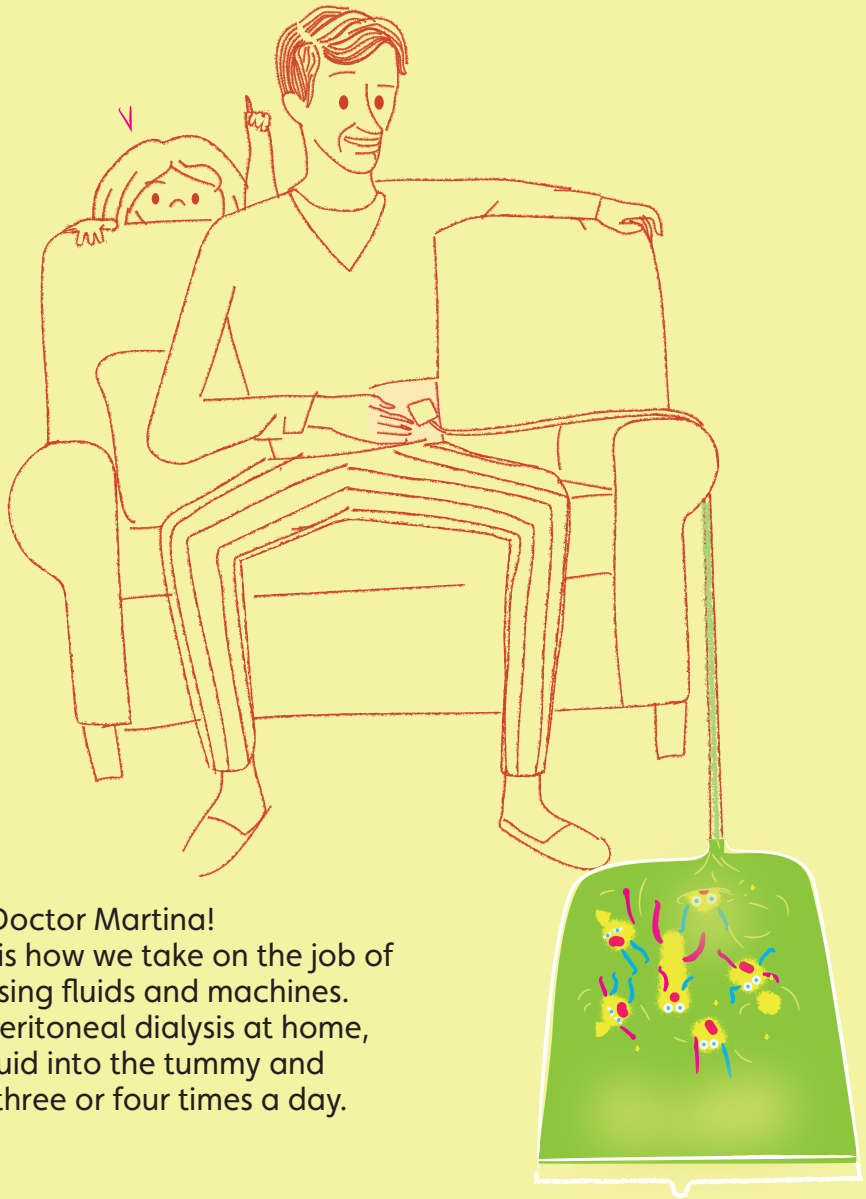
PERITONEAL DIALYSIS

Instead of using an external filter, this technique uses a membrane that we have in the tummy which is called the peritoneum.



This membrane, just like the hemodialysis filter, lets some substances through and not others. The clean fluid goes into the tummy and attracts the dirt from the blood, called

creatinine



That's right, Doctor Martina!
Okay, so this is how we take on the job of the kidneys using fluids and machines.
You can do peritoneal dialysis at home, putting the fluid into the tummy and taking it out three or four times a day.

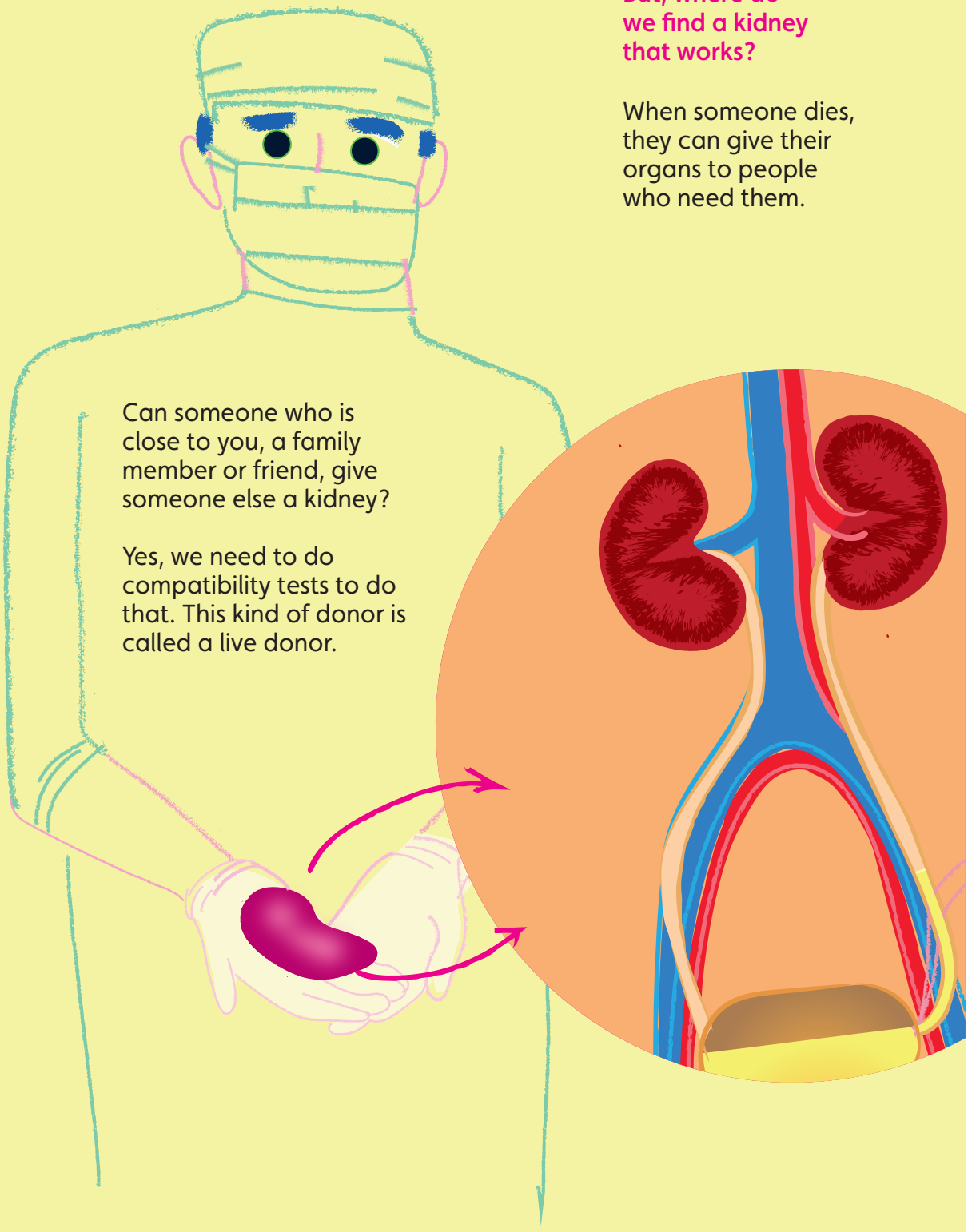
TRANSPLANT

But, where do we find a kidney that works?

When someone dies, they can give their organs to people who need them.

Can someone who is close to you, a family member or friend, give someone else a kidney?

Yes, we need to do compatibility tests to do that. This kind of donor is called a live donor.



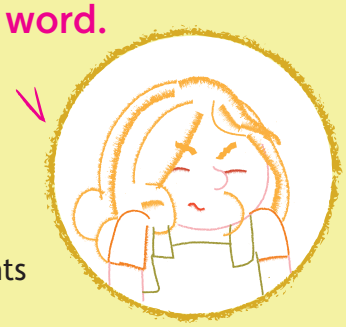
What does compatible mean?
Pensa que el cos del teu pare pot no sentir-se bé amb el ronyó d'una altra persona. Si el teu pare el sent com una cosa estranya, pot rebutjar-lo.

Imagine that your dad's body doesn't feel quite right with someone else's kidney.

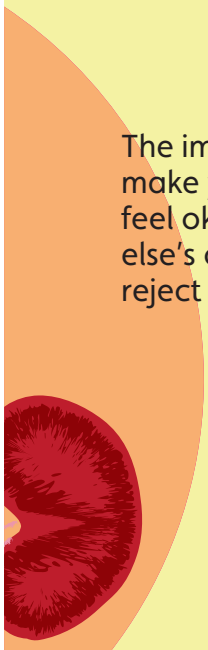
If your dad finds it a bit strange, he might reject it.

To prevent that, we give him tablets called **"immunosuppressants".**

Immunosuppressants — that's a big word.



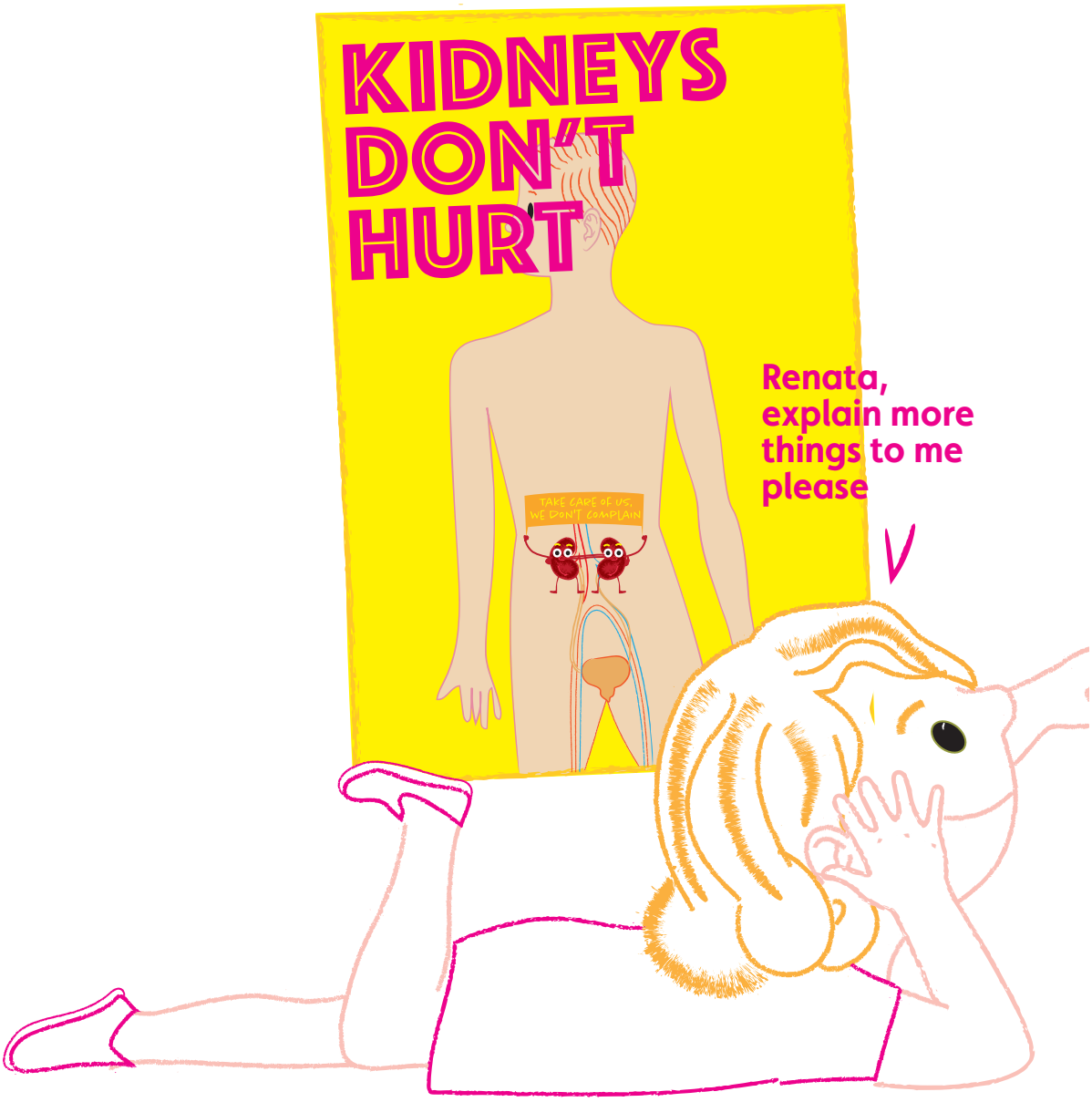
The immunosuppressants make your dad's body feel okay with someone else's organ and it won't reject it.

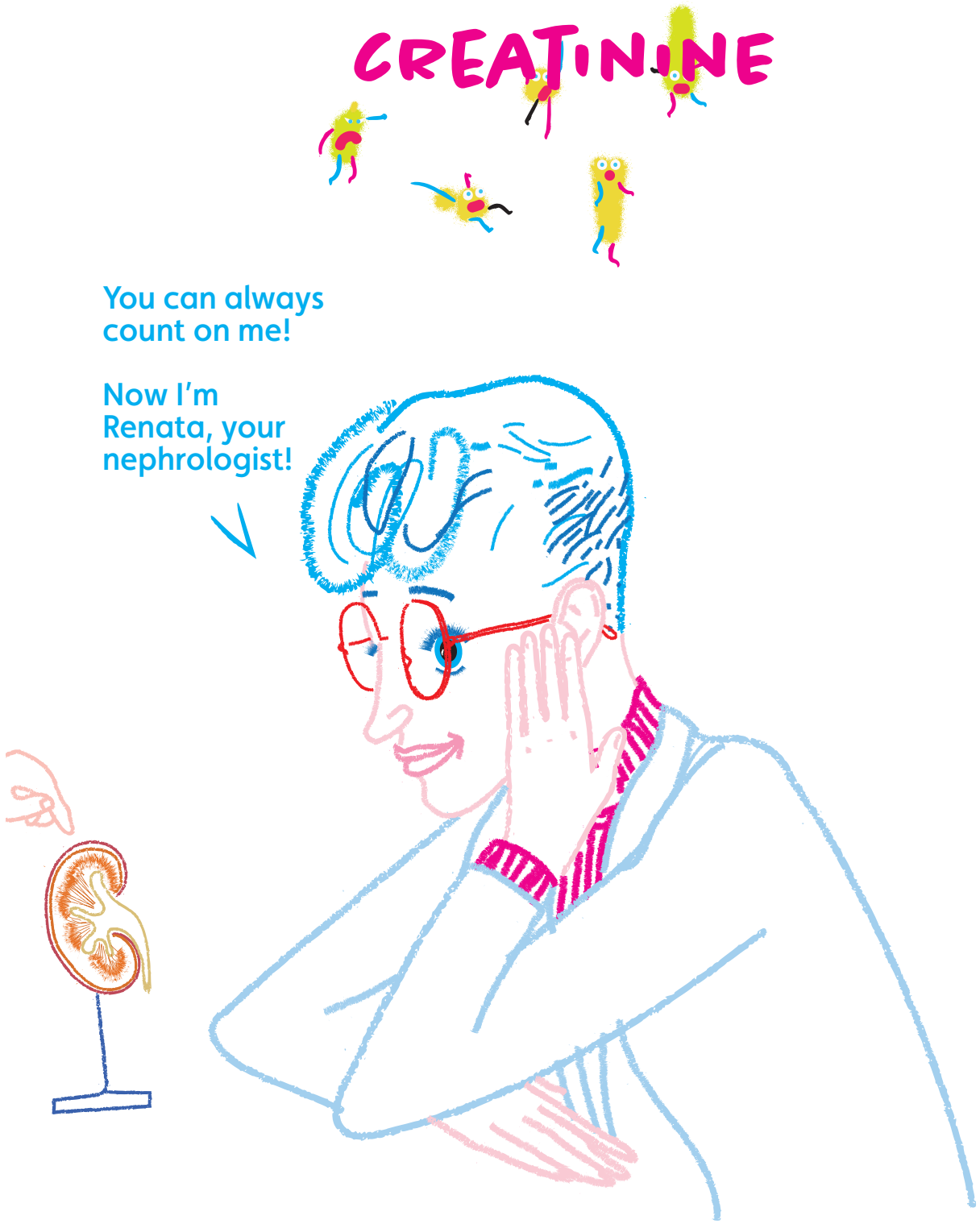


With this transplant, my dad could pee every day and he wouldn't need to do dialysis.

You've explained so much to me, Renata! But I do need to know everything because I want to help my dad.

Do you promise that you'll tell me everything? That way, I can tell my friends and my dolls... they clean the blood.




CREATININE
You can always count on me!
Now I'm Renata, your nephrologist!


FUNDACIÓN RENAL
ESPAÑOLA

The author



Lola Arenas, a nephrologist since 1994, has devoted her professional life to caring for people with kidney disease.
She has practiced her specialty in Alicante, Barcelona and currently Madrid. Lola has always understood that treatment for kidney disease goes far beyond medical care, and from the outset, she has been committed to holistic care.

Disease prevention has been, and is, another of her main priorities. Prevention involves education, teaching and learning, and for Dr. Arenas, this does not necessarily need to come from adults. She believes that children are powerful agents of change.
With that in mind, she has written her first book, "Renata, my nephrologist" to prevent disease from childhood.

This book has been scientifically backed by the Sociedad Española de Nefrología (Spanish Society of Nephrology), the Federación Nacional de Asociaciones ALCER (Spanish Federation of Associations for the Fight Against Kidney Disease) and the Sociedad Española de Enfermería Nefrológica, SEDEN (Spanish Society of Nephrology Nursing).

The opinions expressed by the authors do not necessarily reflect the position of the SEN.

Original title: Renata, mi nefróloga
First edition: July 2022
Second edition: September 2023

National book catalogue number: AL 2174-2022
ISBN: 978-84-09-74130-4

Text ©: Mª Dolores Arenas Jiménez

Illustrations, design and typesetting ©: Fcesc Xavier Altimiras Corderroure

Cover image ©: Fcesc Xavier Altimiras Corderroure

Printed in Spain

The paper used to print this book is 100% chlorine-free and is, therefore, environmentally friendly.

Everyone knows what a cardiologist (heart doctor) or pediatrician (children's doctor) is, but few know what a nephrologist (kidney doctor) is, and even when we type it into Google, it corrects the word and changes it to "neurologist" (doctor for the nervous system).



In this book, we delve into the world of the kidneys, two organs in the shape of a bean that are essential for living, and we do so from the perspective of Martina, an eight-year-old child and from Renata, a kind nephrologist.

By reading this and looking at the illustrations we will find out what they are, where they are, what they're for, what happens when they stop working, what symptoms they produce and, most importantly, we'll learn how to identify when they are sick and what we need to do to prevent them from getting worse.