
CONDENSATION OF The P Word

By David L. Hu, Ph.D.

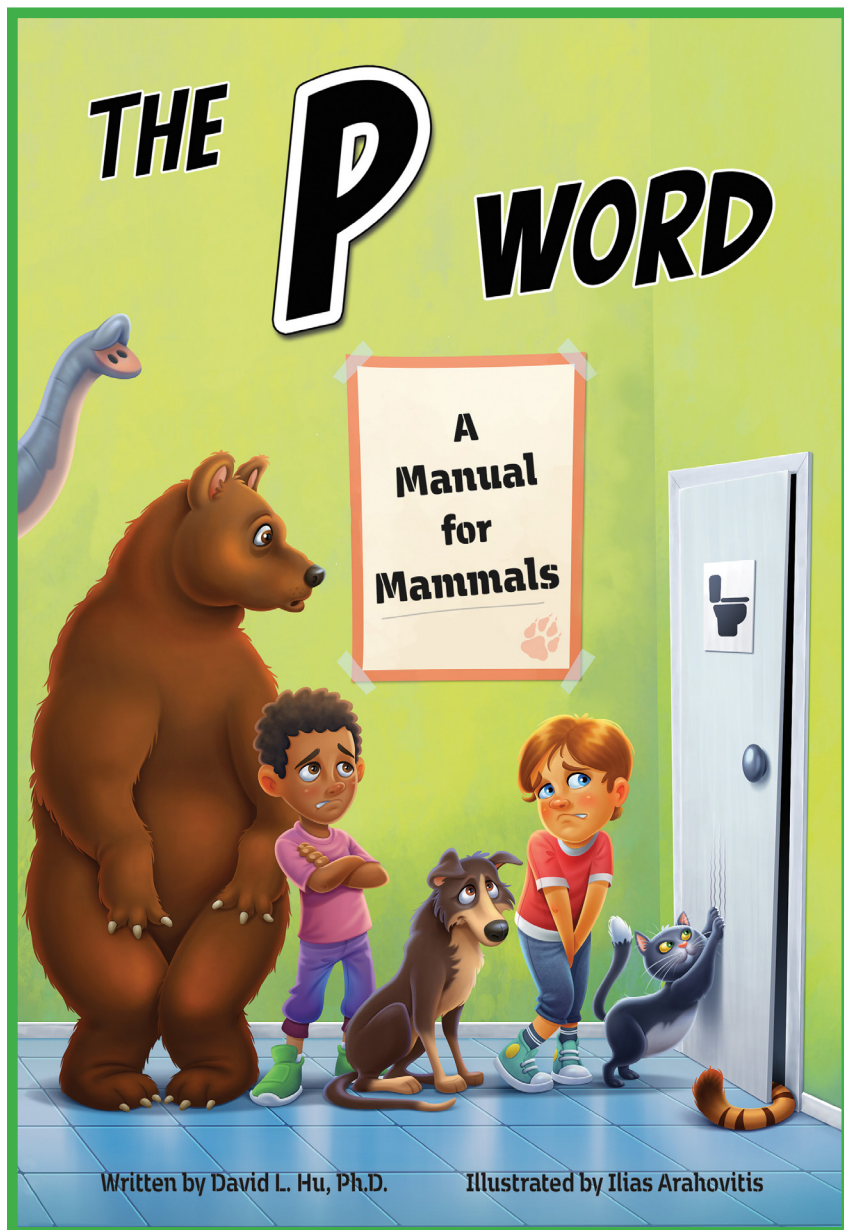
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WHAT IS A PENIS?

The short answer: it's an **organ**. Just like the heart, lungs, and brain, the **penis** works behind the scenes everyday to keep our bodies safe and healthy.

Unlike most of our other organs, though, we can actually see and touch our penises because it is an external organ (like our eyes and our skin). It has some important jobs.

These jobs include peeing (and for some animals, even **marking** their territory) and **reproduction**.

Because the human penis is not protected inside the body, like most of our other organs, we need to take special care of it to make sure it stays safe and works well.

This book is about the penis, a piece of anatomy found in all mammals. In explaining the care and functioning of this body part, we do not assume that having a penis makes someone a boy. For additional resources about gender, turn to page 52.

The Basics of Having a Penis

SO, WHO (OR WHAT!) HAS A PENIS?

We all know that humans have penises—those of us who have one see it everyday. When we use the bathroom or change our clothes, it's always right there.

Humans are not the only animals with penises. All **biologically male** mammals have them, but only some insects, birds, and reptiles do.

THAT MEANS...

A TIGER.



A BAT.



A SLOTH.



A KANGAROO.

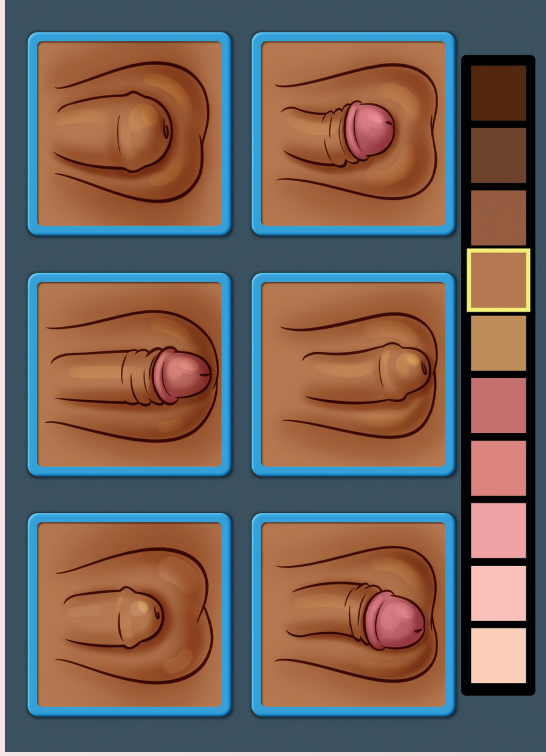


AND A GORILLA



...ALL HAVE A PENIS!

EVEN AMONG HUMANS, NO PENIS LOOKS THE SAME.



Skin can be a wide variety of colors, and penises can be too!

The color of our penises can be very different from the color of the skin on the rest of our bodies, and the shape can be straight or curved in any direction.

The length, the width, and the size of the **shaft** and **head** can all vary.

Some human penises look different than others at the tip. This is because some kids are circumcised. **Circumcision** is the surgical removal of the **foreskin**, the loose skin that covers the tip of the penis. Each family can decide whether or not to have their child's penis circumcised. Many choose to have it done for religious reasons.

No matter the shape or size, all penises share the same purpose: to keep us healthy.

They do this in many ways. One of the ways our penises help us stay healthy is by getting rid of our **urine**.



Get to Know the Urinary System

WHY DO WE PEE?

The main reason is simple: because we drink water. All mammals, from the smallest shrew to the largest whale, need water to survive. It is essential for keeping our bodies in working order. Without water, we would not be able to digest our food, maintain our body temperature, or keep our cells healthy.

The purpose of peeing, also called **urination** or **micturition**, is to release extra water, salts, and unwanted **toxins** from our bodies.



The main toxin we need to get rid of is called **urea** (it's easy to remember because urea is in urine). Urea is made from **ammonia**, a dangerous chemical produced when our bodies break down food and turn it into energy. While ammonia is the chemical that comes from digestion, the liver converts it into urea, a safer form of ammonia.

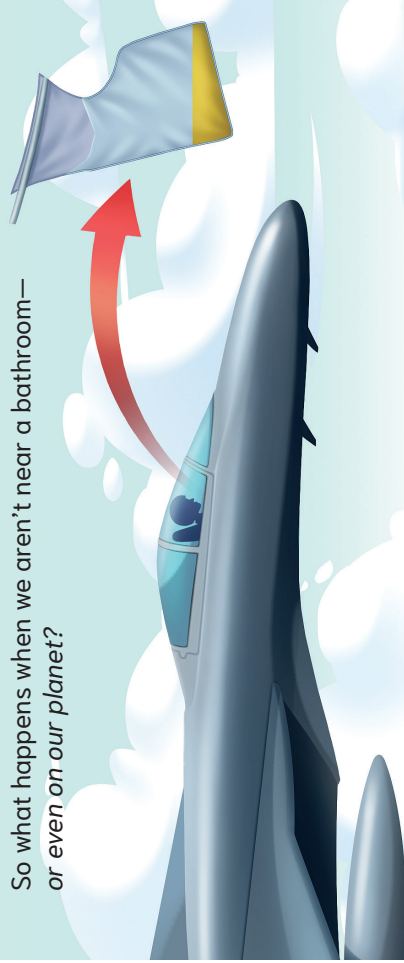


The Ways Mammals Pee

PEEING IN FLIGHT

No matter where we are or what we're doing, we need to pee about six to eight times everyday. Even if we try to hold our bladders for as long as possible, our bodies will release urine when they need to.

So what happens when we aren't near a bathroom—or even on our planet?



Fighter pilots may need to pee while they're in the cockpit. This is when a Piddle Pack, a sealable plastic bag with absorbent beads, comes in handy.

There's even a mammal that pees in flight—bats. While they are out of their roosts, bats will pee in the air. When they are in their roosts, bats flip rightside up and pee hanging by their thumbs. One lesson we've learned here: *always keep our heads covered around bats!*



And how do astronauts pee? Well, when they are out in space, they actually have to wear special adult diapers under their space suits (they aren't just for babies!).



Diapers work very well, but no adult likes to wear them. Scientists are constantly working on new devices to manage pee. The NASA Space Poop Challenge is one way scientists work to create a spacesuit that would empty the pee and poop automatically to keep the astronaut clean.

How Do Mammals Mark Their Territory?

PEEING IN THE WILD



Have you ever noticed a Spray Zone sign at the zoo?

This sign is there to let humans know that animals—such as lions and tigers—mark their territory by peeing.

If you get too close, they might accidentally mark you!



Humans also like to mark their territory. We usually do this by finding a place to call home. It may be separated from other areas by a wall, fence, or yard.

Most people are happy to just enjoy their space, but others want to make sure everyone knows that they should stay away. They may post “No Trespassing” or “Keep Off My Property” signs.

Mammals are the same way. Most just go about living their lives in their **habitat**, but some want to make it very clear that no outsiders should step foot (or paw or hoof) into their “home.” Instead of putting up a sign, they use their penises to mark their home with urine as a way of communicating with nearby animals.

BUT HUMANS DON'T USE OUR PENISES TO MARK TERRITORY?

That's true! While humans have found lots of ways to mark our homes without urine, many mammals still use their penises to spray an area and claim it as their own.



Humans don't have a highly sensitive olfactory (*sense of smell*) system. What simply smells like pee to us can actually tell other mammals a lot. Just by sniffing a mammal's spray, animals can tell the species, and even the health and strength, of the animal that left its mark.

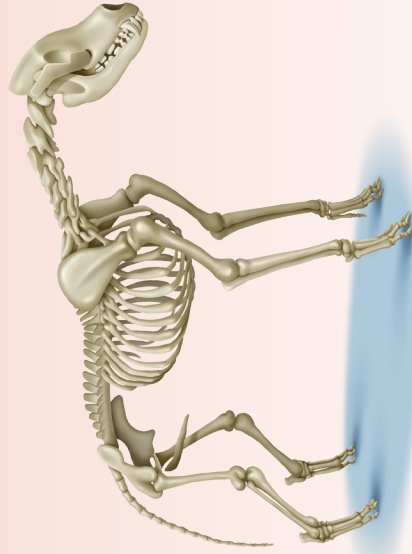
That's why our dogs spend so much time sniffing other dogs' rear ends and neighbors' mailboxes, and making sure to pee just a little bit everywhere they can.

ERECTIONS IN THE WILD

Though we are close relatives with other mammal species, erections in the wild can look very different from what humans are used to.



For some mammals, an erection isn't only the result of increased blood flow. Many mammals have a bone called a **baculum** inside the penis that helps make it stiff, including this gray wolf (although it's hard to see under all that fur).



WHY DOES AN ERECTION HAPPEN?

Our bodies undergo a lot of changes as we grow into healthy adults.

For most of childhood, erections come and go, often without us even noticing.

But everything changes around the age of 10...

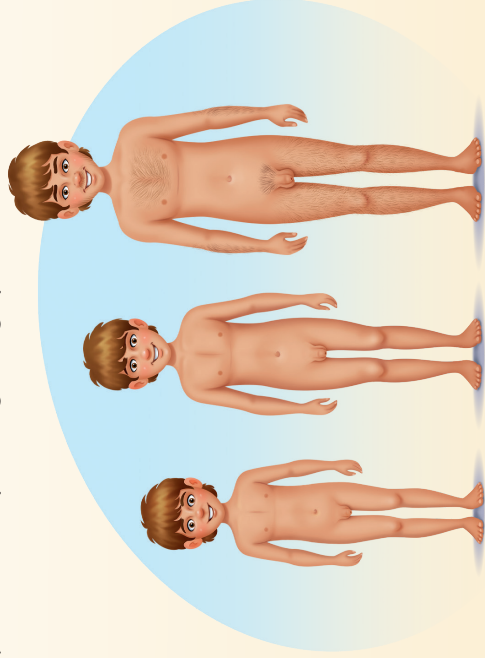


Changes During Puberty

WHAT HAPPENS THEN?

Puberty! We've all heard the word and know that it means our bodies are going to change in important ways: puberty is the transition of our bodies from childhood to adulthood.

These changes happen on a different timeline for everyone. It may be as early as nine or as late as 14, but no matter when it happens, puberty is a natural part of growing up.



Puberty usually begins because our bodies start producing a **hormone** called **testosterone**. Once this happens, we start to grow taller, our voices may get deeper, and we may notice hair under our arms, on our faces, and around our **pubic area** (learn more about this area and the body parts included in it on page 54).

Because puberty is the biggest period of growth, the penis, **scrotum**, and **testicles** will grow. During and after puberty, the size, length, or width of the penis and testicles may change. Small or large, thick or thin, different sizes, lengths, and widths are all common and healthy.

WHAT DOES THIS HAVE TO DO WITH ERECTIONS?



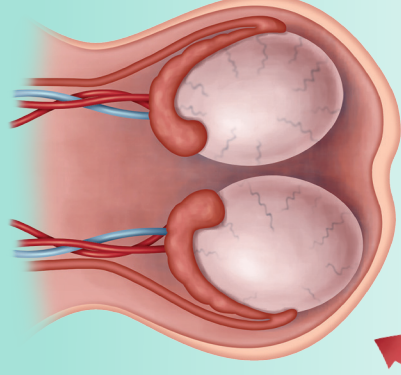
When we hit puberty, our erections will lead to what's called **ejaculation**, or the release of **semen**.

Even though we don't start to produce sperm and semen until puberty, it is important to understand how our bodies work at all ages so we are better prepared for the changes to come.

Semen is one of the two liquids that comes from our penises (the other is urine). It is a complex mixture that contains millions of special cells called **sperm** that are used in reproduction.

Like a factory, the testicles are the first step to create and "package" sperm to be sent out.

Testicles are inside a pouch of skin called the scrotum, which can act like our own thermometer! If it's cold outside, the scrotum pulls the testicles closer to the body. If it's warm outside, the testicles hang away from the body.



ADDITIONAL RESOURCES

We probably haven't answered all your questions, but hopefully we've started a conversation. Here are some resources to learn even more:

- Amaze.org
- *Growing Up Great!: The Ultimate Puberty Book for Boys* by Scott Todnem
- TED Talk: What we didn't know about penis anatomy
- PlanetPuberty.org.au
- YouTube: Khan Academy – Anatomy of the Male Reproductive System
- KidsHealth.org

For information about gender, explore these resources:

- GenderSpectrum.org
- *Ana on the Edge* by A.J. Sass
- *I Am Jazz* by Jazz Jennings
- *Jack (Not Jackie)* by Erica Silverman





The Definitive Pre-Puberty Guide for Talking about the P Word

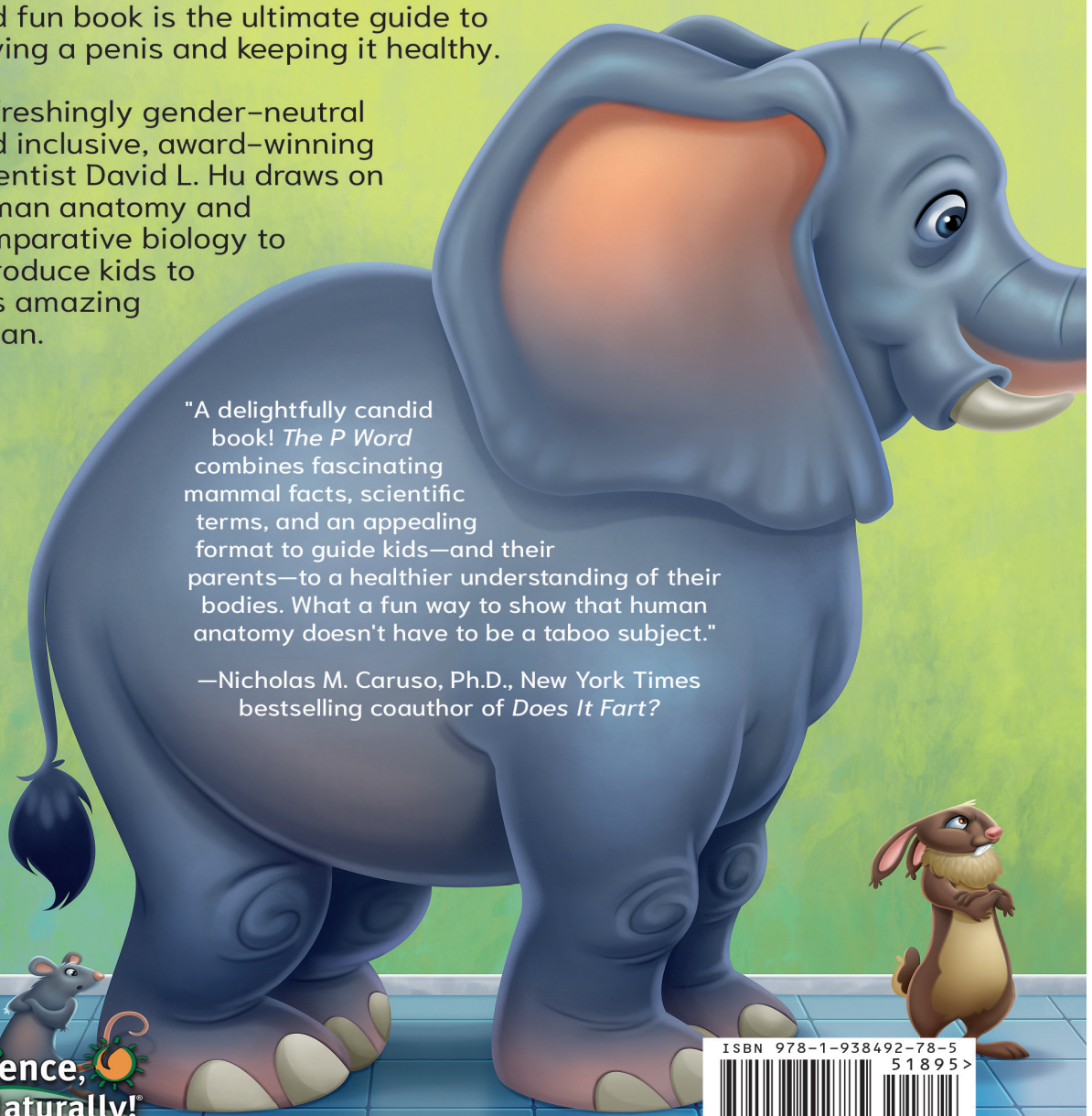


This easy-to-understand manual gives readers an overview of how and why penises work. Weaving together surprising insights and instructive illustrations about humans and other mammals, this frank and fun book is the ultimate guide to having a penis and keeping it healthy.

Refreshingly gender-neutral and inclusive, award-winning scientist David L. Hu draws on human anatomy and comparative biology to introduce kids to this amazing organ.

"A delightfully candid book! *The P Word* combines fascinating mammal facts, scientific terms, and an appealing format to guide kids—and their parents—to a healthier understanding of their bodies. What a fun way to show that human anatomy doesn't have to be a taboo subject."

—Nicholas M. Caruso, Ph.D., New York Times bestselling coauthor of *Does It Fart?*



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