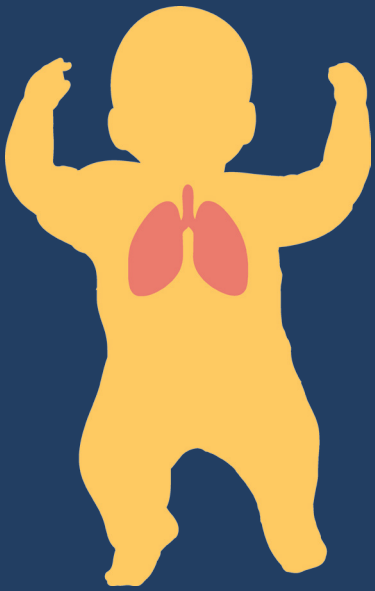
baby power

PROTECT LITTLE LUNGS



What makes baby lungs so incredible,
and how can we help keep
the air safe for our children?

BABY'S FIRST BREATH

Consider a baby's lungs: They are miracles of biological engineering.

In the womb, baby's lungs do not actually breathe. While baby is growing, the mother's blood does the work of the lungs, supplying oxygen and removing carbon dioxide through the placenta.

Baby's lungs are full of fluid until birth.

During labor, hormonal changes and the pressure of contractions begin to push fluid out of baby's lungs.

As fluid leaves the lungs, the blood vessels so critical to breathing air begin to open.

AT THE MOMENT OF BIRTH, EVERYTHING CHANGES

Baby's previously fluid-filled lungs make the abrupt transition into air-breathing dynamos within seconds. Baby gasps as her central nervous system reacts to the sudden changes of birth—and that gasp fills her lungs with air for the very first time.

A special substance called surfactant prevents the air sacs from collapsing and tearing as they move air into baby's blood.

The remaining fluid in the lungs is absorbed into nearby blood vessels, and this essential organ begins to work on its own.

Every new mother listens for that first breath. From the first cry, baby lungs take in air at the rate of more than 40,000 times each day.

LUNG BASICS

Your baby's lungs—the beautiful branched network of trachea, bronchi, bronchioles, and alveoli—are still developing at birth, and extremely rapid growth is ahead.

At birth, a baby has more than 20 million alveoli—the tiny air-filled sacs arranged in grape-like clusters that exchange oxygen and carbon dioxide with the blood.

At one month old, a baby has 100 million alveoli. At adulthood, she will have more than 450 million.

CHILDREN BREATHE DIFFERENTLY FROM ADULTS

Young lungs are different from mature lungs. Babies and children breathe faster than adults. Babies take a breath about 40 times per minute, while adults breathe 12-20 times per minute.

Children don't just breathe more rapidly, they also literally breathe more air than adults. Children have a larger lung surface area in proportion to their weight than adults.

They breathe 50% more air in proportion to their weight than adults. These amazing organs are working especially hard to help our children grow and thrive.

Children also exercise more and spend more time outside compared to adults. This makes clean air especially important for your child's health.

AIR POLLUTION AND LUNG DEVELOPMENT

Children's lungs develop throughout childhood. In girls, lung development is complete by age 18; in boys, it continues into their early 20s.

Here's one of the big reasons we care so deeply about air pollution at Moms Clean Air Force: During the time when the lungs are maturing, they are more vulnerable to damage than fully mature lungs.

That's why air pollution can harm your child's lungs, during pregnancy to early adulthood.

When a pregnant woman breathes air pollution, such as tobacco smoke or tailpipe emissions, that can cause inflammation that disrupts blood vessels in her heart, lungs, and placenta.

That inflammation may in turn harm the lung development and respiratory health of her baby.

Air pollution can reduce the lung growth of babies and children. Later in life, reduced lung function can make people susceptible to respiratory problems.

It's important for lifelong health that pregnant women, babies, children, and young adults have clean air to breathe.

SOURCES OF AIR POLLUTION

Air pollution can come from outside and inside your home. It can take the form of tiny particles, ground level ozone, nitrogen dioxide, carbon monoxide, diesel emissions, toxic chemicals, and more. Here are some of the major sources of air pollution.

- Cars, trucks, and buses
- Power plants that burn coal or natural gas
- Oil and gas operations (well pads, compressor stations, and pipelines)
- Refineries
- Shipyards
- Factories
- Wildfires
- Agriculture (dust)
- Cigarettes, fireplaces, stoves, cooking, and candles
- Attached garages that store cars, motorcycles or lawnmowers
- Radon, a cancer-causing gas that occurs naturally in some soils and can enter a home through the basement
- Household cleaners and air-fresheners
- Building and paint products, such as paints, adhesives, and solvents
- Personal care products including perfume and hair spray
- Pesticides, including treatments for cockroaches and fleas
- Toxic fumes that are "off-gassing" from new furniture and carpets
- Humidity that allows mold to grow

WHAT YOU CAN DO ABOUT AIR POLLUTION

Babies need clean air to grow healthy lungs. Here's what you can do in your home and your community to clean up the air.

- ◯ Remove or reduce allergens such as roaches, pet dander, mold, and dust mites.
- ◯ Do not smoke tobacco products in or near your home. Support measures to make all public places tobacco-free.
- ◯ Prevent mold growth by lowering the humidity in your home with exhaust fans in kitchens, bathrooms and laundry rooms, or a dehumidifier.
- ◯ Increase air flow (open windows and doors) to give your house better ventilation.
- ◯ Store harmful products like pesticides and paints in a shed that is not attached to your home and always dispose of them properly.
- ◯ Avoid using scented candles or products with odor-hiding fragrances.
- ◯ Install and check regularly your smoke, carbon monoxide, and radon alarms.
- ◯ Use a HEPA filter, if you want to use an air filter. Do not use air cleaners that emit ozone, which is a lung irritant.
- ◯ Check daily air pollution forecasts on local media outlets or at airnow.gov.
- ◯ Avoid exercising outdoors when pollution levels are high. Limit the amount of time your child spends playing outdoors if the air quality is unhealthy.
- ◯ Do not exercise near high traffic areas. Even when air quality forecasts are good, the vehicles on busy highways can create high pollution levels up to one-third mile away.
- ◯ Save energy: Use ceiling fans, replace light bulbs with CFL bulbs, turn off computers and appliances when not in use, and insulate your home.
- ◯ Don't burn wood or trash.
- ◯ Don't idle your car or truck engine. If you will be sitting still for more than 10 seconds, turn the engine off.
- ◯ Use hand-powered or electric lawn care equipment rather than gasoline-powered. Old two-stroke engines like lawnmowers and leaf or snow blowers often have no pollution control devices.
- ◯ Get involved. Talk to your neighbors and friends about why clean air matters to you.
- ◯ Reach out to your lawmakers to let them know you care about air quality. Support measures to clean up the air at the local, state, and national levels.

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EVERY BABY HAS THE POWER TO MAKE US CHANGE THE WORLD

Our government and our industries know how to clean up
air pollution—we've done it before.
But parents have to demand protection.

Sometimes being a good mom means being an engaged citizen.

Protect every breath.

Sources: Allergy & Asthma Foundation of America, American Academy of Pediatrics,
American Lung Association. See www.momscleanairforce.org/little-lungs-sources

www.momscleanairforce.org/baby-power

MOMS *clean air* FORCE