



# Sniffing and the Brain



Australian Government  
Department of Health and Ageing



mshr  
menzies school of health research



## Acknowledgements

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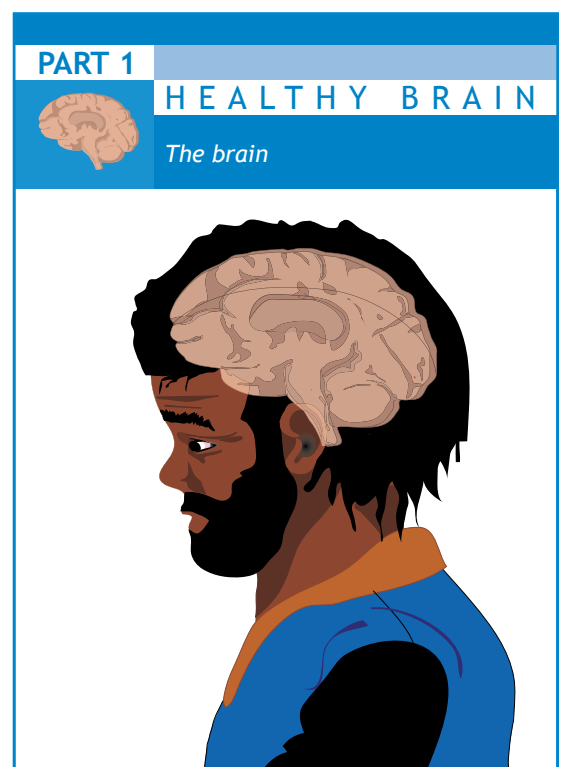
# PART 1



## HEALTHY BRAIN

### *The brain*

- Inside your head is your brain.
- Each person's brain is very different.
- The brain is like our control centre.
- The brain is where our personality, our actions and emotions are controlled.
- The brain also controls our memory, our language and our creativity.
- The brain is very important. It makes us who we are.





# PART 1



# HEALTHY BRAIN

*The brain*



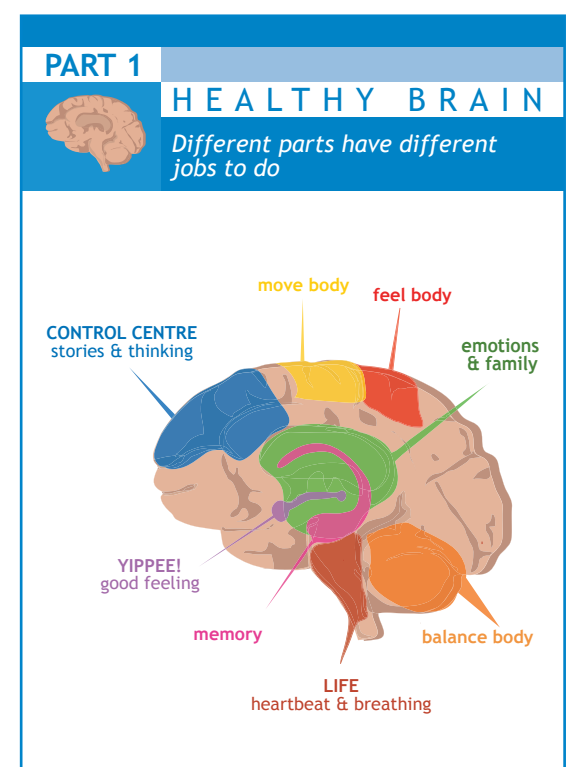
# PART 1



## HEALTHY BRAIN

*Different parts have different jobs to do*

- Each area of the brain has a special job to do. This picture shows where each different job is controlled in the brain.
- The blue area is the control centre of the brain. This area controls the rest of the brain. It controls our thinking, our emotions and our actions. This is where we put together our stories.
- At the top of the brain, the red area is sent messages FROM the body like how the body is moving or how it is feeling.
- The yellow area sends messages TO the body telling it how and when to move.
- The pink area is where memory is organised.
- The green area in the middle of the brain is very important for family matters and emotions like worries, shame and happiness.
- The orange area at the bottom of the brain balances our body, both when it is moving and when it is still.
- The purple area is the 'yippee' or 'feel good' area of the brain. When people take substances like gunja, grog or sniff petrol this part of the brain lights up and makes them feel good. Then they want to keep taking it again and again.
- The brown area connects the brain with the rest of the body. This part controls breathing and the heart. This part of the brain keeps us alive.
- These different areas are always working together and talking to each other.



# PART 1



## HEALTHY BRAIN

*Different parts have different jobs to do*

**CONTROL CENTRE**  
stories & thinking

move body

feel body

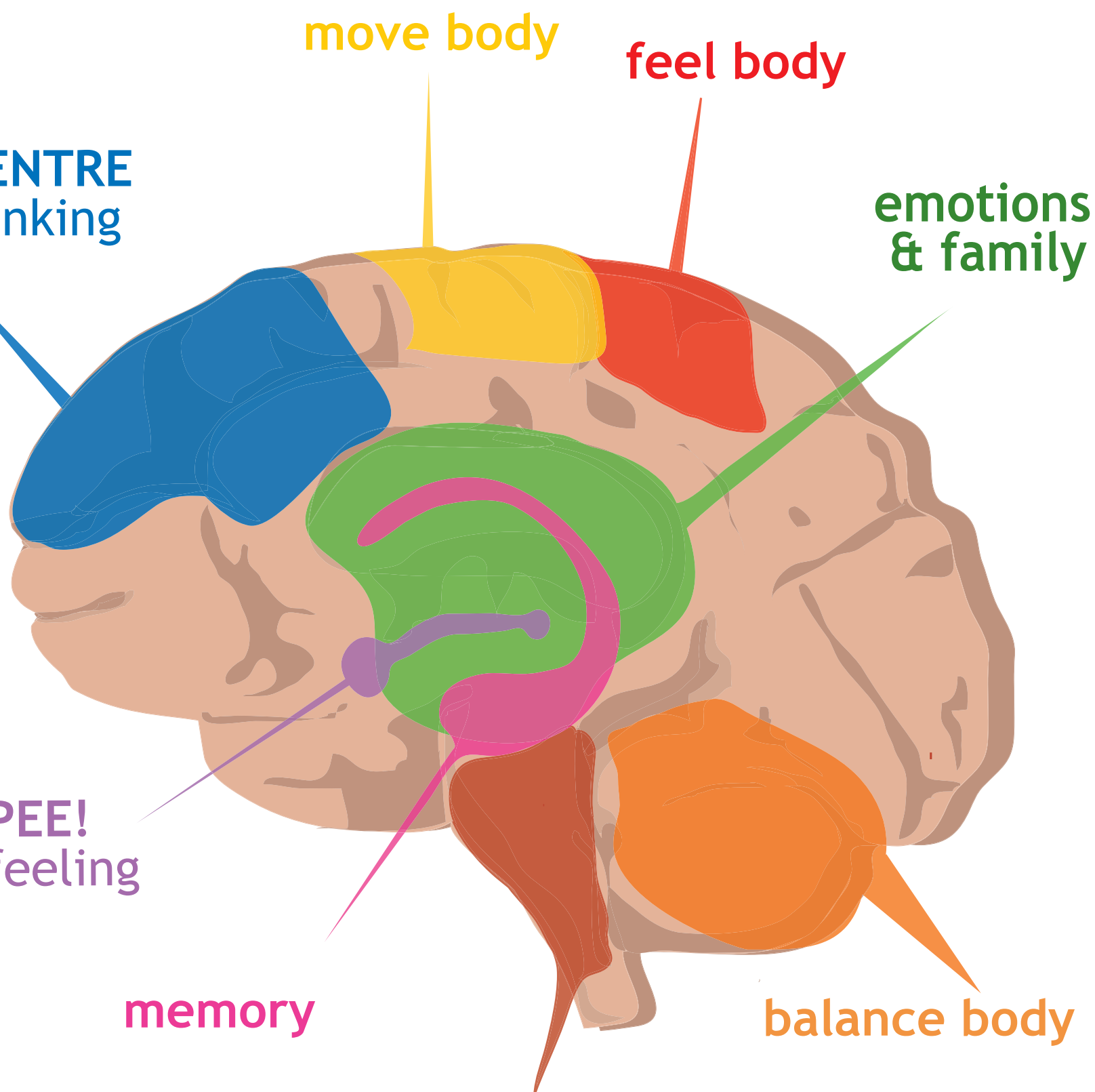
emotions  
& family

**YIPPEE!**  
good feeling

memory

balance body

**LIFE**  
heartbeat & breathing



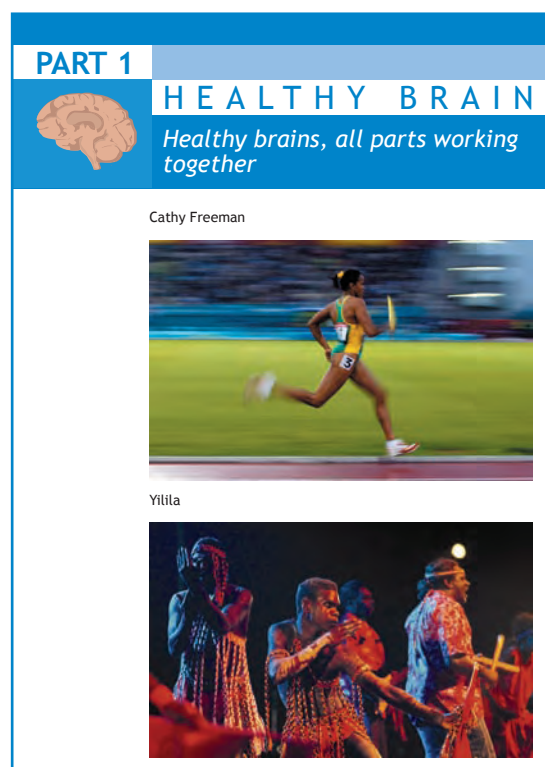
# PART 1



## HEALTHY BRAIN

*All parts working together*

- All areas of the brain must work together, sending messages to each other and to the body so that we can do everything that we do.
- These photos are of people with healthy brains.
- All of the different areas of their brains are working together properly.
- Because their brains are healthy, they can do great things.
- Cathy Freeman can run really fast.
- And this band Yilila can play great music to big crowds of people.





# PART 1



# HEALTHY BRAIN

*All parts working together*

Cathy Freeman



Yilila



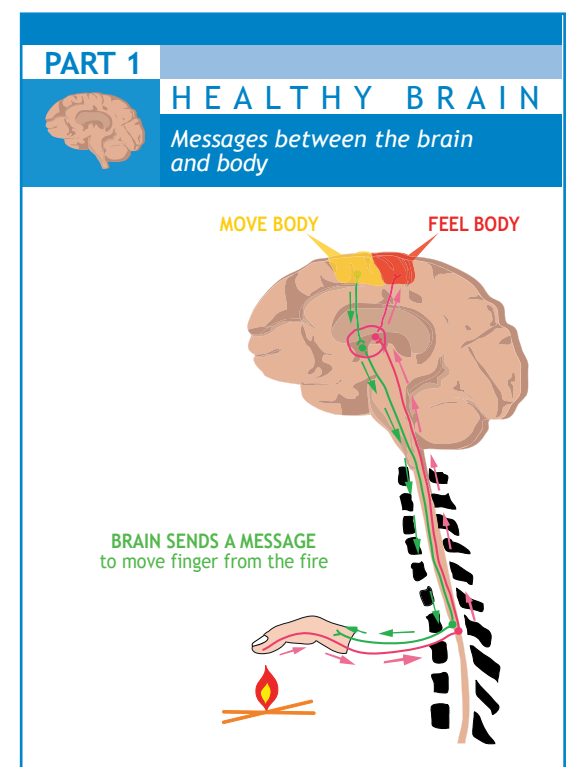
# PART 1



## HEALTHY BRAIN

### *Messages between the brain and body*

- This picture shows how messages go around the brain and body.
- A message goes from the finger to the 'feel body' (red) area of the brain saying that the finger is hot.
- A message is then sent to the 'move body' (yellow) area saying that the finger needs to move away.
- The 'move body' area then sends the message to the finger telling it to move away.
- The finger then moves away from the fire.
- These messages travel so fast that we don't even notice them.

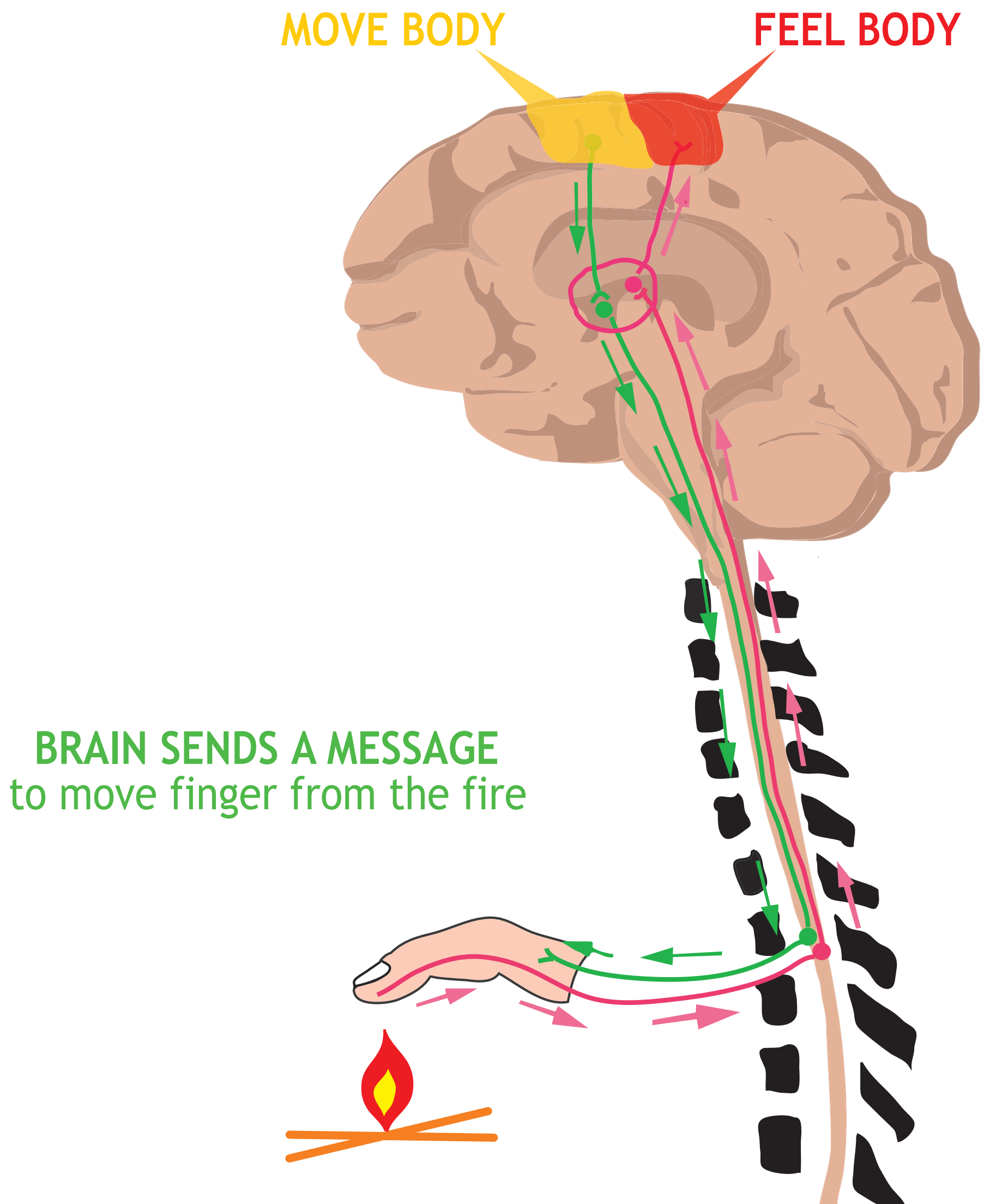


# PART 1



## HEALTHY BRAIN

*Messages between the brain and body*





# PART 1



## HEALTHY BRAIN

### *Neurons – brain cells*

- But how do these messages get around the brain and body?
- They are carried by very small cells called 'neurons'.
- Neurons are too small for our eyes to see. But this is a photo of two neurons taken under a very powerful microscope. In reality they are much smaller than this.
- Messages travel through neurons like electricity through wires.
- Inside the body are millions of neurons all bunched together like the electrical cables in this picture.
- Neurons are covered in a layer of fat that protects the messages, like the plastic layer that protects electrical wires.
- These pictures show the layer of fat in blue.
- This protects the messages so that they don't get lost on their way around the brain and body.

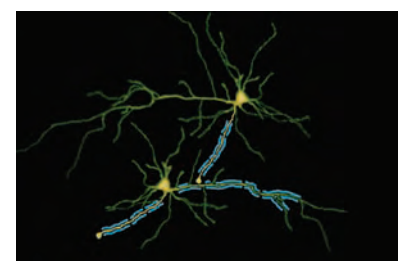
#### PART 1



#### HEALTHY BRAIN

##### *Neurons – brain cells*

Small cells called 'neurons' carry these messages like electricity through wires



Neurons are covered in a layer of fat that protects the messages





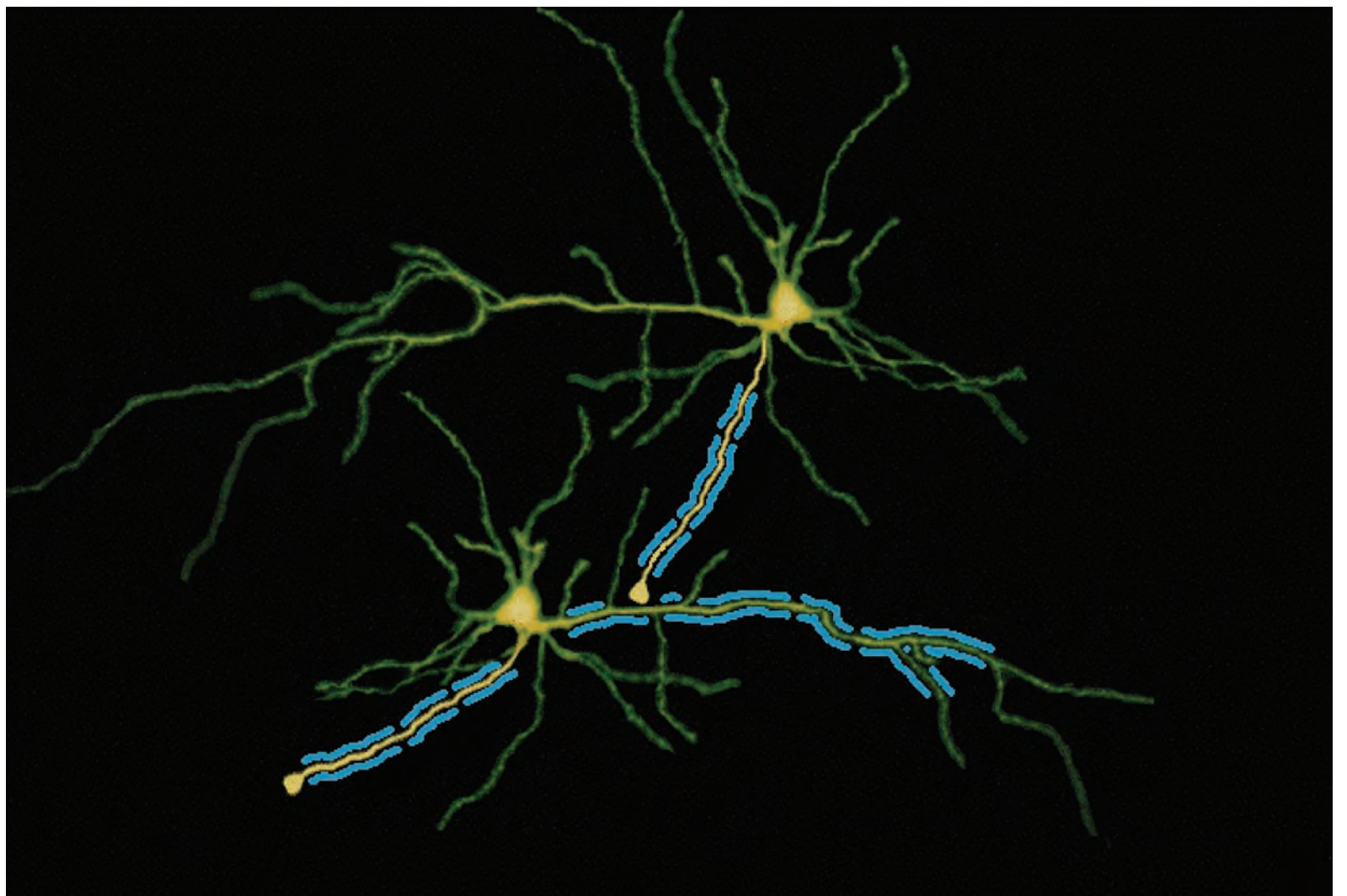
# PART 1



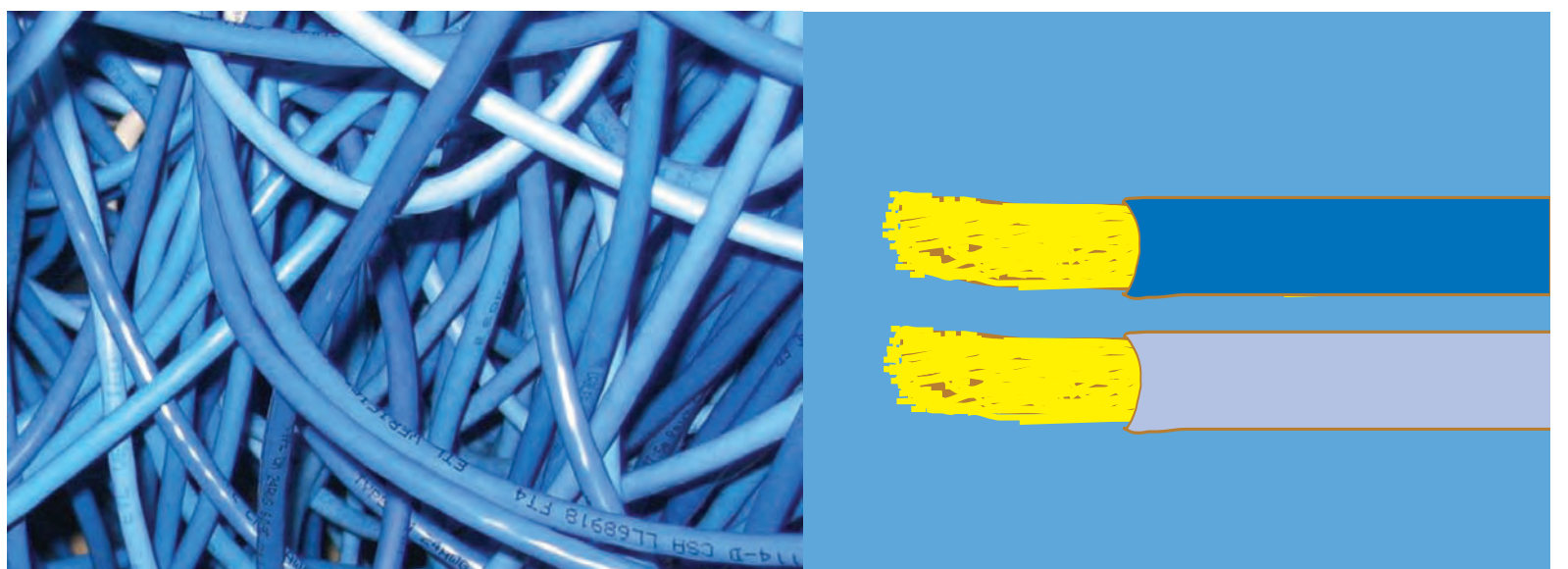
## HEALTHY BRAIN

### *Neurons – brain cells*

Small cells called 'neurons' carry these messages like electricity through wires.



Neurons are covered in a layer of fat that protects the messages.



# PART 2



## SNIFFING AND THE BRAIN

### *How sniffing takes dangerous chemicals to the brain*

- Oxygen is a chemical in the air that is important for our life.
- When we breathe oxygen goes into our lungs and then into the blood.
- Our blood then takes oxygen to the heart, the brain and all around the body.
- If we don't get oxygen, we die.
- Some people sniff chemicals called 'inhalants' because they make them feel good for a short time.
- Petrol is one type of inhalant but there are many others. Even though they are different, sniffing any of these inhalants will damage the brain and body.
- We will show how this happens.
- When people sniff, dangerous chemicals go to their lungs and into the blood.
- Then instead of oxygen, these chemicals are sent to the brain and around the body.
- This makes people feel good but also damages the brain and body.

#### FOOTNOTES

*With some inhalants, people can die from sniffing the first time because there is not enough oxygen being taken to the body. People have died from sniffing with a jumper or blanket around their head because it stops oxygen getting to the lungs.*

*The chemicals also put a lot of stress on the heart. People have died from doing exercise like running or playing football straight after sniffing. The added stress of sniffing and the exercise puts too much pressure on their heart.*

*Sniffing can also damage other parts of the body including the heart, lungs, liver and kidneys. Many people who sniff have suffered serious burns and even died while sniffing because the petrol caught fire and burnt them. Sniffing around any flames or fire is very dangerous.*

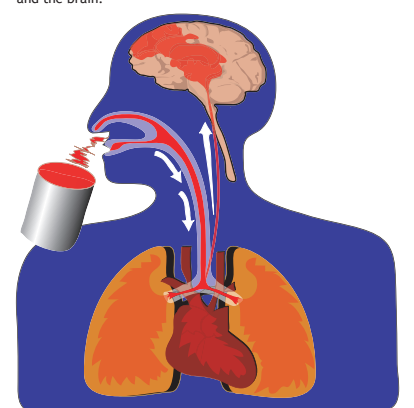
#### PART 2



#### SNIFFING AND THE BRAIN

##### *How sniffing takes dangerous chemicals to the brain*

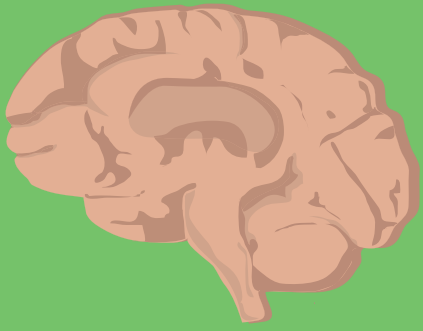
Sniffing sends dangerous chemicals into the lungs, the blood and the brain.



The chemicals change the way the brain works. This can make people feel happy for a short time. But these chemicals also damage the brain.

**SOME PEOPLE DIE SNIFFING FIRST TIME**

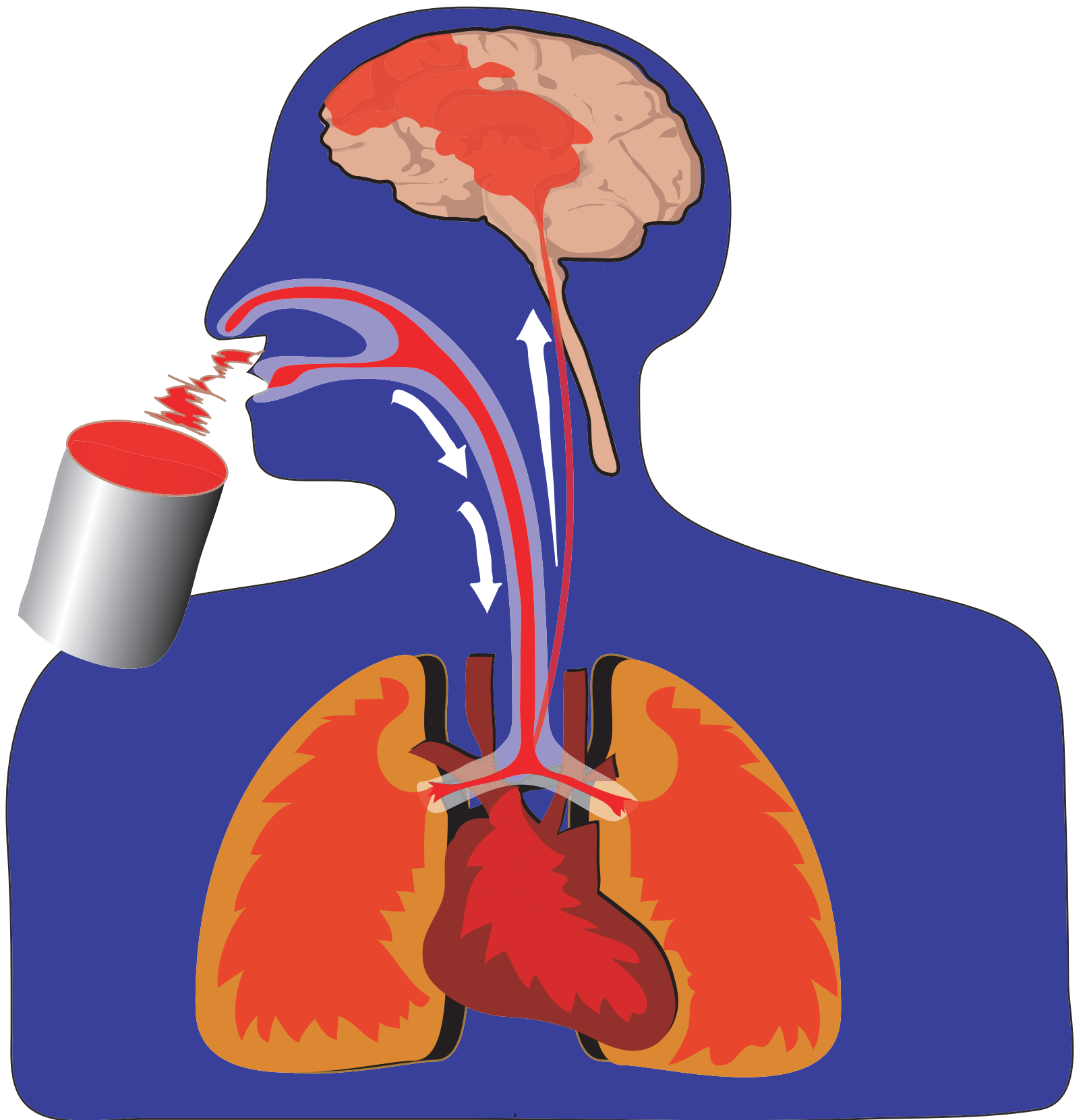
## PART 2



# SNIFFING AND THE BRAIN

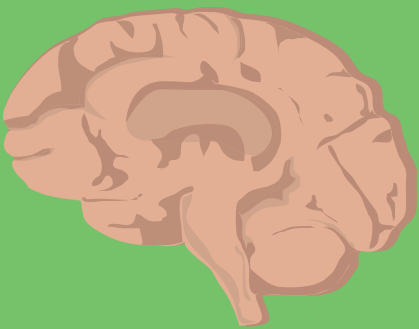
*How sniffing takes dangerous chemicals to the brain*

Sniffing sends dangerous chemicals into the lungs, the blood and the brain.



The chemicals change the way the brain works.  
This can make people feel happy for a short time.  
But these chemicals also damage the brain.  
SOME PEOPLE DIE SNIFFING FIRST TIME.





# SNIFFING AND THE BRAIN


## *Sniffing kills brain cells*

- Remember that layer of fat that protects messages in the neurons?
- When somebody has been sniffing, those dangerous chemicals get into the brain and eat this layer of fat.
- You can see on this picture that the layer of fat shown in blue is getting eaten away.
- Now messages around the brain and body aren't protected properly.
- They can't travel as fast or as strong as before.
- Messages around the brain and body keep getting lost now.

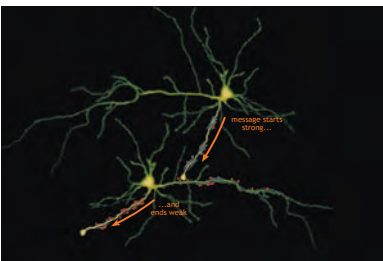
FOOTNOTE:

*In young people, the layer of fat around neurons is still growing. It is very dangerous for young people to sniff, because they will damage the neurons in their brain before they have grown properly and they may never grow back.*


PART 2

 **SNIFFING AND THE BRAIN**  
*Sniffing kills brain cells*

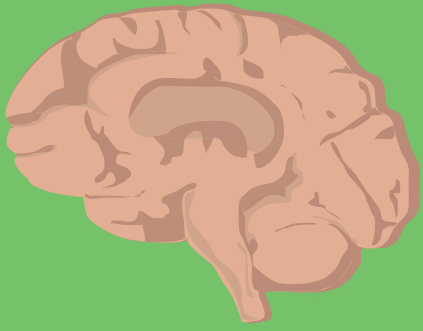
In the brain, chemicals from sniffing eat the layer of fat and slowly kill the neurons.



The neurons are sick and dying. They can't carry messages properly between the brain and body.



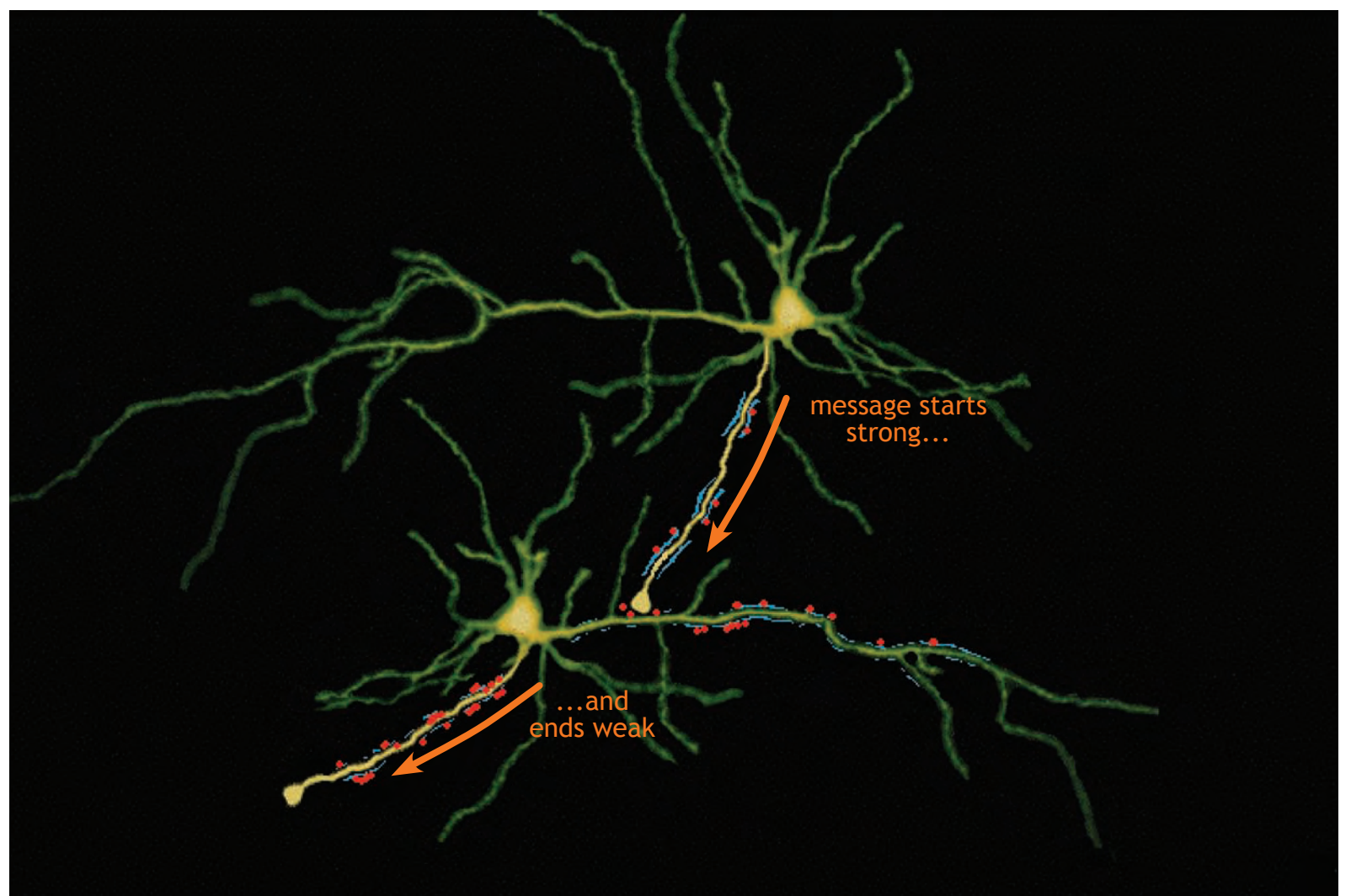
## PART 2



# SNIFFING AND THE BRAIN

## *Sniffing kills brain cells*

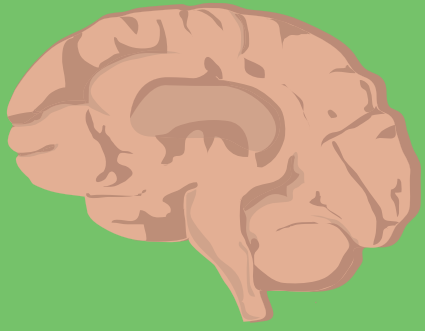
In the brain, chemicals from sniffing eat the layer of fat and slowly kill the neurons.



The neurons are sick and dying. They can't carry messages properly between the brain and body.



## PART 2



# SNIFFING AND THE BRAIN

## *Brain and body don't work properly*

- The brain might try and tell the body to do something but the message will get lost along the way and the body can't move properly.
- The man on the left doesn't sniff and has a very healthy brain and body.
- In this picture, strong messages travel quickly from his brain telling his body to run fast.
- The man on the right has been sniffing.
- Dangerous chemicals from sniffing have eaten away the layer of fat around the neurons in his brain.
- His brain is sending messages to his legs telling them to walk but the messages from the brain are weak and slow.
- His legs don't move as well and he can't walk properly.

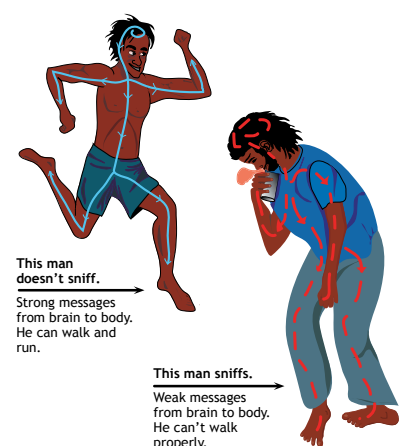
### PART 2



### SNIFFING AND THE BRAIN

#### *Brain and body don't work properly*

Sniffing has damaged neurons in the brain.  
Messages from the brain don't get to the body.  
The body can't move properly.



This man doesn't sniff.  
Strong messages from brain to body.  
He can walk and run.

This man sniffs.  
Weak messages from brain to body.  
He can't walk properly.

## PART 2



# SNIFFING AND THE BRAIN

*Brain and body don't work properly*

Sniffing has damaged neurons in the brain.  
Messages from the brain don't get to the body.  
The body can't move properly.



**This man doesn't sniff.**

Strong messages from brain to body.  
He can walk and run.



**This man sniffs.**

Weak messages from brain to body.  
He can't walk properly.



# PART 2



## SNIFFING AND THE BRAIN

### *How do we know?*

- For many years scientists have been studying the brain and how using different substances like petrol can change the brain.
- One way that scientists can work out how sniffing changes the brain is by taking photos of the brains of people who sniff.
- An MRI is a machine that can see through the skull and take photos of the brain.
- These photos are taken from the top of the head.
- The picture on the left shows a healthy person's brain and the picture on the right shows the brain of a person who has sniffed a lot.
- The person on the right has been sniffing for a long time and has a smaller brain compared to the healthy person.
- This person has serious brain damage from sniffing. Parts of their brain have died around the edges at the top and in the centre where it is black. These parts may never grow back.

#### FOOTNOTE:

*"MRI" stands for Magnetic Resonance Imaging. An MRI machine is like an x-ray machine but it can see more of the inside of the body than just bone.*

#### PART 2

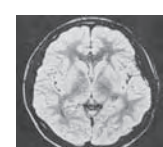
#### SNIFFING AND THE BRAIN

#### *How do we know?*

Photos of the brain (MRI)



These brain photos from two men, same age



This man never sniffing  
Healthy brain



This man sniffing for years  
Brain shrinking



## PART 2



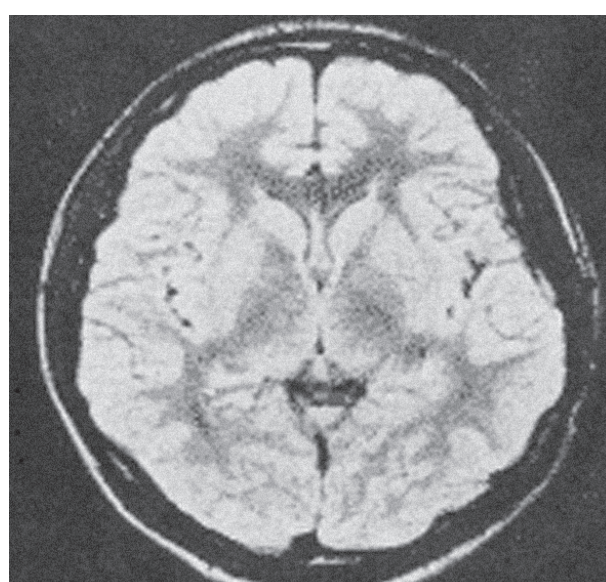
# SNIFFING AND THE BRAIN

*How do we know?*

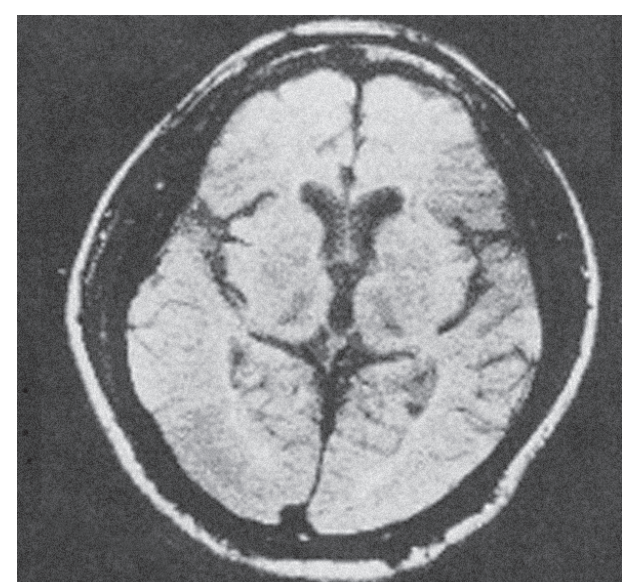
Photos of the brain (MRI).



These brain photos from two men, same age.



**This man never sniffing.**  
Healthy brain.



**This man sniffing for years.**  
Brain shrinking.

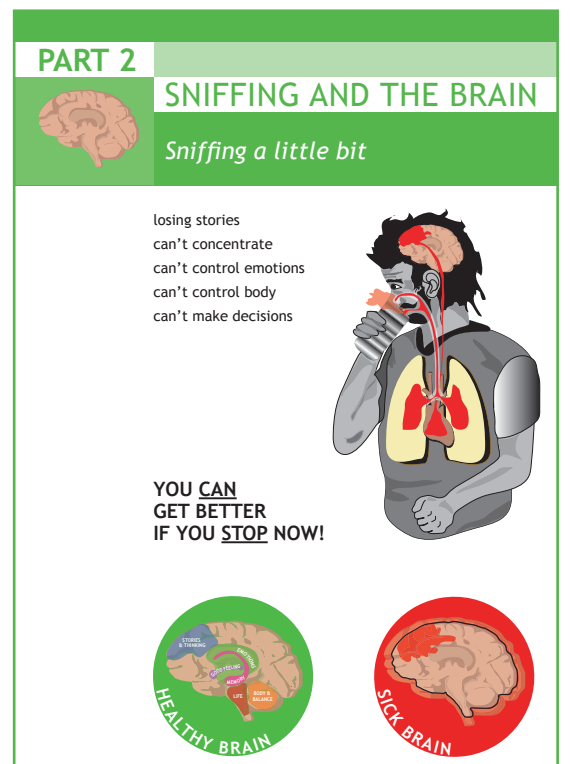
# PART 2



## SNIFFING AND THE BRAIN

### *Sniffing a little bit*

- These pictures at the bottom show the brain from the side.
- In all of the pages to come you will see pictures of the brain with a red area showing the parts of the brain that are damaged from sniffing too much.
- Even though these examples show males, the damage caused by sniffing is the same for females as it is for males.
- On this page you can see this person has been sniffing a little bit and has damaged the front part of the brain.
- This part of the brain makes decisions and controls our emotions and actions.
- When this part of the brain is damaged the person will start to lose their stories.
- The person can't remember what they were talking about or where they were going.
- They have trouble learning new things and feel confused.
- If this person stops sniffing now they will be able to get completely better.





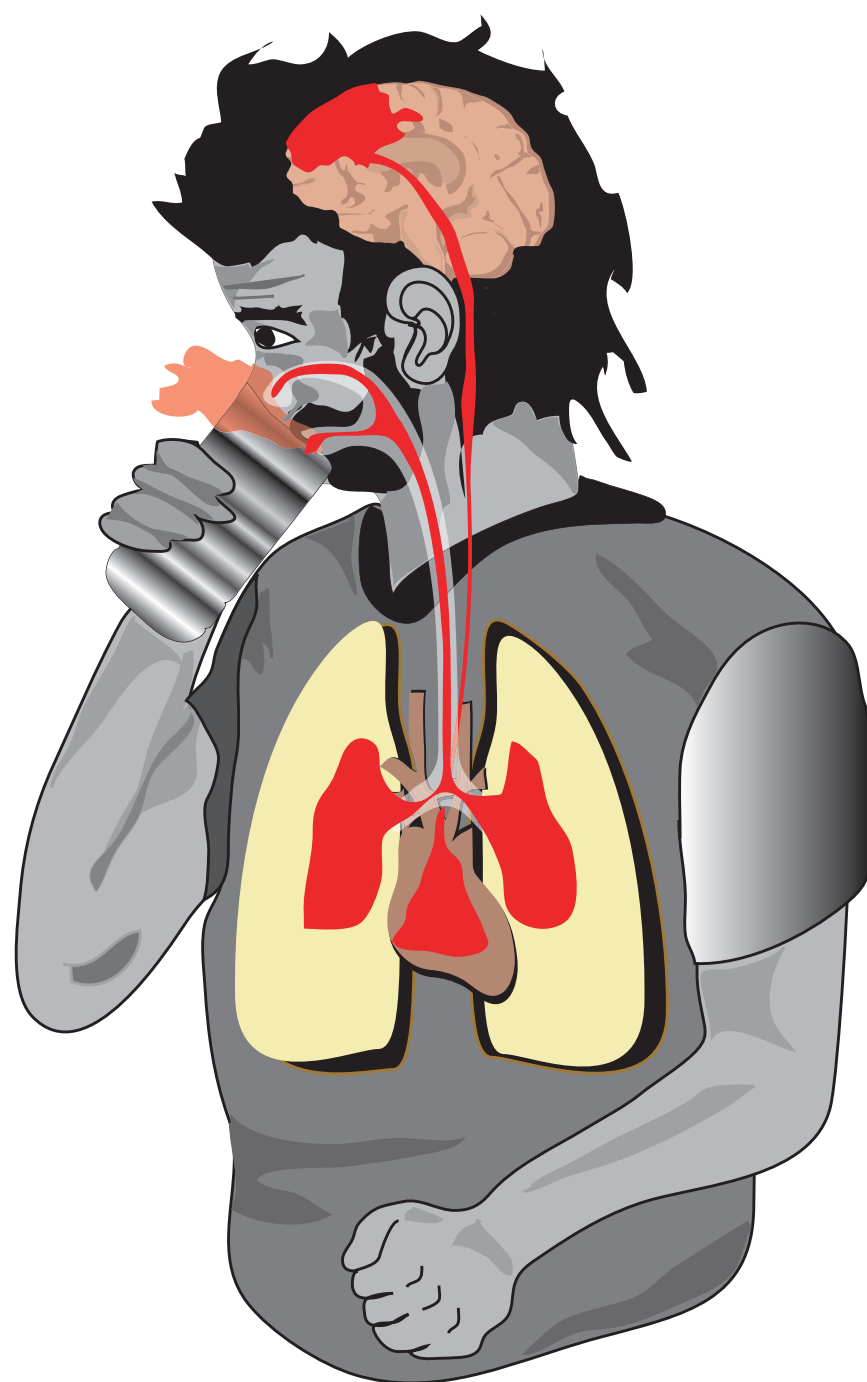
## PART 2



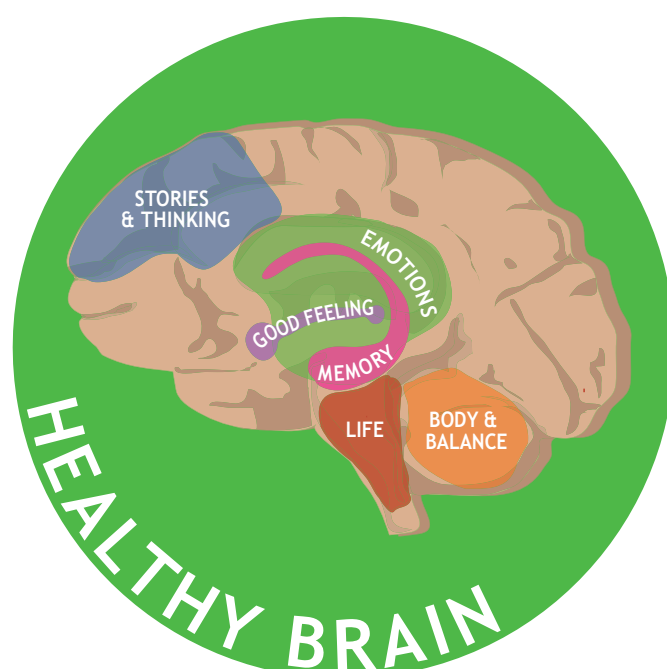
# SNIFFING AND THE BRAIN

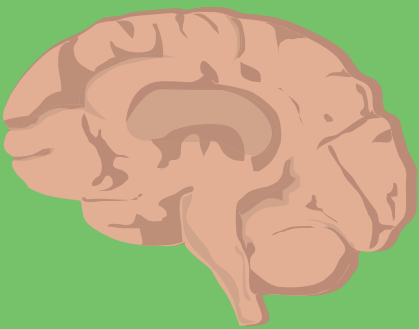
*Sniffing a little bit*

losing stories  
can't concentrate  
can't control emotions  
can't control body  
can't make decisions



**YOU CAN  
GET BETTER  
IF YOU STOP NOW!**





SNIFFING AND THE BRAIN

Sniffing a long time

- This person has been sniffing a long time and has damaged a deeper part in the middle of their brain.
- They will have problems with their memory and controlling their emotions.
- They will have no more stories.
- They will be losing their family and their country.
- They will be fighting, worried and frightened.
- They may get into an angry rage or burst into tears easily.
- Their mood may change quickly.
- If this person stops sniffing now, they will get a lot better but it will take a long time.
- They might have some long-term problems that don't go away.

PART 2

SNIFFING AND THE BRAIN

Sniffing a long time

stories gone  
losing family  
fighting  
worried all the time  
can't remember things  
can't learn anything

If this person stops now, they will get a bit better but it will take a long time.

HEALTHY BRAIN

SICK BRAIN

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## PART 2

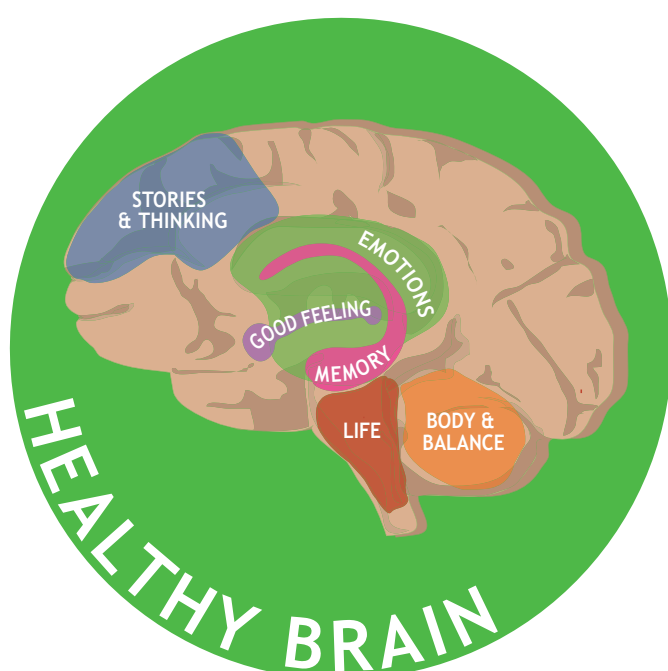
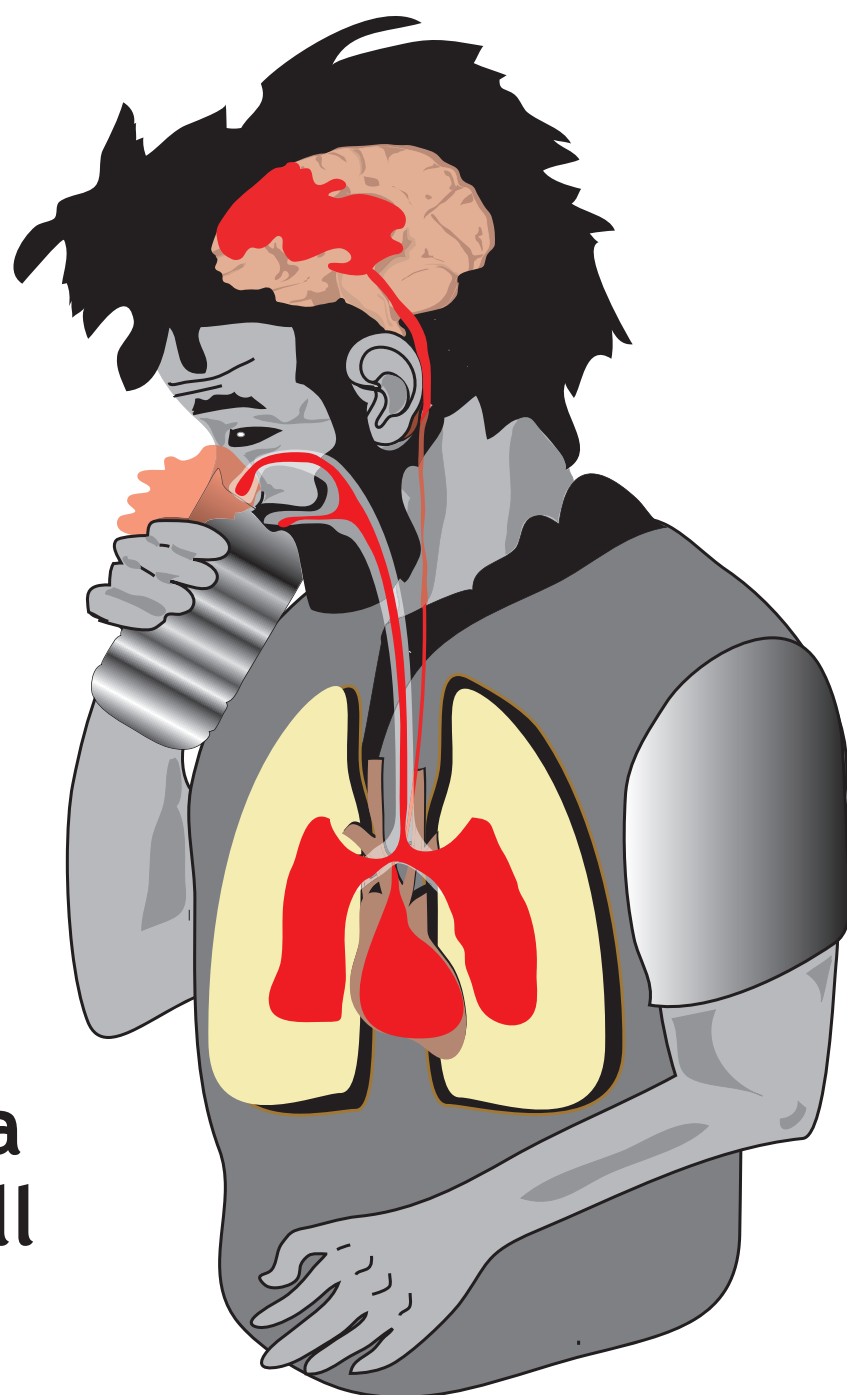


# SNIFFING AND THE BRAIN

## *Sniffing a long time*

stories gone  
losing family  
fighting  
worried all the time  
can't remember things  
can't learn anything

If this person stops  
now, they will get a  
lot better but it will  
take a long time.



PART 2




SNIFFING AND THE BRAIN

Sniffing for years

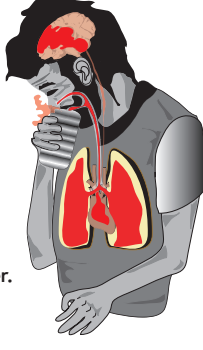
- This person has been sniffing for years and has damaged the part of their brain at the bottom that keeps their body balanced.
- This person has lost their stories, their family and their country.
- Their body is skinny and sick.
- They can't talk or listen properly and may slur their words when they speak.
- Their body can't move properly and they may fall over.
- They may need to go to hospital.
- They have serious brain damage.
- If the person stops sniffing, they can get a little bit better.
- They can learn to walk better but may always have some problems with walking.
- Their family may have to look after them.

PART 2

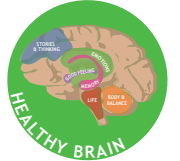
SNIFFING AND THE BRAIN


Sniffing for years

stories gone  
family gone  
country gone  
body skinny and sick  
can't move properly  
can't walk properly  
may need hospital



If the person stops  
sniffing, they can  
get a little bit better.  
Need help from  
the family.

HEALTHY BRAIN

SICK BRAIN

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## PART 2



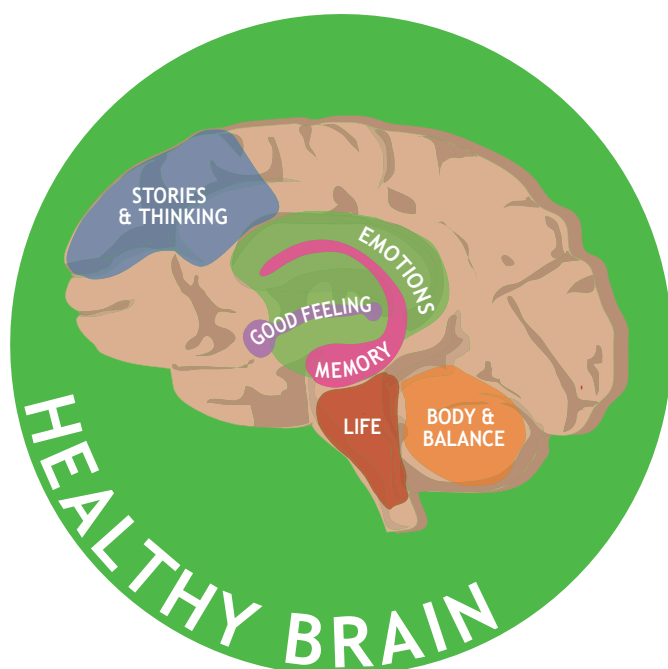
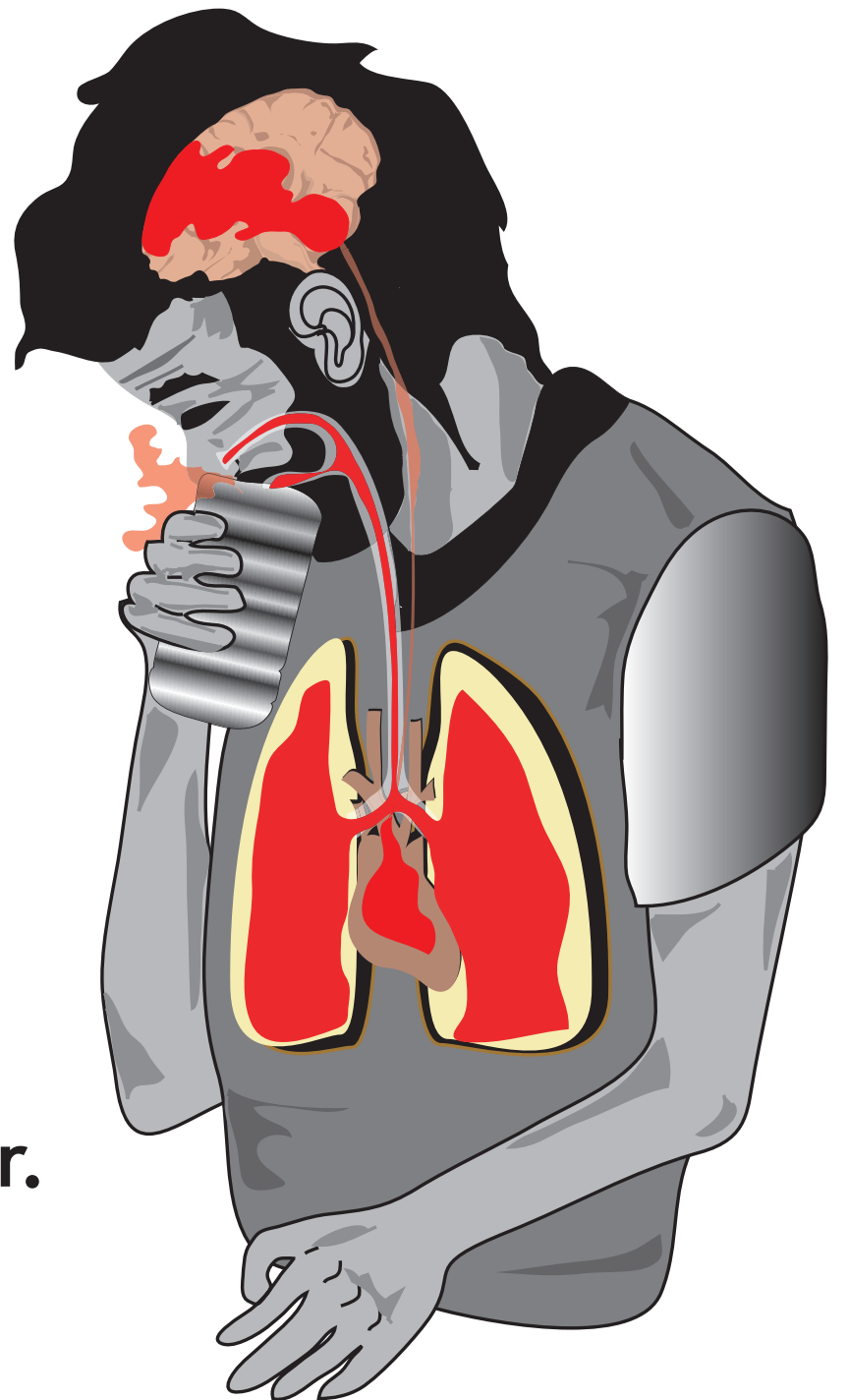
# SNIFFING AND THE BRAIN

## *Sniffing for years*

stories gone  
family gone  
country gone  
body skinny and sick  
can't move properly  
can't walk properly  
may need hospital

**If the person stops  
sniffing, they can  
get a little bit better.**

**Need help from  
the family.**



# PART 2



## SNIFFING AND THE BRAIN

### *Sniffing too much*

- This person has sniffed too much and has killed the oldest part of the brain that connects the brain with the rest of the body.
- This part controls heart rate, breathing, eating and sleeping.
- When this part of the brain is damaged, the person can't breathe and their heart doesn't work.
- The person dies and nothing can be done.
- Sniffing can kill you.
- It's important to know that:
  - Some of the brain damage gets better if you stop sniffing.
  - But the longer you sniff, the less chance there is of getting all the way better.
  - IT'S NEVER TOO LATE TO STOP SNIFFING.
  - You can get help from your family or you can help your family.
  - IT'S UP TO YOU!





## PART 2



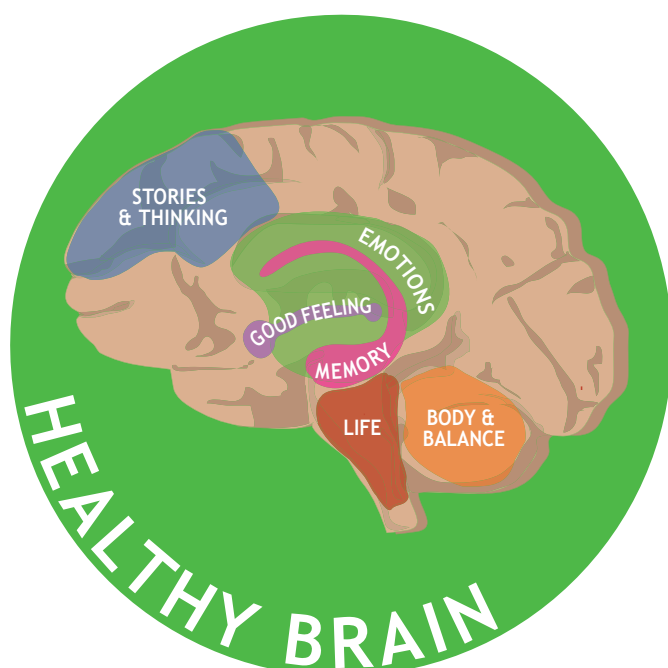
# SNIFFING AND THE BRAIN

*Sniffing too much*

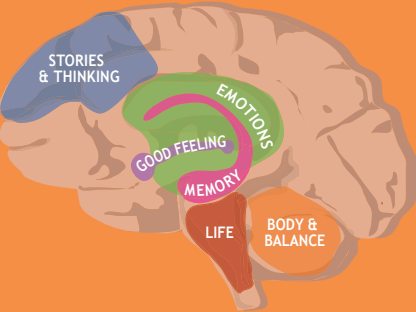
no breathing  
no heart beat  
you will die



**CAN'T GET BETTER — TOO MUCH SNIFFING**



PART 3



A SNIFFING STORY

Two boys, best friends

- These two boys are best friends.
- They grew up together.
- They have the same culture, the same language and the same country.
- They learnt about their culture since they were young boys.
- These boys have healthy brains.

FOOTNOTE:



In part 3 use the brain at the top left hand side of the page as a reference to show brain damage from sniffing.

PART 3

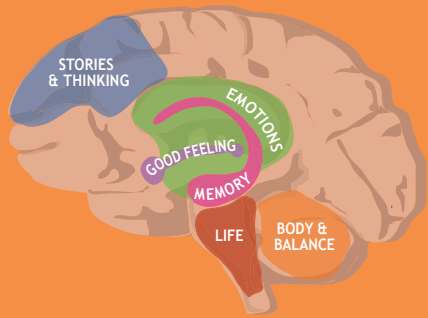
A SNIFFING STORY

Two boys, best friends

These two young boys are best friends.  
Their brains are young and healthy



# PART 3



## A SNIFFING STORY

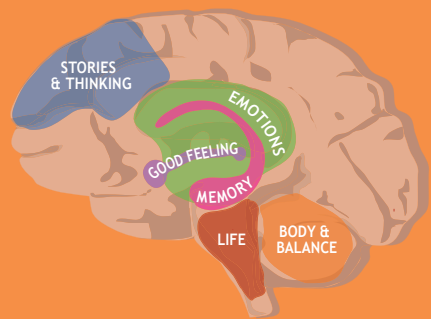
### *Two boys, best friends*

These two young boys are best friends.

Their brains are young and healthy.



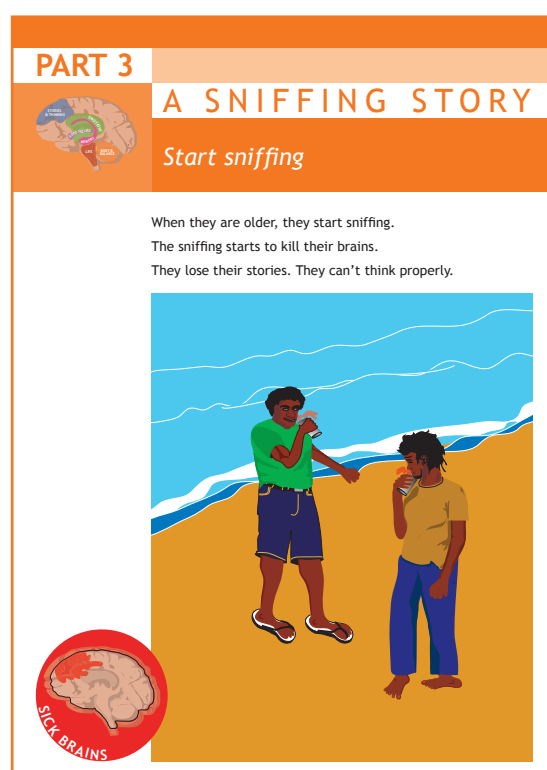
# PART 3



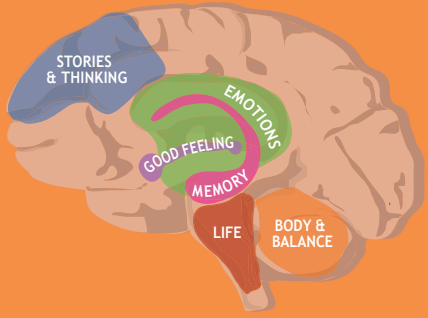
## A SNIFFING STORY

### *Start sniffing*

- When these boys are older, they decide to try sniffing.
- Their families are worried about them.
- Their families start to see them change from sniffing.
- The boys start to lose their stories.
- They can't remember things properly at school.
- They can't concentrate on anything.
- They have damaged the 'control centre' of their brains.
- These boys need to stop sniffing or they will do permanent damage to their brains.
- If they stop sniffing, they need to learn to remember, concentrate and think properly again. Then they can be normal again.



# PART 3



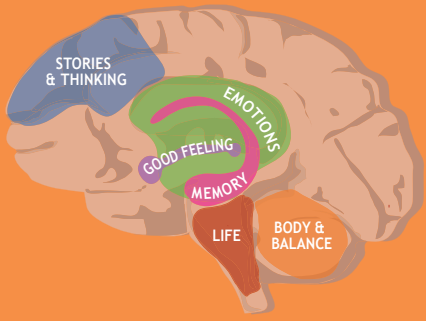
## A SNIFFING STORY

### *Start sniffing*

When they are older, they start sniffing.  
The sniffing starts to kill their brains.  
They lose their stories. They can't think properly.



# PART 3



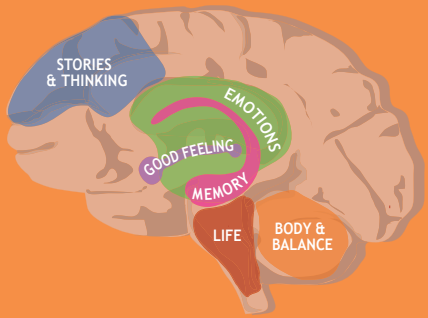
## A SNIFFING STORY

### *Keep sniffing*

- But these boys don't stop sniffing.
- They want the sniffing because it makes them feel good for a short time.
- They want to sniff to forget their problems.
- Their brains are getting worse.
- They get angry and worried all the time.
- Sometimes they can't walk properly.
- They forget things all the time.
- They are getting into trouble with the Police all the time now.
- They can't do their jobs properly.
- They are forgetting about their country and their culture.
- Their families are really worried about them.
- They may have permanent brain damage from sniffing too much.
- If they stop now, they can still be strong again.
- Their brains and body may get better but maybe not all the way better.
- The families of these boys can help by teaching them about their country and stories again.



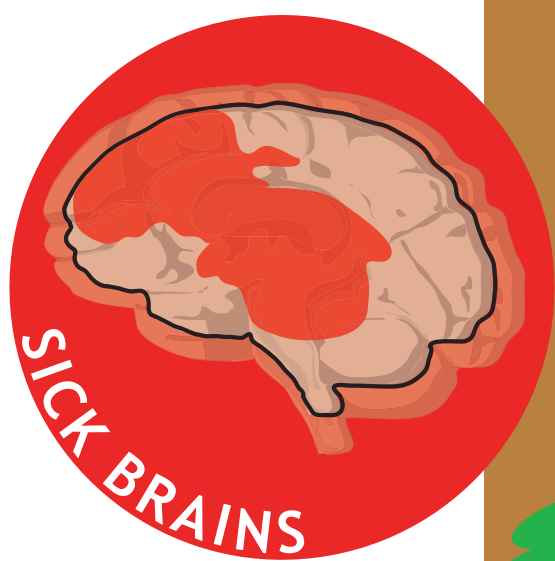
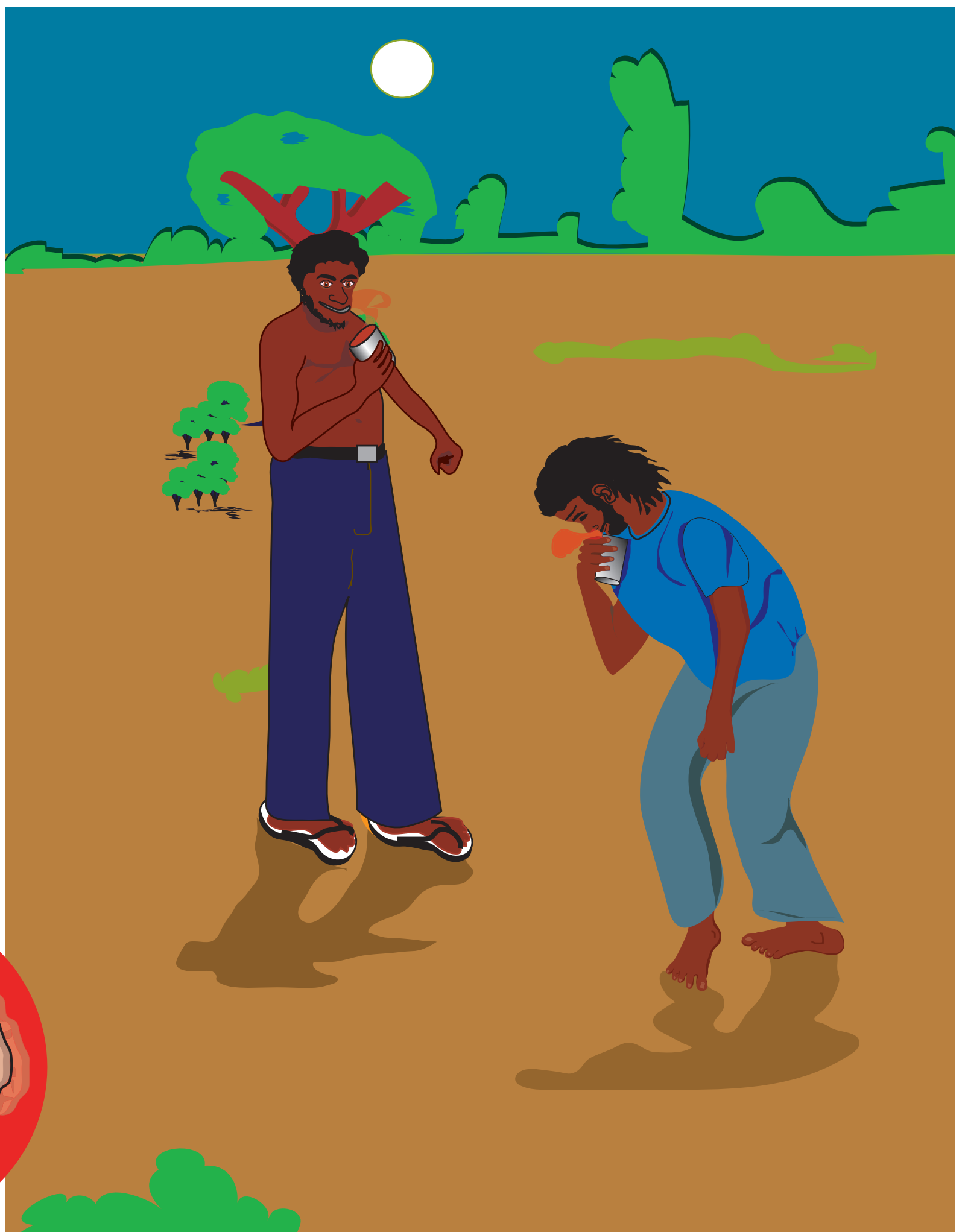
# PART 3



## A SNIFFING STORY

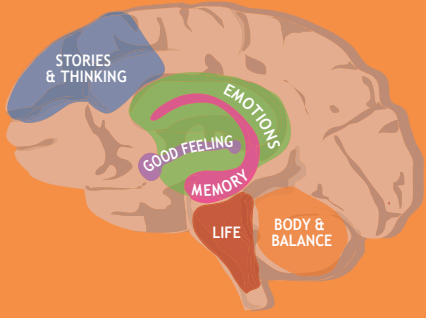
*Keep sniffing*

But they keep sniffing...and their brains get worse.  
They can't remember things. They get angry and worried.





# PART 3



## A SNIFFING STORY

### *Talking with the Old Man*

- People in the community and their families are worried about these boys.
- They try and get the boys to stop sniffing.
- One old man sits the boys down and talks with them.
- He tells them stories about their strong culture and their country.
- He talks to them about their people.
- He tells the boys they can't be strong if they sniff.
- The boys are listening to the old man.

#### PART 3

#### A SNIFFING STORY

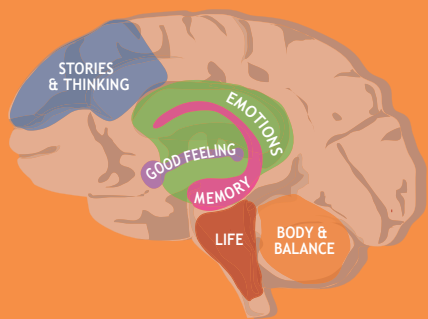
#### *Talking with the Old Man*

Their families are worried about them.  
One old man talks to them.  
He tells them they can't be strong if they sniff  
The boys listen to the old man





# PART 3



## A SNIFFING STORY

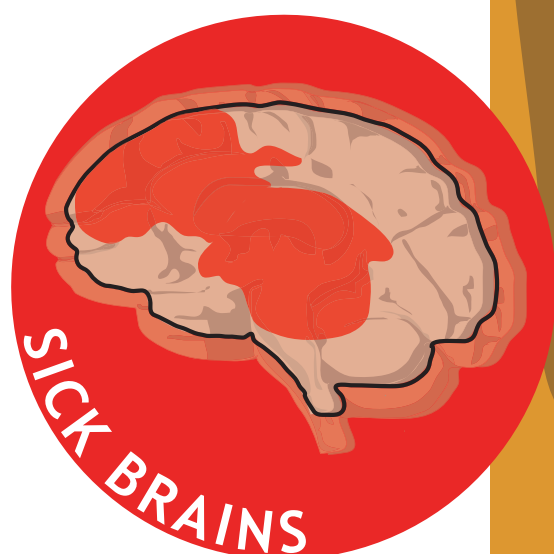
### *Talking with the Old Man*

Their families are worried about them.

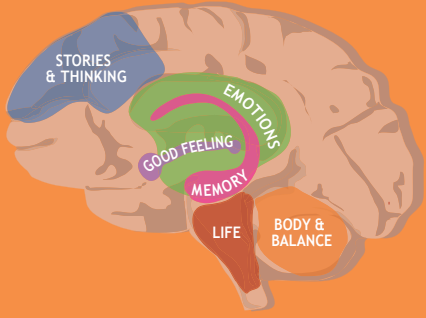
One old man talks to them.

He tells them they can't be strong if they sniff.

The boys listen to the old man.



# PART 3



## A SNIFFING STORY

### *One boy wants to stop sniffing*

- After talking with the old man, one boy decides he wants to stop sniffing.
- He can see that his family are worried.
- He can see that his body is weak and his mind is weak.
- He has lost his family, his country and his stories.
- The old man told them they can be strong again if they stop.
- He wants to be strong.
- He tries to tell his friend to stop sniffing too.
- He tells him they can be strong again if they stop.
- They can have strong families, strong culture and strong country.
- But the other boy doesn't want to stop.

#### PART 3

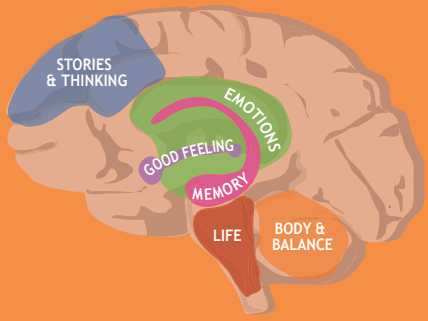
#### A SNIFFING STORY

#### *One boy wants to stop sniffing*

One boy wants to stop sniffing.  
He wants his friend to stop too.  
He tells him they can be strong again if they stop.  
But his friend doesn't listen. He wants to keep sniffing.



# PART 3

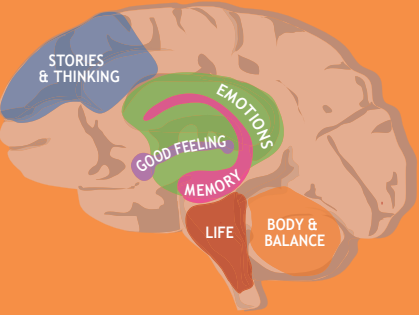


## A SNIFFING STORY

*One boy wants to stop sniffing*

One boy wants to stop sniffing.  
He wants his friend to stop too.  
He tells him they can be strong again if they stop.  
But his friend doesn't listen. He wants to keep sniffing.





A SNIFFING STORY

One stops, one doesn't

- This fella has stopped sniffing. He wants to be strong and healthy again.
- He wants to be with his family and be strong in his culture. He knows he can't do this if he keeps sniffing.
- He stops sniffing and starts to become strong again.
- It may take years after he stops for him to get better but his body and brain start to get better.
- He starts to play sport and enjoy being healthy and strong. He feels good.
- But his friend did not stop sniffing. He kept sniffing and got worse and worse.
- He is very sick now. His body and brain are slowly dying.
- This boy will never get completely better again, but if he stops now he will stay alive.
- If he stops, his family can help him.

FOOTNOTES:

See the brains on the left how one fella is getting better. But the fella who is still sniffing is getting worse.

How can the family help?

The family can make sure the sniffer gets plenty of food and rest, especially when they first stop sniffing.

They can take the sniffer to meet and talk with the rest of the family, to teach them about their family connections again and the roles and responsibilities that link them to the wider community.

They can take the sniffer to significant country places to reconnect with their ancestral stories and learn about their inherited responsibilities again.

PART 3

A SNIFFING STORY

One stops, one doesn't

GETTING BETTER

A person in a blue shirt and white shorts is running up a green hill. To the left is a brain icon with a green highlight and the text 'GETTING BETTER'.

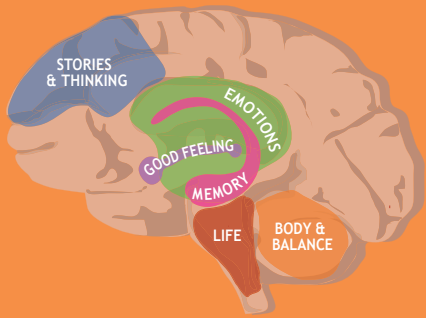
This fella stopped sniffing. He starts to be strong again. His brain starts to get better.

GETTING WORSE

A person in a yellow shirt and brown pants is lying on their back on a green field. To the left is a brain icon with a red highlight and the text 'GETTING WORSE'.

But his friend kept sniffing. He kept getting worse. His brain and body are dying.

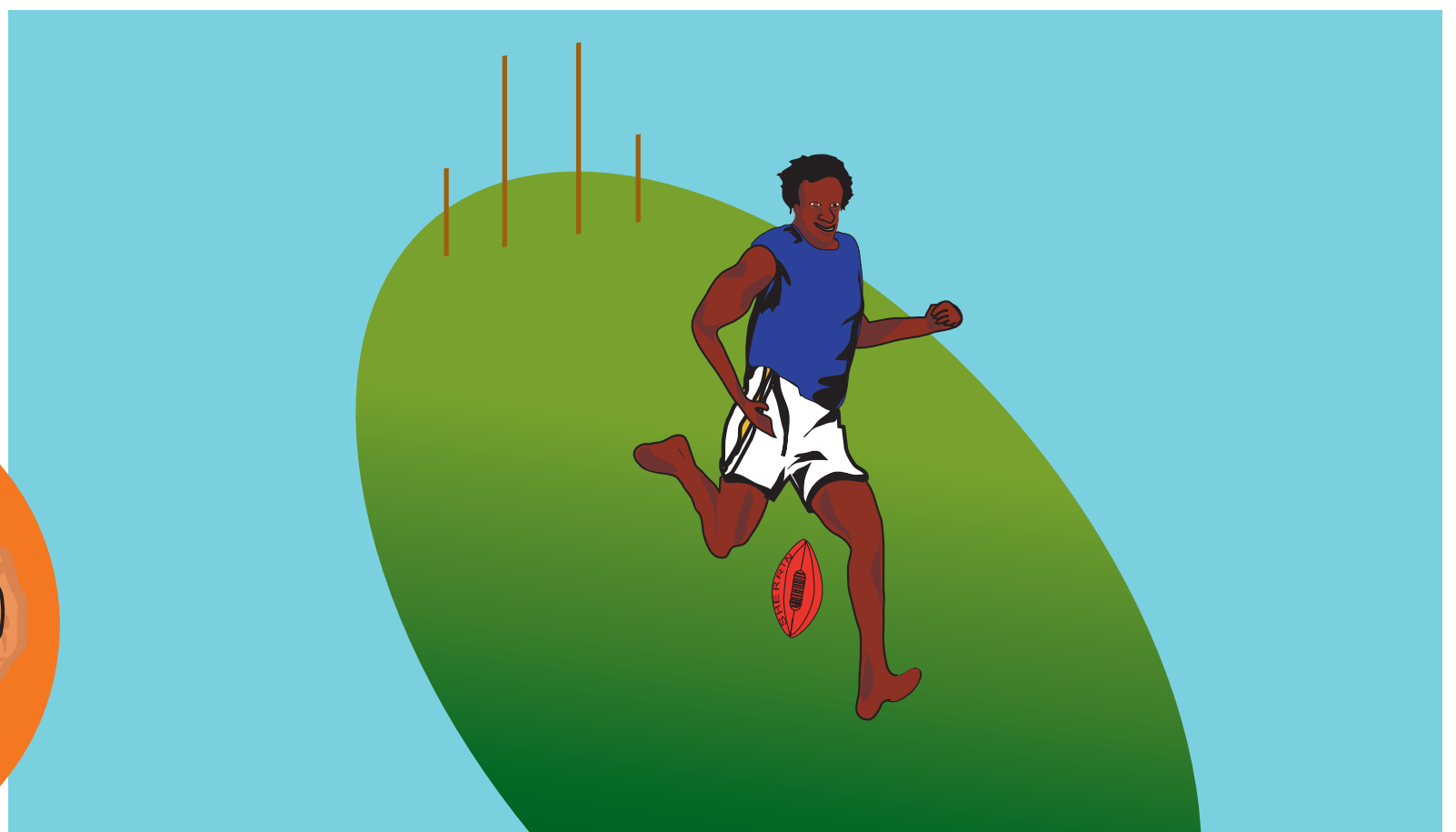
# PART 3



## A SNIFFING STORY

*One stops, one doesn't*

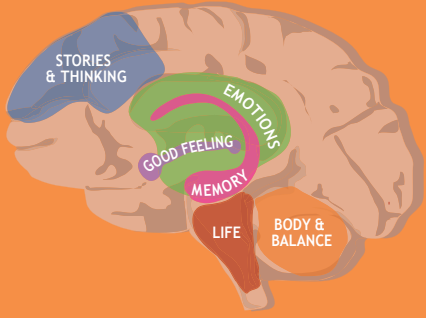
This fella stopped sniffing. He starts to be strong again.  
His brain starts to get better.



But his friend kept sniffing. He kept getting worse.  
His brain and body are dying.



# PART 3



## A SNIFFING STORY

*Stop, get better!*

- This fella didn't sniff anymore. He got stronger and healthier.
- He was very happy and his family were happy. They helped him get better.
- But he was also very sad because his friend kept sniffing.
- His friend sniffed too much and died.
- He wished that his friend had listened to him when he asked him to stop sniffing. Then he would still be alive.
- Remember, some of the brain damage gets better if you stop sniffing!
- But the longer you sniff, the less chance there is of getting all the way better.

**PART 3**



**A SNIFFING STORY**

*Stop, get better!*

This fella got stronger and healthier. But it took years after sniffing to get better.  
But he was very sad because his friend sniffed too much and died.

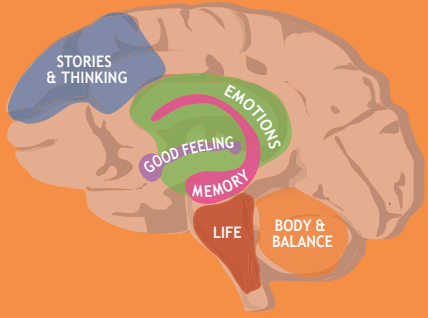




**STOP BEFORE ITS TOO LATE!**



## PART 3

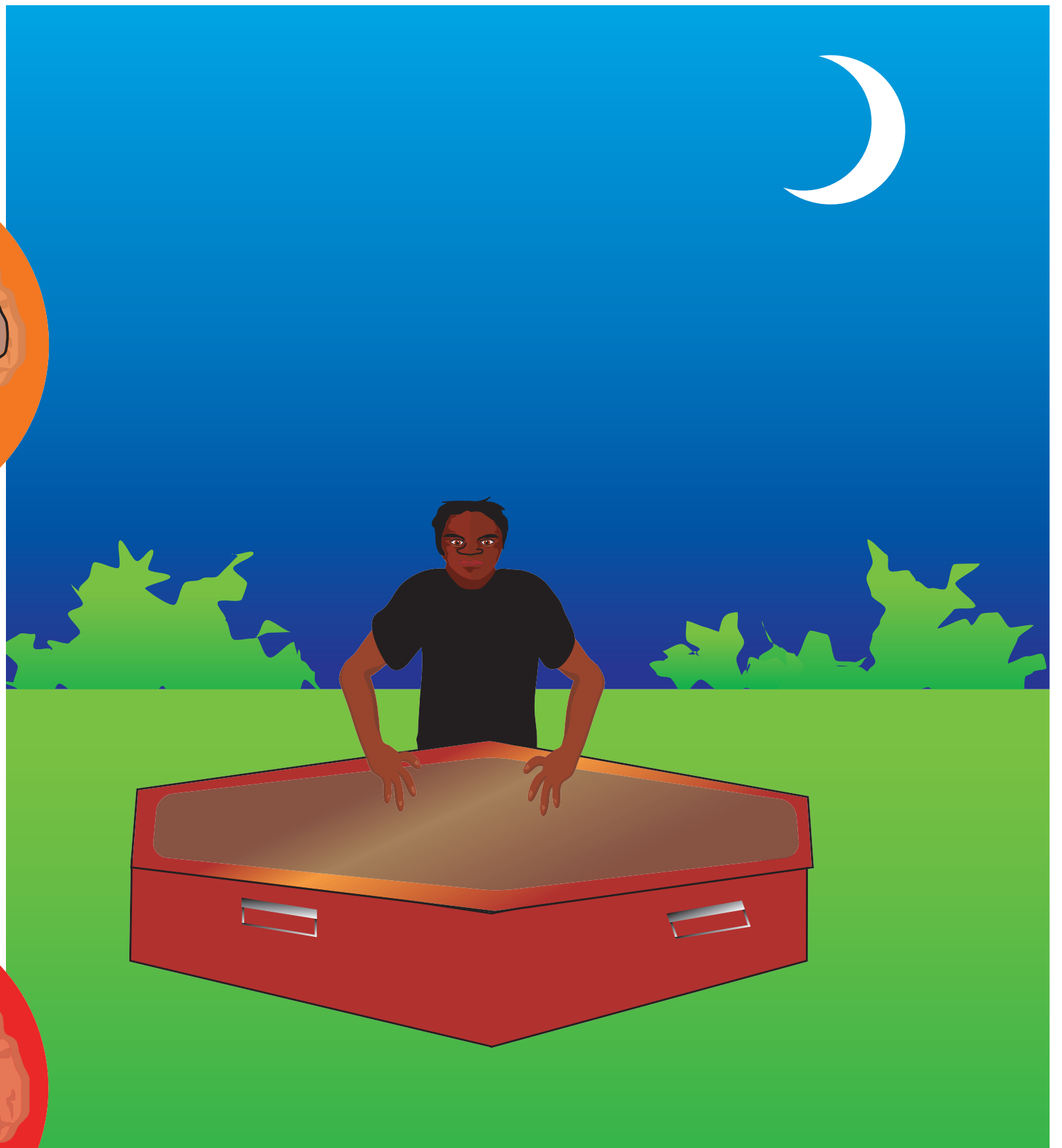


# A SNIFFING STORY

*Stop, get better!*

This fella got stronger and healthier. But it took years after sniffing to get better.

But he was very sad because his friend sniffed too much and died.



**STOP BEFORE ITS TOO LATE!**

# PART 3



## A SNIFFING STORY

*Find healthy ways to feel good*

- Sniffing makes you feel good but only for a short time.
- After sniffing for a long time, you feel bad instead of good.
- There are many healthy ways to feel good instead of sniffing.
- Healthy ways make us feel good for a long time, not a short time like sniffing.
- Some healthy ways to feel good that you can see here are fishing, playing sport, hunting, family and ceremonies.
- Other things that will make you feel good are looking after your family, growing up your kids well, getting good work, doing interesting training and education and making your elders and family proud of you.
- **It's up to you!**

PART 3



A SNIFFING STORY

*Find healthy ways to feel good*



# PART 3



## A SNIFFING STORY

*Find healthy ways to feel good*

Ceremony

Family

Fishing

Sport

Hunting

