



# Cayetano Comic: a fun way for learning English for Medical Purposes

Vladimir Román Gutiérrez Huancayo.

ColloQUIUM

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## PREFACE

For many years I was thinking to improve my way for Teaching English, honestly, it's not easy. In first place, because the student generally doesn't have sufficient knowledges, that allow a complete class, where the main topic is the complex brain, or the metabolism of the gastric juices, or in another side if you want to explain how the bacteria get to produce a disease, without forget the functions of every organ, or who the retina is related with the sight process. In some way it's required that the students come the classroom with appetite of learning, a pinch of creativity, and to find funny to name the twelve cranial pair, while they mention functions and diseases.

So, I realized, that in many countries, the scholars are applying the comic like a tool for learning with enjoyment, because, comics are loved both by grown-ups and children, for this reason both DC comics and Marvel are successful. The drawing and the story designed in every frame or the text in the speech bubbles, without forget the expression of the character's faces can move your mind to different places and events.

Therefore, if someone describe using comics, medical situations, above all those that happen every day in our city, Piura, so it's likely that the students learn English for Medical Purpose. In another words, if a student reads a colorful story, where the actions is carried out in a hospital, where the heroes don't have cape and they don't fly, but they save human lives. Stories with desperate mothers that seek medical help for her children, or a worried man that doesn't understand why the doctor decided remove his prostate, or when a pediatrician could treat a child who drank bleach, without forget the first aids that a nurse did in emergency room.

In this way, I realized that the students can complete the empty bubbles, in this way they improve their writing skills, and when they used the stories devised by them it was the moment their speaking were improving, in addition I could realize their pronunciation improved.

The comics have been considered for many time, an inappropriate mean, and due to there are violent stories, happily there are also several authors who have been created academic stories, or to say in another way, there are hundreds of teachers who know the comic is a fantastic option for teach about chemistry or physics, or microbiology of bacteria and viruses.

Finally, I decided to name this comic like Cayetano comic in honor of José Cayetano Heredia Sánchez, who is and will be the most significant doctor born in Piura, and who founded the first Medicine Faculty, in our country. Cayetano Heredia always was interested in educating his pupils, thinking in the patients, because they arrive every day to hospitals asking for medical help.

I hope, that the readers of this comic find the main idea to teach medical situations, taking into account that today the students learn better doing, in another words, if you use this information, is because you desire to teach with enjoyment.

The author.

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## **Be carefully with your skull! This also breaks!**

Yesterday, I saw in the newspaper the sad news about the death of a couple of lovers on motorcycle accident, also the news clears the death cause was multiples cranial and vertebral fractures. Here, in Piura, the use of the motorcycle as a means of transport is very popular, it is said that the number of people who use this means of transport is more than 50 thousand, that is to say, there are more motorcycles than cars, and the principal problem of these is the security, because the bodies of the people are not protected properly. On the other hand, many accidents affect the skull that is the framework of the **head**, and it gives protection to the brain, so a stroke is what could continue to one or more fractures in the same. And another structure commonly affected during an accident could be the vertebral column. Now let's talk about them. The Skull is composed by the face's bones also known as **facial skeleton**, in this part is included the mandible that is a long bone in the inferior of the face and the **neurocranium** so called because is a cavity that enclosed the brain mainly and sensory organs like ears, eyes, nose, and mouth although these organs belong to the face.

The **neurocranium** called also cranium is divided in two parts: **skullcap** or calvarium and the **cranial base**. The calvarium consists in frontal bone (1), parietal bone (2), occipital bone (1), temporal bone (2), and ethmoid (1) sphenoid (1). While the cranial base consist in five bones: ethmoid, sphenoid, occipital bone, paired frontal bone and paired with the pairs of temporal bones. For another side the face has the next bones:

----- It's the bone that form your forehead, consist in two parts, the broadest and superior part called **squamous part**, and the inferior part that get form the orbital zone, called **orbital part**.

----- It's the bone of our nose and is make up of two bones that are localized in the center of our face, and generally have different sizes depend on each individual.

----- It's the bone of our cheek and consist of a pair of bones localized in both sides of the face, and articulates with inferior part of orbital bone, maxilla, temporal bone, sphenoid bone.

----- It's a bone that has an irregular shape, and is localized below the nose, and the inferior part of orbicular bone, and articulates with the sphenoid bone.

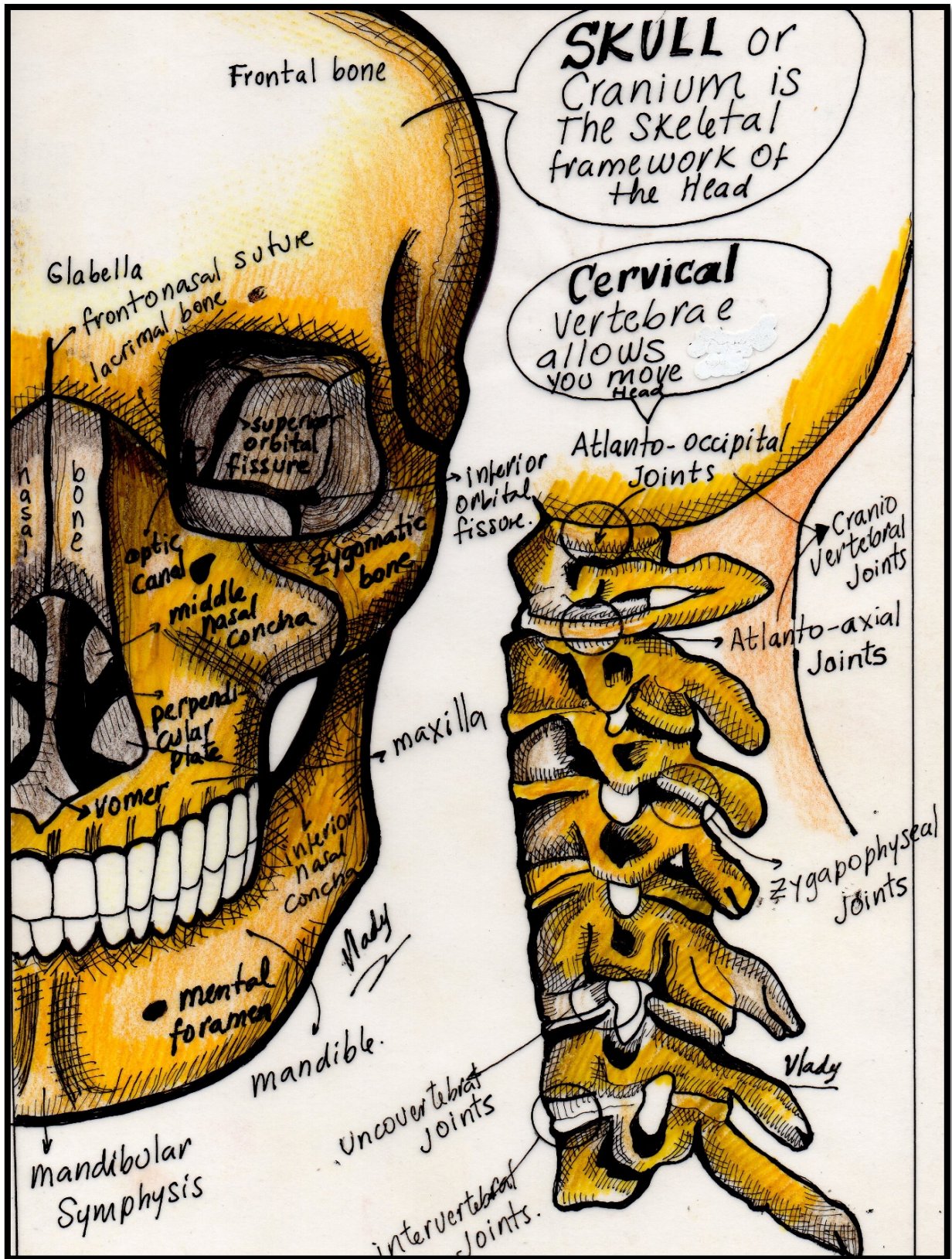
----- It's the only bone that can move out, because its condition of belong to temporalmandibular joint, it has possible to move it.

----- It's a group of bones that constitute the vertebral column.

----- It's a group of vertebrae that constitute our neck.

----- It's a group of vertebrae that constitute our back.

----- It's a group of vertebrae that constitute our waist.



Where is the next bone?

Let's complete the gaps with the localization of the bone:

Example:

**Scapula: Thorax**

Femur \_\_\_\_\_.

Fibula \_\_\_\_\_.

Malleus \_\_\_\_\_.

Sternum \_\_\_\_\_.

Frontal bone \_\_\_\_\_.

Patella \_\_\_\_\_.

Radius \_\_\_\_\_.

Ribs \_\_\_\_\_.

Pelvis \_\_\_\_\_.

Scaphoid \_\_\_\_\_.

Calcaneus \_\_\_\_\_.

Tarsals \_\_\_\_\_.

Talus \_\_\_\_\_.

Nasal bone \_\_\_\_\_.

Sphenoid \_\_\_\_\_.

Maxilla \_\_\_\_\_.

Scapula \_\_\_\_\_.

Clavicle \_\_\_\_\_.

## **Please to drive carefully!**

Yesterday, during the morning, a couple of policemen died, terribly, they went on a motorcycle, when suddenly a bus collided with the motorcycle, both left the motorcycle and fell on the road, immediately, people picked them up. , in two different cars, they took them to the hospital, where the doctor certified the death of both. The cause of their deaths was a severe head fracture, also a general trauma due to the impact with the bus.

I saw them when they arrived at the Cayetano Heredia hospital, because I was waiting for my mother, who was released on Monday. Immediately they entered the emergency entrance, unfortunately they died; they left us sad and helpless, because we could not do anything.

The doctor explained to his family that a cranial fracture is a complicated situation in which the hard bone, also called the skull, is affected by the impact, presenting a brain injury, considered by many physiologists as the most important organ of the central nervous System, therefore, if the protective structure is broken, the brain can also be affected.

In addition, through the magnetic resonance image, the doctor deduced that the impact was so strong; enough to break the skull and this is the main cause of their deaths, if they had survived, and they would have had many deficiencies.

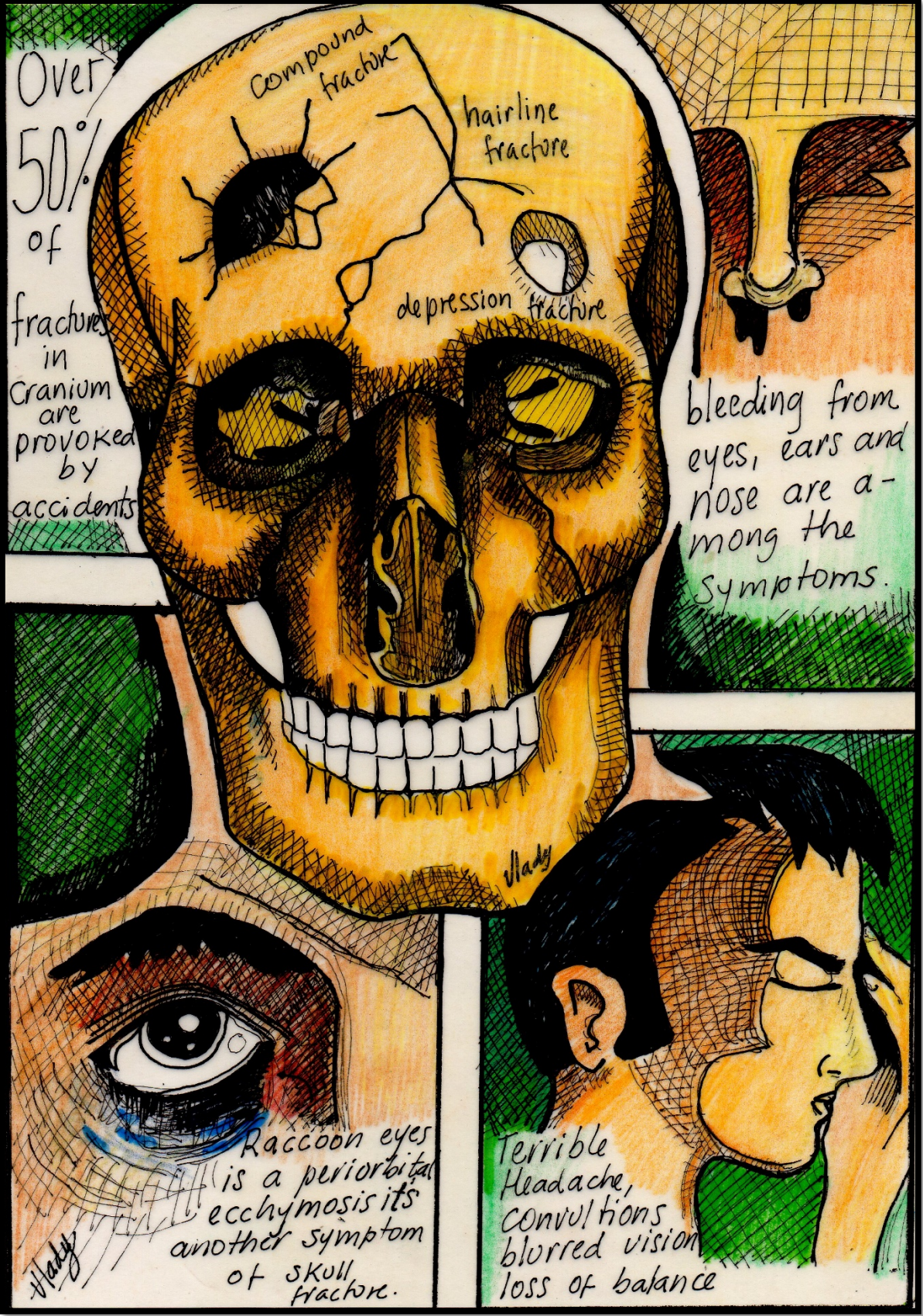
The majority know that cranium is a hard bone whose principal function is protects both the brain and organs like eyes, nasal cavity, ears between others, for this reason when an impact provokes that break it, depending the lesion, aforementioned structures can go out with its posterior collapse.

The most common symptoms of this clinical situation are:

Swelling of the affected area, and tenderness around the lesion, it's possible that certain cavities like nostril or ears show bleeding, it could help to make the diagnostic, and obviously pain, blurred vision, loss of balance, restlessness between others.

Now, we are going to fill the blanks, with the denominations of next fractures:

1. ----- This type of fracture happens where there aren't a signal of break it, that's to say the skin that rounds the lesion is not broken.
2. ----- This cranial fracture is the opposite of anterior mentioned, thus in this case, it's visible the skin is broken.
3. ----- In this case the bone affected is indent into the brain cavity.
4. ----- It is the denomination, referred to a lesion where the floor of the cranium is affected.
5. -----it happens when the bone is broken in many parts.



Over 50% of fractures in Cranium are provoked by accidents

bleeding from eyes, ears and nose are among the symptoms.

Raccoon eyes is a periorbital ecchymosis its another symptom of skull fracture.

Terrible Headache, convulsions blurred vision loss of balance

### **He had a femoral fracture**

Piura city, is one of the places where many people use the motorcycle like transportation mean, therefore, here happen several situations like people driving so fast, road accidents, handicapped people, and the most regrettable a high number of deaths.

Today, so early, Anderson a tertiary student, was discharged from Cayetano Heredia Hospital. During forty days he remained hospitalized, due to he was hit by a car, when drove a motorcycle of high speed. That day, the police and the paramedical-staff arrived half-hour after the accident, and so quickly was taken to aforementioned hospital.

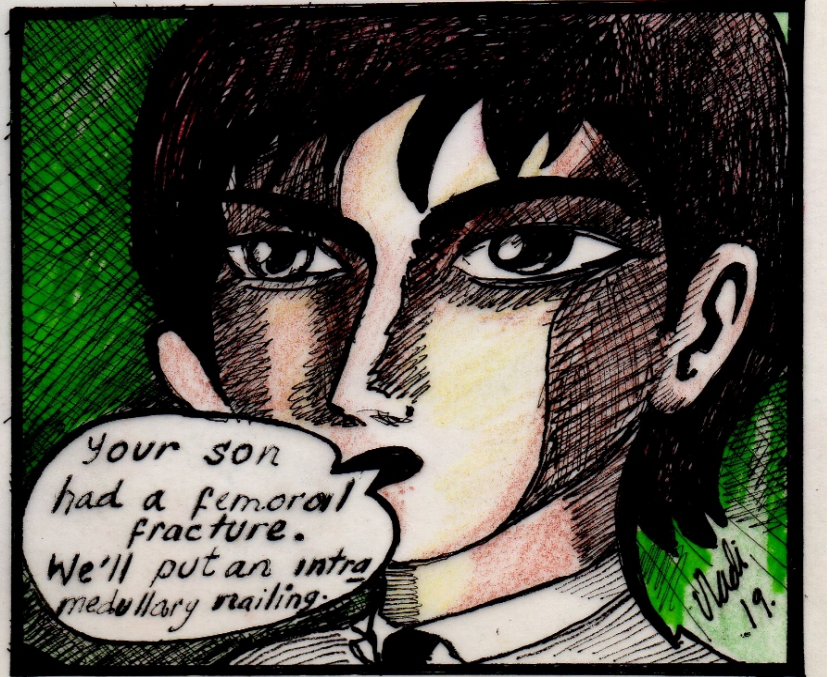
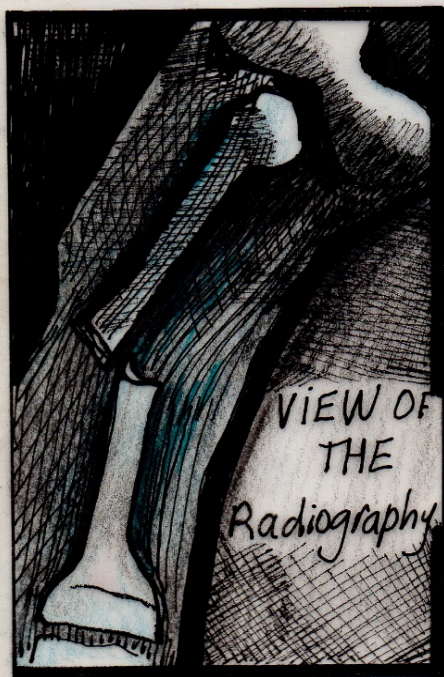
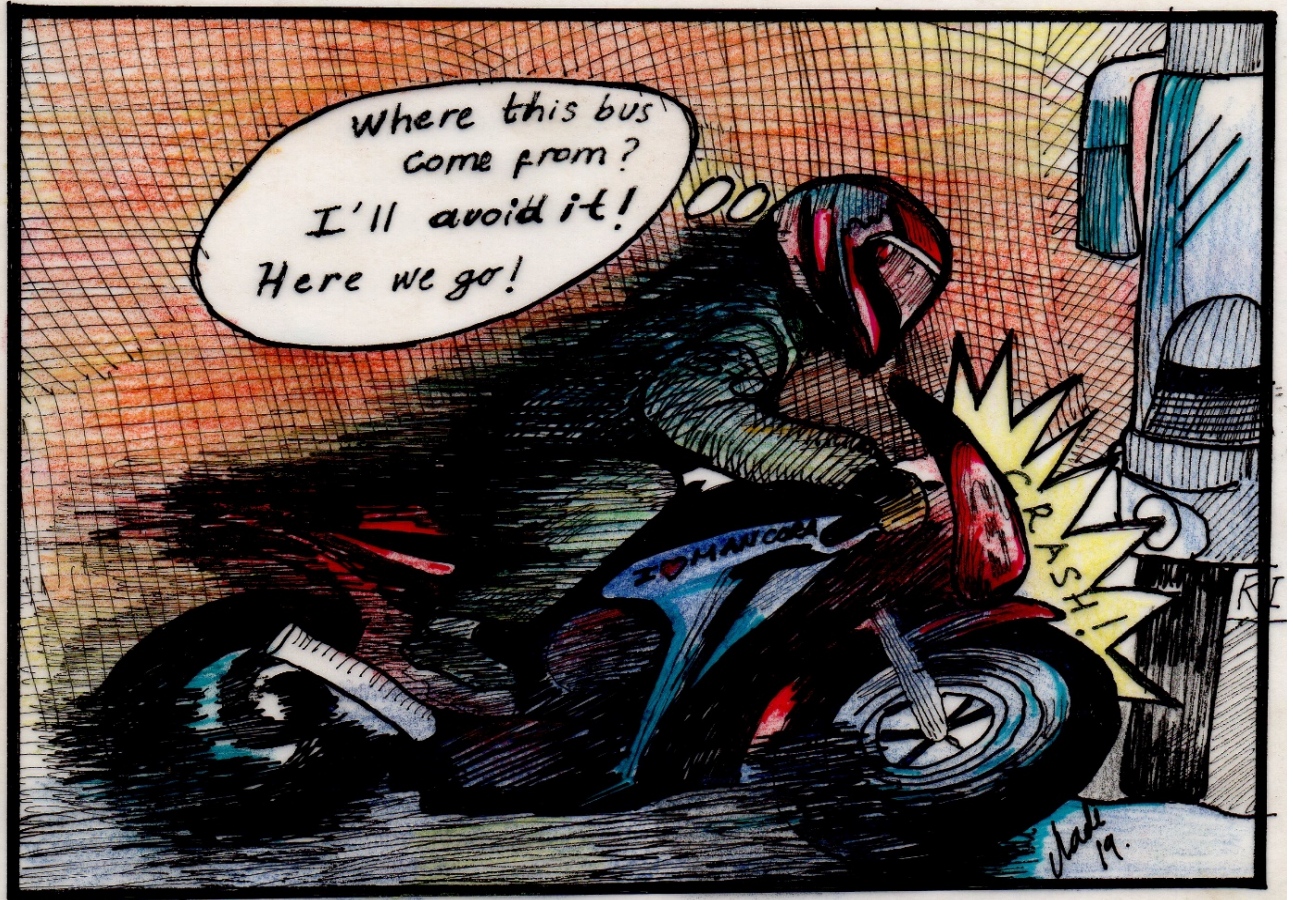
He entered to Emergency Room (ER), and the doctors got to stop the bleeding, and immobilizing the right leg. The doctor ordered the use of antibiotics, powerful analgesics, at the same time as x- rays were taken, these gave information to doctors about the type of fracture. Due to the internal hemorrhage, Anderson was operated, through a surgery called angioplasty, after that the surgeons treated his bone fracture using intramedullary nailing, happily all was well.

Today, it's time for thinking in his rehabilitation, consisting of motion exercises, considering that was a high speed trauma, therefore the muscles are weak, and another side, don't forget that his femoral suffered an injury, this produced cellular death, with forced a completed immobilization of affected limb. It's so possible he has to use crutches for walking, and he will get used to use those, because he wants to come back his day-to-day activities, like going to university.

Happily, the best physiotherapist of this city has been hired, in such a way, this professional will go Anderson's house, three times a week. This treatment will reduce the pain, little by little it will improve the movement and strengthen the muscles around the leg. He will recover the balance. The therapist has indicated to Anderson and his parents that is fundamental the exercises that the patient has to do, pursued strengthen the musculature around the thigh, this due to the muscles act next to the bones in the motion. In addition, little by little, Anderson will do gradual weight-bearing. Without forget, increase the intensity. In this sense, the youth of the patient is a real advantage; let us remember that a fracture in an old patient is little hard his recovery. In another hand, the physiotherapist mentioned also that the therapy could last 6 or 8 months, in this way, he asked much patience, a don't give up.

Seven months after, at last! Anderson came back to drive a new motorcycle, but this time he will do carefully, above avoid traffic-clogged streets, and obeying the law and the traffic lights, and of course, respecting the pedestrians. His friends went out meet him and they promised to help him, in his homework, and the English project, where

everybody has to write about an experience in the past. For our friend it's clear that his accident is the topic chosen.



**Denomination of the bone fracture:**

Complete the gaps with the real denomination of the fracture.

For example:

In radius : radial fracture

In cranium \_\_\_\_\_.

In humerus \_\_\_\_\_.

In patella \_\_\_\_\_.

In Tibia \_\_\_\_\_.

In Scapula \_\_\_\_\_.

In ribs \_\_\_\_\_.

In pelvis \_\_\_\_\_.

In spine \_\_\_\_\_.

In maxilla \_\_\_\_\_.

In fibula \_\_\_\_\_.

In sternum \_\_\_\_\_.

In nasal bone \_\_\_\_\_.

In phalanges \_\_\_\_\_.

In vertebrae \_\_\_\_\_.

## I need a dental appointment right now!

Today, very early, Jimmy called to dental office of one of the well-known dentist, here in Piura, because last night, he didn't sleep due to the toothache, he was terrified because he tried taking different medications like paracetamol, but the pain increased, then he made himself an oral washing with known product, though nothing changed, for this reason, the first action that Jimmy made in the morning was to get a dental appointment. Happily the dentist, who teaches in our University, was getting ready to go out, so the doctor can care for him.

First, the doctor said: I'll explain you the parts of the mouth, and complete the blanks:

1. \_\_\_\_\_ is a group of hard structures, they have a visible part called crown and a hide part called root, there are four types of them: incisor, canine, pre molar, and molar. They help us to bit and chew.
2. \_\_\_\_\_ is a muscular organ where + are the taste buds, which help us to detected flavors like sweet, salty, bitter, sour and lately umami.
3. \_\_\_\_\_ is a group of glands which produce saliva, that is a liquid secretion that moist the bolus, in the mouth there are three types of them: sub lingual, parotid, and submandibular, they collaborate to maintain the teeth healthy, because when are released is impossible the cavities.
4. \_\_\_\_\_ is considered by the clinician the roof of the mouth, that's to say there are two spaces the anterior called hard and the posterior called soft.
5. \_\_\_\_\_ is a mucosal structure which covers the maxilla and mandible, and is in this moment **swell**.

So, take and x- ray's picture and see where your problem is. After one minute, the dentist diagnosed a third molar swollen, this occur when this is misaligned, it's so more common in young patients who have wisdom tooth in bad position, it gets bacterial accumulation and how consequence appear the pain, conclude the professional.

And what is the solution? Answer the young patient.

It's to remove it, answered the experienced dentist, but don't worry, is an easy procedure, and I'll explain this:

I begin saying that is necessary to apply an injection of \_\_\_\_\_ it is called too \_\_\_\_\_. This medication is applied next to wisdom tooth.

Then you fell numb the zone where I have applied the anesthesia, you let me know for \_\_\_\_\_

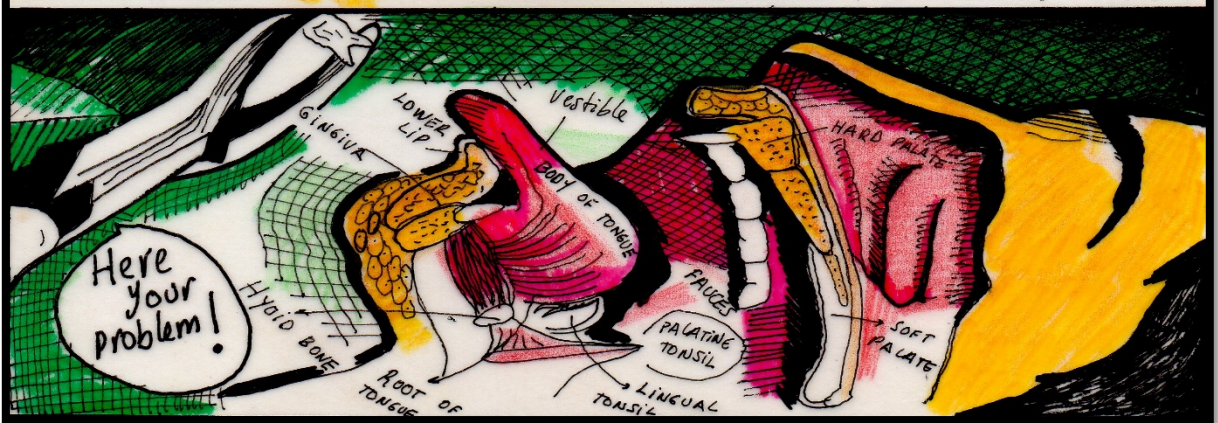
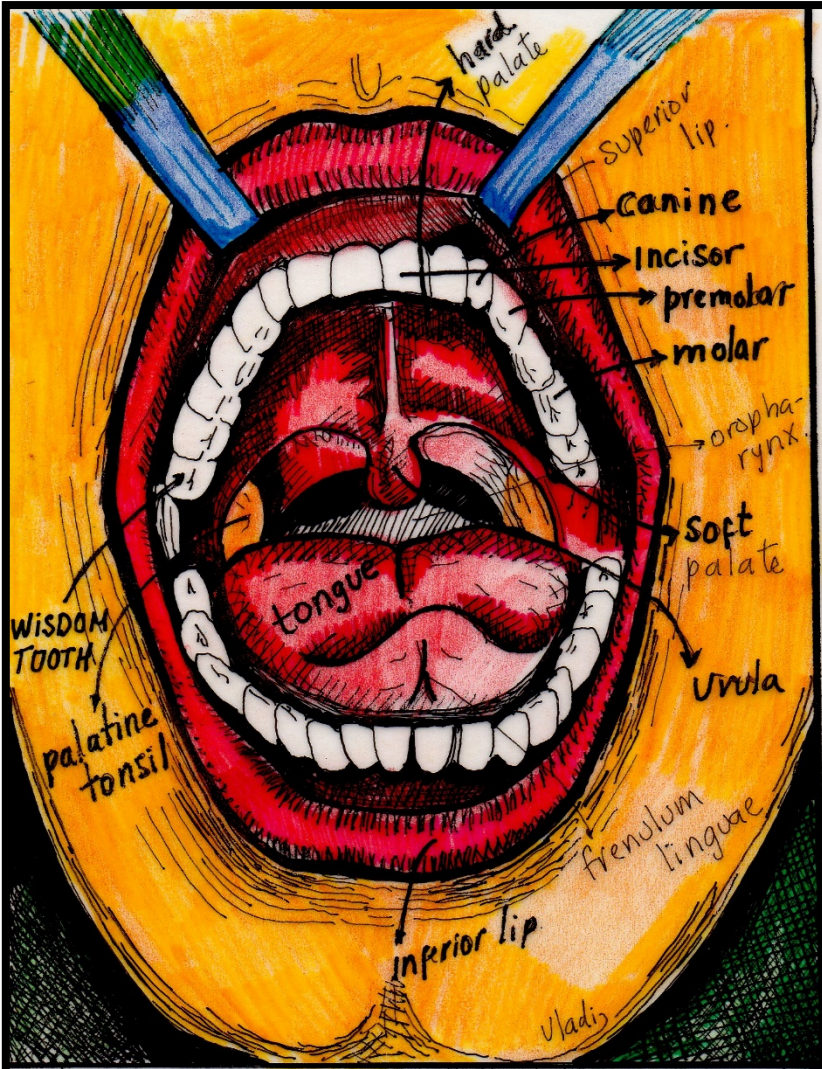
Then – continues the doctor- I will move the tooth back and forth until remove completely. This procedure can long some minutes.

Finally, keep in mind the next suggestions:

It's optional to take some medication for pain  
like \_\_\_\_\_

To prevent some infectious you can use  
\_\_\_\_\_

Don't drink alcoholic beverages  
like \_\_\_\_\_



Complete the gaps with the words into the box

<b>Bread</b>	fiber- fruits	<b>\$200</b>	<b>wine</b>
<i>Cavity</i>	lemons & oranges	two minutes	

1. It's the professional who studies and diagnose tooth pain\_\_\_\_\_.
2. The holes in the teeth, caused by bacteria\_\_\_\_\_.
3. Time for a suitable teeth brush\_\_\_\_\_.
4. Fruits that can produce cavities\_\_\_\_\_.
5. Foods that avoid cavities\_\_\_\_\_.
6. Sugar substitute in chewing gum\_\_\_\_\_.
7. Beverage that reduce the amount of bacteria in mouth\_\_\_\_\_.
8. Component of the breakfast which produces cavity\_\_\_\_\_.
9. Cost of a teeth removed\_\_\_\_\_.
10. Organ affected for oral infection\_\_\_\_\_.

## Enjoying Colan's sun

Yesterday, I was in Colan, a beautiful beach in our seacoast. I got a redness aspect in all my body, happily my skin is healthy, so, it protected me of microorganism, the salty water of the sea, or the sun's rays enter to my body. Obviously that I help it, drinking two liters of water daily, or putting an effective sun cream, or eating more vegetables and fresh fruit during the summer, and here, Piura, everything afore mentioned, You should make every time. Either go to the beach (Colan, Mancora, Huanchaco), or go to the countryside (Catacaos or La legua), You need to put a sun cream, due to the solar rays can produce from eczema to melanoma, that is a kind of cancer. By understand, about the details mentioned, let's study about de skin:

It seem, that the skin is the largest organ of our body, with about 2 square meters, and nearly 4 kilograms, and allows total protection of our internal organs, that's to say without skin we'll evaporate, it makes us remember that, when we go out, here Piura, our skin active a mechanism which the sweat glands release sweat, cooling our body and avoiding the we'll decompensate.

The skin has three layers:

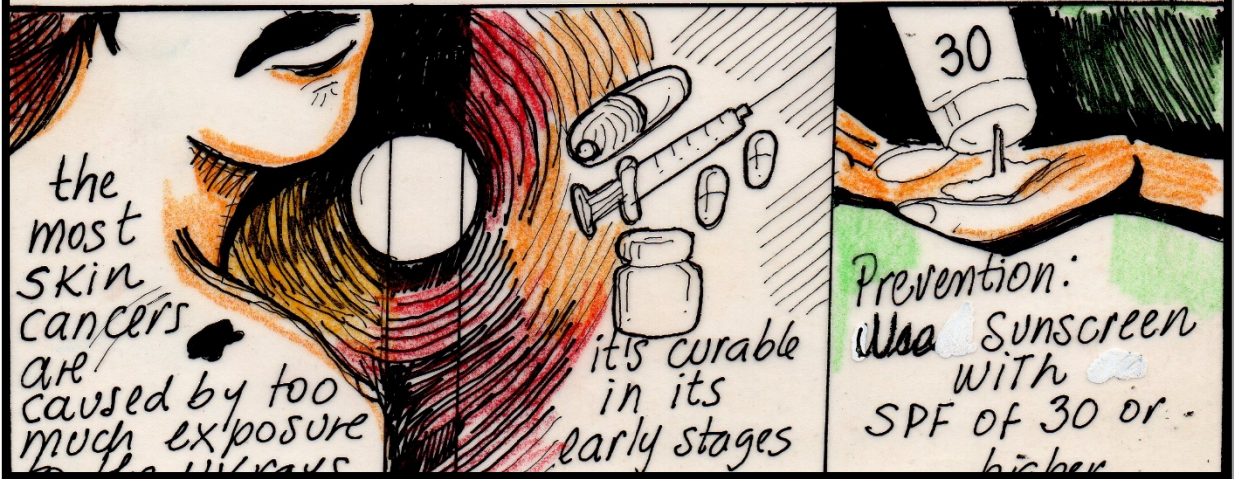
The Epidermis, which is formed by \_\_\_\_\_ (cells), it's a waterproof barrier that avoid that \_\_\_\_\_ in another side, this part is consider the first barrier that avoid microorganisms like \_\_\_\_\_ enter.

The next layer is the Dermis, which is formed by \_\_\_\_\_ (cells) also contains \_\_\_\_\_ (structures), and finally the deeper layer

Subcutaneous layer which is formed by \_\_\_\_\_ (structures) and its function is \_\_\_\_\_ (related with some vitamin).

While, the sweat glands, are represented by two types of sweat: \_\_\_\_\_ and \_\_\_\_\_, the first located in all the body, cooling it, and the second present in armpit and perianal area.

Sebaceous gland has; also, the function protected (against bacteria and another microorganism) the function \_\_\_\_\_.



### How to care our skin:

What do you suggest or not about skin care: fill with T (True) or F (false).

1. In a summer day for protecting the skin you can put carbonated soda over it ( ).
2. The best moment for enjoying the sunlights is the noon ( ).
3. The fair skin could be more affected by sunlights ( ).
4. The babies wouldn't use sun cream. ( ).
5. The best way for avoid sunburns is avoiding sun exposure. ( ).
6. The presence of moles is a good sign ( ).
7. The solution of sunburns is put tomatoes on the affected skin ( ).
8. To drink enough water is not important for skin care ( ).
9. To sit in places with shade is a good suggestion ( ).
10. Your eyes don't need sunglasses ( ).
11. The wide-brimmed hat use is a way for protecting the skin ( ).
12. You can touch the blister with dirty hands ( ).
13. The fever is a symptom of insolation ( ).
14. To eat vegetables, makes a positive contribution to recovery of health ( ).
15. The intake of alcohol is a way of preventing sunburns ( ).
16. It's better to go to the beach from 5 to 7 pm ( ).
17. The junk food contributes to skin care ( ).
18. The old people are not affected by sunlights ( ).
19. One of the recommended medication is the hydrocortisone ( ).
20. The blister could be infected by pathogens ( ).

## **Andrés: Don't pick it!**

Andrés is a teenager, who is seeing worse his acne, day by day he notice inflammation increases with the number of the pimples. This situation has been that this teen wash himself several times a day and use the out the counter (self- medication) without improving.

We need to know that the acne is a common skin disease in a young people, but also can appears in adults, that's to say anyone can suffers from acne, at any age, although the teens are more prone than adults, due to in the adolescence increase the production of sebum, this is an oil secretion that increases next to hormonal changes, this secretion gets to clog the pore, allow that bacterial growth, and the classical whiteheads or blackheads, then this condition gets to inflammation called pimples (red bumps) when it worse, can appear the pustules, that are lesions with pus, and the cysts which are deep pimples.

Andrés should know that there are different actions that if he does could change his medical situation for example He needs to eat more vegetables and drink two litters of water daily, although the dermatologists don't found relations among chocolates, fries foods, pork or another greasy food with the acne. In another side, the researches established the relation between consume of carbohydrates like milk or bread with the worsening of acne. Another activity Andrés should do is exercises, because he could relax, also don't expose to sun without a sun protection, and if it's necessary get a dermatologist appointment, because he or she is the practitioner who knows how to treat every case of acne, and give medications like: antibiotics, retinol. And other drugs which use can avoid the scars. Finally the suggestions that we can give him are:

First; to clean with a soft soap (pH 5), twice a day, because it's demonstrated that wash more than twice a day get irritation, worse the problem.

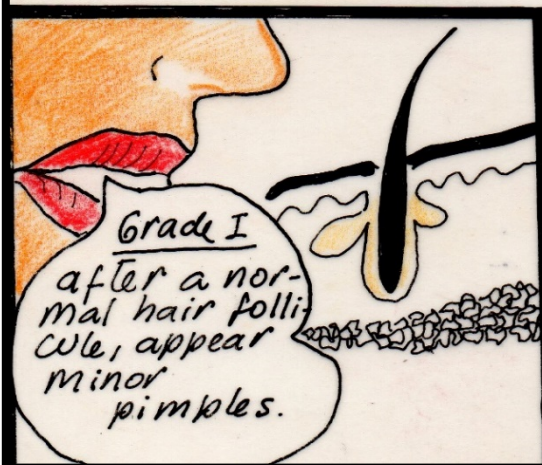
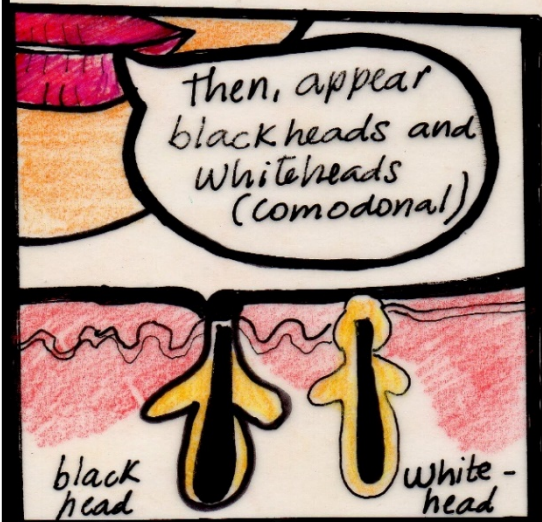
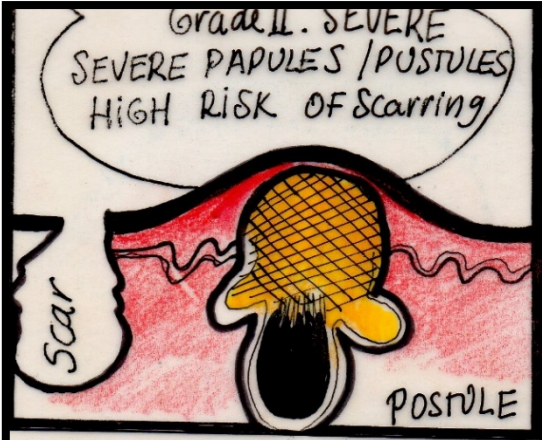
Second: Even that solar exposure can reduce the problem, in some cases can worse it, for this reason he needs to use sunscreens.

Third: to Hydrate himself, help to get better, and don't forget, sodas doesn't help!

Fourth: To understand that the treatment, sometimes, generates improvements maybe weeks or months or years after, for this reason To Be patient!

Fifth: to avoid to eat so carbohydrates, it has been that participate in the inflammatory process due to they can convert to oils substances, that's to say drink milk, or eat rice can increase the possibility of worse the clinical picture.

Sixth: to practice some sport, principally in outdoor, after this don't forget clean your skin.



## Myths and Truths about Acne

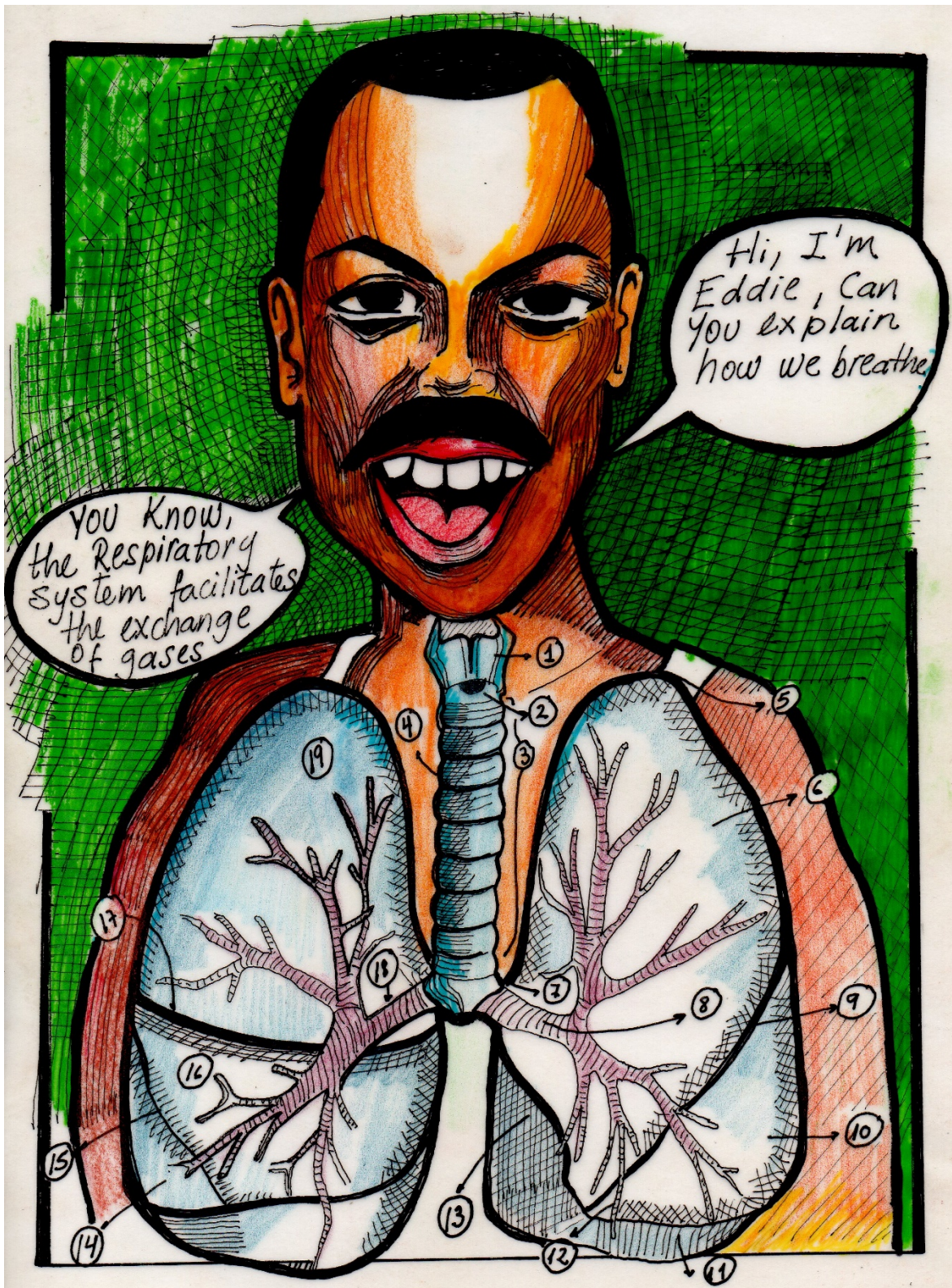
Answer with M if the statement is a Myth and with T if is a True.

1. The acne appears only in teenagers\_\_\_\_\_.
2. The pressed powder can help to decrease the acne\_\_\_\_\_.
3. The consumption of vegetables is more recommended by dermatologist\_\_\_\_\_.
4. The consumption of soft drink avoid the onset of the disease\_\_\_\_\_.
5. The pimples could be treated with the powder of amoxicillin from a capsule\_\_\_\_\_.
6. When you practice some sport, and sweat, this action clean the pores\_\_\_\_\_.
7. There are genetic causes related with acne\_\_\_\_\_.
8. To drink two liters of water daily is enough for a patient with acne\_\_\_\_\_.
9. The famous people don't suffer from acne\_\_\_\_\_.
10. The vitamin A has worked very well in the treatment of this disease\_\_\_\_\_.
11. The solar exposure could improve the skin problem\_\_\_\_\_.
12. There is a relationship between acne and sexual activity\_\_\_\_\_.
13. Some contraceptives are indicates in female acne\_\_\_\_\_.
14. The stress exacerbate the problem\_\_\_\_\_.
15. The scars can create psychological problems\_\_\_\_\_.
16. Milk products can improve the acne\_\_\_\_\_.
17. There are still many doubts about acne and its prognosis\_\_\_\_\_.
18. Some antibiotics can produce acne, as side effect\_\_\_\_\_.
19. Remove the black points can worsen this condition\_\_\_\_\_.
20. It's better to visit the dermatologist\_\_\_\_\_.

## PLEASE BREATHE DEEPLY!

Everybody knows that Eddie Murphy is an actor and comedian who began doing stand-up when he was a teenager, and became to be very popular with the TV program Saturday night, but, today he suffers from a rare disease in which he has an odd appearance. It seems that he suffers from Post-traumatic stress disorder, for this reason he learned to breathe deeply, during an attack of this disease. Today he wants to explain how Respiratory System works, also he wants you fill the blanks in the next definitions:

1. .... It is a structure in the which are located the vocal cords , and is made of muscular and cartilaginous tissues, lined with a mucous membrane, it gets the anterior aspect of the neck and is below the pharynx and above the trachea, also it comprises of thyroid, cricoid, and arytenoid cartilages.
2. .... It is the only complete ring around the trachea; it is made of hyaline cartilage, which can become calcified specially in old age.
3. .... It is beyond doubt the most important part of airway, connecting the larynx and the bronchi with the lungs.it also called windpipe and is a wide, hollow tube that is about 1 inch of diameter, also it has 20 C- shaped rings of cartilage on this tube.
4. .... There are approximately 20 of them, and their main function is reinforcing the anterior and lateral sides of the trachea, it allows the trachea stay opened and the air flows.
5. .... It is the rounded upper extremity of each lung.
- 6, 10, 14, 19. .... Any of the three of the right lung or any of the two of the left lung.
- 7 .... It is the only entrance where the bronchus attaches with the lung.
- 8 .... It is next to 18 the main division of trachea.
- 9 .... It is next to 15 and 17 are double – fold of visceral pleura.
- 11..... It is broad, concave inferior part of each lung.
13. ....it is a lateral deflection of left lung,



### **Suggestion for keeping the respiratory system healthy.**

Use T (True) and F(False) if you as a doctor suggests or no the next activities.

1. To smoke improve your respiratory system (F).
2. Avoid substances like harmful substances ( ).
3. Maintain a healthy weight is no recommended ( ).
4. To eat greasy food is recommended ( ).
5. Avoid pollution assures a healthy R.S ( ).
6. Hydration is part of healthy lungs. ( ).
7. To practice some sports is not suggested ( ).
8. To visit to doctor, when the cough exceed four days ( ).
9. To sleep 8 hours daily ( ).
10. The children could not be affected by infections ( ).
11. Self medication, when there is cough is a great idea ( ).
12. The old people are not affected by respiratory infectious ( ).
13. Stay in places free of pollution ( ).
14. To drink high amounts of alcohol. ( ).
15. To eat saturated fats is a great suggestion ( ).
16. To visit to the doctor, at least once a year ( ).
17. To drink cold drinks, is a great idea, if you have the flu ( ).
18. Don ' t self-medication, in a respiratory disease ( ).
19. To obey the medical prescription ( ).
20. Don ' t cover the mouth, when you cough or sneeze ( ).

### **Doctor: save my son!**

Last night, no was the most easy night in our lives, i would say, it was a scary night, because Carlitos our child, started to get a lot of fever and his pulse got to increase, told Carlitos mother to pediatrician, but everything changed when a doctor of emergency room told her: take it easy! We know what happen with your son, your son have a respiratory infectious called **Pneumonia**, it's curable, because we have in this hospital the antibiotics more affective. Therefore, Let's wait!

According to epidemiology office of hospital Cayetano Heredia, there is thousands of cases pneumonia in Piura yearly, though; the majority of cases reports occur in patients **hospitalized**, there are many cases that occur in children whose don't live in properly conditions, between of those whose have nutritional problems, in spite of in Piura no is expensive to buy a mackerel or a bonito, also the conditions of the house like the adequately ventilation, is one of more important conditions for prevent this disease, for example, Carlitos lives in **Los Polvorines**, one place, where the population have houses without windows, and the zone has not healthy characteristics, and the word that describe it is **poverty**.

The pediatrician calm to Carlito's mother explaining that pneumonia is a pulmonary infectious, where the air sacs called **alveoli** are affected by different types of microorganism, where the bacteria are the most common agents, in another side the viruses and fungus are, also, others ways of agents of pneumonia, in this case the doctor clears that the real cause of this young' infectious is a bacteria called pseudomonas, which is considered a gram negative bacteria, and there are antibiotics like **amikacin or ciprofloxacin** both of them have demonstrated certain success in pneumonia's treatment, thus he has an intravenous via, of aforementioned medication and also has an oxygen support, because this gas is so important for the majority of metabolic actions, and because the alveoli are filled of pus or green mucus that block the interchange of gases these are oxygen and carbon dioxide, so when the carbon dioxide become accumulated, could be serious problems throughout of the body, where the neural (brain) an cardiac (heart) tissues could death. In addition of this, the intravenous application of physiological serum, respond to that dehydration which was produced by the prolonged fever that Carlitos had.

In another hand, the pediatrician is worried because Carlitos has a depressed an immunologic system, so he can get some intra hospitality infectious, therefore the physician explained to Carlos's parents that one of possibilities while, their child gets an infection called **hospital- acquired pneumonia**, which is very common infectious in **patients hospitalized**, there are another type called **community- acquired pneumonia**, in the which the patient acquired the infection in the school , or another place different to hospital. In the daily report, pediatrician has said that Carlitos is receiving oxygen support and antibiotics, and they wait that the next hours it begins his recovering, in this moment, the doctor adds, the child has not fever, the phlegm is clearing, because was green , and the shortness of breath are disappearing, it is a clinical manifestation of recovering. And to the question from the carlitos's mom about how to prevent the pneumonia, the doctor answer

that a **healthy diet**, a properly **hygiene**, to rest adequately and vaccines are between the ways of prevention.



Complete the blank with the words into the box

**Loss of appetite      wheeze      oxygen therapy**

**Confusion      Legionnaires 'disease      vomiting**

**Airborne droplets      ventilator- associated pneumonia**

### **Influenza.**

1. \_\_\_\_\_ are the ways how the bacteria and viruses can spread from person to person.
2. \_\_\_\_\_ is the symptom related with trouble breathing.
3. \_\_\_\_\_ is related with the troubles in the immunological system.
4. Rough noise while breathing \_\_\_\_\_.
5. It's common in old people \_\_\_\_\_.
6. Philadelphia Convention of Legion is the origin of \_\_\_\_\_.
7. This pneumonia is common in people who use ventilator \_\_\_\_\_.
8. During the hospitalization, the patient could be treated with \_\_\_\_\_.
9. It's more common in children than old people \_\_\_\_\_.
10. It's \_\_\_\_\_ confused with \_\_\_\_\_ viral pneumonia \_\_\_\_\_.

### **No, is a car going sound, is my daddy coughing!**

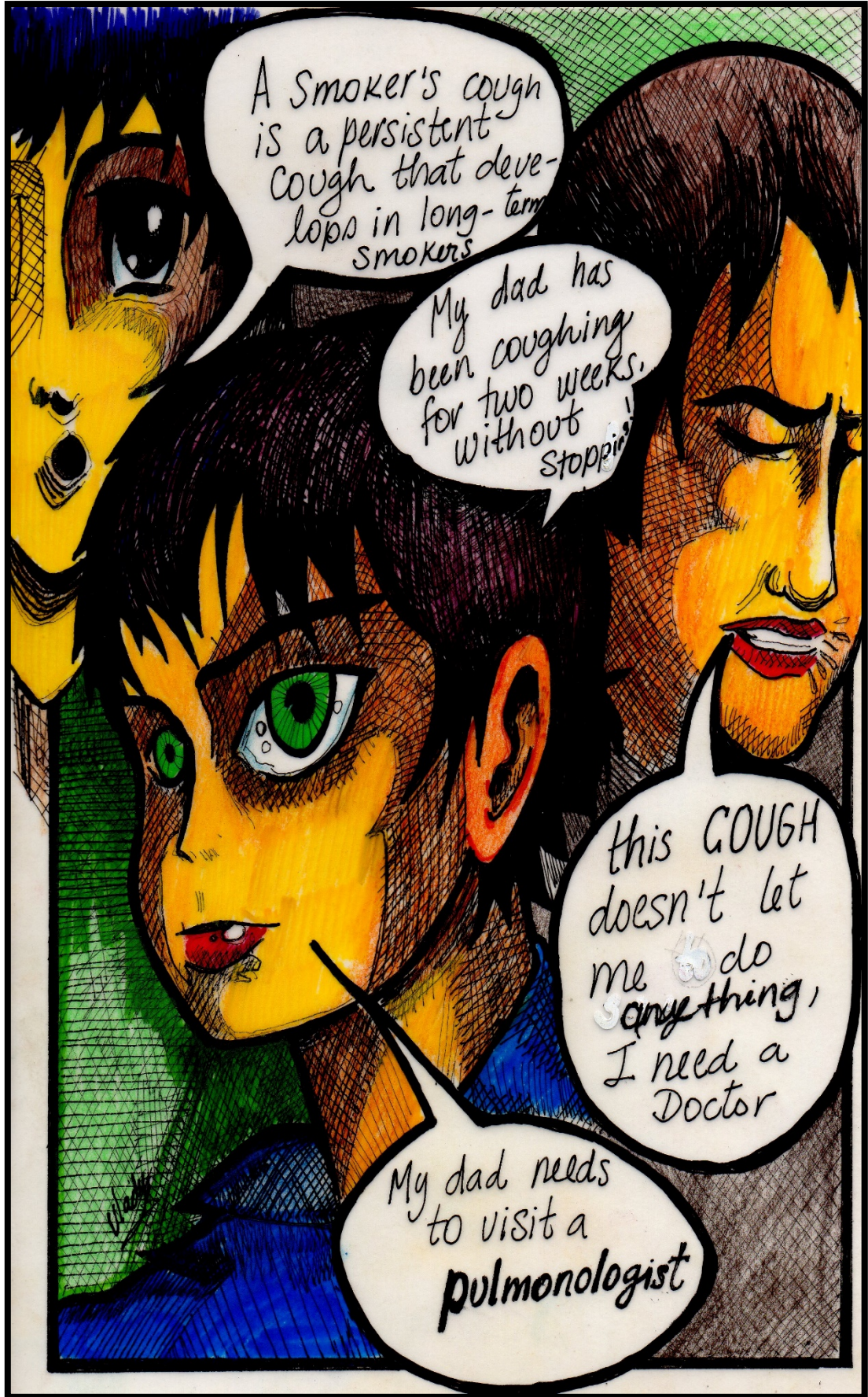
For many years, my dad has smoked, sometimes he had smoked two packs of cigarettes. The last year he was hospitalized, during three months he was using the ventilator, because his lungs was damaged due to a chronic disease: pulmonary fibrosis, which is a serious medical situation where the pulmonary tissue is progressively scarred, that doesn't allow a properly breathing.

During the period, where he was **at intensive care unit** of Hospital Cayetano Heredia, he acquired a hospitality infectious that kept him on the verge of the death. After this, the doctor made a tracheostomy, because this procedure could improve his respiratory ventilation. For many days he was recovering little by little, and getting an improvement in the balance between the oxygen and the carbon dioxide which are gases that respiratory system manages a balance in them amounts.

After diagnosis, nurses were administrating antibiotics, corticosteroids, bronchodilators, but he continued with the nasogastric tube feeding because the doctor found a tumor in the oropharynx that would prevent a properly swallow. A biopsy of the tumor revealed that it was a benign tumor, wow! Thank goodness! , day by day he has improving above all, he started expectorate the phlegm, and his condition of pulmonary patient also improved.

Day by day he was recovering until yesterday that doctor wrote his medical discharge, and today he is at home, and we have read all the recommendations that pulmonologist gave us, about our father, between of them:

1. Avoid \_\_\_\_\_ because every cigarette has many toxically substances like: carbon monoxide, hydrogen cyanide, nitrogen oxides which are gases that prevent an adequately gases interchange, also nicotine and tar that can produce different kinds of cancer.
2. To eat \_\_\_\_\_ that are a group of fishes that provide an adequately amount of unsaturated lipids as Arachidonic Acid (ARA), or Docosahexaenoic Acid (DHA), that according to studies say the polyunsaturated fats reduce the release of inflammatory substance in the blood.
3. \_\_\_\_\_ undoubtedly is for many patients a chronic therapy, because the oxygen helps to maintain an adequately cellular function.
4. \_\_\_\_\_ is a kind of therapy that improve the pulmonary therapy, and consist in breathing exercises that a respiratory physiotherapist can give.
5. \_\_\_\_\_ is a transplant that is the real solution for many patients, inclusive in Guillermo Almenara Hospital was practiced the transplant of both lungs to Elsa Vega, who was suffering of pulmonary fibrosis due to she worked a lot of time in a paint factory without to use an adequately protection.
6. \_\_\_\_\_ is a type of education directed to patient and his family members, in the which,



A Smoker's cough is a persistent cough that develops in long-term smokers

My dad has been coughing for two weeks, without stopping!

this COUGH doesn't let me do anything, I need a Doctor

My dad needs to visit a pulmonologist

Fill the blanks using the information into the box

**Stem cells treatment**    pollution    **bacteria**  
Palliative treatment    **idiopathic**  
**Emphysema**    **known**    physiotherapist

1. The pulmonary fibrosis caused by medications is called \_\_\_\_\_.
2. The \_\_\_\_\_ is an environmental cause of PF.
3. Many people don't understand what is \_\_\_\_\_, because the cause is not clear.
4. The infections of alveoli are common, above all the provoked by \_\_\_\_\_.
5. \_\_\_\_\_ is many time related with PF in patients with cancer.
6. The \_\_\_\_\_ is part of chronic treatment of PF.
7. The \_\_\_\_\_ is sometimes confused by PF.
8. The \_\_\_\_\_ is a Hope of millions of PF patients.
9. The \_\_\_\_\_ works teaching how to breathe to the PF patients.
10. Fruits and blue fish are considered in the \_\_\_\_\_.

## **My Heart is pumping**

When my neighbor died from heart attack, the cardiologist explained that a blood clot has blocked the arteries that supplies blood to his heart. The next question was how the blood clot appeared in these place. La answer is easy, for many years, the neighbor's heart got older, and its inner walls of the arteries that supply blood (which brings nutrients and oxygen) become damaged and narrowed due to fatty material called plaque built up in mentioned place.

Before this, the heart of my neighbor worked of this way:

First, the heart is the principal organ of the circulatory system because it can pumps blood to every parts of the body, for this reason is localized in the middle of the body, is composed by muscular tissue mainly.

Second , the heart for work efficiently, has divided into right and left heart, the first receives blood- poor from veins ,the which, come to right atrium and this pumps this blood to right ventricle (through tricuspid valve) and this pumps this deoxygenated blood to lungs through the pulmonary valve.

Third, the left atrium receives oxygen rich blood from the lungs and pumps it to the left ventricle through the mitral valve, and this ventricle pumps this blood to all the body, that is to say, the most important function of the heart is pump enough blood to entire body.

Fourth, the heart has an electrical system that gives it a normal rhythm, in another words, the electrical system is responsible to increase the pumping when you make exercises and decrease when you sleep. Also, when there are problems in this rhythm, appears the arrhythmia, in the which, bradycardia when the heart is pumping slowly and tachycardia when the heart is pumping so fast.

Now let's complete the diagram:

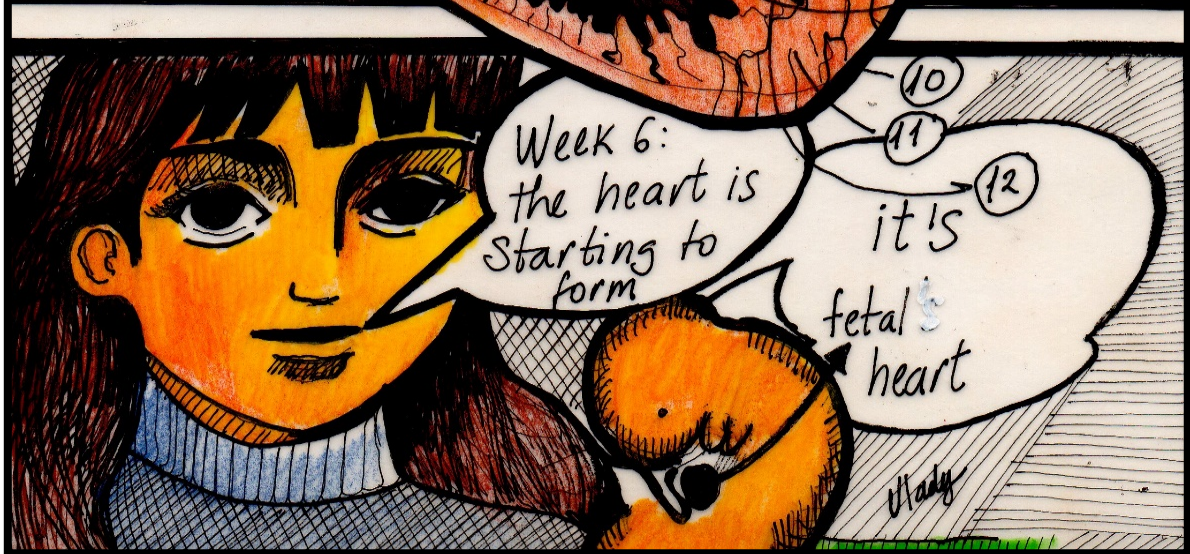
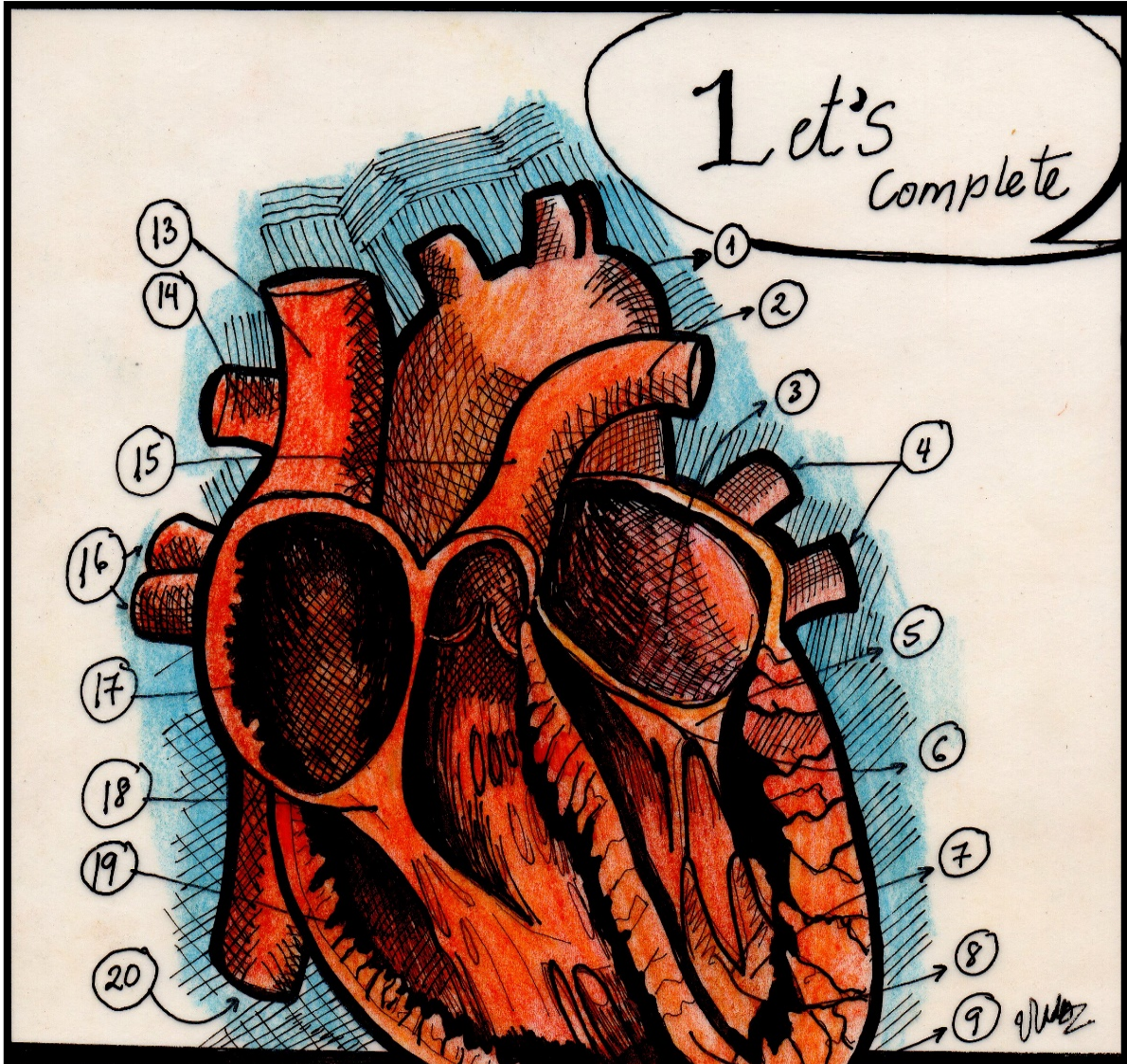
1. \_\_\_\_\_ it's the principal artery, it brings oxygenated blood to all the body.
2. \_\_\_\_\_ they carries deoxygenated blood from de right side of the heart to the lungs. There are two right and left.
3. \_\_\_\_\_ it's a chamber to which arrives oxygenated blood.
4. \_\_\_\_\_ they are four blood vessels that arrive oxygenated blood from lungs to left atrium.
5. \_\_\_\_\_ is a structure that opens and closes, and blocks the blood return from left atrium to left ventricle.
6. \_\_\_\_\_ is a semilunar valve that is localized between right atrium and pulmonary arteries.
7. \_\_\_\_\_ it's the chamber which is located below left atrium.

8. \_\_\_\_\_ they are muscles located in left ventricle, and participate in systole.
9. \_\_\_\_\_ it's a structure that separate the right heart and left heart.
10. \_\_\_\_\_ it's a tough double wall covers the heart.
11. \_\_\_\_\_ is the muscular part of the heart.
12. \_\_\_\_\_ is the internal layer that covers the interior part of heart.
13. \_\_\_\_\_ is a large vein which receives deoxygenated blood from superior body organs like head, neck and upper extremities.
14. \_\_\_\_\_ is similar to number 2.
15. \_\_\_\_\_ is the vessel that begins in the right atrium and divides in two vessels that go to every lung.
16. \_\_\_\_\_ similar to number 4.
17. \_\_\_\_\_ is the upper chamber located in the right part of the heart.
18. \_\_\_\_\_ is the boundary between right atrium and right ventricle.
19. \_\_\_\_\_ is the chamber located in the lower part of the right heart.
20. \_\_\_\_\_ is the vein which receives deoxygenated blood from inferior part of the body.

Complete the blanks with the information into the box

<b>Sphygmomanometer</b>	<b>AORTA</b>
<b>Peanut</b>	less than 120/80 mm Hg.
1967	two liters <b>swimming</b>
Christiaan Barnald	<b>vasodilators</b>

1. It's considered one of the most suggested sport for keeping a health heart\_\_\_\_\_.
2. High level of cholesterol are related with\_\_\_\_\_.
3. \_\_\_\_\_ is the water daily for keeping a health heart.
4. In \_\_\_\_\_ was the first heart transplant, and was made by\_\_\_\_\_.
5. Is one of the dried fruits, so recommended by cardiologist\_\_\_\_\_.
6. The desired blood pressure is \_\_\_\_\_.
7. Are a group of medication which main function is the widening of blood vessels\_\_\_\_\_.
8. The blood pressure monitor receives the next name \_\_\_\_\_.
9. The main artery of our body is called \_\_\_\_\_.
10. The main vein is also called \_\_\_\_\_.



## **Heart doesn't stop!**

Yesterday, Sullana city woke up dismayed due to the sudden death of Andres Falla, a well-known teacher of a local school, but, what's a heart attack?, how to realize that is happening? How to prevent this? Let's see!

Heart attack is a critical situation where the heart does not get sufficient oxygenated blood due to flow of mentioned fluid is suddenly blocked, this produce that heart cannot pumps properly, and the myocardium starts to die and the rest of the body too, because all the body needs oxygenated blood. This happened about 18.5% of Peruvians last year.

Now, let's see what occurred to Andres, who was diagnosed hypertension or high blood pressure, after that he felt a severe chest pain, every time when He make effort, or when He climbed the stairs. From that moment, Andres knew that he should lose weight, to exercise and consume unsaturated fats, which are in jurel and caballa, two types of fishes very common in Paita y Sechura. Although Andres did not smoke, Andres did not get enough sleep, and his life was stressful.

When, we want to explain these cardiological problems, we should think about the Importance in the prevention, and there are clinical manifestations that can help us, that's to say, it's easy to avoid a Heart attack pay attention to:

- Chest pain.
- Neck pain
- Pain of the left side of our body.
- Shortness in breathing.
- Nausea and vomiting.
- Migraine and weakness.

When the person feels these symptoms should seek medical attention, in which case the practitioner is the cardiologist.



## Symptoms of hearth attack

Complete with T (True) or F (False), depend of statements, related the symptoms or no of heart attack.

For example:

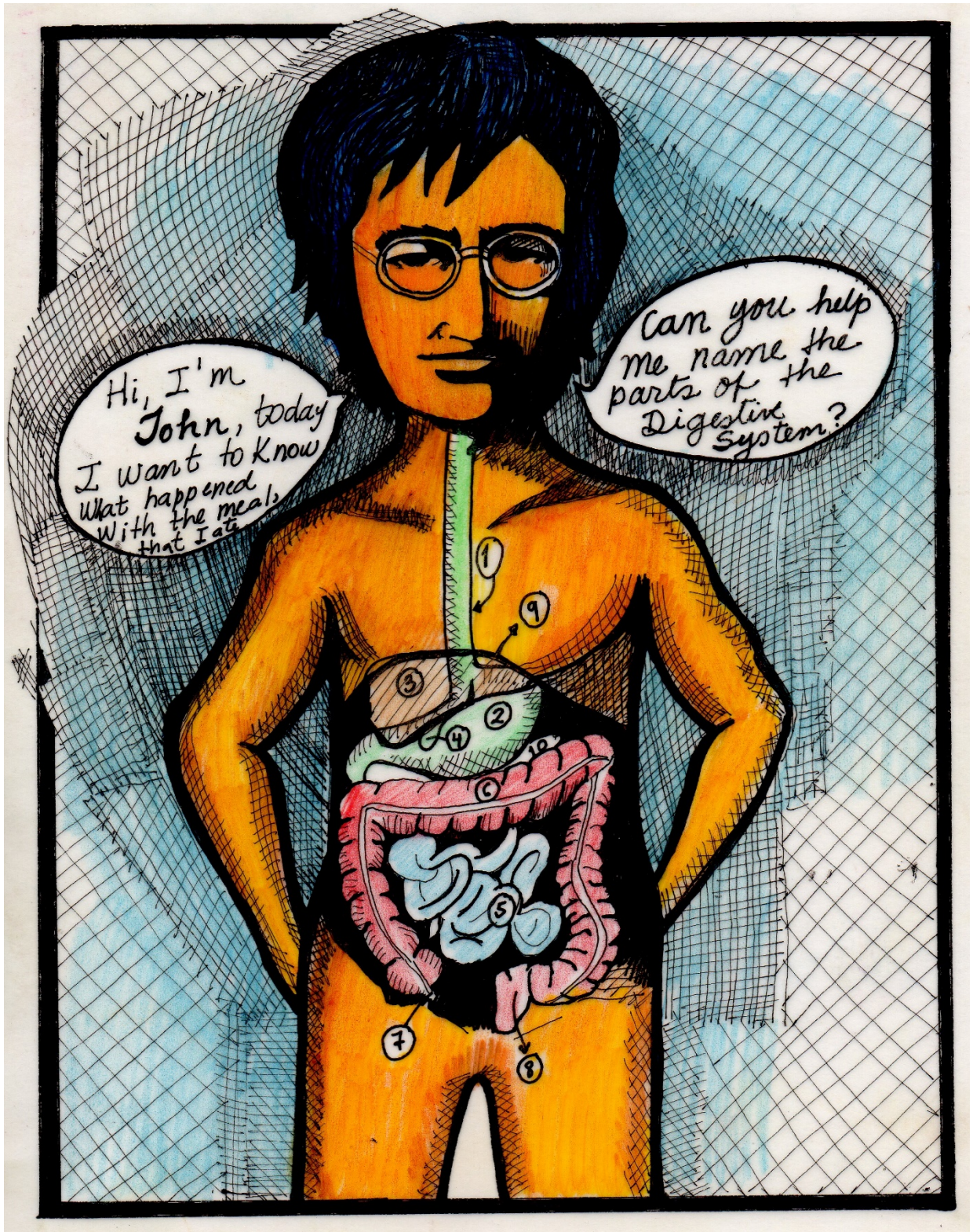
- Nightmares (F).
- Shortness of breath ( ).
- Pain of the arm ( ).
- Migraines ( ).
- Tonsillitis ( ).
- Arthritis ( ).
- Light – headed ( ).
- Pain in the neck ( ).
- Diarrhea ( ).
- Stomachache ( ).
- Sneezing attack ( ).
- Itchy skin ( ).
- Blood in the urine ( ).
- Blood in stool. ( ).
- Ulcers in the skin ( ).
- Moles in the skin ( ).
- Nervousness ( ).
- Epileptic seizure ( ).
- Anemia ( ).
- Discomfort in the jaw ( ).
- Hypocalcemia ( ).
- Grey hair ( ).
- Increased metabolism ( ).
- Fever ( ).
- Wrinkles in the face ( ).
- Flatulence ( ).
- Nausea & vomiting ( ).

**John doesn't know what happened with the hamburger that he ate.**

For several days, John has been trying to understand what happened with the hamburger that he usually eats, so that he has bought a book titled **what happen when you eat**, where the author explains what happen with the meal since it is eaten to it is absorbed and eliminated. Now John will try to describe what happen in every structure.

Complete the spaces with the names of mentioned structures:

1. ----- for many researchers the digestion begins here, it is considered a cavity where the food is chewing trough the teeth and the same time is mixing whit saliva which contains the enzyme more known as amylase that converts the starch in small molecules allows their digestion. Don't forget, in this place are localize the salivary glands which main job is to produce saliva.
2. ----- is a muscular tube that is connected to the throat trough the upper esophageal sphincter. It's approximately 19 cm long, the food comes here after the swallowing from the throat (pharynx).
3. ----- Many doctors consider this organ like a muscular organ, where the peristaltic movements increase (this movements are present in aforementioned organ), is localized in the upper abdomen and its main function is to promote the digestion of proteins and lipids trough the enzymes and the chloride acid.
4. ----- This structure has three parts: duodenum, jejunum and ileum; it has approximately 6 meters long. Here occurs the majority of absorption that is the process for which the nutrients pass to blood stream, also it's important to say that this tube produces enzymes as maltase and peptidases, while pancreatic amylase and some lipases are secreted into duodenum.
5. ----- It's a tube, shortest than the anterior mentioned intestine and is divided into cecum, colon and rectum, and its principal functions are absorption of water and formation of feces.
6. ----- It's considered by many researches as the most enzymatic organ in our body due to the amount of enzymes relation with many metabolic activities. It can produce bile that promotes lipid's metabolism.
7. ----- Its main job is producing insulin, which manages the glucose concentration and when there isn't enough, there is an illness called Diabetes.



## What do you know about Digestive System

Complete with T (True) or F (False) according the next statements.

1. The stomachache is a symptom of digestive diseases ( ).
2. The constipation's solution is to eat bread ( ).
3. To avoid to drink coffee, is considered in gastritis ( ).
4. Rehydration after a diarrhea is a smart idea ( ).
5. Hypatitis B is not contagious ( ).
6. The Pancreas doesn't produce enzymes ( ).
7. The tongue produces saliva ( ).
8. The hunger is an indicator of energy decrease ( ).
9. To belch is an action related the air release ( ).
10. The Fondus is a part of large intestine ( ).
11. The small intestine has an important absorption surface ( ).
12. The stress can produce gastroesophageal reflux ( ).
13. Soft diet is recommended to patients with diarrhea ( ).
14. The sublingual gland is over the tongue ( ).
15. The main compound of saliva is the water ( ).
16. Is not recommended to eat spicy food ( ).
17. Magnesium hydroxide neutralizes hydrochloric acid ( ).
18. Pتيالina is also called amylase ( ).
19. Appendicitis is the inflammation of long intestine ( ).
20. The hydrochloric acid is produces only in the stomach ( ).
21. The chief cells prepare hydrochloric acid. ( ).
22. The parietal cells prepare Pepsine ( ).

### **Wake up, Carlitos, the exam finished!**

Today, Carlos Sánchez fell asleep on the desk, while José Moran was complaining of a terrible stomachache, provoked by the indigestible breakfast that he took; also José is a child who suffers from overweight, both of them are included into clinical situation called: **malnutrition**.

In spite of the economic growth, Peru is one Latin American country, where the childhood has many nutritional problems, but there are two important malnutrition stages : the undernutrition, considered for many as malnutrition, and over nutrition or overweight which is considered, wrongly as ideal nutrition.

Let´s see some clinical manifestation of every case:

In the case of Carlitos, who has a diet low in protein, that is, it is not common in his daily diet, the presence of meats, eggs, milk and foods whose amino acid contents ensure the production of hemoglobin, muscle proteins. Like actin and myosin among others, without forgetting the collagen that is the most common protein in our body.

In addition, it is possible to see the deficiency of vitamins such as vitamin C, because he suffers from scurvy, when he shows his tongue where it is possible to notice a wound, in other hand that makes us understand that his nutrition problems are related with the ignorance that mangoes and pineapple that are fruits so common in Piura, also they are cheap, or the fish such as mackerel or bonito that are delicious and cheap at the same time, without forgetting the pota, also known as giant squid, which is a source of essential amino acids.

Now, you fill the next blanks:

-----it´s a deficiency of proteins, and the children whose suffer from this, it´s a deficiency of vitamin C, and is very common in Peruvians that live in the Andes. This disease occurs with bleeding, pain of limps, principally legs, anemia, weakness, swelling in the face and different parts of the body, ulcers in the mouth, and was very common in sailors who manned a ship for long periods.

-----it has a characteristic abdominal edema, for this reason is called **edematous malnutrition**, in spite of Piura has several protein products, like the fish, or cheese of Sullana, many children suffer this **disease**.

-----it´s a medical problem where the levels of **hemoglobin** is under the normal, sometimes is because there are not enough number of red cells. It´s very common in pregnant, because she should share her erythrocytes with the baby that she brings for nine months. The person who suffers this blood alteration, usually has difficulty during the breathing, the patient is tired, and generally needs iron supplements.

-----it´s considered a deficiency of **calcium and vitamin D**, and is common, in people that don´t eat calcium sources, principally dairy products.



## What do you know about nutrition

Complete with T (True) and F (False) in the next statements

1. One portion of vegetables is recommended daily ( ).
2. The iron is present in beans ( ).
3. The zinc increases the appetite ( ).
4. The magnesium is associated with emotional stability ( ).
5. The horse mackerel is not a source of unsaturated fats ( ).
6. The recommendation is to eat fried egg, everyday ( ).
7. The carbohydrates can give us energy ( ).
8. The pregnancies can suffer from anemia ( ).
9. A high protein diet is recommended in a obese patient ( ).
10. The dairy products don't have fats ( ).
11. The intestinal parasites block mineral absorption ( ).
12. The egg-white contains proteins ( ).
13. The nutritional products are so expensive ( ).
14. The DHA and ARA, are present in blue fish ( ).
15. The saturated fats are responsible of artherosclerosis. ( ).
16. The pregnancy could suffer from dyslipidemia ( ).
17. The dry skin is a nutritional deficiency ( ).
18. The old people don't suffer from malnutrition ( ).
19. The energy unit is the kilocalorie ( ).
20. Iron- deficiency anemia is common in teens ( ).

### **First think, and then act!**

Every time when you think to travel to Chiclayo and decide go to Sipan Museum, instead of go to Pimentel beach, one place of your brain, the frontal lobe, is responsible with a complicated group of organs about this decision or when you try to memorize Inca's history, aforementioned lobe and the temporal lobe help you to store this information. If you have perceived Sullana is hot, your parietal lobe is giving you this information. And when you see the sea of Paíta, the occipital lobe and your eyes are the responsible of this function. All of this is produced in a little part of our Central Nervous system, which name is referred to its localization, and through the five senses that bring information of everything surrounds us, produce some response through muscular activity.

We have each Central Nervous System (made of by Brain and spinal cord) and Peripheral Nervous System (made of nerves), which control every functions of our body and our daily live, in another words, while the second brings information of events that happen around us, the first analyzes this information and take one decision or response, that is to say, the sensory nerves gather every information that happen in the environment, this is sent to spinal cord and then this is sent to the brain where will take a specific response.

Many researches consider that the Brain consists in three different zones: Forebrain, Midbrain and Hindbrain, the first part consist in the cerebrum, Thalamus and Hypothalamus (the two last, are considered as a part of Limbic System), the Midbrain consist in Tectum and Tegmentum, and finally, the Hindbrain consist in Pons, medulla and Cerebellum, sometimes, the physiologists consider that Midbrain plus Pons and Medulla are part of the Brainstem.

If you want to know where is created your ideas or the place where are produced your movements, this place is called Cerebrum, which is divided in four zones:

**Frontal Lobe:** associated with reasoning, solving problems, behavior, personality, movement.

**Parietal Lobe:** associated with movement, recognition, orientation and perception of stimuli.

**Occipital Lobe:** associated with visual process.

**Temporal Lobe:** associated with hearing process, and store memories.

Another part of forebrain (called too prosencephalon) is the **thalamus** which is located between the cortex and midbrain, and its functions are consciousness, sleep, and relaying information from spinal cord to cortex, that's to say, thalamus receives all information of the peripheral nervous system which is obtained by our senses, and sent it to correct part of the brain for the adequate analyze and processing. While the hypothalamus is a little space that has a lot of functions like to produce hormones, therefore is responsible that regulate the temperature and daily physiological cycles without forget that this gland is important regulator of appetite, and sexual behavior.

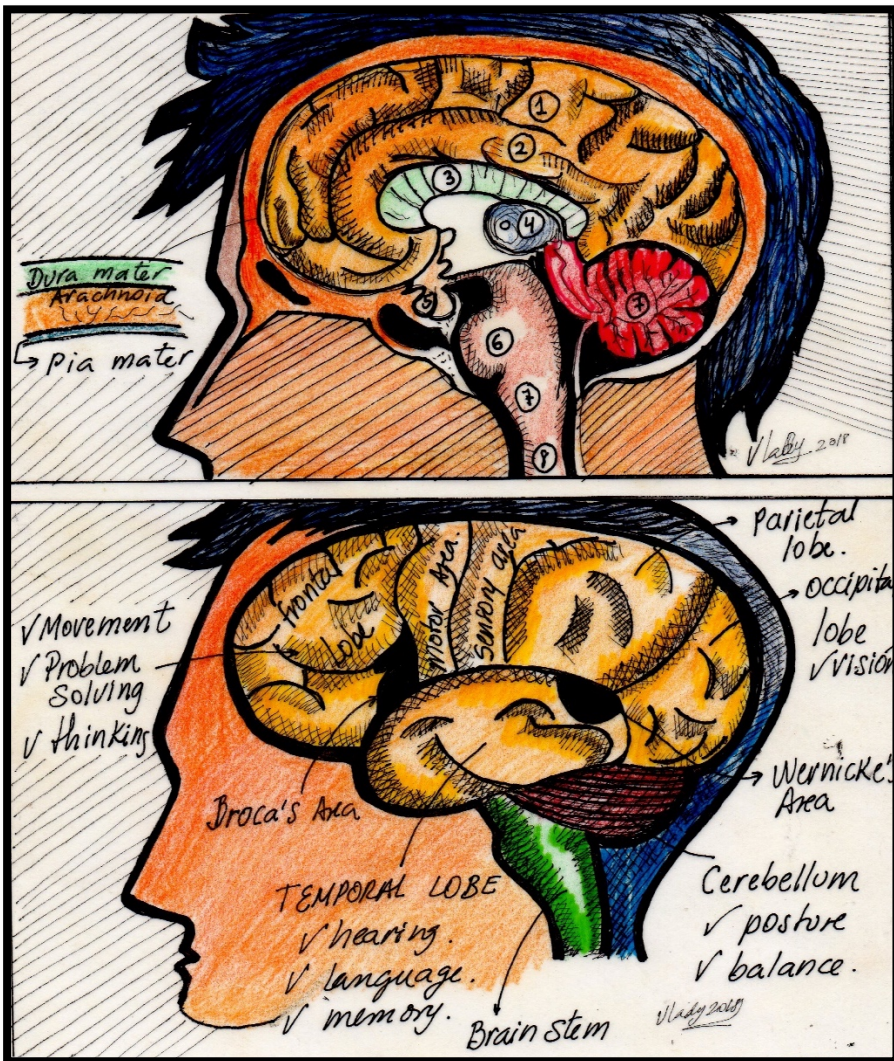
To refer about tectum and tegmentum is to mention two structures belong to midbrain that is responsible of visual reflex, and auditory activity, while the Substantia nigra is a group of neurons that produce dopamine a neurotransmitter that is related with our behavior and Parkinson disease.

Another part of brain is the Hindbrain, which is composed by Pons, structure related with face movement, hearing process, chewing, all of these functions are the result of the cranial nerves that Pons has. Forming part of the Brainstem, are the aforementioned, next to Cerebellum which main job is the balance and coordination of our movements, and don't forget the Medulla oblongata structure responsible of control of autonomic functions like: blood pressure, breathing, sneezing, and swallowing.

Now, let's complete this chart where you will write the name of the organ of Nervous System:

	<p>It's an organ which main job is relay every information that comes from different parts of the body, and then send it to the brain, where will be processed.</p> <p>Its almond-shaped is characteristic in this organ that is localized in the diencephalon; this last is between the cerebral cortex and brainstem.</p>
	<p>Despite its size, this organ has many functions ranging from the release of hormones to regulate emotional responses, including allowing us to work during the day and sleep at night, and make us fall into fullness, after eating seco de chavelo.</p>
	<p>Its main function is release hormones that affect the metabolism of thyroid, sexual organs and adrenal glands, one example is its relation with the menstrual cycle, where this gland release FSH (follicle stimulating hormone) in the first stage also known as follicular phase and then release LH (luteinizing hormone) which Controls the production of estrogen in women and testosterone in men.</p>
	<p>Its rounded shaped make it notorious in front of hippocampus with whom is considered part of Limbic System, and is according to many neuroscientist responsible of emotions as fear, sadness, excitement, regret, satisfaction.</p>
	<p>It has the shape of a seahorse, and is responsible for long-term memory, it is part of the limbic system, it also seems that it is not responsible for short-term memory, but the</p>

	information it stores is related to practice or return to live similar experience
	It pea-shaped organ is localized under Thalamus, its importance consists in release Melatonin which is an hormone that regulate our sleep patterns more known as circadian rhythm, for this reason many people today, take pills of melatonin for regulate their sleep disorders, that are very common these days.



### **Our Idol is coming back!**

Tonight, millions of fans could stop marveling for the reason that there have seen how their loved singer collapsed in front of them. So, quickly the paramedical staff gave his first aids, without get reanimate him. Two of his fans took him to the hospital, and after, several minutes they arrived to emergency room. Here the doctors confirmed, Christian has suffered a hemorrhagic stroke, as a result of an aneurysm burst. One hour after, the doctor asked about Christian's father, and they very quickly entered in the doctor's office, and the doctor explained the critical situation of their son. Supported by a tomography, the doctor tries to explaining what happened. Apparently, an aneurysm, which has existed for a long time ago, had burst, this produced a hemorrhage, so the blood is located between the cranium and the brain, causing neurons death. Therefore, if medical or paramedical professionals have to act very fast, due to each minute that ticks, can produce severe problems in the future. In this sense, due to the several minutes that Christian was without oxygen in his brain. So, there is a strong evidence that he will have some problems, both for walking and for thinking, or maybe for talking, therefore the doctor suggests to wait. According to him, in the following days, will be medical examinations for rule out an irreversible damage.

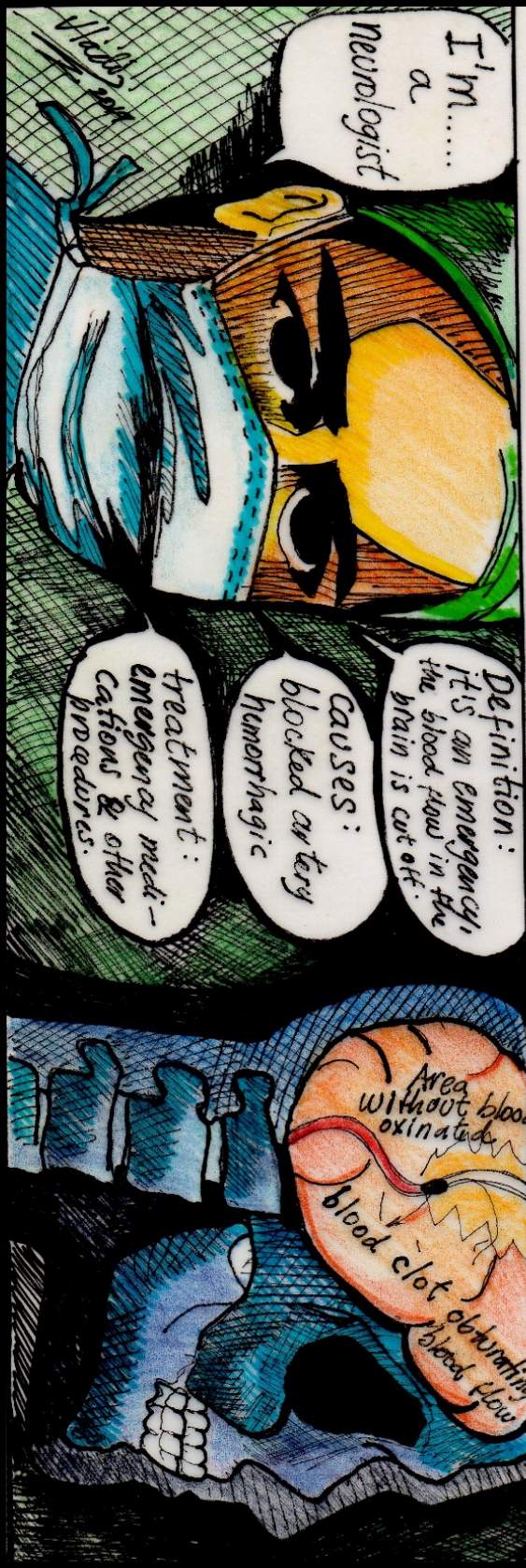
Christian is a well-known young, thanks his voice, he is the lead singer of a rock and roll band in our city, but today his severe migraines, finished in his fall on the floor.

On the following day, his relatives and many of his friends came the hospital for asking about him. In this way after many hours for waiting, the doctor gave a report, which he warned that Christian will undergo surgery. In mentioned surgery, the doctors would open the cranium, and afterwards, they will put a titanium clip around an aneurysm and some medication such heparin, clopidogrel, can prevent clot formation.

Passed three hours, until finally, the doctors left the Operating Room (OR), and with a smile in their faces, announced the operation was a success, and that our idol will come back to singing.

And today, Saturday May 3<sup>rd</sup>, the local band is coming back, thousands of people are waiting to hear to Christian sings. Before starting his performance, he thanked the paramedics and doctors who saved his life, afterwards he mentioned the support given by his parents, relatives and friends who assisted him during four month that lasted his recovery.

I should like to close saying that when you have the next symptoms: Numbness in your face, in your legs, in one side of your body, If you are suddenly confused, difficulty in your speak, and trouble vision, or you don't have appropriate coordination, it's time for going to the doctor, in this case is a neurologist the specialist recommended in this case.



Complete the sentences with the information into the box.

<b>High blood pressure</b>	burst of bulge
Women	30-60
<b>BERRY ANEURYSM</b>	<b>nerve tissue</b>
<b>11 millimeters</b>	<b>mycotic aneurysm</b>
<i>Saccular aneurysm</i>	<i>amphetamines</i>

1. It's another way to call the cerebral aneurysm\_\_\_\_\_
2. It's a common cause of this aneurysm\_\_\_\_\_
3. The sudden death is related with \_\_\_\_\_
4. The pain is related with the pressure of the bulge on the \_\_\_\_\_.
5. The aneurysm are more common in\_\_\_\_\_.
6. The ages more affected are among \_\_\_\_\_
7. The rounded aneurysm is called\_\_\_\_\_
8. Usually a small aneurysm measures more less\_\_\_\_\_
9. Is an infection that affects the wall artery\_\_\_\_\_

Are a group of drugs that are related with aneurysm \_\_\_\_\_

### **When I pee, there is a disagreeable sensation!**

Yesterday, Francisca Arevalo, a very young mother, got up with a severe pain on the lower abdomen, her urine would had a redness color, and a disagreeable sensation when she urinated, and it make her thought in the worst. A lot of time ago, her mother suffered a urinary tract infection also known as UTI, her mother died for a septicemic due to the bacteria first produced a vaginal infection then go up to kidneys through ureters, and finally this microorganism got to blood, generating a septicemia. Her situation has complicated, when the doctor indicated to put her a urinary catheterization. It's important to remember that the majority of women with this type of catheterization, during hospitalization, are more susceptible to get a gram negative infection, clinically known as hospital-acquired urinary infection, three days after, Ms. Juana died. An undesirable thought appeared in Francisca's mind, what will happen to me? Who will take care my children? Sudden she remembered number phone of urologist was noted in a prescription which is in the box of bedtable. She run to bedroom and find it.

Hello Dr. Palacios? I am Francisca, Juana's daughter.

How are you? Francisca, what's wrong dear Francisca?

i don't feel so good! I have a pain when I pee.

Ok, may you come to hospital, right now?

Yes, Doctor!

Ok, I see you in 10 minutes.

Ten minutes after, dear Francisca, I need to have more information about your complaint, for this reason you should take a \_\_\_\_\_ to laboratory. With this information I can know if there is an infection. It's possible also the microbiologist looks more information through \_\_\_\_\_ that is a procedure, where special conditions allow the bacterial growth, undoubtedly it's a more specific lab's procedure and allow to know what the microorganism that is producing the problem is, and improve the antibiotic choice.

\_\_\_\_\_ are most common bacteria that produce urinary tract infections, a lot of them are classified as gram \_\_\_\_\_ bacteria, and they may go up from urethra to bladder and then they can reach kidneys.

\_\_\_\_\_ is the name that receives vagina's infection, in which an amount of bacteria have a dangerous overgrowth, in many cases due to changes of vaginal pH.

\_\_\_\_\_ is the name how is known clinically the inflammation of bladder, in the majority of the cases is provoked by bacteria, and may be painful and could have blood in the urine, clinical situation called hematuria.

\_\_\_\_\_ is the name how is known the inflammation of the kidney due to a bacterial infection, and usually it's generated by an infection that initially was producing in the bladder.

\_\_\_\_\_ It's the classical cause of infection provoked by fungus. Actually, the gynecologist suspects of fungal infection when they realizes a vaginal white discharge.

### **What do you know about UTIs**

Fill with T(True) and F(False) the next statements:

1. The UTIs are more common in little girls than little boys ( ).
2. The alcohol intake prevent UTIs ( ).
3. The gram positive bacteria promote the majority of UTIs ( ).
4. The self-medication can produce bacterial resistance ( ).
5. One UTI can stop the growth in children ( ).
6. During the pregnancy decrease the possibility of a UTI ( ).
7. The analgesics is the only way to treat to UTIs ( ).
8. The use the urinary catheter can lead to UTIs ( ).
9. The hormonal changes are not connected with UTIs ( ).
10. The vomiting and fever are not symptoms of UTIs ( ).
11. The enough intake of water in one of the considerations ( ).
12. A great suggestion is to drink cranberry juice ( ).
13. The birth control methods are not relation with UTIs ( ).
14. Wipe from back to front is the best way of hygiene ( ).
15. Avoid irritating products is considered into the therapy ( ).
16. The majority of UTIs affect the upper urinary tract ( ).
17. In a UTI the urine doesn't smell bad ( ).
18. The presence of blood in urine could be a UTI ( ).
19. In a UTI the urine is not cloudy ( ).
20. Avoid to drink carbonated drink is part of the treatment ( ).

two weeks ago I had burning  
When I urinated,



if you have:  
✓ a burning feeling  
When you urinate.  
✓ a sensation of urgency  
to urinate  
✓ pain in the lower abdomen

It's possible an UTI



Drink 8  
glasses of  
Water for  
prevent UTIs.

**Carlos, everything is OK! This is your medical discharge.**

Carlos, everything is OK! This is your medical discharge, it was the expression that the urologist said to Carlos Hidalgo, a 55 year old man who was operated of prostatectomy, here in Hospital Cayetano Heredia of Piura, as well as thousands of Peruvians are undergo to mentioned surgical operation.

The prostate is an organ presents only in male reproductive system, which produces semen a fluid that nourishes and transport the sperm (male reproductive cell),this organ could swollen from fifties, this situation is called prostatitis.

Usually, the prostatitis is seen like an infection, generally produced by bacteria; while the symptoms depend of underlying situation, it could appear slowly or rapidly, but the patient needs a checkup made by an urologist.

The possible symptoms are:

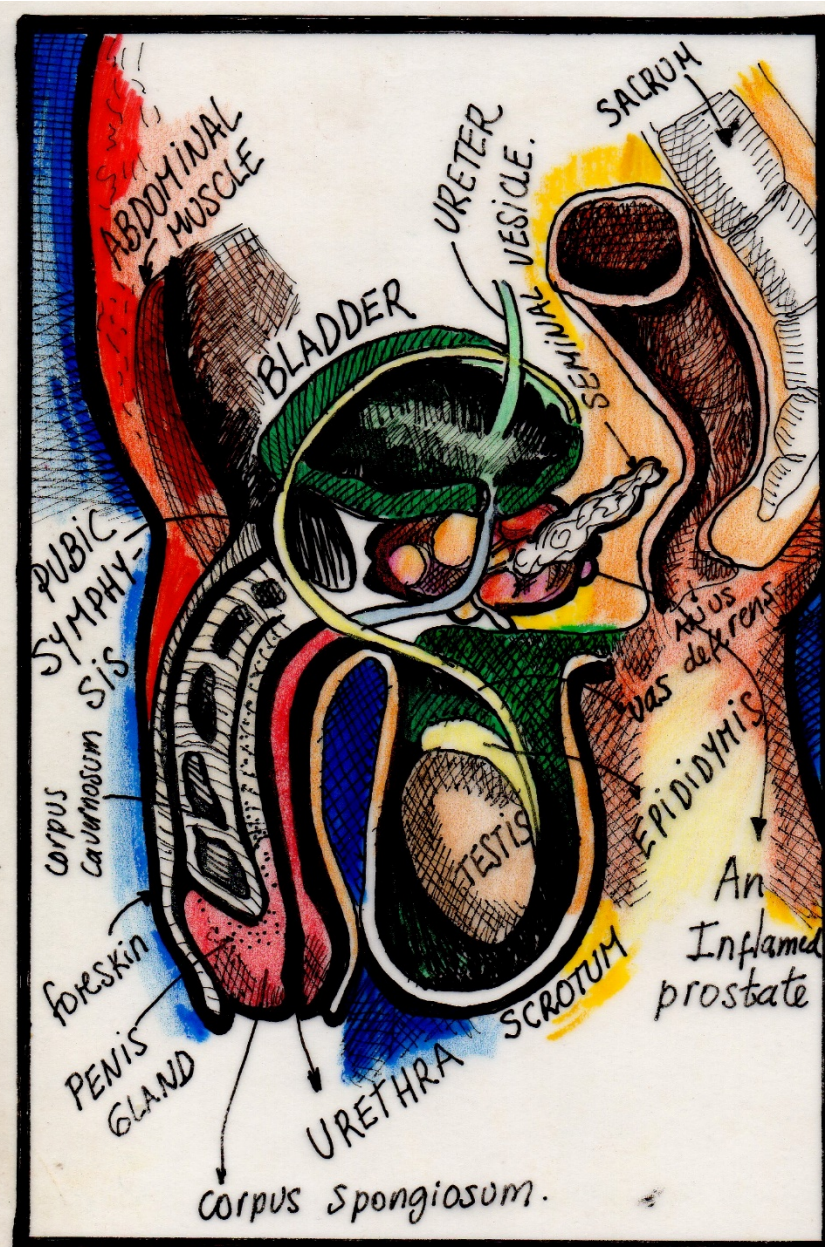
**Painful or frequently urination** maybe is the main cause that leads the patient to seek help, also the patient can complaint to rectal pain, abdominal pain, and sometimes it could have pain during ejaculation.

**Difficult urination** due to the inflammation of prostate restricts the flow of urine.

**Urethral discharge** is relational by the increase of the amount of bacteria

**Hematuria** or blood presents in urine. It could be due to the enlarged of the prostate.

The treatment accounts with **antibiotics** which are prescribed after a diagnosis of prostatitis produced by gram negative bacteria. While the **alpha blockers** relax the body and neck of bladder, allow the urine flows, and the surgery is the option when aforementioned don't work.



### **What do you know about Benign Prostatic Hyperplasia (BPH).**

Complete with T(True) or F(False) the next statements about BPH.

1. The urinary retention is agreeable to the patient with BPH. ( ).
2. A weak flow of the urine is observed in BPH ( ).
3. The progesterone is the main hormone related with BPH ( ).
4. There is not a family history connected with BPH ( ).
5. The digital rectal exam is the only way to diagnose BPH ( ).
6. The surgery is one alternative for treat BPH ( ).
7. A drug combination is finasteride & doxazosin ( ).
8. Phytotherapies could be used without prescription ( ).
9. UTIs are not side effects of BPH medications ( ).
10. The water vapor thermal therapy is an invasive option ( ).
11. The catheterization is a temporal treatment of BPH ( ).
12. The laser used could be more invasive treatment ( ).
13. The age is a risk factor of BPH ( ).
14. To remove the inflamed prostate is the best treatment for complicated situations ( ).
15. Prostate biopsy is made by any health professional ( ).
16. The cystoscope could be a non-invasive diagnose method ( ).
17. In the urine of BPH patient is not possible to find biological indicators of BPH ( ).
18. The specialist in this pathology is the gynecologist ( ).
19. The age of 50, is the age where is suggested BPH discard ( ).
20. The BPH could be a problem in women ( ).

## **I think my mom can't see!!**

Today Monday, my mom will undergo to an eye surgery, exactly the ophthalmologist will operate to her of cataract. She is la second in the list of the doctor. Ones minutes ago, a nurse put local anesthesia on her eyeball (right).

Sometimes ago, I realized She had moved with difficulty around the house, place where she has lived for many years, although, I have been seeing that she couldn't go and down stairs properly, and her difficulty when she tried to cook. She has 80 years old, and the cataract is a very common complaint of people aged.

What is a cataract? Mayo Clinic defines the cataract as a clouding of the normally clear lens of your eye. For this reason is very difficult to see through an eye with cataract.

Little by little, the patient loses the vision, although at the beginning it's possible the patient doesn't realize the real problem, because most cataracts develop slowly and don't disturb your eyesight early on, but then this disease can cause blindness.

The symptoms are:

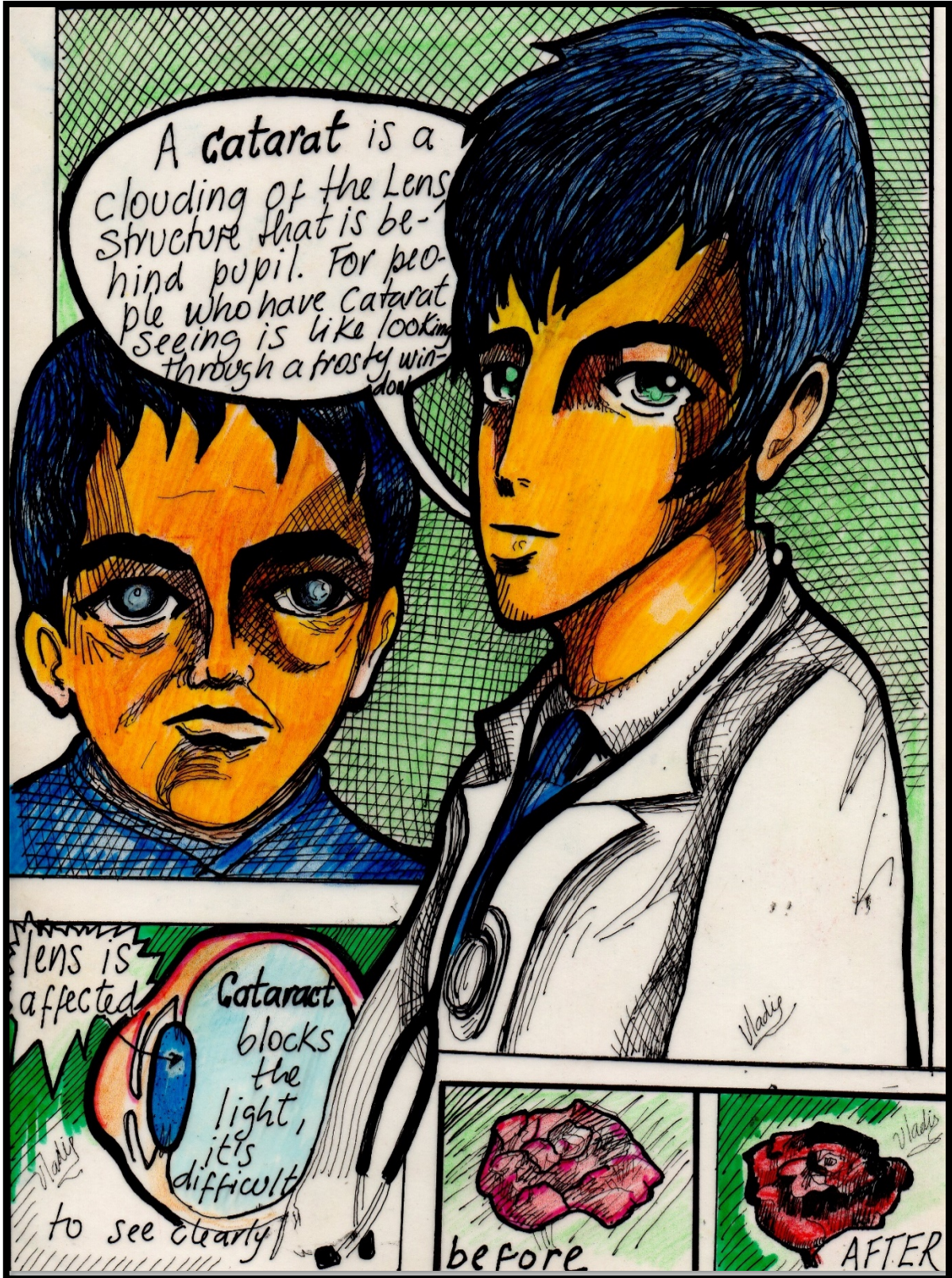
- Clouded and blurred vision.
- Difficult to see during night.
- Sensitivity to light
- Double vision
- In fact, you notice that oncoming headlights of your car produce more glare at night, when you drive, the color loses bright.

According the statistics, cataract is the more common cause of blinding in our country and affect to 44 % of Peruvian over age 40.

For diagnosing this disease, your doctor gives an exam, checking how good you see, this exam include how the pupil is, especially the lens.

If you have cataract, but with the use of glasses or contacts your vision improve, you need local medications, but if this problem doesn't allow your daily routine you need to undergo a surgery in which, the ophthalmologist remove the lens and replace it with a man-made one.

See you, the doctor is calling to my mom!!!



**Complete with T(True) or F(False) the next statements about Catarats**

1. Apparently a carbohydrate is involved with cataracts ( ).
2. The part more affected is the retine ( ).
3. It´s observed cloudy patches on the iris ( ).
4. The lents appears less affeceted in cataracts ( ).
5. This affection only affects to old people ( ).
6. Many people are blind because cataracts ( ).
7. Another eye´s surgeries could produce cataracts ( ).
8. During the night worse the vision ( ).
9. The patient perceives no real colors ( ).
10. Solar exposition is one of the most common causes ( ).
11. In the surgery of cataract is used general anaesthesia ( ).
12. The operation takes many hours ( ).
13. The ophtalmologist is the specialist in mentioned surgery ( ).
14. Usually the surgeon puts a artificial lens ( ).
15. The recovery after surgery could last many days ( ).
16. Some eye drops are used after surgery ( ).
17. The use of sunglasses protects the eyes ( ).
18. Cataract is a long-term desease ( ).
19. Affected people see “halos” ( ).
20. The patient can self-medicated eye drops ( ).

### **what a pain!**

Everybody who was in a medical center located in the center of Trujillo city, has surprised when a little boy named Leonardo, went in crying full of pain, the reason? He had an acute otitis. Let's see, many months ago, he had a terrible earache, he didn't sleep, and the fever that accompanied the clinical picture make him to have a disagreeable moment. For two weeks he had a face bloated, specifically in the place next to the ear affected, and a secretion was going out and staining the pillow, this yellow secretion was produced by the infection, which, according the laboratory culture it was streptococcus, a gram positive bacteria which pathogenicity increase with the amount of earwax.

The otolaryngologist explained Leonardo's parents that the amount of earwax was so much, that closed the external auditory canal for this reason the boy couldn't hear, also the number of bacteria increased provoking an infectious, it seemed that Leo had had an throat infection previously, and this infectious process passed from the throat to ear through the Eustachian tube, a tubular structure that connects both of them. In this occasion his father remembered that he took him to Reategui hospital, where the boy was hydrated only, and a pediatrician suggested the use of amoxicillin, an old penicillin, which has bactericide effect under gram positive bacteria, from this day, every time that Leo had fever or hyperthermia his parents have given him amoxicillin and some Non Steroid Anti-inflammatory Drugs also known as ANSAIDs , like Ibuprofen or acetaminophen, in this way, it was only controlled a symptom, and the infectious plus the build-up of earwax determined the critical situation of Leo.

Not only Leo ended up missing the last month of school, but also, he might go to medical appointment with a specialist, in this case an otolaryngologist, who explained to Leo's parents the diagnose based in the symptoms presented, in this way, the specialist suggested apply some analgesic by intramuscular route, and then try to wash the earwax of his ears.

The procedure was explained in this way:

**First** : put some drops of oil substance to soften the ear wax.

**Second** : Four days after, I will apply warm water with a medical device

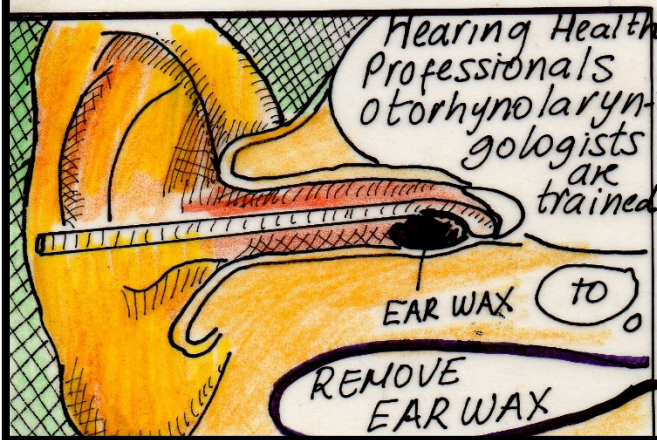
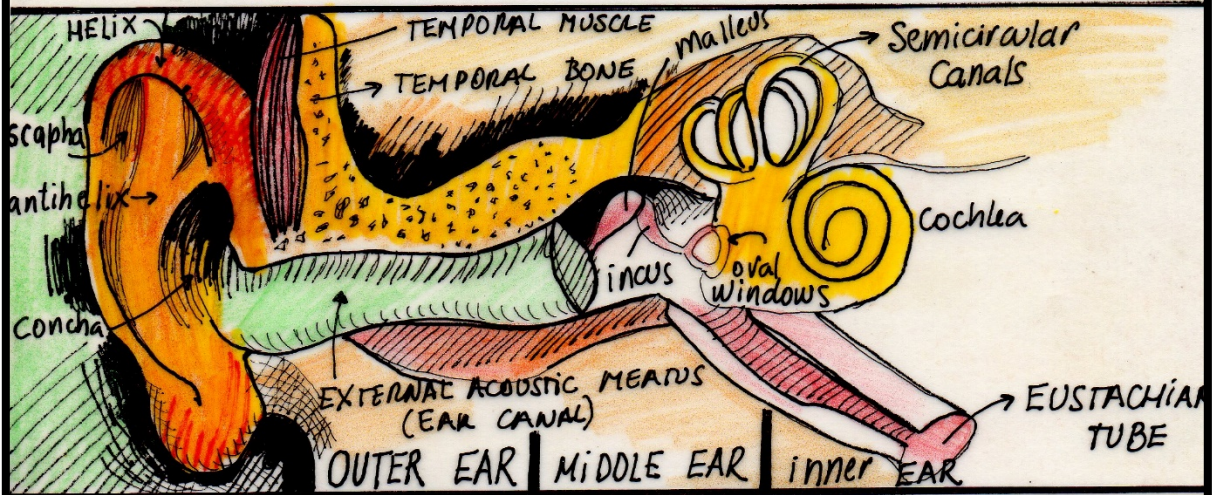
**Third** : Release the ear canal

**Fourth** : Measure the hearing of Leo through audiometry

**Fifth** : Continue to use of antibiotics like quinolones

**Sixth** : Visit periodically to otolaryngologist, in Piura there are three approximately.

By the way, today Leonardo is partially cured, and hearing acuity has decreased.



Complete with the words found into the box

<b>Tinnitus</b>	Pus	VESTIBULE	<b>diclofenac</b>
Ossicles	Ear wax		eardrum
<b>Hearing range</b>			
QUINOLONES			Cochlea

1. \_\_\_\_\_: it's a **yellow, or green liquid** that usually the tissues can produce during an infection.
2. The \_\_\_\_\_ are a group of **antibiotics** frequently used in ear infection.
3. Strange and **continuing noise like ringing** that the person perceives at one or both ears.
4. The \_\_\_\_\_ is secreted by **ceruminous and the sebaceous glands** localized in the Auditory canal.
5. One **analgesic** used for the pain in ear infection is the \_\_\_\_\_.
6. \_\_\_\_\_ is the name given to the **range** that the humans can hear.
7. The \_\_\_\_\_ converts the **sound in neural message**.
8. The part of the ear which primary function is the **vibration** that active the tiny bones is known as \_\_\_\_\_.
9. The **Malleus, Incus, stapes** are named \_\_\_\_\_.
10. The corporal balance is localized in \_\_\_\_\_.

### **We are in Piura, by common sense!**

Albert wants you to help him, to choose the sense (between the five senses), which allows you to perceive each particular situation and how he does it.

For example:

The sense of **sight** allows to see the beautiful sea of Colan, the color of the sand or the crowd on the beach. In this case, the light can pass through the **cornea** which is a transparent outer layer of the **eyes**, and then this light arrives to pass the **pupil**, which is a rounded hole in the center of the **iris**, the area of color of the eyes, then this light is modulated for the **lens** or **crystalline**, to finish in the **retina**, which has thousands of cells specializing in translates the light into nervous messages which will finally reach the **brain**, where this stimulus will be translated into an image, whose color or shape is determined by the proper functioning of our eyes.

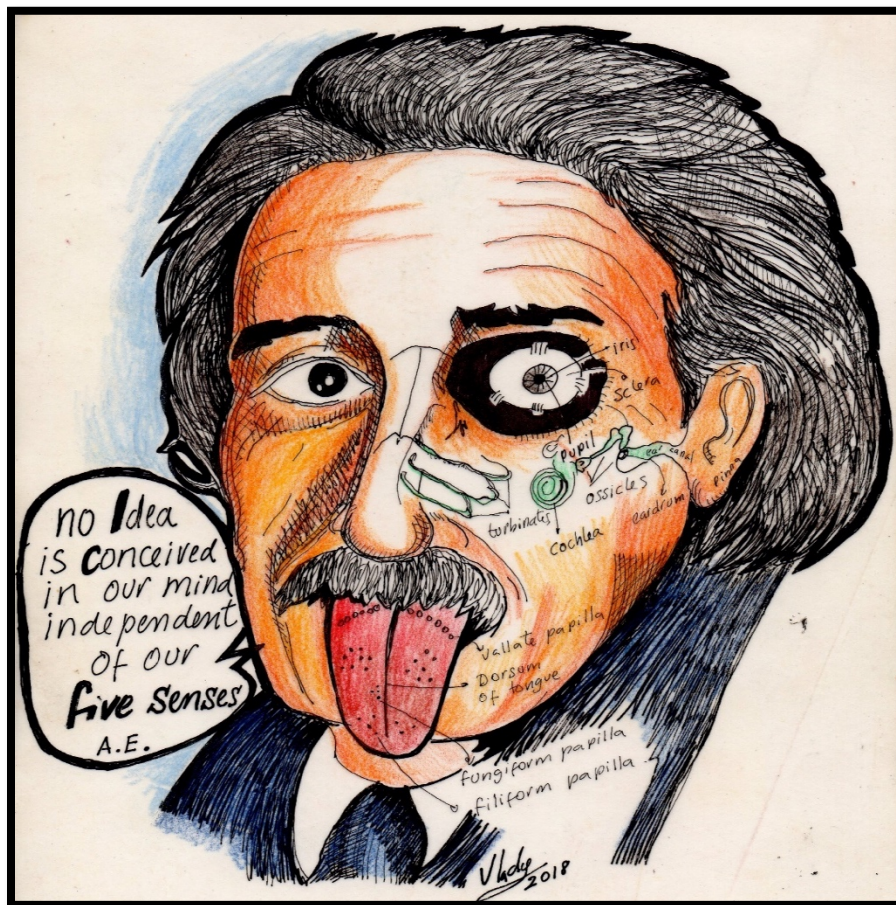
The sense of ..... is localized in the tongue, where we can perceive the spicy ceviche of mackerel of Sullana, or the sweet of the mango of Morropon, or the salty chifle of Catacaos m and many more delicious tastes the Piura has. The sense of taste is produced for the **taste buds**, which are localized around the **gustatory papillae** that we can see easily on the surface of our tongue.

The sense of ..... Allows us smells, the perfume of the flowers that to sell in Las Lomas, or the odor of the sea breeze of Yacila brings, or the agreeable odor of seco de chabelo just cooked, all of before mentioned sensations are localized into the nose, exactly in the **olfactory cavity**. How to work this sense? , ok, let's explain that every substances are a chemical get the **olfactory mucosa** through the nostrils, that are a pair if holes of our nose, then this substances get to dissolve in the **yellow pituitary**, then this substances are detected by olfactory receptors, that which send this information to brain, specially to two cerebral places : frontal lobe and the limbic system, in the first space, the odor will be recognized and in the second space, the odor will generate memories agreeable or non agreeables.

The sense of .....allows us feel the sound of waves of the sea in Paita, or feel the crowd the come this port for seem to Virgen de las Mercedes, in September, or feel the sound produced when someone eats chifles, or the sound of the band that accompanies the Sr. de Cautivo of Ayabaca's procession, for all this, first the sound crosses the **ear canal** and produce a movement in the **eardrum**, this movement transform into vibrations which move the **cochlea** thanks to the **ossicles** (malleus, incus and stape), this vibration produces movement of **cochlea's fluid**, then, this vibration produces that **hair cells** bend, this change of position of hair's cells creates neural signals the which are pick up by the **auditory nerve**, finally this

signals go to the brain (posterior part called occipital lobe) where the sounds are interpreted.

The feeling of ..... helps us to feel the heat of Sullana or the cold of some lagoon in Huarungas, or perhaps the mild climate in Canchaque, thanks to this, You can avoid accidents when cooking tamales or have them wear a sweater when you go anywhere in Lima. It is composed by a lot of receptors which are localized in the skin but it's possible to find them in other places like the oral mucosa, but for get our purpose we will be referring only for the skin, here you can find the **Thermo receptors** which detect hot and cold, the **Nocireceptors** which get painful sensations, or **Pressure receptors** that detect the press from a structure to our body, without forget the **Touch receptors** which make you can decide if one body is heavy or light or rough or smooth.



## Piura :bon appetite!

During, one week our international chef Gaston will be among us, tasting our meal. He knows like you that there are five tastes identified, and want to conclude about it, it's to say, he wants to identify what is the most common in our meal.

The Monday, Gaston goes to Catacaos, where meet the Chifles's producers, he help them cut the green banana, and then put into the pan which is with the oil burning, then he hakes it out, and finally, put salt, a properly amount, that makes it really **salty**. The salty flavor, is detected by **salty buds** which are localized either side on the tongue, and are capable to detects sodium chloride in the food, .According to the chef, it's possible combine the salty food with a sweet drink, like chicha morada so cold, obviously.

The Tuesday, Gaston travel to Sullana, where the producers of banana show him a dessert make from this fruit.It is really delicious, also they show him an option of banana in slides for exportation, the which maintain the sweetness. The **sweet tastes** are located in the front of the tongue, and there is a relation between the sweet taste and energy due to the sugar and another carbohydrate are capable to produce ATP, which is the more important energetically molecule.

The Wednesday, our chef visited Paita, where live Mr. Eriberto Ayala, an old man who learned the secret to prepare chicha de jora from his ancestors,he tells that the Inca, the antique Peruvian Emperor, drank this beverage, and he showed this in ceremonial activities. He also tells the chicha of jora was produced for the first time during Pachacutec government, when a strong rain spoiled the places where the people have stored the corn, producing that corn would ferment.

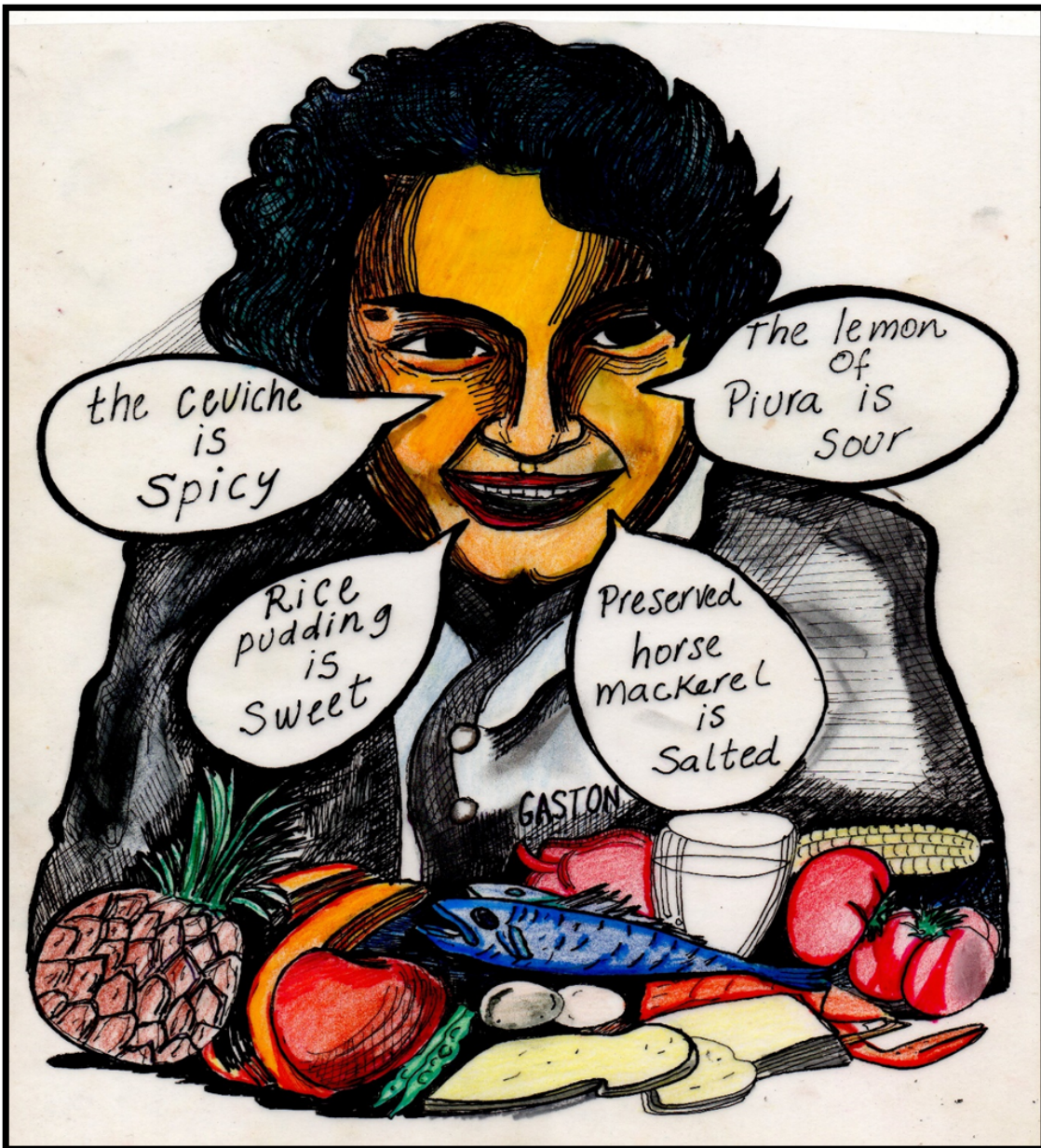
This same day, Gaston was trying the meal of Chulucanas, where was found a variety of meal by the most famous citric fruit of Piura the lemon, which is an essential ingredient of the ceviche, and another dishes with fish. The sour tasted is detected by sour- tastes cells which have H + ions detectors, these protons can be in fermented drinks, or in citric fruits, and the acid taste buds are localized in each site of the tongue.

The Thursday, Gaston went to Canchaque, considered the Peruvian Switzerland because this place has a resemblance to the European country, here he heard speak about the coffee, which has an agreeable sour, and is part of the breakfast of thousands of families in the north of Peru. Usually, when you try coffee or chocolate you notice a slight **bitter taste**, the is related with a poison substance or a remedies, you believe or no! In our case, we'll speak about the remedy option of different bitter foods, which have antioxidants. That's to say the taste of antioxidant substance is the bitter. The bitter buds are in the back of the tongue.

Today Friday, Gaston should go back to Lima, and he clarifies that Peruvian meal has many tastes at same time, and the real taste of this, is **Umami**, that is a coined word by Japanese, whose, were trying to describe the mixture if tastes in an only dish, concluded that there is not an only taste in a sushi, there two or more and this combination of these tastes produce the agreeable or non-agreeable sensation when we eat. Obviously this answer better about the localization of taste buds, concluded that they are thorough tongue.

Now, put a x where is appropriate

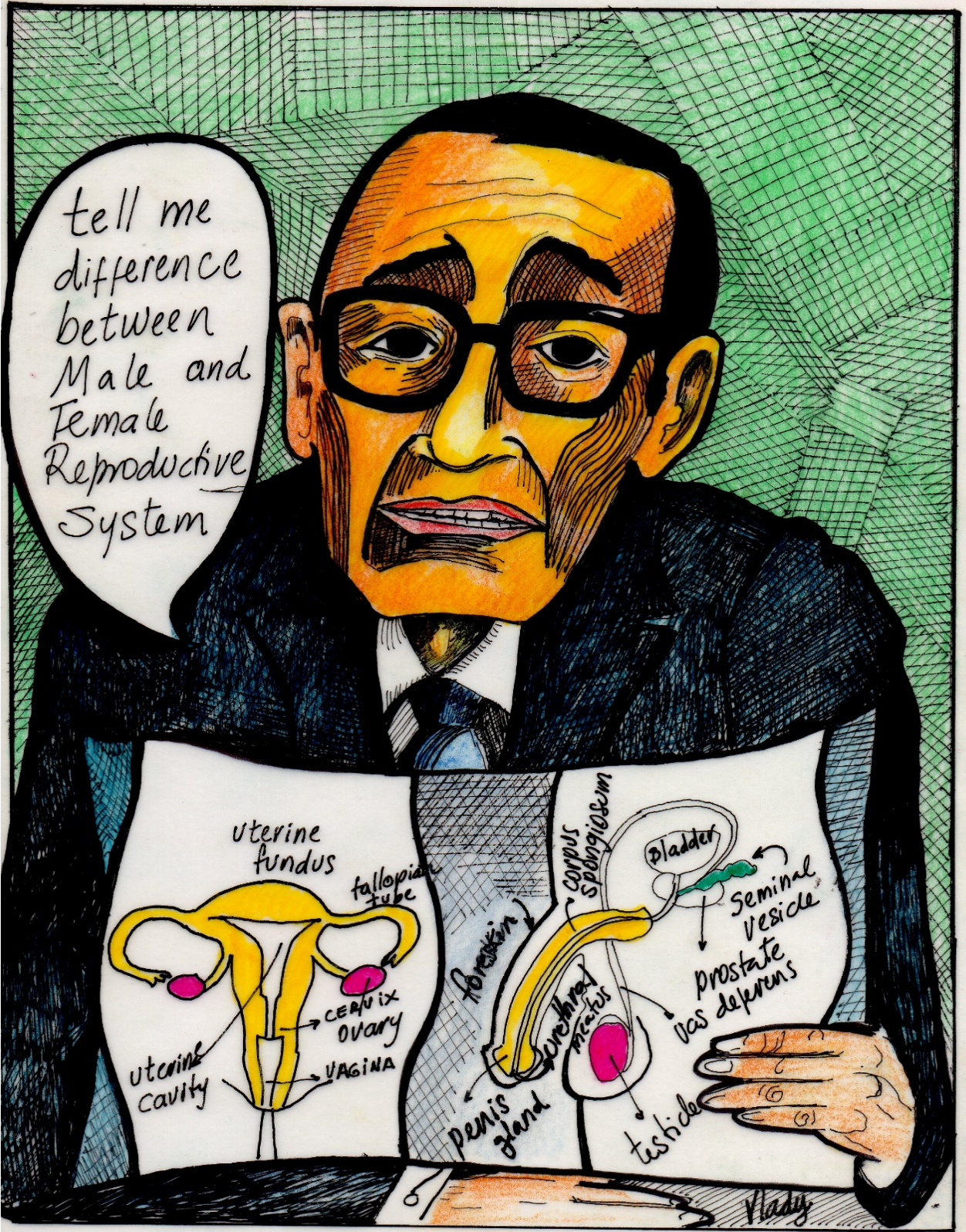
Meal	sweet	salt	sour	bitter
Ceviche				
mondonguito				
Seco de chavelo				
Natilla				
Cabrito				



## Talking with Marco Aurelio Denegri

The last July 27 Marco Aurelio Denegri has died, he was a very famous sexologist

<b>ELEMENTS COMPARISED</b>	<b>MALE REPRODUCTIVE SYSTEM</b>	<b>FEMALE REPRODUCTIVE SYSTEM</b>
<b>DEFINITION</b>	It is a group of organ, which main job is synthetize, maintain, and transport SPERM, also produce hormones that generate the differences with the female sex.	
<b>LOCALIZATION</b>		The ovaries, fallopian tubes and uterus are into abdominal cavity, while the vagina and vulva are localized in pelvic cavity.
<b>PARTS (STRUCTURES)</b>	Penis Testicles Epididymis Vas deferens Prostate Seminal vesicle	
<b>HOW TO WORKS</b>		From puberty to maturity, the female reproductive system produces eggs or oocytes which can be fecundated by sperm , this can produces Pregnancy where the new product or baby grows into the uterus, without forget that this part is responsible to produce hormones like estrogens and progesterone
<b>HORMONES</b>	Mainly Testosterone	



## What do you know about Human Reproductive System?

Use the T (True) or F (False), according your knowledges, in the next statements:

1. The penis and the vagina have the same origins (    )
2. Many people around the world name the penis to different ways (    ).
3. Prostate cancer is so probably as from 50 years in female (    ).
4. The vaginal discharge could be caused by fungi, only (    ).
5. The Uterus can grow 1 cm per week during the pregnancy (    ).
6. The length of seminiferous tubules is 1.54 m approximately (    ).
7. The Placenta appears around weeks 8 to 12 of pregnancy (    ).
8. The fallopian tubes are also known as uterine tubes (    ).
9. An ectopic pregnancy could happen in the fallopian tube (    ).
10. In just one ejaculation could be almost 40 million of sperm cells (    ).
11. The acid pH is suitable to sperm cells (    ).
12. The ovulation could last 24 hours (one day) (    ).
13. The contraceptive pills contain hormones (    ).
14. Both male and female have estrogens (    ).
15. The abbreviation FSH means Follicle Stimulating Hormone (    ).
16. The testosterone is related with the presence of body hair (    ).
17. The Progesterone allows the pregnancy (    ).
18. The men have mons pubis (    ).
19. The estrogens could be prescribed in ovarian cyst (    ).
20. The female new born has high levels of estrogens in her blood (    ).

### **I can't rib of this moustache in my face**

Every morning, when Susana gets up, the first thing she does is look in the mirror, when she notices the mustache on her face, she only accepts her hormonal condition called polycystic ovary syndrome that she is suffering. In addition to this strange detail, she suffers several pains in the hips during menstruation or many days of bleeding, without forgetting the uncomfortable abdominal spasms that do not allow her to work or study.

Annually, there are hundreds of women who seek gynecological help, due to their severe abdominal pain or acne on their faces; it is also worth mentioning that Piura is in first place in our country with this type of gynecological complaints.

So, what happens when a woman suffers from polycystic ovarian syndrome? According to the Mayo Clinic is a hormonal disorder that occurs in women of reproductive age, it is important to note that it is accompanied by changes such as increased menstrual bleeding. Seemingly is the male hormone called testosterone that leads to male appearance, so notorious in some of their On the other hand, there is the possibility of developing small collections of fluid called follicles that can cause a failure in the release of the ovules.

Between the symptoms, are:

**Irregular periods**, in which, Susana has menstrual cycles altered, that's to say their can long more than 30 days, and the menstrual bleeding long more than one week, accompanied for terrible abdominal pain.

**Increase of male hormone**, this is in relation with the apparition of hair in the face, sometimes severe acne, or lose of hair.

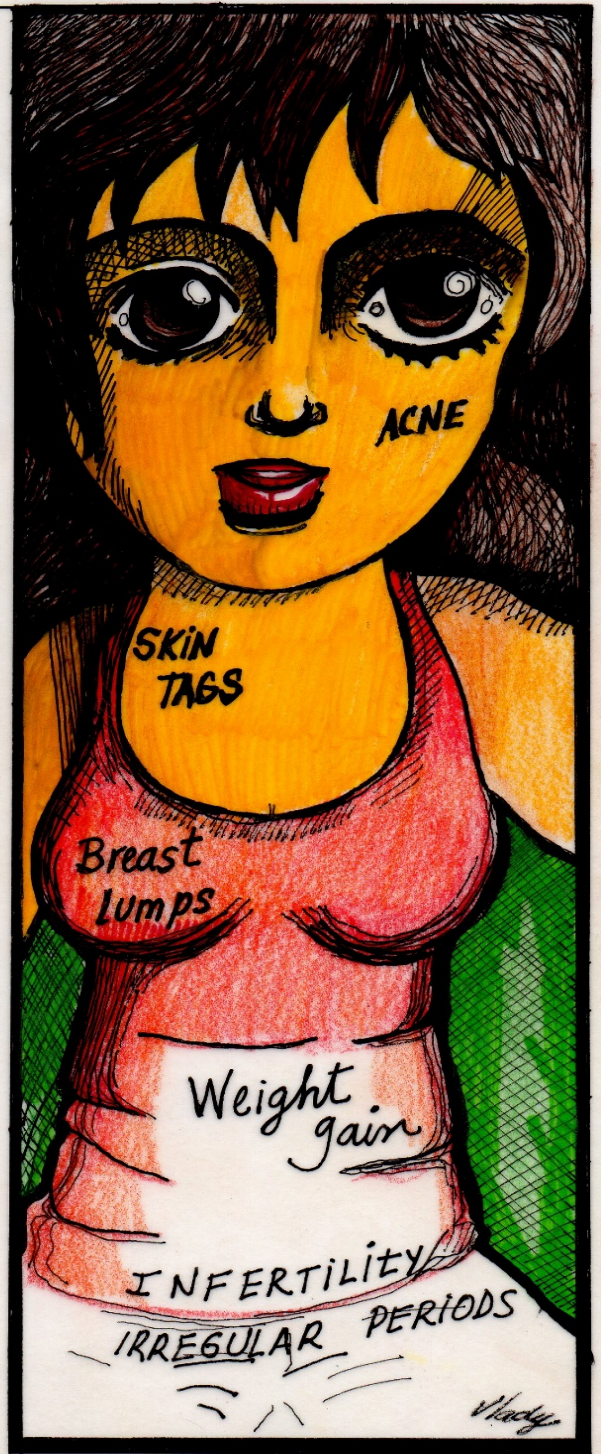
**Polycystic ovaries**: the ovaries can be swollen, and with follicles that surround them, is can lead to alterations in the release of eggs, monthly.

To the question, that Susana makes the gynecologist about the causes of this disorder, the answer is that there is not a single possible source, only that there are many possible causes among them are:

**Hereditary** : her grandmother, her mother and her sister have suffered from this disorder, and also they have been undergone to hysterectomy.

**Excess of insulin** : although, this cause is less probably, in some cases, it has been observed that there is relation between the increase of insulin level in blood with this disorder.

**Excess of androgens**: in these women is common that ovaries synthetize a lot of testosterone, that leads to hirsutism, acne and another problems.



## What do you know about female hormones?

Complete with T(True) or F(False), the next statements :

1. The placenta is the main source of Estrogen ( F ).
2. FSH is the abbreviation of Follicle Stimulating Hormone ( ).
3. The Pituitary Gland releases FSH ( ).
4. LH is the abbreviation of Luteinizing Hormone ( ).
5. Menstruation lasts a week ( ).
6. Menstrual Cycle last more less 21 and 35 days. ( ).
7. The follicular phase starts the first day of menstruation ( ).
8. The majority of women have regular cycles ( ).
9. Ovulation is a period that lasts 5 days ( ).
10. The birth control pill can regulate the menstrual cycle ( ).
11. In a old women there is a decrease of hormones ( ).
12. The Menopause starts generally at the age of 50 ( ).
13. The intake of vegetables reduce the menopause effects ( ).
14. The estrogens promote the calcium release from bones ( ).
15. The acne is one of the most common changes in teens ( ).
16. The Progesterone protects the pregnancy ( ).
17. The caffeine is not recommended in these women ( ).
18. The hot flashes are the most common symptom in menopause ( ).
19. The trouble sleeping, are visible during the adolescence ( ).
20. Vaginal changes include dryness ( ).

## **Congratulations!! You are pregnant!!**

Carmen is pregnant, today she knew it; a gynecologist told her about this at Hospital Santa Rosa, also he told her, that baby will be born on September.

He explained rapidity from the fecundation to birth, that is to say one sperm of her husband met and penetrated an egg of her, and in this moment also known as conception it is possible in 24 hours after the ovulation ( moment in which the egg leaves the ovarium). From this moment the product is called embryo. The embryo starts to grow through a cellular division and passes from fallopian tube to uterus, place where baby will grow and develop for 40 weeks approximately. Here on uterus the embryo attach with this, and the placenta, the organ that will nourish to baby appears and grows too. In the first four weeks will start to appear the face's organs, the neck, while the heart and blood vessels, stomach, lungs and liver will start to develop, and due to gonadotropin hormone release, it could show positive pregnancy test. In the next four weeks, the doctor can hear heartbeat, through ultrasound machine, that's means that the blood starts to circulate thorough his tiny body, and the buds start to convert to hands and legs, in another side, is formed the neural tube which is the first version of central nervous system( future brain and spinal cord), while the placenta completes its develop, it will get nutrients and oxygen to baby.

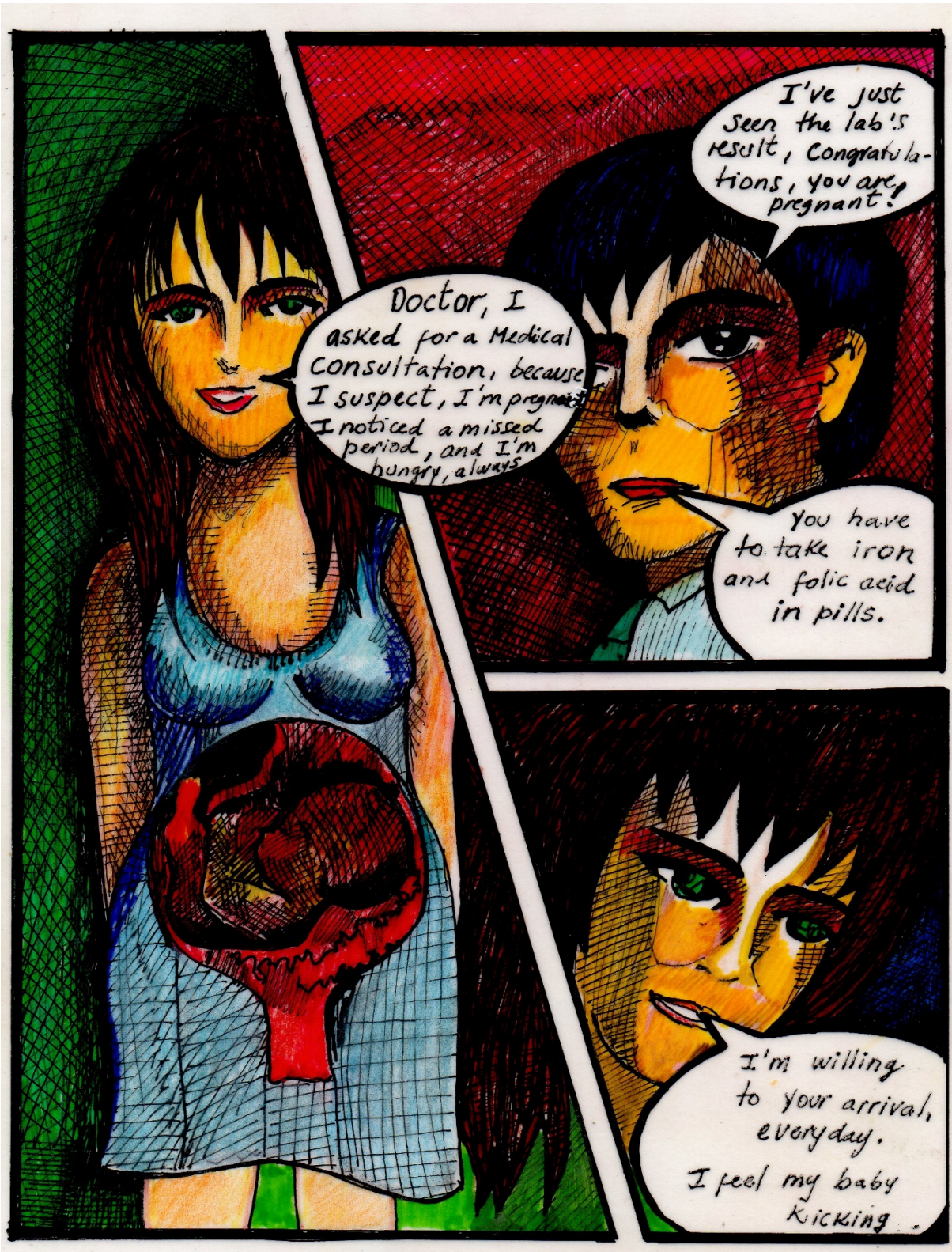
At the beginning of the ninth week, the Fetus starts to move, and it is more easy hear his heartbeat and the changes into the fetus can cause the symptoms of pregnancy in several pregnant like nausea, vomiting, lethargy and lack of appetite, by which the future mother needs to rest, take little portions of foods, also the gynecologist evaluates the possibility that he pregnant takes calcium (it helps to ensure the formation of healthy bones) and folic acid that prevent the spine bifida.

In the next four weeks, it's visible the develop of the circulatory system, and the fingers complete them develop, also they have fingerprints. The principal organs continue to develop, for example digestive, urinary and respiratory are taking shape. By the end of the fourth month, the baby will get approximately 6 inches of length and 4 ounces of weight.

At fifth month, appear the hair in the head of the baby, and lanugo (a delicate and soft hair) covers different parts of his or her body, parts like shoulders, temples and back, possibly, this hair accompanies the baby until the first week of life. Also it's possible the mother feels the first quickening, this result of muscular activity of the baby who stars to move more.

When the baby is in sixth month is approximately 12 inches long and weighs more less 2 kilograms, his or her eyelids will open this month, and also he or her taste buds will develop until some structures that allow to baby to know the real taste of amniotic liquid.

When Carmen reaches the last trimester of pregnancy, her baby transforms his cartilages in bones, his digestive system prepare **meconium** that is formed by blood cells, vernix and lanugo, his muscles and cardiovascular system have got a growth, that allows the baby will birth.



Doctor, I asked for a Medical Consultation, because I suspect, I'm pregnant. I noticed a missed period, and I'm hungry, always

I've just seen the lab's result, Congratulations, you are pregnant!

You have to take iron and folic acid in pills.

I'm willing to your arrival, everyday. I feel my baby kicking.

**What you can and cannot do during the pregnancy:** write V or F, if the pregnant can or cannot do during the pregnancy, respectively.

1. The pregnant cannot take a shower, because it produces her respiratory diseases  
\_\_\_\_\_.
2. **The pregnant can drink alcohol.**  
\_\_\_\_\_.
3. **The pregnant cannot use drugs.**  
\_\_\_\_\_.
4. **The pregnant can drink large amounts of coffee**  
\_\_\_\_\_.
5. **The pregnant cannot disobey that doctor says.**  
\_\_\_\_\_.
6. **The pregnant can eat spiced food.**  
\_\_\_\_\_.
7. **The pregnant cannot smoke.**  
\_\_\_\_\_.
8. **The pregnant can drink soda.**  
\_\_\_\_\_.
9. **The pregnant can do relaxed physical exercises.**  
\_\_\_\_\_.
10. **The pregnant cannot drive a car.**  
\_\_\_\_\_.
11. **The pregnant can receive chemotherapy**  
\_\_\_\_\_.
12. **The pregnant can work normally**  
\_\_\_\_\_.
13. **The pregnant can eat whatever she wants**  
\_\_\_\_\_.
14. **The pregnant cannot use Aspirin**  
\_\_\_\_\_.
15. **The pregnant can drink beer**  
\_\_\_\_\_.
16. **The pregnant cannot eat high amounts of sodium**  
\_\_\_\_\_.
17. **The pregnant can take a nap**  
\_\_\_\_\_.
18. **The pregnant can do yoga.**  
\_\_\_\_\_.
19. **The pregnant can clean the house**  
\_\_\_\_\_.
20. **The pregnant cannot work at hospital**  
\_\_\_\_\_.

### Get up and walk!

For three months, Flor, a young and beautiful student, has shown a **lack of interest** in activities such as playing volleyball with her neighborhood friends or simply going to the movies. Yesterday she tried to **commit suicide**, and it was a terrible moment for all the people who love her.

Last year, her mother died of cancer, specifically throat cancer, this situation caused Flor to have feelings of hopelessness, lost her appetite and used to eat nothing for days, and due to her insomnia she fell asleep several times at the school where she studies. It seems that her mother's death affected her terribly. His grandparents have heard of his **suicidal ideas**, but never paid attention, they thought that this is not true.

Today, after the suicide attempt of this beautiful girl, her loved ones have decided to take her to a psychologist, who is the professional adequately of giving her an appropriate treatment.

We, the parents, should know that **Peru is in 99 position, in case of suicides in the world**, according to the World Health Organization, for this reason, we consider that we are facing a real public health problem, because not only, has this psychological illness, is a disease that suffers an employee, a businessman or a housewife or perhaps some relatives.

While is true that, on Piura is common situations like cutting or boys who decide to suicide after receive the yearly report, or when some adult in Sullana decided to drink a poison after listen to doctor talk about his diagnostic of cancer, or do the same due to a sentimental misunderstanding. In another hand there is the scientific proposal in which the **neurotransmitter serotonin**, it's seem to be the principal responsible of this disease, in this way mentioned substance reach its receptor called **5- Hydroxytryptamine** or 5HT, and immediately is metabolized to inactive **substances**, this proposal appears like a logical explanation that how the **antidepressant** works, it's was demonstrated that ant depressed are **inhibitors of reuptake of serotonin**, this allow that this neurotransmitter stays mote time linked its receptor and this promote more activate neurons, opposite situation to depression.

There are many ways the depression is presented in the people between of them is the case of Julio Ipanaque, who lost of interest for draw, his passion for create beautiful pictures vanished, even when he lives in Catacaos, a place so famous for its artistic production, he was diagnosed -----, while Alejandrina Gomez was diagnosed----- due to she is sleeping all the time, in another side, Gustavo Macalupu was diagnosed----- because he was passing from extremely energy states to visible sadness behavior. Finally, the situation of Carlos Aparicio is more complicated because he has hallucinations all the day, for this reason the doctor has diagnosed -----.



## How do antidepressants work?

Complete with T (True) or F (False) in the next statements:

1. The antidepressants produce a balance of neurotransmitters ( )
2. It's not common the rebound effect when someone uses them ( ).
3. The first effects are immediately ( ).
4. The sertraline is used in obsessive compulsive disorder ( ).
5. SSRI are the abbreviation of Selective Serotonin Reuptake inhibitor ( ).
6. A suggestion is stop suddenly the use of this medication ( ).
7. Lack of dream is a common side effect ( ).
8. It's forbidden during pregnancy ( ).
9. Suicidal thoughts are among side effects of Fluoxetine ( ).
10. In eating Disorder is not used the Fluoxetine ( ).
11. The inhibition of uptake of serotonin is not its action mechanism. ( ).
12. Fluoxetine is use together olanzapine ( ).
13. The serotonin is a neurotransmitter so related with emotional troubles ( ).
14. The doctor should evaluate pros and cons before prescribe them ( ).
15. Stop taking aforementioned medications is gradually ( ).
16. Some daily activities like meditation could be better than the use of them ( ).
17. The amitriptyline should be used after heart attack. ( ).
18. The seizures could be the contraindication of these medications ( ).
19. It has been contraindicated in liver disease. ( ).
20. Psychosis is a disease where is indicated antidepressant ( ).

### **What a fear, tomorrow I should take an exam!**

I'm José Paiva, tomorrow I'm going to take an English test, because I have to certify my second language which is a requirement to get a scholarship in London, but I feel anxious because I cannot hear the audios, I did not. Do not practice this, and it will be part of the exam.

And finally, I just watched a movie in which the main character is an employee who is really nervous because he needs to make a report, all in English, and his partner who speaks English, is sick in the hospital, the problem is worse when the results of production reflect a decline, for this reason, begins to feel panic, start to sweat, and cannot sleep, feels also palpitations, and shortness of breath, his mouth is dry, and doesn't control the tension, his muscles are tense, and the migraine is killing him, without mention the dizziness and the nausea that don't allow him to eat something.

The Anxiety is a mental disorder, where the patient cannot control the anxiety, that is to say the person react so excited all the time, this produce several disorders that go from gastritis to hypertension passing from irritable bowel disease to asthma and acne. So, this can show in the increase of cholesterol, though the person doesn't eat saturated lipids, or to have sleeping problems like insomnia or parasomnia which are very common in this days even in children.

According to researchers, there aren't only a cause that is a multifactorial disease, and every person has different particularities, thus our father is suffering from anxiety because he passed to retirement, our sister that is pregnant is anxious due to the doctor told her the baby has a cardiovascular problem, or our grandfather is anxious waiting laboratory test result. So, the people suffer from anxiety disorders, but the problem is when the patient doesn't control their emotions or don't know how to manage them. So, let's describe the situation, and you fill the space in blank

1. Maria doesn't like to go to mall center in Castilla, because the crowd that up and down the electrical stairs, makes her feel embarrassed, and the last Christmas she suffered a panic attack, she suffers from \_\_\_\_\_
2. Jorge is the manager of a local bank, localized in Grau Avenue, in Piura, he feels all the time worried, even in routinely situation like when a client doesn't have money in his credit card, the mental disease of Jorge is called: \_\_\_\_\_
3. Francisca is washing her hands several times on the day, even after to do this, she has in her house in Morropon 20 soaps every of them is for every part of the body, thus on of them she use for the legs and another is for her face, and another is for feet, she is suffering of \_\_\_\_\_
4. Teresa is a technic, who works in a drugstore in Tallanes avenue, sometimes she suffers from a suddenly attach of fear, or terror, situation that is so difficult to control, her disorder is \_\_\_\_\_

called

5. Mr. Hilda Briones came to Piura after Ica's earthquake, normally she has disturbing dreams and tries to avoid everything that is relation with earthquake, she suffers from



### How to handle the anxiety

Help us to complete the next statements with T (True) or F (False).

1. The chamomile tea is not recommended for treating the stress. F.
2. Do Yoga in the morning could be help you to reduce anxiety. \_\_\_\_\_
3. Meditation is an option that you only can practice at night \_\_\_\_\_
4. The coffee could worsen the insomnia \_\_\_\_\_
5. To stay alone in an agreeable place, could help you \_\_\_\_\_
6. Avoid to smoke, is another suggestion, so common \_\_\_\_\_
7. To achieve the duties don't reduce the anxiety \_\_\_\_\_
8. Increase the intake of alcohol, is another suggestion \_\_\_\_\_
9. To sleep at least 8 hours daily, for reducing stress \_\_\_\_\_
10. Greasy food, hasn't to do with stress & anxiety \_\_\_\_\_
11. To stay awake all the night long is a good idea \_\_\_\_\_
12. Listen classic music, release stress neurotransmitters \_\_\_\_\_
13. The children also suffer from stress \_\_\_\_\_
14. It's not a good idea to eat healthy food \_\_\_\_\_
15. Coronavirus Pandemic increased stress level in people \_\_\_\_\_
16. Enjoy with your family, is another option \_\_\_\_\_
17. Breathing exercises, are something all the people practice \_\_\_\_\_
18. Travel by air is so agreeable for all the people \_\_\_\_\_
19. Visit to the psychologist, is a bad idea \_\_\_\_\_
20. Use anxiolytics is the last option \_\_\_\_\_

### **I´m not crazy, only think different to you**

When you walk down Grau Avenue, you can see three or more people who are dirty, and saying incoherencies. One day you see them running by Cuzco Street, another next to door of local restaurant asking money, it is commonly possible that you cross the avenue or street, trying to avoid them, but they need the help of us, because they suffer some type of mental disorders among them, psychosis.

Today I want to tell you the case of one ex-professor of local University, who was a genius teaching mathematics, for two decades he was working, he was explaining theorems and laws that numbers have, but, one day he became to have hallucinations, it´s to say, to hear and see unreal things. His relatives, explained this situation with the lack of a good nutrition, but the psychiatrist, confirmed that the schizophrenia is a mental disorder which real causes not is clear, sometimes is due to use of drugs, another the Parkinson´s disease, other is suffer some type of cerebral tumor, and another the epilepsy, but chromosomal disorders is the main cause of this ill.

In another side, his old daughter mentioned the symptoms that she noticed in the professor:

He can´t concentrate, he can´t to read a book like before.

Always, he has a terrible mood, in addition he never smiles, she says: a long time ago, I don´t see his laugh.

Sometimes oversleep and sometimes he can´t sleep more of two hours daily.

Always he is anxious, you can see in his chest palpitations, he can´t sit in one place.

But the most notorious is his lack of coherence when he speak, it´s to say he has a disorganized speech. Switching one topic of science to another about food erratically.

Finally the psychiatrist, explains us about the types of Psychosis:

**Brief psychotic disorder**, that happens after stressful situations.

**Drug or alcohol related psychosis** that is a disorder very common in cocaine or alcohol substances.

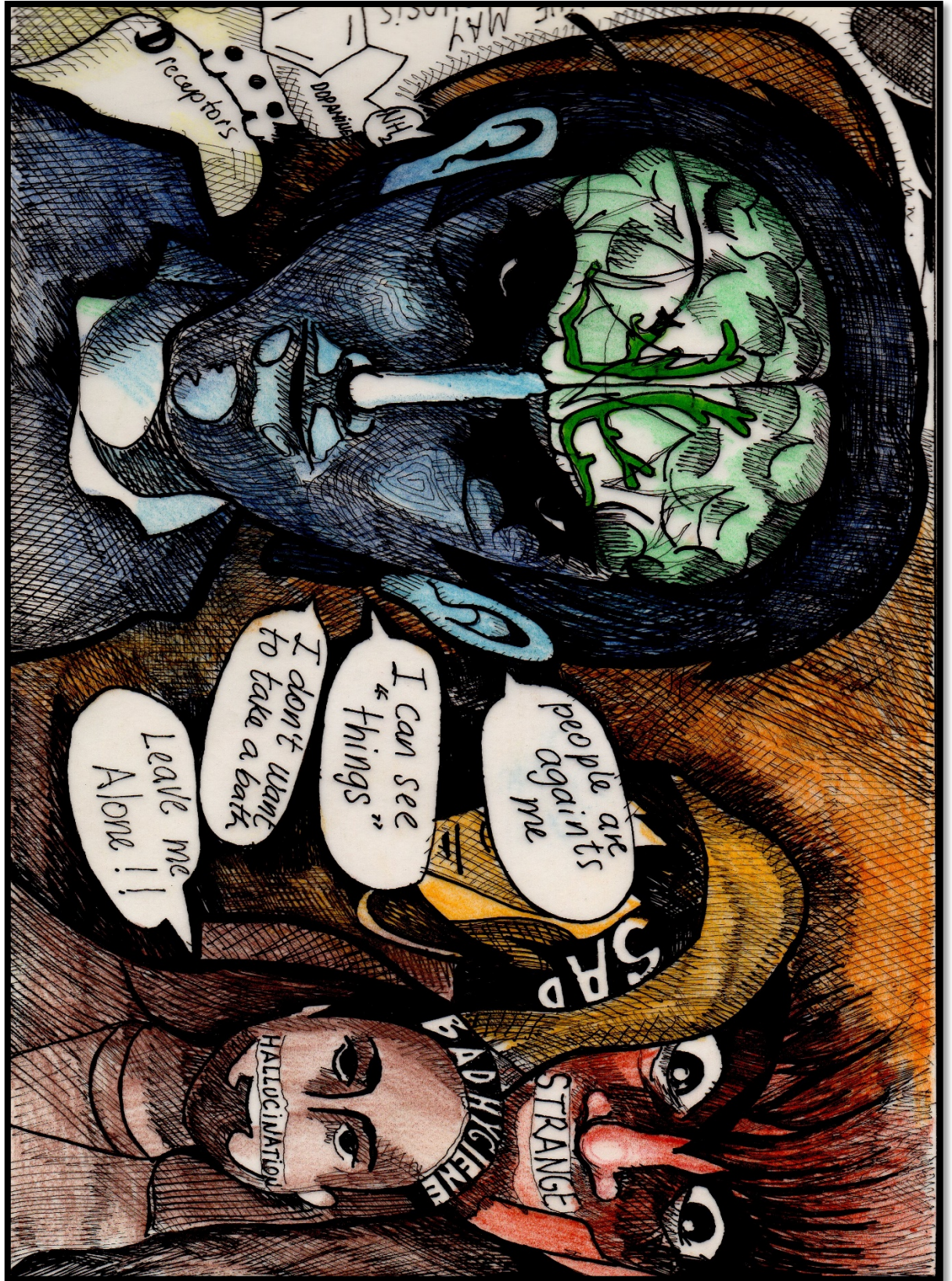
**Organic disorders** it happens after some cerebral bacterial or viral infections.

**Bipolar disorder** in this case the patient changes from very high to very low mood.

**Delusional disorder** in this disorder the patient believes and thinks in unreal things.

**Psychotic depression** this is a complicated depression.

**Schizophrenia** it is a chronic mental disease, generally is accompanied by serious psychotic symptoms.



### What are your knowledges about psychiatric drugs?

Complete with T (True) or F (False), the next statements.

1. This group of drugs are called Mental Drugs (V).
2. It's no convenient you tell your doctor about another medication you are taking ( ).
3. When they are taking, the allergies are so probably ( ).
4. It's not dangerous the self-prescription when someone has a mental disease ( ).
5. These kind of drugs are taken in eating disorders ( ).
6. Post- traumatic stress disorder could be experimented by people in an earthquake ( ).
7. They can produce dependence ( ).
8. These medications could be used together antidepressants ( ).
9. These kind of drugs can produce constipation ( ).
10. The dry mouth like side effect is due to the acetylcholine is blocked ( ).
11. Lithium is considered a mood stabilizer ( ).
12. Diazepam belongs to Benzodiazepines ( ).
13. Mirtazapine usually starts its effects immediately ( ).
14. Dizziness is not a common side effect of Risperidone ( ).
15. To gain weight is a less common side effect in these medications ( ).
16. The majority of this pharmacotherapies are chronic ( ).
17. If the patient doesn't take them, could return the mental crisis ( ).
18. These medications couldn't produce migraines ( ).
19. The best way to use these drugs is with water ( ).
20. The patient can't forget to take them ( ).

### **Oh no, the doctor has prescribed an injection!**

Today, my father had a medical appointment, his arthrosis does not led him, this is a chronic disease where, his knee is swollen, and the pain is reducing the movement.in this occasion the rheumatologist prescribed some non-steroidal anti-inflammatory drugs, between then diclofenac and meloxicam, the first in injection, that second in tablets, also my father received some onychomycosis's creams, because last month, the dermatologist was concluded that my father suffering from this mycosis that had generated his nails have almost disappeared. When he was a children his asthma make that he used some inhalators of bronchodilators, I think that he knows how to apply some dosages forms, but there are another, here we shall describe the most used and you will complete writing in the dotted spaces:

..... It's the most common dosage way, consist in a solid dosage, which route of administration is the oral, it's for this reason the population prefer this form because is painless and don't require that another person apply this. Usually comes with a sugar coated, for mask unpleasant taste, or a colored coated that masks unpleasant color. Generally, this form consists in an active substance which produces the pharmacological action, and another that accompanies to the first.

..... It's considered an oral dosage, and consist in a gelatin's shell, that protects both the active and inactive ingredients, there are two types of them, the hard which contains solid ingredients( substances in powder) and the soft which has liquid ingredients( generally oils),also they have some ingredients that preserve a capsule without microbes.

..... Are liquid forms that are taken orally, are sweet and usually has been designed for children, but lately the doctors prescribe to elderly, one group of them are prepared adding water and then shake, others are thick and sweet that mask unpleasant tastes.

..... Are semi solid dosage forms that are applied into the rectus, and have local or systematic effects, usually are used when the patient has been vomiting or is a child that has fever and their digestive tract was affected by wounds or the known gastric ulcers.

.....is a group of medications considered as topical dosages form, because are applied on the skin, it's possible use it in a dermatologic propose, for example psoriasis(corticoids) or some mycosis (clotrimazole) there are also those that are applied for the pain(diclofenac).

..... is a group of medicines that are applied with a syringe, which is used when the doctor wants a fast effect, mainly when it is applied in the vein, since the medication will be quickly in the bloodstream, so it is possible to obtain an answer fast but if you make a mistake there are many chances that unwanted side effects appear. .... Are considered a way of medication in an aerosol dispenser, usually are used in respiratory disease like asthma or chronic obstructive

pulmonary disease, and generally produce an effect directly in the respiratory tract (bronchi and lungs).



Brand name drug	<b>suppository</b>
Side effects	glass or plastic
Generic drug	
Package insert	<b>SOFT CAPSULES</b>

Fill the blanks with the words found in the box above.

1. It's a piece of paper that **gives information** to the patient about medication (dose, prescriptions, side effects & others) \_\_\_\_\_.
2. Undesirable effects that appear after to take a medication\_\_\_\_\_.
3. Materials of the syrup bottles\_\_\_\_\_.
4. It's the first name that has the drug when is devised.
5. \_\_\_\_\_ is the name that receives.
6. It has been designed with the same components of brand name \_\_\_\_\_.
7. They are made of gelatin and glycerin which give the classic texture\_\_\_\_\_.
8. In the majority of time is applied through the rectum\_\_\_\_\_.

### **Heroines who don't fly.**

It is true that Adriana, Sarita and Teresa met at University, and weekly they are keeping in touch permanently, also is a reality they work in multiple areas in the hospital.

While Adriana works at Emergency Room (EM), Sarita works at Pediatric Unit (PU), and Teresa works at Intensive Care Unit (ICU).

As you will have realized, they are three hard jobs, and each of them have their features, for example, Adriana gets up, so early and cooks for her family, then, gets ready and goes to hospital, where immediately, is informed about the patients in EM. For example, in this moment there are an unbalanced patient, four patients with several fractures, and a breathing failure patient. In the first case, is a diabetic patient, who ate a whole cake, for this reason the blood glucose increase to 300 mg/Dl, this situation generated a critical situation called hyperglycemia, where the cells can't get glucose for obtaining energy, due to this carbohydrate can't enter to cytoplasm. So, apart from apply insulin intravenous injection, Adriana applies gentamycin to the patient because he has a urinary tract infection. Suddenly one of the fractured patient started to complain of pain. At once Adriana, has approached him, and she realized that he has a hemorrhage, all of a sudden she applies digital compression for stopping the bleeding, and next she applies blood-thinning medications, while she lets the doctor know about it. With respect to the respiratory failure patient, she keeps track of her breathing, happily he is getting better.

In another place, Sarita is concerned by a hospitalized little child, who ingested a little of bleach, she arrived yesterday at night, her mother took her to the hospital, and today she is complaining of pain due to her throat is swelling, so; Sarita applies analgesics, and waits she gets better. Furthermore, Sarita assists to a little baby who was abandoned in the street, she feeds milk to him, and communicates to the head nurse about this event. Later she coordinates with her colleagues about the vaccination campaign in the district, and they have to go out and vaccinate children under the age of 5 years against measles.

Finally, Teresa is a critical care nurse, she works 14 hours daily, her family asked her to leave this so hard job, but she loves she does, so she has decided to spend more time with her family. In this way, she has achieved what she loves: to help patients in a critical health situation. Today, for example, Teresa is watching out for four elderly people who suffer from pulmonary fibrosis, she has to keep track of their breathing, because they use all the time a ventilator support, so there are parameters for looking several times a day for example the oxygen and carbon dioxide concentrations, and she suctions the secretions of the tube for cleaning it. Yesterday, two patients were discharged from ICU, because they got better, but a young girl passed away due to she had a bacterial septicemia.

In Piura city, there are more less 2500 nurses, working in different public and private hospitals, caring for thousands of patients, by grown-ups and children, helping physicians in operating room, or vaccinating old people for preventing pneumonia, or taking note of the urinating volume and side effects of some medication, or taken blood pressure, they always will be like angels.



Let's help our angels matching the next devices & its uses:

1. **Mosquito forceps**  
of

It's a vinyl bag used for storing

**Whole Blood** or its components.

2. **Blood bag**

it's a device that serves for cutting.

3. **Thermometer**  
in

it's a stainless steel, usually used

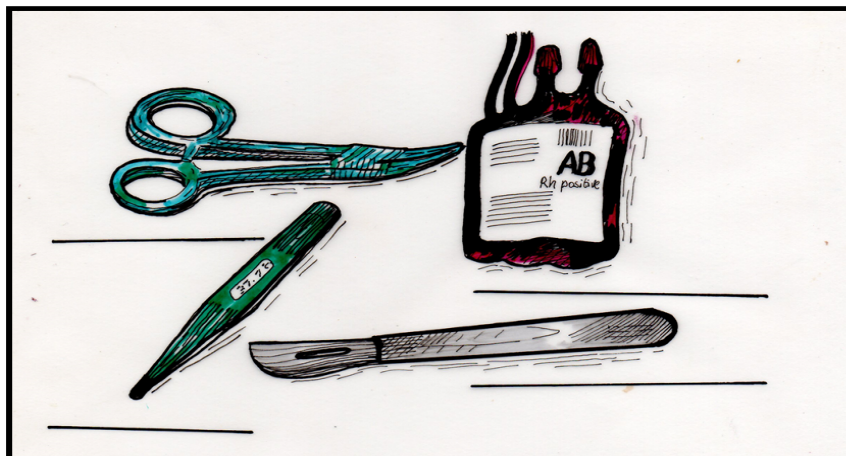
**Controlling hemorrhage.**

4. **Scalpel handle**

It's very used device in taking the

**Temperature.**

Put the correct names:



**There are so many devices used daily in a hospital, and are sterile.  
I suggest you that go to the doctor!**

The last Thursday, Julio Panta has gone to the doctor, because his skin has been changing of color and some raised and silver spots in his neck have worried him, and another hand, a several pain in his knee reminded him the arthritis that his father had. The **diagnosis** that doctor made was: **Psoriasis**.

Type of doctor authorized for give diagnosis of skin problems: \_\_\_\_\_

Possible therapy \_\_\_\_\_

Suggestions and advices that you would give him \_\_\_\_\_

Yesterday for the morning, **Justiniana Mogollón** has had a medical appointment, because her constant pain when she pees makes her feels so discomfort, the doctor has told her it seems that cystitis is the main cause of her pain, for this reason he suggested her to take some medication, and drink enough amount of water.

Type of doctor authorized for give diagnosis of renal problems: \_\_\_\_\_

Possible therapy \_\_\_\_\_

Suggestions and advices that you would give her \_\_\_\_\_

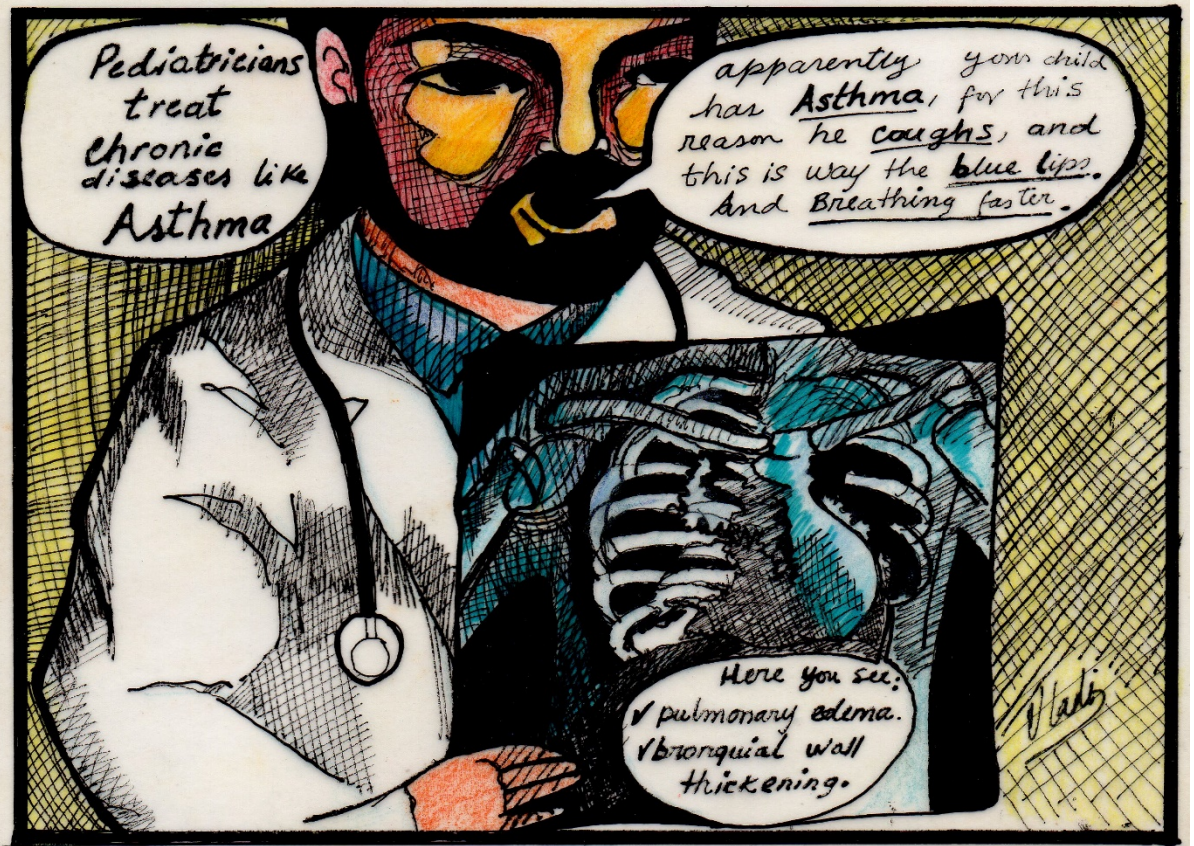
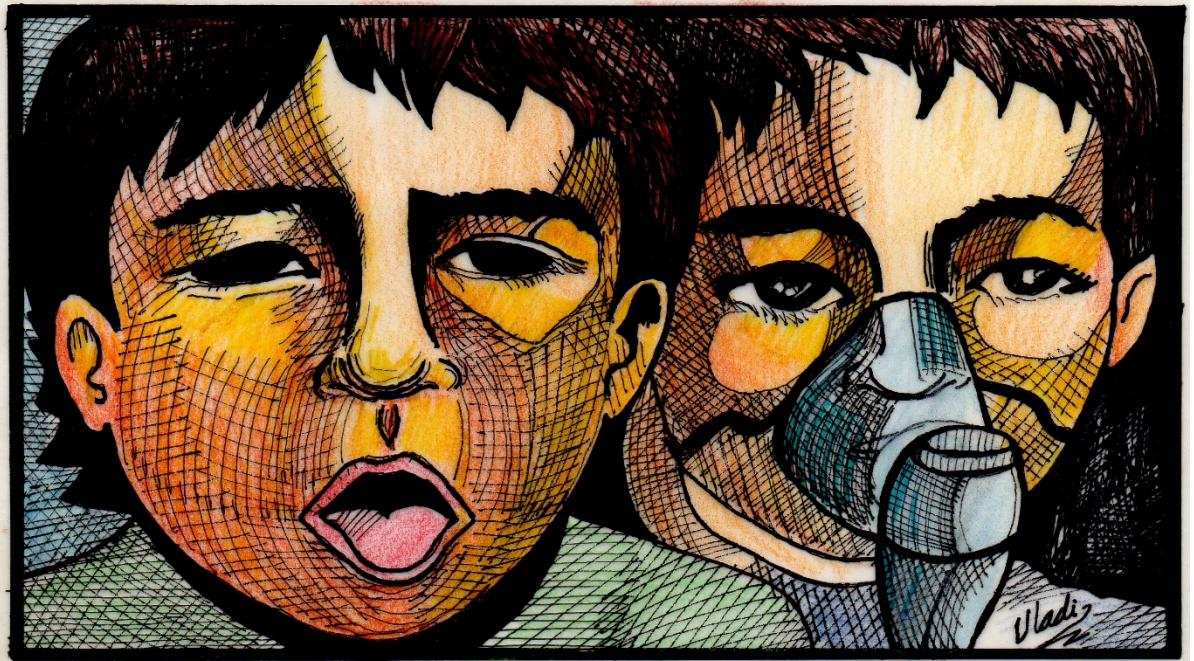
Maybe, **Patricio Huamán** has never though the today will be hospitalized by emergency, and the doctor suggested an appendectomy. He was playing soccer next to his friends, around his house, and suddenly started a terrible pain in the lower right of his abdomen; he was scared because, while his friends were taking him to hospital, the pain was increasing until lost the consciousness.

Type of doctor authorized for operate to Patricio: \_\_\_\_\_

Name of surgery that Patricio was underwent \_\_\_\_\_

Suggestion and advices for people whose have appendicitis \_\_\_\_\_

All night long, Maria's baby was crying thought she passed him an egg (it's part of believes in Peru), the baby didn't stop to cry. A neighbor told her that baby was burning, and it was notorious that baby has been bad, so, they took him to Hospital Cayetano Heredia, where, the baby got emergency room for a rapid treatment, consisting in a cold water bath, because he could convulse.

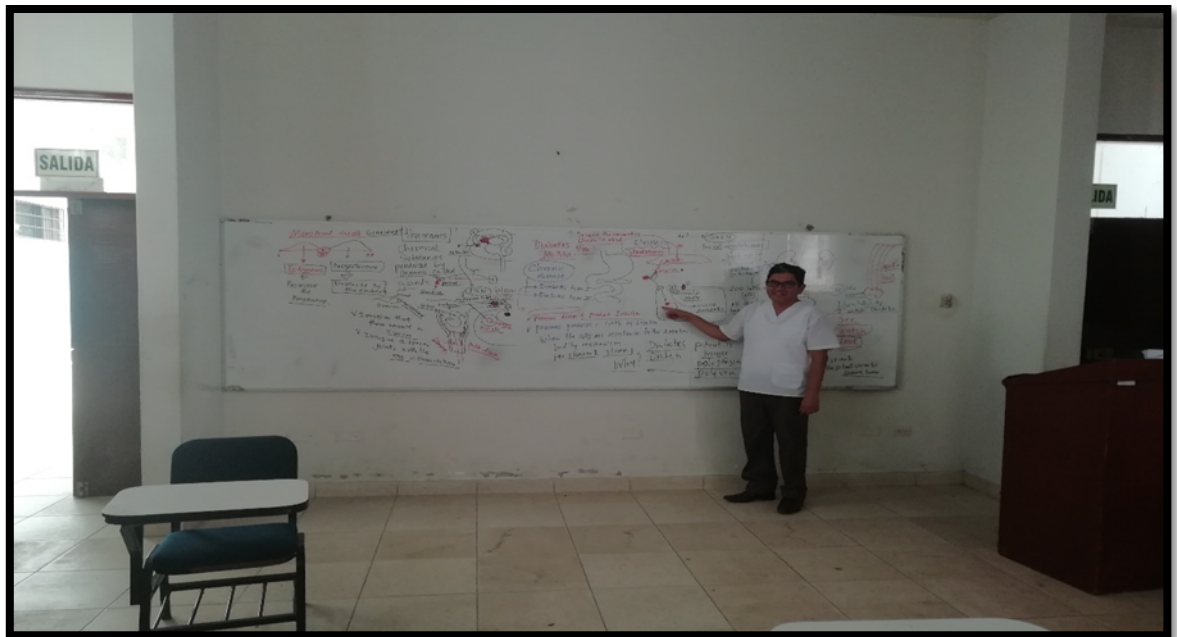


## How to use Cayetano Comic

In my experience, I can assure the comics are great options for learning- teaching process. When I used those, I also used the **PPP method**, which is divided in three moments:

**Presentation** is the first stage. This period of time lasts approximately 30 to 40 minutes, and is the part where the professor explains everything about the main topic. A personal suggestion is to have certain command of drawing in the board, and to know about the parts of the different structures (anatomy). In this part you as a professor, to seize the moment for talking about how they work, and what happen when they don´t work correctly (pathologies).

In the next classes, the professor can ask about previous knowledges, looking for associating them with the new insights.



In this photo I´m explaining about the anatomic structures, further on, I was practicing the pronunciation of these structures, and describing briefly, how they work, and what happen during a disease. Many times, also, it was discussed both symptoms and treatment of the aforementioned health problem. According the experts, this part is the piece of time where the professor speak more, but it´s necessary to add that if one student asks questions, the professor should answer immediately.

In another side, my suggestion is to master the topic, for example if you have to explain the Skeleton, obviously you know what are the bones of the cranium, or the thoracic bones, and those of the upper and lower limbs.

The second moment is the **Practice**, where the students participate more, resolving study cases, or completing the gaps of the structure drawn in the board. In my point of view is the best moment for clarifying doubts, without forget to correct grammatical errors. This period of time can last more less 40 minutes and is the moment where the student participate more.



How we can see in these photos, the students were completing the gaps, and describing 3D models by themselves, through the Realia, which today is an option for learning using real models, like when the students use a real skeleton for mentioning bone by bone.

The third and last part of this model of Teaching is the **Production**, where the students are able of create a story, completing the empty bubbles in a picture story.



In these photos we can see the students working in group of four. The main task was create a story, using the comics with the empty bubbles, all of them were designed from the corresponding topic.

All the comics were created by the author graphic stories, all of them were based in so common real context (regional health problems), and the students had to fill the bubbles creating a story, which was acting through **Role-playing**.

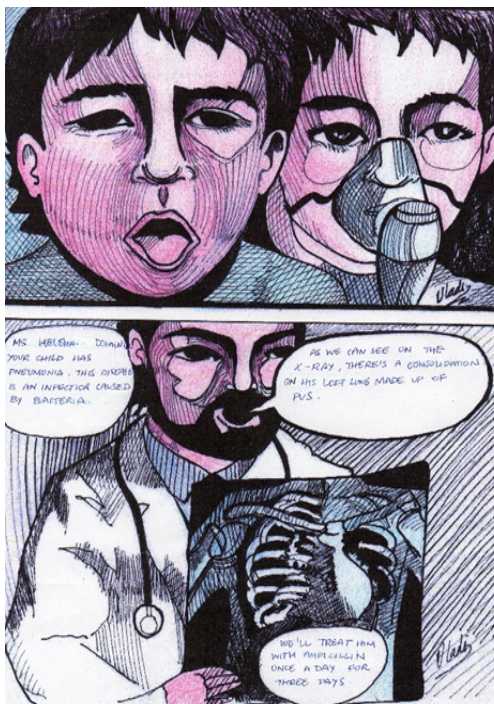
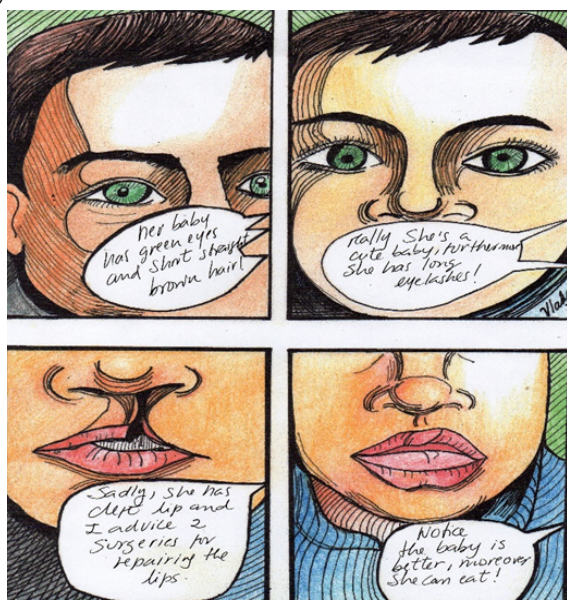
The role-playing is a strategy for learning mainly oral skills, where one students will be the doctor and the other will be the patient, the rest of students could be the patient's relatives or maybe his or her friends. The main challenge is to explain the doctor what happen with the patient, what were the clinical conditions showed by the patient, after that the doctor has to diagnose, and prescribe medications if it is necessary.



In this photo the medicine students participating in Role- playing.

Both the created story and the role-playing have to evaluate through rubrics (oral and writing rubrics). In this rubrics the professor could assess indicators like: Convention, Sentence fluency, Organization and Content. In another side for oral skills could be assessed indicators like: Pronunciation, Grammatical structure, Time and finally Comprehension.

Comics filled by the students.



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