

ANGLAIS

APRIL 2007

1. Unseen reading comprehension : /30

Read the article, *A dog's Life, April 12th 2007* and choose the answer that **best** completes each sentence according to the information given in the text.

There is only **ONE** answer for each question.

1. According to the article, scientists ...
 - a) are not sure whether eating less extends lifespan.
 - b) generally believe that lifespan is constant in worms and mammals.
 - c) are not sure how eating less affects lifespan.
 - d) All of the above.
2. A current theory of aging suggests that...
 - a) a slow metabolic rate might reduce the effect of free radicals.
 - b) glucose and insulin are linked in premature aging.
 - c) a high metabolic rate will slow the process of aging.
 - d) free radicals can be controlled by eating less.
3. Nicholson and his team were able to ...
 - a) compare metabolic rates of dogs and humans.
 - b) compare the amount of food consumed and metabolic rate.
 - c) identify the role of free radicals in the aging process.
 - d) show a link between metabolic rate and eating less in dogs.
4. In the Purina experiment...
 - a) one dog ate systematically 25% less than its experimental partner.
 - b) each dog ate 25% less for 3 years then 25% more for the next 3 years.
 - c) each dog had a period where it ate less than the recommended dose of calories.
 - d) one dog always ate fewer calories than the healthy recommended dose.
5. The experiment tended to show that...
 - a) a restricted calorie diet did not harm either of the dogs.
 - b) the controlled diet extended the lifespan of all the dogs.
 - c) the restricted calorie dogs lived longer than their partner dogs.
 - d) All of the above.
6. Nicholson was interested in this experiment because the researchers ...
 - a) showed similar results to those found in worms and other mammals.
 - b) regularly took and kept urine samples.
 - c) followed the experiment over a six-year period.
 - d) monitored the metabolism of the dogs very carefully.
7. Creatine levels...
 - a) evolved as the dogs grew older.
 - b) were lower in the calorie restricted dogs.
 - c) indicate the level of energy supplied to muscles.
 - d) All of the above.

8. The creatine in the urine suggested that...
- a) the muscles of the calorie restricted dogs were weaker.
 - b) the calorie restricted dogs used more muscle energy.
 - c) the metabolism of the calorie restricted dogs was reduced.
 - d) All of the above.
9. The aliphatic amines...
- a) make urine smell.
 - b) arise from the interaction between bacteria and choline.
 - c) are an important indicator of choline absorption.
 - d) All of the above.
10. Nicholson was interested in choline because ...
- a) it is present in all dog food.
 - b) It is needed to process specific foods.
 - c) dogs cannot make their own choline.
 - d) it contains many calories.
11. Dogs obtain choline when...
- a) bacteria in the gut that use choline break it down.
 - b) aliphatic amines are liberated in the gut.
 - c) creatine levels are high.
 - d) they eat high quantities of protein.
12. In the experiment, dogs on the restricted diet seemed to...
- a) absorb less choline and thus metabolize more fat.
 - b) produce less choline and thus metabolize more fat.
 - c) absorb less choline and thus metabolize less fat.
 - d) produce less choline and thus metabolize less fat.
13. The results indicate that...
- a) a restricted calorie diet affects only fat metabolism.
 - b) metabolic level can be depressed by choline.
 - c) gut bacteria play a role in metabolic regulation.
 - d) gut bacteria may extend the lifespan of dogs.
14. Gordon's research shows a similar correlation between ...
- a) aging and gut bacteria.
 - b) fat metabolism and gut bacteria.
 - c) carbohydrate metabolism, bacteria and longevity.
 - d) Metabolism and gut flora.
15. In general, the aim of this article is to....
- a) promote calorie restriction as a means to prolong life.
 - b) refute the link between calories consumed and aging.
 - c) present new research into the role of gut bacteria.
 - d) present interesting experimental results on calorie restriction.

Diet and ageing A dog's life

Gut bacteria may help to explain why a Spartan diet increases lifespan

IT IS now generally accepted that eating less makes animals live longer. That has been demonstrated in creatures ranging from worms to mammals. Exactly why it should be so remains, however, hotly debated. So Jeremy Nicholson of Imperial College, London, and his colleagues set out to shed some light on the matter. Their results have just been published in the *Journal of Proteome Research*.

One theory of ageing suggests senescence is a result of damage caused to body cells by reactive molecules called free radicals. These molecules are created as a side effect of the release of energy from glucose. If that were true, a lower metabolic rate might slow the process down. The question is: does eating less result in a lower metabolic rate? The answer that Dr Nicholson and his colleagues have come up with is that it does—in dogs, at any rate.

They have come to that conclusion by drawing on data from a 15-year experiment conducted by Purina, an American dog-food company. This experiment involved taking 48 Labrador pups from seven litters just after they were weaned. The dogs were put in pairs, with partners chosen to be siblings of the same sex and similar weaning weight. One pup was allowed to eat as much as it wanted, while its partner received 25% less than the amount the first pup had consumed on the previous day. After three years, the regime was changed so that the first dog of each pair was fed the diet deemed necessary to keep it at a healthy weight while its partner received 25% less than that. The experiment concluded that, on average, the dogs fed less food lived almost two years longer than those fed more—adding dogs to the list of animals that benefit this way.

What enabled Dr Nicholson to build on this result was that Purina's researchers had collected and frozen samples of their dogs' urine at periodic intervals. He and his colleagues were able to use this liquid gold to track the metabolism of each animal throughout its life.

They were particularly interested in two sorts of molecules. The first were derivatives of creatine, a substance that helps to supply energy to muscles. As the dogs grew, the levels of creatine derivatives in their urine increased. Later, as they became elderly, those levels fell. No surprise there. But throughout their lives, the dogs that were fed well had more creatine derivatives in their urine than their calorie-deprived counterparts. This, the researchers suggest, shows that the dieting dogs' muscles were less active and that those animals had thus used less energy than their well-fed confrères. Their overall metabolism, in other words, had been depressed.

Why that might be was hinted at by a second sort of molecule—a group of compounds called aliphatic amines. These chemicals (which, incidentally, give urine its aroma) are made when bacteria munch on a chemical called choline that is part of an animal's food. The reason for Dr Nicholson's interest was that choline is essential for metabolising fat, but dogs cannot synthesise it themselves. Aliphatic amines gave him some indication of how much choline the dogs were able to absorb.

Choline is made available for absorption from the intestine by the activities of the gut bacteria that are liberating it for their own purposes. The amount of aliphatic amines in urine is thus an indirect measure of how much choline is available. As in the case of creatine, this differed between the two groups. Dogs on the restricted diet had lower levels of the amines in their urine than did their well-fed counterparts—implying that less choline was being made available. And if less choline were available, that would limit a dog's ability to metabolise fats, and thus restrict its metabolic rate.

The apparent drop in choline levels was much greater than could be accounted for by a relative lack of food, so Dr Nicholson suspects that the restricted diet was also causing the composition of the dogs' gut flora to change in a way that did not favour choline-munching bugs.

That result, if true, echoes one published a few months ago by Jeffrey Gordon of Washington University, in St Louis. He showed that putting obese people on a diet changes the mix of their gut bacteria. In that case the consequence is a change in the metabolism of carbohydrates rather than fats. Nor was there a direct link with longevity of the sort implicit in Dr Nicholson's work. Nevertheless, the parallel is intriguing—and yet another incentive to cut down on the calories.

See <http://www.nature.com/news/010101>

2. Gap Fill (/15). Choose the appropriate word from the list for each blank. A word may not be used twice. There are extra words in the list. Write your choice in the space provided.

for	leading	toxic	action	which	heart	bacterial	that
tested	first aid	kidneys	preventing	produced	releasing		
conducted	based	painful	against	available	viral		

Sulfonamide drugs : A short history

Sulfonamide drugs (known widely as "sulfa drugs") were the first antimicrobial drugs, and paved the way for the antibiotic revolution in medicine. The first sulfonamide was trade named Prontosil, 1 is a prodrug. Experiments with Prontosil began in 1932 in the laboratories of the Bayer Corporation, at that time a component of the huge German chemical trust IG Farben. The dye-2 drug was synthesized by Bayer chemist Josef Klarer and 3 in animals under the direction of physician/researcher Gerhard Domagk.

Prontosil was the first medicine ever discovered that could effectively treat a range of 4 infections inside the body. It had a strong protective action 5 infections caused by streptococci, including blood infections, childbed fever, and erysipelas, and a lesser effect on infections caused by other cocci. Perplexingly, it had no effect at all in the test tube, exerting its antibacterial 6 only in live animals. Later it was discovered by a French research team at the Pasteur Institute that the drug was metabolized into two pieces inside the body. 7 from the inactive dye portion a smaller, colorless, active compound called sulfanilamide. The discovery helped establish the concept of "bioactivation" and dashed the German corporation's dreams of enormous profit: the active molecule sulfanilamide (or sulfa) had first been synthesized in 1906 and was widely used in the dye-making industry; its patent had since expired and the drug was 8 to anyone.

The result was a sulfa craze. For several years in the late 1930s hundreds of manufacturers 9 tens of thousands of tons of myriad forms of sulfa. Unfortunately one of them, a preparation called Elixir Sulfanilamide, was made with a 10 solvent, diethylene glycol. The Elixir killed more than one hundred people, mostly children, in the U.S., and led to the passage of the 1938 Food, Drug, and Cosmetic Act. As the first and only effective antibiotic available in the years before penicillin, sulfa drugs continued to thrive through the early years of World War II; they are credited with saving the lives of tens of thousands of patients including Franklin Delano Roosevelt, Jr. (in 1936) and Winston Churchill. Sulfa had a central role in 11 wound infections during the war. American soldiers were issued a 12 kit containing sulfa powder and were told to sprinkle it on any open wound. During the years 1942 to 1943, Nazi doctors 13 sulfanilamide experiments on prisoners in concentration camps.

The sulfanilamide compound is more active in the protonated form, which in case of the acid works better in a basic environment. The solubility of the drug is very low and sometimes can crystallize in the 14, due to its first pKa of around 10. This is a very 15 experience so patients are told to take the medication with copious amounts of water. Newer compounds have a pKa of around 5-6 so the problem is avoided.

1.	4.	7.	10.	13.
2.	5.	8.	11.	14.
3.	6.	9.	12.	15.

3. **Vocabulary from class work.** Complete each blank with an appropriate word or expression from documents studied in class. (/15).

The first letter of each word or expression has been given to help you.

ALLERGIES

When the airways come into contact with an asthma t_____, the tissue inside the b_____ becomes inflamed. At the same time, the muscles on the outside of the airways tighten up, causing them to narrow. A thick fluid (m_____) enters the airways, which become s_____.

Substances that cause allergy symptoms are known as a_____.

Asthma medications are divided into two types—quick-r_____ and l_____ - t_____ control.

LOUIS PASTEUR/ VACCINES

Louis Pasteur conducted a series of carefully controlled e_____ to disprove the doctrine of spontaneous generation.

In the Pasteurisation process a liquid is h_____ to a temperature of between 62.8°C and 65.5°C for 30 minutes.

In most cases, vaccines cause no s_____ - e_____.

Three terms are used to describe the seriousness of a reaction to a vaccine: m_____, m_____, & s_____.

A child's i_____ - s_____ responds very well to multiple vaccinations.

This pill will make you smarter

14 May 2005

HAVING problems performing in the sack? Take Viagra. Got the jitters before that important presentation? Try beta blockers. Need to stay awake to finish that assignment? Pop a Provigil pill.

For those prepared to pay, the growing list of "lifestyle drugs" is shifting the boundaries of what bodies and minds are capable of. Now a small clinical trial of the class of experimental drugs known as ampakines suggests these brain-boosters are destined to blur that line still further by offering improved memory.

The success of the unrelated drug Provigil (also called modafinil) has proved there is a huge market for drugs that can improve mental performance. The US Food and Drug Administration has approved it for treating narcolepsy, sleep apnoea - disrupted breathing during sleep - and the sleepiness caused by shift work. But it is widely taken "off-label" by healthy people to stay awake and alert. Sales of the drug, produced by Cephalon of West Chester, Philadelphia, have more than doubled since 2002, and continue to skyrocket (see Graphic).

Some may feel uncomfortable with the increasing availability of such pharmaceutical pick-me-ups, but others see them as no different from performance aids such as palmtop organisers. "Stimulating your brain with a reminder on a Blackberry doesn't seem that different to me from stimulating your brain with a drug," says Arthur Caplan, a bioethicist at the University of Pennsylvania in Philadelphia.

Ampakines work by boosting the activity of glutamate, a key neurotransmitter that makes it easier to learn and encode memory. They change the rules about what it takes to create a memory, and how strong those memories can be, says Gary Lynch of the University of California at Irvine, who invented the drugs. "We all have the same computer," he says, "but we're running with different voltage levels." Ampakines up that "voltage".

The effects can be dramatic, as Julia Boyle at the University of Surrey, UK, and her colleagues have now shown. They tested an ampakine called CX717 on 16 healthy males aged between 18 and 45. The men were given either 100 milligrams, 300 mg or 1000 mg of the drug, or else a placebo. In repeated trials the volunteers cycled through the treatments so that their performance with different amounts of CX717 could be compared directly.

In each test session, the volunteers started with a full night's sleep and the following morning and evening were given a battery of tests. These assessed memory, attention, alertness, reaction time and problem solving. Then, at 11 pm, the volunteers swallowed their pills and stayed up through the night. At midnight, 1 am, 3 am, 5 am and 9 am, they were re-tested on some of the tasks. And at 4 am, cruelly, they were tucked into bed in a darkened room and told to stay awake. The researchers measured heart rate and brainwave activity to monitor how alert the subjects were and whether they fell asleep.

Even the lowest dose of CX717 significantly improved the sleep-deprived volunteers' wakefulness and cognitive performance. And the more ampakine they took, the more they improved and the longer the effect lasted. Roger Stoll, CEO of Cortex, the Irvine-based

company in California that owns the drug, announced the trial results at an investors' conference on 4 May. While specifics were scant, he mentioned that in the dark room, for instance, most volunteers taking placebo dozed off within about 3 minutes, while some ampakine users stayed awake for the entire 15-minute test. And on a test of sustained attention, effects kicked in within an hour of consuming the drug, he revealed. Crucially, the subjects suffered none of the jitteriness that comes with caffeine or amphetamines. "It generates a state of cortical wakefulness without stimulation," says Lynch.

CX717 will have to undergo further clinical trials before gaining approval as a drug. Cortex is considering it as a possible treatment for narcolepsy, jet lag, attention deficit hyperactivity disorder, and Alzheimer's disease.

Meanwhile animal studies hint at even more impressive effects. Research on rhesus macaques, carried out for the US military by Sam Deadwyler at Wake Forest University School of Medicine in Winston-Salem, North Carolina, found that sleep-deprived monkeys on CX717 actually performed better on reaction time and accuracy tests than when they were well rested. And non-sleep-deprived monkeys given the drug did better still.

NewScientist.com news service, Alison Motluk

Pharma3 retake reading comprehension:

Read the article, *This pill will make you smarter*. Are the following statements true (T) or false (F)? Or is there no information (NI) on the subject in the article?

1. "Lifestyle drugs" are drugs which can improve normal human performance. T / F / NI
2. Ampakines are drugs used to increase levels of vigilance. T / F / NI
3. Provigil is a recommended treatment for some sleep disorders. T / F / NI
4. Drug companies have been banned from marketing Provigil as a lifestyle drug. T / F / NI
5. Arthur Caplan suggests that pharmaceutical aids to memory can be compared to using a hand-held computer. T / F / NI
6. Glutamate is the key ingredient in ampakines. T / F / NI
7. The Surrey University trial tested the effects of different doses of ampakines on male performance. T / F / NI
8. The volunteers received the medication in the morning and then followed a series of tests over the next 24 hours. T / F / NI
9. All subjects were allowed to sleep at the end of the experiment. T / F / NI
10. Cortex have published extensive details of the results of this trial. T / F / NI
11. All of the subjects in the trial who took the drug had increased levels of vigilance. T / F / NI
12. The subjects did not suffer from the adverse side-effects associated with other drugs that improve vigilance. T / F / NI
13. CX717 will soon receive FDA approval. T / F / NI
14. Studies on monkeys show that CX717 had no adverse side-effects. T / F / NI
15. The US military are financing the research with the aim of helping jet pilots stay awake. T / F / NI

2. **Gap fill.** Choose the appropriate word from the list below to complete the blanks in the text. Write your answers in the space provided.

but	suffered	levels	may	such	so	
will	like	trigger	gaining	swell	known	
	carrier's	finding	carry out	illness	parasite's	related

Malaria linked to child cancer in Africa

A protein produced by the malaria parasite can (1) an aggressive and torturous form of cancer called Burkitt's lymphoma, according to new research.

Although Burkitt's lymphoma rarely strikes in rich countries (2) as the US, the disease accounts for the vast majority of malignancies (3) by children in equatorial Africa, outnumbering all other forms of tumours combined in many parts of the region. The illness causes horrendous suffering. Immune cells turn cancerous and tumours develop in the lymph nodes, often making the tongue (4) and cheeks bulge. One doctor described a youngster with the (5) as resembling "a gargoyle not a child". The deformities make it increasingly difficult for patients to eat. Burkitt's lymphoma proves fatal in parts of sub-Saharan Africa where access to necessary medication remains limited.

Scientists believe that Epstein-Barr virus (EBV), which commonly causes mononucleosis – also (6) as glandular fever or "the kissing disease" – can cause this type of lymphoma. (7) the virus typically remains dormant, and thus relatively harmless, in the body after inserting itself into the (8) DNA.

Arnaud Chêne at the Karolinska Institute in Stockholm, Sweden, and colleagues investigated a theory that a protein produced by the malaria parasite – called CIDR1 – (9) reactivate EBV. In a laboratory dish, Chêne's team exposed the immune cells of healthy African children, who tested positive for the Epstein-Barr virus, to CIDR1. In a separate laboratory dish they exposed the same cells to another parasite- (10) protein for comparison. Within the span of three days the (11) of EBV in the CIDR1-exposed cells was five times that in the control dish. Moreover, there were twice as many immune cells in the dish containing CIDR1.

This suggests that CIDR1 can reactivate the Epstein Barr virus, which in turn creates a massive overproduction of immune cells leading to lymphoma, the researchers say. The (12) also hints at why adults in equatorial Africa do not develop Burkitt's lymphoma anywhere near as frequently as children there. "If you get malaria first [before the Epstein-Barr virus], then you acquire some immunity to malaria after that. (13) if you are exposed again the parasite cannot stimulate the overproduction of cells" that leads to lymphoma, suggests Qijun Chen, who helped (14) the study.

Burkitt's lymphoma can be treated with chemotherapy and antibody therapy. But many patients and their families face great difficulties in (15) access to appropriate care "since 99% of children with the tumour live in rural settings, often miles away from roads." paediatrician John Phillips explained in an essay published in late 2006 (Lancet, vol 368, p 2251). Chen says that one way to reduce the number of cases of Burkitt's lymphoma might be to intensify efforts to curb the malaria epidemic.

Newscientist 08 June 2007

1.	4.	7.	10.	13.
2.	5.	8.	11.	14.
3.	6.	9.	12.	15.

Nom

Prénom

N° table

PHARMACIE 3ème ANNEE

EXAMEN

ANGLAIS SCIENTIFIQUE

19 avril 2012

Durée : 1 heure

2 sections :

- 1) Compréhension écrite**
- 2) Texte à trou**

6 pages

Aucun dictionnaire, même unilingue, n'est autorisé

Biobank promises to pinpoint the cause of disease

NewsScientist 30 March 2012 by **Andy Coghlan**

The UK Biobank is open for business. Medical, lifestyle and genetic information from 500,000 middle-aged British people is now available to medical researchers around the world to help in the hunt for the causes of and treatments for disease.

"It's the biggest, most detailed collection of data that's ever been put in place," says Rory Collins, UK Biobank's founder. Its impact on dissecting the causes of disease, he says, will be as profound as the invention of the telescope was to astronomy, or the microscope to microbiology.

"If you're born, you will get sick and die, and there's no escape from that," says Barbara Collins, a 57-year-old Londoner who is a UK Biobank volunteer. "But if there's anything I can do to make a difference in someone else's life, I'm more than happy to do that. I hope what I'm doing will speed up research to find treatments for cancer, diabetes, heart disease and dozens of other illnesses."

Collins is one of the half-million Britons aged between 40 and 69 who have donated their DNA, medical history and details of their lifestyle to the UK Biobank. The volunteers will be followed for the next 30 years, and by comparing those who remain healthy with those who develop illnesses, researchers hope to be able to isolate the causes of disease.

In particular, UK Biobank will help measure the extent to which diseases have genetic or environmental causes. "For years, people have asked about nature versus nurture but now, with the data we have, we can **tease out** the contributions of what you're born with versus the environment you grow up in," says Wendy Ewart of the UK Medical Research Council, one of several backers of the project.

Public interest

First, UK Biobank officially launched on 30 March. Researchers applying for access to the Biobank must show that their work is in the interests of public health, and that its results will be published in peer-reviewed journals. Proposals will be assessed by UK Biobank's board.

The National Institutes of Health in Washington DC are apparently keen to use the UK Biobank – a resource that they considered too expensive and unwieldy to set up in the US, despite initial plans to do so.

"Francis Collins, the director of the NIH, would love to do what we've done, but came to the conclusion it would be too expensive, costing about \$2 billion," says Rory Collins. "They can't afford it, and they don't have anything like the National Health Service which **tracks** everyone's medical records and details."

China has a similar database, called the China Kadoorie Biobank, which also contains the health details of 500,000 volunteers, but Rory Collins says that the UK version has more information on each volunteer. The two

are complementary, and could be the focus for **joint studies**, he says.

The Chinese project hints at the kind of results the UK Biobank might turn up. It has found, for example, that thinner men are more at risk of developing chronic obstructive pulmonary disease in China, and that major **risk factors for heart attacks** include diabetes and psychosocial stress.

Future growth

There are more than 1000 categories of information for each of the UK participants, ranging from whether they use cellphones and how often they see friends and relatives to the usual spectrum of physiological measurements, including **hand grip strength**, bone density, blood pressure, lung function, body fat profile, and even scores on standard tests of cognitive ability.

Plans are **afloat** to add more, including fMRI scans of a fifth of the participants. Many will also be given accelerometers to wear on their wrists for a week, allowing physical activity to be measured accurately. Other ideas include ultrasound scans, and X-rays of bones and joints.

Around 20,000 volunteers will be completely retested every two to three years, and updates on the health of all UK Biobank participants will be automatically fed in from family doctors, hospital records and death registries.

Rory Collins says that all data given to researchers will be coded, so that no individuals can be identified. There will be no feedback to participants about changes in their health status, a condition to which all volunteers consented to at the outset.

Some of the participants already have illnesses, including 26,000 with diabetes, 50,000 with joint disorders and 11,000 who have had at least one heart attack. By 2022, some 40,000 are expected to have diabetes, and 28,000 to have had heart attacks. But Barbara Collins is undaunted by the prospect of ill health to come: "Even if I can't benefit from the results personally, I know my children, my children's children and perfect strangers will."

I .Reading Comprehension.(20pts) Read the article entitled, *Biobank promises to pinpoint the cause of disease* (NewsScientist March 30, 2012). For each question choose **one** answer. Write your answers in the table provided.

- 1) The aim of Biobank is to :
 - a) Provide medical information to the NHS.
 - b) Provide information to scientists in order to better diagnose and treat diseases.
 - c) Improve the health of middle-aged British people.
 - d) Improve public health programs in the UK.

- 2) Biobank is:
 - a) The first databank aimed at medical research.
 - b) The first databank to collect data from thousands of volunteers.
 - c) The most complete and largest databank of its kind.
 - d) All of the above.

- 3) The volunteers of Biobank:
 - a) Have provided both biological and personal information.
 - b) Are mostly in their 50's.
 - c) Suffer from a disease associated with ageing.
 - d) Will receive medical assistance for the next 30 years.

- 4) The data provided by Biobank:
 - a) Will especially enable researchers to determine environmental causes of disease.
 - b) Will especially lead to advances in the genetic causes of disease.
 - c) Will enable researchers to better determine the environmental and genetic factors of diseases.
 - d) Will solve the mystery of nature vs. nurture.

- 5) In order to access the information in Biobank:
 - a) Researchers must show that their studies are not for profit.
 - b) Researchers must show that their findings will have scientific backing.
 - c) Researchers must first submit their proposals to a selection committee.
 - d) Both b & c.

- 6) The NIH in Washington DC:
 - a) Is interested in accessing the UK Biobank.
 - b) Thinks that a US biobank would be too costly to establish.
 - c) Could not set up a biobank without a national database of medical records.
 - d) All of the above.

- 7) The Chinese biobank:
- Has the same information in its database as the UK biobank.
 - Has a similar profile to the UK Biobank.
 - Has a similar profile to the UK Biobank but has less information on each volunteer.
 - Focuses on joint studies.
- 8) The Chinese Biobank has found that:
- Thinner men are more susceptible to chronic diseases.
 - That certain categories of the population are associated with specific diseases.
 - That most heart attacks are caused by diabetes.
 - That psychosocial stress is a major disease factor in China.
- 9) The volunteers:
- All contribute data to each category of information in the database.
 - Will all undergo fMRI scans.
 - Will all undergo tests to measure levels of physical activity.
 - All of the above.
- 10) Biobanks's follow-up protocol includes:
- periodically retesting a group of volunteers.
 - Bringing volunteers' health records up to date.
 - Providing health status reports to volunteers.
 - Both a & b.

Write your answers in the table below.

1.	3.	5.	7.	9.
2.	4.	6.	8.	10.

II. Vocabulary. Explain the meaning, give a synonym, or translate the following items. (10pts)

Tease out (§5)	
Tracks (§8)	
Joint studies (§9)	
Hand grip strength (§11)	
Afoot (§12)	

II. Gap fill. (20pts) Complete the text with words from the box. Not all the words are needed.

treat	would	trick	was	in	produce	expose
a	together	be	have	up	always	monitored
either	without	their	an	grant	wider	survival
remained	seem	or	less	just	type	from

Write your answers in the table below.

1.	5.	9.	13.	17.
2.	6.	10.	14.	18.
3.	7.	11.	15.	19.
4.	8.	12.	16.	20.

One Drug to Shrink All Tumors

by Sarah C. P. Williams on 26 March 2012

A single drug can shrink or cure human breast, ovary, colon, bladder, brain, liver, and prostate tumors that 1 been transplanted into mice, researchers have found. The treatment, an antibody that blocks a "do not eat" signal normally displayed on tumor cells, coaxes the immune system to destroy the cancer cells.

A decade ago, biologist Irving Weissman of the Stanford University School of Medicine in Palo Alto, California, discovered that leukemia cells 2 higher levels of a protein called CD47 than do healthy cells. CD47, he and other scientists found, is also displayed on healthy blood cells; it's a marker that blocks the immune system 3 destroying them as they circulate. Cancers take advantage of this flag to 4 the immune system into ignoring them. In the past few years, Weissman's lab showed that blocking CD47 with an antibody cured some cases of lymphomas and leukemias in mice by stimulating the immune system to recognize the cancer cells as invaders. Now, he and colleagues have shown that the CD47-blocking antibody may have a far 5 impact than just blood cancers.

"What we've shown is that CD47 isn't 6 important on leukemias and lymphomas," says Weissman. "It's on every single human primary tumor that we tested." Moreover, Weissman's lab found that cancer cells always had higher levels of CD47 than did healthy cells. How much CD47 a tumor made could predict the 7 odds of a patient.

To determine whether blocking CD47 was beneficial, the scientists exposed tumor cells to macrophages, a 8 of immune cell, and anti-CD47 molecules in petri dishes. 9 the drug, the macrophages ignored the cancerous cells. But when the CD47 was present, the macrophages engulfed and destroyed cancer cells from all tumor types.

Next, the team transplanted human tumors into the feet of mice, where tumors can be easily 10 . When they treated the rodents with anti-CD47, the tumors shrank and did not spread to the rest of the body. In mice given human bladder cancer tumors, for example, 10 of 10 untreated mice had cancer that spread to 11 lymph nodes. Only one of 10 mice treated with anti-CD47 had a lymph node with signs of cancer. Moreover, the implanted tumor often got smaller after treatment -- colon cancers transplanted into the mice shrank to 12 than one-third of their original size, on average. And in five mice with breast cancer tumors, anti-CD47 eliminated all signs of the cancer cells, and the animals 13 cancer-free 4 months after the treatment stopped.

"We showed that even after the tumor has taken hold, the antibody can 14 cure the tumor or slow its growth and prevent metastasis," says Weissman.

Although macrophages also attacked blood cells expressing CD47 when mice were given the antibody, the researchers found that the decrease in blood cells was short-lived; the animals turned 15 production of new blood cells to replace those they lost from the treatment, the team reports online today in the *Proceedings of the National Academy of Sciences*.

Cancer researcher Tyler Jacks of the Massachusetts Institute of Technology in Cambridge says that although the new study is promising, more research is needed to see whether the results hold true __16__ humans. "The microenvironment of a real tumor is quite a bit more complicated than the microenvironment of __17__ transplanted tumor," he notes, "and it's possible that a real tumor has additional immune suppressing effects."

Another important question, Jacks says, is how CD47 antibodies __18__ complement existing treatments. "In what ways might they work __19__ and in what ways might they be antagonistic?" Using anti-CD47 in addition to chemotherapy, for example, could be counterproductive if the stress from chemotherapy causes normal cells to produce more CD47 than usual.

Weissman's team has received a \$20 million __20__ from the California Institute for Regenerative Medicine to move the findings from mouse studies to human safety tests. "We have enough data already," says Weissman, "that I can say I'm confident that this will move to phase I human trials."

UE PL3.11
PHARMACIE 3^{ème} ANNEE
EXAMEN
ANGLAIS SCIENTIFIQUE

10 janvier 2017

Durée : 1 heure

40 QCM

3 sections :

- 1) Compréhension écrite**
- 2) Vocabulaire en contexte**
- 3) Vocabulaire des TDs**

8 pages

I. READING COMPREHENSION (15 pts). Read the article entitled "Do branded painkillers work better than cheaper generic ones?". Choose **one** answer for each question.

1. The aim of this article is to:
 - a. denounce the price of branded painkillers since they only work for particular types of pain.
 - b. denounce the price of branded painkillers since they only provide rapid relief.
 - c. compare the efficacy of branded painkillers with that of generics.
 - d. show that generic products are more effective than branded ones.
2. When you are in pain, choosing the right painkiller can be:
 - a. easy.
 - b. tempting.
 - c. confusing.
 - d. enormous.
3. Pharmaceutical companies that sell branded drugs:
 - a. conduct initial drug research and trials.
 - b. sell their products at a higher price.
 - c. set the patents for the drugs trialed.
 - d. all of the above.
4. Pharmaceutical companies can sell:
 - a. cheaper versions of branded products.
 - b. their generic products whenever they like.
 - c. their generic products only after the patents of branded versions of the drug have expired.
 - d. their generic products before the patents of branded versions of the drug have expired.
5. A set of experiments was carried out by scientists:
 - a. at the BBC2 series "Trust me I'm a Doctor".
 - b. at the Medicine and Healthcare Products regulatory authority.
 - c. at the pharmaceuticals lab of Neurofen.
 - d. at the University College London.
6. They compared:
 - a. five branded painkillers.
 - b. one generic painkiller against one branded one.
 - c. two branded painkillers against three generic equivalents.
 - d. a great number of branded painkillers against an equal number of generic drugs.
7. The first experiment compared:
 - a. the release speed of the drug into the bloodstream.
 - b. the effect of the drug on the people taking it.
 - c. the cost of the drugs in relation to the dosage of Ibuprofen.
 - d. the amount of ibuprofen contained in the products examined.
8. The first experiment revealed that:
 - a. branded drugs contain more ibuprofen than generic ones.
 - b. generic drugs contain more ibuprofen than branded ones.
 - c. the higher the price, the higher the ibuprofen amount is.
 - d. both drugs contained the recommended quantity of ibuprofen.
9. The dissolution test allows to determine:
 - a. the release speed of the drug into the blood stream.
 - b. the release speed of the drug into the tablets.
 - c. the amount of active ingredient released in the bloodstream.
 - d. the amount of solution needed for ibuprofen to become active.

10. To be sold on the British market, ibuprofen tablets need to:
- meet a price standard established by the British Pharmacopeia.
 - release 75% of the active ingredient in more than 45 minutes.
 - release the full amount of the active ingredient in less than 45 minutes.
 - release 75% of the active ingredient in less than 45 minutes.
11. The MHRA standards were met by:
- the branded drugs only.
 - both the generic and the branded products.
 - the most expensive drugs.
 - the generic drugs only.
12. If a drug starts its action 30 minutes after being administered, it _____ considered “fast acting”.
- is not
 - could be
 - is
 - should be
13. All Ibuprofen packaging:
- has to vary according to the type of pain it targets.
 - shouldn't vary because it targets any type of pain.
 - can vary depending on its cost.
 - never varies.
14. Nurofen's manufacturer was taken to court:
- for selling ibuprofen tablets that did not meet the required standards.
 - for selling products with the same packaging regardless of their active ingredient.
 - for failing to declare the active ingredient on their packaging.
 - for selling ibuprofen tablets with deceitful packaging.
15. For consumers in the UK:
- there is no way of knowing if cheaper painkillers are as effective as expensive ones.
 - It is unsafe to buy cheap painkillers.
 - It is safe to buy the least expensive version of the drug on offer.
 - It is advisable to buy the most expensive painkiller.

II.VOCABULARY (5 POINTS). Find the words underlined in bold in the text. Choose one answer for each question

16. “I **bypass** the branded ones” means:

- I buy all of them.
- I avoid them.
- I appreciate them.
- I examine them.

17. “**Overwhelming**” means:

- too much.
- too little.
- tiring.
- above.

18. A "Cut-off standard" is:

- a. a golden standard.
- b. the lowest possible value.
- c. a standard that decreases.
- d. a standard that has been reduced by half.

19. A drug's "onset of action" is:

- a. the end of its action.
- b. the efficiency of its action.
- c. its side effect.
- d. the beginning of its action.

20. "Dampening" means:

- a. alleviating.
- b. Increasing.
- c. stabilizing.
- d. depressing.

III. Vocabulary. Documents from class (20 pts). Choose one answer for each question.

21. Phage therapy is useful for local infections with poor blood _____.

- a) flow
- b) supply
- c) stream
- d) veins

22. The _____ of methicillin resistant staphylococcus aureus is very high in hospital settings.

- a) breeding
- b) multiplication
- c) spread
- d) release

23. Novolytics is developing a phage-impregnated wound _____.

- a) compress
- b) bandage
- c) stocking
- d) dressing

24. Certain epilepsy drugs with a risk of side effects do not have a black box _____.

- a) advertisement
- b) hazard
- c) danger
- d) warning

25. The anti-seizure drug Topiramate increases the risk of birth _____.

- a) defects
- b) defaults
- c) imperfections
- d) deficiencies

26. Epilepsy can start following a _____.
a) heart attack
b) vascular accident
c) stroke
d) viral illness
27. Don't _____ these tablets. Swallow them whole.
a) sniff
b) dissolve
c) take
d) chew
28. Ginseng can significantly alter a person's heart _____.
a) rate
b) rhythm
c) level
d) pace
29. Kava Kava was _____ from sale due to serious side effects.
a) retired
b) withdrawn
c) taken off
d) revoked
30. In angiogenesis, specific molecules are responsible for blood vessel _____.
a) evolution
b) progression
c) growth
d) division
31. Dr. Folkman and his colleagues used purification techniques to _____ proteins.
a) inhibit
b) liquefy
c) separate
d) stimulate
32. It is known that _____ can lead to inflammation, which is linked to heart disease and cancer.
a) significant glucose levels
b) high glucose levels
c) strong glucose levels
d) important glucose levels
33. Employees at a bank in Sydney are taking part in _____ in activity-based working.
a) a trial
b) a test
c) an experience
d) an experiment

34. Prolonged sitting can _____ to high blood pressure.
- a) result
 - b) cause
 - c) lead
 - d) trigger
35. Certain drugs can _____ the ability to drive.
- a) damage
 - b) impair
 - c) interfere
 - d) suppress
36. Acetomenophen is a pain _____.
- a) remover
 - b) soother
 - c) reliever
 - d) suppressor
37. Doctors made an initial _____.
- a) diagnoses
 - b) diagnose
 - c) diagnosis
 - d) diagnostic
38. When storing medication, it is important to _____
- a) Put it away from children
 - b) Keep it out from children
 - c) Store it out from children
 - d) Keep it away from children
39. Smoking reduces life _____ by a decade.
- a) expectancy
 - b) expectation
 - c) longevity
 - d) length
40. Half of all smokers die from a _____ illness.
- a) smoking-linked
 - b) smoking-related
 - c) smoking-caused
 - d) smoking-involved

Do branded painkillers work better than cheaper generic ones?

Expensively packaged tablets loudly promise rapid relief or claim to work for particular types of pain. But what's the scientific evidence that they're any better than their cut-price rivals?

The Guardian, Saleyha Ahsan, Monday 3 October 2016

Like most people, I am not good with pain. So when period pains are setting in, I reach for the painkillers. I **bypass** the branded ones stacked at eye level on supermarket shelves, in fancy packaging with multicoloured, eye-catching logos. Instead, I buy plain-looking packs of generic painkillers. To select the analgesic I want, I look for the active ingredients printed on the box, not the promises.

But it is no wonder that there is confusion. The range of over-the-counter medicines is huge and can be **overwhelming**, especially if you have a sore head and are feeling vulnerable. The product that shouts loudest, stating it will take away all your pain, is tempting.

There are legitimate reasons why brand-leader medicines cost more. The pharmaceutical companies that produce them will have conducted the initial multi-million-pound drug research and trials essential for product safety. The more modestly priced generic medications are made by companies creating cheaper versions once the patents set by brand-leaders have expired. So are the more expensive drugs more effective than their cheaper, generic versions?

The BBC2 series *Trust Me I'm a Doctor* turned to science to try to find out. Different types of painkillers, all containing ibuprofen, were selected, and scientists from the pharmaceuticals laboratory at University College London devised a series of experiments. The first compared two well-known branded ibuprofen-containing

products in the higher price category against three generic products. First, they looked at whether the products contained as much ibuprofen as was claimed on the box. In the UK, all licensed medications are tightly controlled by the Medicines and Healthcare Products Regulatory Authority (MHRA); reassuringly, each product contained ibuprofen at the right amount.

The second set of tests tried to find out how quickly the drug was released from the tablets – the dissolution test – simulating how quickly the ibuprofen gets into a form which can get into our bloodstream. The results were revealing. When the tablets were added to solution, most of the products across the range started to release their drug almost immediately. The British Pharmacopoeia guidelines say that in order to sell a product on the market, a minimum percentage of active ingredient has to be released within a particular time. For ibuprofen tablets, this means that 75% of the drug has to be in solution within 45 minutes. Different products release drugs at different rates, but they all need to meet that minimum **cut-off standard**.

Simon Gaisford, head of the pharmaceuticals department at UCL, explains: "If I'm a company and I want to develop a generic version of a product, I have to demonstrate to the MHRA that my product is bio-equivalent to the brand leader." That means a new generic product has to reach the bloodstream at the same time as the brand leader. In this case, all the products tested did,

regardless of price. The results did show variability in the release rates, but both the generic and branded products released the majority of the ibuprofen within 45 minutes. There was no significant difference between the different manufacturer's products.

It would seem, therefore, there is no advantage in paying for more expensive tablets containing the active painkilling drug you want to use – the cheaper ones are just as good.

But how many times have we heard products claiming to “kill pain fast”? Does paying more mean killing pain faster? These claims are also regulated by law in the UK. According to MHRA guidelines, in order to justify the claim of “fast-acting”, a drug has to have its onset of action taking place less than 30 minutes after oral administration. Two forms of “fast-acting” ibuprofen products – one branded and one generic – were tested, and more than 75% of both drugs were in solution within 20 minutes – as opposed to 45 minutes for the standard products. Yet again, while both acted more quickly than the “standard” versions, there's no advantage in paying more – the cheap, generic “express” products worked just as quickly as the expensive brands.

Another marketing ploy is to specify a particular pain. Some of the big-selling brands, such as Nurofen, package ibuprofen into different products targeted at various types of pain. It might suggest there's something different in each box. In a statement to the BBC, Nurofen's maker, Reckitt Benckiser, stated: “Pain-specific products provide easy navigation of pain relief and consumer research indicates that seven in 10 people say these packs help them decide which product is best for their needs.”

Ibuprofen doesn't target just one area of pain, however, but works by dampening pain no matter where it is in the body. That's true of *any* ibuprofen product, regardless of price. It's also true of any painkilling drug you can buy over the counter, such as paracetamol. In 2015, an Australian court found that Reckitt Benckiser had misled the public by marketing four Nurofen products that claimed to target specific types of pain – back pain, period pain and headaches – when, in fact, it was exactly the same medicine in each box. The company states that any Nurofen products that have the same active ingredient, pack-size, format and formulation have the same manufacturer's recommended retail price. This year, though, the Advertising Standards Authority took Nurofen to task over one of the brand's “pain specific” adverts.

But Nurofen isn't the only product marketing “pain-specific” ibuprofen. At the end of the day, the best guard against paying more is the knowledge that, under UK law, consumers are protected and can safely buy the cheapest versions on offer. If, however, you need to get on with your day free of pain, and you don't have the patience to wait, then you can pay more for the express version. But the generic fast-acting forms will do it just as effectively as the expensive brands in their fancy packaging.

UE PL 3.11
PHARMACIE 3^{EME} ANNEE
EXAMEN
ANGLAIS SCIENTIFIQUE

18 décembre 2017

Durée : 1 heure

2 sections, 35 QCM :

- 1) Compréhension écrite (15 QCM +10 QCM)
- 2) Vocabulaire (10 QCM)

6 pages (page de garde comprise)

Aucun dictionnaire autorisé

Détacher le texte

Toutes les réponses doivent être reportées sur la feuille de réponse.

Reading comprehension. Read the article entitled "People are hacking antidepressant doses to avoid withdrawal". For each question, choose one answer to correctly complete the sentence. (30 points)

1. The patient-led movement
 - a. wants to reduce the side effects of antidepressant drugs.
 - b. helps people stop using their antidepressants with no adverse effects.
 - c. gives guidelines on how to safely take psychiatric tablets.
 - d. is translating a Dutch website that has psychiatric drugs for sale.
2. Some people get severe mental and physical side-effects
 - a. if the dose is lowered slowly.
 - b. when taking valium.
 - c. when the dose is not right.
 - d. if they stop the drug suddenly.
3. Some people reduce their dose themselves
 - a. by calculating the average number of beads in a capsule.
 - b. by converting the drug into a soluble powder.
 - c. by using industrial methods.
 - d. because the dose they want is too expensive.
4. Tapering kits
 - a. contain pills with decreasing amounts of the drug.
 - b. have different sized pills with labels.
 - c. help people to spread treatment out over a longer time.
 - d. are obtained from an online pharmacy.
5. Cinderella Therapeutics
 - a. is based in Germany.
 - b. is a for-profit company.
 - c. will only sell a tapering kit if you have a prescription.
 - d. does not sell its drug treatments abroad.
6. Purchasing tablets online
 - a. is against the law in Holland.
 - b. is allowed in the UK if you have a doctor's prescription.
 - c. is under regulatory review.
 - d. is easier between The Netherlands and the UK.
7. Antidepressants
 - a. produce mild withdrawal symptoms.
 - b. are essential for the well-being of some people.
 - c. are not hard to give up.
 - d. are being used by ten per cent more people in the UK now than in the past.
8. James Moore
 - a. felt sick and faint after ceasing mirtazapine.
 - b. was hit by a bus when he was in withdrawal.
 - c. had pain in his head from his depression treatment.
 - d. is employed.
9. Antidepressant withdrawal
 - a. side effects are mostly physical.
 - b. can help you remember better.
 - c. advice is only available online.
 - d. has led to suicide.
10. Doctors tell patients
 - a. to slowly lower the amount of the drug that they ingest to prevent relapse.
 - b. that their withdrawal symptoms cannot be recidivism.
 - c. the same thing the drug manufacturers tell patients.
 - d. a mistaken diagnosis sometimes.
11. Venlafaxine and paroxetine
 - a. are the subject of internet advice on how to reduce their use.
 - b. could be taken every two days to keep their levels constant.
 - c. slowly deteriorate when ingested.
 - d. levels vary if taken every day.

12. James Moore's experiment where he cut up his tablets
- has motivated him to campaign for better quality drugs.
 - made him physically sick every second day.
 - failed because it was difficult to get the exact amount needed.
 - shows an advisable DIY method to hack your drugs.
13. Liquid formulations to manage withdrawal symptoms
- can deliver a more precise dose.
 - are as easy to find as their tablet form.
 - are not as effective for James Moore as the tablet form.
 - are cheaper than the tablet form.
14. Paul Harder says
- most people reduce their dose over seven months.
 - more people reduce their dose than return to their original dose.
 - that ten per cent start taking more than the original dose.
 - that tapering kits help the majority of people to quit their drug.
15. The difference between withdrawal and relapse
- is the time it takes for those symptoms to appear.
 - depends on the intensity of symptoms.
 - is how quickly symptoms disappear.
 - depends on the dose the person was taking.

Vocabulary in context. For the following words, underlined in the text, choose the best synonym or explanation. (10 points)

16. wean

- gradually stop using
- quickly give in
- automatically start again
- help babies to feed

17. DIY

- Direct Intravenous Yeast
- Do It Yourself
- Dangerous Inline Yield
- Drug Injecting Youths

18. taper

- reduce
- tighten
- treat
- relax

19. weighed out

- divide the parts into
- count each item
- measure the heaviness
- calculate the volume

20. spokesperson

- secretary
- managing director
- researcher
- press agent

21. enquiries

- investigation
- requests for information
- answers
- deals

22. struggle

- to admit that you have been defeated
- to try very hard to do something difficult
- to achieve something that you have been trying to do or get
- to do something that involves physical effort

23. swapping

- keeping
- making
- admitting
- exchanging

24. standard

- regular
- new
- old
- uncommon

25. survey

- report
- statement
- questionnaire
- file

People are hacking antidepressant doses to avoid withdrawal

By Clare Wilson, New Scientist 10 July 2017



How many beads?

A patient-led movement is helping people taking psychiatric medicines to hack their dosing regimens so they can wean themselves off the drugs without any side effects. Now a Dutch website that sells kits to help people do this is about to launch an English-language site, triggering safety concerns among UK regulators and doctors.

Some people find it impossible to stop taking certain antidepressants and anti-anxiety medicines such as valium because, unless the dose is reduced very gradually, they get severe mental and physical side-effects.

The problem is these medicines aren't sold in small enough tablets to allow for tapering. This has prompted some people to flout mainstream medical advice and use DIY methods for reducing their doses, such as grinding up tablets and dissolving them in water, or breaking open capsules of tiny beads and counting them out. The UK mental health charity Mind advises people who want to stop taking antidepressants of some techniques to try, but recommends they get advice from their doctor or pharmacist first.

To help people taper their dose more easily, a Dutch medical charity, called Cinderella Therapeutics, together with Maastricht University creates personalised "tapering kits", with precisely weighed out tablets in labelled packets that gradually reduce over several months. The website recommends people do this under medical supervision and must first receive a doctor's prescription.

The charity has been sending out such kits since 2014, distributing around 2000 tapering kits for 24 different medications so far. Most of these were for people in the Netherlands, but a few kits have been sent to other countries, including the UK. The website is in Dutch, but an English-language version is being launched next week.

Its actions are legal in the Netherlands, although most medical bodies advise people not to buy medicines over the internet. "Although prescription-only medicines can be imported for personal use, self-medication is potentially risky and we advise against this," says a spokesperson for the UK's Medicines & Healthcare Products Regulatory Agency. "We will be contacting our regulatory partners in the Netherlands to make necessary enquiries."

Withdrawal symptoms

An increasing number of people are taking antidepressants – about 1 in 10 people in the UK, for instance. Many people find antidepressants helpful, and even life-saving, but some struggle to stop taking them when they are ready.

Some people say that when they try to stop, they experience intolerable side effects. A study in New Zealand found that 55 per cent of people got withdrawal symptoms on stopping antidepressants.

"I felt like I had been run over by a bus," says James Moore, a 46-year-old stay-at-home dad from Rogiet in the UK. He experienced dizziness, nausea and headaches when he stopped taking the antidepressant mirtazapine.

Others who stop taking antidepressants report side effects such as panic attacks or memory and concentration problems. "I know of people who have taken their lives because the withdrawal effects have been so severe," says Moore, who is now a mental health campaigner.

Information leaflets that the drug manufacturers provide alongside the drug warn of short-term withdrawal effects, and doctors usually advise people to reduce their dose slowly. But even if people do that, once they stop taking the lowest dose of tablet available, some still get problems. Some people are told by their doctors that it is a relapse, even if it might not be.

One solution often proposed is to take one pill every other day, but some common antidepressants such as venlafaxine and paroxetine are broken down by the body within hours, so this method leads to drug levels in the blood fluctuating from one day to the next. Instead, people have begun swapping tips about how to taper their medication online.

Tapering help

Moore tried cutting up his pills into smaller pieces but found the dosing was too variable and his withdrawal symptoms returned. "I was functioning one day and the next I would be in bed," he says. He is now leading a campaign to make manufacturers make their drugs available in much lower doses.

David Healy, a psychiatrist in Bangor in the UK, says people's experiences of withdrawing from antidepressants can vary a lot. He helps those with severe symptoms by prescribing liquid formulations of their medicine, which they can measure out in small amounts. These formulations aren't as widely stocked as their pill equivalents.

Moore has just started a liquid version and has found that his symptoms are less severe. But Healy says most GPs refuse to prescribe such liquids because they are more expensive than the standard pills.

Pharmacist Paul Harder, who makes the tapering kits for Cinderella Therapeutics, says an unpublished survey by the charity found that about 80 per cent of users manage to completely stop taking their medicine. Another 10 per cent reduce it, but the rest return to their original dose. The average time people using the taper service for is two months, he says, but some people take up to seven months.

Tony Kendrick of the University of Southampton in the UK says another option for some people is to switch antidepressants to fluoxetine (Prozac), which is widely available in a liquid formulation. But some people feel they cannot switch.

Kendrick is investigating ways to help doctors tell the difference between antidepressant withdrawal symptoms and signs that a person's depression or anxiety is returning. Withdrawal symptoms tend to start very quickly, often the first day a dose is missed, and disappear when the person returns to their normal level, he says. "A relapse usually takes weeks or months."

A spokesperson for the Association of the British Pharmaceutical Industry did not wish to comment.

II. Vocabulary from class. Choose the appropriate word to complete each sentence or question.

(10 points)

26. To help soothe a sore throat, you can _____ on a lozenge.
- eat
 - suck
 - sip
 - swallow
27. What is another word for light-headedness?
- tiredness
 - vomiting
 - headache
 - dizziness
28. Make sure you _____ your prescription every month at the chemist's, so you don't need to go back to your doctor.
- refill
 - ask
 - withdraw
 - study
29. Which of the following is **NOT** another word for an epileptic fit?
- a crisis
 - an attack
 - a seizure
 - convulsions
30. A cylindrical glass container for laboratory use with a flat bottom and a pouring lip is called:
- a lab coat
 - a microscope
 - a stopper
 - a beaker
31. The phage _____ to the outer membrane of the bacteria.
- attaches
 - produces
 - infects
 - resists
32. Angiogenesis describes how tumors produce enzymes that stimulate blood vessel growth. What is the phrasal verb that is a synonym for "produce"?
- take out
 - come out
 - shoot in
 - put out
33. Dr. Folkman designed an _____ to test his hypothesis about angiogenesis using a rabbit cornea.
- experience
 - experiment
 - experienced
 - experimental
34. Kava Kava has sedative properties. What is the main effect of a sedative?
- anti-inflammatory
 - cough-suppressing
 - sleep-inducing
 - fever-reducing
35. Smoking is _____ to your health.
- warning
 - risks
 - hazardous
 - danger

UE PL 3.11
PHARMACIE 3^{EME} ANNEE
EXAMEN
ANGLAIS SCIENTIFIQUE

18 décembre 2018

Durée : 1 heure

2 Sections, 35 QCM :

- i. Compréhension écrite (15 QCM + 5 QCM)
- ii. Vocabulaire (10 QCM)

5 pages (page de garde comprise)

Aucun dictionnaire autorisé

Détacher le texte

Toutes les réponses doivent être reportées sur la feuille de réponse.

Probiotics For Babies And Kids? New Research Explores Good Bacteria

NPR, Allison Aubrey, April 30, 2018

When Melisa Martinez's son, Juelz, was born very prematurely at 25 weeks back in January, doctors at University of California, Davis Children's Hospital gave him probiotics. "They told me the probiotics may help reduce the risk of infection," Martinez says. Now, Juelz is home and doing well.

Probiotics are just one element of the care Juelz received during the weeks he spent in the NICU, but research shows that probiotics — which contain a mix of live, beneficial bacteria — can help prevent a very serious intestinal inflammation called Necrotizing enterocolitis in preemies. "If we give a probiotic, their [a premature baby's] chance of getting Necrotizing enterocolitis goes down," says Mark Underwood, who is chief of Pediatric Neonatology at UC Davis and a professor of pediatrics.

At UC Davis Children's Hospital, all preemies born under a certain birth weight are now given probiotics. It's become a common practice in other countries including Australia, Japan, Sweden and Finland, Underwood says, but in the U.S., giving probiotics to preemies is controversial, with some doctors calling for more research. Given what Underwood has seen in preemies, he was curious if probiotics might be beneficial in healthy, normal-weight babies. So he decided to test this idea.

With funding from the makers of Evivo, a probiotic for babies, he and his colleagues recruited 68 moms and healthy babies for a study. All of the babies were breastfed. Half of the babies were given the probiotic during the first month of life. The other half — the control group — did not receive a probiotic.

"We found an increase in the number of good bacteria" among the babies given the probiotic says Underwood. By measuring samples of the babies' poop, they documented a 79 percent increase in levels of bifidobacteria, a type of bacteria that is thought to be protective. At the same time, Underwood and his team also measured a decrease in potentially harmful bacteria such as clostridium in the babies' guts. One potential advantage of the bifidobacteria is that these bacteria can help lower the pH inside the intestines, says Underwood. "And a lower pH allows more healthy bacteria to thrive," he says.

So, could giving probiotics to healthy babies lead to any measurable health benefits later in life? The answer is: For now, no one knows. "This is very interesting research," says Daniel Merenstein, a family physician at Georgetown University. "But it's preliminary."

Modern medical practices such as antibiotic use and c-section deliveries are thought to play a role in altering our microbiomes. While antibiotics are effective at wiping out bad bacteria, they may also alter the mix of beneficial bacteria. Additionally, changes in our diets can shift the mix of bacteria in our guts.

The hope is that restoring the diversity of bacteria in our guts may help fend off conditions such as allergies and autoimmune diseases.

But researchers are years away from being able to pin down whether altering a healthy baby's gut with probiotics could lead to any measurable reduction in disease, which Underwood acknowledges. "What these [study findings] mean for health down the road, we don't really know yet," he says.

For now, Merenstein says probiotics have been shown to be effective for certain conditions in babies and kids. "We know they work for some things," Merenstein says. For instance, probiotics can help prevent diarrhea in children taking antibiotics. And, recent studies show probiotics can help reduce crying in breastfed babies with colic.

Some pediatric gastroenterologists recommend probiotics for irritable bowel symptoms and digestive issues, though the evidence comes from studies on adults. In addition, research going back to 2009,

has shown that a mix of three strains of bacteria (Bifidobacterium bifidum, Bifidobacterium lactis, and Lactococcus lactis) given to babies who have a family history of allergic disease, can help prevent the likelihood of eczema. In this study, the probiotic was given to mothers during their pregnancy and to their babies during the first 12 months of life.

Courtney Becerra, 30, a first-time mom who lives in Morgan Hill, California, was skeptical of the idea of giving probiotics to babies. But then her son, Wyatt- now 7 months old, broke out in bad rashes and developed eczema. "He would scratch his stomach, and he'd be fussy," Becerra says. He also had an overactive GI system.

After consulting with her pediatrician, she began giving Wyatt a probiotic, Evivo, several months ago. Now, she says his skin has cleared up and his digestive system seems healthier, too. "To see these problems go away is reassuring," Becerra says.

These improvements in Wyatt's health may be the result of a combination of things Becerra tried. For instance, she experimented with diet changes that could have altered her breast-milk. She also used ointments to help Wyatt's skin. But her hunch is that the probiotic has really helped.

There are lots people like Courtney Becerra who are now believers in probiotics, and the industry is growing. "Sales of probiotic supplements are growing like the contents of a petri dish someone forgot to refrigerate overnight," concludes one industry analysis. This year, U.S. sales of probiotics are estimated at \$2.4 billion, with a projection of \$3.1 billion by 2020.

"I'd say a high percentage of patients I see are already taking a probiotic or giving one to their kids," says Georgetown's Daniel Merenstein. He tries to steer them towards products that have evidence behind them. But he also points out that many of the studies on probiotics are small and funded by industry.

Probiotics are generally regarded as safe for most people, but they're not regulated the way pharmaceutical drugs are regulated, so the quality and dosing can vary, from product to product - or even batch to batch.

And Merenstein says researchers still have a long way to go to figure out which strains and combinations of "beneficial bacteria" may be effective in treating or preventing which conditions.

"There's no question, just like antibiotics, different ones need to be used at different dosages and different lengths for different diseases or conditions," Merenstein says.

As for parents who want to give probiotics to their healthy kids as part of a "prevention strategy" — the same way you'd give a multivitamin — Merenstein is skeptical. "I don't think there's any evidence to give a probiotic as a prevention [strategy]," he says.

But as the research continues to evolve, there will be more evidence to show how and when probiotics can help.

I. READING COMPREHENSION (20 points total). Read the article entitled *Probiotics For Babies And Kids? New Research Explores Good Bacteria.*

For each question, **choose the best answer.**

1. Why was Juelz given probiotics?
 - a. to stop him from being born prematurely
 - b. to treat an infection
 - c. to avoid infection
 - d. to help kill a cold
2. Probiotics were _____ form of treatment given to Juelz.
 - a. the only
 - b. not a
 - c. one
 - d. an ineffective
3. At UC Davis Children's Hospital...
 - a. all babies are given probiotics
 - b. all underweight babies are given probiotics
 - c. all preemies are given probiotics
 - d. all underweight preemies are given probiotics
4. In the United States, giving probiotics to babies is...
 - a. common
 - b. disputed
 - c. discouraged
 - d. rare
5. The babies in the study were...
 - a. preemies
 - b. infected
 - c. underweight
 - d. none of the above
6. Half of the babies in the study were...
 - a. breastfed
 - b. bottle-fed
 - c. not given probiotics
 - d. all of the above
7. What is a possible positive effect of the use of probiotics in the study?
 - a. reduction of protective bacteria
 - b. decreased acidity in the gut
 - c. increase of harmful bacteria
 - d. none of the above
8. What does Daniel Merenstein say about probiotics?
 - a. They can be used to stop babies from crying
 - b. They can cure diarrhea in kids
 - c. Both a. and b.
 - d. Neither a. nor b.
9. What symptoms did 7-month-old Wyatt have before taking probiotics?
 - a. excessively active digestive system, rashes, and eczema
 - b. eczema and scratches
 - c. a slow digestive system and eczema
 - d. rashes, eczema, crying
10. Wyatt's mother gave him probiotics...
 - a. before talking to her doctor
 - b. because she was sure they would work
 - c. months before with no effect
 - d. but was doubtful they would work
11. What did Wyatt's mother NOT do to help relieve his symptoms?
 - a. use a topical cream
 - b. change her eating habits
 - c. stop breastfeeding
 - d. use probiotics
12. Most of doctor Merenstein's patients
 - a. don't believe in probiotics
 - b. ask him for a prescription for probiotics
 - c. use probiotics, even though he doesn't recommend them
 - d. none of the above
13. Probiotics are considered _____ for most people.
 - a. harmless
 - b. harmful
 - c. hurtful
 - d. ineffective
14. Probiotics and antibiotics are similar because...
 - a. they both kill viruses
 - b. they both encourage the multiplication of bacteria
 - c. they both need to be matched to a specific condition
 - d. none of the above
15. According to Dr. Merenstein, probiotics _____ used like a multivitamin.
 - a. should be
 - b. shouldn't be
 - c. can be
 - d. will be

VOCABULARY (5 points). Find the words underlined and in bold in the text. For each question, choose the best answer.

16. "Preemies" means...
a. healthy babies
b. babies born with an illness
 c. babies born too early
d. babies born too late
17. A synonym for "harmful" is...
a. safe
 b. dangerous
c. helpful
d. beneficial
18. The phrasal verb "wiping out" means...
— a. cleaning
b. encouraging
c. multiplying
 d. destroying
19. Another word for "hunch" is...
 a. intuition
b. suspicious
c. ideas
d. interest
20. The metaphor "growing like the contents of a petri dish someone forgot to refrigerate overnight", means
a. slowly
 b. rapidly
c. scientifically
d. steadily

II. VOCABULARY FROM CLASS (10 points)

Choose the best answer for each question.

1. Which answer is a synonym of the word "voicebox"?
a. oesophagus
 b. larynx
c. bronchi
d. lining of the mouth
2. Intralytix is planning US trials when it can _____ the funding.
— a. trigger
b. win
c. encourage
d. muster
3. Phages are _____ in a wound dressing.
a. interested
b. interpreting
c. impregnated
 d. inserting
4. To withdraw a drug ^{means} ~~means~~ to...
 a. take it off the market
b. stop taking it
c. stop producing it
d. throw it away
5. The rubber or cork used to close a conical flask is called a...
~~a. tip~~
~~b. stop~~
 c. bung
~~d. cap~~
6. Which phrasal verb means "to emerge"?
a. to take out
b. to keep on
c. to put out
 d. to come out
7. This drug can _____ the production of hormones.
a. interfere
 b. suppress
c. dilate
d. have
8. Her blood pressure dropped means...
a. it went up
 b. it went down
c. it stayed the same
d. it fluctuated
9. You should use decongestants _____.
a. regular
b. scant
 c. sparingly
d. few
10. An epileptic fit is also called a:
a. breeze
b. crisis
c. leisure
 d. seizure

UE PL3.11
PHARMACIE - 3^{ÈME} ANNÉE
EXAMEN D'ANGLAIS SCIENTIFIQUE

17 décembre 2019

Durée : 1 heure

4 sections, 50 QCM :

- 1) Compréhension écrite (20 QCM)
- 2) Grammaire (10 QCM)
- 3) Vocabulaire (10 QCM)
- 4) Prononciation (10 QCM)

7 pages recto-verso (page de garde comprise)

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Détacher le texte.

Il n'y a qu'une seule réponse possible.

Toutes les réponses doivent être reportées sur la feuille de réponse.

✂ Vaping CBD carries unique risks

By Jenni Avins

October 12, 2019

Quartz, www.qz.com

People like vaping because it's a smokeless, convenient, and fast-acting way to consume pleasure-inducing chemicals including THC and nicotine. It's also potentially quite dangerous—and that's also true when it comes to vaping cannabidiol, the popular cannabis-derived compound known as CBD. In fact, thanks to a regulatory no-man's-land, a consumer craze, and manufacturers who dilute extract with oils better suited for salad dressings, CBD vapes are uniquely risky.

As of Oct. 10, more than 1,200 cases of a mysterious vaping-related illness, and 26 related deaths had been reported to the US Centers for Disease Control and Prevention (CDC), which is advising consumers to "consider refraining" from vaping altogether. Of the 771 patients the CDC previously reported data on, the majority reported vaping THC and/or nicotine. Only about 17% reported having vaped a CBD product, but there is still good reason for CBD enthusiasts to take note—and even to be especially cautious.

"There's no regulations."

While no single brand, product, or ingredient has been identified as the cause of the 1,000-plus cases of vaping-associated pulmonary injury—known as EVALI—we do know that many of the affected patients were vaping **illicit**, and therefore unregulated, THC products. Tests showed many of those contained vitamin E acetate, an oil derived from vitamin E—which is considered safe for skincare but not for inhalation.

We can't reasonably expect dealers of illegal cannabis vapes would test their products for safety or share ingredient lists with customers. The thing is, consumers can't necessarily expect that sort of testing or transparency from manufacturers of hemp-derived CBD vapes either—even if they're buying them from vape shops, specialty stores, or websites that don't appear to be breaking the law. The category is completely unregulated. And reckless players are not limited to labeling their products as THC. In September, the Associated Press tested 30 vape products marketed as CBD from brands that authorities had **flagged** as suspect, and found that 10 contained dangerous synthetic marijuana and many had little to no CBD at all.

While the US Food and Drug Administration (FDA) has been struggling to research and regulate both CBD and vaping separately, the agency has allowed manufacturers to flood the market with both types of products. In the FDA's eyes, none of these products are legal, as they have not been evaluated or regulated for their safety. And where these two categories overlap in CBD vapes is a grey area that's ripe for exploitation at the risk of consumers' health. According to analysts at Cowen and Company, that grey area was worth an estimated \$40 million in sales in 2018.

Meanwhile Jonathan Miller, general counsel for the trade group US Hemp Roundtable, along with many others in the cannabis and hemp industries, is eager for lawmakers to create legal **frameworks** for their products. They point to

the reported illnesses from black-market vapes as proof that a legal, regulated cannabis market is a safer one.

A brief legal primer

The difference between cannabis and industrial hemp in the eyes of US law is the content of THC, the intoxicating compound in cannabis: If a plant contains more than 0.3% THC by dry weight, it's cannabis, and still considered federally illegal despite the many states with legalized recreational and medicinal use. If it's less than 0.3% THC by dry weight, it's considered hemp, which is being incrementally regulated by government agencies. The 2018 Farm Bill removed industrial hemp from the Controlled Substances Act, essentially declassifying it as a dangerous controlled substance of no medical use, clarifying its status as an agricultural product, and making it legal under federal law under some circumstances.

In May of this year, the FDA held a public hearing where more than 100 **stakeholders**—patients, manufacturers, and researchers among them—testified about their experiences with CBD. Now, the industry is waiting for a timeline for regulation, which was expected this autumn, but has yet to appear. In the meantime, the FDA considers interstate sale of CBD as a food additive or nutritional supplement (i.e., all those candies, canned sodas, and tinctures) to be illegal. But it's not enforcing the law so long as operators in the estimated \$590 million market for hemp-derived CBD adhere to the broader rules for the categories they fall in, whether that's food, supplements, or cosmetics.

But here's where it gets complicated, because the FDA hasn't regulated vaping yet.

"You get kind of a double grey area here," says Miller. "CBD is considered illegal by the FDA, and vaping is now viewed pretty hostilely by the FDA. It really is a great unknown ... Without the FDA engaged formally, it makes it a lot tougher for consumers to figure out what's a good product and what's not."

You might be safer with weed

If you're in a state where weed is legal, you might be safer smoking (or vaping) it, by going to a licensed dispensary for a high CBD-strain or vape that's subject to the same regulations that cannabis is. In states like California and Oregon, where cannabis is regulated by state agencies, products with THC are subject to testing for contaminants such as pesticides, heavy metals, solvents, and mold-related toxins. Again, hemp-derived CBD products are currently subject to ... nothing.

"It's the wild, wild west," says Aaron Riley, the CEO of the Los Angeles-based cannabis testing lab CannaSafe, of the CBD landscape. Riley says that many of the CBD products CannaSafe tests would fail if they were subject to the same **exacting** standards as products containing THC—but they're not. "You don't have to get licensed. You don't have to do any type of testing at all."

Which isn't to say that no one is testing CBD products. As the Hemp Roundtable's Miller said, "some very well-meaning companies will try to promote the best practices."

Some of those companies are those that come from the cannabis industry, and therefore have years of experience with extraction and testing.

The northern California-based company Bloom Farms—which has been in the cannabis extracts business since 2014—started selling hemp-derived CBD products online in January, and puts them through the same testing processes as their products with THC, which are under the strict purview of the California Bureau of Cannabis Control. Customers can also download a certificate of analysis from Bloom's website that provides test results from a third-party lab, but that's far from standard in the CBD space.

An oily situation

And of course, not all CBD vapes are created equal. Many extracts sold in vape pens and cartridges are diluted with other substances, such as medium-chain-triglyceride, or MCT, oils—fats that are frequently derived from natural sources such as coconut oil. While these are known to be safe to eat—and are often found in CBD tinctures—there's little if any evidence that it's safe to vape them, despite some manufacturers touting them as an all-natural ingredient.

Neal Benowitz, a professor of medicine at the University of California, San Francisco, who has studied the pharmacology of e-cigarettes, says that CO₂ extraction process is "pretty clean," and the results are well-known.

"People have been vaping them for a long time, and haven't had a problem," he says. "That seems to be relatively safe, and that's a solvent that dissolves them. The question now is, when you start messing with that process, what are you adding to it?"

Benowitz said the effects of vaping MCT oil, however, is an understudied area.

"I'm concerned about it," he says. "But I don't have any data."

Katie Stem, an herbalist who cofounded the Oregon-based cannabis company Peak Extracts in 2014, speculates the tendency to mix cannabis extract with MCTs might come down to greed or ignorance, and a misunderstanding of the term "cannabis oil," which is something of a misnomer since CBD and THC extracts are not fatty lipids at all.

Kathryn Melamed, a pulmonologist at University of California, Los Angeles, Medical Center who has seen patients affected by vaping, agrees that smoking oils can be dangerous, and notes that the vaping-related illness bears some resemblance to lipoid pneumonia—a direct reaction to lipids or oils in the lungs.

"While one type of substance—like vitamin E or maybe some other oil—can be ingested and metabolized through the gut, the lung just doesn't have that ability," she says. "So then it becomes much more dangerous, and a particle that the lung wants to try to fight and expel. And that's the inflammatory response that you get."

I. **Reading comprehension.** Read the article "Vaping CBD carries unique risks" and choose the one correct answer according to the text.

1. If it is so dangerous, why is vaping so popular?

- a. You get a pleasure hit quickly and without smoke.
- b. You get THC in a legal format.
- c. Regulation is limited.
- d. None of the above.

2. The US Center for Disease Control and Prevention (CDC) is advising consumers not to vape because:

- a. CBD is unregulated.
- b. THC is unregulated.
- c. Nicotine is dangerous.
- d. there is a vaping related illness.

3. EVALI seems to be most prevalent in patients who smoke THC products because:

- a. the producers of THC do not test their products for safety.
- b. oils associated with vitamin E contained in THC vaping liquids are not safe for inhalation.
- c. THC products are illegal and hence unregulated.
- d. All of the above are true.

4. In the eyes of the US Food and Drug Administration:

- a. Vaping is legal but CBD is not.
- b. Neither vaping nor CBD is legal.
- c. CBD is legal but vaping is not.
- d. Both vaping and CBD are legal.

5. In general, this article stipulates that legal hemp and cannabis producers and sellers:

- a. believe CBD should be illegal.
- b. are in favour of creating legal frameworks for their products.
- c. are in a fight against illicit dealers of THC and CBD products.
- d. are struggling against regulations that the FDA wants to put in place.

6. The 2018 Farm Bill:

- a. kept marijuana products with a THC content higher than 0.3% illegal.
- b. legalised marijuana products with a THC content higher than 0.3%.
- c. declared hemp as a non-dangerous substance with legitimate agricultural status.
- d. declared hemp a dangerous controlled substance of no medical use.

7. Selling CBD between states in the US is:

- a. legal.
- b. illegal and prosecuted.
- c. illegal but overlooked.
- d. None of the above

8. What does Jonathan Miller mean when he speaks about a "double grey area"?

- a. Both CBD and vaping are over regulated.
- b. Both CBD and vaping have ill-defined legal limits and regulations.
- c. Both CBD and vaping are treated hostilely by the FDA.
- d. Neither CBD nor vaping are legal.

9. In states where weed is legal, which of the following is true?

- a. Low level CBD products are not subject to any regulation.
- b. Buying CBD products from a licensed dispensary may be safer.
- c. State agencies restrain the sale of CBD products.
- d. A and B are both true.

→ 10. Aaron Riley of CannaSafe, a cannabis testing lab, refers to the CBD industry as the "wild west". By stating this, which of the following statements were NOT inferred?

- a. Anyone can join the CBD business.
- b. The quality of CBD products is unknown.
- c. It is a dangerous industry for all participants.
- d. Testing is not a requirement for CBD products.

11. What is unique about Bloom Farms?

- a. The California Bureau of Cannabis Control asks them to test all CBD and THC products.
- b. They willingly test all of their CBD and THC products to the same high standards.
- c. They refuse to sell CBD products until the California Bureau of Cannabis Control regulates them.
- d. They are below standards generally accepted in "the CBD space".

12. Placing natural extracts, such as coconut oil, in CBD vaping oil to dilute the substance:

- a. is beneficial to the health of the vaper.
- b. is known to be a safe practice.
- c. is common practice given that CBD is dissolvable in lipids.
- d. has unknown health effects when inhaled as opposed to being used cutaneously.

13. In the opinion of Katie Stem, the mixing of MCT with cannabis extract in vaping liquids comes from:

- a. a misinterpretation of what "cannabis oil" is.
- b. the desire to increase producers' profit margins as much as possible.
- c. a lack of understanding of CBD and THC.
- d. All of the above.

14. A pulmonologist from UCLA believes that which of the following is dangerous for our lungs due to the effects which resemble lipoid pneumonia?

- a. Vaping oils
- b. Vaping CBD
- c. Using vitamin E cutaneously
- d. Smoking in all forms

15. The overall purpose of this article can best be described by which of the following statements?

- a. To inform consumers of current issues in the CBD and vaping industries.
- b. To publish a scientific study on CBD products.
- c. To promote the usefulness of CBD as a health supplement.
- d. To offer insight as to the best means to consume CBD products

VOCABULARY IN CONTEXT. For each of the underlined words in the text, choose the most suitable synonym based on the context of the article.

16. stakeholders

- a. All actors in the CBD industry
- b. The government and its regulatory agencies
- c. The FDA
- d. The general public.

17. illicit

- a. unknown
- b. unregulated
- c. illegal
- d. unidentified

18. flagged

- a. demonstrated
- b. noted
- c. proven

d. rendered

19. frameworks

- a. guidelines
- b. transparency
- c. storage
- d. constructs

20. exacting

- a. vague
- b. uninformed
- c. new
- d. demanding

II. **Grammar.** Choose the correct response. (⊙ = nothing needed)

21. Doctors usually ___ in diagnosing their patients.

- a. have succeed
- b. success
- c. succeed
- d. are success

22. The word "commute" is:

- a. a noun and a verb
- b. a noun only
- c. a verb only
- d. an adjective

23. The studies ___ show a high enough risk in order to discontinue the drug.

- a. haven't
- b. have
- c. aren't
- d. didn't

24. According to the FDA, antiepileptic drugs are used ___ other conditions besides epilepsy.

- a. to treat
- b. for treat
- c. to treating
- d. for treating

25. The US spends twice ___ on healthcare as France.

- a. more
- b. many
- c. as many
- d. as much

26. Japan has a life expectancy of 83 years ___ China has a life expectancy of 74 years.

- a. whereas
- b. except
- c. since
- d. either

27. Why ___ homeopathy ___ for some people?

(⊙ = nothing needed)

- a. does / works
- b. does / work
- c. ⊙ / works
- d. ⊙ / work

28. The risks ___ smoking are numerous.

- a. for
- b. of
- c. to
- d. in

29. Homeopathy ___ safe and effective.

- a. has proved
- b. has prove
- c. has been proven
- d. has been proved

30. People who sit more are at ___ risk for herniated disks than those who sit less.

- a. high
- b. increase
- c. great
- d. greater

III. **Vocabulary.** Choose the **one** best word to complete each sentence.

31. If the blister does ____, don't peel off the dead skin.
a. burst
 b. pierce
c. fracture
d. run
32. Apply the cream to the injured area and ____ evenly until absorbed.
a. circulate
 b. spread
c. disperse
d. diffuse
33. Nicotine patches are available without ____ from your pharmacy.
a. direction
b. instruction
c. ordinance
 d. prescription
34. He got his girlfriend ____ and they're getting married.
a. childbearing
 b. pregnant
c. expecting
d. fertile
35. I'd like to make an ____ to see the doctor, please.
 a. appointment
b. assignment
c. engagement
d. interview
36. He was ____ with dismissal if he continued to turn up late for work.
a. scared
b. told
 c. threatened
d. advised
37. The pharmacy sells a full ____ of homeopathic remedies.
a. extent
b. length
 c. range
d. area
38. The feeling as if everything is spinning around you and that you are not able to balance is called ____.
 a. dizzy
b. sick
c. nauseous
d. crazy
39. The ____ is composed of transparent, flexible tissue and helps to focus light and images on the retina.
a. iris
 b. pupil
c. cornea
d. lens
40. The first aider ____ water over the affected area to cool the burning sensation.
a. served
 b. poured
c. flowed
d. made

IV. **Pronunciation.** Choose the **one** best answer for each question.

41. For which of these words is the final "s" pronounced /s/? For example, the first and last "s" in "sleeps" is pronounced /s/.
a. controls
b. diagnoses
 c. treats
d. relieves
42. For which of these words is the final "s" pronounced /z/? For example, "heals".
a. panics
 b. cures
c. regulates
d. rises
43. For which of these words is the final "s" pronounced /ɪz/? For example, "changes".
a. coughs
b. breathes
 c. sneezes
d. examines
44. The underlined sound in the noun "virus" rhymes with the underlined sound in which of these words?
 a. fly
b. if
c. baby
d. chip
45. The underlined sound in the noun "headache" rhymes with the underlined sound in which of these words?
a. much
 b. echo
c. machine
d. chip
46. The underlined sound in the noun "wound" rhymes with the underlined sound in which of the following words?
a. mouth
 b. could
c. but
d. June
47. The underlined sound in the noun "kidney" rhymes with the underlined sound in which of the following words?
 a. be
b. grey
c. eye
d. day
48. Which syllable is stressed in the word "angiogenesis"?
a. angiogenesis
b. angiogenesis
c. angiogenesis
 d. angiogenesis
49. Which syllable is stressed in the word "bacteria"?
a. bacteria
 b. bacteria
c. bacteria
d. bacteria
50. Which syllable is stressed in the word "oesophagus"?
a. oesophagus
b. oesophagus
 c. oesophagus
d. oesophagus