

1 ① People today/are worried about food **safety**/ As a result/ the popularity of “organic” **farming**/of fruits and vegetables/ is increasing/ But what exactly does organic farming mean?

2 It is **probably** easier/ to explain what organic farming is not/ Organic farming does not use *pesticides or fertilizers/ Instead/ this **style** of farming uses natural methods/ to protect plants/ and help them grow/ So, organic **agricultural** products are thought to be generally safer/ than non-organic ones/

3 In the United States/ about two percent of all food is grown/ using organic methods/ The U.S. government officially **licenses** farms/ as “organic”/ if they pass an examination/ **Presently**/ there are about 10,000 licensed **farmers**/ in the U.S./ and this number is growing/ by about 20% a year/ (123 words)

*pesticide 「農薬」

1 ① In addition to food safety, another reason for the popularity of organic fruits and vegetables is that they taste better. This is why many restaurants only buy organic products.

② A lot of people think organic farming is not competitive compared to other methods because it cannot grow the same **quantity** of food. However, new research has shown that organic farming only grows, on average, about five percent less than non-organic methods. Still, organic food today is more expensive than non-organic food. But when the environmental and health **costs** of non-organic farming are considered, such as the **pollution** of water by pesticides, most people would **agree** that the higher **price** of organic farming is in fact a small price to **pay** for our health and safety. (125 words)

1 ❶ Doctors have long told patients that medicine is something you
swallow in a *pill, but evidence is growing that shows the best medicine
might be found in your **grocery** store, not your drug store. More
and more researchers are concluding that the right foods will not only
5 **prevent** disease but, in some cases, actually cure it as well.

❷ “Most major diseases can be **reversed** through approaches using
good **nutrition**,” said Dr. Joel Fuhrman, a doctor who **specializes** in
nutritional medicine as an **alternative** to surgery and drugs. Fuhrman
is the author of a book about eating for health. “Food is more effective
10 than medicine,” he stated. “All we’ve got to do is eat right, and disease
melts away.”

❸ Some other doctors find Fuhrman’s **views** on food and disease a **bit**
extreme, but he is not alone in his belief that **diet** plays an important
role in human health. Researchers at the University of Illinois are
15 **conducting** a major program to **identify** food **components** that can
fight disease and promote good health. One of the major foods being
investigated is the *soybean/

(181 words)

*pill 「錠剤」 *soybean 「大豆」

1 ① “There has been a **tremendous** amount of information that shows the soybean’s ability to reduce *cholesterol,” said Clare M. Hasler, director of the research program at the University of Illinois, “and by lowering your cholesterol, you lower the risks for heart disease.”

5 ② In one of the three **clinical** tests on humans performed at the university a diet that included 50 grams of soybean **extract** per day—in the form of drinks and baked foods—was found to “be **significant** in reducing cholesterol in a four-week period,” according to Hasler. She *cautions that people with high cholesterol levels should see a doctor but said soybean products can safely be **introduced** into the diet as part of an overall health improvement strategy.

③ According to Dr. Keith Block, “The soybean is one of the most powerful medicines and is a great food to prevent disease. It probably has significant treatment benefits for cancer patients.” Soybeans
15 **contain** a compound that naturally stops the supply of nutrients and blood that cancer needs to grow. At Block’s **private** clinics, he uses what he calls “nutrition **therapy**” as one component for treating cancer patients.

(187 words)

*cholesterol 「コレステロール」 *caution that ... 「…だと警告する」

1 ① Ordinary **household** dogs with only a few weeks of basic “puppy training” learned to accurately distinguish between breath samples of **lung**- and breast-cancer patients and healthy subjects. “Our study provides strong evidence that cancers hidden beneath the skin can be
5 **detected** simply by dogs **examining** the smell of a person’s breath,” said Michael McCulloch, who led the research. Early **detection** of cancers greatly improves a patient’s survival chances, and researchers hope that man’s best friend, the dog, can become an important tool in finding cancers early. The new study, scheduled to appear in the March
10 issue of the journal **Integrative Cancer Therapies*, was conducted by the Pine Street Foundation, a cancer research organization in San Anselmo, California.

② Dogs can identify chemical **traces** in the range of parts per *trillion. Previous studies have **confirmed** the ability of trained dogs to detect
15 skin-cancer by smelling the skin **damage**. Also, some researchers hope to prove dogs can detect *prostate cancer by smelling patients’ *urine. “Dogs’ *scent ability to detect the scent of cancer was something that was often discussed for many years, but we felt it was appropriate to design a thorough study that seriously investigated this topic to see if
20 it is really effective,” said Nicholas Broffman, **executive** director of the Pine Street Foundation. (212 words)

**Integrative Cancer Therapies* : 医学雑誌の名前 *trillion 「1兆」 *prostate 「前立腺」

*urine 「尿」 *scent 「におい」

1 ① Lung- and breast-cancer patients are known to breathe out patterns of *biochemical markers in their breath. “Cancer cells produce different *metabolic waste products than normal cells,” Broffman said. “The differences between these metabolic products are so great that
5 they can be detected by a dog’s keen sense of smell, even in the early stages of disease.”

② The researchers used a food reward-based method to train five ordinary household dogs. Encountering breath samples captured in tubes, the dogs gave a positive identification of a cancer patient
10 by sitting in front of the correct sign. By scent alone, the dogs distinguished 55 lung and 31 breast cancer patients from 83 healthy humans. The results of the study showed that the dogs could detect breast cancer and lung cancer between 88 and 97 percent of the time. The high degree of accuracy persisted whether the patients were
15 smokers or not. Moreover, it did not seem to matter which dog it was or which stage the cancer had reached. (165 words)

*biochemical 「生化学の」 *metabolic 「代謝の」

1 ① If everybody on Earth consumed as much oil as the **average** American, the world's known **reserves** would be gone in a decade. Even at current rates of consumption, known reserves would not **last** through the current century. Experts, however, are not worried. New
5 **technologies**, they say, will *avert a **global** energy crisis.

② Already, oil companies have developed **cheaper** ways to find oil and extract it from the **ground**, effectively extending the supply into the twenty-second century. Still, there is a *finite amount of oil on the planet, and someday it will be gone. Even before that happens,
10 concerns about global warming may **compel** the world to stop burning so much **fossil** fuel.

③ The energy industry is **preparing** for that day by **investing** in technologies that will replace fossil fuels. **Solar, nuclear, and wind** power are all possibilities, but many experts say the most likely
15 candidate is the fuel cell. A fuel cell is **essentially** a **hydrogen**-powered **battery** that produces no pollution. Its only *by-product is water. And since hydrogen is the most **abundant element** in the **universe**, supply should not be a problem. This all depends, however, on the technology being developed. (192 words)

*avert 「を回避する」 *finite 「有限の」 *by-product 「副産物」

1 **① Neglect** of the mind-body **link** by technological medicine is
 actually a **brief** *aberration when viewed against the whole history of
 the **healing** art. In traditional *tribal medicine and in Western practice
 from its beginning in the work of Hippocrates, the need to operate
 5 through the patient's mind has always been recognized. Until the
 nineteenth century, medical writers **rarely** failed to note the influence
 of *grief, **despair**, or discouragement on the *onset and **outcome** of
 illness, nor did they ignore the healing effects of **faith**, **confidence**,
 and **peace of mind**. *Contentment used to be considered a *prerequisite
 10 for health.

② The modern medicine man has gained so much power over certain
 diseases through drugs, however, that he has forgotten about the
potential strength within the patient. One **elderly** physician friend
 recently told me of reading the diary of his uncle, also a doctor. In
 15 the early years, the *diarist always recorded what happened to the
 individual or the **community** prior to an illness or **epidemic**, but as
 medicine became more technological, this part of the history grew
 less and less important to him, and finally was *omitted **altogether**.
 Awareness of the mind's powers was lost as medicine **cast** out all "soft"
 20 **data**, the information that's not easily *quantified or scientific.

(208 words)

*aberration 「逸脱」 *tribal 「部族の」 *grief 「悲しみ」 *onset 「始まり」

*contentment 「心の安らぎ」 *prerequisite 「必要条件」 *diarist 「日記をつける人」

*omit 「を除外する」 *quantify 「を数量化する」

1 ❶ A fly can do one thing extremely well: fly. Recently a team of British scientists **declared** that the common *housefly is the most talented *aerodynamicist on the **planet**, superior to any bird, **bat**, or **bee**. A housefly can make six turns a second; *hover; fly straight up, down, or
5 backward; land on the **ceiling**; and perform various other *show-off maneuvers. And it has a brain smaller than a *sesame **seed**.

❷ Michael Dickinson, who studies fly **flight** in his **lab** at the California **Institute** of Technology, says the housefly isn't actually the best flier. "Hoverflies are *the be-all and end-all," he says. They can
10 hover in one **spot**, dash to another location, and then race back to their original hovering point — **precisely**.

❸ Scientists, engineers, and **military** researchers want to know how creatures with such small brains can do that. Maybe they could *reverse-engineer a fly to make a robotic **device** that could *reconnoiter
15 dangerous places, such as **earthquake zones** or collapsed **mines**.

(161 words)

*housefly 「イエバエ」 *aerodynamicist 「空気力学者」 *hover 「空中でとどまる」
*show-off maneuver 「見せびらかしの飛行」 *sesame 「ゴマ」 *hoverfly 「ハナアブ」
*the be-all and end-all 「究極のもの」 *reverse-engineer 「を解析して模倣する」
*reconnoiter 「を偵察する」

1 ① Dickinson's laboratory works with fruit flies. Researchers put them in *chambers and **manipulate** the visual field, filming the flies in super-slow motion, 6,000 **frames** a second. Dickinson is interested in knowing how flies avoid collisions. He has found that certain patterns, such as 90-degree turns, are **triggered** by visual cues and two *equilibrium organs on their backs that function like a *gyroscope.

② Flies have only a **dozen** muscles for maneuvering, but they're **loaded** with sensors. In addition to their compound eyes, which **permit** *panoramic *imagery and are **excellent** at detecting motion, they have wind-sensitive hairs and *antennae. They also have three light sensors on the tops of their heads, which tell them which way is up. Roughly two-thirds of a fly's entire nervous **system** is **devoted** to processing visual images. They take all this sensory data and **boil** it down to a few basic **commands**, such as "go left" and "go right."

(152 words)

*chamber 「小室」 *equilibrium 「平衡」 *gyroscope 「ジャイロスコープ〔姿勢制御装置〕」
*panoramic 「全景が見渡せる」 *imagery 「画像」 *antennae 「触角 (antenna の複数形)」