PART 4

听力原文

In today's lecture, we'll dive into the topic of dolphin intelligence, discussing dolphin behaviour and their physical structure in an attempt to **shed light on** (进一步了解) the question: how intelligent are dolphins?

Well, concerning body size, dolphin brains are among the largest in the animal kingdom–more extensive than **chimpanzees** (黑猩猩). And certain species, like **bottlenose dolphins** (宽吻海豚) have brains even bigger than humans. However, some current tests suggest that they do not possess the same **cognitive abilities** (认知能力) as humans despite having a similar brain size. For instance, dolphins are often trapped in gill nets originally intended for tuna *Q31* fishing. These entanglement cases have led to unnecessary injury or deaths of dolphins, gradually depleting their numbers. Clearly, dolphins don't realize that they could just jump over these **vertical barriers** (垂直障碍物) and swim to safety.

People often mistakenly view dolphin's **eternal** (永恒的) smile as signs of *Q32* intelligence and joy. Actually, this is not a **facial expression** (面部表情) at all, but a fixed design of their head. Unlike human beings with greater than 40 **facial muscles** (面部肌肉), dolphins have no such powers with which to form an expression.

On the other hand, small-brained animals are sometimes **underrated** (低估) for their level of intelligence. Pigeons and **rats** (老鼠) are typical examples *Q33* of small brain animals which can perform tasks so complex that most humans would have trouble with them. Over the last few decades, scientists have conducted countless studies on the cognitive abilities of these **overlooked** (被忽视的) animals, with quite surprising results. Pigeons are **aware** (注意到) of *Q34* their bodies when they see their reflections in the mirror. Pigeons are also trained under specific conditions and gradually form **instinctive** (直觉的) reactions. In *Q35* an experiment in 2009, a group of 12 pigeons was given a reward like food and water every time they **pecked** (啄) a key on a lab table. All birds successfully performed the trick. These test results indicate that brain size is probably not the sole factor in determining intelligence.

Another argument **steers** (引导) the attention to the **correlation** (相关性) between intelligence and the **constituents** (成分) of brains rather than their sheer sizes. It's been found that dolphin brains are comprised chiefly of fatty cells, which serve as a protective barrier between the systemic blood and the extracellular environment of the central nervous system. They are also essential components of nerve cell membranes, affecting problem-solving skills performance.

Now the second mainstream view is that dolphins are highly intelligent. Research into the behaviour of dolphins in the wild and **in captivity** (圈养) has **yielded** (提供) incredible data on the intelligence of these **marine mammals** (海洋哺乳动物). Studies show that dolphins not only have the ability to learn as individuals, but those individuals can then pass their new knowledge on to others.

Let's take a look at some typical examples. Among these are tested with Billy, a dolphin trapped in a **sea loch** (海湾) and rescued. Billy spent three weeks in **rehabilitation** (康复) and was released back into the wild. There, researchers noticed that Billy had started tail walking, a skill only mastered by **captive** (被圈养的) dolphins who **imitated** (模仿) the **keepers** (饲养员). Billy had not been trained to tail-walk but had learned the skill simply by observing other dolphins in the **rehab centre** (康复中心). *Q36*

Another study involves a female dolphin named Karen. Karen was given a test in which she was rewarded with a fish for every piece of **litter** (垃圾) she brought to researchers. To **maximise** (最大化) its **bounty** (奖励), she quickly learned to take a newspaper, keep it at the bottom of a **tank** (人造水池), and **tear off** (撕下) smaller pieces to get more fish. *Q37*

Over the past hundred years, researchers have proven that dolphins are extremely social species and have evolved to have highly-developed brains. These factors are the most significant contributors to their intelligence and become the means of survival for dolphins. *Q38*

In 2008, researchers **tracked** (追踪) a group of around 400 dolphins. One female dolphin in the group was having a lot of trouble swimming and kept

flipping upside down (身体上下翻倒) or **sinking** (下沉) into the water. The other dolphins **crowded** (聚集) around it. They paddled side by side with the injured female on their backs. By keeping the wounded female above water, they may have helped it to **breathe** (呼吸), avoiding **drowning** (溺水).

So how do they communicate with each other? Well, Scientists have discovered through observation and **meticulous** (一丝不苟的) testing that every dolphin has a different sound **resembling** (像) the **whistle** (口哨) that other dolphins recognize as a particular individual. Dolphins can **emit** (发出) a wide variety of sounds. The **frequency levels** (波频范围) range ten times beyond what humans can hear. *Q39*

But of course, there are other means of communication for dolphins besides sound. During mating season, male dolphins stroke females with flippers after a fight to affirm social bonds. *Q40*