F-MRI PRE LECTURE INVESTIGATION.

ANSWER (1).

Brief introduction on functional MRI.

The study of functional MRI has propelled our knowledge about the various brain activities during day to day task and neural activity of the human brain and because of which today brain mapping is possible . It is basically based on the concept of blood oxygenation level -dependent (BOLD) magnetic resonance imaging contrast . Its contrast changes with change in deoxyhemoglobin (dhb), which is the paramagnetic substance present in the cerebral of the brain. The Cerebral blood flow can be even detected by by normal MRI , but we can image the neural activity and interpret various brain functions like vision, language , cognition.

ANSWER (2). *The possible start of controversy*

The first thing that could have started the controversy is that the subject(Atlantic Salmon) was not alive at the time of scanning. The fMRI measure the neural activity of the brain by measuring the increase in the activity of a particular region of the brain. How could a dead Atlantic Salmon have brain activity which can be interpreted .FMRI is Blood oxygenation level dependent magnetic resonance imaging , the dead salmon won't be changing the deoxyhemoglobin level which is the basis of the fMRI scan.
The other thing is that the for a successful fMRI scan, FDR(false discovery rate) and FWER(family wise error rate) should be controlled, which could have been better. More multiple comparisons could have been made to reduce error rate .

ANSWER (3) *EPI in the context.*

The Echo-planar imaging (EPI) may yield such events which are not causally related to one another as basically EPI is the faster version of normal MRI as it allows image acquisition at a very fast rate (20 mili seconds) and faster performance. Due to its impulsive(fast) response and performance (as its dependent on single RF excitation) , it can hinder the process of comparisons and may lead to false interpretations .

REFERENCES:
[1] Faro, S.H. and Mohamed, F.B. eds., 2006. Functional MRI: basic principles and clinical applications. Springer Science & Business Media.
[2] DeLaPaz, R.L., 1994. Echo-planar imaging. *Radiographics*, *14*(5), pp.1045-1058.