

School competition

Science that changed the world

Congratulations to our two winners of our school writing competition. Both students really impressed us with their essays on science that changed the world.

JOINT WINNERS



Making the link between inactivity and heart disease

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Heart and circulatory conditions kill 1 in 4 people in the UK. Current NHS guidelines suggest that 150 minutes of moderate exercise a week is needed to maintain good cardiovascular health. Today there is a huge body of evidence showing a correlation between low levels of activity and poor cardiovascular health. Consistent studies have shown that sedentary people have twice the risk of developing coronary heart disease as active people. This link was first shown in a study by Professor Jerry Morris whose original study led to further investigation which proved the undeniable benefits of physical activity.

Professor Jerry Morris was born in Liverpool in 1910 after his parents had left Poland. The family moved to Glasgow where he was educated before he went to medical school in London. He qualified as a doctor in 1934. He joined the Royal Army Medical Corps in the 1940s and was based in India and Burma and was involved in early penicillin trials. After the war he worked for the Medical Research Council's social medicine unit and became involved in public health initiatives at the start of the National Health Service. Morris entered medicine with the purpose of finding out why inequalities in health impacted different types of people in different ways.

After the Second World War there was little money around for medical research but Morris saw a solution using London buses as a way to study heart disease. There was an increase in the number of heart attacks in working men. In 1949 he proposed the hypothesis that men in physically active jobs have a lower incidence of coronary heart disease than those in more sedentary occupations. He carried out his investigation on conductors and drivers of London double decker buses. One job was sedentary, sitting down driving the bus all day and one was active moving up and down the bus and climbing the stairs. Commonly bus drivers and conductors were men from similar socio-economic backgrounds with similar diets

and working environments, the only main difference was the level of physical activity involved in their jobs. Morris' experiment included around 31,000 men employed as drivers and conductors of buses, trolleybuses and trams.

The study examined the sickness and absence records of the employees involved aged between 35 and 64. Records were obtained from GPs and hospitals and any cases of heart disease were noted. Death certificates were examined to look for deaths due to the condition. It was found that there were 80 cases of heart disease among the drivers and 31 in the conductors. This difference was shown in the drivers and conductors of buses and of the drivers and conductors of trolleybuses and trams. Although this was a small study the findings were significant. The conclusion was that employees who were more physically active in their daily jobs had lower rates of coronary heart disease. Further research was done which examined uniform size and early health experiences. More studies were done with contrasting occupations in the population, a study of telephonists who sat for most of the day and postal workers who walked or cycled on their delivery rounds, which supported the original findings.

Morris' study was the first to prove a link between poor levels of activity and heart disease. This was significant as it showed that inactivity was a risk factor for the disease. There have been many studies since the 1950's looking at the population over longer periods which has contributed more data to prove Morris' hypothesis. The importance of his work is in the public health messages that have been developed to influence the lifestyle of the population to prevent coronary heart disease. We now understand that many other diseases are linked to lack of exercise such as obesity, diabetes, hypertension and poor mental health. Morris himself believed in the benefits of exercise for good health and this pioneering, simple study was significant in establishing the link.