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NFL Mortality Study

The National Institute for Occupational Safety and Health (NIOSH) has recently completed an analysis of the rate of death among professional football players. NIOSH was asked by the NFL Players Association to investigate concerns that players were dying prematurely. The study revealed that, overall, football players die at a rate 46% less than that of the general population. However, linemen had about a 50% greater risk of death from heart disease. This study has important health implications for not only professional football players, but also for the tens of thousands of high school and college athletes who play the game. More detailed information on the study results follows.

Overall Death Rate

The NIOSH study found that overall, NFL players had a standard mortality ratio (SMR) of .54, or they had a 46% decreased rate of death. More specifically, based upon the occurrence of death among men of similar age and race in the general population, 189 deaths were expected, but only 103 occurred. This research indicates that NFL players have a normal life expectancy. However, the study group contains a relatively young group of men, only a few of which have reached the age of 50. Researchers will therefore not be able to determine their average age of death for several years.

Heart Disease

Although football players do not have an increased risk of death overall, players in certain positions have a substantially increased rate of heart disease. NIOSH found that offensive and defensive linemen had a 52% greater risk of dying from heart disease than the general population, and three times the risk of dying from heart disease than other football players.

Clearly, the increased body size typical of these positions is contributing to this substantial risk. Although obesity has been linked to heart disease in several research studies, the NIOSH study found one of the strongest associations to date between body size and death from heart disease. Players in the largest body size category, 64% of all linemen, had a 6 times greater risk of heart disease than those of normal size.

Because information on other risk factors for heart disease such as blood pressure and cholesterol levels

were not available, it is not possible to determine what about linemen, besides body size, contributes to their increased risk.

Violence & Accidents

In addition to the risk of heart disease among athletes, there have also been concerns that players are more likely to die from acts of violence and accidents than the general public. The theory was that these men are likely to be risk-takers and engage in dangerous hobbies and activities. Yet, the NIOSH study found that players had a substantially decreased risk of death from both violence (79%) and accidents (39%) when compared to the general population.

Cancer

There were also concerns about the risk of cancer among professional football players. NIOSH found that, overall, players' rate of death from cancer was similar to that of the general population.

Nervous System Disorders

NIOSH did find an increase in nervous system disorders. This increase is due to four deaths of what is commonly known as Lou Gehrig's disease. In addition to the three highly publicized deaths of San Francisco 49ers, NIOSH documented a fourth. Because the causes of Lou Gehrig's disease are not clearly understood, it is difficult to speculate about what might put football players at increased risk for this disease. In addition, it is possible that this cluster of cases occurred by chance.



U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control and Prevention

National Institute for Occupational Safety and Health



RECOMMENDATIONS

- **Players must be informed of the risks they face and encouraged to have regular medical checkups to help prevent heart disease.**
- **Players should take steps, both during their playing years and after they retire, to reduce their risk of death from heart disease.**
- **Coaches and players in high schools and colleges across the country must be informed of and acknowledge the critical public health message resulting from this study—the message that anyone considering “bulking up” to play football should also consider the very real threat of heart disease.**

What is NIOSH?

NIOSH is the federal research agency responsible for the prevention of work-related injury and disease. A part of the Centers for Disease Control and Prevention, NIOSH conducts research and provides scientific recommendations to the Occupational Safety and Health Administration (OSHA) and others. In addition, another congressionally mandated responsibility of the Institute is responding to requests from employers and employees for investigations of potential hazards in their workplace.

How did NIOSH get involved in this study?

The NIOSH Health Hazard Evaluation (HHE) Program responds to all requests for workplace investigations. Through this program, the NFL Players Association requested that NIOSH investigate concerns that players were dying prematurely. Prior to the study, many believed that the average age of death for football players was 55.

Who was studied?

NIOSH began the study by looking at all players included in the NFL pension fund since 1959, the year they began keeping detailed records. After excluding players for which information was unavailable, the final study group included 6,848 players.

However, prior to 1972, the pension fund only maintained information on vested players, that is, those who played five or more seasons. For the years 1972-1988, records were available for all players with at least one season of play. Researchers therefore divided the players into two groups—those who have played five or more seasons (3,420 players) and those who have played between one and four seasons (3,428 players).

The group with less than five years experience is younger and consequently had fewer deaths. For this reason, these results primarily focus on players with at least five seasons of play, particularly in light of the similarity of the findings in both groups.



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