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LONGEVITY OF MAJOR LEAGUE BASEBALL PLAYERS

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*The purpose of this study was to determine whether major league baseball players live longer than the general public. Ages of death of major league baseball players who debuted between 1900 and 1950 were obtained, and differences between ages of death and age-adjusted life expectancies were determined by analysis of variance and *t*-tests, taking into account player position. Correlational analysis also was conducted to determine if career length affected longevity. Baseball players lived an average of four years longer than age-matched controls from the general public. Career length did not affect longevity among players. We concluded that professional athletes, as represented by major league baseball players, have increased life expectancies. This increase cannot be explained by increased fitness associated with working as a professional athlete, but is likely the result of an initial selection process for becoming a professional athlete.*

Keywords: longevity, athlete, baseball, fitness

INTRODUCTION

While moderate physical activity is associated with increased longevity (Paffenbarger, Hyde, Wing, et al. 1986; Pekkanen, Marti, Nissinen, et al. 1987), studies of longevity among elite athletes have yielded conflicting results. Compared to the general population, rugby players ($n = 822$) and professional baseball players ($n = 958$) did not have significantly different survival curves or standardized mortality ratios (Beaglehole and Stewart 1983; Waterbor, Cole, Delzeli, et al. 1988). By contrast, a small study of

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297 athletes engaged in 19 different sports found a lower than expected death rate up to age 50 (Schnohr 1971), a study of champion skiers ($n = 396$) reported a lower mortality (Karvonen, Klemola, Virkajarvi, et al. 1984), and a study of male long-distance skaters ($n = 2,259$) likewise found they had a lower mortality than the general population (Van Saase, Noteboom, and Vandenbrouke 1990). More recently, Sarna and Colleagues (1993) compared 2,613 Finnish world-class athletes with age- and health-matched controls and found that athletes engaged in primarily aerobic sports—for example, long-distance running and soccer—enjoyed a significantly greater life expectancy than controls, whereas those engaged in power sports, such as wrestling, did not differ significantly from controls.

Because there are relatively few large-scale studies of the relation between longevity and competitive world-class sports (Sarna, Sahi, Koskenvuo, et al. 1993), in the present study we reanalyzed the relationship between longevity and professional baseball players using a larger data set than the 984 players previously evaluated by Waterbor, Cole, Delzeli, et al. (1988). The present study reexamined the longevity of baseball players over a much longer period, comparing players who debuted in the major leagues between 1900 and 1950 with age-appropriate controls. Because the age at which an athlete debuts in a sport is an import variable affecting longevity (Sarna, Sahi, Koskenvuo, et al. 1993), we specifically controlled for this factor. Although major league baseball was integrated in 1948, there were almost no non-Caucasian players so that comparative mortality rates, which are based on Caucasian men, were used for comparison purposes.

METHODS

All major league players who debuted between 1900 and 1919 were compiled from the *Lahman Baseball Archive* (2003). Year of birth, age at debut, career length, player position, and year of death were recorded. Player positions were divided into four categories (infielders, outfielders, pitcher, catcher), defined by the position a player occupied most frequently during his career. Standardized life expectancy tables (Berkeley 2004) were used to calculate age-adjusted life expectancy based on a player's age when he debuted in the major leagues. Data were analyzed by repeated measures of analysis of variance (ANOVA), paired t-tests, and partial correlation (Daniel 1999).

RESULTS

All players ($n = 2,604$) in the cohort debuting between 1900 and 1919 were dead by 2003. Average age of death for players as related to position is presented in Table 1.

Table 1. Longevity of Players Debuting Between 1900 and 1919 as Related to Player Position (n = 2,604)

Position	Variable	Mean	SD	n
Infielder	Age at death ¹	69.2	15.9	652
	Predicted age at death ²	63.6	1.2	
Outfielder	Age at death	68.3	15.4	539
	Predicted age at death	63.5	1.2	
Catcher	Age at death	68.0	15.6	295
	Predicted age at death	63.6	1.0	
Pitcher	Age at death	67.6	13.9	1,073
	Predicted age at death	63.4	1.4	

¹Actual age at death.
²From Berkeley, 2004.

Baseball players lived about four to five years longer than their age-adjusted controls. Analysis of variance indicated that this difference was statistically significant ($f = 188.0$, $df = 1$, 2,555, $p < .001$). The position a player occupied for most of his career did not significantly affect his longevity ($f = 1.7$, $df = 3$, 255, $p = 0.16$), nor was there a statistically significant interaction between the “player effect” and position ($f = 1.2$, $df = 3$, 255, $p = 0.30$).

Healthy Worker Effect

A partial correlation analysis was conducted for players to assess the relationship between career length and longevity after retirement, controlling for age at retirement, year of retirement, and rookie year. Career length did not affect longevity among baseball players ($r = 0.02$, $p = 0.24$).

DISCUSSION

Using a larger database than previously examined, this study corroborated the previous studies’ reporting that major league baseball players live longer than nonplayers, even when they are matched for year of birth and age at time they debuted in the major leagues (Waterbor, Cole, Delzeli, et al. 1988; Metropolitan Life Insurance Co. 1975). On average, we found that major league players lived four to five years longer than age-matched controls. Sarna, Sahi, Koskenvuo, et al. (1993) likewise found that world-class male athletes engaged in team sports also lived longer than age-adjusted controls, but athletes whose training was not principally aerobic did not have greater longevity.

In their more limited study of players playing between 1911 and 1915, Waterbor, Cole, Delzeli, et al. (1988) were able to follow up and determine

cause of death. Most players died of atherosclerotic heart disease, with cancer being the second leading cause of death. Infielders had the lowest mortality rate (86%), followed by outfielders (91%) and pitchers (98%). Catchers, by contrast, had a higher mortality rate (105%) than the comparison group. A secondary analysis comparing length of playing career, longevity, and years of a player's first game found a "healthy worker effect" (McMichael 1976), a reduction in death rate of 96% for players whose careers lasted four or fewer years, to 84% for those with careers of 10 to 14 years. Infielders had the lowest overall mortality ratios, and catchers had the highest.

Our larger sampling of players was unable to corroborate their finding of a position-related effect on longevity (Waterbor et al. 1988). Likewise, the difference in longevity in our study could not be accounted for by one aspect of the healthy worker effect, a selection bias that occurred because healthy workers remained employed and remained fit for a longer time (McMichael 1976). In our study, we examined longevity of players after retirement as a function of career length and did not find that length of playing career correlated with longevity. However, this does not necessarily contradict the healthy worker effect in the context of players versus nonplayers, because players may have been superior physically when they debuted compared to their nonplaying age-matched controls, and maintained that advantage throughout their careers because of their need to maintain muscular strength and conditioning, proper dietary habits, and close monitoring of their health by team physicians during their careers. In their study of Finnish world-class athletes, Sarna, Sahi, Koskenvuo, et al. (1993) found that former athletes had a healthier and physically more active lifestyle after their competitive period, which also would contribute to their greater longevity (Paffenbarger, Hyde, Wing, et al. 1986; Pekkanen, Marti, Nissinen, et al. 1987).

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