



# **National Football League Player Care Foundation**

## **Study of Retired NFL Players**

### **Final Report**

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In order to learn more about retired professional football players and to obtain an accurate portrait of their current health and well-being, the National Football League (NFL) and its Player Care Foundation sought the expertise of several distinguished researchers at the University of Michigan to conduct a scientifically rigorous survey of retired players. The Michigan team conducted phone interviews in November and December, 2008 with a stratified random sample of 1,063 retired players and asked questions across a range of topics. The questionnaire was designed to maximize comparability with established national surveys of the general population so that the characteristics of retired players could be compared with other men of the same age and race. Because their experiences are likely to be quite different, a comparison was also made between younger (age 30-49) and older (age 50 and older) retired players.

The study provided a wealth of information which will aid the study's sponsors in their efforts to respond to the needs of retired players. In many ways, however, it also debunks popular myths and shows that some commonly held perceptions about NFL players are actually misperceptions. Some of these myths have arisen, no doubt, as a result of isolated, high-profile events involving a few NFL players. This study of a random sample of retired NFL players paints a different portrait. It finds a group who are satisfied with life, who are, in general, well-educated with strong social connections to family, friends, and community. Retired players describe themselves as very religious and spiritual and report significant amounts of care and giving to others. They are, by many other measures, much like average men their age in the general population. Of course, there are some differences, and this report offers insight into their nature and may raise potential areas for further study.

### **1. Background Characteristics**

Basic demographic characteristics reveal a great deal about retired players. Retired NFL players are highly educated. While college graduation rates are higher for older NFL retirees (compared to their younger counterparts), the overall college graduation rate of about 80% among retired NFL players is much higher than the general population rate of about 30 percent. NFL retirees are more likely to be currently married than comparable men in the general population and are less likely to have never married. In fact, 64 percent of younger players and 53 percent of older players are still married to their first wife. Older retirees have higher rates of divorce than younger retirees, although the divorce rate of 20 percent for younger and 37 percent for older is comparable to that found in the general population (26 percent and 36 percent, respectively). NFL retirees have fairly typical numbers of children (2.28 for younger and 2.56 for older retirees). NFL retirees are much more religious than the general population. Retired players are about twice as likely as all men to report themselves as very religious, and only about half as likely to say they are not at all religious. Lastly, military service was fairly common in the older retirees (26.4 percent), but uncommon in the younger retirees, all of whom came of age after the draft had ended.

### 2. Life in the NFL

Playing in the NFL is a unique experience few achieve. NFL players are elite athletes of the highest order. One of the goals of the study was to assess retirees' experiences with the NFL and to determine their expectations regarding the NFL's continued role in their lives. An overwhelming majority of retirees, both young and old, reported that playing in the NFL was a positive experience for them. Their retirement from the NFL seems to be a complex process. Forty percent of older retirees and 27 percent of younger retirees retired from the NFL on their own terms while they were physically capable of playing and without trying to re-sign with another team. Fifty percent of older and 38 percent of younger retirees said injuries were not important in their decision to retire. Another series of questions asked about players' level of connection to the NFL and to other retired players during the time since they retired from the NFL. Although most players say they would like to have more contact with the NFL, most say they rarely or never visit the NFL website. Players' suggestions on the best ways for the league to reach out to former players ranged from phone calls, regular newsletters, regional meetings, email, and other means of communication to suggesting things like providing better health care or raising pension amounts. Some thought the league was already doing enough. In general, older retirees were more aware of the existence of player assistance programs, were more likely to have referred someone to them, and were more likely to say they would use them if needed. Most veterans had not sought assistance from them. The new Player Care Foundation, the sponsor of this study, was much less well-known than the NFL Player Associations' Player Assistance Fund or the NFL Alumni Associations' Assistance Fund. A small percentage of retired players have a high frequency of contact with NFL friends. These relationships can be characterized as supportive (nearly 1 in 4 retirees report giving help to NFL friends fairly or very often) and close.

### 3. Work outside the NFL

An area in which one might expect to see stark differences between younger and older NFL retirees is in work history outside of the NFL. As expected, older retirees are much more likely than younger retirees to have worked at a job in the off-season while playing in the NFL. They are also more likely to have begun working a steady job within one year of retirement from the NFL. Compared to the general population of the same age, the younger NFL retirees are less likely to be currently working; the older retirees more likely.

### 4. Relationships with others – social support

We also asked retired players the same set of questions about interactions with family and friends that we asked for their interactions with NFL friends. NFL retirees are much more likely to report providing help to rather than receiving help from family. This help is very frequent: about 80 percent of retirees report helping out family fairly or very often. Another indicator of social connectedness is how often one interacts with other people. Frequency of contact with

family (not at home) is very high for all retirees, and contact with friends was nearly as frequent. Retirees report that they are closest to their families—about 70% are very close and only about 5% say they are not close to their families.

### **5. Health Behaviors/Risks**

The survey compared body mass index (BMI) and found the percent of men with BMI in excess of 35 (considered a general health risk) to be much higher among NFL retirees than the general population. However, BMI does not distinguish between muscle mass and body fat. It seems likely that even former NFL players have greater muscle mass than average American men. Thus, although they are certainly larger people, retired NFL players may not be fatter than average Americans given their history of fitness. This may help explain why the study finds high rates of arthritis (which may be associated with larger body size) but did not find higher rates of diabetes and cardiovascular disease (which are both associated with obesity). We also investigated a range of health behaviors. Fewer than eight percent of NFL retirees smoke cigarettes, compared with over twenty percent of the general population. On the other hand, NFL retirees are more likely to be light or moderate alcohol drinkers. While there is some controversy over the issue, many studies have found that moderate alcohol consumption is associated with better health than are either heavy drinking or abstinence.

### **6. Health and Disability**

The main part of the survey asked questions about health and well-being. To make the comparison to the US population as accurate as possible, the US data were weighted to match the age and race of the NFL retirees. For example, African-Americans have higher rates of diabetes and hypertension than whites in the US. The proportion of African-Americans among NFL retirees is higher than in the general population. By weighting the national population used as a reference to match the NFL race composition, that source of difference between NFL retirees and the general population is eliminated.

Some limitations must be noted. Surveys do not directly diagnose disease or measure performance. They ask questions about diagnosis and perceived ability. A population of professional athletes, for whom physical performance was critical to success, may well be more medically aware and knowledgeable than the general population.

The health questions focused mainly on diseases that are prevalent in the general population, such as heart disease and diabetes. NFL retirees report fewer heart attacks and strokes than the general population. These particular reports are probably more accurately reported because they are major events that are not likely to be forgotten. NFL retirees are also less likely than the general population to report angina, a specific type of chest pain related to arterial blockage. On the other hand, both younger and older NFL retirees report more of the less specific categories of “coronary heart disease” and “any other heart disease.” High performance athletes are trained to be highly aware of body sensations/discomforts and so they may notice them at a higher rate than

the general population or they may in fact experience more of them. NFL retirees of all ages are less likely to report having diabetes than comparably-aged men in the general population. Older NFL retirees have rates of hypertension, high cholesterol, and poor circulation (a risk factor for clots) that are similar to the general population. Younger retirees, on the other hand, have higher levels of high cholesterol and high blood pressure than the general population. Attention to these risk factors is warranted to prevent more serious cardiovascular problems in the future. Older NFL retirees are less likely than men in the general population to report emphysema, a severe breathing disorder strongly associated with smoking (a health risk which is much lower among NFL retirees). They are also less likely to report asthma. Rates of both of these disorders among younger retirees are similar to the general population.

The NFL survey also asked about sleep apnea, a condition that gained national attention with the death of popular pro football Hall of Famer Reggie White. Older and younger retirees are almost equally likely to report sleep apnea, at about 17%. This is much higher than conventional estimates of about 4% of adult men, suggesting that some of the reports may erroneously be of less severe breathing problems while sleeping. However, risk of sleep apnea is correlated with body size, so it is likely that its prevalence is higher among NFL retirees.

The survey also asked about several other health conditions. NFL retirees are no more likely than men in the general population to suffer kidney problems. Urinary problems, most commonly related to prostate issues in men, are also very similar. Ulcers are slightly less common in older NFL retirees than comparably-aged men and about the same for younger men. Cancer reports are higher among NFL retirees; however, there was no probe of what type of cancer.

The most striking difference between NFL retirees and the general population is in the reported diagnosis of arthritis. This is not surprising since NFL players, like other high performance professional athletes, use their bodies more intensely than the general population. Rates of arthritis among NFL retirees are nearly five times higher among younger retirees than comparable men in the general population, and twice as high at older ages.

NFL retirees report higher rates of all types of pain than the general population. As with diagnosed arthritis, this was particularly pronounced in the younger group, who appear in worse shape than the older group in the general population and slightly worse than the older group of retirees. Not surprisingly, the biggest difference is in joint pain. Nearly one in four older retirees have had at least one joint surgically replaced. Rates are lower in the younger group. Knee replacement is considerably more common than hip replacement among NFL retirees.

In terms of overall health, older NFL retirees do not rate their health very differently from the general population; most say good or very good. A somewhat higher fraction of older retirees say their health is poor than in the general population. Younger retirees, on the other hand, see their health much worse than similarly aged men in the population. They rate their health about the same as older men. Nearly two-thirds of younger men in the general population say their

health is excellent or very good; only forty-one percent of NFL retirees say that. Fewer than ten percent of younger men say their health is fair or poor, whereas nearly thirty percent of younger NFL veterans do. Self-ratings are subjective and players may be comparing themselves to higher standards of physical health than ordinary people would.

Another aspect of the study examined the impact of health problems, in particular functional limitations. Functional limitations refer to problems with a range of physical tasks that might be limited due to health problems, for example, walking, climbing stairs, standing for an extended time, lifting and carrying, and reaching. Health problems are defined as “any physical, mental, or emotional problem or illness.” Players were asked how much difficulty they had with each of a list of 8 such activities. They answered on a 5-point scale from “not at all difficult” to “can’t do it at all.” Looking at those who reported that an activity was somewhat or very difficult or that they could do it at all, NFL retirees are much more likely to report difficulty across the range of physical tasks compared to average men their age. Older retirees reported about the same level of inability to work as the general population but are more likely to report they had some limitation. The most extreme form of disability is the dependence on others for help with basic needs. The absolute levels of such dependence are low, but for those affected, this is a serious situation.

### **7. Mental Health**

The mental health of NFL players and retirees has been the subject of some controversy, including claims of brain damage leading to higher rates of depression and dementia. Overall reports of depressive symptoms are slightly higher among younger retirees than in the general population of men of the same age and race.

We also evaluated intermittent explosive disorder (IED), which is defined as episodes of unpremeditated and uncontrollable anger. In contrast to depression, NFL retirees are much less likely to report episodes of anger than the general population.

Dementia is much more difficult to diagnose in surveys than depression or IED, in part because it directly affects the respondent’s ability to participate. In the NFL study, we conducted some interviews with a proxy reporter (generally the wife) of some players who are unable to answer for themselves. We did not administer cognitive tests and did not conduct neurological examinations. The only information we collected about dementia was to ask the respondent (or proxy) if they had ever been diagnosed with “dementia, Alzheimer’s disease, or other memory-related disease.” Diseases of memory are rare, but NFL retirees report higher rates. At 6%, the older group of retirees is particularly high.

### **8. Health insurance and health care**

Fifteen percent of all men between the ages of 50 and 64 do not have health insurance compared to 8 percent of NFL retirees of the same age. The rate of uninsurance is 22 percent for men aged 30-49 in the general population but only 9 percent for comparably aged NFL retirees. However,

most of that difference is explained by privately purchased health insurance, which tends to be expensive. Providing access to lower-cost group health insurance might be of benefit to many retired players. Prescription drug insurance is lacking for a larger number, including some older retirees who have Medicare health insurance. Given the burden of arthritis and related conditions, access to prescription drugs is important and likely to become more so. The NFL drug discount card was not widely used.

Mirroring these patterns of insurance coverage are the reports of unmet health care needs. Retirees over the age of 65 are less likely to report unmet need, primarily because Medicare covers many health care needs. For those under 65, 16% needed dental care they could not afford, close to 10% needed surgery they could not afford, and about 8% could not afford prescription medicine. About 4% did not get mental health care they needed. NFL retirees seem to have stable sources of medical care. Most NFL veterans report having a place they usually go to for medical care (90 percent of older and 78 percent of younger).

### **9. Financial Well-being**

Overall, NFL retirees have higher income than men of similar ages in the general population. Median total income is considerably higher. The proportions with incomes below twice the poverty level are substantially lower. For younger retirees, however, the proportion with income below the poverty level is not very different from the general population. These comparisons are of greater concern when the comparison is made with men of comparable education. When the general population of men is restricted to men with some college education (though not necessarily a four year degree), the differences between NFL retirees and the population narrow considerably. Among men with some college education, younger NFL retirees are twice as likely to report income that is below the poverty level (8.4% versus 4.1 percent in the general population).

We find that over one-third of NFL retirees report some business income, and many report investment income. Endorsements are not particularly common—about 14% of more recent retirees, and 5% of older ones. NFL pensions, which may start at age 45, are much more common than other pensions and more common than Social Security retirement or disability income. Only a few retired players reported unemployment or worker's compensation or Supplemental Security Income. However, 9% of younger retirees and 5% of older ones reported receiving financial help from relatives, and another 7% (4%) received help from friends.

About 6% of younger retirees and 3% of older ones reported negative net income from their businesses in the previous year (that is about one fifth of all the younger business owners and one tenth of the older ones). We also asked everyone, including those without a current business, whether they have ever experienced significant losses in business or financial investments. Nearly half said yes. We also asked everyone if they had ever been given bad financial advice. Nearly half of younger retirees said they had, compared to 38% of older

retirees. Home ownership is very common; only 14 percent of older and 21 percent of younger retirees do not own a home. Not surprisingly, older players are more likely than younger players to own their homes outright or have a mortgage less than 50 percent of the home value.

### **Conclusion**

The NFL and its Player Care Foundation contacted the University of Michigan Institute for Social Research to commission a survey of pension-eligible retirees of the National Football League. They sought to have a scientifically rigorous survey to obtain facts about the demographic characteristics, health, and economic well-being of retired players to assess their needs. The study results will be very helpful to the sponsors in responding to the needs of retired players. The study finds retired players to be in very good stead, overall. They are satisfied with life and deeply connected within their social networks and communities. Their history of physical fitness (including low rates of smoking and high levels of physical activity) shows up in lower rates of diabetes and cardiovascular disease. On most other health problems they are similar to or healthier than the general population. However, they do have much higher rates of arthritis and reported pain and mobility problems than the general population. Retired players are in good financial shape overall, although there are small percentages of retired players who report financial difficulty. This is particularly true for younger retirees who appear to have more difficulty transitioning from their NFL careers than their older NFL counterparts. Playing in the NFL was a very positive experience for most retired players, and they appear to welcome continued and greater contact with the organization and other retired players.

### Methodology of the Retired Professional Football Players Study

The NFL Player Care Foundation contacted the University of Michigan Institute for Social Research to commission a survey of pension-eligible retirees of the National Football League. They sought to have a scientifically rigorous survey to obtain facts about the demographic characteristics, health, and economic well-being of retired players to assess their needs. The principal investigator for the study was David Weir, Ph.D, a Research Professor in the ISR's Survey Research Center. Dr. Weir is principal investigator of the Health and Retirement Study, the nation's premier study of the health and economic circumstances of the older population. The co-principal investigator was James Jackson, Ph.D., the Director of the ISR and Professor of Psychology. Dr. Jackson has led several path-breaking studies of the mental health of minority populations, as well as studies of former NCAA athletes. The sample design was produced by Steven Heeringa, Ph.D., a Senior Research Scientist in ISR. Dr. Heeringa is Director of Sampling in the Survey Research Center. The survey was conducted by the Survey Research Operations unit of the SRC. The final report was prepared with the assistance of Amanda Sonnega, Ph.D. Dr. Sonnega is Lecturer in the Schools of Public Health and Kinesiology at the University of Michigan.

Based on consultation with representatives of the NFL Player Care Foundation, the ISR team determined that the scientific objectives could best be met by a survey with the following characteristics: 1) a stratified random sample design with a target of about 1,000 interviews, 2) a primarily telephone-based survey with in-person interviews as an available option where telephone was not successful, and 3) a questionnaire designed to maximize comparability with established national surveys of the general population so that the characteristics of retired players could be compared with other men of the same age and race. The survey was a one-time cross-sectional survey. Longitudinal follow-ups with participants are possible should the PCF decide to sponsor such an extension.

### Sample Design

This section describes the sample design and sample size requirements for a new cross-sectional survey designed to study the characteristics and needs of former NFL players who are vested for retirement, covered by disability assistance or are actively participating in the League's retirement pension system. The survey population was supplied by the NFL and consisted of 6,983 former NFL players. All of these players have vested rights (3-4 years active playing time) in the NFL's pension system, though many are too young to be drawing the pension at present. The information supplied was limited, including name, address, telephone number, and retirement or disability status.

As shown in the following schematic provided by the NFL, the population of retired NFL players appears to stay geographically close to their former teams or other NFL franchise locations. The clustering in NFL cities is particularly strong in the West.

Figure 1: Distribution of Address for Former NFL Players. Source: NFL.



*Stratification of the Sample:* Stratification of the probability sampling of former players was deemed essential to maximize the precision of survey estimates for the primary interest of the study, which is unmet health needs. In a simple random sample, every individual in the population has the same probability of being included in the sample. In a stratified sample, everyone still has some probability of being included, but some groups have higher probabilities than others. This was done so that groups that are relatively small in size but more likely to have needs of interest (e.g., older retirees and those on disability) will be included at higher rates whereas those who are more numerous (e.g., younger retirees) are sampled at lower rates. Sampling weights (discussed below) are created to take account of the different sampling rates so that the overall weighted sample is identical in composition to the whole population. The purpose of stratification and disproportionate sampling is to improve precision, but not to overcount. Without weighting, the older and disabled retirees would be over-represented in the sample. By stratification combined with weighting, the precision of estimates of, for example, the percent with severe health problems, will be greater than it would be in a simple random sample of the same size.

## Study of Retired Professional Football Players

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. A variety of stratification designs were considered, and the final choice was for a relatively simple design of six strata. The first five strata were defined by age groups, and included everyone in that age group who was not on a disability pension from the NFL. Those on disability pensions were assigned to a single stratum, regardless of age. Table 1 below shows the total number of retirees in each stratum in the entire population, the sampling rate applied to each stratum, and the number thus selected to be approached for interview. A total of 1,625 names were selected for contact from the population of 6,983. For the actual survey data collection, random replicates of the full sample for each stratum were used to maintain control over the final target sample size from each stratum.

For convenience, the number of completed interviews and response rates by stratum are also shown in Table 1. For reasons having to do with the accuracy of telephone information, described under data collection methods below, the first, second, and sixth strata had more cases for which locating the intended respondent was more difficult and therefore lower response rates.

Table 1: NFL Retired Player Survey. Primary strata definition, population sizes, selected sample, and response rates for a national sample.

Stratum	Total Retirees	Sampling rate	N selected	Completed interviews	Response rate
26-44	2632	0.14248	375	200	53.3%
45-54	1554	0.22523	350	223	63.7%
55-64	1245	0.23454	292	217	74.3%
65-74	783	0.31928	250	189	75.6%
75+	340	0.44118	150	104	69.3%
Disabled	429	0.48485	208	130	62.5%
All	6983		1625	1063	65.4%

*Data Collection Methodology:* Telephone was the preferred mode of administration for the survey. Compared with mail surveys, telephone surveys are higher cost but can achieve higher response rates. They can also make use of computer-assisted interviewing (CATI) in which certain questions can be asked or not asked based on information provided in response to previous questions, tailoring the survey to the individual and obtaining more information more

efficiently. In-person interviews are much more expensive than telephone interviews. The benefits of in-person interviewing, such as the ability to directly assess height, weight, or physical abilities, did not outweigh the cost savings and larger sample size possible with telephone interviewing.

The interviewers were carefully selected to assure protection of the confidentiality of the survey respondents, some of whom were likely to be well-known celebrities. All interviewers and staff signed the ISR confidentiality agreement, which provides stiff penalties for any violation. Interviewers were given ten hours of general training in telephone survey methods, and an additional five hours of specific training on the NFL Retired Player survey instrument.

As the survey began, it became apparent that the telephone numbers provided by the NFL were in many cases no longer valid. Eventually, nearly 600 of the 1,625 selected players required additional tracking to locate a valid number or address. A subset of these cases based on geography and sampling stratum was chosen and in-person interviewing attempted. The response rate for cases with valid numbers exceeded the 70% target at 76%, while the response rate for cases for which tracking was needed was 47%. Although the characteristics of tracked cases did not differ greatly from those that did not need tracking, sampling weights were adjusted for this source of non-response (giving higher weight to completed cases that had been through tracking).

*Questionnaire Design:* A key goal for the survey was to be able to describe the situation of retired players along important dimensions not only to have those descriptions but also to be able to know whether they differed in significant ways from the general population. We know that heart attacks, back problems, and depression occur fairly often in the general population and we would expect them to occur also in the population of retired players. The question is whether they occur more or less often at the same ages. To make such comparisons, based on a telephone survey, the questionnaire was built primarily of questions that appeared in identical form on major national surveys, particularly telephone surveys. Most of the health questions are the same as those in the National Health Interview Survey—the primary telephone-based survey of disease prevalence in the US. The economic questions are comparable to items in the Current Population Survey, the official source of labor force, unemployment, and income statistics, and two major UM surveys, the Panel Study of Income Dynamics and the Health and Retirement Study. For specific topics not covered in those surveys, the study also drew on the National Health and Nutrition Examination Survey, the National Survey of American Life, and the National Survey of Family Growth.

### FINAL REPORT

#### Introduction

In order to learn more about retired professional football players and to gain some insight into their current health and well-being, the National Football League (NFL) and the Player Care Foundation sought the expertise of researchers at the University of Michigan to conduct a survey of retired players. The Michigan team conducted phone interviews with a random sample of 1,063 retired players and asked questions across a range of topics. Answers to some questions are compared to data from studies of the general U.S. population of men their age. In these instances, the population data were weighted to reflect the age and race composition of the NFL sample in order to make the comparisons meaningful and accurate. Because their experiences may differ, comparisons were also made between younger (age 30-49) and older (age 50 and older) retired players. It is important to note that retirees in this sample are only those who were eligible for an NFL pension, which, among other things, means that they had to have played in the League for at least 3 years (the average was 7.3 seasons). Thus, these results do not generalize to all retired players but only to those who had 3 or more years of tenure in the League.

The study sheds light on some issues of concern and suggests potential points of intervention. In many ways, however, it also debunks popular myths and shows that some commonly held perceptions about NFL players are actually misperceptions. Some of these myths have arisen, no doubt, as a result of high-profile events involving some NFL players. This study of a random sample of retired and pensioned NFL players paints a different portrait. It finds a group who are satisfied with life. Retired players are, in general, well-educated with strong social connections to family and friends. They describe themselves as very religious and spiritual and report significant amounts of care and giving to others. They are, by many other measures, much like average men their age in the general population. Of course, there are some differences, and this report offers insight into their nature and points to potential areas for future study.

#### 1. Background Characteristics

Basic demographic characteristics reveal a great deal about retired players.

##### *Age and Race*

Table 1.1 shows the age distribution of the sample. Table 1.2 shows the racial composition of the sample. Overall, 61.4 percent of respondents were white, 36.8 percent were African-American, 1.4 percent were Hispanic or Latino, and 0.4 percent were some other race (Asian or Pacific Islander).

Table 1.1 NFL sample counts, by age

<b>Age</b>	<b>Number</b>
25-29	19
30-35	74
35-39	103
40-44	67
45-49	130
50-54	129
55-59	122
60-64	118
65-69	115
70-74	80
75-79	56
80-84	29
85-89	15
90+	6

Table 1.2 NFL sample counts by age and race

<b>Age</b>	<b>White</b>	<b>African American</b>	<b>Hispanic</b>	<b>Other</b>	<b>Total</b>
<35	98	158	5	2	263
35-44	137	114	7	1	259
45-54	157	82	0	1	240
55-64	161	32	2	0	195
75+	100	5	1	0	106
Total	653	391	15	4	1,063

*Education*

Table 1.3 presents a variety of statistics about education. Virtually all retired NFL players enrolled in college prior to playing in the NFL. The survey asked about whether they had graduated from college and when, or if they had completed college elsewhere. Nearly half graduated college before they entered the NFL; slightly fewer of the younger players. Older players were more likely to graduate during their playing days, and younger players slightly more likely after playing. Graduation rates were higher for older retirees. Even so, college graduation rates among retired NFL players are very high (74.3 percent for younger and 82.6 percent for older players) compared to the general population where only about 30 percent of men (in both age groups) graduated from college.

Table 1.3 College education rates

	All US Men		NFL retirees	
	30-49	50+	30-49	50+
<b>College graduation</b>				
Before NFL			44.2%	48.5%
During NFL			12.6%	20.2%
Post NFL			12.4%	9.8%
Some other college			5.1%	4.0%
Did not graduate	70.0%	71.4%	25.7%	17.4%

*Marriage*

NFL retirees are more likely to be currently married than comparable men in the general population. Table 1.4 shows that 75 percent of younger retirees and 81 percent of older retirees are currently married compared to 64 percent and 74 percent of comparable men.. In contrast to popular characterizations, retired NFL players are no more likely than the general population to currently be widowed or divorced. They are also less likely never to have married. The survey allows us to calculate the percent of retired players who are still married to their first wife. Sixty-four percent of younger players and 53 percent of older players were still married to their first wife. Lifetime divorce rates are comparable to the general population (in fact, slightly lower for younger retirees).

The survey also asked about the timing of first marriage relative to their NFL playing career. The older group was much more likely to have married prior to joining the NFL; the younger group was more likely to have married while playing in the league. For men who married before or during their NFL playing careers, there is a noticeable increase in the divorce rate in the 5 years right after retirement. Older retirees had higher rates of divorce during and right after playing in the NFL than younger retirees.

Table 1.4 Marriage

	All US Men		NFL retirees	
	30-49	50+	30-49	50+
<b>Current Marital status</b>				
Married	64.4%	73.9%	75.5%	81.1%
Divorced/Widowed	12.4%	19.3%	11.3%	16.6%
Never married	23.2%	6.8%	13.2%	2.2%
Ever divorced	25.6%	35.8%	19.7%	37.4%
Married to first wife			64.5%	52.7%
First marriage before NFL			16.7%	42.3%
First marriage during NFL			59.6%	44.4%
First marriage after NFL			10.5%	11.1%

Of those married before or during NFL

First marriage ended during NFL	7.6%	11.3%
First marriage ended less than five years after NFL	13.3%	15.0%
First marriage ended five or more years after NFL	6.9%	20.8%

*Children*

NFL retirees have fairly typical numbers of children. The survey asks specifically how many “children you have fathered” and does not specify whether or not they are children born into a marriage. This provides some assurance that the information reflects all children born to these men. Older retirees have slightly more children than younger ones. They have fewer dependents, mainly because their children are grown.

Table 1.5 Number of children

<u>Children</u>	NFL retirees	
	30-49	50+
Number own children	2.28	2.56
Number own children living at home	1.61	0.41
Number step kids at home	0.18	0.10
Number dependents not at home	0.41	0.25
Total dependent kids	2.20	0.76

*Religious identity and spirituality*

The survey asked retired players standard questions about the frequency of church attendance and how much they thought of themselves as religious or spiritual. Overall, retired NFL players have a high degree of religious identity and spirituality. About one-third of retired players attend church every week, and about another third attend once a month or more. A slightly higher percentage of older players never attend church than younger ones. Overall, only about 15 percent of retired players attend church no more than once a year. These practices are reflected in the self-ratings of religiosity. Just over 20 percent say they are not very religious or not religious at all. Even higher proportions see themselves as spiritual. About 10 percent of all retirees see themselves as not very or not at all spiritual.

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On religious attendance and religious identity, we can compare the NFL population to the general population using the General Social Survey, adjusted to the age and race composition of the NFL retired players. NFL retirees are much more religious than the general population. Over 40 percent of men in the general population attend church no more than once a year compared with only 15 percent of retired players. Retired players are about twice as likely as all men to report themselves as very religious, and only about half as likely to say they are not at all religious.

Table 1.6 Religious identity and spirituality

<b>Frequency of church Attendance</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Never	22.5%	21.0%	6.9%	12.3%
Once a year or less	22.2%	21.2%	5.5%	6.3%
A few times a year	12.9%	10.4%	15.3%	19.3%
A few times a month	22.3%	19.2%	38.0%	27.4%
Once a week or more	20.2%	28.3%	34.4%	34.7%

<b>How religious are you?</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Very religious	15.3%	18.8%	32.3%	29.6%
Fairly religious	38.2%	43.8%	44.7%	49.1%
Not very religious	27.0%	24.6%	14.9%	13.2%
Not at all religious	19.5%	12.8%	8.2%	8.0%

<b>How spiritual are you?</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Very spiritual			52.5%	42.2%
Fairly spiritual			40.1%	45.5%
Not very spiritual			5.6%	7.8%
Not at all spiritual			1.8%	4.6%

### *Military Service*

Military service was fairly common in the older retirees (26.4 percent), but uncommon in the younger retirees, all of whom came of age after the draft had ended (1.1 percent). Among the older retirees who served in the military, 40 percent began their service before playing, 53 percent began while playing, and 7 percent began it after playing in the NFL.

## 2. Life in the NFL

Playing in the NFL is a unique experience few achieve. NFL players are elite athletes of the highest order. One of the goals of the study was to assess retirees' past and present experience

with the NFL. This section reports on those experiences across a range of topics. It also queries about retirees' wishes vis-à-vis the NFL.

### *Playing in the NFL*

The survey asked players to rate their experience playing in the NFL as very positive, somewhat positive, or not positive. Not surprisingly, playing in the NFL was a very positive experience for the vast majority of players: 78 percent of older and 69 percent of younger retirees said it was very positive. Only 2 percent of older and less than 1 percent of younger players said that it was not positive.

### *Retirement from the NFL*

Given this high level of "job satisfaction," it makes sense that most players would want to continue playing professionally as long as possible. Nonetheless, retirement from the NFL occurs in a variety of ways. We evaluated the extent to which injuries were a factor influencing the retirement decision. Some players seem to have retired on their own terms while they were physically capable of playing and without trying to re-sign with another team. Forty percent of older retirees and 27 percent of younger retirees retired from the NFL in this manner. Even in this group, however, injuries played a role: only 50 percent of older and 38 percent of younger retirees who retired without trying to re-sign and who thought they were physically capable of playing longer said injuries were not important in their decision to retire. Among players who did try (unsuccessfully) to sign on with other teams after their last year on an active roster, only 24 percent of older and 11 percent of younger retirees said injuries were not important in their inability to sign on. Overall, only 30 percent of older and 16 percent of younger retirees said injuries were not an important factor in leaving the NFL.

### *Post-retirement interactions with the NFL*

Another series of questions asked about players' level of connection to the NFL and to other retired players during the time since they retired from the NFL. The survey asked about internet use in general, and specifically about use of the NFL website. Most do use the internet: 72 percent of older retirees, and 96 percent of younger. But the NFL site is not a popular destination: 42 percent of older and 40 percent of younger retirees who use the internet say they never visit the NFL site; another 41 percent say they rarely do.

Most retirees said they would like to have more contact with the NFL (78.8 percent of younger and 66.3 percent of older). We asked for suggestions on the best ways for the league to reach out to former players. Some players interpreted this narrowly and suggested phone calls, regular newsletters, regional meetings, email, and other means of communication. Others interpreted it broadly as an invitation to comment on what the NFL should do for retired players, suggesting things like providing better health care or raising pension amounts. Some thought the league was already doing enough.

The survey asked retirees about their awareness and use of several assistance programs for former players. In general, older retirees were more aware of the existence of these programs,

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were more likely to have referred someone to them, and were more likely to say they would use them if needed. Most veterans had not sought assistance for themselves, however younger retirees were about equally likely as older to have done so. The Player Care Foundation, the sponsor of this study, was much less well-known than the Player Associations' Player Assistance Fund or the NFL Alumni Association's Assistance Fund.

Table 2.4 Awareness and use of NFL-related assistance programs

	30-49	50+
<b>Gene Upshaw Player Assistance Fund</b>		
Heard of it	47.1%	68.6%
Used it	7.2%	5.7%
Referred someone to it	9.3%	12.0%
Would use if needed	39.6%	54.6%
<b>NFL Alumni Assistance Fund</b>		
Heard of it	37.8%	63.5%
Used it	3.2%	4.1%
Referred someone to it	5.3%	8.3%
Would use if needed	31.9%	51.6%
<b>NFL Player Care Foundation</b>		
Heard of it	28.9%	31.4%

### *Post-retirement interactions with other retired players*

The survey also asked retired players about interactions with friends from the NFL. Helping relationships are an important aspect of social support and are one measure of social network connection. Table 2.1 shows information about help provided and help received with NFL friends. The questions do not distinguish between financial help or other kinds of support. Exchange of help is not very frequent with NFL friends. Still 12 percent of younger retirees report getting help from NFL friends fairly often; 19 percent report giving help to NFL friends fairly often. Overall, retirees report providing help to NFL friends somewhat more often than receiving it. One might expect that in a sample of NFL retirees the exchange of help among them should be balanced on giving and receiving. That may not be the case for these measures, for example, if a few players need help and get help from more than one player each, there would be more persons giving help than receiving it.

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Table 2.1 Help to and from NFL friends

	NFL retirees	
	30-49	50+
<b>NFL friends help you out</b>		
Very often	2.9%	2.5%
Fairly often	12.0%	7.4%
Not too often	32.0%	28.6%
Never	53.1%	61.5%
<b>You help NFL friends out</b>		
Very often	4.3%	4.2%
Fairly often	19.1%	15.2%
Not too often	40.1%	40.5%
Never	36.5%	40.1%

Another indicator of social connectedness is how often one interacts with other people. More than one in four NFL retirees said they never or hardly ever had contact with NFL friends, while fewer than three percent said that about family, and fewer than eight percent about other friends. A small percentage of players have a high frequency of contact with NFL friends.

Table 2.2 Frequency of contact with NFL friends

	NFL retirees	
	30-49	50+
<b>Frequency of contact with NFL friends</b>		
Nearly every day	3.4%	3.4%
At least once a week	17.0%	9.9%
A few times a month	19.2%	15.1%
At least once a month	11.0%	11.4%
A few times a year	24.8%	30.6%
Hardly ever or never	24.7%	29.7%

We also asked retired players to rate the closeness of their relationships with NFL friends. About a quarter of retirees said they are very close to NFL friends. About a third said they are not close to NFL friends.

Table 2.3 Closeness to NFL friends

	NFL retirees	
	30-49	50+
<b>Close to NFL friends</b>		
Very close	21.7%	28.2%
Fairly close	43.1%	36.7%
Not too close	20.5%	18.7%
Not close at all	14.7%	16.3%

**3. Work outside the NFL**

Given the dramatic increase in salaries in the NFL over its history, one might expect to see significant differences between younger and older retirees in the occurrence of working in the off-season. Indeed, 75 percent of older retirees compared to 23 percent of younger ones reported having worked at a job in the off-season while playing in the NFL. They were also more likely to begin working a steady job within one year of retirement from the NFL. It is not surprising that older retirees report a larger number of jobs in their lifetime since they have lived longer. Compared to the general population of the same age, the younger NFL retirees are less likely to be working now, and the older retirees more likely.

Table 3.1 Work outside of the NFL

	All US Men		NFL retirees	
	30-49	50+	30-49	50+
<b>Work</b>				
Off-season work			23.2%	75.4%
Percent with job within one year after NFL			49.2%	72.6%
Number jobs since NFL			2.5	3.6
Working now	89.5%	58.0%	77.6%	66.3%

**4. Relationships with others – social support**

We also asked retired players the same set of question about interactions with family and friends that we asked for their interactions with NFL friends. For most of these topics there were relatively small differences between older and younger retirees.

As before, the first set of questions shown in Table 4.1 are about help provided and help received. The questions do not distinguish between financial help or other kinds of support. Retirees report much more help provided to family than received from them. Other friends are somewhere in between family and NFL friends—more exchanges of help than with NFL friends but less than with family.

Table 4.1 Help from and to family members

	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
<b>Family helps you out</b>		
Very often	14.4%	11.0%
Fairly often	22.9%	17.1%
Not too often	43.7%	35.4%
Never	18.9%	36.6%

	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
<b>You help family out</b>		
Very often	42.6%	39.6%
Fairly often	41.9%	37.3%
Not too often	13.8%	18.9%
Never	1.7%	4.2%

Table 4.2 Help from and to friends

	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
<b>Friends help you out</b>		
Very often	9.2%	8.0%
Fairly often	30.0%	24.1%
Not too often	36.8%	38.2%
Never	24.1%	29.8%

	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
<b>You help friends out</b>		
Very often	14.2%	11.3%
Fairly often	40.9%	33.6%
Not too often	34.7%	38.2%
Never	10.2%	16.9%

Another indicator of social connectedness is how often one interacts with other people. For family (not at home) and friends, we asked frequency of contact. Contact with other friends was nearly as frequent as contact with family outside the home.

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Table 4.3 Frequency of contact

<b>Frequency of contact with family not at home</b>	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
Nearly every day	31.9%	32.2%
At least once a week	45.5%	42.6%
A few times a month	16.7%	13.0%
At least once a month	4.3%	6.2%
A few times a year	0.5%	3.3%
Hardly ever or never	1.0%	2.8%

<b>Frequency of contact with friends</b>	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
Nearly every day	28.1%	21.1%
At least once a week	38.2%	35.5%
A few times a month	15.5%	18.0%
At least once a month	7.8%	7.3%
A few times a year	5.7%	10.3%
Hardly ever or never	4.7%	7.8%

We also asked retired players to rate the closeness of their relationships with family and friends. Not surprisingly, these ratings reflect the patterns of exchange of help and frequency of contact reported above. Retirees are closest to their families—about 70 percent are very close and only about 5 percent says they are not close to their families. Other friends are less likely to be very close, but only about 10 percent say they are not close to their other friends.

Table 4.4 Closeness of relationships

<b>Closeness to family</b>	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
Very close	67.2%	73.7%
Fairly close	26.8%	21.1%
Not too close	5.3%	4.4%
Not close at all	0.8%	0.8%

<b>Closeness to friends</b>	<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>
Very close	41.6%	38.3%
Fairly close	48.1%	49.9%
Not too close	7.3%	8.2%
Not close at all	3.1%	3.7%

**5. Health Behaviors/Risks**

This survey evaluated three potential health risks that are associated with a range of common illnesses: obesity, smoking, and alcohol use. While we used body mass index (BMI) as a measure of obesity, it may be an especially poor measure for this population which we might reasonably expect to be heavily muscled.

Table 5.1 provides some comparisons of body size between NFL retirees and the general population. Obviously NFL players are considerably larger than the average population, being about four inches taller and forty to fifty pounds heavier on average. We also asked the retired players about their playing weight and their maximum lifetime weight. Most were only a few pounds over their playing weight, and well under their lifetime highest weight.

Table 5.1 also presents some statistics based on the BMI, which is the ratio of weight to height squared. Conventional standards for the general population are that a BMI of 30 or more is considered obese and 35 or more is considered severely obese. This is a crude measure because it does not distinguish between muscle mass and body fat. We cannot say whether the higher BMI values for the NFL retirees reflect a higher level of body fat or not. Obesity is associated with higher rates of arthritis, which we found to be very common among NFL retirees, but also with higher rates of diabetes and cardiovascular disease, which we did not find (see section 6)

Table 5.1 Body size

	All US Men		NFL retirees	
	30-49	50+	30-49	50+
<b>Height and weight</b>				
Height in inches	70.3	69.8	74.3	73.9
Weight in pounds	198.1	192.9	248.4	237.4
NFL playing weight			245.4	229.5
Most ever weighed			269.9	260.3
BMI	28.5	28.0	31.5	30.4
Percent BMI over 30	32.1%	28.5%	56.0%	49.3%
Percent BMI over 35	11.6%	9.1%	20.7%	12.4%

Table 5.2 shows some statistics on smoking and drinking. NFL retirees are much less likely to have ever smoked than are men in general, and also less likely to be current smokers. Less than eight percent of NFL retirees smoke, compared with over twenty percent of the general population. On the other hand, NFL retirees are more likely to consume alcohol.

The detailed breakdowns of drinking patterns in Table 5.2 follow categories used in the National Health Interview Study, with one modification. Drinking patterns are defined as: infrequent (fewer than 12 drinks per year, or one per month), light (fewer than 180 drinks per year or one every other day); moderate (fewer than 730 drinks per year or two per day); and heavier (more than 730 drinks per year). To this we have added an additional category of binge drinker. Binge drinking is defined as five or more drinks on a single occasion. We have defined binge drinkers

as those who report having five or more drinks on 25 or more days in the previous year (or about once every two weeks).

NFL players are less likely to be lifetime abstainers or current non-drinkers. They are slightly more likely to be light drinkers, and considerably more likely to be moderate drinkers. While there is some controversy over the issue, many studies have found that moderate alcohol consumption is associated with better health than are either heavy drinking or abstinence. The rates of heavy drinking and binge drinking are slightly higher among NFL retirees than the general population. We also asked the NFL sample if they had ever undergone treatment for alcohol, including AA. Only six percent of older retirees said they had, and less than five percent of younger ones.

Table 5.2 Tobacco and alcohol use

<b>Smoking and alcohol use</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Ever smoked	38.4%	59.2%	10.4%	34.3%
Current smoker	24.3%	21.2%	4.9%	7.9%
Ever drank	81.1%	83.8%	92.6%	92.9%
Current drinker	69.2%	59.8%	82.9%	75.8%
Lifetime abstainer	19.0%	16.2%	7.4%	7.1%
Former drinker	11.9%	24.0%	9.7%	17.1%
Infrequent drinker	9.5%	9.3%	6.5%	8.9%
Light drinker	32.0%	24.2%	37.7%	25.6%
Moderate drinker	15.4%	16.8%	22.8%	26.9%
Heavier drinker	1.3%	2.0%	2.1%	4.8%
Binge drinker	11.1%	7.6%	13.8%	9.7%
Ever had treatment for alcohol abuse			4.7%	5.9%

## **6. Health and Disability**

A large section of the survey assessed the health of NFL retirees. This was done primarily using standard questions used in national health surveys so that the NFL sample could be compared with the national population. As noted above, the national survey data have been weighted to match the composition of NFL retirees by age and race. For example, African-Americans have higher rates of diabetes and hypertension than whites in the US. The proportion of African-Americans among NFL retirees is higher than in the general population. By weighting the national population used as a reference to match the NFL race composition, that source of difference between NFL retirees and the general population is eliminated.

Some limitations must be noted. Surveys do not directly diagnose disease or measure performance. They ask questions about diagnosis and perceived ability. These reports can be in

error for any number of reasons. A population of professional athletes, for whom physical performance was critical to success, may well be more medically aware and knowledgeable than the general population.

*Cardiovascular disease*

Table 6.1 shows the percentage of men who report having been diagnosed with a particular type of cardiovascular disease. Heart attacks and strokes tend to be the most accurately reported of the conditions because they are major events that are not likely to be forgotten. NFL retirees report fewer heart attacks and strokes than comparably-aged men in the general population. They are also less likely to report angina, a specific type of chest pain related to arterial blockage. On the other hand, both younger and older NFL retirees report more of the less specific categories of “coronary heart disease” and any other heart disease. Neither the National Health Interview Survey nor the NFL study probed in any detail what was meant by these reports. One important category that may be included in other heart disease is rhythm disorders. High performance athletes may be more aware of such anomalies than the general population or they may have more of them.

Table 6.1 Cardiovascular Disease

	All US Men		NFL retirees	
	30-49	50+	30-49	50+
<b>Heart and Stroke</b>				
Coronary heart disease	1.0%	11.7%	2.5%	13.5%
Heart attack	0.6%	9.5%	0.4%	7.2%
Angina	0.6%	4.8%	0.3%	3.6%
Other heart	2.8%	11.7%	9.0%	20.7%
Stroke	1.2%	5.4%	0.6%	2.9%

Table 6.2 shows the percentage of men who reported other health problems that are known to increase the risk of heart attack and stroke. NFL retirees of all ages are less likely to report having diabetes than comparably-aged men in the general population. For the other conditions--hypertension, high cholesterol, and poor circulation ( a risk factor for clots)-- the older NFL retirees are similar to the general population. The younger retirees, on the other hand, have higher levels of all these conditions than the general population. Attention to these risk factors is warranted to prevent more serious cardiovascular problems in the future.

Table 6.2 Cardiovascular Risk

	All US Men		NFL retirees	
	30-49	50+	30-49	50+
<b>Cardiovascular Risk</b>				
Diabetes	4.7%	17.3%	2.5%	10.5%
High Blood Pressure	20.5%	50.1%	31.1%	46.0%
High Cholesterol	16.8%	40.2%	30.3%	44.0%
Poor circulation in legs	4.2%	16.3%	9.6%	17.0%

*Breathing problems*

As shown in Table 6.3, NFL retirees are less likely than comparably-aged men to report emphysema, a severe breathing disorder strongly associated with smoking. Older NFL retirees are also less likely to report asthma, while younger retirees are slightly more likely to report asthma than the general population.

The NFL survey also asked about sleep apnea, a condition that gained national attention with the death of popular NFL Hall of Famer Reggie White. National surveys do not ask about this condition and medical experts consider it to be under-diagnosed in the general population. At the same time, sleep-disordered breathing and heavy snoring are relatively common conditions that can easily be confused with the less common and more dangerous sleep apnea. Older and younger retirees were almost equally likely to report sleep apnea, at about 17 percent. This is very much higher than conventional estimates of about 4 percent of adult men, suggesting that some of the reports may be of less severe breathing problems while sleeping, such as snoring. Risk of sleep apnea is correlated with body size, so it is likely that its prevalence is higher among NFL retirees.

Table 6.3 Breathing Disorders

<b>Breathing disorders</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Asthma	8.0%	8.4%	9.5%	5.9%
Emphysema	0.4%	4.2%	0.0%	0.3%
Sleep apnea			17.3%	17.6%

*Other health conditions*

We also asked about several other conditions. Kidney problems are often a consequence of long-term untreated hypertension and diabetes. These appear very little different in the NFL than the general population. Urinary problems, most commonly related to prostate issues in men, are also very similar. Ulcers were slightly less common in older NFL retirees than comparably-aged men and about the same for younger men. Cancer reports are higher among NFL retirees. There was no probe of what type of cancer. Skin cancers are the most common and are more common among men with a lot of sun exposure.

Table 6.4 Other Health Conditions

<b>Other</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Kidney problems	1.0%	3.4%	0.9%	4.0%
Urinary problems	2.6%	14.5%	3.9%	14.8%
Ulcer	4.5%	9.6%	5.0%	7.0%
Cancer	1.4%	12.5%	2.4%	18.7%

*Arthritis, Pain, and Joints*

The most striking difference between NFL retirees and the general population is in the reported diagnosis of arthritis. Rates are nearly five times higher among younger retirees than comparable men in the general population, and twice as high at older ages. Younger retirees have more arthritis than older men in the general population. The wear and tear of strenuous physical activity, and damage from injury both contribute to arthritis. Arthritis is commonly associated with impairments in physical function and inability to participate in normal activities. These issues are explored in the next section.

We also asked questions about pain experienced for most of the day at some point in the previous three months. NFL retirees were much more likely to report all types of pain than the general population. As with diagnosed arthritis, this was particularly pronounced in the younger group, who again appear in worse shape than the older group in the general population and indeed slightly worse than the older group of retirees.

The biggest difference was in joint pain. The NFL study asked about joint replacement surgery, a topic not covered in the population survey. Nearly one in four older retirees have had at least one joint surgically replaced. Rates are lower in the younger group, but it is reasonable to expect they will increase rapidly as that group ages given the levels of pain reported. Knee replacement is considerably more common than hip replacement among NFL retirees. Left joints are slightly more likely to have been replaced than right.

Table 6.5 Arthritis and pain

	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
<b>Arthritis and pain</b>				
Arthritis diagnosis	8.7%	32.0%	41.3%	62.4%
<b>Pain lasting most of the day</b>				
Neck	9.4%	13.6%	36.6%	34.1%
Lower back	22.5%	27.6%	55.4%	50.0%
Any joint	20.6%	37.1%	80.0%	77.6%
Migraine / headaches	9.9%	6.8%	27.2%	14.0%
<b>Joint replacement</b>				
Any joint			4.9%	23.2%
Right knee			1.5%	11.3%
Left knee			3.5%	12.7%
Right hip			0.5%	4.6%
Left hip			0.4%	5.0%

### *Self-rated health*

A staple of health surveys is a single question asking a respondent to rate his or a family member's health as excellent, very good, good, fair, or poor. Table 6.6 shows a comparison on this measure of NFL retirees to the general population. Older retirees do not rate their health very differently from the general population. Most say good or very good. A somewhat higher fraction do say their health is poor than in the general population. Younger retirees, on the other hand, see their health much worse than similarly aged men in the population. They rate their health about the same as older men. Nearly two thirds of younger men in the general population say their health is excellent or very good; only 41.1 percent of NFL retirees say that. Fewer than ten percent of younger men say their health is fair or poor, whereas nearly thirty percent of younger NFL veterans do. Self-ratings of health are subjective, and NFL retirees may be using a higher standard of comparison than the general population. Self-ratings tend also to be sensitive to symptomatic conditions like arthritis.

Table 6.6 Self-rated health

<b>Self-rated health</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Excellent	33.4%	18.3%	18.3%	16.5%
Very Good	31.8%	27.1%	22.8%	25.5%
Good	25.8%	31.0%	29.9%	31.9%
Fair	7.2%	17.0%	19.9%	16.4%
Poor	1.9%	6.6%	9.1%	9.8%

### *Functional Limitations and Disability*

An important dimension of health is the extent to which physical, mental, or emotional problems make ordinary tasks difficult or limit one's ability to participate in normal activities, or require the assistance of others. In self-report surveys, these are typically addressed by questions asking about difficulty with specific physical tasks, usually referred to as functional limitations; by questions asking about interference with work or other activities, usually referred to as disability, and by questions asking about need for help from others with basic tasks of daily living. The NFL retiree survey asked all three types of questions, using standard questions used in national surveys.

#### Functional Limitations

This set of questions were introduced with the lead-in "The next questions ask about difficulties you may have doing certain activities because of a health problem. By "health problem" we mean any physical, mental, or emotional problem or illness." Then each question asks "By yourself, and without any special equipment, how difficult is it for you to...." Answers are on a five-point scale

“Would you say not at all difficult, only a little difficult, somewhat difficult or very difficult?”

- 0 Not at all difficult
- 1 Only a little difficult
- 2 Somewhat difficult
- 3 Very difficult
- 4 Can't do at all

The final category, “Can’t do at all” is not offered by the interviewer but is coded if the respondent volunteers it.

Table 6.7 shows the percentage of people who answered that the task was somewhat difficult, very difficult, or they could not do it at all. Consistent with the much higher rates of arthritis reported in the previous section, NFL retirees are much more likely to report difficulty with these basic physical functions of getting around. Also consistent with the arthritis report, the younger retirees report more physical limitations than older men in the general population. The table also shows two summary statistics. The first is the average number of tasks for which some difficulty was reported. This is much higher in the NFL population, especially at younger ages. On average, some difficulty was reported with two of the eight activities. The second summary measure includes the degree of difficulty reported, summing the 0-4 scores for all eight items.

Table 6.7 Functional Limitations

<b>Functional Limitations</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
<u>Difficulty with:</u>				
Walk up 10 steps without resting	6.3%	20.6%	18.6%	24.6%
Climb several flights of stairs	4.1%	16.1%	7.8%	20.6%
Stand for two hours	6.8%	22.3%	44.1%	52.4%
Stoop, bend, or kneel	8.0%	24.2%	47.2%	57.2%
Reach over your head	2.6%	8.8%	17.0%	25.8%
Grasp small objects	2.4%	6.8%	17.3%	21.7%
Lift and carry ten pounds	3.8%	10.3%	6.8%	12.3%
Pull or push large objects	5.2%	16.2%	21.0%	26.7%
Number of difficulties	0.39	1.25	1.80	2.41
Scale	1.30	4.18	5.16	7.04

Disability and Dependence

Disability is a complex concept, involving the interaction of physical and mental capacities with the demands of the social and physical environment to produce a perceived incapacity relative to a standard or norm. In other words, it is highly subjective. Given the high levels of arthritis and reported difficulty with basic physical tasks, we would expect higher levels of disability in the NFL retiree population than the general population.

Table 6.8 shows that indeed rates of reported activity limitation are higher, and especially so in the younger group of retirees, who once again appear as disabled, or more so, than older men in

the general population. We asked about difficulty getting out to shopping or movies. We asked if a physical or mental problem kept them from working altogether and if not, whether they were limited at all in the kind or amount of work they could do. Older retirees reported about the same level of inability to work as the general population but were more likely to report they had some limitation.

The most extreme form of disability is the dependence on others for help with basic needs. We found somewhat higher rates of such dependence among older NFL veterans than the general population of older men. Younger NFL veterans reported the same rates as older men and much higher rates than comparably-aged men. The absolute levels of such dependence are low, but for those affected this is a serious situation.

Table 6.8 Disability and Dependence

<b>Disability</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
<b>Difficulty with</b>				
Get out to shopping or movies	3.8%	12.4%	15.4%	20.0%
Socialize	4.6%	11.6%	13.5%	17.2%
<b>Work</b>				
Unable to work	6.2%	14.9%	15.0%	14.7%
Unable or limited in work	8.7%	22.5%	32.8%	40.9%
<b>Dependence on others</b>				
Because of a physical, mental, or emotional problem, do you need the help of other persons with your				
personal care needs, such as eating, bathing, or dressing	0.9%	3.0%	3.0%	4.3%
routine needs, such as everyday household chores, doing necessary business, shopping, or getting around	2.2%	5.6%	5.7%	8.2%

## 7. Mental Health

The mental health of NFL players and retirees has been the subject of some controversy, including claims of brain damage leading to high rates of depression and dementia. Mental health disorders are extremely challenging to diagnose, even for psychiatrists and neurologists able to give lengthy examinations. Population surveys have developed approaches to measuring some disorders. These typically involve a combination of very broad screen questions to identify people who might have the disorder, followed by a series of questions designed to assess severity or rule out other problems. These can lead to acceptable levels of accuracy for population research but do not in any way constitute a firm medical diagnosis at an individual level.

*Depression*

The NFL study used a combination of four screener questions from the National Study of American Life, and diagnostic items from the Patient Health Questionnaire to identify persons with experience of major depression. Major depression is characterized by severe episodes rather than constant ongoing levels. Table 7.1 summarizes the findings on depression. The first panel shows the four broad screener items, and the percentage who say yes to the item, comparing the NFL retirees with the general population. The rates are generally quite similar on the first three items, which are the standard core screener items. Younger retirees are somewhat more likely to endorse the items than comparably aged men in the population. The fourth item is not typically used as a screen item but is thought by some experts to capture a more masculine form of depression—irritability rather than sadness. NFL retirees were particularly likely to endorse this item. Overall, the NFL group is somewhat more likely to screen in for follow-up questions based on these common experiences.

The follow-up items then first sort people into whether the screener symptoms are current or not, and then identify those for whom severity and intensity meet the definition of major depression. For current depression, the NFL retirees look very similar to the general population at rates of 3 to 4 percent. This is not a trivial problem, but it does not appear to be excessive among NFL retirees. Lifetime experience of major depression is more common, at 10-12 percent of NFL retirees. We also asked retirees if they had ever been told by a doctor that they had depression. About 16 percent said they had. Taken together, about one in four NFL retirees has either been diagnosed with depression or experienced an episode of major depression in their lifetime.

Table 7.1 Depression

<b>Lifetime Depression Screener</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Have you ever in your life had a period of time lasting several days or longer when				
most of the day you felt sad, empty or depressed?	44.7%	41.5%	55.9%	47.9%
most of the day you were very discouraged about how things were going in your life?	51.0%	45.5%	61.8%	45.6%
you lost interest in most things you usually enjoy like work, hobbies, and personal relationships?	36.3%	30.5%	47.9%	33.0%
most of the time you were very irritable, grumpy or in a bad mood?	38.9%	22.4%	62.6%	44.2%
All the above	20.7%	15.0%	37.6%	23.0%
At least one of the above	61.2%	58.1%	75.3%	63.3%
Major depression at current time	3.0%	3.9%	3.9%	3.6%
Major depression at some past time but not now			11.5%	10.5%
Reported diagnosis of depression			16.9%	15.6%
Any of the above			25.6%	22.9%

*Anger*

Population surveys have also developed screening methods for intermittent explosive disorder (IED), which is defined as episodes of unpremeditated and uncontrollable anger. As with depression, this is studied by first asking some very broad questions that many people endorse and then narrowing to a much smaller number who meet the more rigorous criteria for the disorder. Table 5.2 summarizes the results of the screening items only. In contrast to depression, where NFL retirees were slightly more likely to endorse the screening items, NFL retirees are much less likely to report episodes of anger than the general population.

Table 5.2 Intermittent Explosive Disorder (IED) screener

<b>IED Screener</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Since you left football, have you ever had attacks of anger when all of a sudden you lost control and broke or smashed something worth more than a few dollars?	37.7%	29.0%	21.9%	16.9%
and hit or tried to hurt someone?	21.2%	18.4%	7.1%	9.4%
and threatened to hit or hurt someone?	26.0%	24.4%	20.0%	21.1%
At least one of the above	54.8%	47.2%	30.7%	29.3%

*Dementia*

Dementia is much more difficult to diagnose in surveys than depression or IED, in part because it directly affects the respondent’s ability to participate. In this study, we conducted some interviews with a proxy reporter (generally the wife) of some players who were unable to answer for themselves. We did not administer cognitive tests and did not conduct neurological examinations. The only information we collected about dementia was to ask the respondent (or proxy) if they had ever been diagnosed with “dementia, Alzheimer’s disease, or other memory-related disease.” This is the exact wording of the question in the National Health Interview Survey and it was used for comparability. The vague category of memory-related disease makes the interpretation of this question somewhat difficult.

Table 7.3 shows the comparison of NFL retirees with the general population on this question. Diseases of memory are rare in both, but the NFL retirees do report higher rates. At 6 percent, the older group of retirees is particularly high. Further research on this issue is warranted.

Table 7.3 Dementia

<b>Memory problems</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
Dementia, Alzheimer's disease, or other memory-related disease?	0.1%	1.2%	1.9%	6.1%

**8. Health insurance and health care**

Table 8.1 compares the type of health insurance coverage among NFL retirees to the general population. For tables in this section, we split the older group of retirees into a group 50-64 and one 65 and up because the availability of Medicare at age 65 profoundly changes the insurance environment.

Compared with all men of similar age and race, the levels of insurance coverage are higher among NFL retirees. The rates of employer-based coverage are very similar, whereas government coverage is lower for men under 65 (nearly all men over 65 have Medicare). NFL retirees are more likely to have other private health insurance, probably either privately purchased or through their business. Private health insurance not through an employer tends to be relatively expensive and can be hard to get with pre-existing health conditions.

The second panel of Table 8.1 compares NFL retirees to men with similar levels of education and age. More educated men are more likely to have insurance coverage, but even compared to this group the NFL retirees are less likely to be uninsured and more likely to have private coverage.

Table 8.1 Type of health insurance

	All US Men			NFL retirees		
	30-49	50--64	65+	30-49	50-64	65+
Employer	66.9%	67.5%	4.5%	65.1%	70.7%	4.7%
Other private	4.4%	6.0%	0.7%	24.5%	16.9%	0.0%
Government	7.2%	12.1%	93.4%	1.7%	4.4%	95.3%
Uninsured	21.6%	14.5%	1.4%	8.7%	8.1%	0.0%

	All US Men With Some College			NFL retirees		
	30-49	50--64	65+	30-49	50-64	65+
Employer	78.4%	77.5%	4.9%	65.1%	70.7%	4.7%
Other private	5.3%	7.1%	0.6%	24.5%	16.9%	0.0%
Government	4.0%	6.4%	93.8%	1.7%	4.4%	95.3%
Uninsured	12.3%	9.0%	0.8%	8.7%	8.1%	0.0%

*Prescription drug use and insurance*

Table 8.2 shows the extent of coverage for prescription drugs, and the use of prescription medicines, by NFL retirees. Not all health insurance covers prescription drugs, and we see that over one-third of retirees under 50 do not have drug coverage despite the fact that most have health insurance. Over 13 percent of retirees 65+ do not have drug coverage. Interestingly, a higher percentage of younger retirees reported receiving the NFL drug discount card, possibly because with lower rates of drug coverage it was useful to more of them.

Prescription drug use is relatively uncommon among younger retirees, perhaps surprisingly so given the high rates of arthritis and body pain reported. Use increases with age.

Table 8.2 Prescription drug coverage and use

<b>Prescription drugs</b>	<b>NFL retirees</b>		
	<b>30-49</b>	<b>50-64</b>	<b>65+</b>
Has insurance for prescription drugs	63.9%	81.9%	86.8%
Received NFL drug discount card	72.8%	64.9%	51.9%
Takes any medications	28.9%	59.1%	85.4%
Number of medications	0.65	1.82	3.51

*Unmet need for health care*

To assess the extent to which NFL retirees were not receiving needed health care because it was not affordable, we asked questions of the form: “During the past 12 months, was there any time when you needed \_\_\_\_\_ but didn’t get it because you couldn’t afford it?” Table 8.3 shows the percentages who reported such need for medicine, surgery, mental health care, and dental care. Unmet need is greater in the under-65 population than in the oldest group. Dental care is the most likely to be skipped because of cost. However, about 10 percent of retirees under age 65 reported that they needed a surgery or procedure in the previous year and did not get it because of cost. Thus, despite the rather high levels of insurance coverage, there are substantial problems with affordability of health care.

The NFL drug discount card does not seem to be a successful approach to meeting the need for prescription medicines. We asked former players if they had received the NFL drug discount card, and if so, had they used it. Of players who said they could not afford all their prescription medicines, 40 percent said they had not received the drug card, and 32 percent said they had but they had not used it. Only 28 percent of players with unmet need for prescription medicine had used the NFL drug discount card.

Table 8.3 Unmet need for health care

<b>Could not afford</b>	<b>NFL retirees</b>		
	<b>30-49</b>	<b>50-64</b>	<b>65+</b>
Prescriptions	7.3%	8.3%	3.1%
Surgery	10.1%	9.3%	3.4%
Mental health care	5.3%	3.1%	1.0%
Dental care	15.9%	16.3%	5.9%

NFL retirees seem to have stable sources of medical care. Most NFL veterans report having a place they usually go to for medical care (89.5 percent of older and 77.6 percent of younger). For most, this is a doctor's office or clinic (94 percent of older, 91.2 percent of younger). Very few routinely go to an emergency room (2.0 percent of older, 4.8 percent of younger).

### 9. Financial Well-being

#### *Income*

The NFL survey used a modified version of the income questions used in the Panel Study of Income Dynamics. We asked former players about many different sources of income, asking whether they had any income of that type and if so, how much. This is summarized in Table 9.1

Several features stand out. Over one-third of NFL retirees report some business income, and many report investment income of different kinds. Endorsements were not particularly common—about 14 percent of more recent retirees, and 5 percent of older ones. The median amounts earned in endorsements were also not particularly high. NFL pensions were much more common than other pensions and more common than Social Security retirement or disability income. Only a few retired players reported unemployment or worker's compensation or Supplemental Security Income. However, about 9 percent of younger retirees and 5 percent of older ones reported receiving financial help from relatives, and another 7 percent (4 percent) received help from friends.

Table 9.1 Receipt of income by source, and median amounts received

	Percent with any income of this type		Median amount among those with any	
	30-49	50+	30-49	50+
<b>Source:</b>				
<b>Labor income</b>				
Earnings	65.5%	49.2%	\$65,000	\$70,000
Bonus/commissions	23.6%	19.5%	\$21,000	\$50,000
Professional practice	3.8%	8.5%	\$45,000	\$24,000
Endorsements	13.6%	5.4%	\$10,000	\$6,000
Business	34.4%	34.2%	\$15,000	\$40,000
<b>Capital income</b>				
Rent	22.5%	17.5%	\$20,000	\$21,600
Dividends	31.9%	36.6%	\$10,000	\$5,000
Interest	35.1%	47.1%	\$5,000	\$2,000
Trust funds	4.2%	3.9%	\$8,000	\$5,500
<b>Pension income</b>				
NFL (including disability)	14.1%	64.4%	\$36,000	\$15,000
Other Pension	7.0%	18.9%	\$27,000	\$16,200
Social Security	4.7%	37.7%	\$27,600	\$15,600

**Other sources**

Supplemental Security Income (SSI)	1.3%	2.8%	\$27,500	\$20,000
Unemployment	3.1%	1.4%	\$9,050	\$7,000
Workers Comp	4.3%	0.8%	\$28,700	\$5,000
Help from relatives	8.7%	5.5%	\$7,250	\$10,000
Help from others	7.3%	4.3%	\$2,100	\$4,250
Anything else	7.6%	12.4%	\$10,000	\$16,500

Table 9.2 shows summary statistics for total income compared with national data for 2005/2006 from the Current Population Survey. These statistics are not fully comparable because the CPS data include income of spouses while the NFL survey did not probe into the earnings of players' wives. Despite this difference in measurement, NFL retirees have a better income situation than men of similar ages in the general population. Median total income is considerably higher. The proportions with incomes below twice the poverty level are substantially lower. For younger retirees, however, the proportion with income below the poverty level is not very different from the general population.

These comparisons become more concerning when the comparison is made with men of comparable education. Education has a powerful influence on income. When the general population of men is restricted to men with some college education (though not necessarily a four year degree), the differences between NFL retirees and the population are much more narrow. And here the high fraction of younger NFL retirees with income below the poverty level is twice that of men with similar education levels.

Table 9.2 Income statistics

<b>Income statistics</b>	<b>All US Men</b>		<b>NFL retirees</b>	
	<b>30-49</b>	<b>50+</b>	<b>30-49</b>	<b>50+</b>
<b>All men</b>				
Below poverty level	9.5%	8.8%	8.4%	4.4%
Below twice the poverty level	25.1%	25.3%	10.3%	9.7%
median total income	\$55,000	\$48,169	\$85,000	\$93,400
<b>Men with some college</b>				
Below poverty level	4.1%	4.4%	8.4%	4.4%
Below twice the poverty level	12.4%	13.2%	10.3%	9.7%
Median total income	\$75,000	\$69,479	\$85,000	\$93,400

### *Business losses*

About 6 percent of younger retirees and 3 percent of older ones reported negative net income from their businesses in the previous year (that is about one fifth of all the younger business owners and one tenth of the older ones). We also asked everyone, including those without a current business, whether they have ever experienced significant losses in business or financial investments. Nearly half said yes. We also asked everyone if they had ever been given bad financial advice. Nearly half of younger retirees said they had, compared to 38 percent of older retirees.

Table 9.3 Business losses

<b>Business losses</b>	<b>30-49</b>	<b>50+</b>
Business loss (negative net income) last year	6.2%	3.4%
Business loss ever	48.1%	44.9%
Ever got bad financial advice	46.6%	38.0%

### *Home Ownership*

Home ownership is quite common: 79 percent of younger retirees and 86 percent of older retirees own their own home. The table below shows the distribution of home ownership by extent of mortgage. A much higher proportion of older retirees own their home outright: 28 percent versus 9 percent. Very few report they owe more on the house than it is currently worth on the market: 4 percent of younger retirees and 2 percent of older. A conventional benchmark of mortgage risk is that the value of the loan be no more than three times annual income. By that measure, 33 percent of younger and 17 percent of older retirees have mortgages worth more than 3 times their annual income.

Table 9.4 Home Ownership

<b>Home Ownership</b>	<b>30-49</b>	<b>50+</b>
Own clear	8.5%	28.4%
Mortgage < 50%	21.3%	28.6%
Mortgage 50-100%	45.4%	26.8%
Under water	3.8%	1.8%
Don't own	21.0%	14.3%