



# **Arthritis Data Report**

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**Vermont Department of Health**  
Agency of Human Services

Fall, 2005

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## Report Highlights

Analysis of the 2003 Vermont Behavioral Risk Factor Surveillance System (BRFSS) data shows the following:

- Arthritis and chronic joint symptoms affect about 208,000 or 44% of adult Vermonters;
- About 129,000 adult Vermonters (27.3%) have been diagnosed by a doctor with arthritis or chronic joint symptoms;\*
- More Vermont women than men have arthritis (31.1% vs. 23.3%);
- More than 39% of Vermont adults report activity limitations due to joint symptoms;
- Vermont adults with less formal education are more likely to have arthritis due to their work in physically strenuous jobs;
- 33% of Vermont adults report that arthritis or joint symptoms affects their ability to work for pay;
- Lower income is associated with an increased prevalence of arthritis;
- 64% are overweight or obese, compared to 51% in the population without arthritis;
- Only 14.2% of Vermonters with arthritis have taken an arthritis management class;
- Vermonters with arthritis experience a higher prevalence of other chronic conditions;
- Arthritis is also considered to be a risk factor for other health conditions such as hypertension and cardiovascular disease.

**Note:** Unless otherwise stated, all analyses and graphs refer to the 2003 Vermont Behavioral Risk Factor Surveillance System using data collected from Vermont resident, non-institutionalized adults, ages eighteen and older, who are accessible by landline telephone.

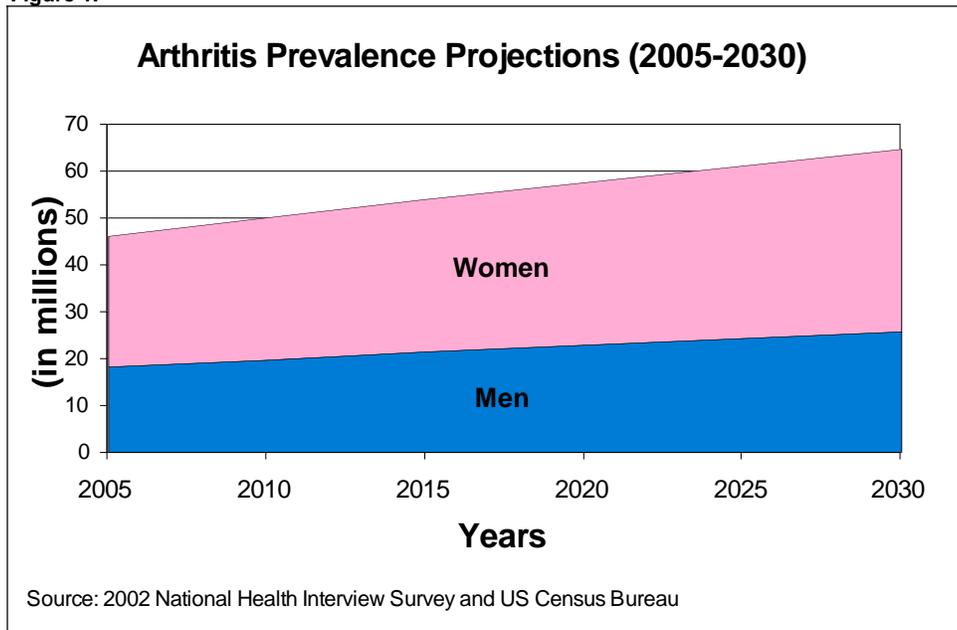
\*The term **Doctor-diagnosed arthritis** refers to a Behavioral Risk Factor Survey question: Have you ever been told by a doctor that you have arthritis?

# I. PREVALENCE

## Arthritis in the United States

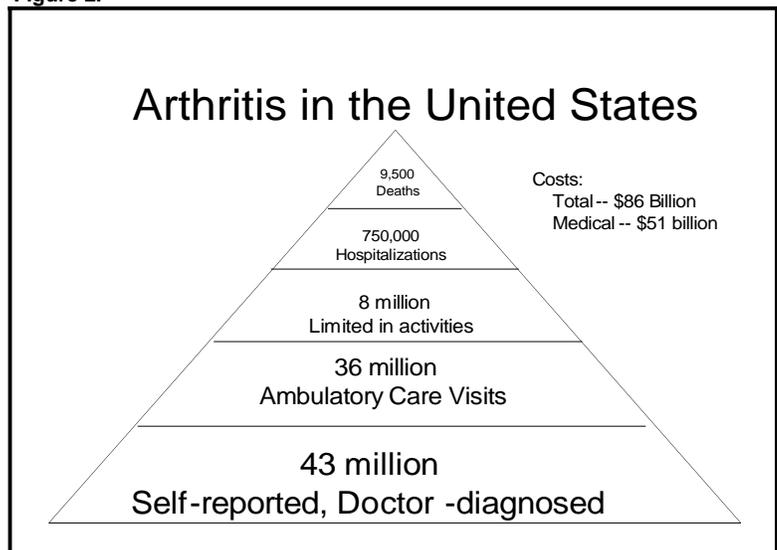
Arthritis is one of the most prevalent chronic health issues and the leading cause of functional disability among Americans over age 15 in the United States. With the aging of the population, the prevalence of arthritis will continue to increase. By the year 2030, 64.9 million adults, or one quarter of the total projected adult population will have doctor-diagnosed arthritis. Approximately 2/3 of those will be women. These estimates may be low as they do not fully address the current trend of increasing adult obesity. (Source: CDC Arthritis Website: [www.cdc.gov/arthritis/](http://www.cdc.gov/arthritis/))

Figure 1.



In the United States, arthritis costs the U.S. economy more than \$86.2 billion dollars annually. It results in 39 million physician visits and more than a half million hospitalizations. Almost 38% of adults with doctor-diagnosed arthritis report limitations in their customary daily activities and 231% of working age adults report being limited in their work activities. Arthritis is second only to heart disease as a cause of work disability.

Figure 2.



Source: MMWR May 14, 2004 / 53(18); 388-389

## Arthritis in Vermont

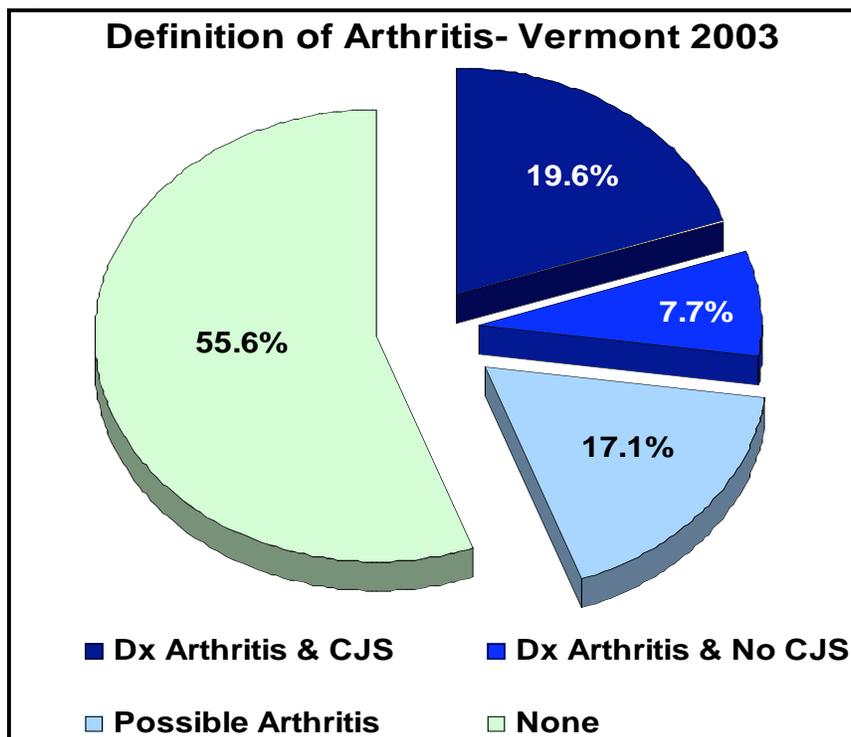
While Arthritis has been recognized as a leading cause of disability in the United States for many years, it is only recently that there has been a statewide public health focus on arthritis in Vermont. The data in this report show that arthritis affects 27% of all adults in the state, and is a leading cause of disability that significantly affects the quality of life of Vermont citizens. Furthermore, arthritis generates substantial health care costs in Vermont, averaging \$172 million dollars a year. (*CDC-MMWR*, November 21, 2003, Volume 52(46):1124-27). In 2002, for instance, arthritis was the primary reason for 3,551 hospital discharges and \$58,860,261 total charges for combined inpatient/outpatient/Emergency Room hospital stays, of which hip and knee replacement costs totaled \$31,495,799. (Vermont Department of Health, Hospital DataBook, 2002).

These data will help guide efforts to lessen the burden of arthritis, and support the need for education, treatment and additional resources to manage arthritis in Vermont.

### Definition of Arthritis

*Arthritis* is a Greek word meaning “inflammation of the joint.” It has come to describe a family of diseases that includes over 120 different types of arthritis and rheumatic conditions. All of these conditions involve problems with the joint, or ligaments, tendons, and muscles near the joint, which cause a combination of symptoms, including pain, aching, stiffness or swelling. Some of the most common forms of arthritis are Osteoarthritis, Rheumatoid Arthritis, Fibromyalgia, Gout, Lupus, Scleroderma, Bursitis, Juvenile Arthritis, Ankylosing Spondylitis, and Dermatomyositis.

Figure 3.



The Centers for Disease Control and Prevention defines persons with arthritis as those who have a diagnosis by a health care provider. In Vermont, 27.3% of all adults have such clinically diagnosed arthritis. Of this 27.3%, 19.6% of adults have doctor-diagnosed arthritis and chronic joint symptoms, and another 7.7% have doctor-diagnosed arthritis without any reported chronic joint symptoms. An additional 17.1% reported “possible arthritis” which is chronic joint symptoms without a diagnosis by a healthcare provider.

Arthritis prevalence estimates are important for planning health services and programs to prevent arthritis-related disability, and for tracking progress toward meeting 2010 state and national public health objectives.

## **RISK FACTORS - Who is at Risk for Arthritis in Vermont?**

Risk factors are characteristics or attributes that increase a person's risk for developing a disease or condition. A number of risk factors have been linked to the development of arthritis. Some of these risk factors (such as age, gender, genetic predisposition, race and ethnicity) are not modifiable. Some risk factors, however, can be addressed through changes in lifestyle, potentially decreasing the risk of arthritis onset or morbidity (including physical activity level, obesity status, joint injury and infections and high risk occupations). Associated with these risk factors are other risk factors that are considered potentially modifiable, such as income and educational level.

Separating risk factors into these categories allows us to better identify people who need services and to target intervention strategies towards reducing disability due to arthritis. In addition, non-modifiable and associated risk factors clearly influence modifiable risk factors.

<b>Non-Modifiable Risk Factors</b>	<b>Potentially Modifiable Risk Factors</b>	<b>Modifiable Risk Factors</b>
Age	Education	Physical Activity Level
Gender	Income	Obesity Status
Genetic Predisposition	Employment	Joint Injury & Infection
Race and Ethnicity		

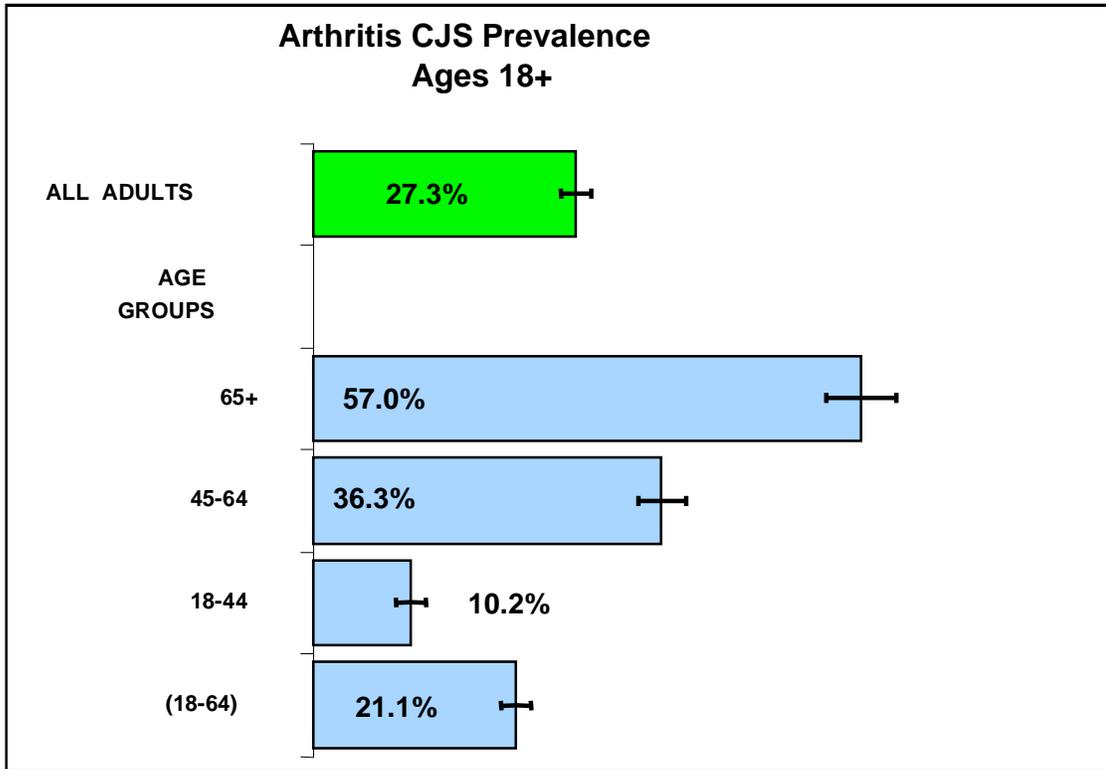
## **NON-MODIFIABLE RISK FACTORS**

### **Age**

In Vermont, the prevalence of arthritis increases with age, rising from 10.2 % among people 18 - 44, to 36.3% among people 45 -64, and up to 57% among adults 65 and older.

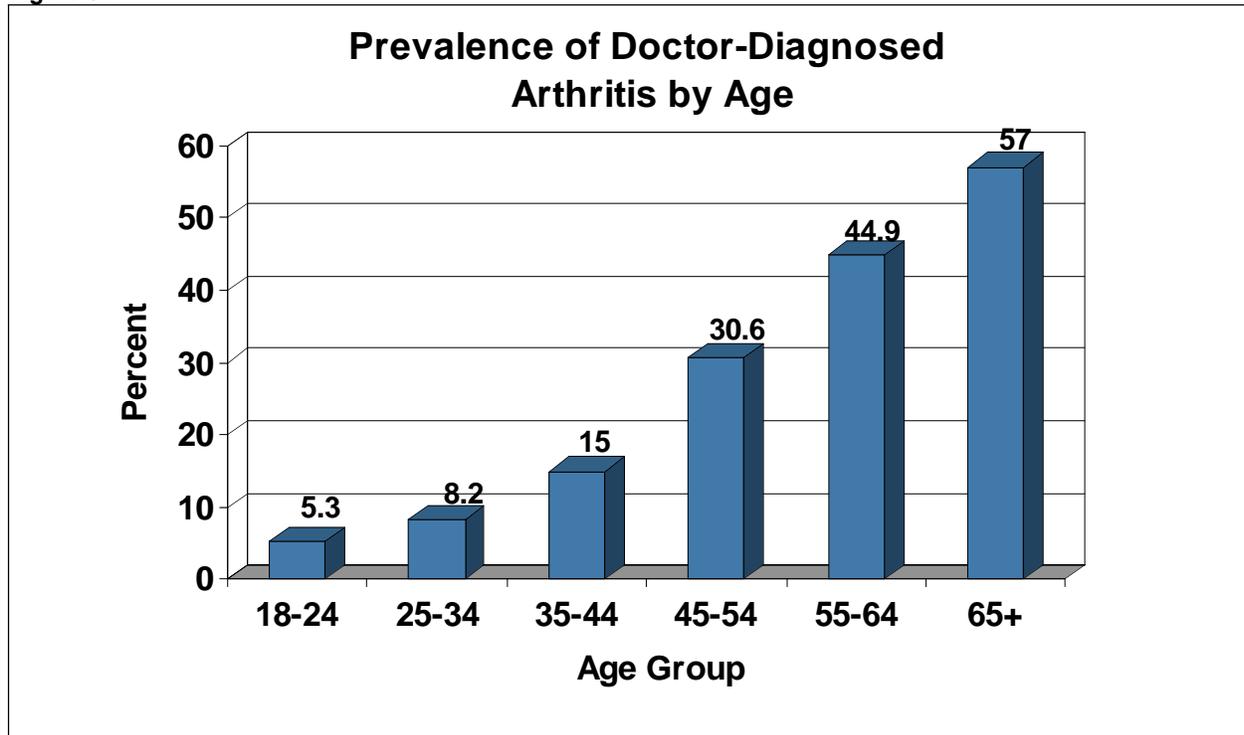
Of the 129,000 adult Vermonters in 2003 with diagnosed arthritis, about 64% are between the ages of 18 and 64, with 46% falling between the ages of 45 and 64. Although older adults were more affected by arthritis than younger adults, a substantial percentage of adults between the ages of 45 and 64 (36.3%) reported doctor-diagnosed arthritis and chronic joint symptoms. These demographics support the need to develop services for older working adults and seniors.

Figure 4.



Older adults were more affected by arthritis than younger adults, with prevalence increasing as people aged.

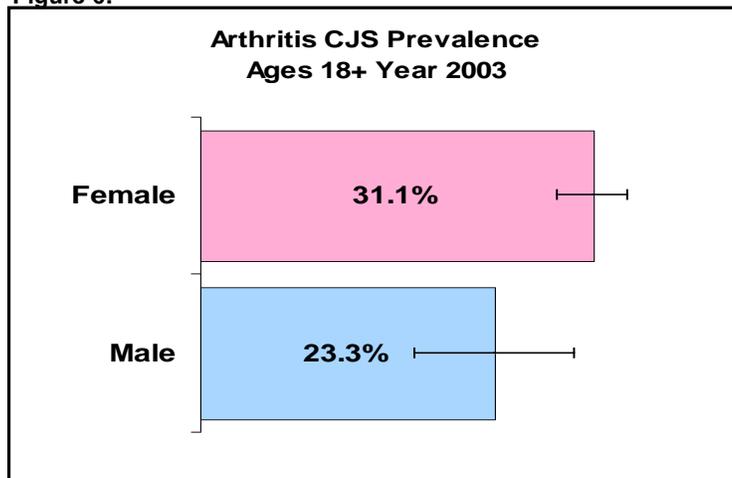
Figure 5.



## Gender

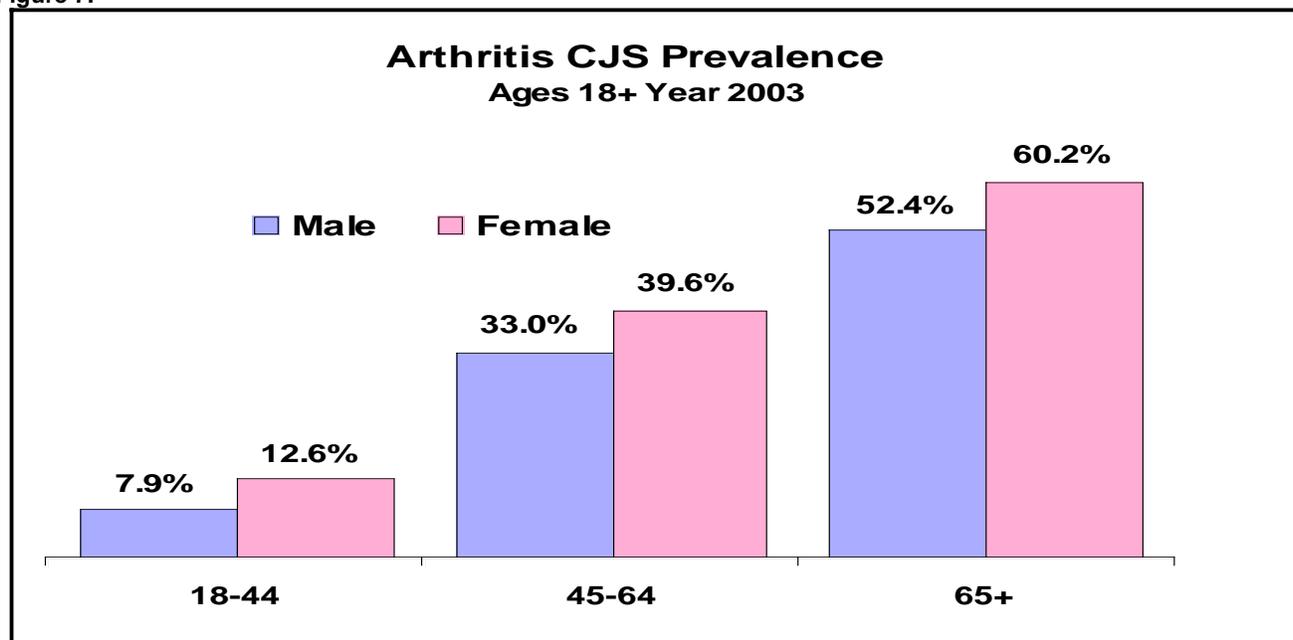
Arthritis is more common among Vermont females than males. Almost a third of adult Vermont females reported having arthritis. Among females over 18 years of age, 31.1% reported they have arthritis, compared to 23.3% of males over age 18. Females were more likely to report arthritis than were males in all age groups.

Figure 6.



The chart below shows the relationship between the two key non-modifiable risk factors. For all age groups, females were more likely to report diagnosed arthritis than males.

Figure 7.



## Genetic Predisposition

Research indicates that certain genes play a role in the immune system and genetics may be associated with the development of some forms of arthritis such as rheumatoid arthritis, ankylosing spondylitis and lupus.<sup>i</sup> The exact role of genetics and the interaction of other factors such as the role of hormones and environmental factors, have not yet been determined. Research continues to investigate these and other causes of the many forms of arthritis.<sup>ii</sup>

## Race and Ethnicity

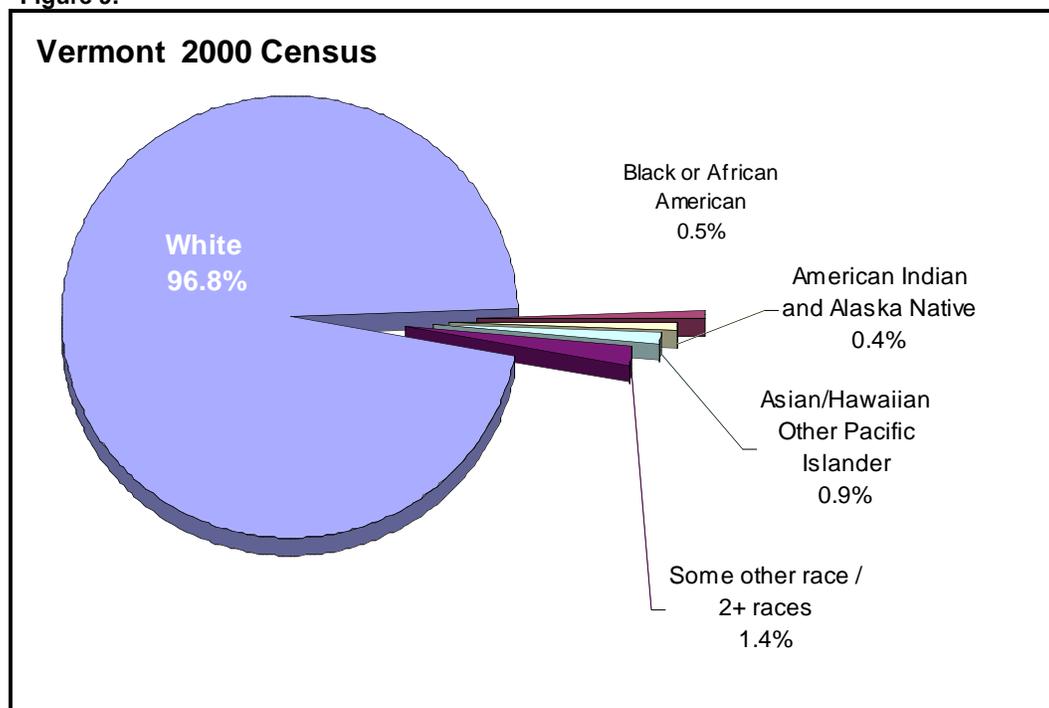
The 2003 BRFSS indicates that 95.8% of Vermont's adult population prefers to refer to themselves as "White," while the remaining 4.2% prefer to refer to themselves as several other races, including the categories "Asian or Hawaiian or Pacific Islanders," "Black or African American," or "American Indian or Alaska Native."

### Racial & Ethnic Composition

Figure 8.

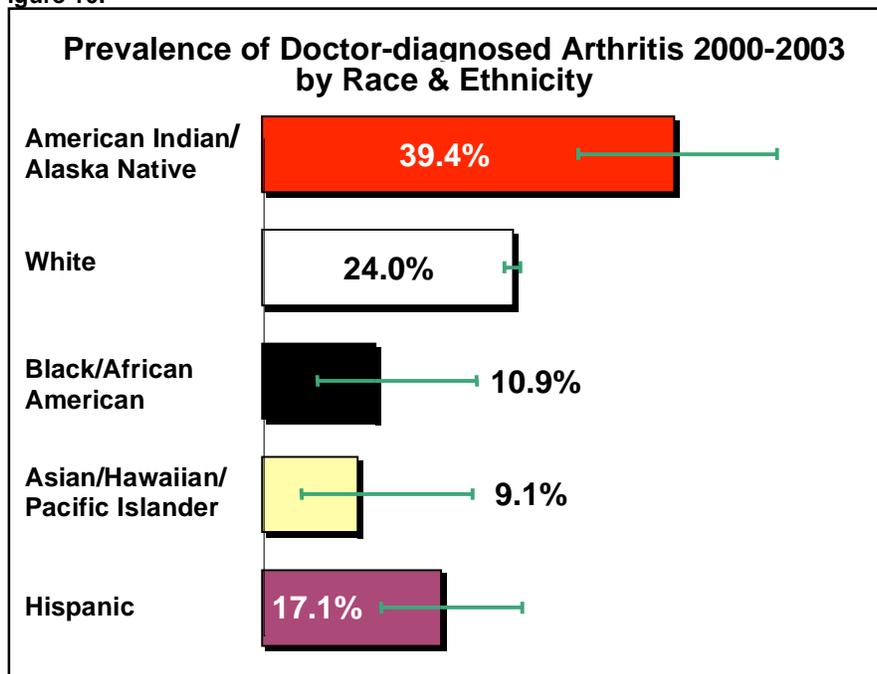
	Census 2000				Vermont BRFSS		
	U.S.		Vermont		2000-2003		# Interviews
<b>Total population</b>	<b>281,421,906</b>	<b>100.0%</b>	<b>608,827</b>	<b>100%</b>	<b>Weighted</b>	<b>Un-weighted</b>	
One race	274,595,678	97.6%	601,492	98.8%	<b>100.0%</b>	<b>100.0%</b>	<b>16272</b>
White	211,460,626	75.1%	589,208	96.8%	96.6%	97.3%	15839
Black or African American	34,658,190	12.3%	3,063	0.5%	0.6%	0.4%	68
American Indian and Alaska Native	2,475,956	0.9%	2,420	0.4%	0.6%	0.9%	146
Asian/Hawaiian/Other Pacific Islander	10,641,833	3.8%	5,358	0.9%	0.8%	0.5%	89
Some other race / 2+ races	22,185,301	7.9%	8,778	1.4%	1.5%	0.8%	130
<b>Ethnicity</b>							
Hispanic	35,305,818	12.5%	5,504	0.9%	1.3%	1.3%	206

Figure 9.



The Vermont 2000 Census chart shows the percentages of the 4.2% of non-white Vermonters with diagnosed arthritis, and shows the prevalence among those who refer to themselves as "White."

Figure 10.



Because of the difficulty in Vermont of random telephone contacts succeeding in selecting race and ethnic groups other than “White”, several years of data are required to report arthritis prevalence by race and Hispanic origin. Based on 2000 through 2003 Vermont BRFSS data, American Indians have the highest prevalence of doctor-diagnosed arthritis while Blacks and Asians have the lowest. Reported Hispanic ethnicity is not significantly different from “Whites”.

## POTENTIALLY MODIFIABLE RISK FACTORS

### Income

Among Vermont adults, lower income is associated with an increased prevalence of arthritis. Prevalence of arthritis decreased among people living in households with higher income levels. It is significantly greater among adults ages 18-64 living in an household with an annual income of less than \$20,000, compared to persons earning \$20,000 or more.

Figure 11.

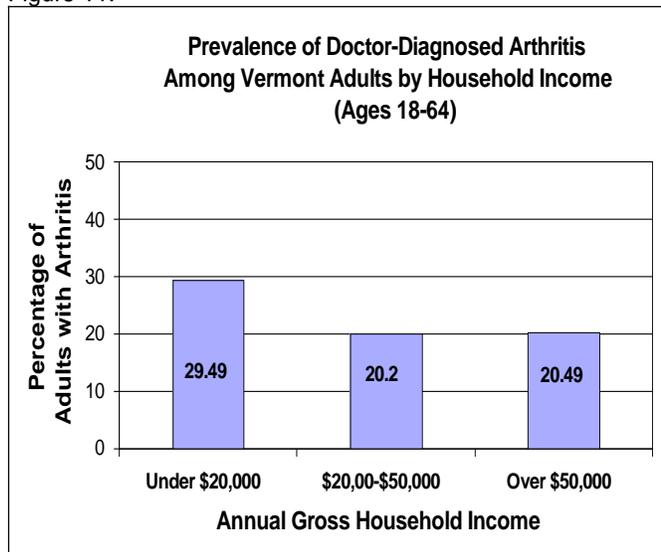
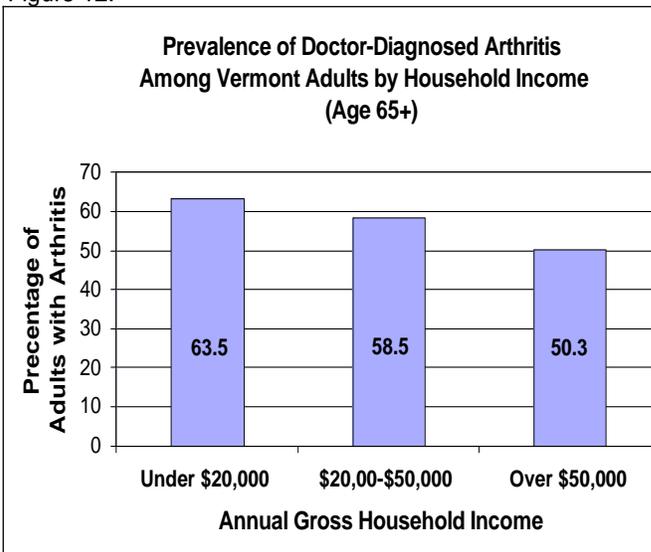


Figure 12.

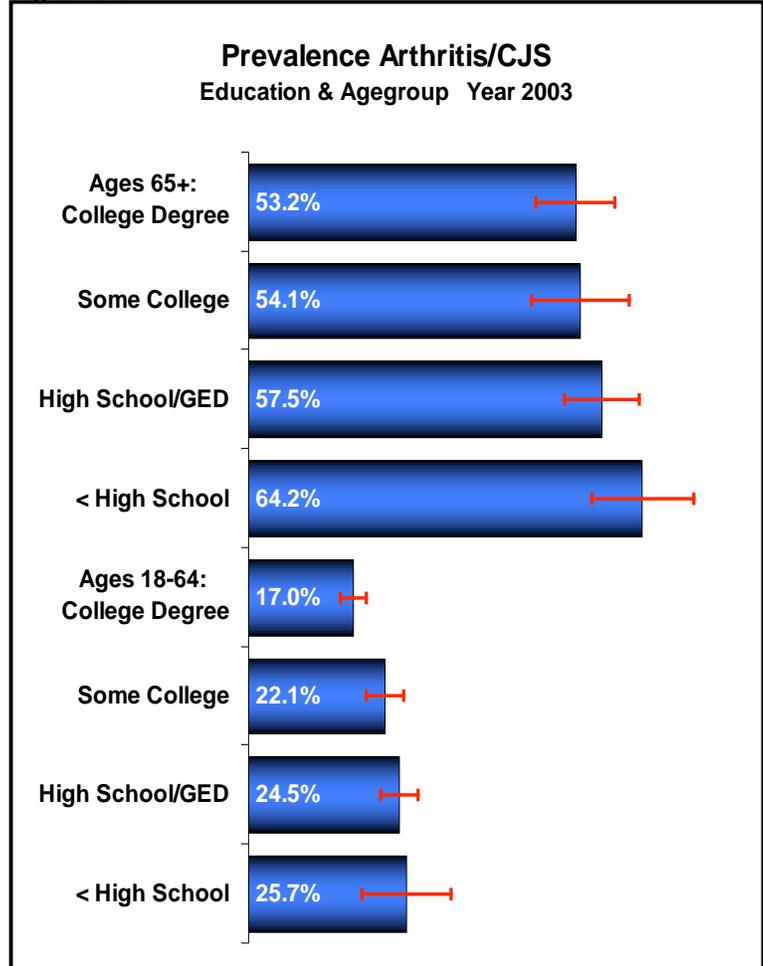


# Education

Vermonters with less formal education are more likely to have arthritis. People who are 65 and older have a higher prevalence of arthritis than younger Vermonters regardless of their educational level.

Younger adults (age 18 – 64) with college degrees have a lower prevalence of Arthritis than Vermonters of the same age with less formal education. Adults with a high school education or less are more likely to work in physically strenuous jobs requiring repetitive motions of lifting, bending, carrying, or driving that injure joints and develop into forms of osteoarthritis. Of those with less than a high school education, *about 37% report jobs that are mostly heavy labor, compared to about 13% of those with more than a high school education*

Figure 13.

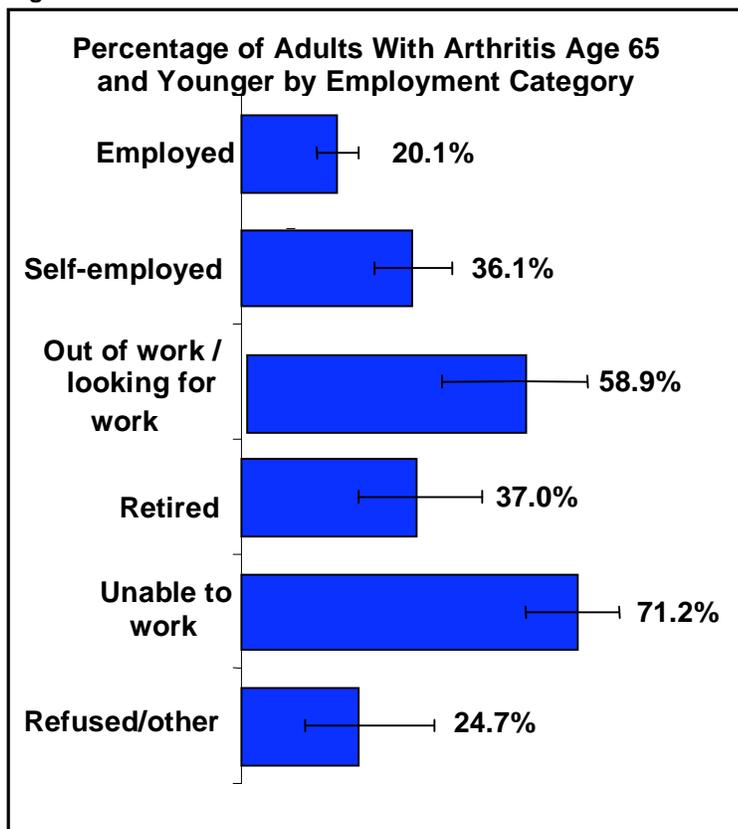


## IV EMPLOYMENT

Adults working in jobs involving heavy physical labor, with repetitive movements such as stooping, bending, pushing, lifting, carrying, twisting or reaching will be at high risk for developing some form of arthritis. While farming and construction are two such high risk occupations, there are others, such as shipyard work, heavy construction, and other occupations that require repetitive knee-bending or other repetitive movements that stress or potentially damage joints. (National Arthritis Action Plan, p.8). For this reason, employment is considered both an important risk factor, but also an issue affecting an individual’s lifestyle and quality of life.

# Impact on Employment and the Ability to Work

Figure 14.

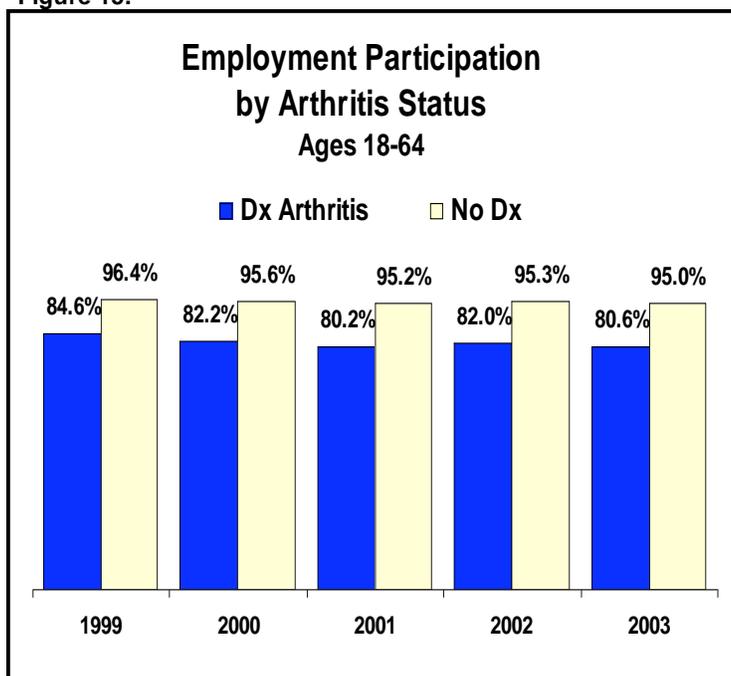


Adults younger than 65 with doctor-diagnosed arthritis –

- were employed at a rate of 20.1%.
- were self-employed at a rate of 36%;
- were out of work and/or looking for work at a rate of almost 59% (58.9%) of adults who were out of work and/or looking for work had arthritis;
- 37% of the adults who were retired had arthritis;
- More than 71% of adults who were unable to work had arthritis.

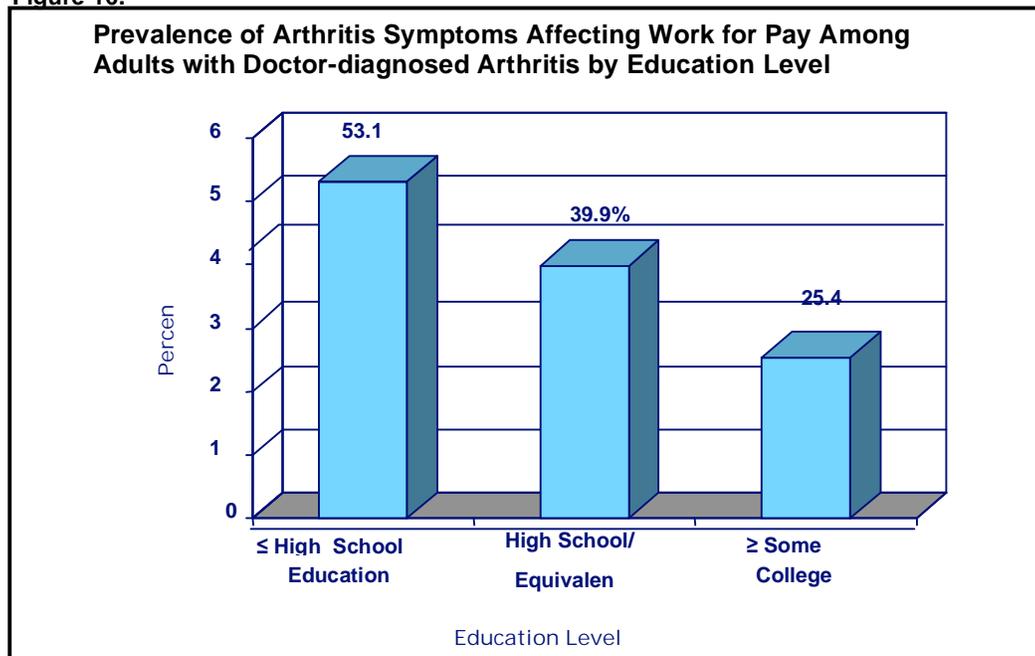
The **Labor Force Participation Rate** measures the proportion of the working-age population with arthritis who desire to work (i.e., both those who are employed and those who are unemployed but looking for work, or are a student or homemaker). The 1994 baseline figure for this percentage is 45%, and the national goal is 60%. In Vermont, while there are distinct differences between those with diagnosed arthritis and those without, persons with arthritis are in the labor market in a higher percentage than the goal of 60%. In Vermont, persons with arthritis are in the labor market at 80.6 percent, over 20% higher than the national goal.

Figure 15.



## Relationship of education level on work for pay

Figure 16.



Education level often affects the type of work that an individual may do. Individuals with a high school education or less report a much higher frequency of work involving repetitive physical activity.

These employment figures indicate the importance of developing accommodations for Vermonters with arthritis in the workplace. Employers will profit from promoting appropriate self-management activities for their employees (physical activity, good nutrition, and adequate sleep (2)). Employees will need to request the accommodations necessary for them to work efficiently and well, and not adversely affect their health and wellbeing. Accommodations include ergonomic workstations, tailored exercise programs, and work assignments that fit their functional abilities.<sup>iii</sup>

### MODIFIABLE RISK FACTORS

The modifiable risk factors associated with an increased risk of arthritis include weight, nutrition, physical activity, joint injuries, infections and certain high risk occupations. Information about weight, physical activity and nutrition will be found in the **Self-Management Section** below. While they are clearly significant risk factors for arthritis, they are also **lifestyle issues** impacted by individuals' choices about managing their chronic condition.

## V. Self-management of Arthritis

Important public health goals for people with arthritis are to promote early medical diagnosis and management of the disease coupled with appropriate dietary practices and physical

activities. The BRFSS survey addresses a constellation of critical self-management issues, physical activity; weight; nutrition; seeing a health care provider; participating in arthritis education programs, and receiving the necessary emotional support.

## Weight

Maintaining an appropriate weight reduces a person’s risk for developing arthritis. Obesity is a major risk factor for osteoarthritis of the knee in both males and females, and for gout in men. It is also associated with increased pain in all weight bearing joints. Weight is a significant and modifiable problem as weight loss can both prevent the development of additional arthritis and improve an individual’s ability to manage existing arthritis.

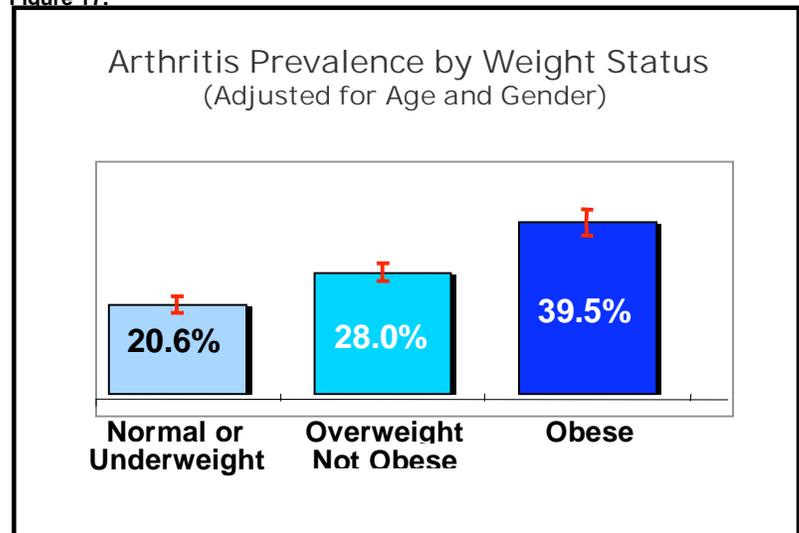
### Obesity is a major risk factor in arthritis.

- Over two-thirds of Vermonters with arthritis are overweight or obese.
- Obese adults are nearly twice as likely to have arthritis.

Obese Vermonters are nearly twice as likely to be diagnosed with Arthritis and Chronic Joint symptoms when compared to normal or underweight Vermonters. Adjusted for age and sex, 39.5% of obese persons have arthritis, compared to 20.6% of those who are normal or underweight.

Of Vermont adults with Arthritis and Possible Arthritis, only 25.3% report some physical activity with 32.3% being inactive or sedentary.

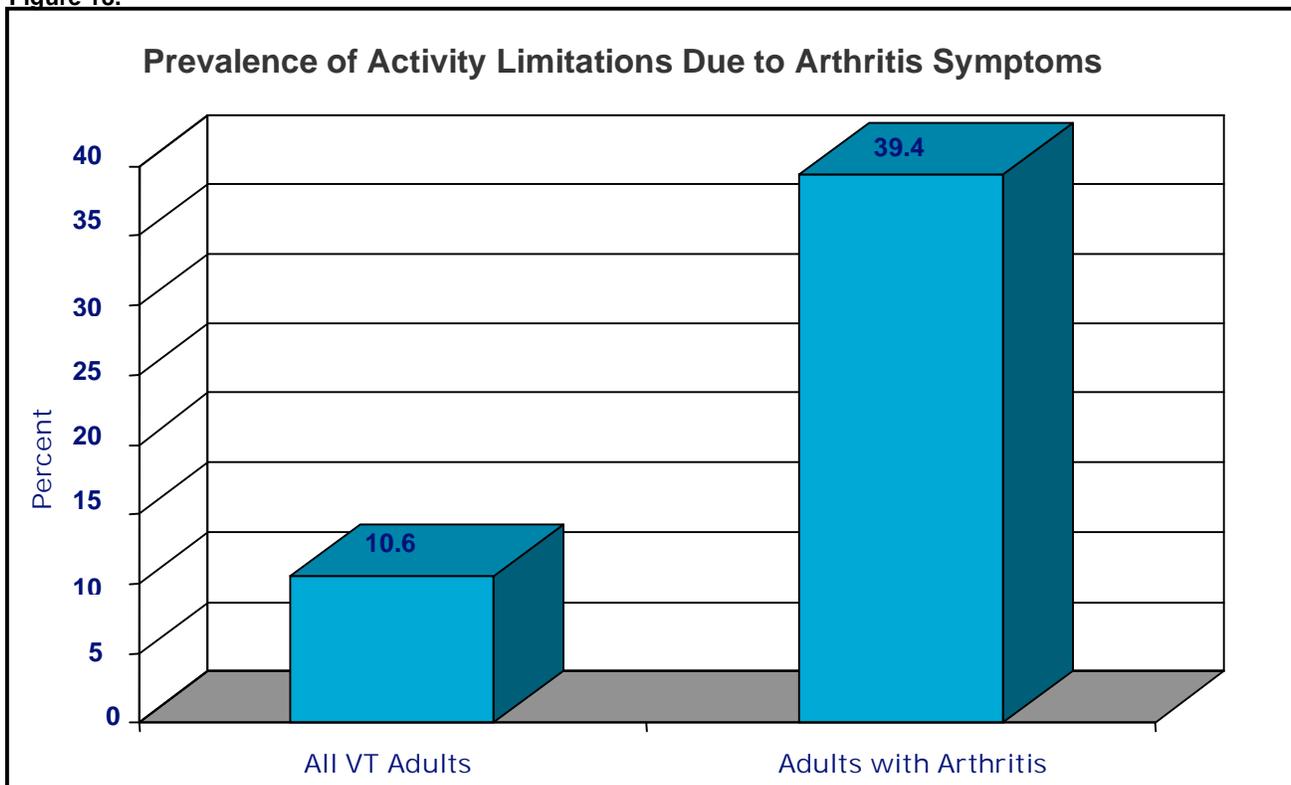
Figure 17.



## Physical Activity

Vermonters with arthritis are less physically active than the rest of the adult population. While this may be due to pain, loss of joint motion and fatigue, physical activity helps to maintain joint health and reduces the risk of other associated conditions and diseases. A continuum of community exercise programs are available to help counteract the activity limitations which result from arthritis symptoms.

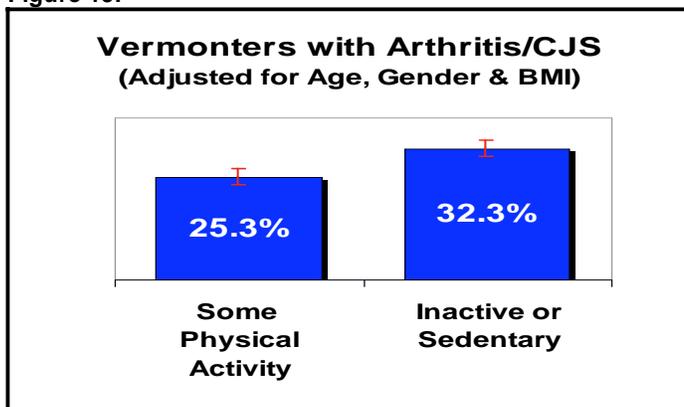
Figure 18.



Vermont adults with arthritis and possible arthritis (chronic joint symptoms) reported that 32% were inactive or sedentary, with another 25% reporting that they had “some physical activity”.

**NOTE:** Activity limitation is defined by a “yes” to the question “Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms?”

Figure 19.



## Nutrition

Nutrition is an important issue for adults with arthritis. The Behavioral Risk Factor Surveillance Survey (BRFSS) collects information about the two Healthy Vermonters 2010 dietary goals:

- Increase the percentage of people who eat at least two daily servings of fruit.
- Increase the percentage of people who eat at least three daily servings of vegetables.

Figure 19.

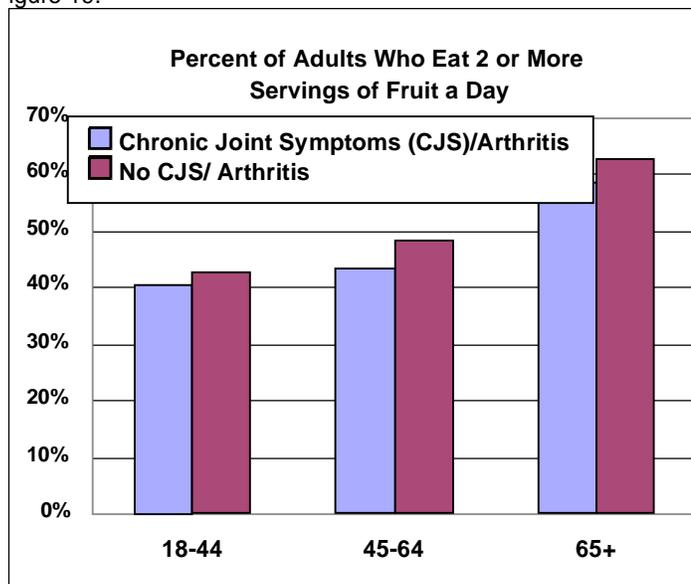
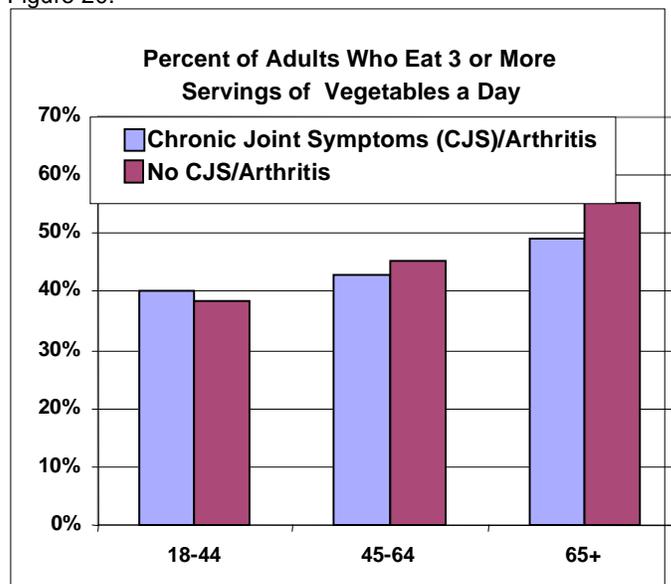


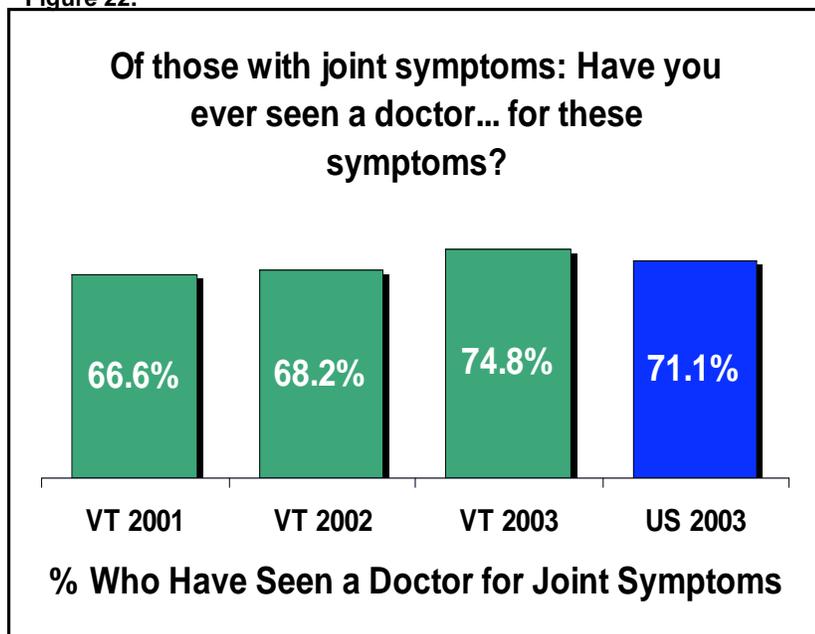
Figure 20.



## Seeing a Health Care Provider

Appropriate healthcare management, patient and provider education, improved self-care, and physical activity, encouraged by healthcare providers, can reduce arthritis disability and pain. The CDC suggests, “Increasing the percentage of persons who seek a diagnosis and treatment from a health care provider *for their chronic joint symptoms* is an objective amenable to public awareness campaigns to counter the myths that arthritis is part of normal aging and nothing can be done for it.”

Figure 22.



Healthy People 2010 includes the following goal:

**Increase to 75% the proportion of adults who have seen a health care provider for their chronic joint symptoms.**

(Source -November, 2004 Edition AHP 2011, in CDC Wonder)

The BRFSS asks those with Chronic Joint Symptoms whether they have seen a doctor or other health professional about the symptoms. The Vermont trend is encouraging in this regard, showing gradual improvement over the three-year period from 2001 to 2003.

## Arthritis education

The Healthy People 2010 Goal for arthritis education is as follows: *Increase the proportion of people with arthritis who have had effective, evidence-based arthritis education (including information about community and self-help resources) as an integral part of the management of their condition.* While

the BRFSS does not ask if the education is “effective and evidence-based,” the 2003 BRFSS does ask about whether a person with arthritis has taken an educational course or class to manage the problems. 14.8% in Vermont have ever taken classes to help them manage their arthritis-related problems. This result shows the desirability of promoting the Arthritis Foundation’s *Arthritis Self-Help Course*, through leader training and expansion of available classes.

Only 14.2% of Vermonters with arthritis have taken an arthritis management class.

## Help in Coping

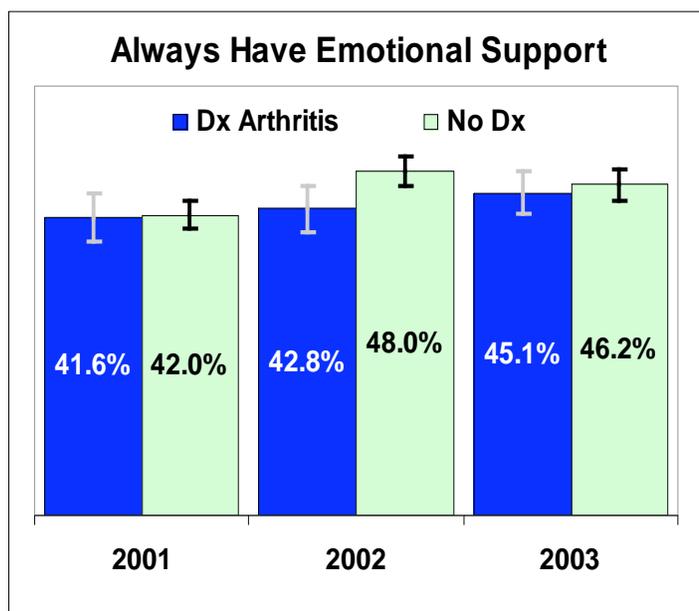
Receiving the necessary social and emotional support is critical for those living with a chronic disease. As a state added question, Vermont BRFSS has asked all respondents (during the years 2001–2003) the following:

**How often do you get the social and emotional support you need? Would you say**

- |              |           |
|--------------|-----------|
| 1. Always    | 4. Rarely |
| 2. Usually   | 5. Never  |
| 3. Sometimes |           |

For the three years in which both this question and the arthritis questions were asked, only in one year is there a difference between persons who are diagnosed with arthritis and not diagnosed with respect to *always* getting the social and emotional support they need. This occurred in 2002, and those with diagnosed arthritis receiving emotional support on a less frequent basis than those without. Overall, it appears that less than half of adults with arthritis feel they receive the social and emotional support they need.

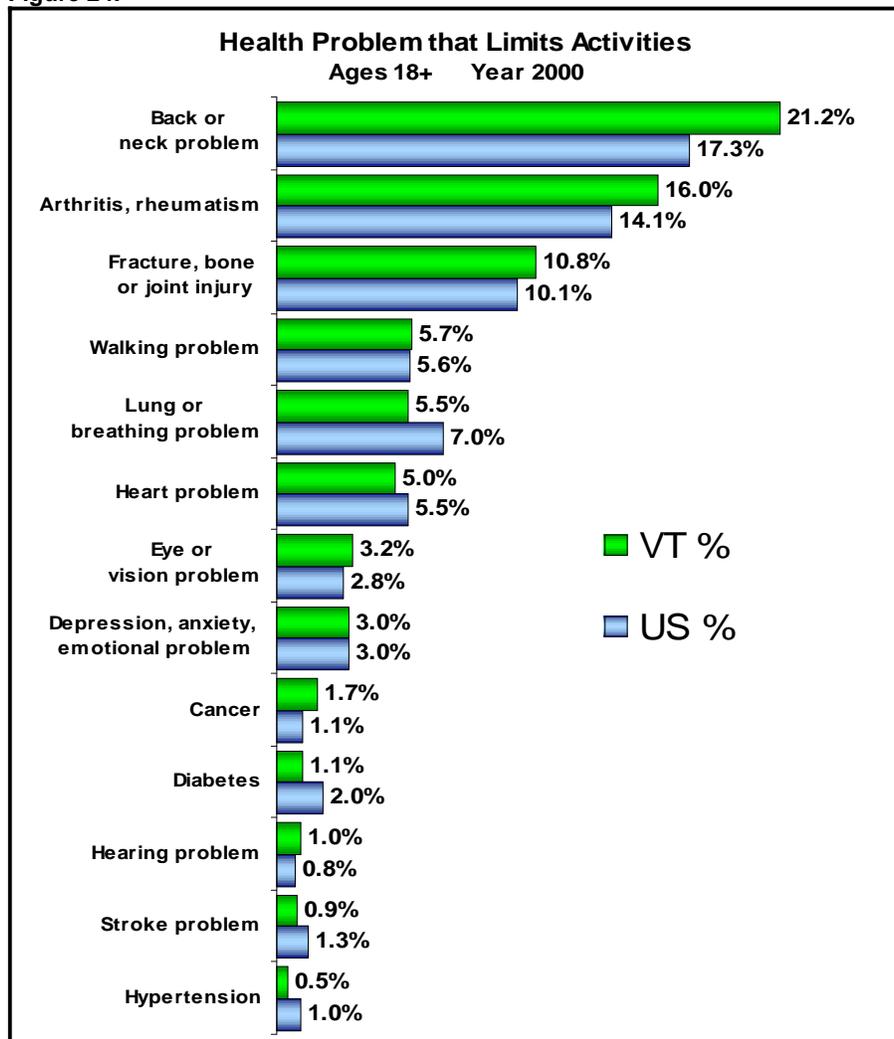
Figure 23.



## V. Quality of Life

This chart compares Vermont and national data for adults who limited their activities because of health problems. For both, back or spine problems were most frequent (national 21.2% / Vermont 17.3%), followed closely by arthritis (national 16% / Vermont 14.1%) and fracture, bone or joint injury (national 10.1% / Vermont 10.8%).

Figure 24.



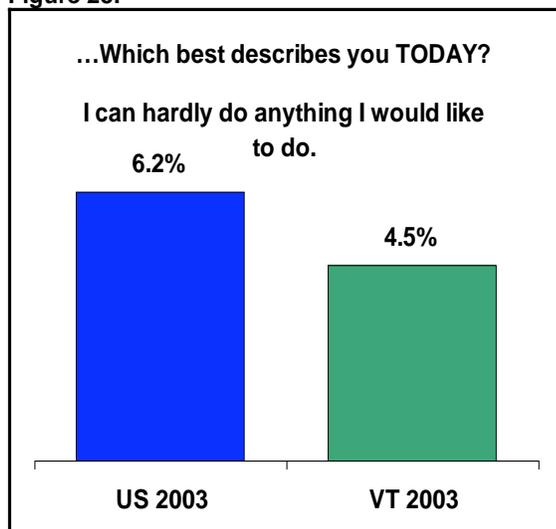
The Vermont BRFSS asked whether a respondent has a health problem that limits their activities, and precisely what was the health problem. In 2000, it was asked of everyone, and in 2003, it was asked of those who needed special equipment for their disability.

Based on the 2000 BRFSS, arthritis and rheumatism is listed as the second most reference health problem that limits a respondent's activities, affecting nearly 13,000 Vermont adults.

The 2000 US statistics are based on 184,450 BRFSS interviews in all states, US territories and the District of Columbia.

## Limitations on Personal Activities

Figure 25.



The 2003 Optional BRFSS Module asks, "Thinking about your arthritis or joint symptoms, which of the following best describes you TODAY?"

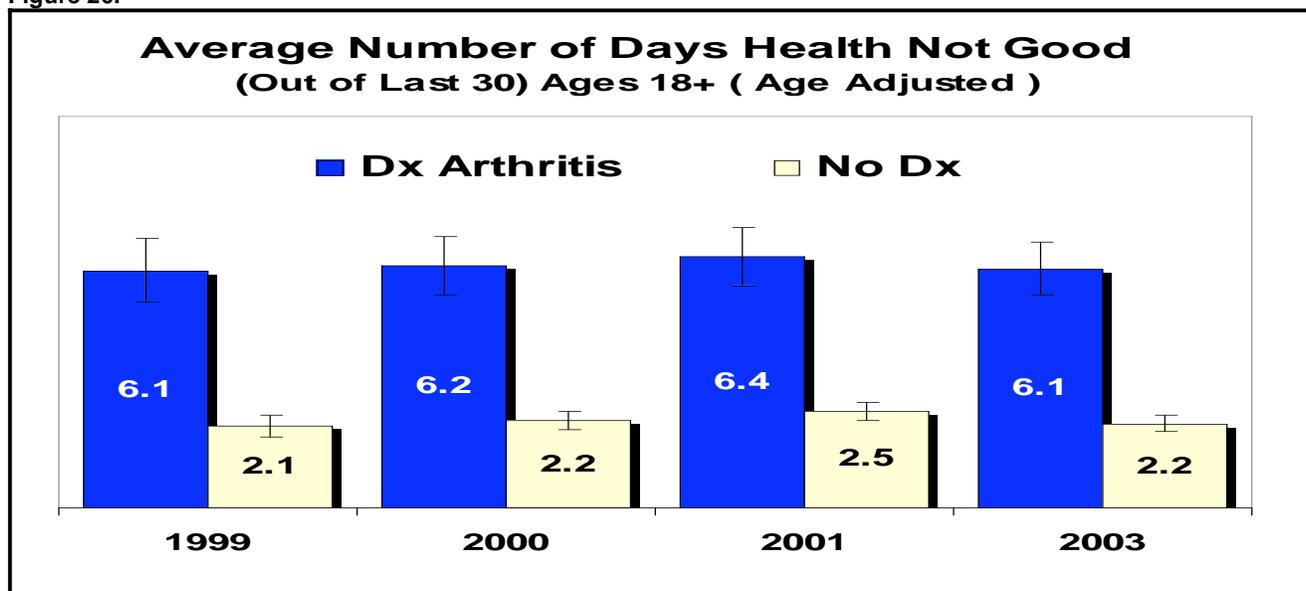
- I can do - 1....everything
- 2....most things
- 3 ...some things
- 4 ...hardly anything I would like to do.

Weighting the responses back to the population, nearly 5,800 (or 4.5%) of the Vermonters with arthritis reported that they can do "hardly anything" they would like to do because their arthritis and joint symptoms significantly curtail their ability to carry out their usual activities of daily life.

## Healthy Days

The BRFSS asks about the number of days during the last 30 that the person’s health was not good. Vermont adults with diagnosed arthritis were on average experiencing far more days for which their health was not good than those without arthritis. In 2003, persons with diagnosed arthritis averaged 6.4 days out of the last 30, while those without diagnosed arthritis averaged only two days of “not good” health.

Figure 26.

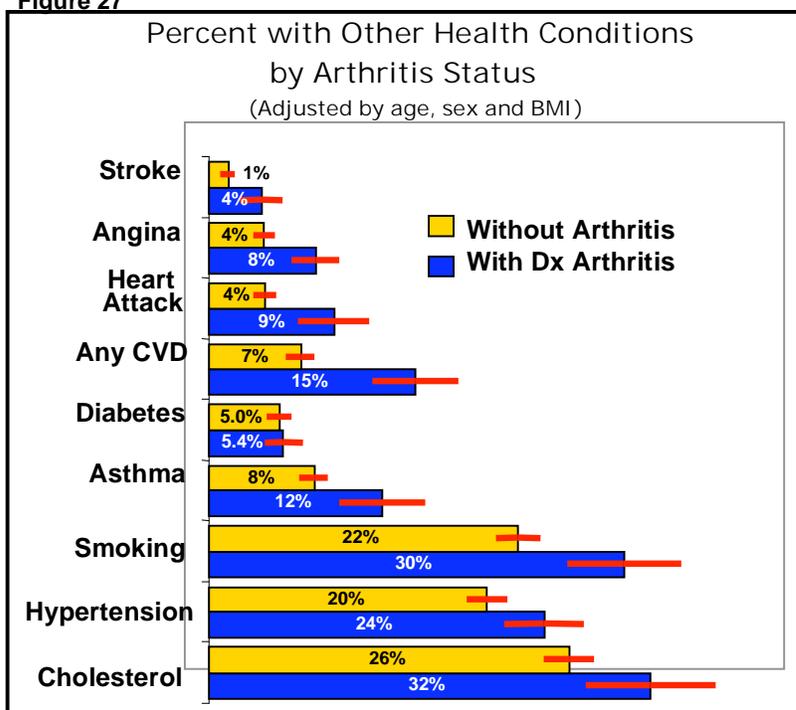


## VI. Arthritis and other Chronic Diseases

Vermont adults with arthritis experience a higher prevalence of other chronic conditions.

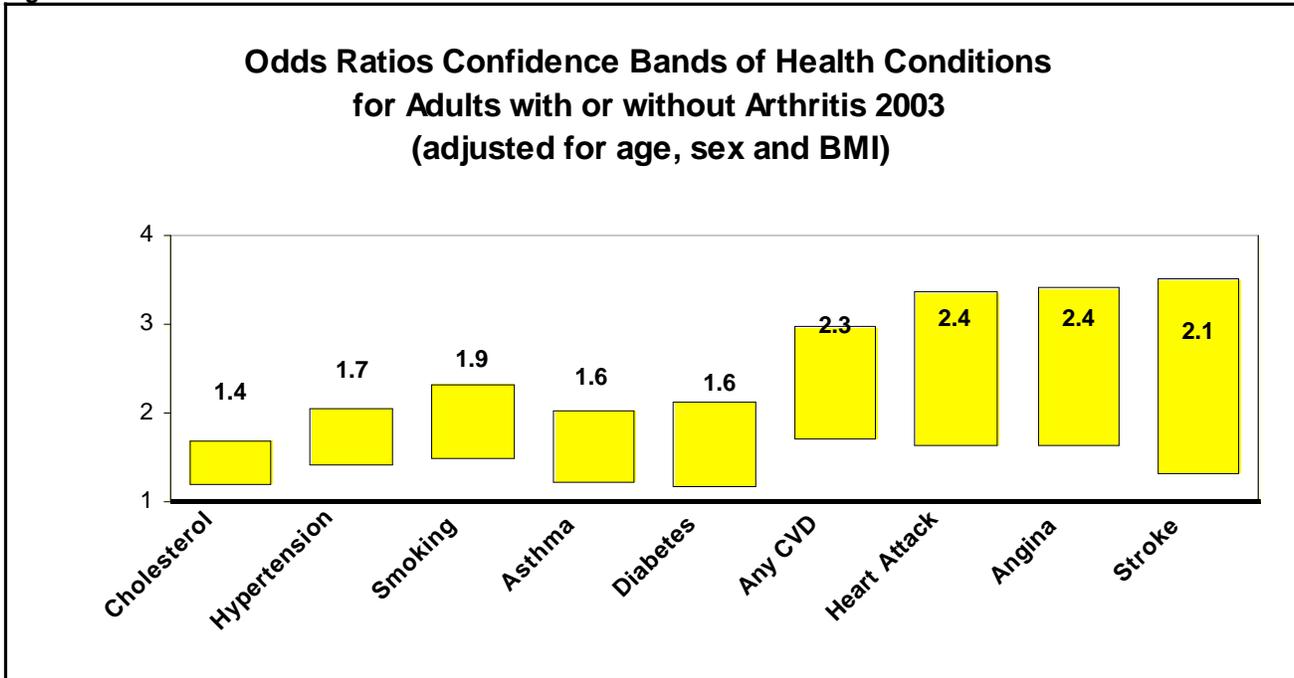
Over and above other risk factors such as age, sex and weight status (body mass index BMI), arthritis and various other health problems and risks are associated among Vermonters

Figure 27



Groups of people identified as “high-risk” for arthritis are often the same people that are at risk for other chronic conditions. It appears that persons with arthritis in Vermont have increased odds of having co-morbid conditions compared to those without arthritis. Odds ratio of more than 1.0 are considered significant.

Figure 28.



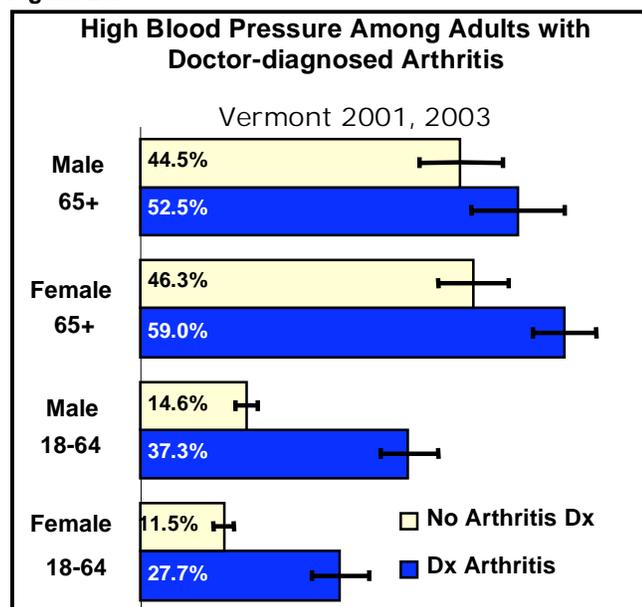
Research has also shown that arthritis is considered to be a risk factor for other health conditions such as hypertension, cardiovascular disease, etc. In addition, disability escalates among persons with arthritis who are also burdened with other chronic health conditions.

## HYPERTENSION

### Hypertension occurred at higher rates among adults with arthritis.

Hypertension occurred at a higher rate in persons with arthritis when compared to persons without arthritis, even after adjusting for age, sex and body mass index. The high prevalence of hypertension among adults and the increased chances of hypertension among those with arthritis suggest that hypertension is a significant problem among older persons with arthritis.

Figure 29.



These results suggest that several health conditions occurred at a higher rate in persons with arthritis when compared to persons without arthritis, even after adjusting for age, sex and body mass index.

The following table lists the results of a logistic regression model with diagnosed arthritis as the dependent variable. **Age and smoking status are the strongest predictors, with exercise, weight status, gender, blood pressure and cholesterol also significant predictors.**

Figure 30.

Factors Associated with Diagnosed Arthritis		Odds Ratio	95% Conf. Int.	
Independent factors controlling for others in model			Lower	Upper
Reported Age In Years	Each decade past 18 years of age	1.68	1.58	1.79
Current Smoking Status	Current smoker vs. former or non-smoker	1.67	1.31	2.13
Exercise Last 30 Days	No vs. Yes	1.62	1.32	2.00
Overweight Or Obese	Overweight/Obese vs. Not At Risk	1.62	1.34	1.96
Gender	Female vs. Male	1.43	1.20	1.72
High Blood Pressure	High blood pressure vs. Not at risk	1.38	1.13	1.69
Blood Cholesterol High	Yes vs. No	1.28	1.06	1.53

## VII. Conclusion

Arthritis is the most common chronic condition in Vermont, affecting an estimated 129,000 adults or 27.3% of adults - more than a quarter of the adult population. The prevalence of arthritis is expected to double in Vermont by 2030 as the state's population ages. Every year in Vermont an estimated \$172 million dollars is spent on arthritis. Two thirds of Vermont adults with arthritis are obese. People with arthritis experience a higher prevalence of other chronic diseases, and report three times as many days of poor health.

In order to address the pressing need for more effective arthritis education and self-management programs, the data in this report will be used to guide public health planning and program development. The high prevalence of arthritis among low income Vermonters points to the urgent need for health literacy and self-management strategies specifically designed to meet the need of our highest risk populations.

<sup>i</sup> National Institutes of Health (1998). *Searching for the Cause*. National Institutes of Arthritis and Musculoskeletal and Skin Diseases, Bethesda, MD. 1998.

<sup>ii</sup> Briley, M. Why Me? *Arthritis Today*, January/February, 1998. Atlanta, Georgia

<sup>iii</sup> Missouri Arthritis Rehabilitation Research and Training Center (MARRTC) New Release – *Tips for a better Night's Rest*, 2004

See the National Sleep Foundation (NSF) website: [www.sleepfoundation.org](http://www.sleepfoundation.org)

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