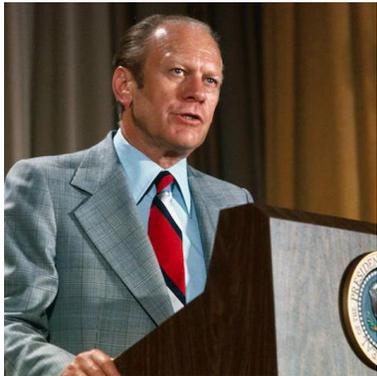
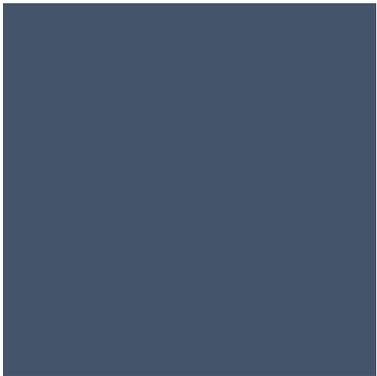
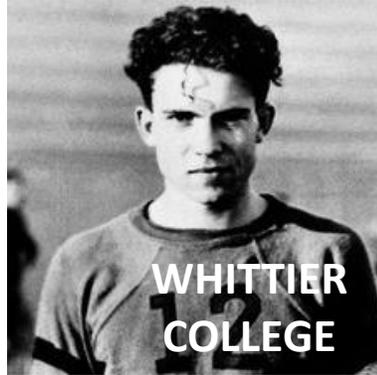
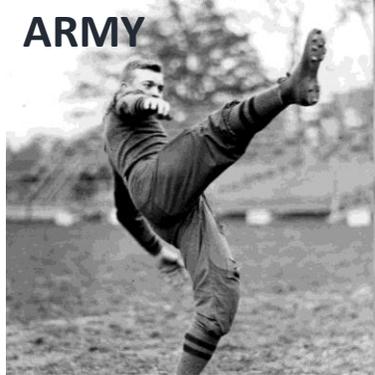
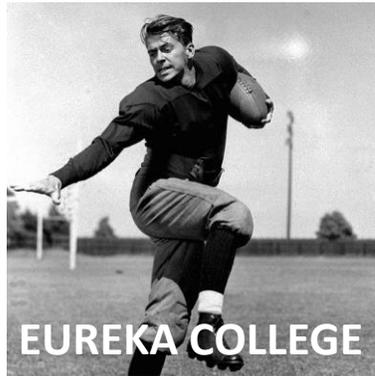


*John F. Kennedy, Dwight Eisenhower, Richard Nixon,
Ronald Reagan, Donald Trump & Gerald Ford*
What do all these men have in common?





They all participated in competitive tackle football!





Do Sports Cause Death in Teenagers?

Riding in a Car: 25 deaths per million population

Suicide: 25 deaths per million population

Equestrian: 20 deaths per million participants

Biking, Snowboarding, Skateboarding, Skiing:

All about 15 deaths per million participants

Playground: 10 deaths per million participants

Football: Fewer than 6 deaths per million participants

Swimming: 140 youth deaths per year

Suicide Mortality Among Retired NFL Players Who Played 5 or More Seasons

Study by Everett J. Lehman, MS, Misty J. Hardin, PhD, and Christine M. Gersic
Investigation performed at the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, Ohio, USA

Players Retired – Since 1987

6.1/100,000

Average American Man – Since 2014

20.1/100,000

Since 1987, NFL Players are 70% less likely to commit suicide than the general population!

3439 Football Players from 1959-1988 seasons were studied. (Minimum of 5 Seasons per player)

Followed for 28.9 years after retirement

Overall Mortality, Selected Causes, NFL Player Cohort (1960-2013)

Underlying Cause of Death	Observed in the NFL Player Studied	Expected based on National Statistics
All Deaths	537	901.7
All Cancers	137	230.8
Heart Disease	207	277.1
Suicide	12	25.6
Assault & Homicide	4	27.6

Suicide in the General Population & NCAA Athletes

Suicide in National Collegiate
Athletic Association (NCAA) Athletes:
A 9-Year Analysis of the NCAA
Resolutions Database

Study published Oct 2015

Ashwin L. Rao, MD, Irfan M. Asif, MD, Jonathan A. Drezner, MD,
Brett G. Toresdahl, MD & Kimberly G. Harmon, MD

**9 Year Study of
3,773,309 Participant Seasons**

General Population

12.6 per 100,000

18-22 Year Old Non-College

12 per 100,000

College Students

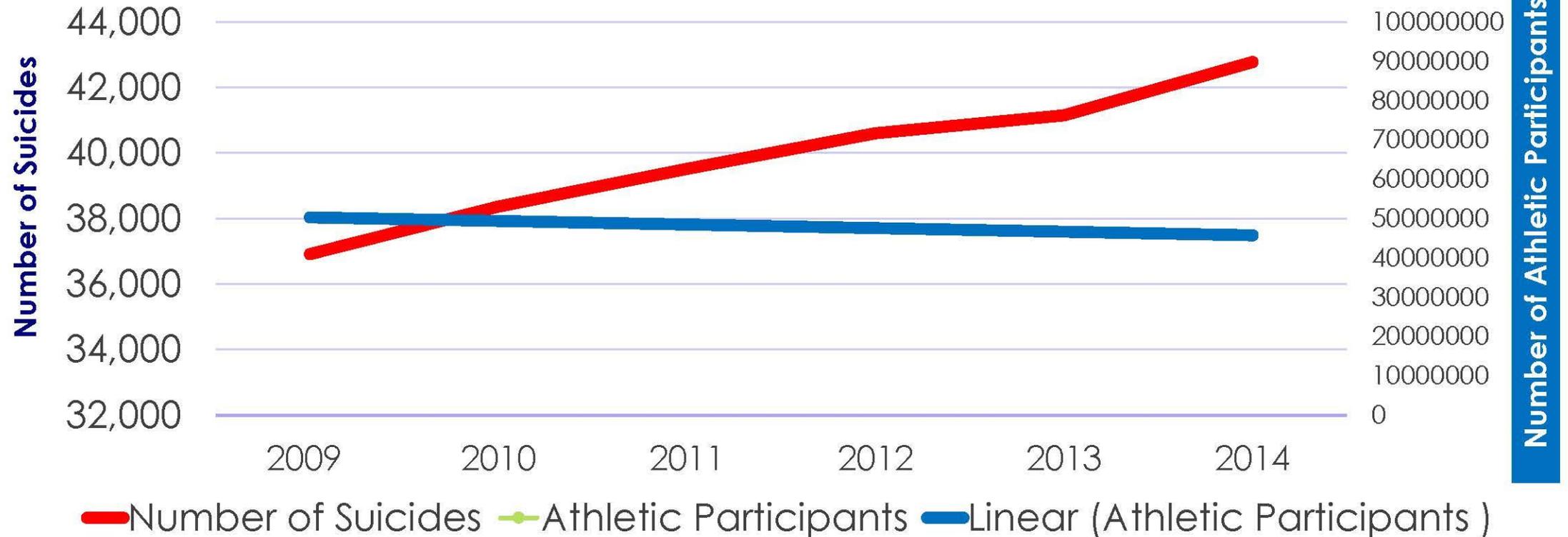
7.5 per 100,000

NCAA Football (Male Only)

2.25 per 100,000

Decrease in Youth Athletics Compared to Youth Suicide Rate

NUMBER OF ATHLETIC PARTICIPANTS (AGE 6-17) COMPARED TO NUMBER OF SUICIDES IN TOTAL US POPULATION





Sports Participation as a Protective Factor Against Depression and Suicidal Ideation in Adolescents as Mediated by Self-Esteem and Social Support

Study by: Lindsay A. Babiss, MS and James E. Gangwisch, PhD

ABSTRACT: Objective – Participation in sports has been shown to be protective against depression and suicidal ideation, but little is known about what factors mediate these relationships. No previous studies examined potential mediators between sports participation and suicidal ideation and only one study explored possible mediators between sports participation and depression. Increased sports participation could protect against depression and suicidal ideation by increasing endogenous endorphin levels, boosting self-esteem, improving body image, increasing social support, and affecting substance abuse.

FINDINGS:

- *An increase in sports participation (Grades 7-12) leads to a decrease in depression by 25%.*
- *Suicidal ideation decreases by 12% with an increase in sports participation.*

What is the relationship between Concussion and Dementia?



1/3 of Americans have had a concussion in their lifetime, 2/3 of these concussions are in males.

Dementia occurs about 63.5 per 1,000 in the US.

Alzheimer's twice as common in women vs. men.

5 million have Alzheimer's – no reliable diagnostic, unknown cause.

Other common types: vascular dementia, frontotemporal dementia, normal pressure hydrocephalus

High School Football and Risk of Neurodegeneration: A Community-Based Study

Rodolfo Savica, MD, MSc; Joseph E. Parisi, MD; Lester E. Wold, MD; Keith A. Josephs, MD, MST, MSc; and J. Eric Ahlskog, PhD, MD

Does Football Increase Risk of Dementia?

In a study of **438 Football Players Followed for 50 Years...**

Same Risk of Dementia as Members of Chorus, Glee Club or Band.

TABLE 1. Historical Cohort Study of Football Players vs. Non-Football Players and Risk of Neurodegenerative Diseases^a

	Football players (N=438)	Band/glee club/choir members (N=140)	HR	95% CI	P value ^b
Follow-up					
Years of follow-up ^c	50.2 (13.7, 57.5)	42.7 (8.8, 55.4)	--	--	.03
Age at follow-up ^c	68.4 (31.5, 75.6)	59.1 (26.7, 73.4)	--	--	.01
Outcome					
Dementia	13	2	1.58	0.36-7.01	.55
Parkinson disease	10	5	0.48	0.17-1.42	.19
Amyotrophic lateral sclerosis	2	1	0.52	0.05-5.68	.59

^aHR = hazards ratio; CI = confidence interval.

^bP values are for the Wilcoxon rank sum test.

^cValues are median (25th percentile, 75th percentile).

Rochester Epidemiology Project

From 1956-1970

In a study of **296 Varsity Football
Players VS. 196 Wrestling, Swimming
and Basketball Athletes...**

Football players are more likely to have
had a concussion

**NO DIFFERENCE IN LIKELIHOOD OF
DEMENTIA, PARKINSONISM OR ALS.
>50 Years after injury**

ORIGINAL ARTICLE



High School Football and Late-Life Risk of Neurodegenerative Syndromes, 1956-1970

Pieter H.H. Janssen; Jay Mandrekar, PhD; Michelle M. Mielke, PhD;
J. Eric Ahlskog, PhD, MD; Bradley F. Boeve, MD; Keith Josephs, MD;
and Rodolfo Savica, MD, PhD

Abstract

Objective: To assess whether athletes who played American varsity high school football between 1956 and 1970 have an increased risk of neurodegenerative diseases later in life.

Patients and Methods: We identified all male varsity football players between 1956 and 1970 in the public high schools of Rochester, Minnesota, and non-football-playing male varsity swimmers, wrestlers, and basketball players. Using the medical records linkage system of the Rochester Epidemiology Project, we ascertained the incidence of late-life neurodegenerative diseases: dementia, parkinsonism, and amyotrophic lateral sclerosis. We also recorded medical record-documented head trauma during high school years.

Results: We identified 296 varsity football players and 190 athletes engaging in other sports. Football players had an increased risk of medically documented head trauma, especially if they played football for more than 1 year. Compared with nonfootball athletes, football players did not have an increased risk of neurodegenerative disease overall or of the individual conditions of dementia, parkinsonism, and amyotrophic lateral sclerosis.

Conclusion: In this community-based study, varsity high school football players from 1956 to 1970 did not have an increased risk of neurodegenerative diseases compared with athletes engaged in other varsity sports. This was from an era when there was a generally nihilistic view of concussion dangers, less protective equipment, and no prohibition of spearing (head-first tackling). However, the size and strength of players from previous eras may not be comparable with that of current high school athletes.

			Does the subject have any child or children who have played contact sports?		Total
			None	Yes	
js2: Which sample group?	Orthopedic Surgery Chairs	Count	7	22	29
		% within js2: Which sample group?	24.1%	75.9%	100.0%
		% within Does the subject have any child or children who have played contact sports?	46.7%	31.0%	33.7%
	Neurosurgery Chairs	Count	6	32	38
		% within js2: Which sample group?	15.8%	84.2%	100.0%
		% within Does the subject have any child or children who have played contact sports?	40.0%	45.1%	44.2%
	Other TBI Experts (non-chair neurosurgeons, scientists, and chairs of other departments)	Count	2	17	19
		% within js2: Which sample group?	10.5%	89.5%	100.0%
		% within Does the subject have any child or children who have played contact sports?	13.3%	23.9%	22.1%
Total		Count	15	71	86
		% within js2: Which sample group?	17.4%	82.6%	100.0%
		% within Does the subject have any child or children who have played contact sports?	100.0%	100.0%	100.0%

76% Orthopedic Chairs

86% Neurosurgery Chairs

90% TBI Experts

allowed their own children to play contact sports.

suggesting that... the more one understands brain injury the more likely they are to allow children to play contact sports!

More than 70% of pediatricians surveyed want to ban tackle football. However, only 5.4% feel comfortable treating a child with Post-Concussion Syndrome (PCS).

Benefits vs. Risks

Benefits of Playing Football:

- Reduces Obesity and Diabetes
- Reduces Depression/Suicidal Ideation
- Reduces High Blood Pressure
- Reduces Heart Disease
- Reduces Stroke
- Reduces Dementia
- Reduces 13 Types of Cancer Risk
- Complex Psychosocial Benefit

Risks of Playing Football:

- Brain or Other Injury

Children who choose to play football have an average BMI of 26.3 and thus are at highest risk for complication of obesity.

> 1,000,000 American children play high school football. An additional > 1,000,000 play youth or other league football.

If even half of those children became sedentary (rejected soccer, cross country and other fall sport options) ***the resultant increase in sedentary lifestyle/obesity risks would be ENORMOUS!*** (Hypertension, Diabetes, Cardiovascular Disease, 13 Types of Cancer, Osteoporosis)

BMI of 17-25 is considered healthy.