



a continuing study of American youth



# The Association between Exercise and Sports Participation and Various Forms of Substance Use in Adolescence: Findings from *Monitoring the Future*

Lloyd D. Johnston, PhD  
Patrick M. O'Malley, PhD  
Jorge Delva, PhD  
John Schulenberg, PhD  
Jerald G. Bachman, PhD

The University of Michigan's Institute for Social Research

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June 6, 2008

# Monitoring the Future Background and Design

- Funded under a series of investigator-initiated competitive research grants from the National Institute on Drug Abuse since its inception in 1975
- Conducted at The University of Michigan
- Focus here is on the period 1991-2007
- Annual in-school surveys of grades 8, 10, and 12
- Nationally representative at each grade with 410 secondary schools with 50,000 students / year
- Self administered questionnaires given in school with 4-6 different questionnaire forms per grade

# Questions about Exercise

How often do you participate in each of the following:

Actively participate in sports, athletics, or exercising?

2007 12th Graders

	Males	Females	Black Males	Black Females	Hispanic Males	Hispanic Females
1. Never	7.5	11.2	3.4	16.5	5.9	17.3
2. A few times a year	6.7	12.8	4.1	17.1	7.2	17.1
3. Once or twice a month	11.4	14.9	13.1	15.8	11.7	16.1
4. At least once a week	24.1	25.7	18.7	22.8	24.8	20.5
5. Almost every day	50.2	35.3	60.8	27.9	50.5	29.1
Weighted N	2235	2485	229	324	302	349

8th Grade Weighted N	7876	7963	922	968	1327	1405
10th Grade Weighted N	7896	8007	830	890	1105	1115

How often do you...

Exercise vigorously (jogging, swimming, calisthenics, or any other active sport)?

2007 12th Graders

	Males	Females	Black Males	Black Females	Hispanic Males	Hispanic Females
1. Never	6.5	7.4	7.3	6.5	3.3	9.8
2. Seldom	13.5	17.9	5.7	20.8	15.2	23.1
3. Sometimes	23.1	27.2	33.4	33.3	22.9	24.3
4. Most days	17.5	18.7	17.5	19.6	18.8	23.5
5. Nearly every day	16.6	12.3	7.0	6.7	9.2	9.9
6. Every day	22.9	16.6	29.1	13.2	30.6	9.4
Weighted N	935	1080	93	138	106	112

8th Grade Weighted N	2214	2351	233	271	353	393
10th Grade Weighted N	2388	2437	231	236	323	309

To what extent have you participated in the following school activities during this school year ?

...athletic teams ?

2007 12th Graders

	Males	Females	Black Males	Black Females	Hispanic Males	Hispanic Females
1. Not at all	42.4	49.9	30.6	49.4	45.7	60.7
2. Slight	7.5	8.1	7.6	9.3	11.1	9.4
3. Moderate	9.7	9.4	11.0	10.6	7.9	5.8
4. Considerable	9.6	9.1	6.9	7.0	7.7	8.0
5. Great	30.9	23.5	43.8	23.7	27.6	16.2
Weighted N	2074	2363	210	303	266	303

8th Grade Weighted N	3453	3610	361	401	542	587
10th Grade Weighted N	3657	3790	362	401	460	510

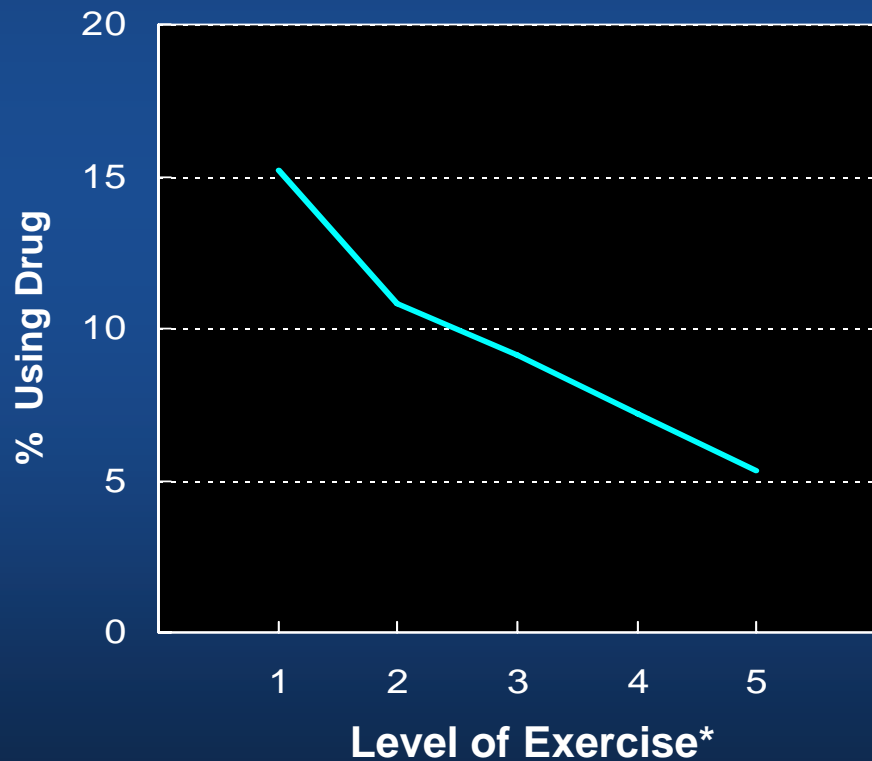
# Substance Use by Varying Levels of Exercise

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

8TH GRADERS, 1991-2007 COMBINED



Males  
N=140,000



Females  
N=137,000



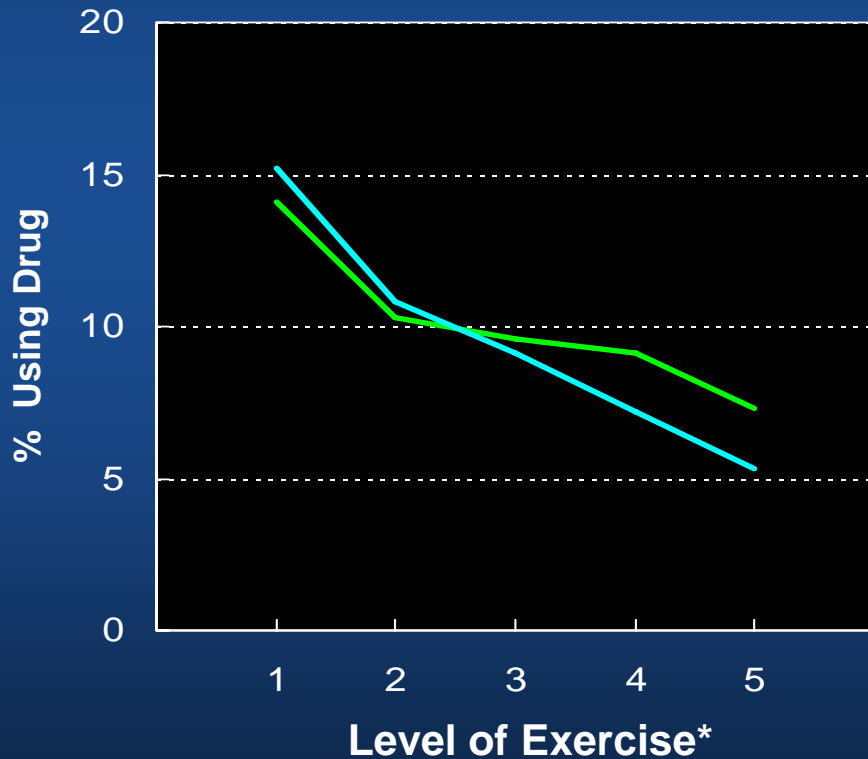
\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

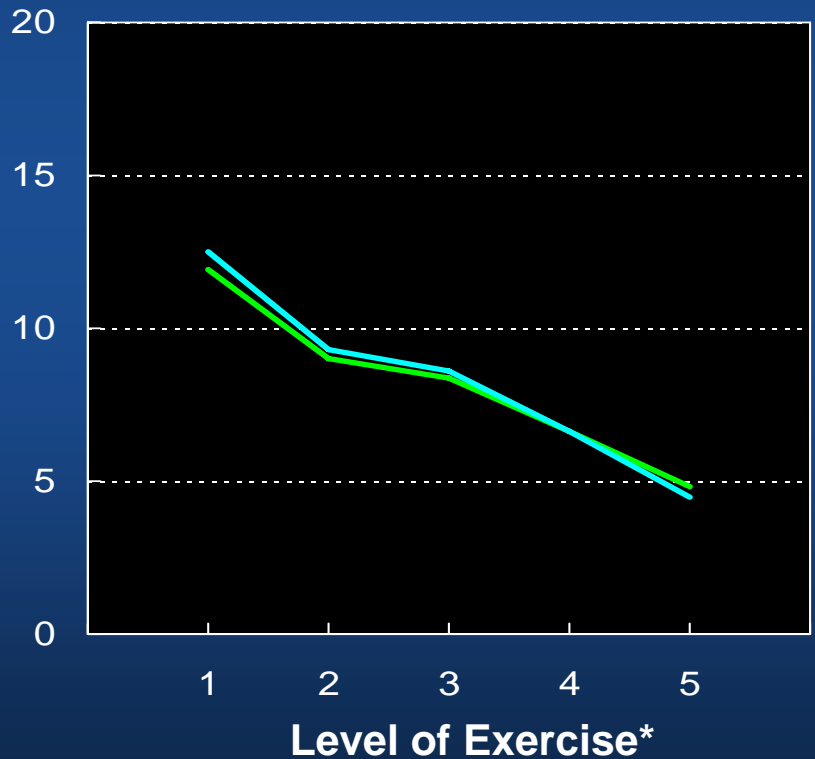
8TH GRADERS, 1991-2007 COMBINED

— 5+DRINKS IN A ROW (TWO WEEKS) — CIGARETTES (DAILY)  
— MARIJUANA (30-DAY) — ANY ILLICIT OTHER THAN MARIJUANA (30-DAY)

Males  
N=140,000



Females  
N=137,000

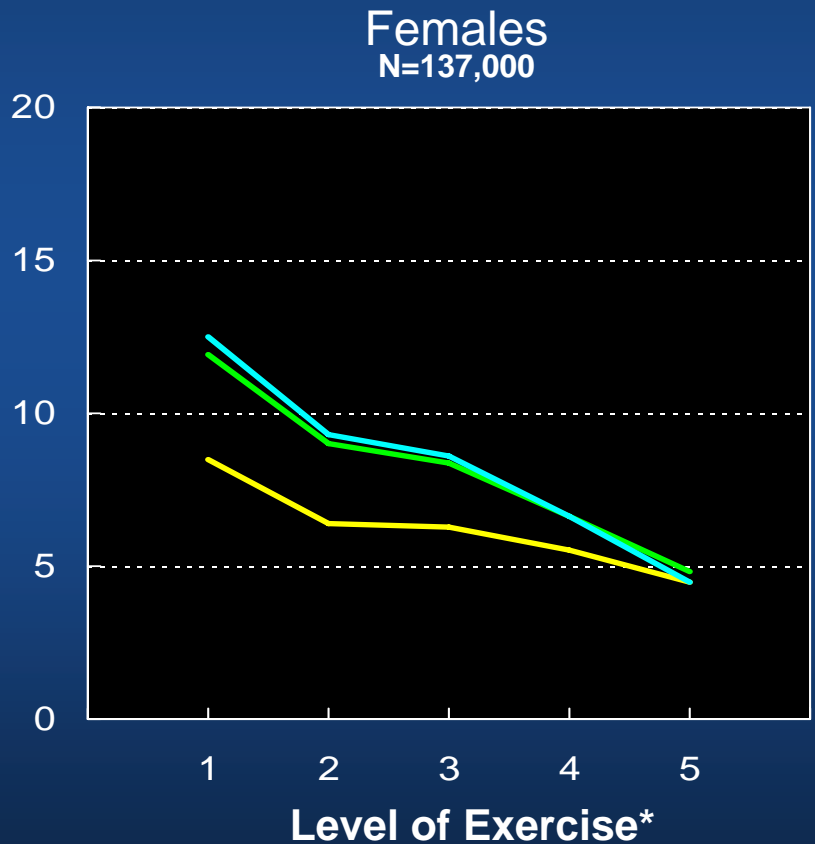


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8TH GRADERS, 1991-2007 COMBINED

— 5+DRINKS IN A ROW (TWO WEEKS) — CIGARETTES (DAILY)  
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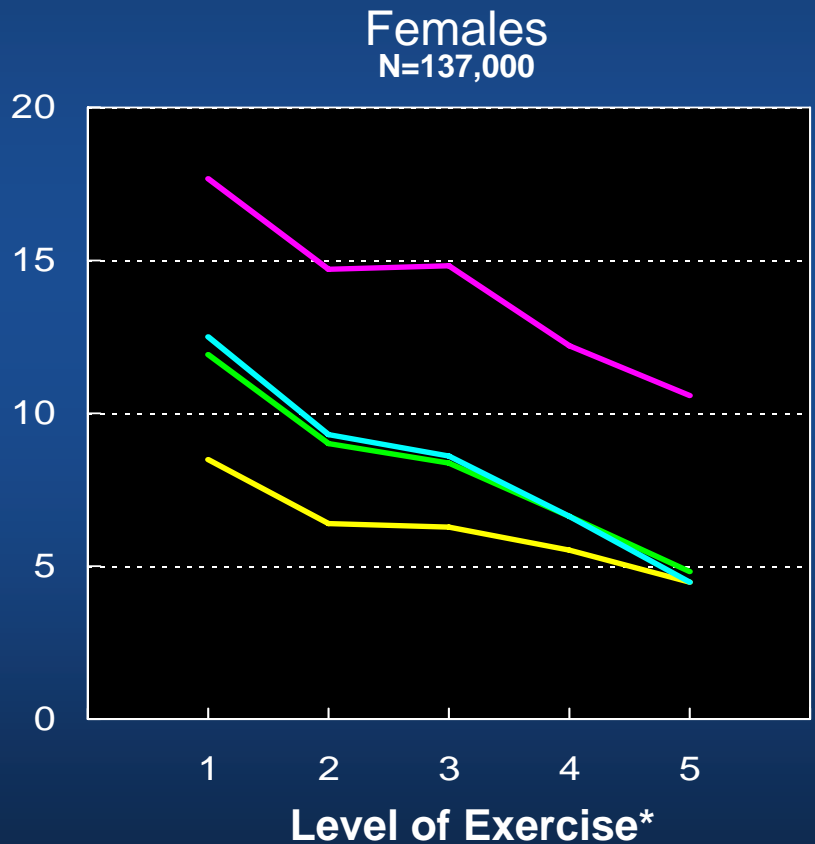
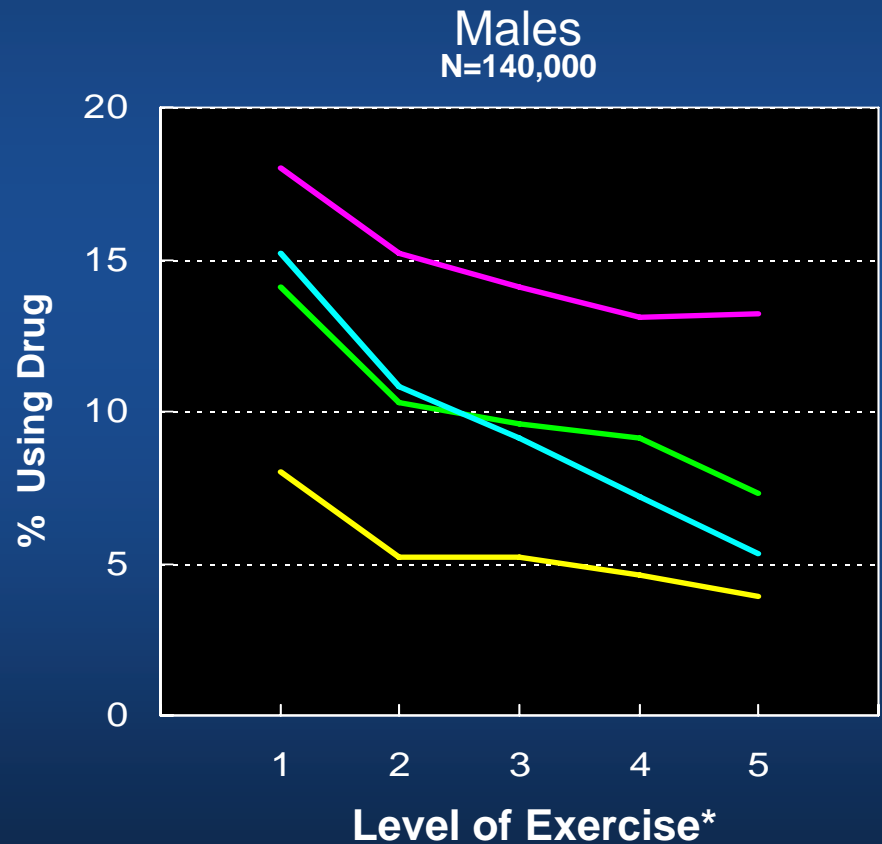


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Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

8TH GRADERS, 1991-2007 COMBINED

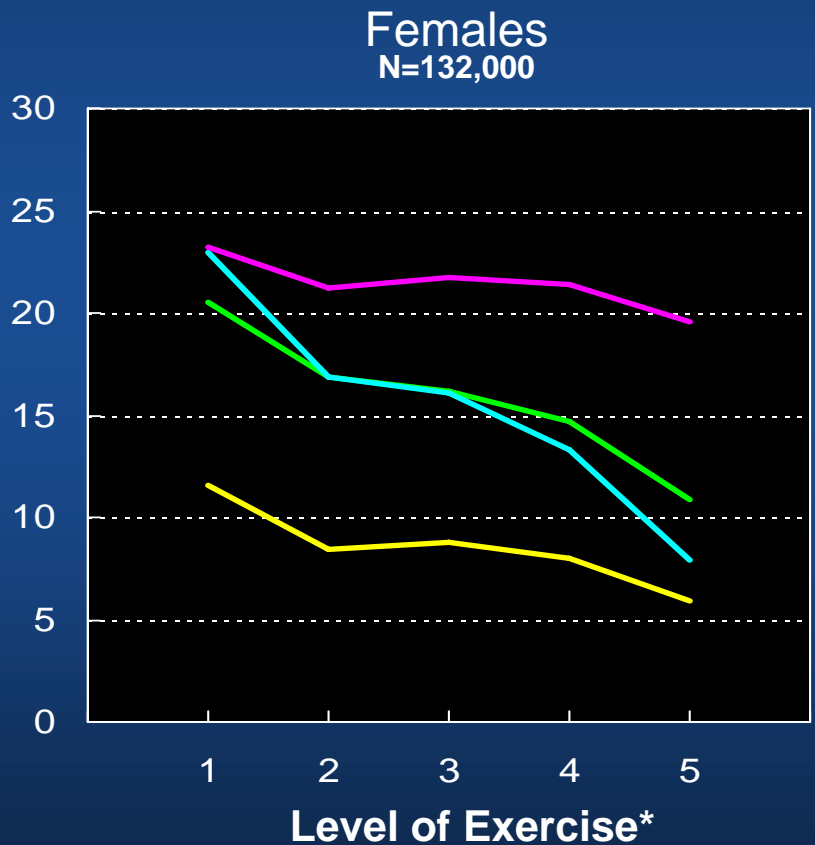
— 5+DRINKS IN A ROW (TWO WEEKS) — CIGARETTES (DAILY)  
— MARIJUANA (30-DAY) — ANY ILLICIT OTHER THAN MARIJUANA (30-DAY)



\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

## 10TH GRADERS, 1991-2007 COMBINED



\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

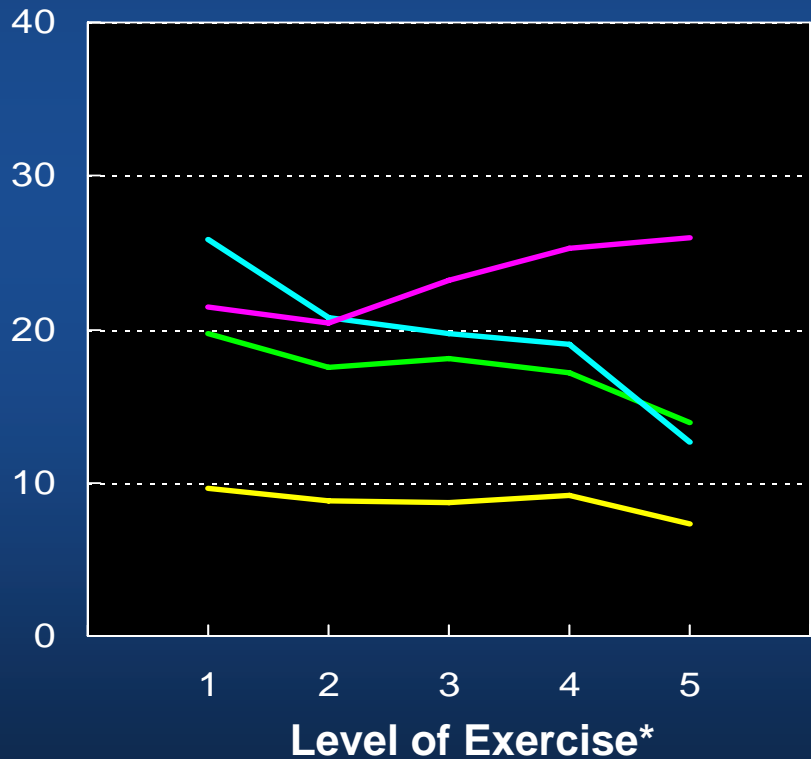
## 12TH GRADERS, 1991-2007 COMBINED

— 5+DRINKS IN A ROW (TWO WEEKS) — CIGARETTES (DAILY)  
— MARIJUANA (30-DAY) — ANY ILLICIT OTHER THAN MARIJUANA (30-DAY)

Males  
N=39,000



Females  
N=42,000



\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

Substance Use by Varying Levels of Exercise  
...among Minorities

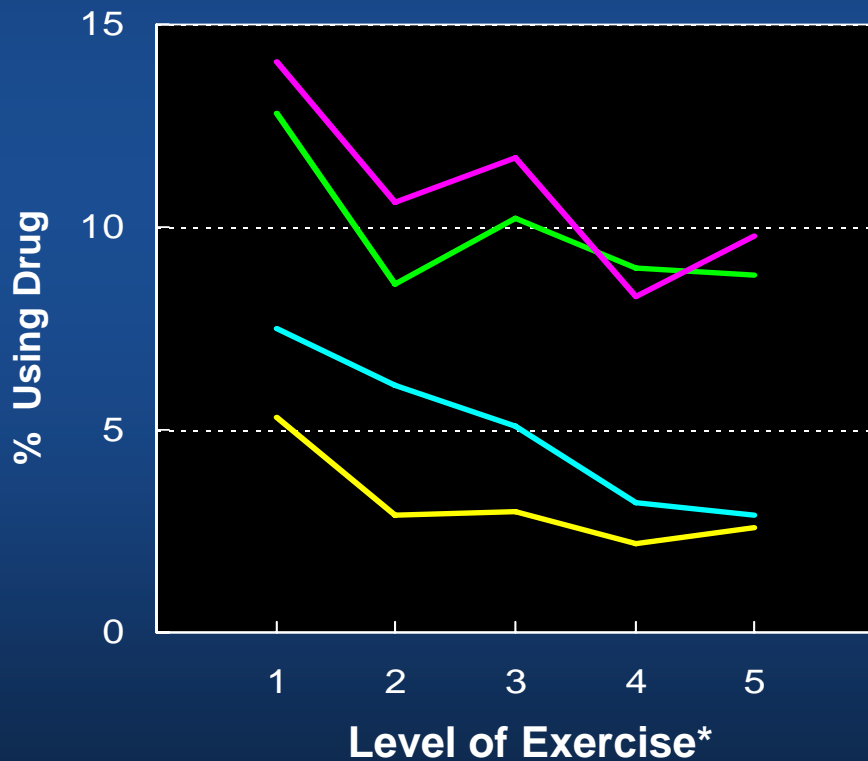
# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

8TH GRADERS, 1991-2007 COMBINED

— 5+DRINKS IN A ROW (TWO WEEKS) — CIGARETTES (DAILY)  
— MARIJUANA (30-DAY) — ANY ILLICIT OTHER THAN MARIJUANA (30-DAY)

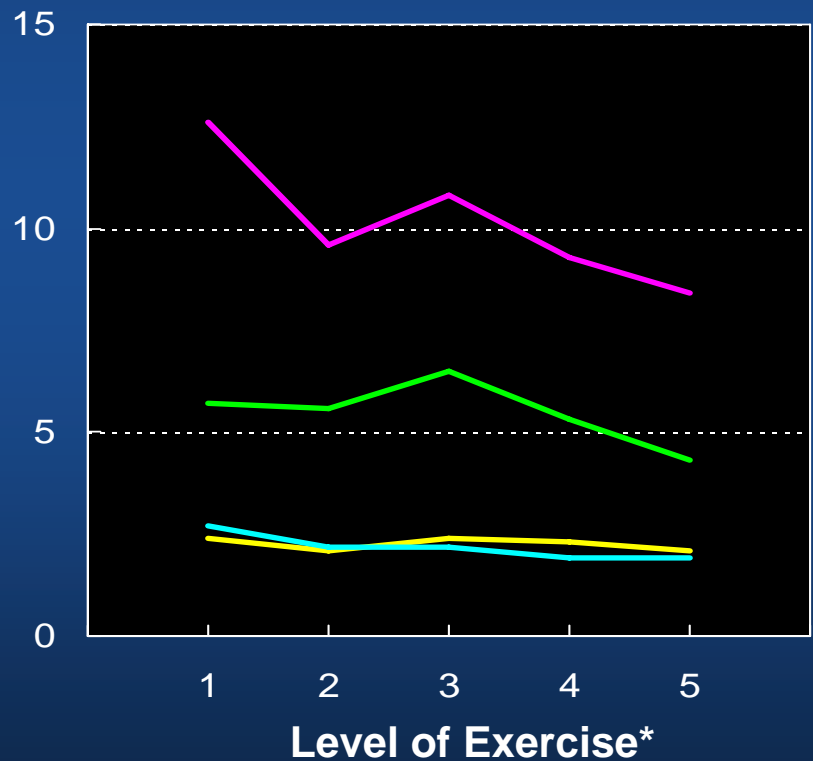
**Black Males**

N=18,200



**Black Females**

N=20,900



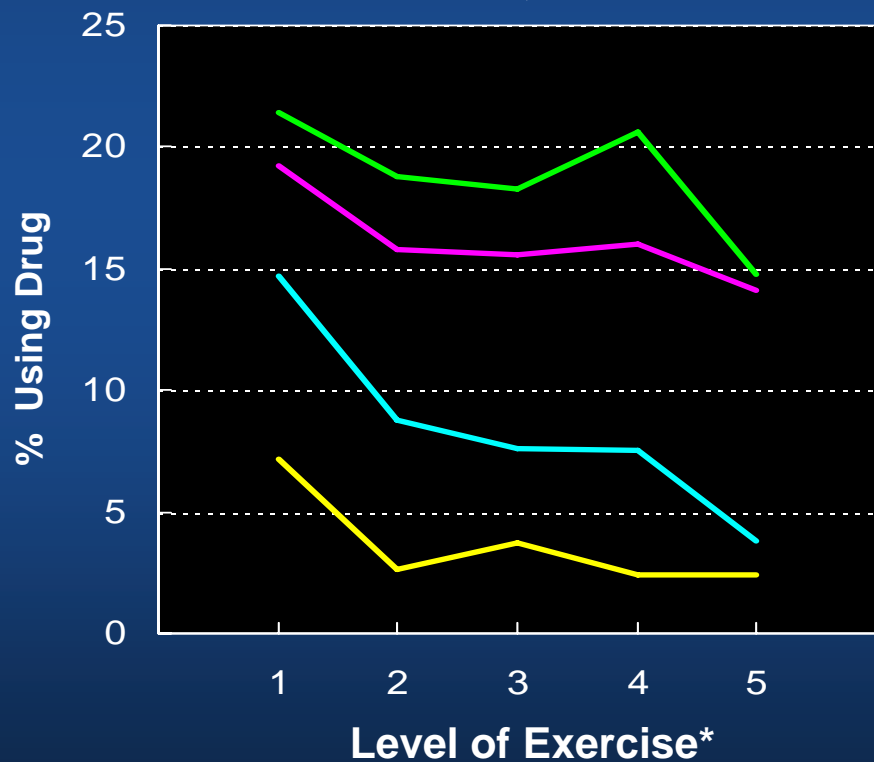
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# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

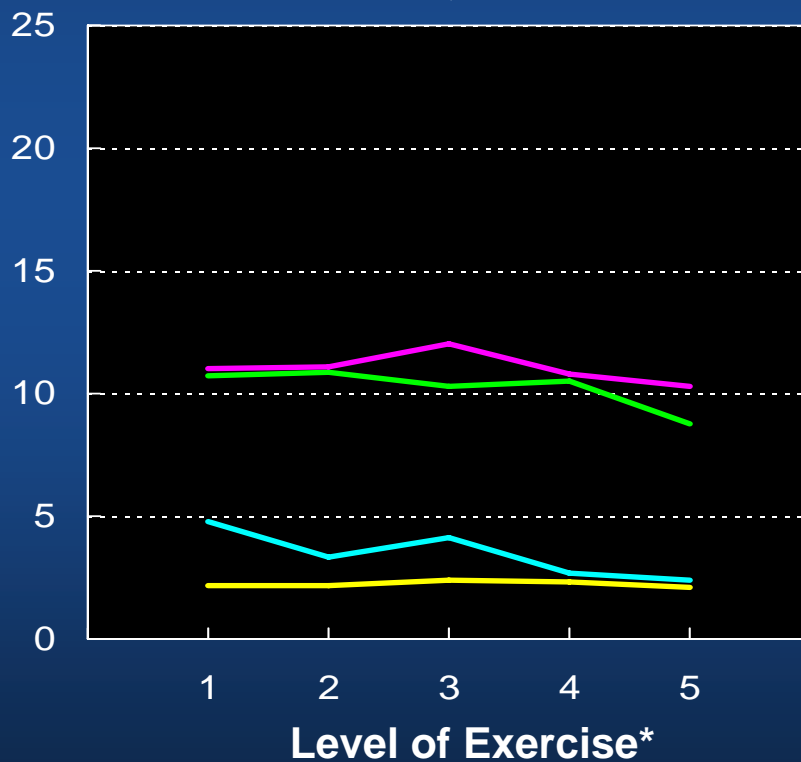
10TH GRADERS, 1991-2007 COMBINED



**Black Males**  
N=14,400



**Black Females**  
N=16,200



\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

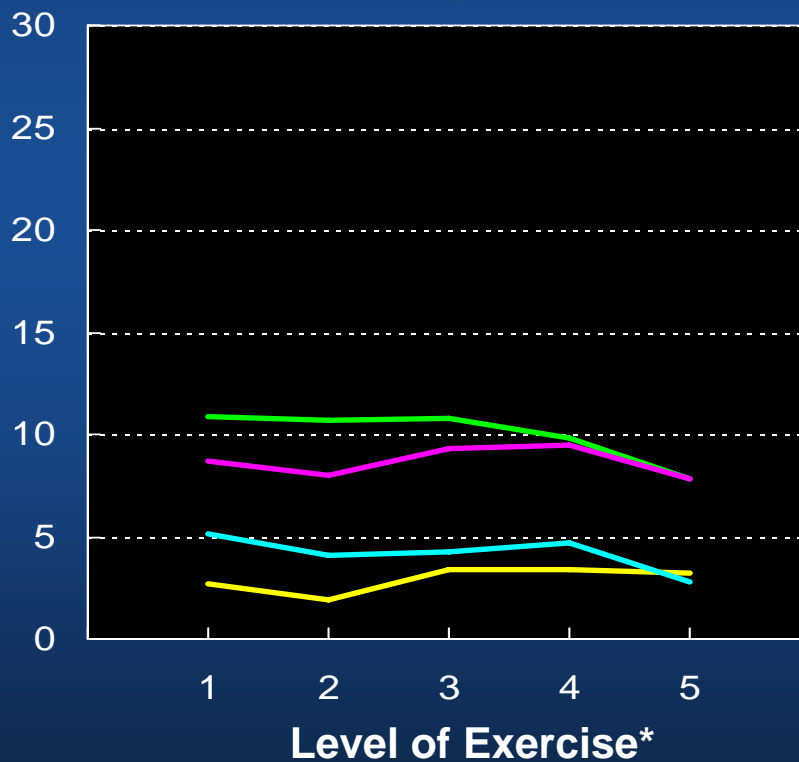
12TH GRADERS, 1991-2007 COMBINED



**Black Males**  
N=4,200



**Black Females**  
N=5,300



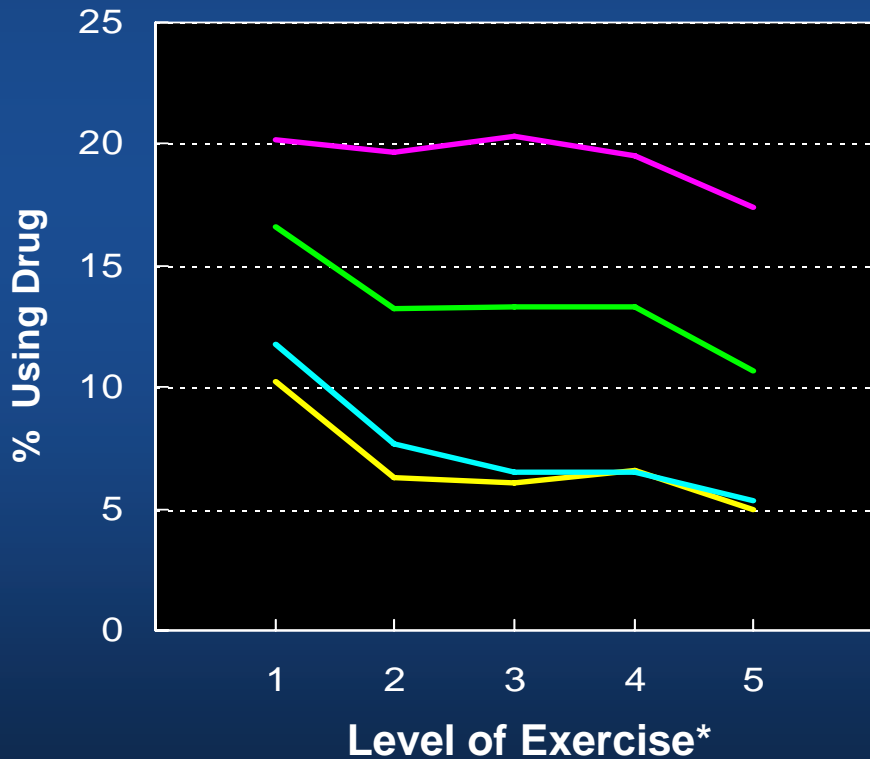
\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

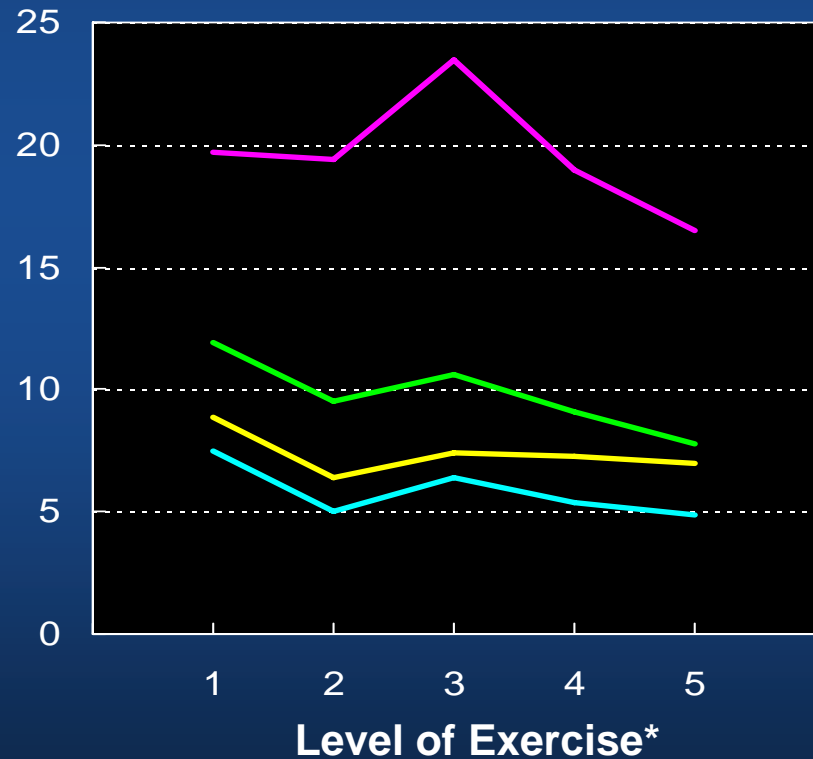
8TH GRADERS, 1991-2007 COMBINED



Hispanic Males  
N=16,700



Hispanic Females  
N=17,400



\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

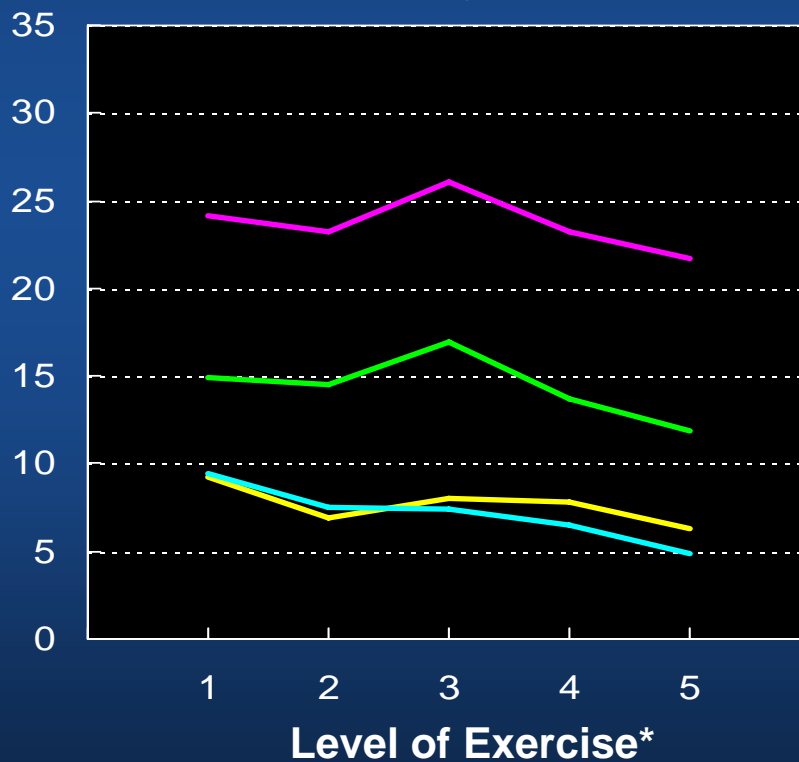
10TH GRADERS, 1991-2007 COMBINED



Hispanic Males  
N=13,500



Hispanic Females  
N=14,100



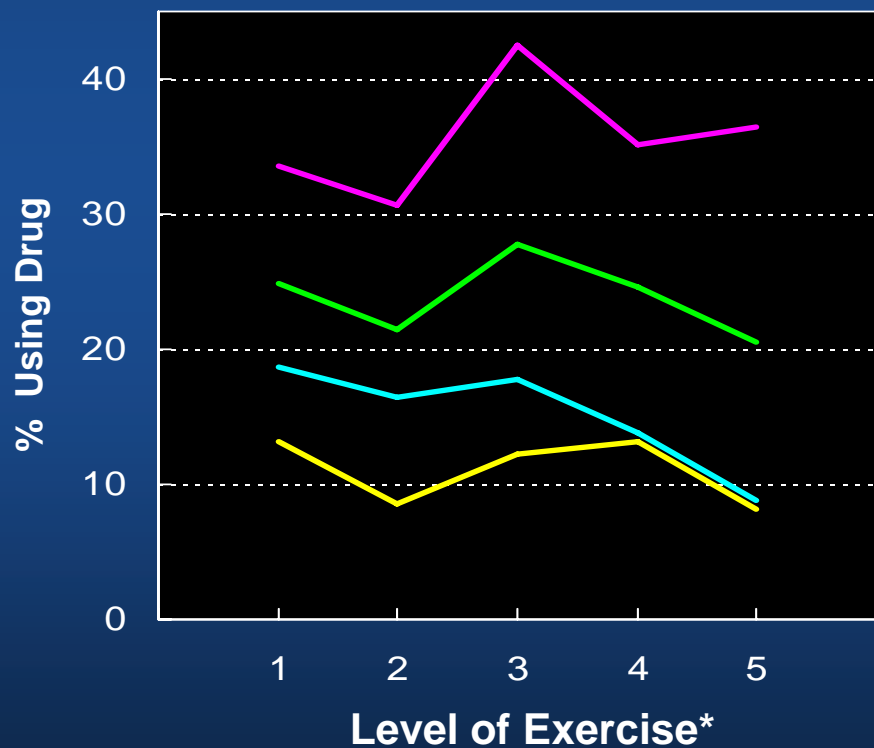
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# SUBSTANCE USE BY VARYING LEVELS OF EXERCISE

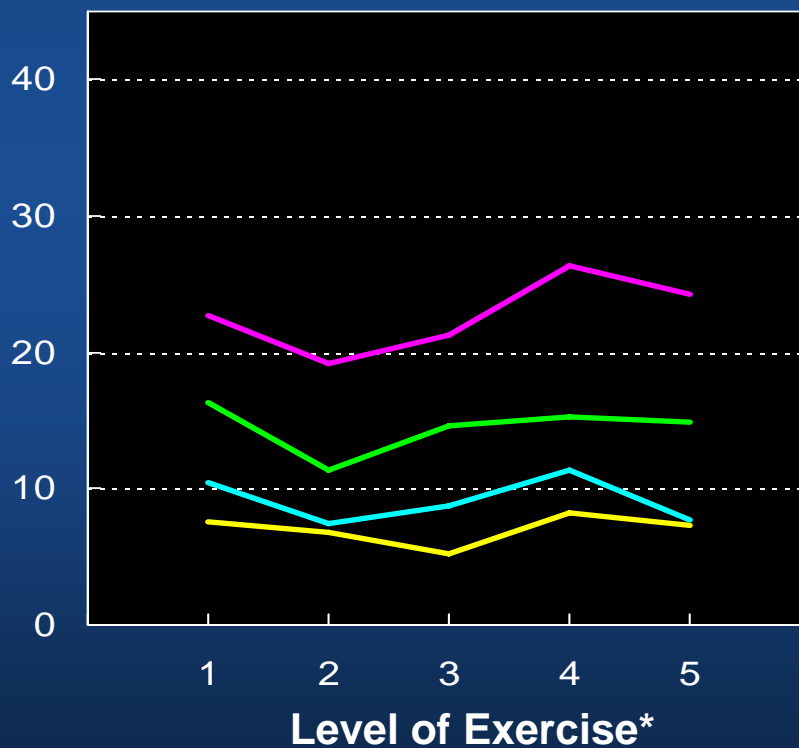
12TH GRADERS, 1991-2007 COMBINED



Hispanic Males  
N=3,900



Hispanic Females  
N=4,400



\*Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

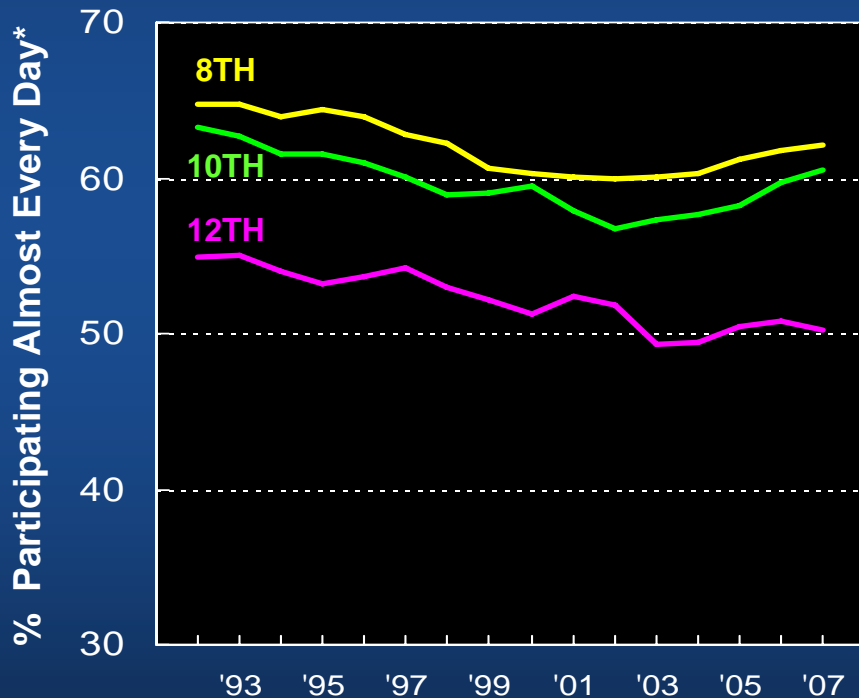
# Trends in Exercise Levels

# TRENDS IN PARTICIPATION IN SPORTS, ATHLETICS, OR EXERCISE

8TH, 10TH, AND 12TH GRADERS, 1992-2007  
2-YR MOVING AVERAGES

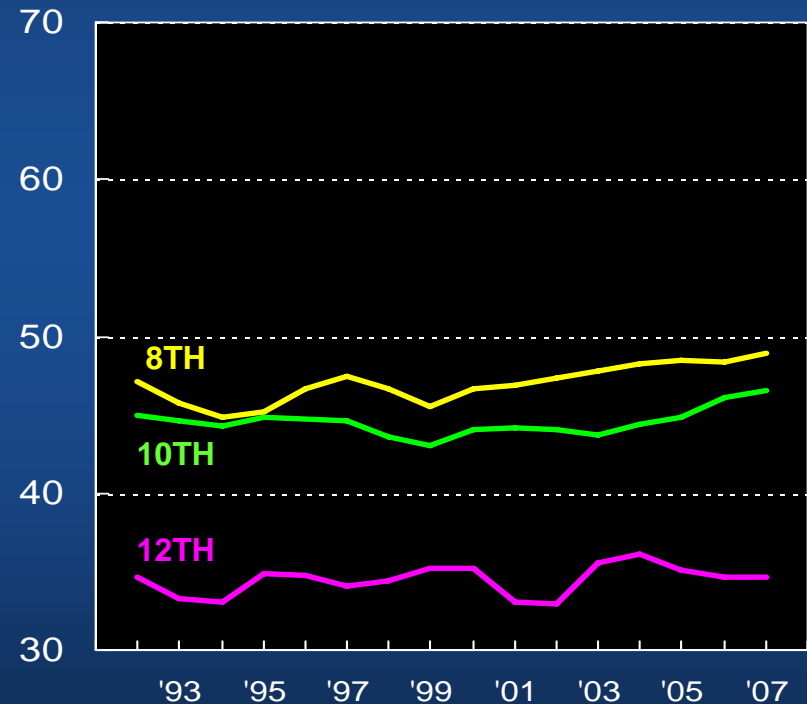
## Males

AVG. N /YR /GRADE FOR 8TH & 10<sup>TH</sup> = 15,600  
AVG. N /YR FOR 12<sup>TH</sup> = 4,600



## Females

(AVG. N /YR /GRADE FOR 8TH & 10<sup>TH</sup> = 16,400  
AVG. N /YR FOR 12<sup>TH</sup> = 4,900



Question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

# TRENDS IN PARTICIPATION IN VIGOROUS EXERCISE

8TH, 10TH, AND 12TH GRADERS, 1992-2007

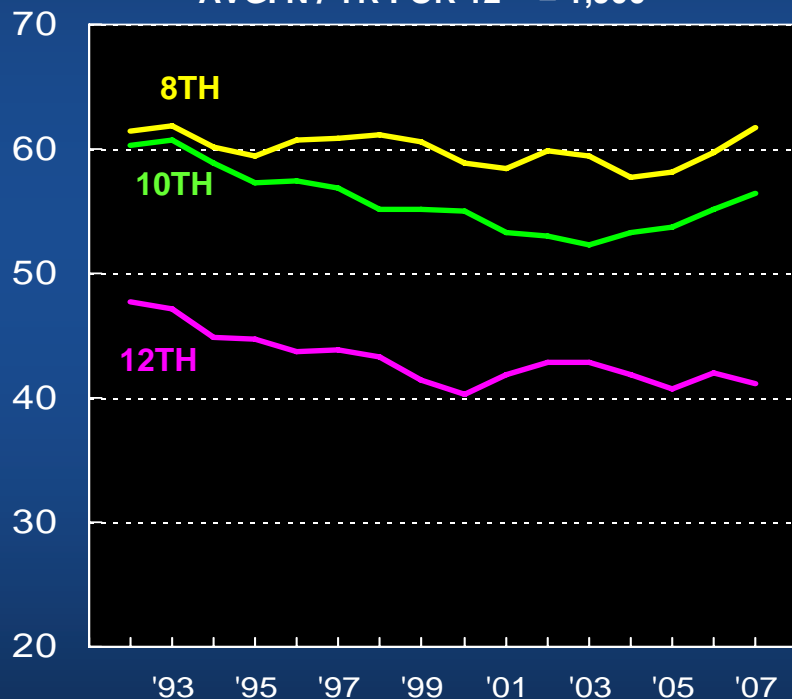
2-YR MOVING AVERAGES

**Males**

AVG. N / YR / GRADE FOR 8TH & 10TH = 5,100

AVG. N / YR FOR 12TH = 1,900

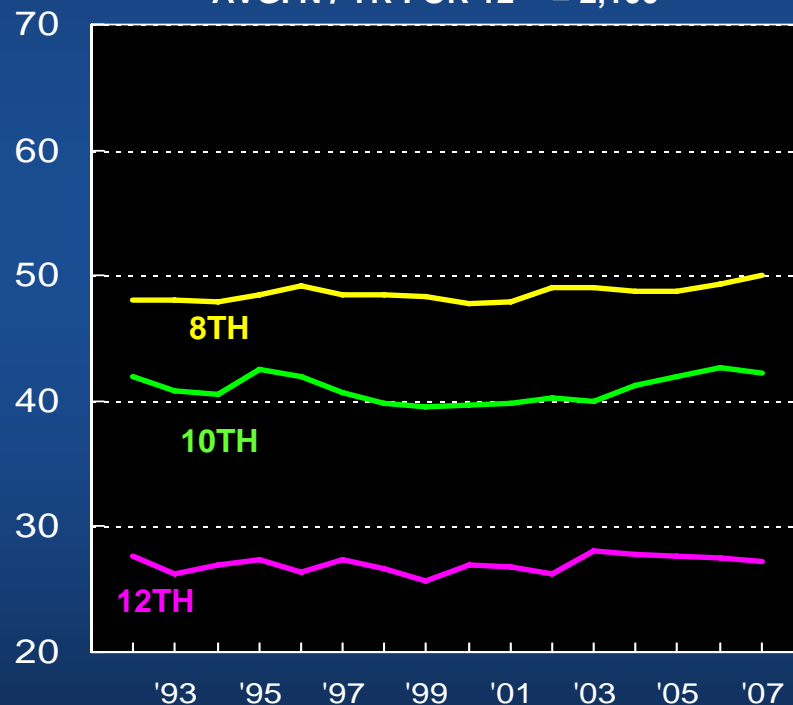
% Participating Nearly Every Day  
or Every Day\*



**Females**

(AVG. N / YR / GRADE FOR 8TH & 10TH = 5,500

AVG. N / YR FOR 12TH = 2,100



Question text: How often do you... Exercise vigorously (jogging, swimming, calisthenics, or any other active sports)?  
Response categories: 1. Never, 2. Seldom, 3. Sometimes, 4. Most days, 5. Nearly every day, 6. Every day

# TRENDS IN PARTICIPATION IN ATHLETICS AT SCHOOL

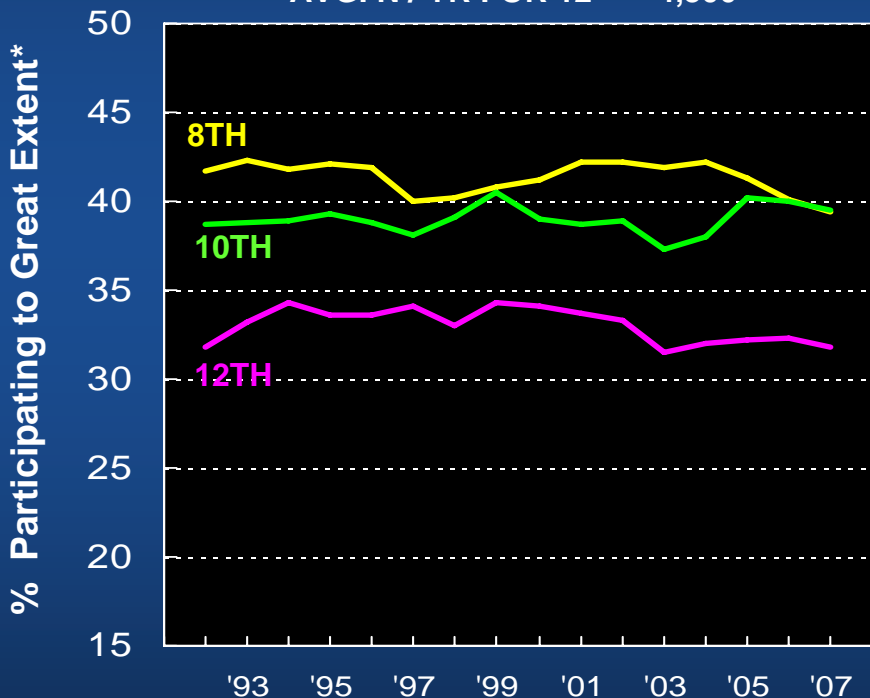
8TH, 10TH, AND 12TH GRADERS, 1992-2007

2-YR MOVING AVERAGES

## Males

AVG. N /YR /GRADE FOR 8<sup>TH</sup> & 10<sup>TH</sup> = 6,600

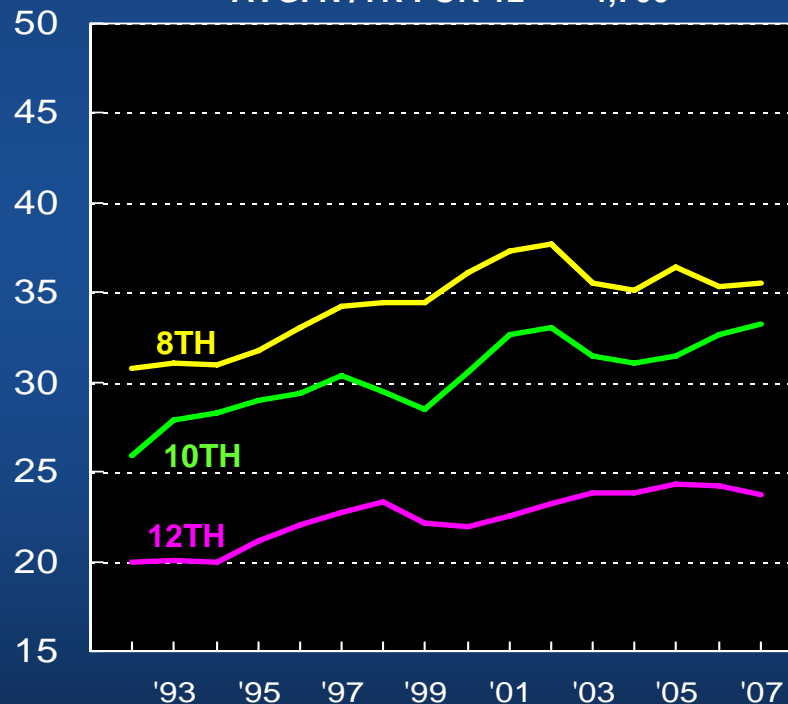
AVG. N / YR FOR 12<sup>TH</sup> = 4,300



## Females

AVG. N /YR /GRADE FOR 8<sup>TH</sup> & 10<sup>TH</sup> = 7,200

AVG. N /YR FOR 12<sup>TH</sup> = 4,700



Question text: To what extent have you participated in the following school activities during this school year?  
...athletic teams

Response categories: 1. Not at all, 2. Slight, 3. Moderate, 4. Considerable, 5. Great

# Comparing Trends in Exercise with Trends in Drug Use

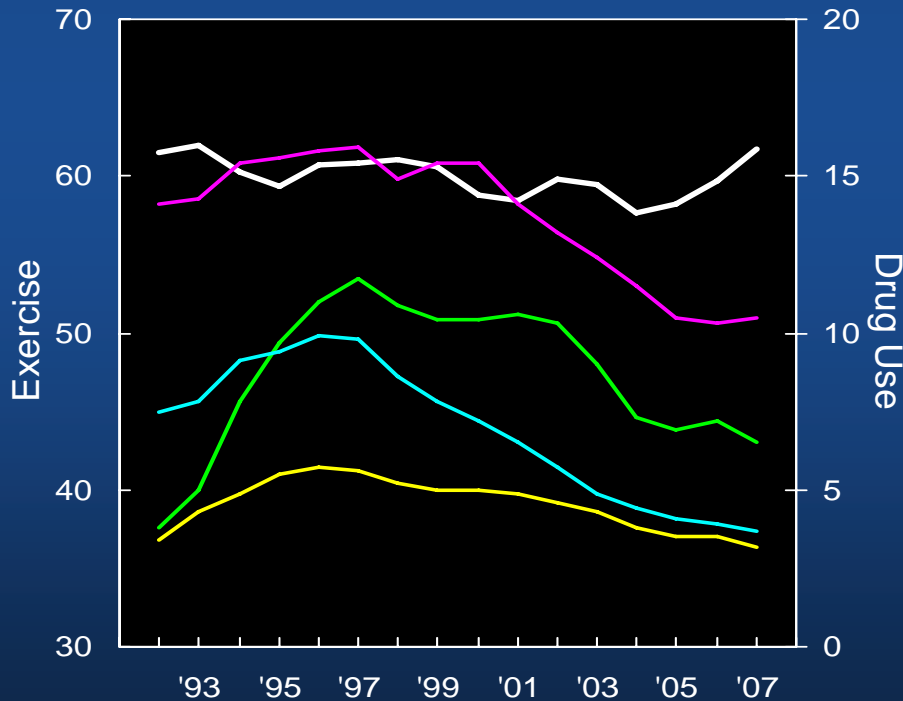
# TRENDS IN PARTICIPATION IN VIGOROUS EXERCISE ALMOST EVERY DAY OR EVERY DAY AND USE OF VARIOUS DRUGS

8TH GRADERS, 1992-2007  
2-YR MOVING AVERAGES



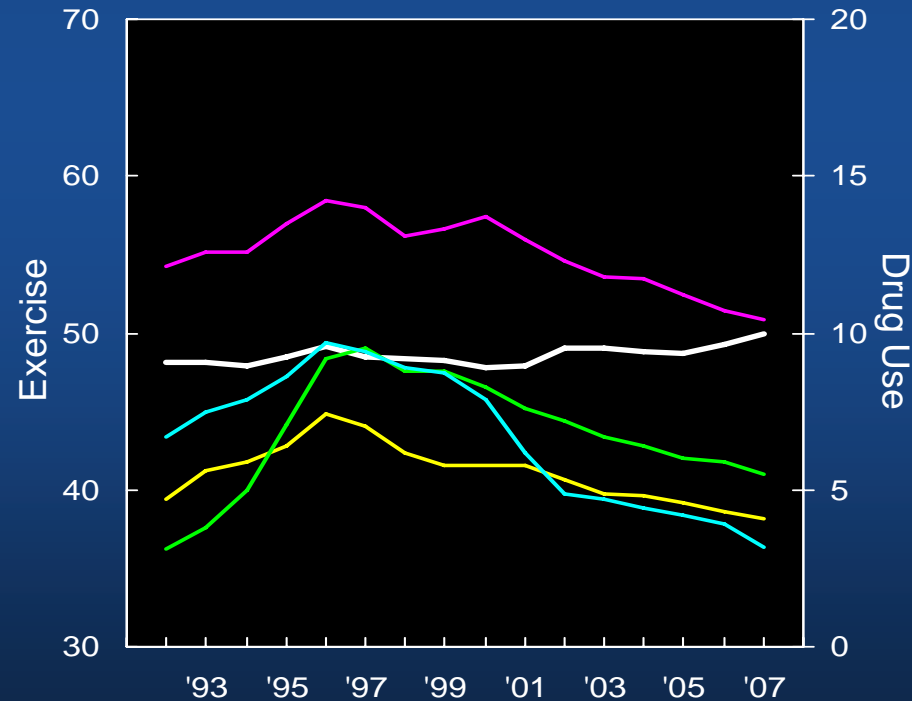
## Males

AVG. N /YR = 5,100



## Females

AVG. N /YR = 5,600



Question text: How often do you... Exercise vigorously (jogging, swimming, calisthenics, or any other active sports)?  
Response categories: 1. Never, 2. Seldom, 3. Sometimes, 4. Most days, 5. Nearly every day, 6. Every day

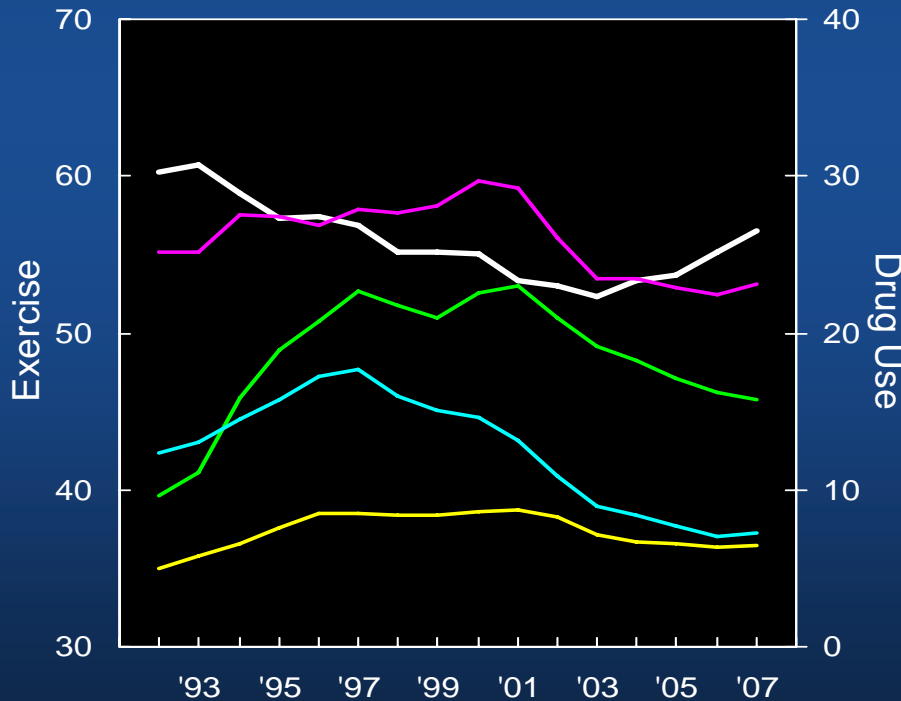
# TRENDS IN PARTICIPATION IN VIGOROUS EXERCISE ALMOST EVERY DAY OR EVERY DAY AND USE OF VARIOUS DRUGS

10TH GRADERS, 1992-2007  
2-YR MOVING AVERAGES



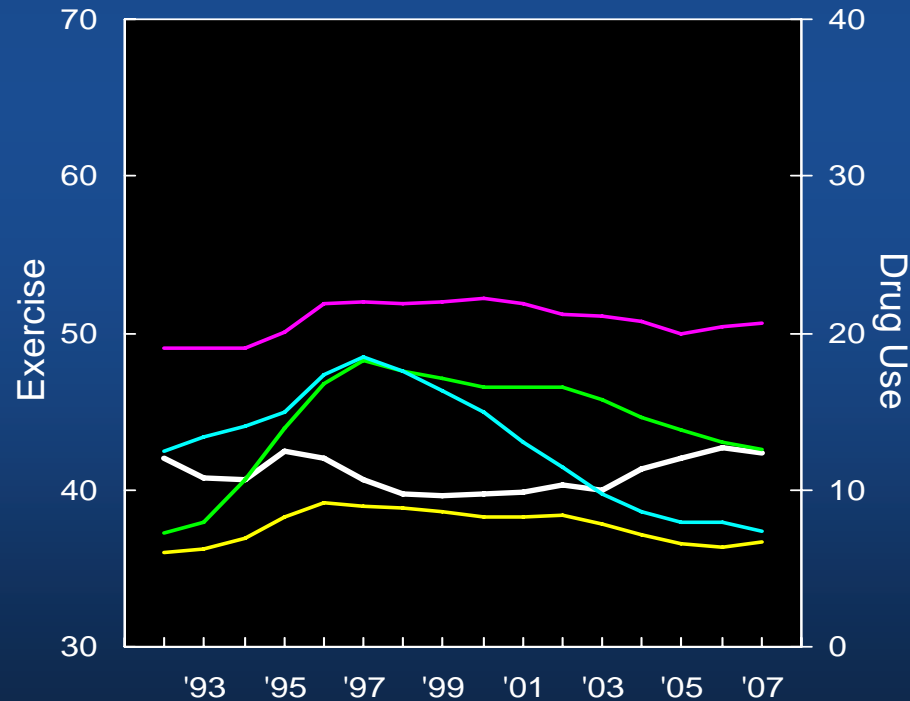
## Males

AVG. N /YR = 5,100



## Females

AVG. N /YR = 5,500



Question text: How often do you... Exercise vigorously (jogging, swimming, calisthenics, or any other active sports)?  
Response categories: 1. Never, 2. Seldom, 3. Sometimes, 4. Most days, 5. Nearly every day, 6. Every day

# TRENDS IN PARTICIPATION IN VIGOROUS EXERCISE ALMOST EVERY DAY OR EVERY DAY AND USE OF VARIOUS DRUGS

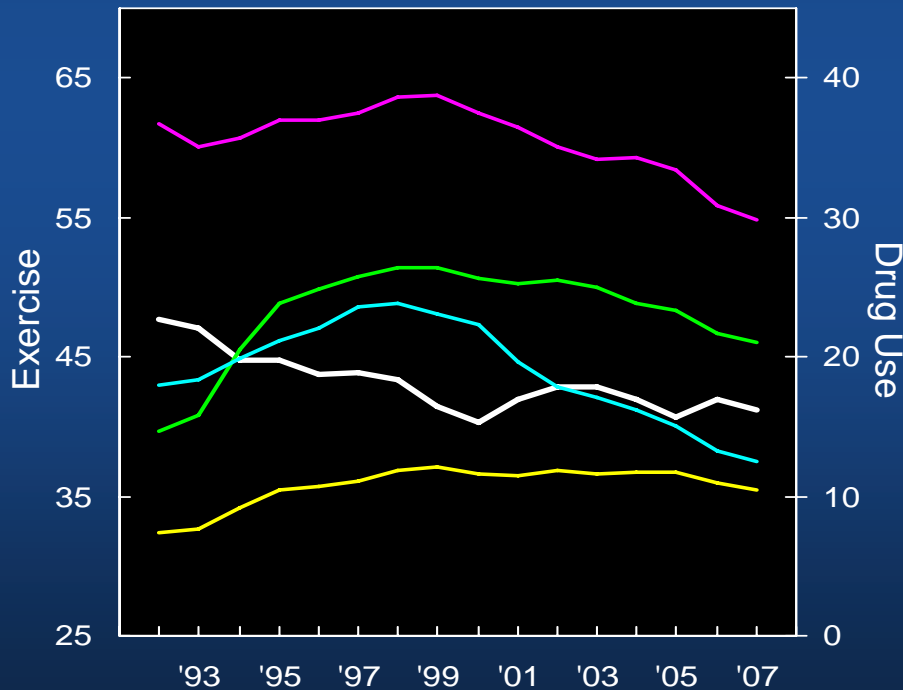
12TH GRADERS, 1992-2007

2-YR MOVING AVERAGES



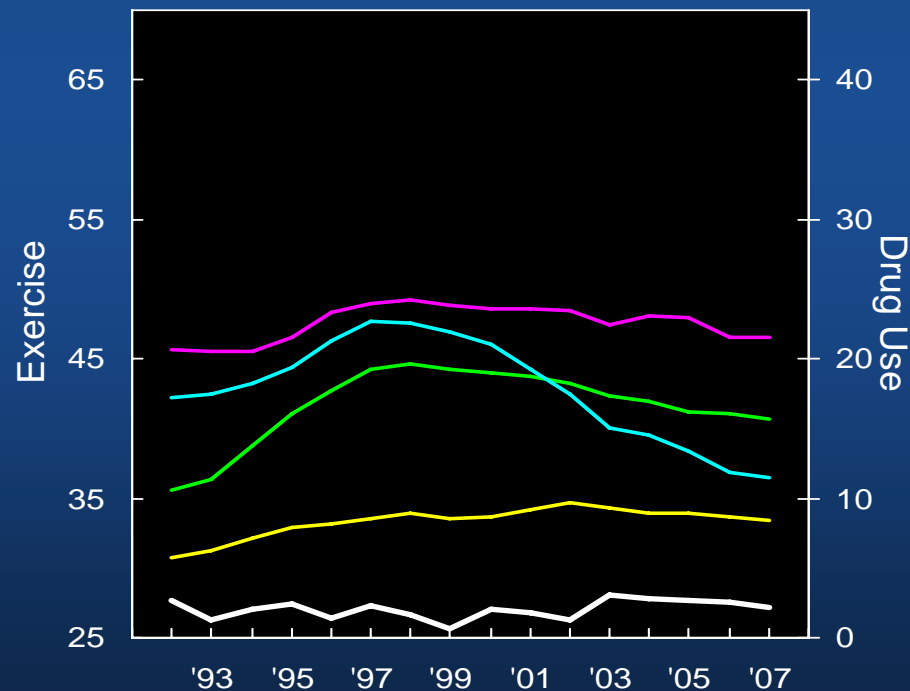
## Males

AVG. N /YR = 1,900



## Females

AVG. N /YR = 2,100



Question text: How often do you... Exercise vigorously (jogging, swimming, calisthenics, or any other active sports)?  
 Response categories: 1. Never, 2. Seldom, 3. Sometimes, 4. Most days, 5. Nearly every day, 6. Every day

# Summary

- In general the four measures of drug use (smoking, drinking, marijuana use, & use of other illicit drugs) have an ordinal, negative, cross-sectional relationship with self-reported level of exercise.
- The association weakens for marijuana by 12<sup>th</sup> grade, particularly among females.
- The association actually reverses for binge drinking by 12<sup>th</sup> grade.
- The association with all drugs weakens in upper grades among Black and Hispanic females.

## Summary (cont'd)

- Levels of exercise decline considerably by 12<sup>th</sup> grade among all students.
- Trend data show an increase in amount of exercise reported by 8<sup>th</sup> & 10<sup>th</sup> grade males since about 2003.
- Girls' participation on school athletic teams has risen considerably since 1992, but their reported levels of vigorous exercise have not changed much since 1992.
- Cross-time trends in amount of vigorous exercise do not correspond particularly well with cross-time trends in substance use





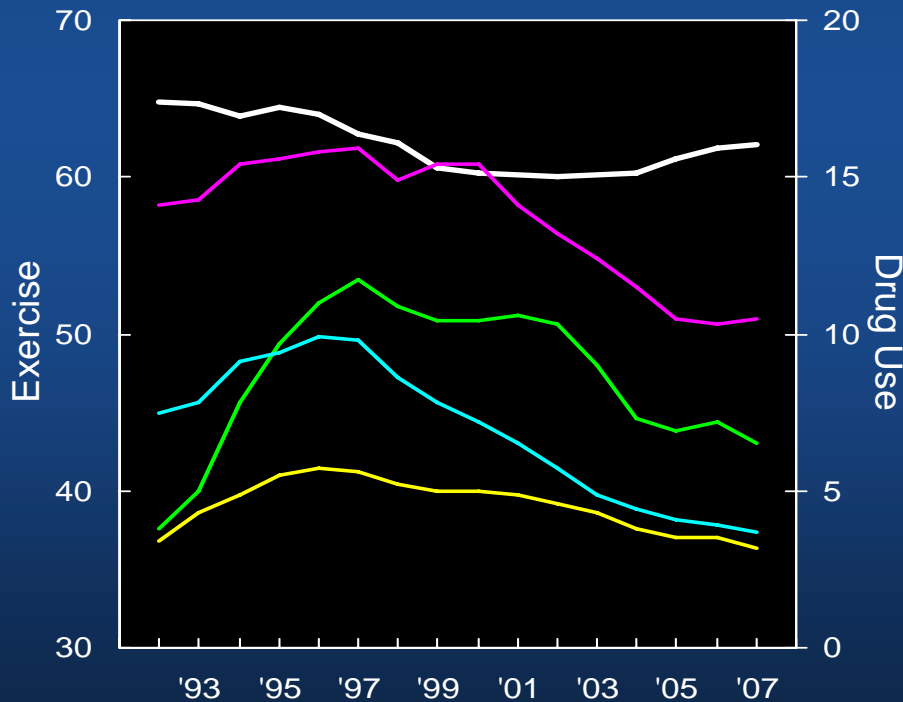
# TRENDS IN PARTICIPATION IN EXERCISE ALMOST EVERY DAY AND USE OF VARIOUS DRUGS

8TH GRADERS, 1992-2007  
2-YR MOVING AVERAGES

— EXERCISE ALMOST EVERY DAY — 5+DRINKS IN A ROW (TWO WEEKS) — CIGARETTES (DAILY)  
— MARIJUANA (30-DAY) — ANY ILLICIT OTHER THAN MARIJUANA (30-DAY)

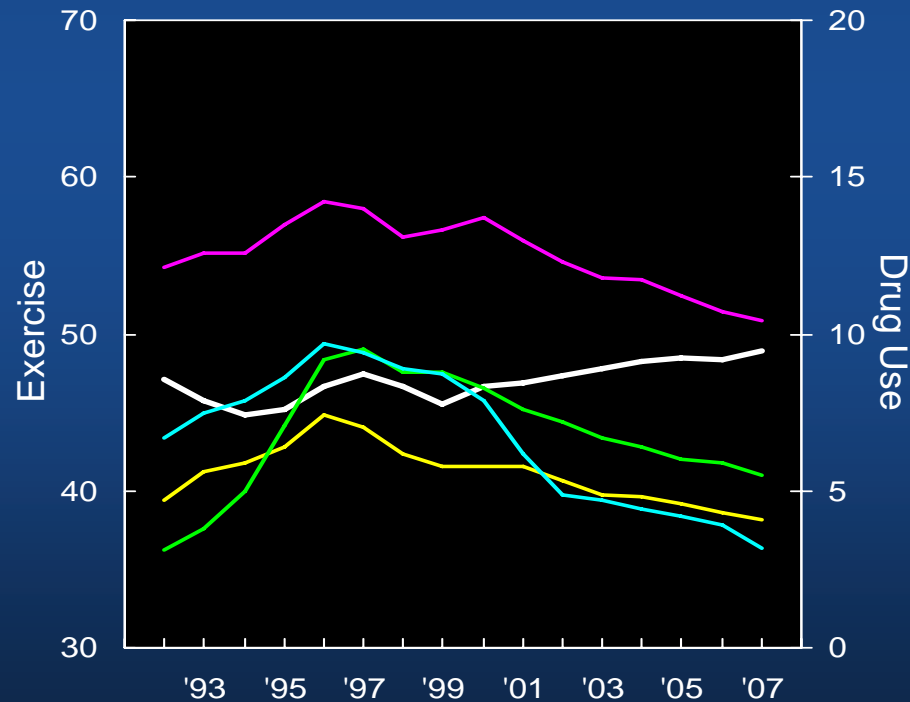
## Males

AVG. N /YR = 16,400



## Females

AVG. N /YR = 17,300



Exercise question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

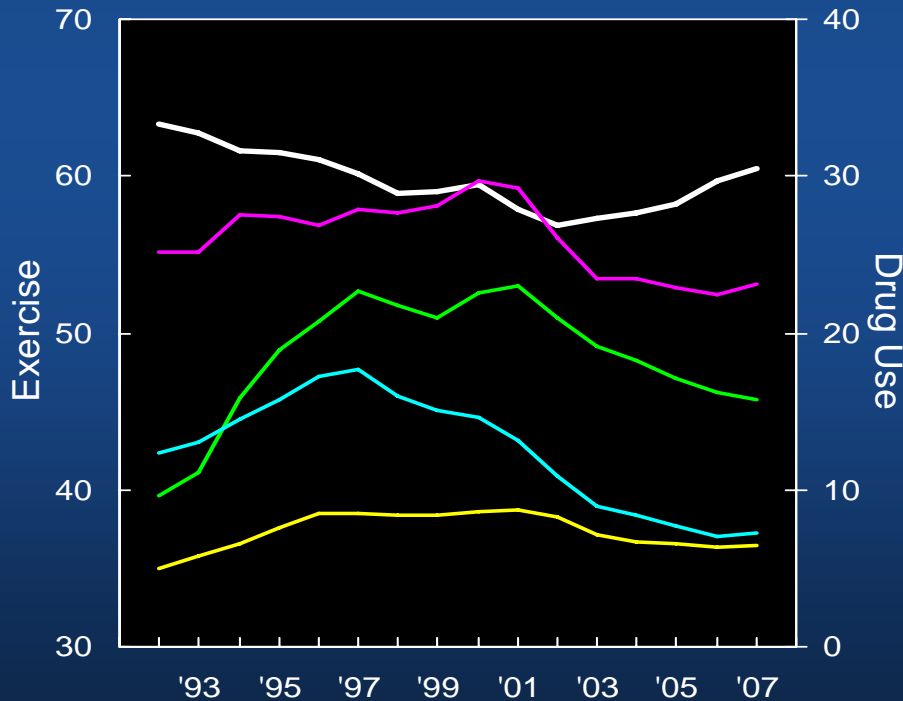
# TRENDS IN PARTICIPATION IN EXERCISE ALMOST EVERY DAY AND USE OF VARIOUS DRUGS

10TH GRADERS, 1992-2007  
2-YR MOVING AVERAGES



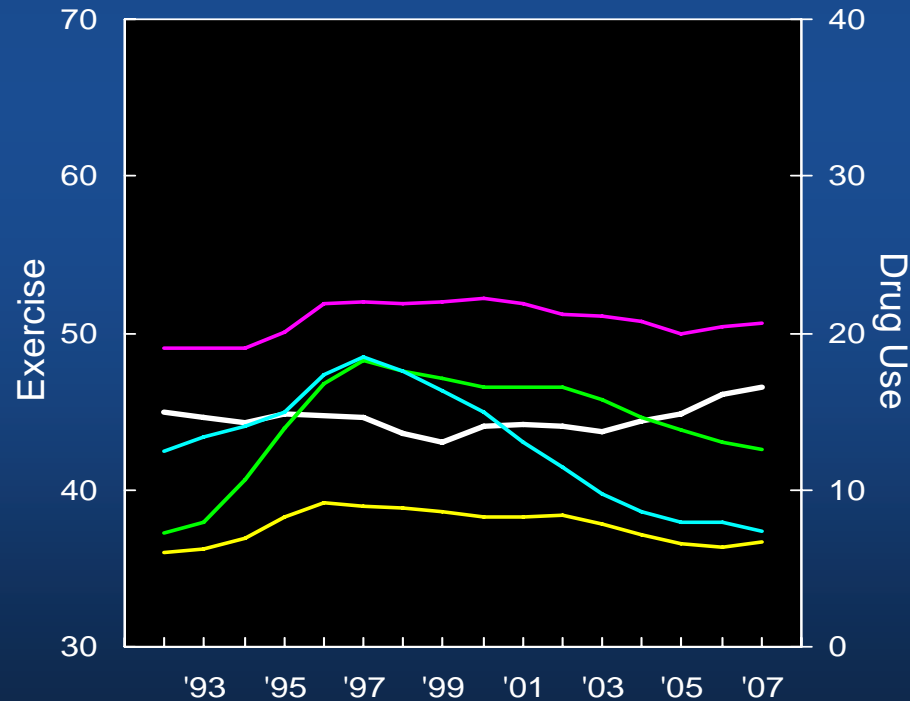
## Males

AVG. N /YR = 14,900



## Females

AVG. N /YR = 15,500



Exercise question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day

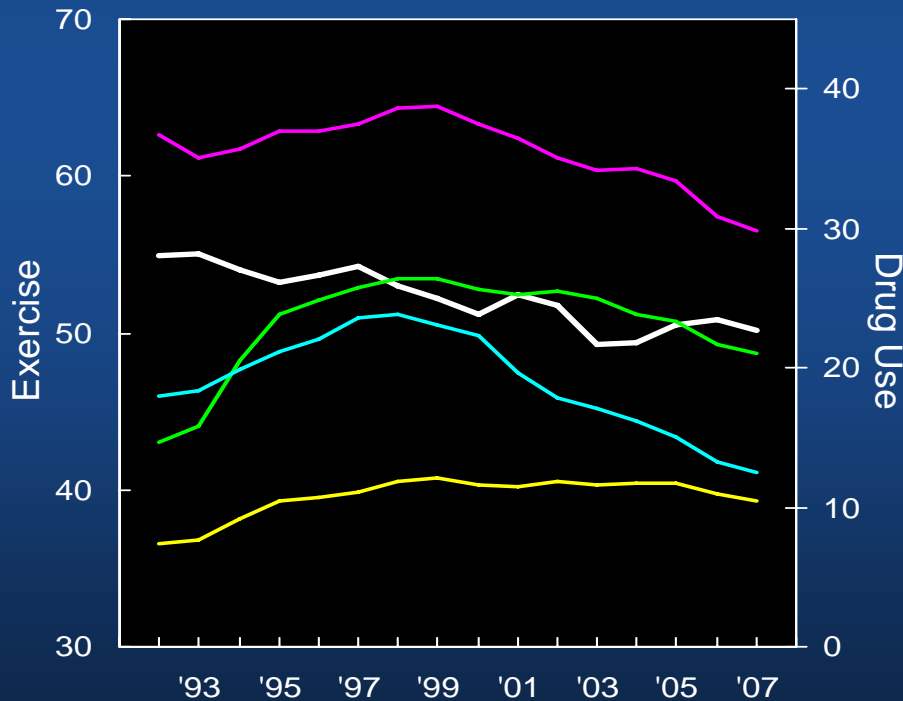
# TRENDS IN PARTICIPATION IN EXERCISE ALMOST EVERY DAY AND USE OF VARIOUS DRUGS

12TH GRADERS, 1992-2007  
2-YR MOVING AVERAGES



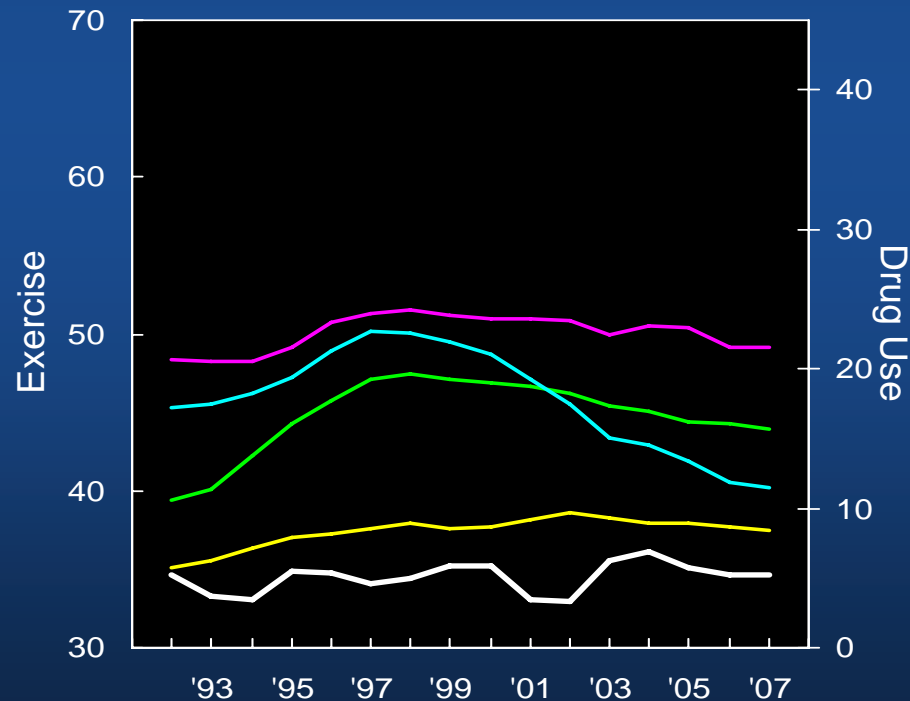
## Males

AVG. N /YR = 4,600



## Females

AVG. N /YR = 4,900



Exercise question text: How often do you do each of the following? Actively participate in sports, athletics, or exercising  
Response categories: 1. Never, 2. A few times a year, 3. Once or twice a month, 4. At least once a week, 5. Almost every day