

A young man with dark hair, wearing a blue t-shirt and dark shorts, is sitting on a concrete ledge. He is looking down and to his left with a thoughtful or somber expression. The background is dark and out of focus, suggesting an outdoor setting at night or in low light. The text is overlaid on the image in red and white.

# התנהגות סיכון במתבגרים Adolescents risk taking behavior

מאי 2010

ד"ר טל שניר

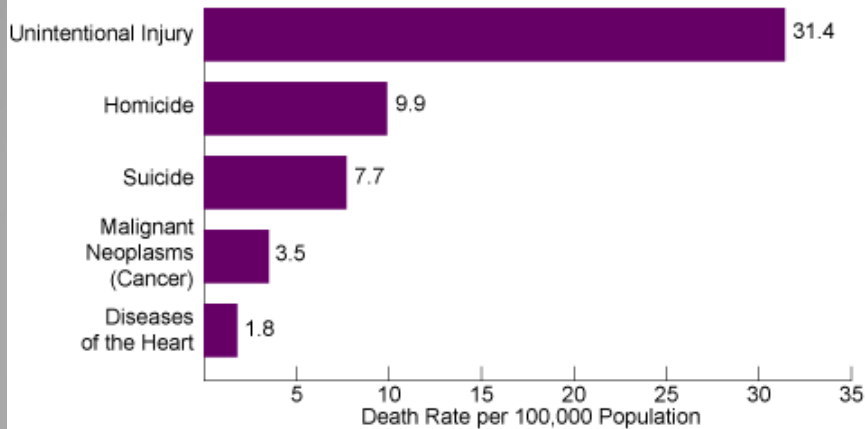
מרפאת מתבגרים ב"דנה"

- החשיבות לרופא הילדים.
- מדוע יש עליה בשכיחות של התנהגות זו בגיל ההתבגרות.
- דפוסים של התנהגות בסיכון : סמים אלכוהול, אלימות, יחסי מין לא מוגנים.
- מה ניתן לעשות כדי למנוע.

# חשיבות לרופא הילדים

## Leading Causes of Death Among Adolescents Aged 15–19, 2005

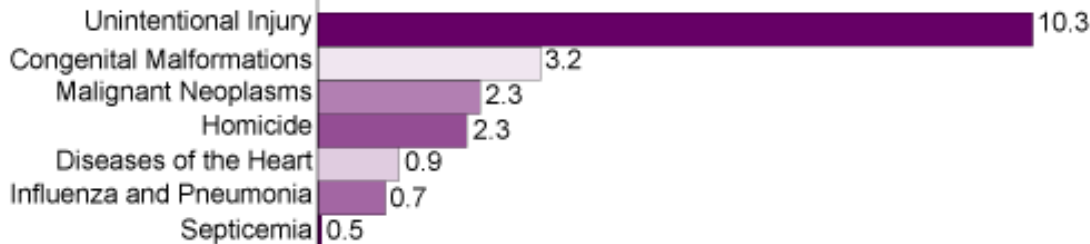
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



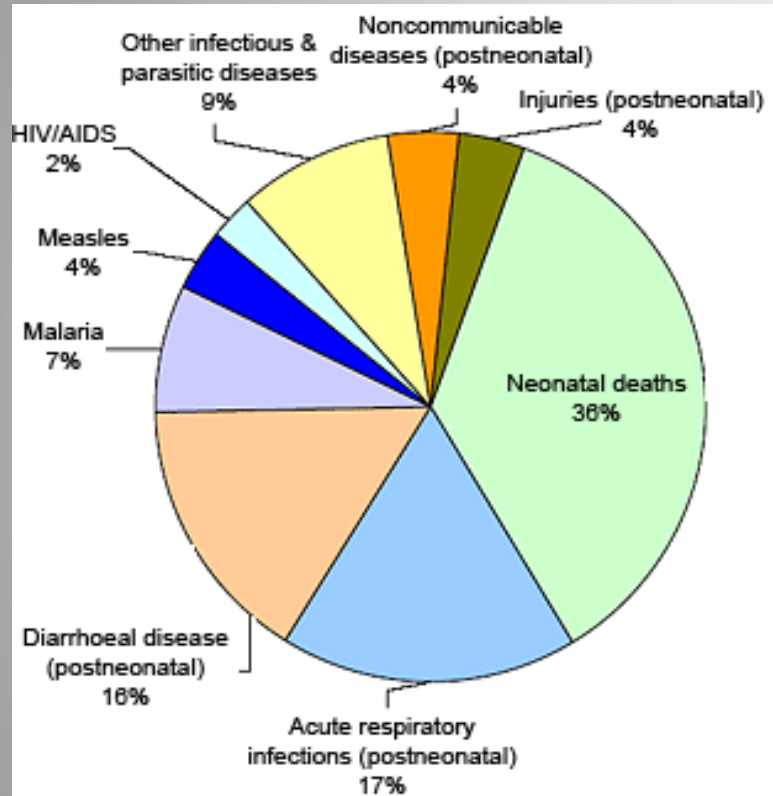
- בגיל ההתבגרות לעומת הילדות מוות ותחלואה קשורים יותר להתנהגות בסיכון מאשר למומים מולדים או מחלות זיהומיות.

- ניתן להתערב ולמנוע חלק גדול מהמקרים.

## 1–4 Years



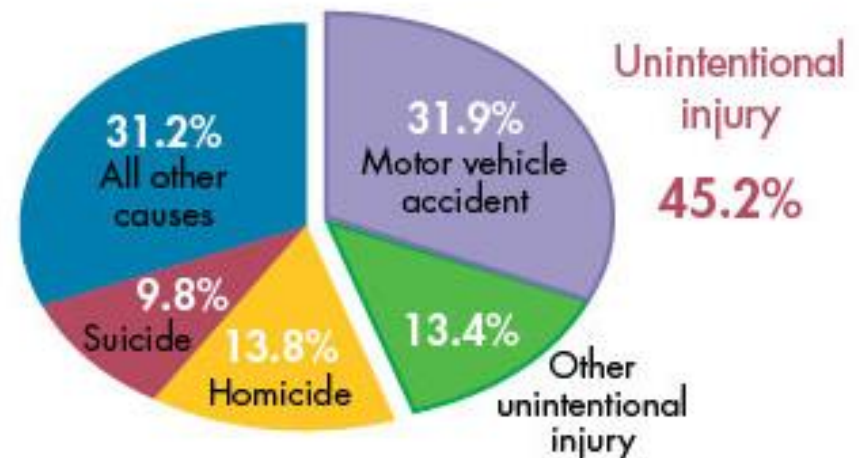
# סיבת המוות בקבוצות גיל



Major causes of death in neonates and children under five, 2004

Source: WHO The Global burden of disease:2004 update (2008)

## Leading causes of death, ages 10-18

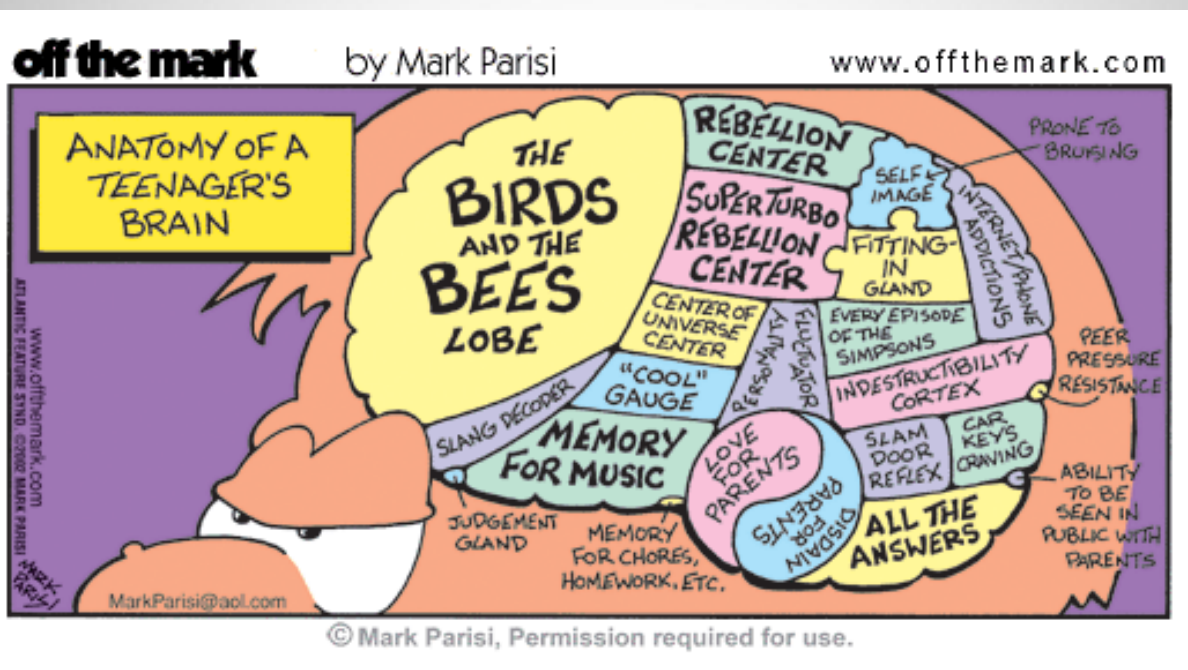


Because of rounding, figures do not add up to 100%.

Source: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 2006. Web-based Injury Statistics Query and Reporting System [WISQARS]. [www.cdc.gov/ncipc/wisqars](http://www.cdc.gov/ncipc/wisqars)

© National Center for Children in Poverty ([www.nccp.org](http://www.nccp.org))  
Adolescent Violence and Unintentional Injury in the United States:  
Facts for Policymakers

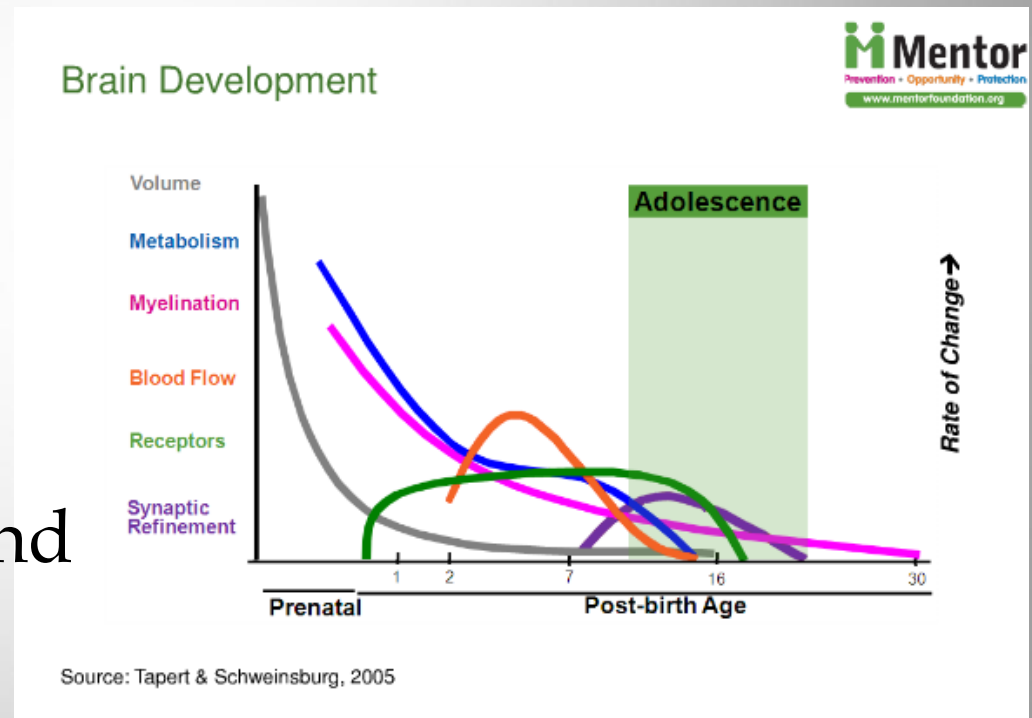
# המח המתבגר





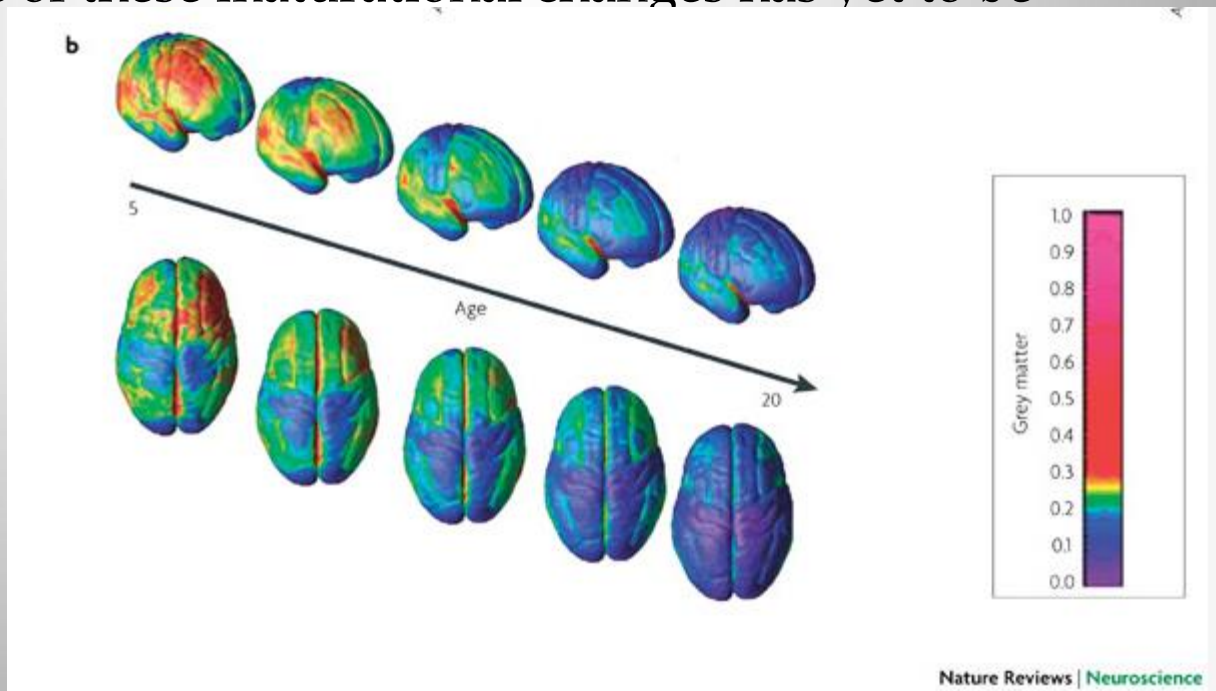
# המח המתפתח

The dramatic growth of developmental neuroscience in the last decade has produced remarkable findings regarding brain development during childhood and adolescence.



# The developing brain

- It appears that around age 11, the Prefrontal Cortex and parietal lobes begin a period of prolonged pruning of neuronal axons resulting in thinning of cortical grey Matter.
- At the same time, there appears to be an increase in neuronal myelination.
- The significance of these maturational changes has yet to be established.



# למה התנהגות בסיכון מאפיינת את גיל ההתבגרות?

- **unbalanced and 'extremes-oriented' behavior,**
- increased novelty seeking,
- decreased novelty-induced stress and anxiety,
- **increased risk-taking behavior** in the plus-maze, as well as elevated levels of impulsivity and restlessness .



# עזיבת הקן

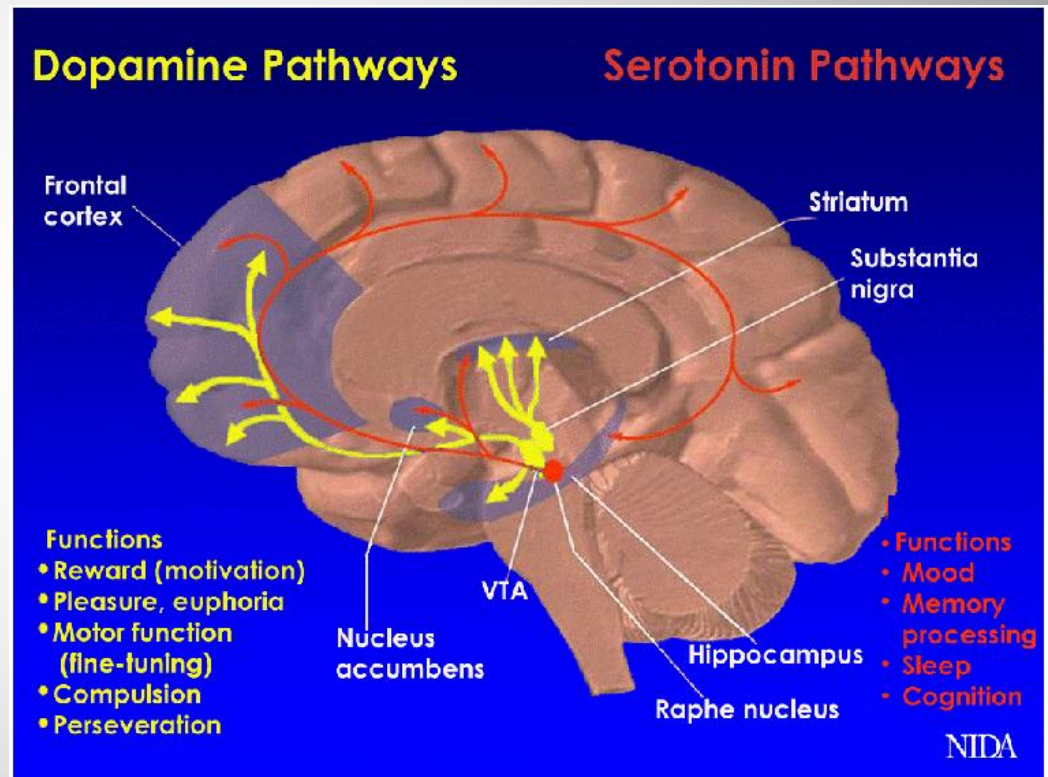


# Reward seeking

- A process that emerges early in adolescence is driven by frontostriatal reward circuits involving the ventral striatum.
- These circuits mature relatively early (Fuster, 2002) and encourage the adolescent to venture away from the family and toward increasingly novel and adult-like activities (Spear, 2007).

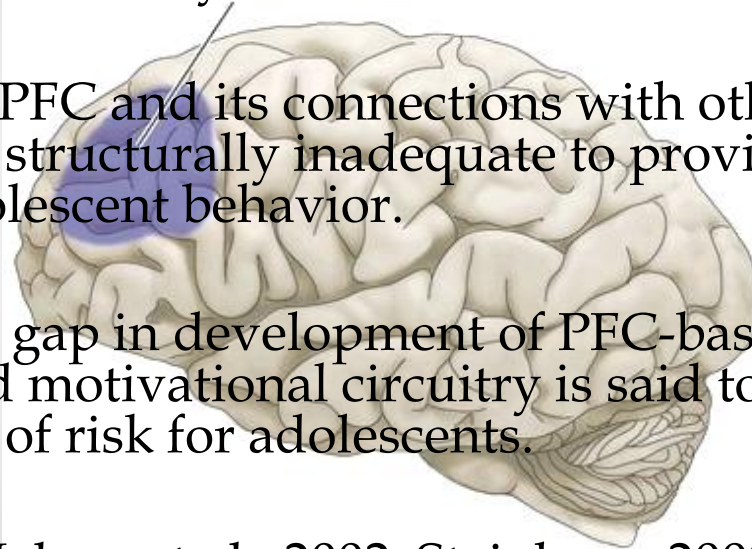
# מסלולים דופמינגרים במח קשורים להתנהגות של חיפוש אחר הנאה

A peculiar function within reward-related **dopaminergic brain pathways** related to search for novel and rewarding sensations, & changes in the magnitude of psychostimulant effects. (Spear LP)



# Lack of maturation of PFC

- The PFC has not yet matured to the point where risks can be adequately assessed and control over risk taking can be sufficiently exerted to avoid unhealthy outcomes.
- In particular, the PFC and its connections with other brain regions are thought to be structurally inadequate to provide the control that is optimal for adolescent behavior.
- The maturational gap in development of PFC-based control, relative to more advanced motivational circuitry is said to result in an inevitable period of risk for adolescents.



(Casey et al., 2008; Nelson et al., 2002; Steinberg, 2008)

Despite the popular characterization of adolescents as impulsive and lacking cognitive control, the evidence regarding such behavior suggests a more nuanced picture.

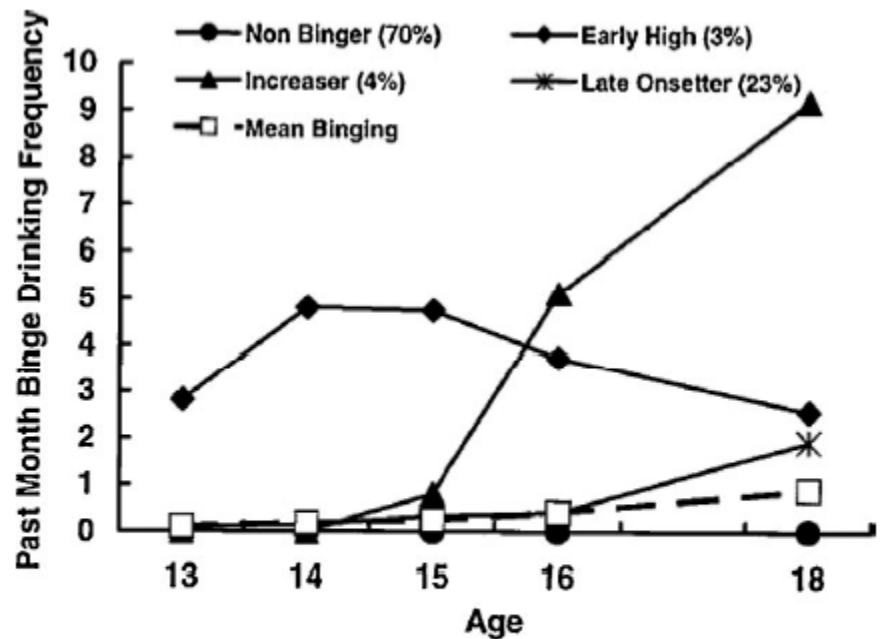
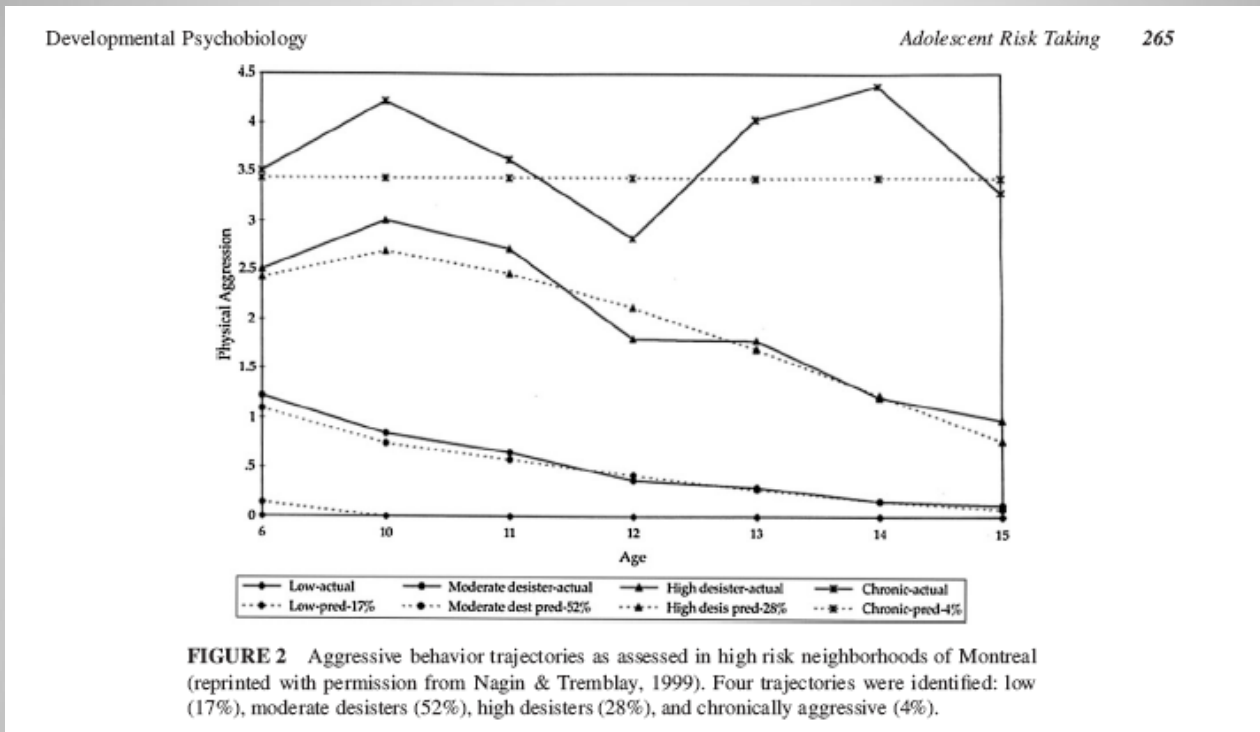


FIGURE 1 Binge drinking trajectories as assessed in the Seattle Social Development Project (reprinted with permission from Hill et al., 2000).

- 70% כלל לא הפריזו בשתייה.
- 3% הרבו לשתות בגיל צעיר ובהמשך ירדו בכמות.
- 23% החלו להפריז בשתייה בגיל מאוחר יותר.



# התנהגות אלימה



- 17% כלל לא היו מעורבים.
- 80% מאלו שהיו אלימים בתחילת ההתבגרות ירדו ברמת האלימות בהמשך.
- 4% הראו רמה גבוהה של אלימות לאורך כל גיל ההתבגרות וימשיכו לנהוג כך גם בבגרות.

# קבוצה קטנה אחראית לעיקר ההתנהגות

Indeed, these age trends suggest that adolescents do not uniformly engage in high-risk behaviors and that a major source of adolescent risk taking is present prior to the adolescent period.

A small proportion of adolescent accounts for a large share of the serious forms of risk taking that causes concerns about adolescents. For example, Biglan and Cody (2003) found that 18% of youth aged 12–20 accounted for about two thirds of drunk driving and 88% of criminal arrests.

# Impulsivity

Considerable evidence suggests that youth who engage in early risk taking, such as drug use and aggressive behavior, exhibit higher levels of impulsive behavior as early as age 3.

Impulsivity:

- acting without thinking.
- impatience.
- lacking cognitive control over behavior.

# Age Differences in Sensation Seeking and Impulsivity as Indexed by Behavior and Self-Report: Evidence for a Dual Systems Model (Steinberg et al 2008)

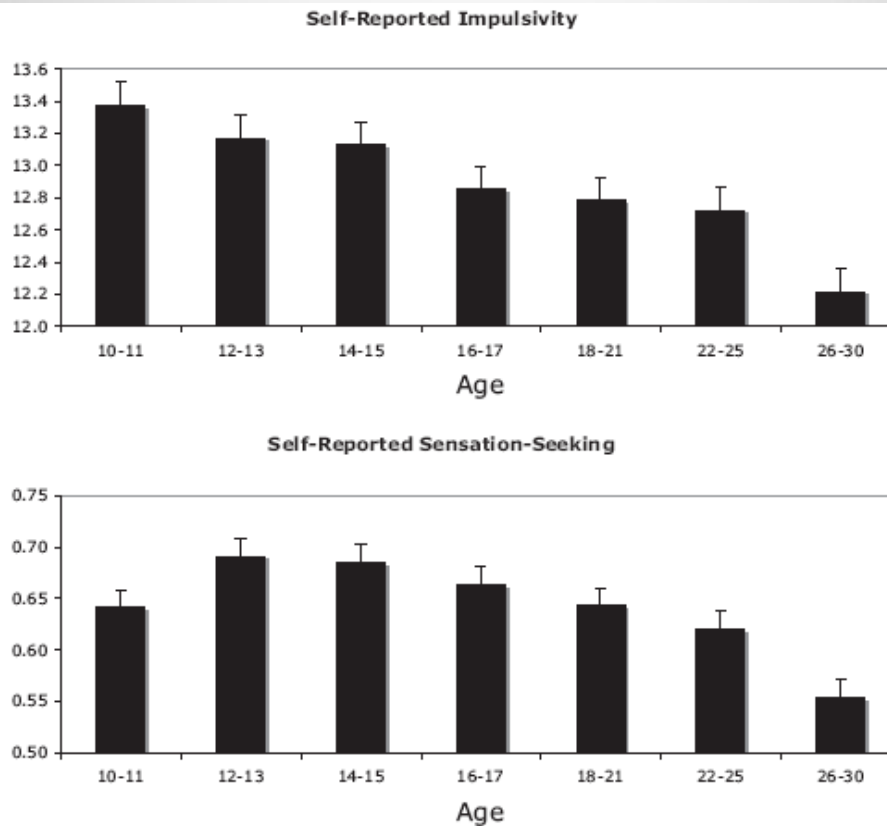
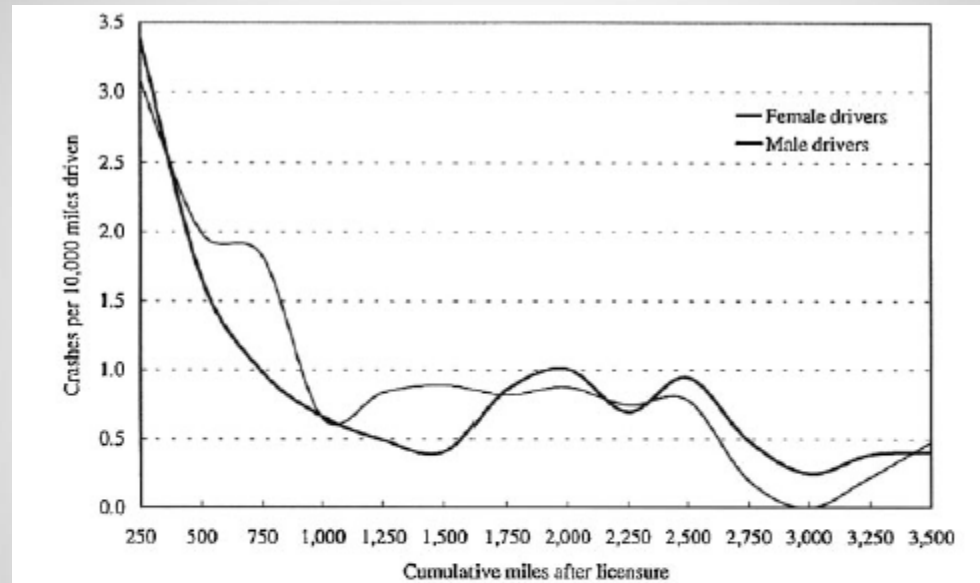


Figure 1. Age differences in self-reported impulsivity and sensation seeking. Impulsivity scores can range from 6 to 24. Sensation-seeking scores can range from 0 to 1. The linear trend for impulsivity is significant at  $p < .001$ ; the linear and quadratic trends for sensation seeking are significant at  $p < .001$  and  $p < .005$ , respectively. Error bars represent the standard errors.

# ככל שנוהגים יותר הסכנה לתאונה יורדת



**FIGURE 7** Trends in reported car crashes among adolescent drivers as a function of miles driven indicate that crashes decline dramatically after about 1,000 miles of driving experience (reprinted with permission from McCartt et al., 2003).



# Experience

- Experience with risk taking leads to a **reduction in impatience** as assessed with a delay discounting task (Romer et al.).
- High sensation seeking youth who use drugs more than other youth exhibit a decline in impatience as they age. Thus less drug use.
- This finding suggests that experience gained from excessive risk taking enables high-sensation seekers to **develop greater patience, a factor that reduces risk taking.**

# Health Risk Behaviors in Adolescents With Chronic Conditions

Joan-Carles Surís, MD, MPH, PhD<sup>a</sup>, Pierre-André Michaud, MD<sup>a</sup>, Christina Akre, MA<sup>a</sup>, Susan M. Sawyer, MD<sup>b,c,d</sup>

**TABLE 2** Single Risk Behaviors: Univariate and Multivariate Analysis

	Comparison Group ( <i>N</i> = 6493), <i>n</i> (%)	Chronic Conditions Group ( <i>N</i> = 760), <i>n</i> (%)	aOR (95% CI) <sup>a</sup>	aOR (95% CI) <sup>b</sup>
Daily smoking	2412 (37.1)	330 (43.4)	1.32 (1.13–1.54)	1.18 (1.01–1.38)
Alcohol misuse	1981 (30.5)	241 (31.7)	1.08 (0.91–1.28)	0.99 (0.83–1.17)
Cannabis use	2200 (33.9)	304 (40.0)	1.32 (1.13–1.54)	1.21 (1.03–1.41)
Other illegal drug use	459 (7.1)	77 (10.1)	1.52 (1.18–1.96)	1.23 (0.94–1.60)
Early sexual intercourse	507 (7.8)	76 (10.0)	1.36 (1.05–1.76)	1.26 (0.97–1.63)
Eating disorder	324 (5.0)	55 (7.2)	1.48 (1.10–2.00)	1.26 (0.93–1.71)
Violent acts	1032 (15.9)	154 (20.3)	1.44 (1.19–1.76)	1.29 (1.06–1.56)
Antisocial acts	1836 (28.3)	271 (35.7)	1.48 (1.26–1.75)	1.35 (1.14–1.59)

<sup>a</sup> Adjusted for age, gender, academic track, and parents' education.

<sup>b</sup> Adjusted for age, gender, academic track, parents' education, health perception, and depression.

The presence of a chronic condition does not protect young people from participating in risk behaviors.

# סיכום

- ישנם תהליכים התפתחותיים במח החושפים את המתבגרים להתנהגות סיכון.
- קבוצה קטנה, שככל הנראה נמצאת בסיכון כבר מילדות, אחראית לרב ההתנהגות.
- התנסות בהתנהגות סיכון מורידה את השכיחות להתנהגות כזו בעתיד.

# RAVE PARTY

- "" "Adam," and "MDMA" Ecstasy
- "G," "Liquid Ecstasy," "Georgia Home Boy" or Gamma-hydroxybutyrate (GHB)
- "Roofie" or "Roche" (Rohypnol)
- "Special K" or "K" (Ketamine)
- "Acid" or Lysergic Acid Diethylamide (LSD)



# נתוני הרשות הלאומית למלחמה בסמים

לוח מס' 1: השוואת שיעורי השימוש באחוזים ב"שנה האחרונה" בשנים 2001-2005  
 בקרב תלמידים בני 12-18

2009	2005	2001	חומר
21.94	20.4	19.1	טבק
49.95	49.4	47.3	משקה אלכוהולי כלשהו
36.30	37.9	37.8	יין
33.57	34.1	32.3	בירה לבנה
*37.60	32.5	28.2	משקאות חרפים
14.11	15.8	7.4	**חומרים נדיפים
10.66	9.9	10.5	שימוש לא-חוקי כלשהו
6.85	5.8	6.1	תרופות
3.27	2.7	2.9	מרץ
5.99	5	4.8	הרגעה/שינה
5.66	5.8	5.0	קנביס
4.66	3.9	3.3	חשיש
*4.15	5.2	5.0	מריחואנה או "גראס"
*5.68	3.9	5.4	"סמים אחרים"
*3.29	2.1	2.4	ל.ס.ד.
*2.99	2.1	2.9	מתדון (אדולן)
*3.02	1.9	2.5	אופיאטים
*3.09	2.1	2.5	קוקאין
2.27	2	2.3	קראק
*3.10	2.2	2.7	אקסטזי
*8.30	6.0	לא נבדק	**חגיגת



# פיצוציה/תחנה לממכר סמים

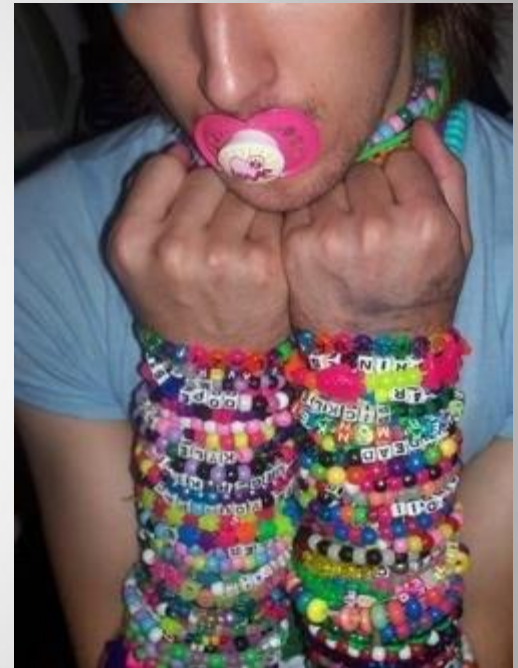






# MDMA Ecstasy

- Effect: euphoria, loss of inhibition, a feeling of closeness and/or empathy, and increased sensuality .
- Symptoms include diaphoresis, bruxism, jaw clenching, paresthesias, dry mouth, increased psychomotor activity, and blurred vision.
- Most MDMA-related fatalities have been attributed to symptoms of heat stroke and hyperthermia.







LSD



# L.S.D lysergic acid diethylamide

- prototype of the hallucinogen class
- pseudohallucinations sensory crossover  
rhearing colors or feeling sounds.
- Trip good/bad
- Hallucinogen persisting perception  
disorder (HPPD)



LSD





# Rape Drugs are out there.

Anyone who  
seems drunk  
after drinking  
little or no  
alcohol may  
have been  
drugged.



Alcohol  
G.H.B.  
Rohypnol  
Roffies  
Special K  
Liquid X

**TRUST YOUR INSTINCTS!**

## Are they in here?

For help 24 hours, call 911 or (805) 656-1111.  
Transportation to a safe place may be provided.

Thank you Yellow Cab



Orange Police Department



Michael D. Bradbury  
Orange County Sheriff-Coroner  
Victim Services (805) 656-1111

# GHB (rape drug)

- GHB generally comes in pure powder form or mixed with water.
- An oral dose of 10 mg/kg produces short-term amnesia and hypotonia; 20-30 mg/kg produces drowsiness and sleep.
- A Glasgow Coma Scale (GCS) of 3 is not uncommon.

# צמח הקנביס

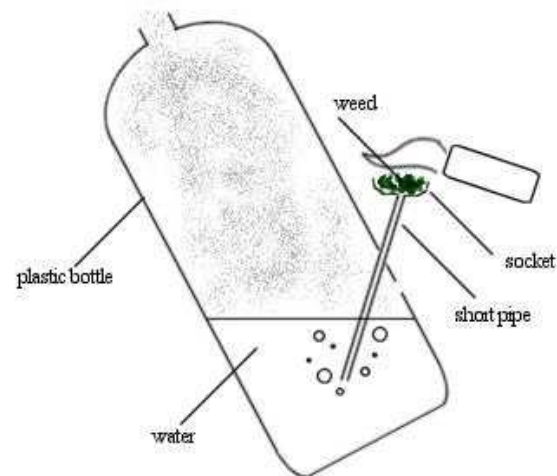




# השימוש בקנבים



- חשיש
- מריחואנה
- ג'ארס



# Cannabis



- Pyrolysis of marijuana releases more than 100 substances that are subsequently inhaled with the smoke. *1-trans* -delta-9-THC is thought to be the ingredient most responsible for the mental effects of marijuana.
- Another increasingly important constituent is cannabidiol. It is the constituent thought now to reduce many of the undesirable effects of THC; it significantly reduces the anxiety and psychoticlike symptoms.

# Cannabis

- The following symptoms may be prominent in acute intoxication:
  - Euphoria, Relaxation
  - Subjective feelings of well-being or grandiosity.
  - Perceptual changes (including visual distortions)
  - Drowsiness and sluggishness
  - Diminished coordination
  - Paradoxical hyperalertness
  - Increased appetite (the "munchies")





# Cannabis intoxication can produce a dysphoric reaction(bad trip).

- Feelings of panic, Paranoia
- Mood lability
- Altered perceptions (following heavy marijuana use) manifesting as illusions or frank hallucinations, most often visual in type.
- Depersonalization
- Psychotic episodes
- Recurrence of psychosis in patients with schizophrenia



# “חגיגת”

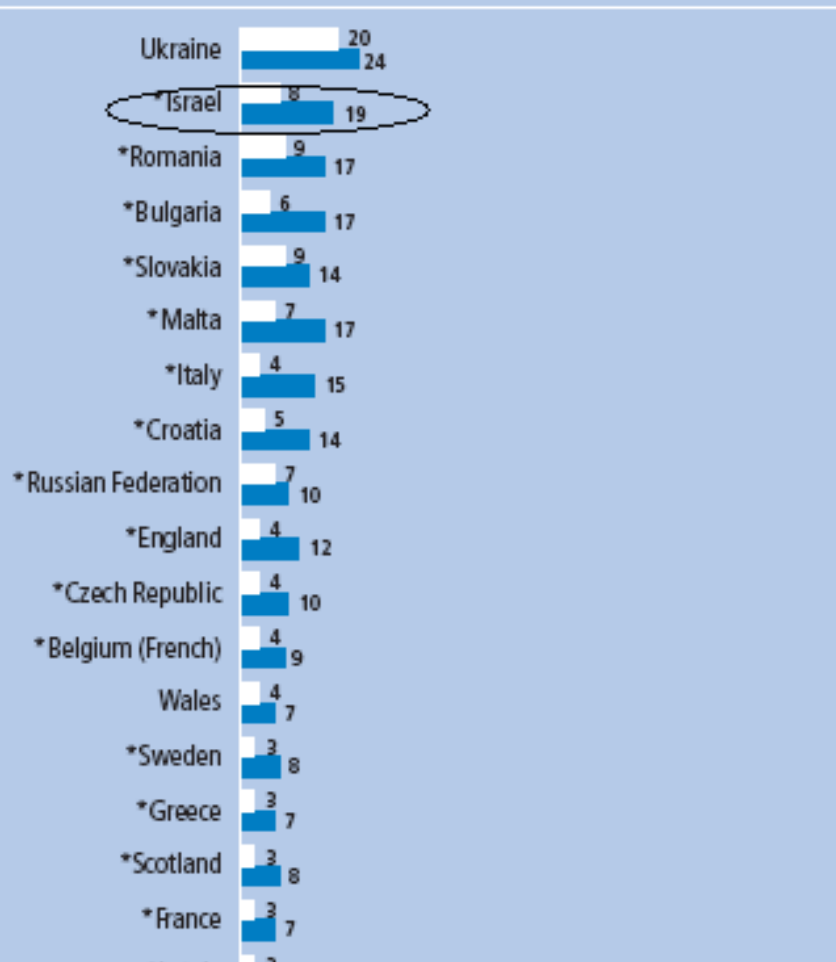


- החומר הפעיל cathinone מופק מצמח הגת או methcathinone שהו סנטטי.
- שיך לקבוצת האמפתמינים מעלה רמת דופמין גורם לתחושת אופוריה, עירנות יתר ודיכוי תאבון.
- החומר הוכרז כלא חוקי מ 2004 גלולות בשם חגיגת ממשיכות להימכר ומכילות כנראה תערובת של סטימולנטים סנטטיים.

## אלכוהול

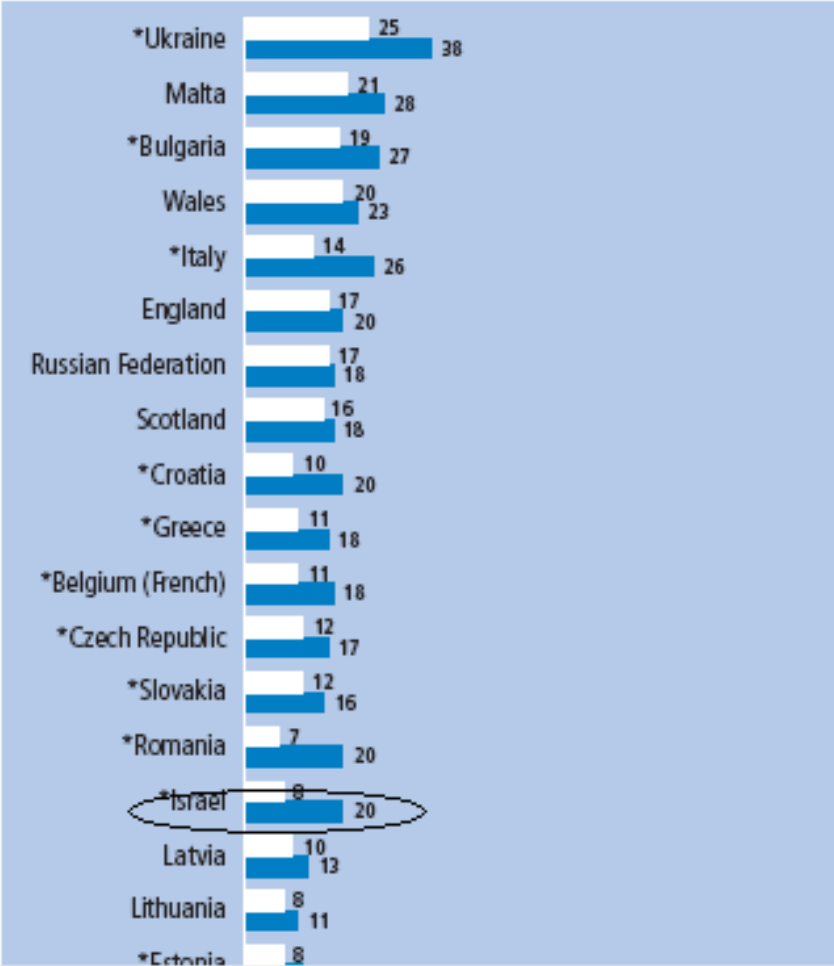
11-year-olds who drink alcohol at least once a week

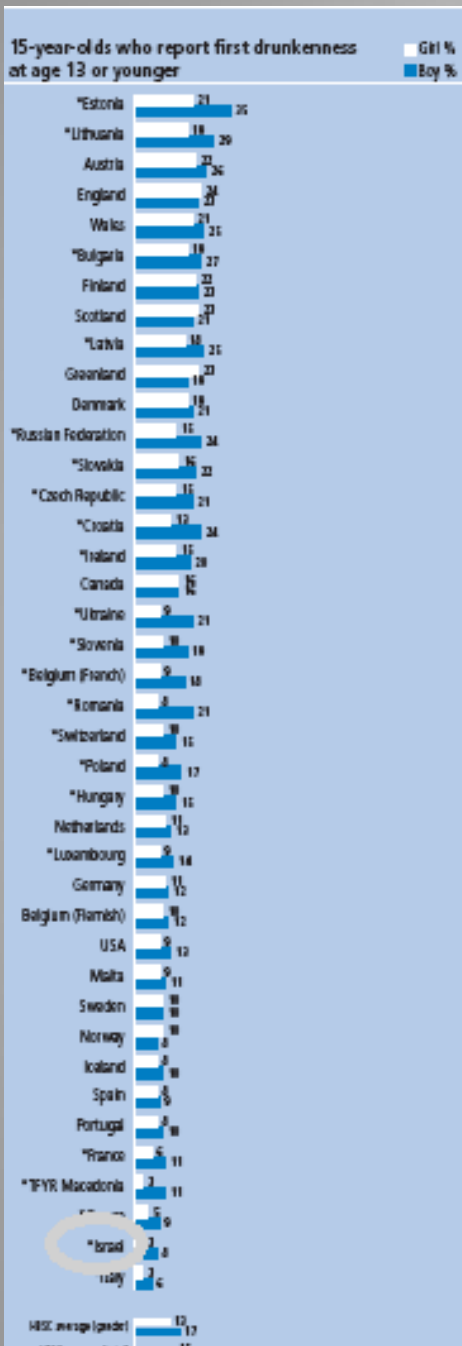
█ Girl %  
█ Boy %



13-year-olds who drink alcohol at least once a week

█ Girl %  
█ Boy %



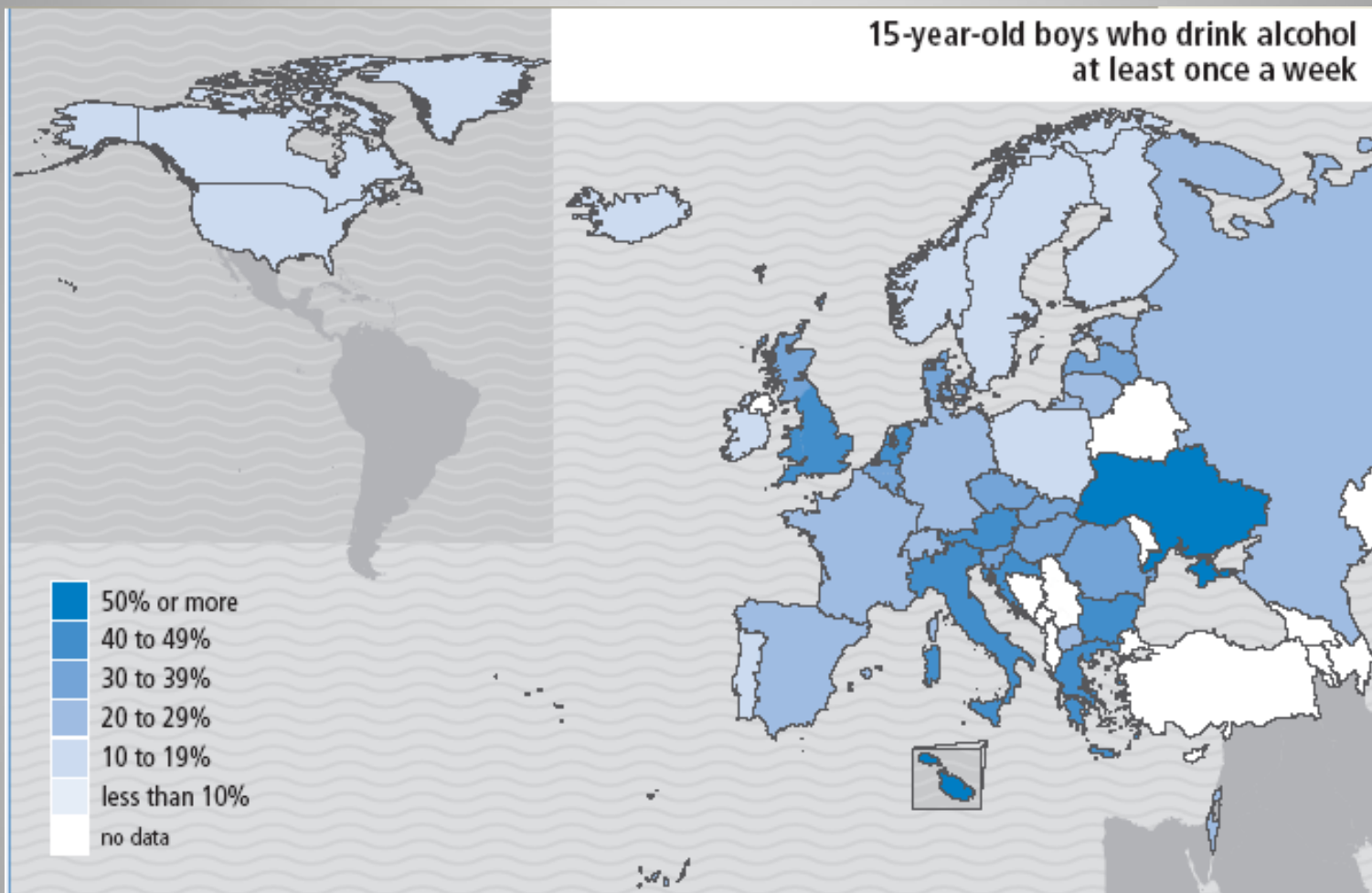


Early drunkenness is defined here as having been drunk by the age of 13 or younger.

15-year-olds:

4% (Italy) to 28% (Estonia)

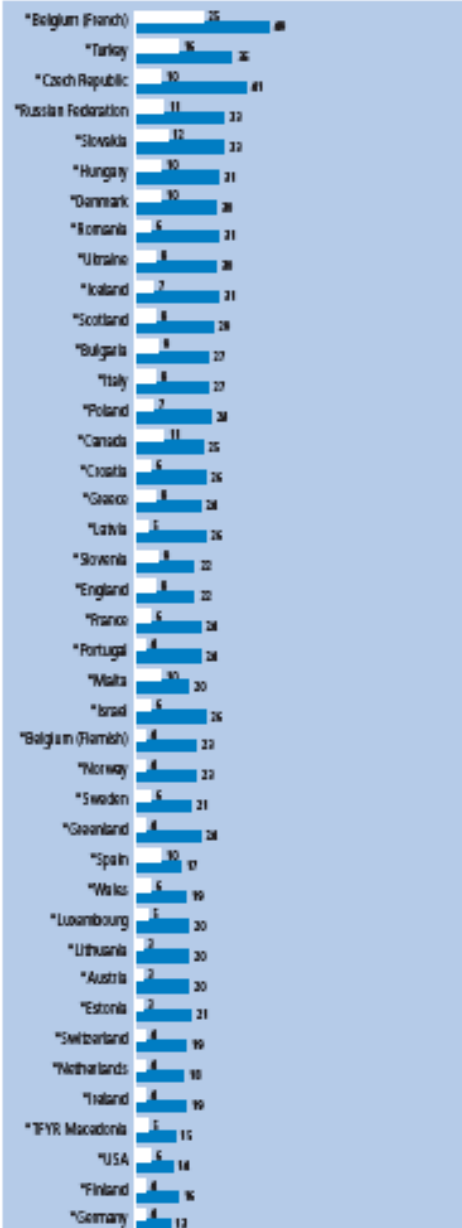
## 15-year-old boys who drink alcohol at least once a week



HBSC teams provided disaggregated data for Belgium and the UK; these data appear in the map above

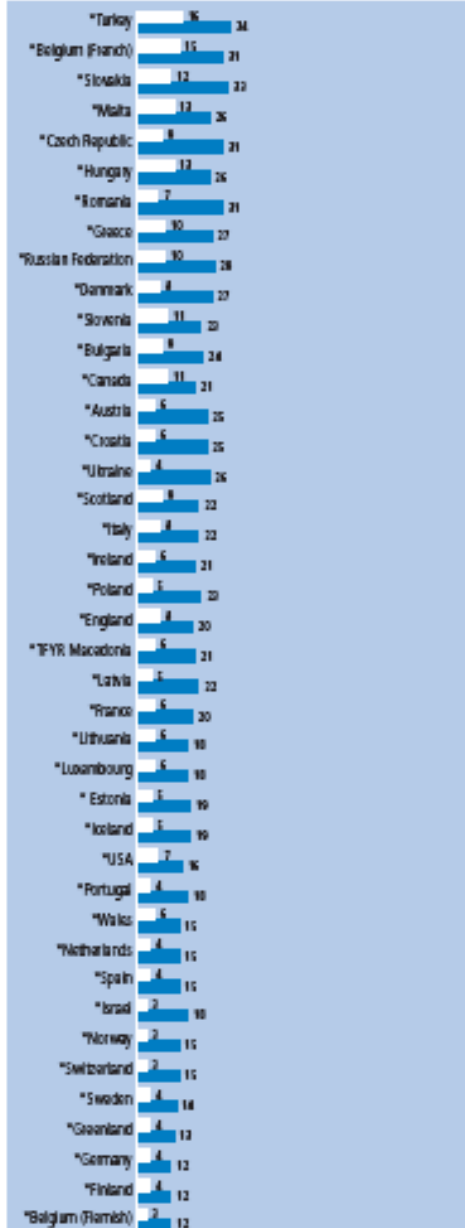
11-year-olds who have been involved in a physical fight at least three times in the last 12 months

Girl %  
Boy %



13-year-olds who have been involved in a physical fight at least three times in the last 12 months

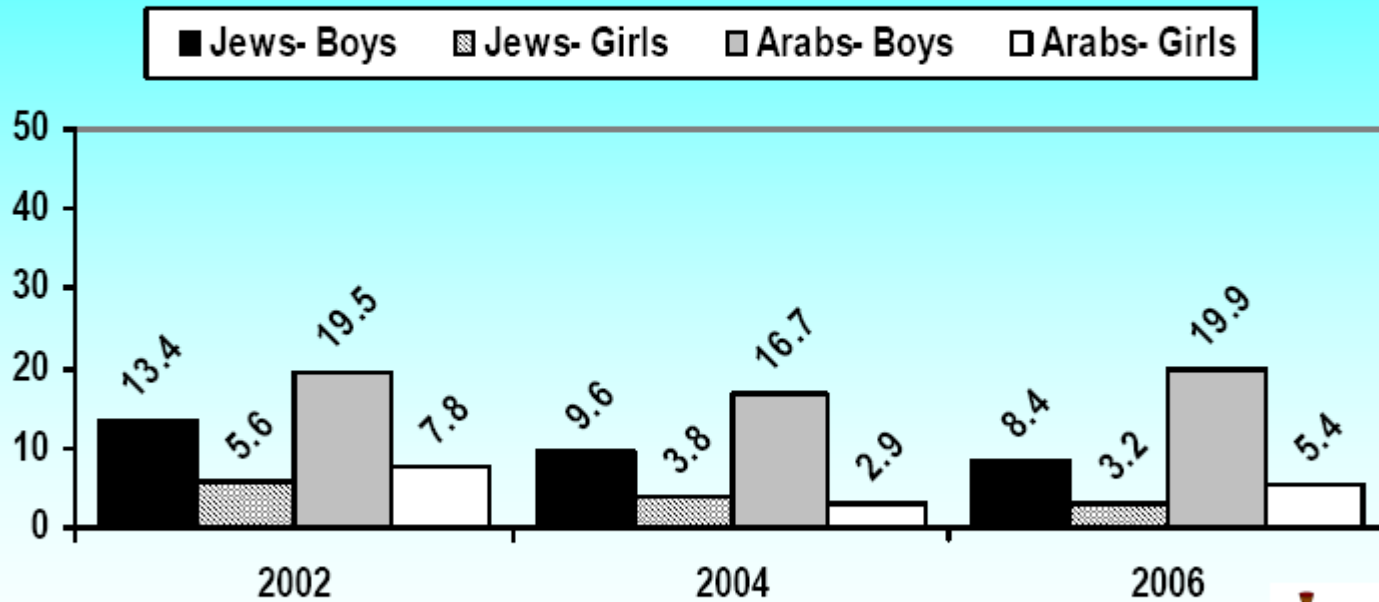
Girl %  
Boy %





# שימוש בנרגילה ליאת קורן, יוסי הרצל פיש

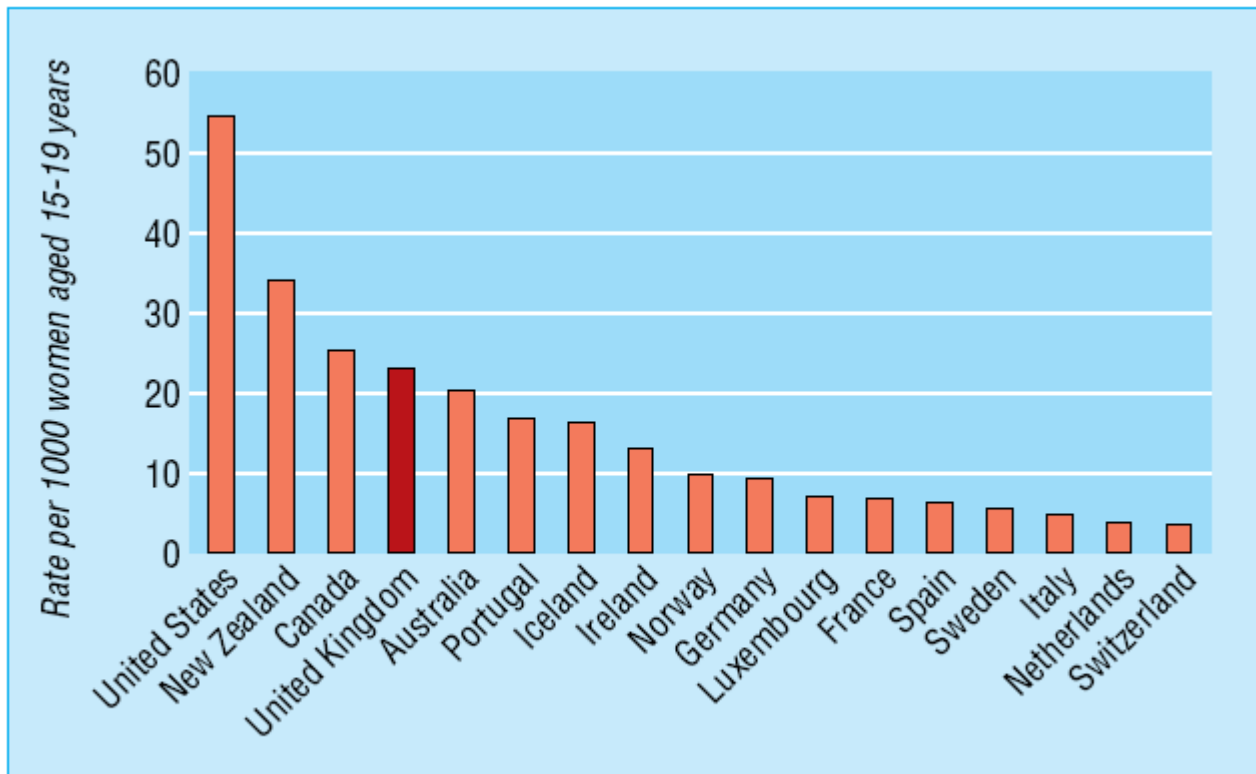
## Trends in nargila weekly smoking, by year, sex and sector



Data Source: WHO-HBSC-Israel, 2002 (N=6,196), 2006 (N=6,613),  
HBSC-ME, 2004 (N=11,288),  $P < 0.001^{***}$



# שיעור הילודה בקרב מתבגרות: מספר לידות לכל 1000 נערות

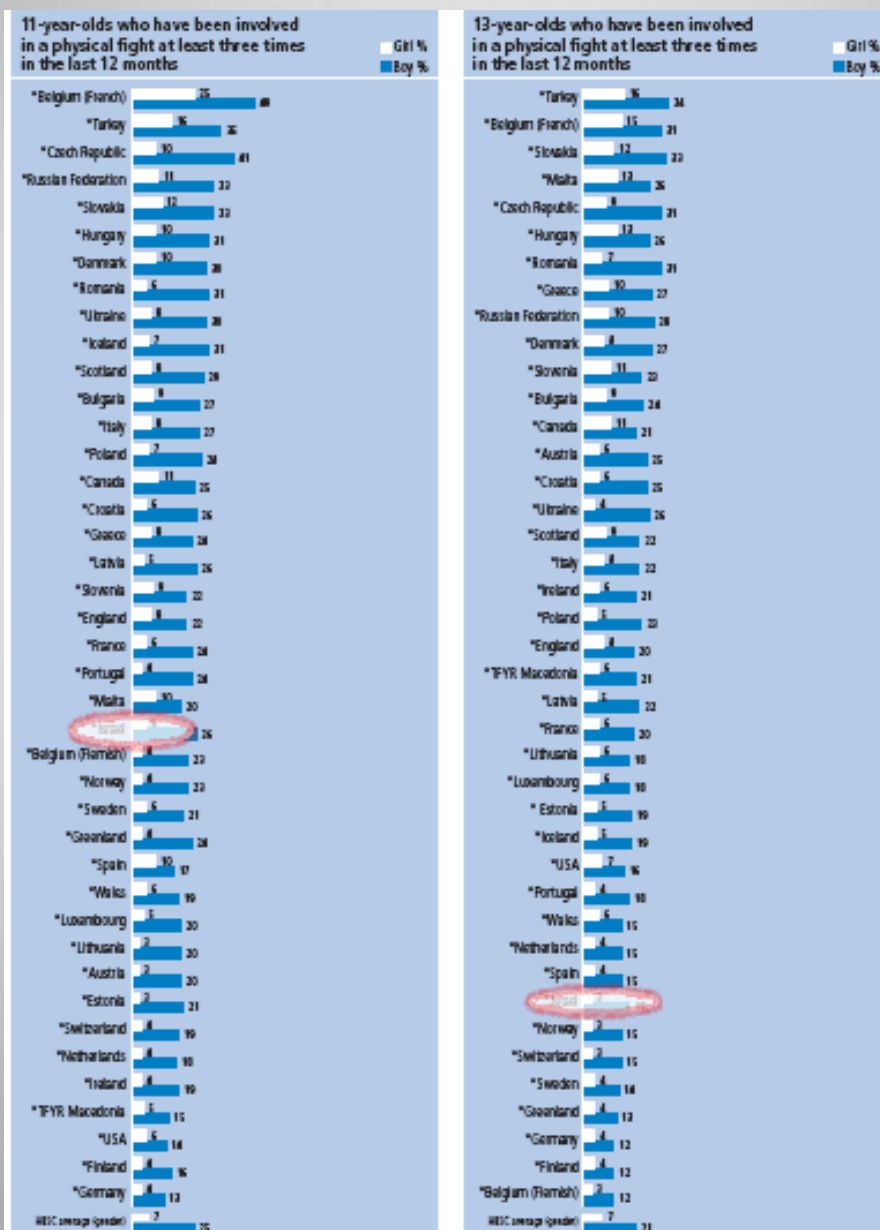


Births per 1000 women aged 15-19 years, 1998

# אלימות



# בני 11 ו 13 שהיו מעורבים בקטטה לפחות שלש פעמים בשנה האחרונה



# התנהגות סיכון ברשת



Although most chat room users did not report serious problems, this group included a disproportionate number of troubled individuals.

J Adolesc Health. 2004 Aug;35(2):116-23.

school survey. Beebe At al

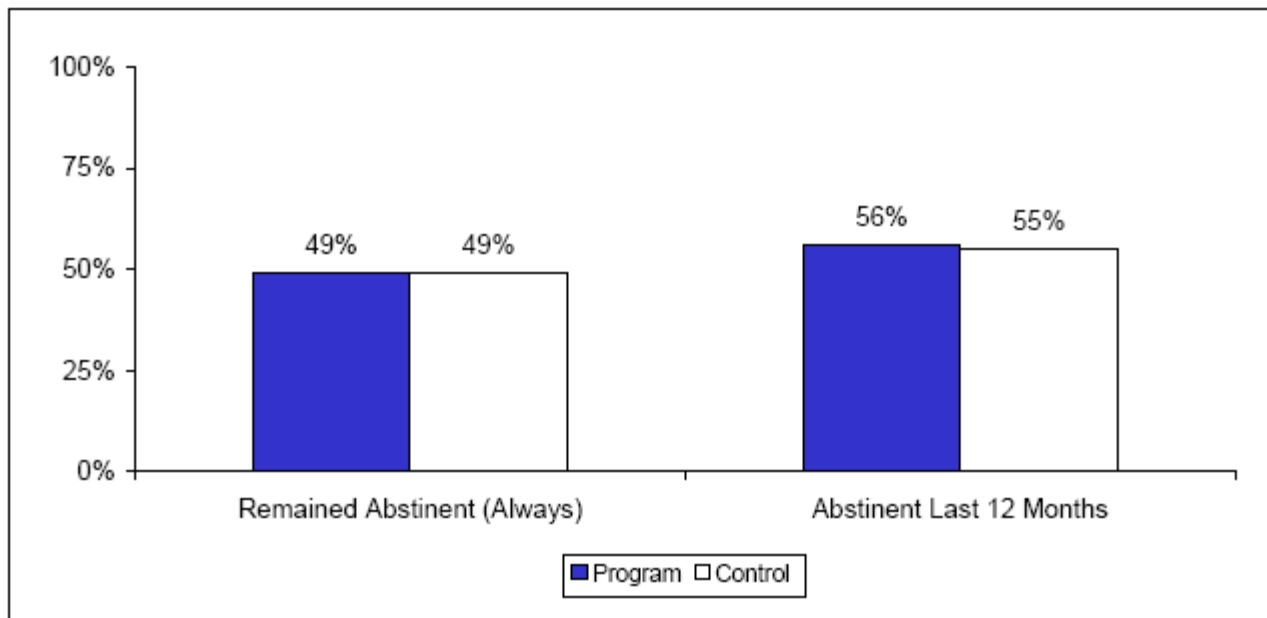
# איך מישמים את הידע לתוכניות מניעה?

- דוגמא מארה"ב Abstinence only program
- התבסס על מחקר שהראה שכשמעודדים מתבגרים לדחות את קיום יחסי המין לאחרי החתונה, גיל התחלת קיום היחסים מתאחר.



# תוצאות הפרויקט

Figure 1. Estimated Impacts on Sexual Abstinence

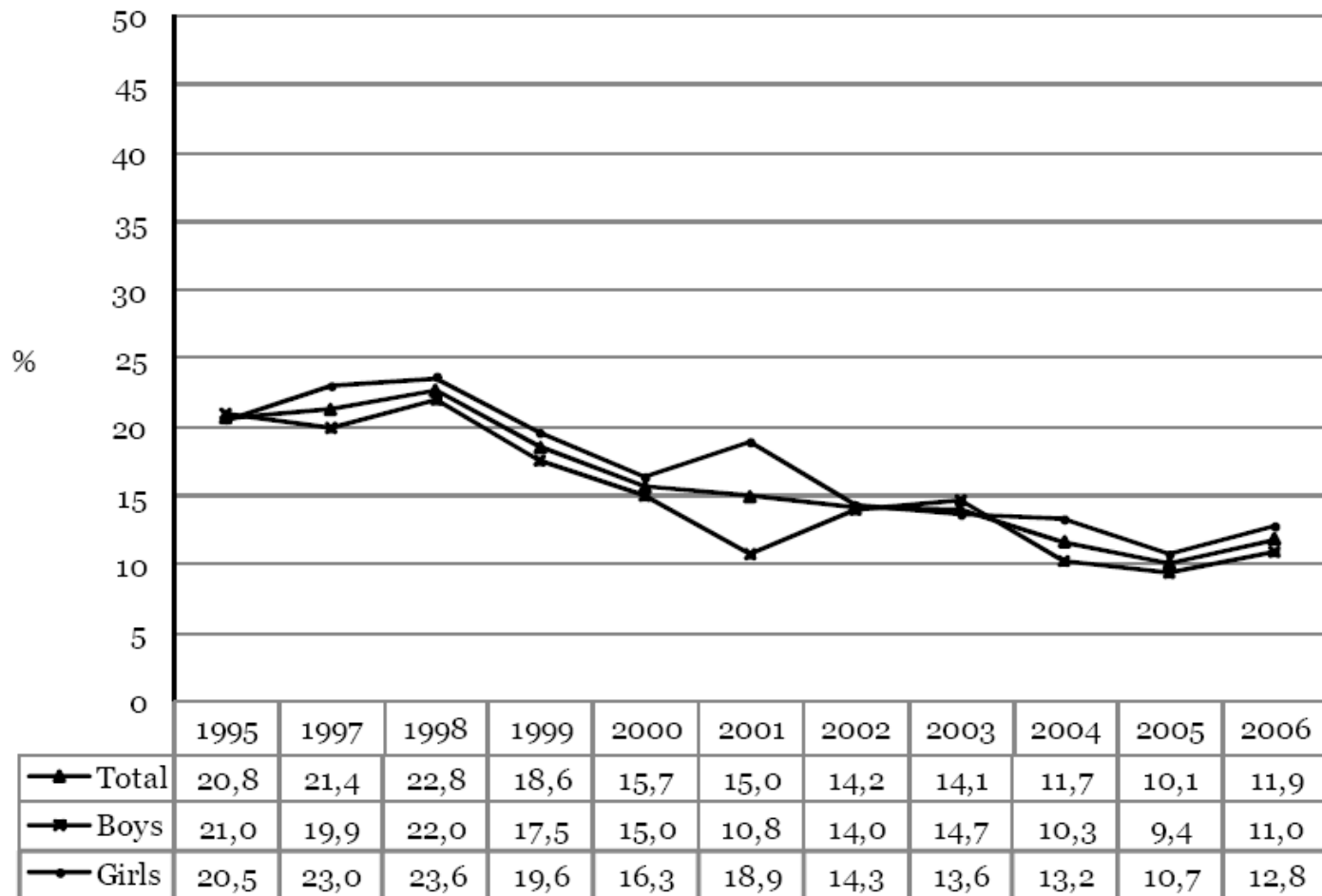


Source: Wave 4 Survey of Teen Activities and Attitudes (Mathematica Policy Research, Inc., 2005), administered to youth 42 to 78 months after enrolling in the Title V, Section 510 Abstinence Education Program study sample.

\*\*\* $p$ -value (of program-control difference) < 0.01; \*\* $p$ -value < 0.05; \* $p$ -value < 0.10, two-tailed test.



# שימוש בסמים ואלכוהול באיסלנד 1995-2006



# המודל האיסלנדי

- איסלנד היא המדינה היחידה בה ירד השימוש באלכוהול וסמים בקרב מתבגרים בשנים האחרונות.

- תוכנית אינטנסיבית השמה דגש על:
  - יותר זמן עם ההורים.
  - פעלות מאורגנות בשעות הפנאי, ספורט תנועות נוער.
  - התארגנות של ההורים למען המתבגרים.

# קשר בין אופי ההורות להסתכנות בנהיגה אצל מתבגרים

- מתבגרים להורים לא מעורבים היו מעורבים פי שניים בתאונות דרכים מאשר מתבגרים להורים תומכים ונוקשים.
- ילדים להורים תומכים חגרו חגורות פי שתיים, שהעדו על נהיגה במהירות מופרזת בפחות מחצי מילדים להורים לא מעורבים.

ארבעה סיגנונות הורות:

- תומכים ונוקשים
- לא תומכים ונוקשים
- תומכים ולא נוקשים
- לא מעורבים.





# שימוש בקנביס במתבגרים בשוויץ

Cannabis-only adolescents (age 16-20) show better functioning than those who also use tobacco. Compared with abstainers, they are more socially driven and do not seem to have psychosocial problems at higher rate.

- מתבגרים שהשתמשו רק בקנביס (לא עישנו סיגריות), היו תלמידים טובים יותר ותפקדו טוב יותר ממתבגרים שנמנעו כלל.

Suris JC et al. Some go without a cigarette. 2007

