

EVALUATION OF STATISTICAL REPORTS

RESOURCE PACK

INDEX OF CONTENTS

EXPERIMENTS

1. Lady in Red oozes sex appeal (NZ Herald)
2. Color and Women Attractiveness (The Journal of Social Psychology)
3. Red : Colour of winners (The Telegraph, UK)
4. When the Referee Sees Red (Psychological Science)
5. Increase in demand for Red Cross breakfast (TV3 News)
6. Food and Learning Connection shot down (Fairfax News Media)
7. Effects of free school breakfast programme(Journal of Epidemiological Community Health)
8. Sugar isn't the problem (Thomas Lumley comment)
9. Chemicals are making us fat (NZ Herald)
10. ABC News attacks Scientist who exposed bias in obesity research (Forbes)
11. New 'smart bomb' drug attacks breast cancer (Fox news)
12. Gold kiwifruit 'wonder drug' for colds (NZ Herald)
13. Polypill 'will give over 50s years more healthy life' (telegraph, UK)
14. Women worse at commission selling (NZ Herald)

OBSERVATIONAL STUDIES

1. Malignant iphones (Thomas Lumley comment)
2. Scientists call for urgency on cancer-phone link(NZ Herald)
3. " The biggest experiment of our species" (Daily Mail, UK)
4. Sleeping pills raise risk of death (NZ Herald)
5. Tooth nuking (Thomas Lumley comment)
6. Dental x-rays linked to brain tumours (NZ Herald)
7. Dental x-rays linked to brain cancer (Science Media Centre)
8. Robot assisted surgeries 'costlier but safe' (Fairfax media)
9. Humans not yet obsolete (Thomas Lumley comment)
10. Heart disease linked to non-stick cookware (NZ Herald)
11. Attack of killer frying-pans (Thomas Lumley comment)
12. Teen drinking may cause irreversible brain damage (NPR)
13. Moderate to heavy alcohol use in adolescents (American Psychological Association)
14. How cannabis blunts teenage brains (NZ Herald)
15. High Heel Horror (NZ Herald)
16. Stem cells help paraplegics regain feeling (Telegraph, UK)
17. Marijuana use may raise risk of testicular cancer

The New Zealand Herald

Lady in red oozes sex appeal: study

12:30 PM Tuesday Apr 24, 2012

There's always been a certain fascination about a lady in red, and the reason is simple, according to a new study. Men think that a scarlet-clad woman is more likely to sleep with them on a first date.

A survey of 120 male students aged 18 to 21 found that most thought choosing to wear red meant a woman had "greater sexual intent" and was more likely to jump into bed with a man than someone who opted for more neutral colours like green, blue or white.

And the item in question does not need to be a revealing top or a sexy short skirt. Volunteers were asked to judge a woman's sexual intent based only on the colour of an ordinary T-shirt.

The findings, published in the *Journal of Social Psychology*, confirm the powerful influence that the colour of clothing can have on how men perceive a member of the opposite sex.

Researchers at the University of South Brittany divided the students into four groups and asked them to look at an image of the same 20-year-old woman with the colour of her top altered for each group to red, blue, green or white.

The woman was judged to be most attractive when she was wearing the red top, followed by white, blue and finally green.

She was also judged, by some considerable margin, to be most likely to agree to sex when she wore red, followed by blue, green and white.

Dr Glenn Wilson, visiting professor of psychology at Gresham College in London, said research also shows men in red are more attractive to women because they are seen as having higher status.

"But women in red are attractive to men because of its passionate associations," he says.

"These effects probably derive from the fact that red is a significant colour in nature, signalling danger and causing excitement."

– DAILY MAIL



Men believe they're more likely to have success with a woman in red. Photo / Thinkstock

REPLICATIONS AND REFINEMENTS

Color and Women Attractiveness: When Red Clothed Women Are Perceived to Have More Intense Sexual Intent

NICOLAS GUÉGUEN
Université de Bretagne-Sud

ABSTRACT. Research has shown that with some nonhuman primates, red is associated with greater sexual attractiveness of females, and recent studies found that a woman with red clothes increases attraction behavior in men. However, the mechanism that explains such behavior was not studied. In this experiment, we hypothesized that men overestimated women's sexual intent when wearing red clothing. Participants evaluated attractiveness and the sexual intent of a woman presented in a photograph wearing a red, a blue, a green or a white tee-shirt. It was found that men evaluated higher sexual intent in the red clothing condition. It was also found that perception of the woman's sexual intent was not moderated by attractiveness rating.

Keywords: attraction, evolutionary psychology, impression formation, perceptions, physical attractiveness

STUDIES HAVE FOUND THAT RED increases the physical and sexual attractiveness of women. Elliot and Niesta (2008) found that by varying the color surrounding a photo representing women, red, as opposed to white, green, grey, blue, or green, led men (but not women) to view women as more attractive and sexually desirable. Recent studies have also shown that romantic attraction towards women is influenced by the color red. Niesta-Kayser, Elliot, and Feltman (2010) showed that men who viewed an ostensible conversation partner in a red *versus* a green shirt chose to ask her more intimate questions (Experiment 1) or to sit closer to a woman with a red shirt rather than one in blue (Experiment 2).

Address correspondence to Nicolas Guéguen, Université de Bretagne-Sud, LSHS, 4, Rue Jean Zay, BP 92116, Lorient 56321, France; nicolas.gueguen@univ-ubs.fr (e-mail).

Guéguen (in press) found that women hitchhikers wearing red solicited a higher response in the number of male drivers who stopped to offer a ride. No color effect was found when observing the behavior of female drivers.

In the previous study focused on men's approach towards women wearing red, red was perceived as a non-lexical prime that influenced reproduction-relevant behavior in like manner across species: red increased women's physical and sexual attractiveness, which led in turn to an increase in men's behavior. However, it could also be argued that women wearing red might be perceived to have greater sexual intent, which is why men approach them. Indeed if red is associated with lust, sex, and romantic love in human culture (Neto, 2002), one could argue that a woman wearing red would be sending a signal to men that she desires sex or a date. We therefore hypothesized that women in red would be perceived to have greater sexual intent.

Method

Participants

The participants were 120 male undergraduate business students, ranging in age from 18 to 21 ($M = 19.2$, $SD = 1.35$).

Procedure and Materials

Participants were randomly assigned to one of four between subject color conditions: red, blue, green, and white ($n = 30$ in each condition). They were informed that the experiment was to study how men judged photographs representing women. They were told they would only be shown one photo of a young woman. The experimenter then gave each participant a manila folder containing the photo of a 20-year-old woman. The female photo was 4" \times 6" and portrayed the head and upper torso of a moderately attractive woman. She wore a tee-shirt and was smiling. The color was manipulated by varying the color of the tee-shirt with the help of the Adobe Photoshop software. The photo was printed on a special paper with an HP Photosmart Pro B 9180.

Participants were instructed to open the folder and to look at the photo for 30 seconds. When time had elapsed, the participant was instructed to complete a questionnaire that contained a perceived attractiveness measure as well as sexual intent of the target and several demographic items. Perceived attractiveness was assessed on a scale of 1 (*not at all attractive*) to 9 (*extremely attractive*) which measured "How attractive do you think this woman is?" whereas sexual intent was assessed on a 1 (*no probability*) to 9 (*high probability*) scale which measured "How likely would this woman be to have sex with a man on the first date?" After completing the questionnaire, the participant was fully debriefed and dismissed.

Results

A between-groups ANOVA was performed on the two dependent variables. Means and variances for these ratings for each of the four groups are presented in Table 1.

With the attractiveness rating, a main effect was found ($F(3, 116) = 4.27$, $p = .007$, $\eta^2 = .08$). Post-hoc comparisons revealed that red was different from blue and green, whereas no further statistical difference was found. Concerning the woman's sexual intent, a main effect was found ($F(3, 116) = 10.71$, $p = <.001$, $\eta^2 = .16$). Post-hoc comparisons revealed that red was different from white, blue, and green, whereas no further statistical difference was found.

To control the effect of attractiveness on sexual intent, an ANCOVA was performed, with color as the independent variable, sexual intent as the dependent variable and attractiveness as the continuous co-variable. The effect of color on sexual intent remained significant: $F(3, 113) = 6.14$, $p = .007$, $\eta^2 = .13$.

Discussion

The results from the experiment support our hypothesis. Men who viewed a woman dressed in red as opposed to one in green, blue, or white perceived her to be more attractive and to have more sexual intent. It was also found that the effect of color on sexual intent was not moderated by attractiveness.

Studies have shown that red is connected to lust and romantic love (Neto, 2002), as well as to female fertility (Lee, 2006). Associating red with sex and romantic love is perhaps explained by societal conditioning. However, biological evolution could also explain the importance of redness. During their fertility phase, the perineum of female baboons, macaques and chimpanzees become red probably to attract males (Deschner, Heisterman, Hodges and Boesch, 2004). Roberts and colleagues (2004) found that women's faces or bodies in their fertile phase become redder because of an increase of vascularization of these areas.

Whether these effects are explained by evolutionary considerations (red as a visual indicator of sexual receptivity) or by cultural conditioning (the association

TABLE 1. Mean (SD in Brackets) of the Attractiveness and Sexual Intent Ratings According to Color Condition

	White	Red	Blue	Green
Attractiveness	5.12 (1.08)	5.95b (1.24)	5.07a (1.19)	4.93a (1.37)
Sexual intent	4.34a (1.29)	6.28b (1.96)	4.67a (1.47)	4.40a (1.32)

Note: Mean with different letters are statistically different using the Bonferroni correction to adjust for multiple comparisons.

of red with sex and romantic love) they could help us to understand why men attribute more sexual intent to women wearing red lipstick. In both cases, red appears as a possible indicator of receptivity and probably explains why men were more ready to approach a woman displaying red on her body or to conclude that they had more sexual intent when they wore red. Guéguen (in press) found that women hitchhikers wearing red solicited a higher response in the number of male but not of female drivers who stopped to offer a ride. It could be argued that men stopped more often because they attributed more sexual intent to these female hitchhikers. Previous research has found that males are more likely than females to perceive interactions in sexual terms or to make sexual judgments and that they are more eager for sexual intercourse than women are (Clark & Hatfield, 1989; Hatfield, 1983; Sadalla, Kenrick & Vershure, 1987). They are also more likely to overestimate the sexual interest of women (Abbey, 1987; Shotland & Craig, 1988; Levesque, Nave & Lowe, 2006), which they frequently misinterpret based on their clothing. Abbey (1987) found that males were more likely than females to interpret a low-cut top, shorts, tight jeans, or no bra as an indication of sexual receptiveness. Koukounas and Letch (2001) found that an actress who wore more revealing clothing was perceived by male observers as having more sexual intent than by the female observers. For the first time, our experiment shows that red clothes have the ability to lead men to perceive a woman wearing a red tee-shirt as having greater sexual intent than one wearing a blue, white, or green one.

AUTHOR NOTE

Nicolas Guéguen is affiliated with the Université de Bretagne-Sud.

REFERENCES

- Abbey, A. (1987). Misperception of friendly behavior as sexual interest: A survey of naturally occurring incidents. *Psychology of Women Quarterly*, 11, 173–194.
- Clark, R. D., & Hatfield, E. (1989). Gender differences in receptivity to sexual offers. *Journal of Personality & Human Sexuality*, 2, 39–55.
- Deschner, T., Heistermann, M., Hodges, K., & Boesch, C. (2004). Female sexual swelling size, timing of ovulation, and male behavior in wild West African chimpanzees. *Hormones and Behavior*, 46, 204–215.
- Elliot, A.J. & Niesta, D. (2008). Romantic red: Red enhances men's attraction to women. *Journal of Personality and Social Psychology*, 95, 1150–1164.
- Guéguen N. (in press). Color and women hitchhikers' attractiveness: Gentlemen drivers prefer red. *Color Research and Application*.
- Hatfield, E. (1983). What do women want from love and sex? In E. R. Allgeier & N. B. McComick (Eds.), *Changing boundaries* (pp. 103–134). Palo Alto, CA: Mayfield Publishing Co.
- Koukounas, E., & Letch, N. M. (2001). Psychological correlates of perception of sexual intent in woman. *The Journal of Social Psychology*, 141, 443–456.
- Lee, Y. (2006). *Man as the prayer: The origin and nature of human kind*. New York, NY: Trafford.

- Levesque, M. J., Nave, C. S., & Lowe, C. A. (2006). Toward an understanding of gender differences in inferring sexual interest. *Psychology of Women Quarterly*, 30, 150–158.
- Neto, F. (2002). Colors associated with styles of love. *Perceptual and Motor Skills*, 94, 1303–1310.
- Niesta Kayser, D., Elliot, A. J. and Feltman, R. (2010), Red and romantic behavior in men viewing women. *European Journal of Social Psychology*, 40, 901–908.
- Roberts, S. C., Havlicek, J., Flegr, J., Hruskova, M., Little, A. C., Jones, B. C., Perrett, D. I., Petrie, M. (2004). Female facial attractiveness increases during the fertile phase of the menstrual cycle. *Biology Letters*, 271, 270–272.
- Sadalla, E. K., Kenrick, D. T., & Vershure, B. (1987). Dominance and heterosexual attraction. *Journal of Personality and Social Psychology*, 52, 730–738.
- Shotland, R. L. & Craig, J. M. (1988). Can men and women differentiate between friendly and sexually interested behavior? *Social Psychology Quarterly*, 51, 66–73.

Received January 28, 2011

Accepted July 11, 2011

29/8/09

Red: colour of winners

Competitors who wear red win more than those dressed in any other colour, according to a study in Germany.

Researchers found those who wear red tops, jackets or clothing score 10 per cent more in any competition than if they were in another colour.

Experts believe red could make individuals and teams feel more confident. As well, opponents could see it as more aggressive and dominant.

The findings could explain why Manchester United, Liverpool and Arsenal have been so successful. On the other hand, they may suggest the success of those teams has given others wearing red more confidence. United and Liverpool have won a record 18 league titles, and Arsenal have had an uninterrupted run in the top flight for longer than any other team.

German sports psychologists at the University of Munster showed video clips of taekwondo bouts to 42 experienced referees. One combatant wore blue, the other red. They then showed the same clips but digitally swapped the colours. When wearing red, fighters were given an average of 13 per cent more points than when in blue.

Telegraph Group Ltd

Short Report

When the Referee Sees Red . . .

Norbert Hagemann, Bernd Strauss, and Jan Leißing

Westfälische Wilhelms-Universität Münster

Hill and Barton (2005) showed that wearing red sports attire has a positive impact on one's outcome in a combat sport (e.g., taekwon do or wrestling). They suggested that this effect is due to an evolutionary or cultural association of the color red with dominance and aggression, proposing that this association triggers a psychological effect in an athlete who wears red (or in his or her opponent; e.g., Cuthill, Hunt, Cleary, & Clark, 1997; Milinski & Bakker, 1990; Setchell & Wickings, 2005). Rowe, Harris, and Roberts (2005) criticized this argument and instead attributed the bias evident in these and other data (judo) to differences in opponents' visibility.

We disagree with both interpretations (see also Barton & Hill, 2005), arguing that this phenomenon is actually due to a perceptual bias in the referee. That is, we propose that the perception of colors triggers a psychological effect in referees that can lead to bias in evaluating identical performances. Referees and umpires exert a major influence on the outcome of sports competitions (Plessner & Haar, 2006). Athletes frequently make very rapid movements, and referees have to view sports competitions from a very disadvantageous perspective, so it is extremely difficult for them to make objective judgments (Oudejans et al., 2000). As a result, their judgments may show biases like those found in other social judgments (Frank & Gilovich, 1988; Plessner & Haar, 2006; Ste-Marie & Valiquette, 1996). Therefore, we believe that it is the referees who are the actual cause of the advantage competitors have when they wear red. Because the effect of red clothing on performance and on the decisions of referees may well have been confounded in the original data, we conducted a new experiment and found that referees assign more points to taekwon do competitors dressed in red than to those dressed in blue, even when the performance of the competitors is identical.

METHOD

We investigated the effect of the color of the protective gear (trunk and head protectors) in taekwon do on the decisions of referees. A total of 42 experienced referees (13 female, 29 male; mean age = 29.31 years, $SD = 10.56$; mean experience as a

referee = 8.02 years, $SD = 6.27$) individually watched videotaped excerpts from sparring rounds of five different male competitors of similar abilities. Each of two blocks contained 11 clips, with an average length of 4.4 s. The video images measured $1,024 \times 768$ pixels and were displayed on a notebook computer with a 15.4-in. screen.

In each video, one competitor was wearing red protective gear, and the other was wearing blue protective gear. (Underneath this gear, each competitor wore a white taekwon do uniform.) The two blocks contained the same clips, but with the colors of the competitors reversed. We reversed the colors using digital graphics, animation, and image-compositing software (Adobe After Effects 7.0).

After viewing each clip, participants indicated how many points they would award the red and the blue competitors. Following the rules of the World Taekwondo Federation,¹ participants awarded points when permitted techniques were used to deliver attacks to the legal scoring areas of the body: Specifically, 1 point was awarded for an attack to the trunk protector (fist and foot techniques), and 2 points were awarded for an attack to the face (only attacks by foot technique are permitted). Additional points could be awarded if a contestant knocked down his opponent. Prohibited acts could be counted as a deduction of 1 point.

The video clips were presented in random order within each block, and the order of the blocks was counterbalanced across participants. For each referee, we calculated the total number of points for the red and blue competitors, and these values were subjected to separate dependent *t* tests. We used Cohen's *d* as our measure of effect size. We expected that changing the color of the protective gear from blue to red would lead to an increase in points awarded, whereas changing the color from red to blue would have the opposite effect.

RESULTS AND DISCUSSION

Figure 1 shows the effect of the color of the protective gear. The competitor wearing red protective gear was awarded an average

Address correspondence to Norbert Hagemann, Department of Sport Psychology, University of Münster, Horstmarer Landweg 62b, 48149 Münster, Germany, e-mail: nhagemann@uni-muenster.de.

¹In a regular competition, the match score is the sum of points in three 2-min rounds. Unless there is a knockout, withdrawal, or disqualification, the winner is usually determined by points: The winner has the higher final score, exceeds the opponent's score by 7 points, or reaches the maximum of 12 points.

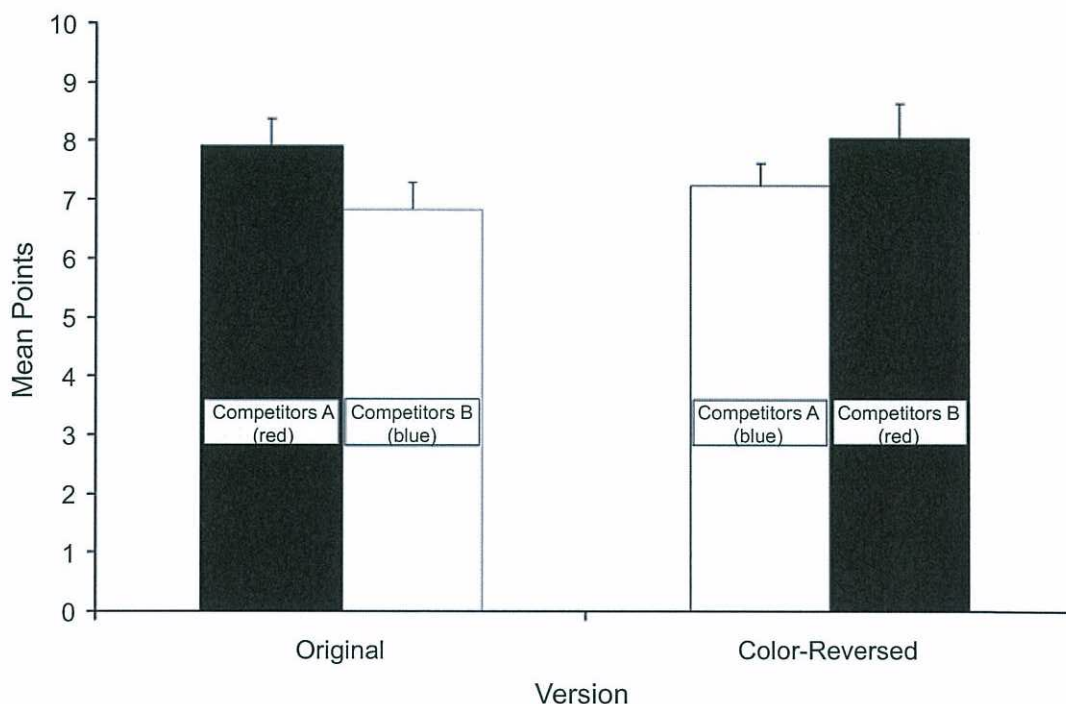


Fig. 1. Mean number of points awarded to tae kwon do competitors in the original and color-reversed versions of the video clips. Each clip depicted a sparring round with one competitor dressed in red and the other dressed in blue. Competitors A wore red in the original clips and blue in the color-reversed clips, and Competitors B wore blue in the original clips and red in the color-reversed clips. Error bars indicate standard errors.

of 13% (0.94 points) more points than the competitor wearing blue protective gear, $t(41) = 2.85$, $p < .01$, $d = 0.35$. The number of points awarded increased for a blue competitor who was digitally transformed into a red competitor, $t(41) = 2.45$, $p < .01$ (one-tailed), $d = 0.36$, and decreased for a red competitor who was digitally transformed into a blue competitor, $t(41) = 1.66$, $p < .05$ (one-tailed), $d = 0.25$. The gender of the referee, total number of points awarded in the two versions of the video clip (original vs. color-reversed), and the order in which the two versions were presented had no effect on the referees' decisions.

Thus, competitors dressed in red are awarded more points than competitors dressed in blue, even when their performance is identical. The effect found in this experiment can also explain why the effect of clothing color on the outcome is stronger when competitors have similar abilities than when there is a large asymmetry in their abilities (Hill & Barton, 2005). Referees' decisions will "tip the scales" when athletes are relatively well matched, but have relatively small influence when one is clearly superior. Even though the color of athletes' sportswear may well exert an influence on their performance (through associations with dominance or differences in visibility of the opponent), we argue that the referees are responsible for the advantage conveyed to athletes who wear red. Although there is a need for further research (including research on the effects of different

colors), our results suggest a need to change the rules (i.e., forbid red sports attire) or support referees by providing electronic decision-making aids (e.g., electronic trunk protectors) in those sports in which this color bias may be a problem.

REFERENCES

- Barton, R.A., & Hill, R.A. (2005). Sporting contests: Seeing red? Putting sportswear in context (reply). *Nature*, 437, E10–E11.
- Cuthill, I.C., Hunt, S., Cleary, C., & Clark, C. (1997). Colour bands, dominance, and body mass regulation in male zebra finches (*Taeniopygia guttata*). *Proceedings of the Royal Society B: Biological Sciences*, 264, 1093–1099.
- Frank, M.G., & Gilovich, T. (1988). The dark side of self- and social perception: Black uniforms and aggression in professional sports. *Journal of Personality and Social Psychology*, 54, 74–85.
- Hill, R.A., & Barton, R.A. (2005). Red enhances human performance in contests. *Nature*, 435, 293.
- Milinski, M., & Bakker, T.C.M. (1990). Female sticklebacks use male coloration in mate choice and hence avoid parasitized males. *Nature*, 344, 330–333.
- Oudejans, R.R., Verheijen, R., Bakker, F.C., Gerrits, J.C., Steinbrückner, M., & Beek, P.J. (2000). Errors in judging 'offside' in football. *Nature*, 404, 33.
- Plessner, H., & Haar, T. (2006). Sports performance judgments from a social cognitive perspective. *Psychology of Sport and Exercise*, 7, 555–575.

- Rowe, C., Harris, J.M., & Roberts, S.C. (2005). Sporting contests: Seeing red? Putting sportswear in context. *Nature*, 437, E10.
- Setchell, J.M., & Wickings, E.J. (2005). Dominance, status signals and coloration in male mandrills (*Mandrillus sphinx*). *Ethology*, 111, 25–50.
- Ste-Marie, D.M., & Valiquette, S.M. (1996). Enduring memory-influenced biases in gymnastic judging. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 22, 1498–1502.

(RECEIVED 12/16/07; REVISION ACCEPTED 2/13/08)



Print

Increase in demand for Red Cross breakfast in schools programme

04-Feb 12:02



Breakfast is often said to be the most important meal of the day yet many kids nationwide are still turning up to school unfed.

And with increasing demand for breakfast in schools programmes the Red Cross has more than doubled the number of primary schools it now services compared to this time last year. 'Red Cross breakfast in schools' was set up in may 2007 and since then cereal, toast and Milo have been served up more than 175,000 times.

Red Cross Community Services manager Sara Williams says a healthy breakfast is important to a child's learning and growth.

"So being able to come to school and have a healthy nutritious breakfast in an environment where you get to sit with friends and teachers is a really good way for children to get a good start to the day."

It is this social environment that makes this programme different from others which offer packaged foods.

The Red Cross programme is the only nationwide programme that offers a full sit down breakfast.

On average the Red Cross provides breakfast 1600 children each morning but demand is on the rise, and not just because of increased awareness of the programme.

"We also think that the economic environment is making it really hard," says Williams

"We will continue to expand the programme by contacting all decile one schools in New Zealand and encouraging them to join the programme if they would like to and we're expecting to see a fairly good uptake."

As for why children are turning up to school hungry it can be lack of money at home or lack of knowledge.

3 News

3 News - <http://www.3news.co.nz/defaultStrip.aspx?tabid=213&articleID=89707>

Food and learning connection shot down

IAN STEWARD AND SIMON DAY

Last updated 05:00 14/10/2012

Share

Feeding hungry schoolchildren does nothing to boost their learning, a new report shows.

The findings have surprised experts in a week when campaigning to introduce free food at schools to combat child poverty put pressure on the Government.

The only "significant positive effect" was that children felt less hungry, the study into free school breakfasts found.

Head of the study, Associate Professor Cliona Ni Murchu, said there were indications that attendance at school was also likely to improve but in reading, writing and maths there was no noticeable improvement.

Researchers at Auckland University's School of Population Health studied 423 children at decile one to four schools in Auckland, Waikato and Wellington for the 2010 school year.

They were given a free daily breakfast - Weet-Bix, bread with honey, jam or Marmite, and Milo - by either the Red Cross or a private sector provider.

Despite the findings going against the assumption that well-fed children concentrate better and therefore do better at school, the report has not deterred the advocates of free food at schools.

"I'm not a researcher but I have been in the game for 36 years and I would support taking an educational role around diet," said John Coulam, president of the Waikato Principals Association.

"A positive of the breakfast programme is it educates children on what constitutes a healthy breakfast."

He said children often replaced an unhealthy or insufficient breakfast at home with a balanced nutritional one at school.

Ensuring children were well fed was also part of the cure to New Zealand's greater poverty problem, said Jacinda Ardern, Labour's spokeswoman for social development and children.

"We know poverty has an effect on education achievement. The food in schools programme is one way government and schools can fill a gap that exists because we don't think that we can stand by while children go hungry," she said.

An expert advisory group working for the children's commissioner this year estimated 270,000 New Zealand children - roughly one in four - live below "recognised poverty thresholds".

Labour has launched a \$10 million policy to provide free food to 650 of the country's lowest decile primary and intermediate schools.

Prime Minister John Key rejected the idea, saying free fruit was already provided in "vast bulk" at low-decile schools and many had existing breakfast programmes.

Ni Murchu said there was a chance her study did not capture the children who most needed the breakfasts.

"There's always a risk that the kinds of people who participate are not the higher needs group." This was because her study participants had to get parental consent and fill in a lengthy questionnaire - a process that may have alienated the high-needs families.

Broadcaster John Campbell has led the charge for free school lunches this month and he drew a distinction between breakfasts, which the study focused on, and lunch.

Lunch was more likely to have an impact because it came at "a time when kids have done three or four hours and they go into the afternoon and are really lacking energy - more likely to drift off, be inattentive and get things wrong".

Lacking lunch also created stigma for a child, he said, continuing his call for a free \$3 school lunch for children who needed it.

"Whatever we can do it is worth a shot. We will all do better if these children do better."

He said one positive was that the issue was on the main political agenda now.

Jonathan Boston, professor of public policy at Victoria University and co-chair of an expert advisory group of solutions to child poverty, said the research felt "very counterintuitive" but still warranted attention.

"If you came to the conclusion that providing food for disadvantaged children coming to school without will only benefit hunger then you have to say hunger matters - surely we don't want children sitting in school being hungry. Surely relieving their hunger is adequate justification."

- © Fairfax NZ News

PubMed

Display Settings ☒ Abstract



J Epidemiol Community Health. 2012 Oct 6. [Epub ahead of print]

Effects of a free school breakfast programme on children's attendance, academic achievement and short-term hunger: results from a stepped-wedge, cluster randomised controlled trial.

Ni Mhurchu C, Gorton D, Turley M, Jiang Y, Michie J, Maddison R, Hattie J.

School of Population Health, University of Auckland, Auckland, New Zealand.

Abstract

BACKGROUND: Free school breakfast programmes (SBPs) exist in a number of high-income countries, but their effects on educational outcomes have rarely been evaluated in randomised controlled trials.

METHODS: A 1-year stepped-wedge, cluster randomised controlled trial was undertaken in 14 New Zealand schools in low socioeconomic resource areas. Participants were 424 children, mean age 9±2 years, 53% female. The intervention was a free daily SBP. The primary outcome was children's school attendance. Secondary outcomes were academic achievement, self-reported grades, sense of belonging at school, behaviour, short-term hunger, breakfast habits and food security.

RESULTS: There was no statistically significant effect of the breakfast programme on children's school attendance. The odds of children achieving an attendance rate <95% was 0.76 (95% CI 0.56 to 1.02) during the intervention phase and 0.93 (95% CI 0.67 to 1.31) during the control phase, giving an OR of 0.81 (95% CI 0.59 to 1.11), $p=0.19$. There was a significant decrease in children's self-reported short-term hunger during the intervention phase compared with the control phase, demonstrated by an increase of 8.6 units on the Freddy satiety scale (95% CI 3.4 to 13.7, $p=0.001$). There were no effects of the intervention on any other outcome.

CONCLUSIONS: A free SBP did not have a significant effect on children's school attendance or academic achievement but had significant positive effects on children's short-term satiety ratings. More frequent programme attendance may be required to influence school attendance and academic achievement.

TRIAL REGISTRATION: Australian New Zealand Clinical Trials Registry (ANZCTR)-ACTRN12609000854235.

PMID: 23043203 [PubMed - as supplied by publisher] **Free full text**

LinkOut - more resources

Subscribe:

- [Email](#)
- [Facebook](#)
- [Twitter](#)
- [RSS](#)

Stats Chat

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." – H.G. Wells

[Close](#)

Receive our posts via email:

Your email:

March 21, 2012

Sugar isn't the problem?

By [Thomas Lumley](#)

[This week's installment](#) in the stream of stories that have found The Answer To Obesity says the problem isn't just diet or exercise, it's plastic bottles. The Herald says

Man-made chemicals present in homes, schools, offices, cars and food are probably contributing to the sharp rise in obesity and diabetes in Western societies, according to a review of scientific literature published yesterday.

Until now lifestyle factors such as lack of exercise and poor diet were believed to be the primary causes of the increased incidence of both conditions, whose proliferation has strained global health budgets.

If you separate out diabetes, it's not true that obesity has strained global health budgets. The incidence of heart attacks, for example, continues to go down all over the world. The rate of decline has slowed a bit, but increases are still theoretical and aren't straining anything. However, if we stipulate that obesity is bad, are bisphenol A, PCBS, and phthalates responsible?

All 240 studies they reviewed – whether in test-tubes, on animals or on humans – had been peer-reviewed and published in scientific journals.

That's presumably true, but the [report itself](#) has not been. It's the product of [CHEMtrust](#), a British pressure group whose purpose is to make you worry about man-made chemicals.

The parts of the report that actually assess the evidence aren't anywhere near as emphatic as the conclusions, the press release, or the stories. For example, the report says

The New Zealand Herald

Chemicals are making us fat, say experts

By [Martin Hickman](#)

5:30 AM Wednesday Mar 21, 2012

Man-made chemicals present in homes, schools, offices, cars and food are probably contributing to the sharp rise in obesity and diabetes in Western societies, according to a review of scientific literature published yesterday.

Until now lifestyle factors such as lack of exercise and poor diet were believed to be the primary causes of the increased incidence of both conditions, whose proliferation has strained global health budgets.

While these remain undisputed factors, the review of 240 scientific papers by two leading experts, Professor Miquel Porta, of Spain, and Professor Duk-Hee Lee, of South Korea, suggests chemicals in plastics and other surfaces play an important and avoidable role.

Their study assessed the impact of chemicals including the now banned PCBs, the plastic-softeners phthalates, and the plastic-hardener Bisphenol A, or BPA, a common substance in food packaging and plastic bottles.

All 240 studies they reviewed – whether in test-tubes, on animals or on humans – had been peer-reviewed and published in scientific journals.

The paper, the Review of the Science Linking Chemical Exposures to the Human Risk of Obesity and Diabetes, found some of the chemicals appeared to have a causal effect on obesity, some on diabetes and some on both.

Many are endocrine disruptors, which can change human hormones, including the stimulation of appetite and fat storage and regulation of sugar.

Porta, of the Hospital del Mar Research Institute, Barcelona, said: "The epidemics in obesity and diabetes are extremely worrying. The role of hormone disrupting chemicals in this must be addressed. The number of such chemicals that contaminate humans is considerable.

"We must encourage new policies that help minimise human exposure to all relevant hormone disruptors, especially women planning pregnancy, as it appears to be the fetus developing in utero that is at greatest risk".

Some of the chemicals studied – organo-chlorine pesticides, PCBs used to lubricate electrical equipment and to make plastics fireproof; and many brominated flame retardants – have now been banned but others such as BPA and phthalates are still widely used in everyday products.



Photo / APN

BPA is commonly found in the plastic lining inside tinned foods, on thermal till receipts and in consumer electronics such as mobile phones and televisions, while phthalates are present in vinyl flooring, shower curtains and children's toys.

CHEM Trust (Chemicals Health & Environment Monitoring Trust), the British pressure group which commissioned the research, urged the UK Government and the EU to press industry to find safer alternatives. Six out of 10 adults in England are overweight or obese and diabetes has more than doubled since 1996 to 2.9 million people in the UK.

– Independent

By [Martin Hickman](#)

Copyright ©2012, APN Holdings NZ Limited



Trevor Butterworth, Contributor
Reason, Risk, and Regulation

6/22/2011 @ 12:04PM | 8,394 views

ABC News Attacks Scientist Who Exposed Bias In Obesity Research

In an investigation dubbed "[Is 'Big Food's' Big Money Influencing the Science of Nutrition](#)" ABC News took aim at University of Alabama biostatistician David Allison. "He has a 108-page resume and was honored at the White House," said ABC. "But even though study after study have [sic] shown soda to be a significant contributor to America's staggering obesity crisis, he says there is too little 'solid evidence'... Allison has said such studies haven't been rigorous enough to prove soda contributes to obesity, but critics say his skepticism stems from his financial ties to entities such as Coca-Cola, Pepsi and the American Beverage Association, who, critics say, have paid Allison to poke holes in the scientific consensus."

Sounds appalling, doesn't it? ***Until you find out that the scientific consensus isn't what ABC News claims it is***, and that the nation's leading experts have reached more or less the same conclusion about soda and weight gain as Allison has – independently.

Exhibit A) is the Dietary Guideline Advisory Committee to the US Department of Agriculture, which is composed of many of the nation's leading researchers on nutrition and obesity. It noted in its discussion on the 2010 dietary guidelines that the evidence for sugar sweetened beverages contributing to weight gain was marred by a "disappointing" lack of good research.

The problem is that while there are lots of observational or cross sectional studies on soda and weight gain, there are very few studies which, by their design, can show cause and effect. These are the gold standard randomized control trials or intervention studies, in which a control group consuming soda is monitored for weight gain over time against a group which stops drinking soda (and all other dietary and lifestyle factors are controlled for).

For example, one of the most widely cited intervention studies on soda and weight, ([Ebbeling et al.](#) 2006) took 103 adolescents aged 13 to 18 who regularly consumed soda and randomly assigned them to either a group that received no calorie beverages for six months by way of home delivery or a control group that carried on drinking soda as normal.

The intervention group reduced their sugar sweetened beverage consumption by 82 percent and netted a drop in BMI [body mass index, a measure of body

fat based on height and weight] of 0.14kg/m^2 , which was non-significant. However, when the intervention group was broken down by BMI at the start of the intervention, the children with the highest BMI to start with had the most weight loss – 0.75kg/m^2 , compared to those who continued to drink soda and this change in BMI was statistically significant (for an average height kid, this works out at about 4.6 pounds).

In other words, the only *strong* evidence for weight loss from giving up soda was in the children who were the most overweight to begin with. There was no meaningful effect on those who weren't overweight. (As children are constantly gaining and losing weight, these results cannot be extrapolated to adults.)

For such a contentious topic, it really is surprising to find that there just aren't very many of these kinds of studies out there (indeed, Allison has pointed out the acute need for such studies in the May 2011 issue of the peer reviewed journal *Obesity Reviews*). The result of that lack is that the Dietary Guideline Advisory Committee was only able to conclude that:

1. Limited evidence shows that intake of sugar-sweetened beverages is linked to higher energy intake in adults
2. Moderate epidemiologic evidence suggests greater consumption of sugar-sweetened beverages is associated with increased body weight. In isocaloric conditions, added sugars, including sugar-sweetened beverages, are no more likely to cause weight gain than any other source of energy. [Isocaloric means where different diets have an equal number of calories.]

How can the evidence for higher energy intake be weaker than the evidence for increased body weight from increased consumption (i.e., energy intake)? The [transcript](#) of the advisory committee's discussion shows the members agonizing over the inconsistency between these two statements and the relative weakness of the connection between sugar and body weight due to limited or poorly conducted data.

One advisory member, Lawrence Appel, Professor of Medicine at Johns Hopkins, describes the evidence as "crappy" but getting better and that it is important to consider the direction of this better evidence (which is for an association between increased consumption of sugar sweetened drinks and weight gain) in making recommendations for the public. At the same time, Joanne Slavin, Professor of Food Science and Nutrition at the University of Minnesota, points out that this direction still doesn't amount to strong evidence of a link between sugar and body weight. "It is disappointing how little there is," she says of the research, "for such an important topic."

So it is simply incorrect for ABC News to suggest that Allison's views on soda are on the outside of mainstream scientific opinion. And this becomes even more evident when we look at **Exhibit B**, the conclusions reached by recent systematic reviews of the evidence on soda and weight gain. There are plenty of non-industry funded independent researchers who, like the USDA advisory committee, have arrived at the same conclusion as Allison:

"Not conclusive" (Bachmann *et al.* 2006, no declared industry funding)

"Equivocal" (Pereira *et al.* 2006, no declared industry funding)

"Strong" (Malik *et al.* 2006, no declared industry funding)

"Probable" (World Cancer Research Fund, 2007, no declared industry funding)

“Strong” (Vartanian *et al.* 2007, no declared industry funding)

“Near zero” (Forshee *et al.*, 2007, industry funded)

“Limited evidence” (Gibson S, 2008, industry funded)

“Open to debate” (Wolff *et al.*, 2008, no declared industry funding)

“Moderate epidemiologic evidence” (USDA dietary guidelines, 2010)

“Difficult to discern” (Mattes *et al.*, 2010, partly funded by National Institutes of Health, but authors declared previous industry funding)

The systematic reviews which did not find “strong” evidence all cited methodological problems such as the failure to assess what else study participants ate and drank, or substituted for soda. The reliance on self-reporting weight, height, activity, and soda consumption in some studies rather than independent measuring and verification might confound their reliability, as might small sample sizes. Researchers do not know if these weaknesses skew the data towards, or away, from finding effects.

And when reviewers looked at other reviews, they found problems. One of the systematic reviews which found “strong” evidence (Malik *et al.*, 2006) reported several studies as positive, says Gibson in her review, when only some of the findings *within* these studies were positive. Two of the studies in this review were also confounded by the inclusion of diet drinks.

Gibson also notes that the World Cancer Research Fund review was based on just six studies (the other reviews ranged from 12 to over 80 studies) and that the original finding was much weaker than the one that appeared in the final document, raising questions as to why the editors rejected the conclusions of their researchers.

But **Exhibit C**) is pure chutzpah. If you follow the [link](#) ABC News provides to its claim that “even though study after study have shown soda to be a significant contributor to America’s staggering obesity crisis” – it turns out to be a Good Morning America segment on a study which *disputes* the impact of sugar on obesity. Obese children had no greater intake of sugar than normal weight kids; in fact, it points out that “sugar consumption is lower per capita than in 1970.”

Listen to the piece and you will find a good account of all the things that are important to consider in children’s diets, including getting them to exercise and add healthy snacks to their snack intake. What you will *not hear* is a conversation about soda contributing to America’s staggering obesity crisis.

But the real question is why did ABC news decide to go after Allison? Yes, the topic of industry funding of scientific research is tantalizing for journalists because it implies corruption, but the reality is that most universities depend on their science departments to bring in research grants from private as well as government sources (35 percent or more is taken by the university as “overhead”). Grants for research on Shakespeare do not, a university’s upkeep, pay for. More to the point, scientific research is good if it is done well, not simply because the researchers doing it are independent.

Why, then, was Allison’s work so important?

This is where the story gets really interesting. Allison has been a thorn in the side of public health experts who argue that soda taxes are essential to save Americans not only from themselves but from a product that they shouldn’t

be drinking on nutritional grounds. These experts – notably Kelly Brownell, a psychologist who directs the Rudd Center for Nutrition and Obesity at Yale University – have argued that beverage manufacturers should be seen like tobacco companies (despite the fact that there is no equivalence in terms of harm between a can of soda and a cigarette) – and that beverage funding was contaminating the pool of evidence examining the link between soda and weight gain.

Allison – and co-researcher Mark Cope – were the first to [show](#) that, actually, the bias was the other way around. And worse, they did so by taking the raw data from one of the most widely cited systematic reviews (by [Vartanian](#), of which Brownell was a co-author and which alleged industry bias).

Using regression analysis, Allison and Cope (funded for this study in part by the National Institutes of Health) found “a clear inverse association between study precision and association magnitude.” In other words, the less rigorous the study, the greater the association it found between soda and weight gain, and they pointed out, the more likely it was to be published. These studies were more likely to be non-industry funded.

On the other hand, industry funded studies showed a smaller association but greater precision. Publication bias didn’t account for all the gap between industry and non-industry funded studies, so Allison and Cope note that their study doesn’t rule out that there is some industry bias.

These and other findings ran against the grain of conventional wisdom so much that it’s worth noting what the editors of the *International Journal of Obesity* said about Allison and Cope’s research:

“In what should be of major concern to the scientific community, an analysis of papers from industry-funded vs non-industry-funded studies showed that the industry funded papers actually were more accurate in reporting data, especially in reporting negative data, than were the other papers. Cope and Allison suggest that if data that were not in the direction desired and did not prove that sugar-sweetened beverages were ‘bad’, they tended not to be reported when studies were funded from non-industrial sources.”

Allison and Cope called this phenomenon “white hat bias” – a tendency to distort information to advance good causes.

That Allison had taken the anti-soda campaigners own data and used it to show how they were distorting the evidence was a blow not only to their academic credibility but to the intense lobbying these scientists were and are doing to get soda taxes enacted. And while ABC News alludes to the idea of there being many critics of Allison in the field of nutrition research, it mentions just one by name, Barry Popkin, a professor of nutrition at the University of North Carolina.

Popkin is a close collaborator with Brownell, and they co-authored a [paper](#) calling for a soda tax which, *inter alia*, also claims that industry is distorting the data. And what did this paper rely on to make the case that drinking soda is linked to obesity crisis? Vartanian and Mallick. In other words, perhaps no more than eight to ten researchers are constantly citing themselves and referring to each other in order to target soda. You just won’t find acknowledgement of the evidence that they might be wrong cropping up in their papers.

When you piece all these elements together, the ABC news piece increasingly looking like journalists taking on the role of hitmen in an academic vendetta, one in which they are clueless about the underlying data but absolutely certain that the conventional wisdom is right.

And so, the result is that thanks to ABC's totally misleading account of the evidence on sugared drinks and weight gain, Allison will almost certainly be removed from legitimate debate, tarred forever with the insinuation that he is merely a shill for industry. His unnamed critics must be thrilled. But surely, a person's reputation shouldn't be sacrificed to a good cause without a journalistic investigation that plays devil's advocate with the data? In this case, the devil really is in the details.

This article is available online at:

<http://www.forbes.com/sites/trevorbutterworth/2011/06/22/abc-news-attacks-scientist-who-exposed-bias-in-obesity-research/>

? EXP.



New 'smart bomb' drug attacks breast cancer, doctors say

Published June 03, 2012 | Associated Press

300x250

CHICAGO — Doctors have successfully dropped the first "smart bomb" on breast cancer, using a drug to deliver a toxic payload to tumor cells while leaving healthy ones alone.

In a key test involving nearly 1,000 women with very advanced disease, the experimental treatment extended by several months the time women lived without their cancer getting worse, doctors planned to report Sunday at a cancer conference in Chicago.

More importantly, the treatment seems likely to improve survival; it will take more time to know for sure. After two years, 65 percent of women who received it were still alive versus 47 percent of those in a comparison group given two standard cancer drugs.

That margin fell just short of the very strict criteria researchers set for stopping the study and declaring the new treatment a winner, and they hope the benefit becomes more clear with time. In fact, so many women on the new treatment are still alive that researchers cannot yet determine average survival for the group.

"The absolute difference is greater than one year in how long these people live," said the study's leader, Dr. Kimberly Blackwell of Duke University. "This is a major step forward."

A warning to hopeful patients: the drug is still experimental, so not available yet. Its backers hope it can reach the market within a year.

The treatment builds on Herceptin, the first gene-targeted therapy for breast cancer. It is used for about 20 percent of patients whose tumors overproduce a certain protein.

Researchers combined Herceptin with a chemotherapy so toxic that it can't be given by itself, plus a chemical to keep the two linked until they reach a cancer cell where the poison can be released to kill it.

This double weapon, called T-DM1, is the "smart bomb," although it's actually not all that smart -- Herceptin isn't a homing device, just a substance that binds to breast cancer cells once it encounters them.

Doctors tested T-DM1 in 991 women with widely spread breast cancer that was getting worse despite treatment with chemotherapy and ordinary Herceptin. They were given either T-DM1 infusions every three weeks or infusions of Xeloda plus daily Tykerb pills -- the only other treatments approved for such cases.

The median time until cancer got worse was nearly 10 months in the women given T-DM1 versus just over 6 months for the others. That is about the same magnitude of benefit initially seen with Herceptin, which later proved to improve overall survival, too, Blackwell said.

T-DM1 caused fewer side effects than the other drugs did. Some women on T-DM1 had signs of liver damage and low levels of factors that help blood clot, but most did not have the usual problems of chemotherapy.

"People don't lose their hair, they don't throw up. They don't need nausea medicines, they don't need transfusions," said Blackwell, who has consulted in the past for Genentech, the study's sponsor.

"The data are pretty compelling," said Dr. Michael Link, a pediatric cancer specialist at Stanford University who is president of the American Society of Clinical Oncology, the group hosting the Chicago conference where the results were being presented.

"It's sort of a smart bomb kind of therapy, a poison delivered to the tumor ... and not a lot of other collateral damage to other organs," he said.

Dr. Louis Weiner, director of Georgetown Lombardi Comprehensive Cancer Center, said the results strongly suggest T-DM1 improves survival. It delivers more drug directly to tumors with less side effects, "a clear advance," he said.

Denise Davis, 51, a customer service representative at a propane company, was diagnosed three years ago with breast cancer that had spread to her liver and bones. Since February of last year, the Lynchburg, Va., woman has made the two-hour trip to Duke in Durham, N.C., every three weeks to get infusions of T-DM1.

"I call it 'Herceptin-plus,'" she said. Scans every six weeks show "everything is still shrinking or stable," she said. "Right now, I'm feeling pretty good about it. The only way I'd feel a little better is if it took care of everything, but I'll take what I can get."

Genentech, part of the Swiss company Roche, plans to seek approval later this year to sell the drug in Europe and the United States. Another company, ImmunoGen Inc., made the technology combining the drugs.

Genentech says the price of T-DM1 has not been determined. Herceptin costs more than \$4,000 a month plus whatever doctors charge to infuse it. Herceptin's U.S. patent doesn't expire until 2019.

 Print  Close

URL

<http://www.foxnews.comhttp://www.foxnews.com/health/2012/06/03/new-smart-bomb-drug-attacks-breast-cancer-doctors-say/>

[Home](#) | [Video](#) | [Politics](#) | [U.S.](#) | [Opinion](#) | [Entertainment](#) | [SciTech](#) | [Health](#) | [Travel](#) | [Lifestyle](#) | [World](#) | [Sports](#) | [Weather](#)

[Privacy](#) | [Terms](#)

This material may not be published, broadcast, rewritten, or redistributed. © 2012 FOX News Network, LLC. All rights reserved. All market data delayed 20 minutes.

The New Zealand Herald

Gold kiwifruit 'wonder drug' for colds

By [Martin Johnston](#)

5:30 AM Tuesday Dec 20, 2011

In a variation of the apple-a-day recipe for health, a gold kiwifruit or four led elderly people to shake off some cold symptoms faster than usual.

"Goldies" have been found to help with two respiratory virus symptoms: head congestion and sore throat.

The trial, led by the Institute for Plant and Food Research, was funded by kiwifruit exporter Zespri, but was done with the involvement of Massey University and the results are published in an independent British nutrition journal.

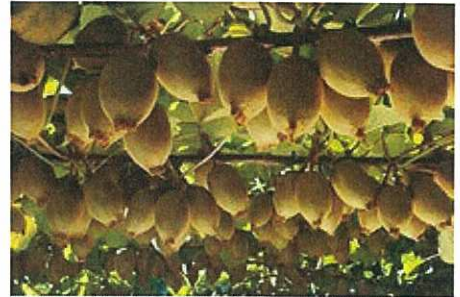
In the trial, people 65 or older ate the equivalent of either four gold kiwifruit or two bananas daily for four weeks. They then had a break from the "treatment" and then switched group, so everyone had a turn on both foods.

"Gold kiwifruit did not significantly reduce the overall incidence of upper respiratory tract infections compared with banana," the journal paper says, "but significantly reduced the severity and duration of head congestion and the duration of sore throat.

"This study shows that the micronutrients provided by regular eating of gold kiwifruit appear to be important in reducing symptoms of colds and other upper respiratory infections," said researcher Dr Denise Hunter. "While we do not know what compounds produce these results, these findings suggest that eating gold kiwifruit on a regular basis throughout the winter period may reduce the severity of some cold symptoms."

A similar goldie/banana study last year found that pre-school children had a lower incidence of colds and flu-like illnesses during the gold kiwifruit phases of that study, as well as having lower rates of three upper respiratory infection symptoms: cough, headache and "feeling unwell".

By [Martin Johnston](#)



Gold kiwifruit. Photo / APN

Copyright ©2012, APN Holdings NZ Limited

Polypill 'will give over 50s years more healthy life'

Everyone over 50 should be offered a cheap one-a-day polypill as it could extend the life of more than one in four by 11 years, claim researchers.

By Stephen Adams, Medical Correspondent

8:00PM BST 18 Jul 2012

The pill, which reduces blood pressure and cholesterol, would cut the risk of heart attack by three quarters and a stroke by two thirds, they found.

Every year up to 200,000 people die of cardiovascular disease but if everyone in the UK over 50 took the pill that number could be more than halved, according to scientists from Queen Mary, University of London.

The polypill, that could cost 50p a day, contains three blood pressure-lowering drugs and a cholesterol-lowering statin.

Statins have for years been prescribed to people deemed at high risk of heart attack or stroke, but who have never had one. So too have blood pressure lowering drugs.

But many struggle to take both daily, reducing their overall effectiveness. The idea behind the polypill is to make the whole process of preventive medicine much easier.

In a trial over three months, the polypill was found to cut blood pressure by 12 per cent and lower levels of "bad" cholesterol by 39 per cent.

Scientists already know that bringing down cholesterol and blood pressure levels lowers the chance of heart disease and stroke.

They can predict with reasonable accuracy just how much lowering these two factors reduce the risk of a cardiovascular event.

The team consequently predicted that the polypill would reduce the risk of heart disease events by 72 per cent and stroke by 64 per cent.

But not all benefit: some who take the pill would still suffer a heart attack or stroke, while for others such an event would be delayed.

Dr David Wald, the cardiologist who led the research, explained: "The health implications of our results are large. If people took the polypill from age 50, an estimated 28 percent would benefit by avoiding or delaying a heart attack or stroke during their lifetime," he said.

"On average, those who benefit would gain 11 years of life without a heart attack or stroke."

For some people, that would mean potentially fatal heart attacks and strokes being delayed by that length of time, he said.

The polypill should be made available over the counter "without delay", he argued.

"When something like this is developed it should be made available as quickly as possible. How people pay for it is a judgment society needs to make," he added, saying the polypill could be approved by medical regulators in just two years.

The version of the polypill that they tested contained the blood pressure drugs amlodipine, losartan and hydrochlorothiazide together with cholesterol-lowering simvastatin. Aspirin - included in earlier formulations - has been dropped because it can cause stomach bleeds.

A group of 84 men and women aged 50 and over were randomly given the polypill or an inactive "dummy" tablet for a period of three months.

They then switched treatments for another three months so the effects of both were seen in each patient. The results are published in the journal *PLoS One*.

Dr Wald's father, Professor Sir Nicholas Wald, who came up with the polypill concept, said the pill could be dispensed by trained pharmacists or nurses after checking recipients were suitable.

"There should be an assessment, but I don't think a physical assessment by a doctor is necessary," he said.

"Even if only 50 per cent of people aged 50 or more took the polypill, about 94,000 fatal and non-fatal heart attacks and strokes would be prevented each year in the UK."

However, Natasha Stewart, senior cardiac nurse at the British Heart Foundation, sounded a note of caution.

"Research into polypills is encouraging, but there are still many questions to answer before this 'wonder drug' is prescribed by doctors.

"However interesting this potential new pill is, medicines are not a substitute for living a healthy lifestyle. Staying active, eating healthily and not smoking are still vital ways to help keep your heart in good shape."

Dr Margaret McCartney, a Glasgow GP whose book *The Patient Paradox* asks why doctors end up screening healthy people rather than treating sick ones, said more evidence was needed before a mass programme was embarked upon.

"The history of medicine is rich with ideas that sounded great but either didn't prove effective - or worse, did harm," she said.

"Because of this, we need trial evidence that looks at real life outcomes like death rates - not just biochemical numbers.

"We also have increasing evidence that well women, for example, don't benefit from statins - meaning that we may only be offering them side effects- and while muscle aches might seem like a minor side effect, if it stops someone walking or socialising it becomes major.

"We need much larger trials that gives us fair representations of risk and harm - and that's independent - separate from patent holders."

Prof Wald is a patent holder for this version of the polypill.

She said: "The people least likely to benefit from the polypill - the healthy - will probably be the most likely to take it."

And she argued: "We also risk losing sight of the things that we need to change to benefit everyone in the community - like addressing obesity, health inequalities, poverty and safer cycling."

"I don't like the answers to these problems lie in a pill - and our increasing reliance on medicine to solve social and political problems ends up offering 'answers' to issues it can't possibly solve."

© Copyright of Telegraph Media Group Limited 2012

The New Zealand Herald

Women worse at commission selling – study

By [Alanah Eriksen](#)

5:30 AM Saturday Sep 15, 2012

Women tend to shy away from commission jobs because they perform worse than men in competitive pay situations, new research shows.

More men are likely to venture into industries such as real estate, car sales and retail where rewards for sales are a large part of the pay package.

In a year-long study by Professor Ananish Chaudhuri of Auckland University, about 400 of the university's students were given mathematical problems to solve online.

They were put in three groups, with each having different rewards at the end.

In one scheme, participants were told they would receive a flat salary of \$20 for one hour's work. Another group were given \$1 per question answered but had money subtracted for errors.

And in the last group, people were paired and told that for each question, the person who made the smaller error for a question would get \$1 while the other person would get nothing.

They were matched via the computer with another person in the room, but they did not know the other person's gender.

Professor Chaudhuri said there was no gender differences in performance when people were paid a flat salary, but the average number of errors made by female students was higher in the other two schemes.

He added that women might do worse because of higher anxiety levels.

"One thing we found – and it is supported by others – is that women tend to perform worse in the more competitive situation where you win or lose.

"This suggests – assuming we are right in the first place – that fewer women will go into careers like car salesmen and real estate agents. On average you would expect to see more male car salesmen or more male real estate agents.

"But you do see a lot of female real estate agents. They may not like the fact that their compensation depends so heavily on commissions but they find the flexible working hours and the ability to work from home attractive.



Mother and daughter real estate agents Ruth (left) and Lesley Hawes, from Ray White Kingsland. Photo / Supplied

3 treatments.

"This is also why if you look within real estate companies you will most likely find that there are more women in the rental property management side of the business where the salaries are more or less guaranteed than the house selling side of it.

"On the other hand, you will find few male rental property managers but more male real estate agents."

But mother and daughter real estate duo Lesley and Ruth Hawes believe women do well in the profession as they can relate to the client.

"Real estate is a different world again from many other sales professions," Ruth Hawes said.

"The enormity of the asset and emotional factors when it comes to selling your home – as opposed to shoes, jewellery or even most cars – set it apart.

"Trust, excellent communication, great interpersonal skills and an ability to support/be in control – without being threatening – are huge elements to being successful in real estate.

"Woman seem to be able to establish this trust and rapport very easily, which is a big advantage."

Ruth Hawes said money was low on the list of priorities for women but they were competitive when it came to ranking high within their industry.

Last year was the first time in 10 years that a man was named Ray White's salesperson of the year. Ruth and Lesley won the gong for 2010 and Lesley held the position from 2004 to 2008. Six women were currently among the company's top 10 sellers.

Ted Ingram, manager of Ray White Papatoetoe, added: "Some of my best employees are women and I think it's often because they have an empathy for people.

"Often the best negotiators are females, especially when they're negotiating for themselves."

By [Alanah Eriksen](#)

Copyright ©2012, APN Holdings NZ Limited

Subscribe:

- [Email](#)
- [Facebook](#)
- [Twitter](#)
- [RSS](#)

Stats Chat

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." – H.G. Wells

[Close](#)

Receive our posts via email:

Your email:

April 28, 2012

Malignant iPhones?

By [Thomas Lumley](#)

The Herald has a [headline](#) "*Scientists call for urgency on cancer-phone link*". The actual content is ok, but the story does give the impression that it's scientific consensus vs evil cellphone companies, which is not remotely true. There's a more balanced story in the [Daily Mail](#) (and that's not a sentence you want to find yourself writing too often).

[The facts](#): there has been an increase in frontal lobe and temporal lobe brain tumours in the UK over the past decade, though not in total brain tumours. If you lump together the two regions of the brain with increases and exclude all the ones with decreases, you get about a 50% increase in rates, which comes to a bit less than one extra case per 100,000 people per year. For context, that's a bit less than the estimates of numbers of deaths due to phone use while driving. There was a [Danish study last year](#) that did not find any differences between cell phone users and non-users, or differences in side of the head for users, but that doesn't quite contradict the British results, for two reasons. Firstly, there's quite a bit of uncertainty in both sets of estimates, and they are just about compatible with, say, a 25% increase. Secondly, the Danish study was mostly of non-malignant tumours, which are the most common ones, and the British statistics are for malignant tumours, so it's possible the effect could be different, though there's no known reason that it should be.

The increase could be chance (it's statistically significant, but still), or an increase in diagnosis, or be due to something else entirely. Or it could, perhaps, be due to cellphones. In order to be confident it is cellphones we'd need much better evidence, especially as there isn't really a convincing story yet of how cellphones could promote tumour growth.

The New Zealand Herald

Scientists call for urgency on cancer-phone link

By Nina Lakhani

5:30 AM Saturday Apr 28, 2012

The jury is still out on mobile phone health risks. Picture / AP
Allegations of bad science, not enough science, conflicts of interest, political inertia, scaremongering, lobbying and lawsuits: the debate about the safety of mobile phones has it all.

With more than 5 billion in use worldwide, mobile phones have become central to modern life, but could they be a health hazard?

Scientists at the Children with Cancer conference in London this week called for governments to adopt the "precautionary principle" – advising users to take simple steps to protect themselves and children from potential and not proven health risks of electromagnetic fields – especially head cancers.

They called for urgent research into new Office of National Statistics figures that suggest a 50 per cent increase in frontal and temporal lobe tumours – the areas of the brain most susceptible to the electromagnetic radiation emitted by mobile phones – between 1999 and 2009.

In Britain, MP Caroline Lucas will next week table an Early Day Motion calling for mandatory safety information at the point of sale, and for widely publicised advice, for young people in particular, to text, use headsets or corded landlines for long calls.

Britain's Department of Health has a confusing online-only leaflet which states there is no immediate concern but under-16s should be encouraged to minimise phone use and choose hands-free kits or texting.

France has banned phones from primary schools and advertising targeted at children, and companies must provide headsets. Israel recently became the latest of a small but growing number of governments to require by law all mobile phones and adverts to come with a health alert: "Warning – the Health Ministry cautions that heavy use and carrying the device next to the body may increase the risk of cancer, especially among children." The law, which has passed its first reading, seeks to ban companies from marketing to children.

An attempt by San Francisco's politicians to require similar health warnings is being vigorously fought by the industry. Professor Darius Leszczynski, from the Radiation and Nuclear Safety Authority in Finland, has warned about possible health hazards for more than a decade. He was one of 30 experts at the



The jury is still out on mobile phone health risks. Photo / AP

International Agency for Research on Cancer, the global authority on cancer risks, who concluded mobile phone radiation is "possibly carcinogenic".

– Independent

By Nina Lakhani

Copyright ©2012, APN Holdings NZ Limited

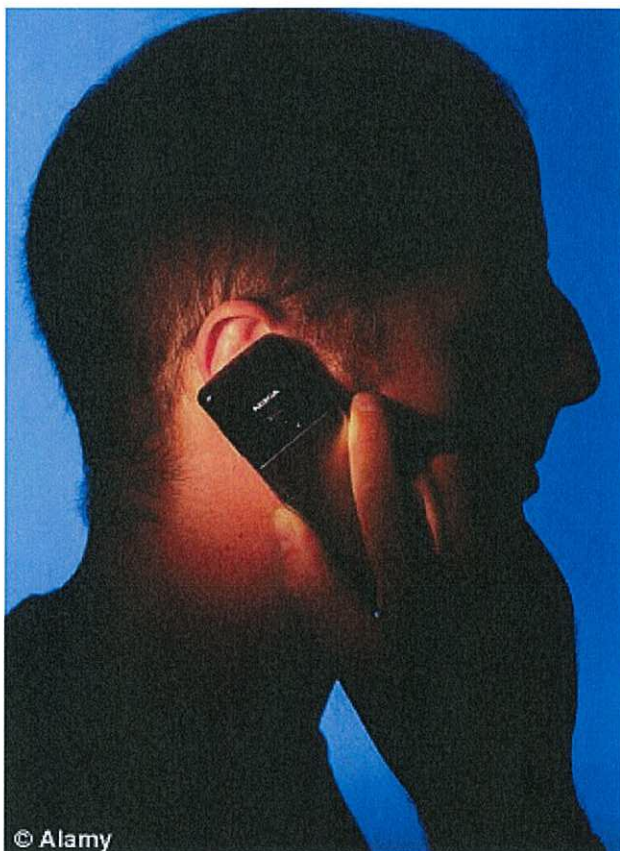
MailOnline

'The biggest experiment of our species': With five billion mobile users in the world, conference calls for research into potential brain cancer risks

- Scientists at London conference call for independent research into potential links between using a mobile phone and brain cancer
- Figures from ONS show 50 per cent increase in brain tumours since 1999
- Studies 'are split 50/50' in conclusions, leaving the issue open for debate
- But believers fear fall-out from the 'biggest technological experiment in the history of our species'

By [Eddie Wrenn](#)

PUBLISHED:10:33 GMT, 24 April 2012| UPDATED:13:42 GMT, 24 April 2012



Close to the ear: Cancer scientists want a full investigation into the risks of using a mobile

A scientific conference starting in London today will urge governments across the world to support independent research into the possibility that using mobile phones encourages the growth of head cancers.

The Children with Cancer conference will highlight figures just published by the Office of National Statistics, which show a 50 per cent increase in frontal and temporal lobe tumours between 1999 and 2009.

The ONS figures show that the incident rate has risen from two to three per 100,000 people since 1999, while figures from Bordeaux Segalen University show a one to two per cent annual increase in brain cancers in children.

Scientists and academics have long argued over the suggestion that radiation from mobile phones causes cancers. Those who believe there is a link say that - with five billion mobile phones being used worldwide - urgent research must be carried out to establish the risk.

But not everyone agrees. While governments, phone companies, and health agencies give precautionary advice about minimising mobile phone use, the Health Protection Agency is likely to conclude in a report due on Thursday that the only established risk when using a mobile is crashing a car due to being distracted by a call or text.

Professor Denis Henshaw, emeritus professor of human radiation effects at Bristol University, is opening the three-day conference in Westminster today.

He has previously advocated cigarette-style warnings on mobile phone packets and urges more independent research.

Professor Henshaw said: 'Vast numbers of people are using mobile phones and they could be a time bomb of health problems - not just brain tumours, but also fertility, which would be a serious public health issue.'

'The health effects of smoking alcohol and air pollution are well known and well talked about, and it's entirely reasonable we should be openly discussing the evidence for this, but it is not happening.'

'We want to close the door before the horse has bolted.'



Keeping track: There has been an increase in the number of child brain cancer sufferers, and the ONS has also spotted a rise in brain tumours

The International Agency for Research on Cancer (IARC) rang alarm bells last year when it classified mobile phones as 'possibly carcinogenic'.

Professor Darius Leszczynski, of the Radiation and Nuclear Safety Authority in Finland, said: 'For the first time a very prominent evaluation report states it so openly and clearly: RF-EMF [radio frequency electromagnetic field] is possibly carcinogenic to humans.'

CANCER IN CHILDREN ON THE RISE

Speaker Dr Annie Sasco, from the Epidemiology for Cancer Prevention unit at Bordeaux Segalen University, will highlight the one to two per cent annual increase in brain cancers in children.

She has concerns over the effect of radiation on children's brains.

She said: 'If the penetration of the electromagnetic waves goes for four centimetres into the brain, four centimetres into the adult brain is just the temporal lobe.'

'There are not too many important functions in the temporal lobe - but in a child the more central brain structures are going to be exposed.'

'In addition kids have a skull which is thinner, less protective, they have a higher content of water in the brain, so there are many reasons that they absorb more of the same radiation.'

Speaking to the Independent about the rise in brain cancer in children, she said: 'It's not age, it's too fast to be genetic, and it isn't all down to lifestyle, so what in the environment can it be?'

'We now live in an electro-smog and people are exposed to wireless devices that we have shown in the lab to have a biological impact.'

'It is totally unethical that experimental studies are not being done very fast, in big numbers, by independently funded scientists.'

'The industry is just doing their job, I am more preoccupied with the so called independent scientists and institutions saying there is no problem.'

'One has to remember that IARC monographs are considered as "gold standard" in evaluation of carcinogenicity of physical and chemical agents.'

'If IARC says it so clearly then there must be sufficient scientific reason for it, or IARC would not put its reputation behind such claim.'

However not everyone believes there is a significant risk from mobile phone radiation.

Ken Foster, professor of bio-engineering at the University of Philadelphia, downplayed the IARC's classification.

He is quoted on [Science Based Medicine](#) as saying: 'Saying that something is a "possible carcinogen" is a bit like saying that someone is a "possible shoplifter" because he was in the store when the watch was stolen.'

'The real question is what is the evidence that cell phones actually cause cancer, and the answer is - none that would persuade a health agency.'

The Independent said the research is split almost 50:50 on whether mobile phones pose a health hazard or not, but pointed out research from Joel Moskowitz, director of the Center for Family and Community Health at the University of California, who said that the balance changes if funding sources are considered, with around three quarters of studies implying no health risks being funded by the mobile phone industry.

He told the paper: 'The mantra that "we need more research" is true, but there is already enough evidence to warrant better safety information, tighter regulation, mass public education and independently funded research carried out by teams of specialists who are not beholden to industry.'

Conflicting views:

'This is the largest technological experiment in the history of our species and we're trying to bury our head in sand about the potential risks - risk we still know next to nothing about.'

- Joel Moskowitz, University of California

'Even if the risk is still only one in a million, with 5 billion phone users it means a lot of extra brain cancers.'

- Professor Denis Henshaw

'Saying that something is a "possible carcinogen" is a bit like saying that someone is a "possible shoplifter" because he was in the store when the watch was stolen.'

- Professor Ken Foster

'This is the largest technological experiment in the history of our species and we're trying to bury our head in sand about the potential risks to cells, organs, reproduction, the immune system, behaviour, risks we still know next to nothing about.'

Governments and mobile phone companies often play down the risks and the UK's Mobile Operators Association says there is 'no credible evidence of adverse health effects'.

The Department of Health says: 'As a precaution children should only use mobile phones for essential purposes and keep all calls short. We keep all scientific evidence under review.'

The NHS also advises children under 16 to minimise their use of mobile phones.

The iPhone, Apple's smartphone which popularised mobile computing, comes with the advice that you should keep your phone at least 15mm away from your body at all times - which may come as a surprise to those who keep the phone in their pockets at all times.

The guide that comes with the phone warns: 'When using the iPhone near your body for voice calls or wireless data transmissions over a cellular network, keep it at least 15mm away from the body, and only use carrying cases, belt clips or holders that do not have metal parts and that maintain at least 15mm separation between iPhone and the body.'

Other guides, such as the one that comes with a BlackBerry, have similar warnings. The BlackBerry guide suggests that users, particularly pregnant women and teenagers, keep their phone 25mm from their body.

WHAT IS THE RISK? STUDY OF 350,000 PEOPLE FAILS TO FIND CANCER LINK

A study held in Denmark last October compared medical records against phone records of around 358,000 people.

They correlated the data to see how long people owned their phones, and how many of these people developed brain cancer. Some users had owned mobile phones for more than 20 years.

In total, the group had owned their phones for '3.8 million years', and suffered 10,729 cases of tumours.

When compared to the average population, they found no indication of 'dose-response' relation either by years since first subscription for a mobile phone or by anatomical location of the tumour - that is, in regions of the brain closest to where the handset is usually held to the head.

They concluded 'there were no increased risks of tumours of the central nervous system, providing little evidence for a causal association'.



Even the iPhone manual states that people should keep their phone away from close body contact

The guide, almost ironically, also suggest that users 'reduce the amount of time spent on calls'.

Professor Leszczynski will use the conference to urge for a stronger IARC classification - 'probably carcinogenic'.

He told the Independent: 'Since 2001 I have continuously spoken about the need for precautionary measures, especially for children. We have had enough evidence to call for that for a long time.'

The conference will also discuss other reasons for childhood cancer, such as chemical toxins in the air, food and water, and infection and genetic effects.

But the main message coming from the Children with Cancer conference is: more independent research is needed.

Professor Denis Henshaw told the Independent: 'The public have a right to know this information.

'We cannot and do not say there is a causal link between brain cancer and mobile phones, but we are right to consider them as one possible explanation for the increase and the public have the right to expect that this is properly investigated.

'Even if the risk is still only one in a million, with 5 billion phone users, it means a lot of extra brain cancers.'

- The conference can be streamed online at www.childhoodcancer2012.org.uk

MOST READ NEWS

The New Zealand Herald

Sleeping pills raise risk of death – study

By [Paul Harper](#) [Snappy.nz](#) [Email Paul](#)

7:27 AM Wednesday Feb 29, 2012

Certain sleeping pills could be putting you to sleep for good, with those taking the drugs on a regular basis more than four times likely to suffer an early death, a US study has found.

Even those taking the pills only 18 times a year are more than 3.5 times as likely to die early as those prescribed none.

[The study](#), published in the online journal BMJ Open, found those taking high doses of the commonly used pills faced a significantly increased risk of cancer.

The drugs included benzodiazepines, such as temazepam; non-benzodiazepines, such as zolpidem, eszopiclone, and zaleplon; barbiturates; and sedative antihistamines.

The study tracked the survival of 10,500 people who were prescribed a range of sleeping pills for an average of two-and-a-half years between 2002 and 2007.

Their survival was compared to more than 23,500 people, matched for age, sex, lifestyle factors and underlying health problems, but who had not been prescribed sleeping pills over the same period.

People who took up to 18 doses a year were more than 3.5 times as likely to die as those prescribed none, those taking between 18 and 132 doses were more than four times as likely to die, while people taking more than 132 doses a year were more than five times as likely to die as those prescribed none.

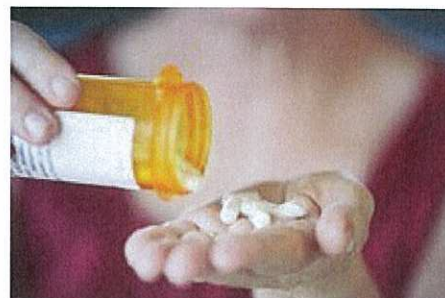
Those taking the highest doses were 35 percent more likely to develop a form of cancer.

The authors of the study said while showing association does not necessarily prove cause and effect, the research does back up previous research showing an increased risk of death among users of sleeping pills.

Lead author Dr Daniel Kripke, of the Scripps Clinic, told the British Medical Journal Open the "meagre benefits" of sleeping pills do not justify the "substantial risks".

"A consensus is developing that cognitive-behavioural therapy of chronic insomnia may be more successful than hypnotics."

BMJ Open editor in chief, Dr Trish Groves, agreed the findings raise further concern around the prescription drugs.



A study in the US has found taking sleeping pills on a regular basis can increase the risk of an early death. Photo / Thinkstock

"Although the authors have not been able to prove that sleeping pills cause premature death, their analyses have ruled out a wide range of other possible causative factors. So these findings raise important concerns and questions about the safety of sedatives and sleeping pills."

By [Paul Harper](#) [Snappy.nz](#) [Email Paul](#)

Copyright ©2012, APN Holdings NZ Limited

Subscribe:

- [Email](#)
- [Facebook](#)
- [Twitter](#)
- [RSS](#)

Stats Chat

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." – H.G. Wells

[Close](#)

Receive our posts via email:

Your email:

April 11, 2012

Tooth nuking

By [Thomas Lumley](#)

The Herald (and media sources worldwide) [is covering](#) a research paper on brain tumours and dental x-rays. The [paper](#) asked roughly 1500 people with meningioma, and the same number of healthy people, about their histories of dental X-rays. The people with meningiomas were more likely than the controls to report having X-rays at least annually, and the researchers estimated a relative risk of 1.5.

Now, meningioma is pretty rare, so this increase works out to an extra lifetime risk of maybe 5 cases for each 10,000 people. Also, if you are going to have a brain tumour, meningioma is the one to have — some are not even diagnosed, and most diagnosed ones are treated successfully. On the other hand, brain tumours are usually something you'd like to avoid, so is the risk real?

There are at least two issues that make the relative risk of 1.5 less plausible

- Self-report of risk factors for cancer is notoriously unreliable
- Since meningiomas can be relatively minor, the time of diagnosis varies, there might be some tendency for the sort of people who have regular dental x-rays to also be the sort of people who get earlier diagnoses, which would show up as a higher rate

The Science Media Centre also [has a good summary](#), with quotes from experts.

It's interesting to work out whether the risk increase is in the right ballpark given general knowledge about radiation. [A 1991 paper](#) looked at the dose from different sorts of bite-wing dental X-ray setups, and found a range from 2 microSievert to 20 microSievert. (XKCD [shows what a](#)

The New Zealand Herald

Dental x-rays linked to brain tumours

By [Martin Johnston](#) [Email Martin](#)

5:30 AM Wednesday Apr 11, 2012

Dental x-rays have been linked to an increased risk of developing a particular kind of brain tumour.

A retrospective study published yesterday in the United States journal *Cancer* indicates that having the standard "bite-wing" dental x-ray annually or more often may nearly double the risk of developing meningioma.

This is the most commonly diagnosed primary brain tumour in the US, where it is estimated nearly one in 1000 people are diagnosed with the disease. Mostly the tumour is benign, but in some people it is malignant and can be fatal. It is more common in women than men.

The Yale University study compared diagnosed patients with a control group of people without the tumour.

People who reported having yearly or more frequent bite-wing x-rays – in which the x-ray film or often now a digital sensor is in a holder clamped between the back teeth – were 1.4 to 1.9 times more likely than the comparison group to develop meningioma.

Some other kinds of dental x-rays were linked to an even greater increase in risk, including a 4.9 times increase for those who said they had had, before the age of 10, a panorex x-ray, which shows all the teeth on one film.

The lead researcher, Dr Elizabeth Claus, urged dental patients to gain a greater understanding of when it was appropriate to have a dental x-ray.

Dr Martin Lee, the dentist who led development of New Zealand guidelines on dental x-rays for children, said, "The approach is to keep all the doses as low as reasonably achievable."

"Baseline" images should be taken when a child was around age 6.

"Kids with ongoing dental problems should probably have a new set taken every year so we can monitor what's going on, and every two to three years if they're not having ongoing dental problems."

Dr Lee, the Canterbury District Health Board's clinical director of community oral health services, said the move to newer x-ray machines had reduced the amount of radiation, with a further reduction coming with the switch by many dental services to digital sensors instead of using film to produce the images.



Photo / Thinkstock

Compared with the machines of the late 1990s, digital-sensor systems delivered about a quarter of the radiation, or less.

He added that the amount of radiation delivered in taking a pair of bite-wing x-rays was less than the background radiation a person was exposed to each day from natural sources.

HOW OFTEN

- * Recommended frequency of dental x-rays:
- * Annually – For those who have had recent dental decay
- * Every 2–3 years – For those at very low risk of decay

Sources: two district health board dentists

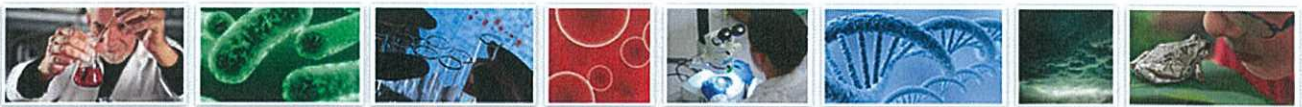
By [Martin Johnston](#) [Email Martin](#)

Copyright ©2012, APN Holdings NZ Limited

Science Media Centre

Our aim is to promote accurate, evidence-based reporting on science and technology by helping the media work more closely with the scientific community.

- [Home](#)
- [Briefings](#)
- [In the News](#)
- [Reflections On Science](#)
- [Science Alert: Experts Respond](#)
- [Events](#)
- [Contact Us](#)
- [About](#)
- [Science in NZ](#)
- [Resource Library](#)
- [Register](#)



Posted in [Science Alert: Experts Respond](#)

[Get RSS of Science Alert: Experts Respond](#)

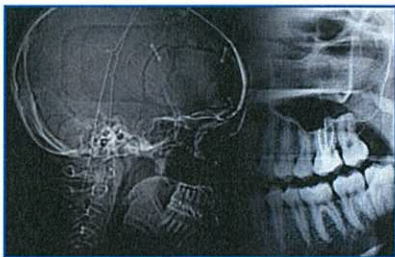
[Dental x-rays linked to brain cancer – experts respond](#)

Posted in [Science Alert: Experts Respond](#) on April 11th, 2012.

New research has drawn a link between a history dental x-ray imaging and incidence of meningioma, a type of brain tumor — but experts note that advances in x-ray equipment, regulations and the low actual incidence of the disease mean that people should not be worried about the health risks.

2

[Tweet](#)



The new study, [published](#) in the journal *Cancer*, analysed data from 1,433 patients with meningioma and 1,350 similar, but cancer-free, controls. Researchers found that, over a lifetime, patients with meningioma were more than twice as likely as controls to report having ever had a bitewing exam, which uses an x-ray film held in place by a tab between the teeth. Individuals who reported receiving bitewing exams on a yearly or more frequent basis were 1.4 to 1.9 times as likely to develop meningioma as controls.

An even stronger association was seen between meningioma and Panorex exams (which are taken outside of the mouth and show all of the teeth on one film). Individuals who reported receiving these exams when they were younger than 10 years old had a 4.9 times increased risk of developing meningioma. Those who reported receiving them on a yearly or more frequent basis were 2.7 to 3.0 times (depending on age) as likely to develop meningioma as controls.

However, The researchers noted that today's dental patients are exposed to lower doses of radiation than in the past. Nonetheless, "the study presents an ideal opportunity in public health to increase awareness regarding the optimal use of dental x-rays, which unlike many risk factors is modifiable," said lead researcher Dr. Elizabeth Claus. "Specifically, the American Dental Association's guidelines for healthy persons suggest that children receive 1 x-ray every 1-2 years, teens receive 1 x-ray every 1.5-3 years, and adults receive 1 x-ray every 2-3 years. Widespread dissemination of this information allows for increased dialogue between patients and their health care providers."

Our colleagues at the UK SMC collected the following expert commentary. Feel free to use these quotes in your reporting. If you would like to contact a New Zealand expert, please contact the SMC (04 499 5476; smc@sciencemediacentre.co.nz).

Prof Malcolm Sperrin, Director Of Medical Physics at Royal Berkshire Hospital, said:

"Ionising radiation from any source is known to have a potential health detriment although the very low radiation dose leads to an overall risk that is extremely small. That being said, this paper does provide sensible statistical evidence for a correlation between dental radiation exposure and the incidence of meningioma. However, caution is needed in interpreting the conclusions since there is no data that summarises the radiation exposure to the patients. The paper does state that the findings relate to older, higher exposures and the overall intention is to raise awareness of risk factors which is commendable.

"Current best practice suggests a fatal risk of 6% per Sievert of radiation. In the UK a 'typical' dental X-ray causes a radiation dose of typically 0.005mSv or a fatal risk of 1 in 40 million. Whilst data varies with source, the likely incidence of meningioma is around 1 in 10000 hence radiation-induced effects are unlikely (but not impossible). It is important to realise that under UK legislation a thorough risk assessment is conducted before anyone is exposed to a source of ionising radiation and there is no reason for a patient, or relative of a patient, to be concerned by the findings of this paper."

Dr Paul Pharoah, Reader in Cancer Epidemiology at the University of Cambridge, said:

“Meningioma is a rare form of benign cancer that affects the lining of the inside of the skull. The tumours are usually slow growing but can sometimes cause problems if they start to press on the brain.

“The disease is rare. It affects two to three people in every 100,000 in the UK every year. The lifetime risk of the disease is about 1.5 in a thousand, and it is approximately twice as common in women as it is in men.

“Ionizing radiation in large doses is a well-established risk factor for the disease, but the effects of lower dose ionising radiation – the sort of dose that comes from an X-ray – was not known.

“The study reported in *Cancer* has compared a large number of people with meningioma with a similar number of matched healthy individuals. The study has been carefully designed and is well-conducted. The analysis is sound. Bias is always a potential problem in case-control studies, but this is unlikely to have been a major problem in this study. The authors report that dental X-rays are associated with a small relative increase in risk of disease of approximately 50 percent or 1.5-fold. This finding is statistically significant.

“However, as the disease is rare, the increase in absolute risk is tiny – the lifetime risk increasing from 15 in every ten thousand people to 22 in ten thousand. “People who have had dental X-rays do not need to worry about the health risks of those X-rays. Nevertheless, dental X-rays should only be used when there is a clear clinical need in order to prevent unnecessary exposure to ionising radiation.”

Professor Dame Valerie Beral FRS, Cancer Epidemiology Unit at the University of Oxford, said:

“I am familiar with this type of research, where people with known brain (or other) cancer are asked, in retrospect, how many X-rays they had had in the past. The responses about X-ray history in people with cancer are then compared with those of healthy people.

“There is known to be poor agreement between people’s recall of past X-rays and records of X-rays actually done. Furthermore there is considerable scope for different recall of past X-rays by people with and without cancer. The authors of this paper did not check whether the X-rays reported agreed with X-rays actually done. Hence their findings could be simply due to different reporting of past X-rays by those with and without cancer, rather than any true difference in exposure to X-rays.

“Other studies like this one have been done before, but the findings from all such studies are difficult to interpret for the reasons given above. Reliable evidence can come only from studies that use recorded information on X-rays done (not reported exposures to X-rays long ago) in people with and without cancer.”

The UK SMC also provided this helpful statistical review from their [Before the Headlines](#) team:

Title, Date of Publication & Journal: Dental X-Rays and Risk of Meningioma, 0500hrs Tue 10 April 2012, *Cancer*

Claim supported by evidence?

This paper lends broad support to the claim that exposure to dental x-rays may be associated with increased risk of intracranial meningioma, though does not use the necessary study design nor provide a sufficient depth of analysis and discussion to infer a causal link between the two.

While there is a generally consistent finding relating increased risk to higher frequency of exposure at younger ages, the analyses do not account for the changes in X-ray dose guidelines over the years to modify this association. Given the developments in X-ray practices over the past 60 years that the authors allude to, it would be useful from a public health perspective to know whether the association is consistent across all time periods or is only limited to past practices.

Summary

This large population-based study allows for generalizable and precise estimation of the association between dental X-rays and meningioma, though it is difficult to rule out the possibility of bias (see below)

Despite the high number of statistical tests performed (which increases the chance of false positive results), the magnitude and direction of associations is generally consistent

Although the authors cite previous validation efforts claiming that biased recall of X-rays visits is minimal, this arguably remains a limitation of any case-control study like this one, given the tendency of people to overestimate previous exposure to explain their disease

The discussion does not go into sufficient depth to explain and interpret the results by, for example, contextualising them within X-ray practices over the last 60 years. The authors suggest an ‘apparent association’, and their recommendation to limit X-ray exposure infers causality, though they do not explicitly make this claim.

Conclusions

The authors are justified in suggesting an apparent association between X-ray exposure and the risk of meningioma. Their conclusions are generally supported by their results and analyses, but given the large number of tests performed, the potential for negative findings to be omitted, and the inherent biases associated with retrospective case-control studies like this, these results should be regarded as exploratory and ‘hypothesis generating’ rather than confirmatory and ‘hypothesis proving’.

Strengths/Limitations

Study design and analysis:

- (+) Case-control design is appropriate for this type of research question, given the relatively low incidence of meningioma in the population
- (+) The analytical method used in this study was appropriate for these data
- (+) Cases were frequency matched to controls by age, sex and state of residence
- (+) Results were adjusted for age, sex, race, education and history of head CT scans, but

- (-) they do not account for changes to X-ray doses over time that may have altered the observed associations. It may be unreasonable to assume the effect of exposure in one period is the same as the effect of exposure in another, i.e. that there is no 'period effect' (see glossary)
- (-) Case control studies like this can yield biased estimates of association due to (1) recall bias, (2) selection bias and (3) inability to control for all known and unknown confounders in the analysis
- (-) A large number of statistical tests were conducted, increasing the chance of false positive results
- (-) There was no analysis of the potential for non-participation to influence results. This may have introduced selection bias given the smaller proportion of controls who decided to participate (52%) than cases (65%); and the possibility that people's exposure could influence their decision to participate

Discussion/Interpretation of results:

- (+) The conclusions are in line with the results and do not exaggerate findings, and findings generally agree with previous studies
- (+) The authors are upfront about acknowledging the issue of recall bias as a limitation
- (-) The discussion of results does not address:
 - Why bitewing and Panorex, but not full mouth series, was associated with increased risk, given previous studies have found an association with full mouth series
 - Whether the observed associations were consistent across time periods
 - The WHO estimated lag time of several decades between exposure to ionizing radiation and meningioma disease – in other words, no distinction was made between recent exposure and exposure longer ago

Glossary

Case control study: a very practical design, but the evidence is lower than for most other study types (e.g. randomised trials or prospective cohort studies)

Recall bias: When the recollection of past exposure is different between cases and controls; typically when cases remember, and even exaggerate their recollection of, exposures more than controls

Selection bias: When the cases and/or controls are selected differentially on the basis of their exposure status, such that cases aren't representative of all cases in the population and controls aren't representative of the population that produced the cases

Period effect: When changes occur through time, such as the introduction of safer imaging technologies or medical treatments, that render comparisons across periods inappropriate without some form of adjustment

Before The Headlines is a service provided to the SMC by volunteer statisticians: members of the Royal Statistical Society and Statisticians in the Pharmaceutical Industry. A list of contributors, including affiliations, is available at http://www.sciencemediacentre.org/pages/press_releases/before_the_headlines.htm

[>> Next Post](#)

[<< Previous Post](#)

SMC Blog

Latest Blog Post

[A decade on the leading edge of science media](#)

Posted in [Blog](#)

Tweet Our colleagues at the UK Science Media Centre in London have had a big week, celebrating 10 years in business with a big party and lots of high-level meetings. It really has been an impressive run for the SMC and its passionate founder Fiona Fox who has been there from day one and whose [...]

[>> Read Full Post](#)

[View our Archive](#)

Search by Keywords	<input type="text"/>	<input type="button" value="Search"/>
Search by Archive	<input type="text" value="Select"/>	

Subscribe to RSS Feed or via Email

- [via RSS](#)
- [Via E-mail](#)

[Sign up for Science Media Centre heads-up newsletter](#)

Science Alert

RSS

- [Hypo-allergenic milk produced](#)
- [Insight into painful stomach activity](#)
- [Teen cannabis use linked to IQ loss](#)
- [Babies have no 'moral compass'](#)

Robot-assisted surgeries 'costlier but safe'

Last updated 05:00 06/03/2012

Share

2



Diego Opatowski/FAIRFAX MEDIA

ROBOT-ASSISTED SURGERY: Dr John Groom, General Surgeon performing a Laparoscopic Cholecystectomy in action at the Boulcott Clinic in Wellington.

Relevant offers

Patients who have robot-assisted surgeries on their kidneys or prostate have shorter hospital stays and a lower risk of having a blood transfusion or dying - but the bill is significantly higher, a study found.

The analysis, which appeared in the Journal of Urology, compared increasingly common robotic surgery with two other techniques for the same surgery and found that direct costs can be up to several thousand dollars higher for the robotic type.

Touted as less invasive and more efficient, robotic surgeries typically use a laparoscopic or "keyhole surgery" approach, in which tools and a tiny video camera are inserted into the body through one or two small incisions.

Robotic surgery replaces a surgeon's hands with ultra-precise tools at the ends of mechanical arms, all operated by the surgeon from a console.

"I think the take home message is that robotic (surgery), looking at our study, had certain beneficial outcomes compared to open and laparoscopic procedures," said study leader Jim Hu at Brigham and Women's Hospital in Boston.

Hu and his team analyzed surgery data from a national government database to see if the costlier robotic surgeries were cost effective with extra benefits over older techniques.

During the last three months of 2008 -- the most recent data available that allowed a comparison among robotic, open and laparoscopic surgeries -- more than half of all prostate removals involved robot-assisted surgery.

About three percent of prostate patients had standard laparoscopic surgery and 44 percent had open surgery. Open and laparoscopic surgeries were still more common than robotic surgeries for kidney repairs and removals.

Among patients who had their prostate removed, none died from laparoscopic or robotic surgery, whereas two out of every 1,000 died after the open procedure.

About five percent of the men who had open surgery needed a blood transfusion, compared to less than two percent of men who had robot-assisted surgery. The open-surgery group also stayed in the hospital about one day longer than the robotic group.

The results were similar for people who had kidneys removed.

The trade-off was the cost, with robotic prostate removal costing about \$10,000 on average, roughly \$700 more than laparoscopic surgery and \$1,100 more than open surgery.

For kidney removal, robotic surgery cost \$13,900, which was \$2,700 more than laparoscopic and \$1,300 more than open surgery.

David Penson, a surgeon at Vanderbilt University Medical Center who was not part of the study, said more consideration should have been given to the state of patients afterwards. Emphasis should be limited on procedure, he said, as opposed to surgical skill.

"Years ago, this was thought to be the be-all-end-all operation, particularly with prostate surgery. We were going to get patients out of the hospital quicker, have better potency and incontinence outcomes," he told Reuters Health.

"And the reality of it is that... there are some benefits -- but not as much as we had hoped."

Subscribe:

- [Email](#)
- [Facebook](#)
- [Twitter](#)
- [RSS](#)

Stats Chat

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." – H.G. Wells

[Close](#)

Receive our posts via email:

Your email:

March 6, 2012

Humans not yet obsolete

By [Thomas Lumley](#)

Stuff has a [story on robot-assisted surgeries](#), claiming

Patients who have robot-assisted surgeries on their kidneys or prostate have shorter hospital stays and a lower risk of having a blood transfusion or dying – but the bill is significantly higher, a study found.

That's not quite what the study found. The [abstract](#) says

While robotic assisted and laparoscopic surgery are associated with fewer deaths, complications, transfusions and shorter length of hospital stay compared to open surgery, robotic assisted laparoscopic surgery is more costly than laparoscopic and open surgery.

The researchers used the [Nationwide Inpatient Sample](#), a random subset of US hospital admissions, to compare three approaches to prostate and kidney surgery: laparoscopic ('keyhole') surgery by hand, robot-assisted laparoscopic surgery, and open (non-keyhole) surgery. They found that laparoscopic surgery, whether robot-assisted or not, was safer than open surgery, but they didn't report an advantage of robot over non-robot keyhole surgery, just an increase in cost.

Now, you might well be muttering about causation and correlation, and asking "How do we know the open surgeries weren't just more difficult cases?" If you aren't, then you can start now and I'll let you pretend you were doing it all along. Since surgeon experience makes a big difference, we should also worry whether it's the most experienced surgeons who get the expensive and shiny new robots.

The New Zealand Herald

Obs.
+
orig. source.

Heart disease linked to non-stick cookware: study

1:51 PM Wednesday Sep 5, 2012

US researchers have identified a link between chemicals found in non-stick cookware and heart disease.

But Australian experts have urged caution about the findings, which suggested increasing levels of perfluorooctanoic acid (PFOA) in the blood were associated with cardiovascular disease.

PFOAs are found in products including lubricants, polishes, food packaging and non-stick cookware.

But people can also be exposed to the chemicals in drinking water and the air, a study published in the Archives of Internal Medicine said.

The study reviewed the levels of the chemical in 1216 people with heart problems.

The findings were independent of other factors including age, sex, smoking, weight, and diabetes.

The authors from the West Virginia University School of Public Health said the results contributed to the data emerging on the health effects of perfluoroalkyl chemicals.

But the study could not conclude that the chemicals actually caused heart problems, the authors said.

Chair of Water Quality Research Australia Professor Michael Moore said ubiquitous exposure to PFOA, although at low levels, in non-stick cookware, could cause considerable anxiety.

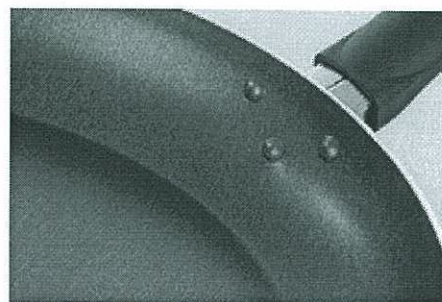
He said the chemical was also found in coatings on clothing and carpets and in plumbing tape.

Moore said although the authors had tried to remove other lifestyle factors from the equation, there was still a possibility the PFOA levels were caused by other exposures.

"The key point is that there are numerous established contenders for cardiovascular disease risk factors – smoking, lifestyle, exercise, diet – all of which may contribute more to cardiovascular disease than PFOA exposure," Moore said.

Monash University Professor Brian Priestly said the results of other studies investigating the link between PFOA and heart disease had been inconsistent.

University of Adelaide pharmacology lecturer Dr Ian Musgrave said single blood measurements were taken in a short period of time and the long-term exposure to PFOA may be different from the results taken from one measurement.



Perfluorooctanoic acid found in non-stick products like lubricants, food packaging and non-stick cookware has been linked to heart disease researchers have found. Photo / Thinkstock

"We know, for example, that blood levels for PFOA are falling over time due to regulation of this chemical," he said.


In the same edition of the journal, Debabrata Mukherjee of Texas Tech University Health Sciences said given the concerns raised by the study, clinicians needed to act now.

"It would make sense to limit or to eliminate the use of PFOA and its congeners in industry through legislation and regulation while improving water purification and treatment techniques to try and remove this potentially toxic chemical from our water supply," Mukherjee said.

– AAP

Copyright ©2012, APN Holdings NZ Limited

Public release date: 3-Sep-2012

[Print | E-mail |  Share] [Close Window]



Contact: Amy Johns
johnsa@wvuhealthcare.com
304-293-1412
JAMA and Archives Journals

Study suggests possible association between cardiovascular disease, chemical exposure

CHICAGO – Exposure to perfluorooctanoic acid (PFOA), a manmade chemical used in the manufacture of some common household products, appears to be associated with cardiovascular disease and peripheral arterial disease in a study of 1,216 individuals, according to a report published Online First by *Archives of Internal Medicine*, a JAMA Network publication.

Surveys have suggested that PFOA (widely used in the manufacture of products such as lubricants, polishes, paper and textile coatings, and food packaging) is detectable in the blood of more than 98 percent of the U.S. population. Some evidence has suggested that an association may be biologically plausible between PFOA exposure and cardiovascular disease (CVD), according to the study background.

"Cardiovascular disease (CVD) is a major public health problem. Identifying novel risk factors for CVD, including widely prevalent environmental exposures, is therefore important," according to the study background.

Anoop Shankar, M.D., Ph.D., and colleagues from the West Virginia University School of Public Health, Morgantown, examined the association between serum (blood) levels of PFOA and the presence of CVD and PAD, a marker of atherosclerosis, in a nationally representative group of adults. The study used merged data from the 1999-2000 and 2003-2004 National Health and Nutrition Examination Survey (NHANES).

The study suggests that increasing serum PFOA levels were positively associated with the presence of CVD and PAD, and the association appeared to be independent of confounders such as age, sex, race/ethnicity, smoking status, body mass index, diabetes mellitus, hypertension and serum cholesterol level, the authors comment.

"Our results contribute to the emerging data on health effects of PFCs [perfluoroalkyl chemicals], suggesting for the first time that PFOA exposure is potentially related to CVD and PAD. However, owing to the cross-sectional nature of the present study, we cannot conclude that the association is causal," the authors comment.

Compared with the reference level of PFOA in quartile 1, the multivariable odds ratio among participants in quartile 4 was 2.01 for CVD and 1.78 for PAD, according to the results.

"In summary, in a representative cross-sectional sample of the U.S. population, we found that higher PFOA levels are positively associated with self-reported CVD and objectively measured PAD. Our findings, however, should be interpreted with caution because of the possibility of residual confounding and reverse causality. Future prospective studies are needed to confirm or refute our findings," the authors conclude.

(*Arch Intern Med*. Published online September 3, 2012.
doi:10.1001/archinternmed.2012.3393. Available pre-embargo to the media at
<http://media.jamanetwork.com>.)

Editor's Note: This study was supported by a National Clinical Research Program grant from the American Heart Association and grants from the National Institute of Environmental Health Sciences, National Institutes of Health. Please see the article for additional information, including other authors, author contributions and affiliations, financial disclosures, funding and support, etc.

Commentary: Perfluorooctanoic Acid Exposure, Cardiovascular Disease

In a commentary, Debabrata Mukherjee, M.D., M.S., of Texas Tech University Health Sciences Center, El Paso, writes: "These results contribute to the evolving data on the

adverse health effects of PFOA, suggesting that PFOA exposure may be potentially related to CVD."

"However, a major limitation is the cross-sectional nature of the study. Given this significant limitation, causality or the temporal nature of the association between PFOA and CVD cannot be concluded from the current analysis," Mukherjee continues.

"Although it seems clear that additional prospective research is needed to tease out the true adverse cardiovascular effects of PFOA, given the concerns raised by this and prior studies, clinicians will need to act now. From a societal point of view, it would make sense to limit or to eliminate the use of PFOA and its congeners in industry through legislation and regulation while improving water purification and treatment techniques to try and remove this potentially toxic chemical from our water supply," Mukherjee concludes.

(*Arch Intern Med*. Published online September 3, 2012.

doi:10.1001/archinternmed.2012.3397. Available pre-embargo to the media at <http://media.jamanetwork.com>.)

Editor's Note: Please see the article for additional information, including other authors, author contributions and affiliations, financial disclosures, funding and support, etc.

###

To contact Anoop Shankar, M.D., Ph.D., call Amy Johns at 304-293-1412 or email johnsa@wvuhealthcare.com. To contact commentary author Debabrata Mukherjee, M.D., M.S., call Laura Gallegos at 915-309-5647 or email laura.gallegos@ttuhsc.edu.

[Print | E-mail |  Share] [Close Window]



AAAS and EurekAlert! are not responsible for the accuracy of news releases posted to EurekAlert! by contributing institutions or for the use of any information through the EurekAlert! system.

[HOME](#) [DISCLAIMER](#) [PRIVACY POLICY](#) [TERMS & CONDITIONS](#) [CONTACT US](#) [TOP](#)
Copyright ©2012 by AAAS, the science society.

Posts filed under

Attack of the killer frying pans

By Thomas Lumley

There's a headline in the Herald: *Heart disease linked to non-stick cookware: study*. There seems to have been some loss in translation for both the article and the headline.

The journal press release says

Exposure to perfluorooctanoic acid (PFOA), a manmade chemical used in the manufacture of some common household products, appears to be associated with cardiovascular disease and peripheral arterial disease in a study of 1,216 individuals

That is, PFOA is used to make non-stick cookware, but cooking with non-stick cookware isn't an especially important source of it, and the article doesn't say it is.

Unlike the Teflon in non-stick coatings, which is as inert as a very inert thing, PFOA is quite chemically interesting. There are traces of PFOA in all sorts of things, and it accumulated in the environment, which is why it's interesting to public health researchers. If you want to read more, Wikipedia is a bit alarmist about the health evidence but reasonably informative.

The story goes on to say

The study reviewed the levels of the chemical in 1216 people with heart problems.

which isn't true. The study used a few years of data from the wonderful NHANES health surveys in the US, which is a random sample of the US population. A subset of the NHANES participants had PFOA levels measured in their blood, and that's where the number 1216 comes from. Probably about 50 or so had heart disease, though as far as I can see the article doesn't actually say. The researchers compared the PFOA levels in the people with and without heart disease, and then did the same thing for the related 'peripheral arterial disease'.

Importantly, the heart disease was not measured by a doctor, participants were asked "*Has a doctor ever told you that you had coronary heart disease*". This was at any time in the past, probably years before the PFOA was measured, and the "*Has a doctor ever told you..*" questions have a much higher error rate than you would expect.

The research is fine as far as it goes, and the researchers admit that what they need is a longitudinal study where PFOA is measured in healthy people who are followed up to see if they become sick. On a small scale this could be done with NHANES, since the data have been linked to Medicare records precisely to allow follow-up studies, though you have to go to a CDC data center to use the linked data set.

From a statistical point of view it's strange that the researchers just used four years of NHANES data, from two non-adjacent two-year periods. The study keeps going year after year, and they are now measuring PFOA and related compounds on greater numbers of

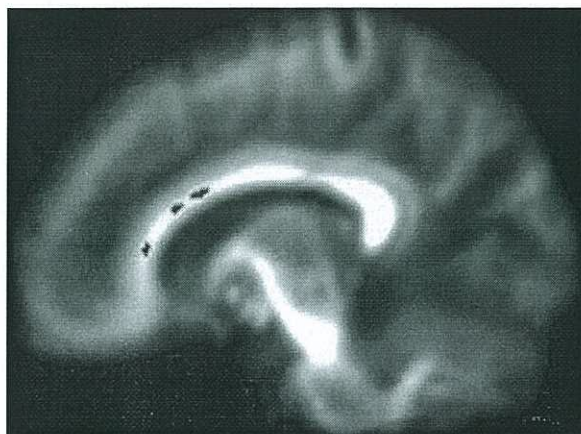
people. As a service to the StatsChat readership, I just spent 15 minutes downloading and analysing the 2007-2008 data, which has PFOA measurements on 2100 people, 80 of whom reported coronary heart disease. I didn't do as thorough a job of ruling out other risk factors (such as cholesterol or high blood pressure), but it's still interesting to note that there is absolutely no sign of an association between coronary heart disease and PFOA levels in the 2007-2008 data.

[Add a comment](#)

Obs. S.

Teen Drinking May Cause Irreversible Brain Damage

by MICHELLE TRUDEAU



Enlarge Courtesy of Susan Tapert/Tim McQueeney, UCSD

The red specks highlight where the integrity of the brain's white matter is significantly less in the teens who binge drink, compared to those who do not.

January 25, 2010

text size A A A

For teenagers, the effects of a drunken night out may linger long after the hangover wears off.

A recent study led by neuroscientist Susan Tapert of the University of California, San Diego compared the brain scans of teens who drink heavily with the scans of teens who don't.

Tapert's team found damaged nerve tissue in the brains of the teens who drank. The researchers believe this damage negatively affects attention span in boys, and girls' ability to comprehend and interpret visual information.

"First of all, the adolescent brain is still undergoing several maturational processes that render it more vulnerable to some of the effects of substances," Tapert says.

In other words, key areas of the brain are still under construction during the adolescent years, and are more sensitive to the toxic effects of drugs and alcohol.



Courtesy of Susan Tapert/Tim McQueeney, UCSD
Damage to the brain of a teenage drinker, top view

Thought, Memory Functions Affected

For the study, published last month in the journal *Psychology of Addictive Behaviors*, Tapert looked at 12- to 14-year-olds before they used any alcohol or drugs. Over time, some of the kids started to drink, a few rather heavily — consuming four or five drinks per occasion, two or three times a month — classic binge drinking behavior in teens.

Comparing the young people who drank heavily with those who remained non-drinkers, Tapert's team found that the binge drinkers did worse on thinking and memory tests. There was also a distinct gender difference.

"For girls who had been engaging in heavy drinking during adolescence, it looks like they're performing more poorly on tests of spatial functioning, which links to mathematics, engineering kinds of functions," Tapert says.

And the boys?

"For boys who engaged in binge drinking during adolescence, we see poor performance on tests of attention — so being able to focus on something that might be somewhat boring, for a sustained period

of time," Tapert says. "The magnitude of the difference is 10 percent. I like to think of it as the difference between an A and a B."

Teenage Tendency To Experiment To Blame

Pediatrician and brain researcher Ron Dahl from the University of Pittsburgh notes that adolescents seem to have a higher tolerance for the negative immediate effects of binge drinking, such as feeling ill and nauseated.

"Which makes it easier to consume higher amounts and enjoy some of the positive aspects," Dahl says. "But, of course, that also creates a liability for the spiral of addiction and binge use of these substances."

He adds that there is a unique feature of the teenage brain that drives much behavior during adolescence: The teen brain is primed and ready for intense, all-consuming learning.

"Becoming passionate about a particular activity, a particular sport, passionate about literature or changing the world or a particular religion" is a normal, predictable part of being a teenager, he says.

"But those same tendencies to explore and try new things and try on new identities may also increase the likelihood of starting on negative pathways," he adds.

Damaged Brain Tissue

Tapert wanted to find out in what way binge drinking affects a teen's developing brain. So using brain imaging, she focused on the white matter, or nerve tissue, of the brain.

"White matter is very important for the relay of information between brain cells; and we know that it is continuing to develop during adolescence," Tapert says.

So Tapert imaged the brains of two groups of high school students: binge drinkers and a matched group of teens with no history of binge drinking. She reports in her recent study a marked difference in the white matter of the binge drinkers.

"They appeared to have a number of little dings throughout their brains' white matter, indicating poor quality," Tapert says.

And poor quality of the brain's white matter indicates poor, inefficient communication between brain cells.

"These results were actually surprising to me because the binge drinking kids hadn't, in fact, engaged in a great deal of binge drinking. They were drinking on average once or twice a month, but when they did drink, it was to a relatively high quantity of at least four or five drinks an occasion," she says.

In another study, Tapert reported abnormal functioning in the hippocampus — a key area for memory formation — in teen binge drinkers. Reflecting their abnormal brain scans, the teen drinkers did more poorly on learning verbal material than their non-drinking counterparts.

What remains unknown, says Tapert, is if the cognitive downward slide in teenage binge drinkers is reversible.

Related NPR Stories

Hardwired For Doom: Brain, Mind And Fate Jan. 25, 2010

Initiating Moderate to Heavy Alcohol Use Predicts Changes in Neuropsychological Functioning for Adolescent Girls and Boys

Lindsay M. Squeglia and Andrea D. Spadoni
San Diego University/University of California San Diego and
VA San Diego Healthcare System

M. Alejandra Infante
VA San Diego Healthcare System and University of California San Diego

Mark G. Myers and Susan F. Tapert

This study prospectively examines the influence of alcohol on neuropsychological functioning in boys and girls characterized prior to initiating drinking ($N = 76$, ages 12–14). Adolescents who transitioned into heavy ($n = 25$; 11 girls, 14 boys) or moderate ($n = 11$; 2 girls, 9 boys) drinking were compared with matched controls who remained nonusers throughout the ~3-year follow-up period ($N = 40$; 16 girls, 24 boys). For girls, more past-year drinking days predicted a greater reduction in visuospatial task performance from baseline to follow-up, above and beyond performance of equivalent measures at baseline ($\eta^2 \Delta = 10\%$, $p < .05$), particularly on tests of visuospatial memory ($\eta^2 \Delta = 8\%$, $p < .05$). For boys, a tendency was seen for more past-year hangover symptoms to predict worsened sustained attention ($\eta^2 \Delta = 7\%$, $p < .05$). These preliminary longitudinal findings suggest that initiating moderately heavy alcohol use and incurring hangover during adolescence may adversely influence neurocognitive functioning. Neurocognitive deficits linked to heavy drinking during this critical developmental period may lead to direct and indirect changes in neurofunctional course, with effects that would extend into adulthood.

Keywords: adolescence, alcohol, hangover, neuropsychological assessment, visuospatial functioning

Adolescence marks a time of significant increases in alcohol use, with 31% of boys and 22% of girls in the 12th grade endorsing heavy episodic drinking in the past 2 weeks (Johnston, O'Malley, Bachman, & Schlotzberg, 2008). These high rates are concerning in regards to potential deleterious effects of alcohol on adolescent brain development (Brown et al., 2008; Squeglia, Jacobs, & Tapert, 2009, for reviews). The adolescent brain incurs rapid anatomical and neurochemical changes (Giedd, 2004; Sowell et al., 2004), including cortical remodeling and hormonal alterations (Greens, He, & Hodge, 2007), with females undergoing these changes 1 to 2 years before males on average (Giedd et al., 2006).

These changes may heighten adolescents' vulnerability to the neural effects of alcohol (Clark & Tapert, 2008; Dahl, 2004), impeding key processes of cognitive development (Chen et al., 2007).

Because most studies have been cross-sectional, the effects of adolescent alcohol use on neurocognitive development remain inconclusive. Cross-sectional studies have found disadvantaged neurocognition among adolescents with alcohol use disorders (AUDs), including poorer retrieval (Brown, Tapert, Granholm, & Delis, 2000), attention and information processing (Tapert & Brown, 2000; Tarter, Mezzich, Hsieh, & Parks, 1995), visuospatial (Sher, Martin, Wood, & Rutledge, 1997; Tapert & Brown, 1999), and language (Moss, Kirsch, Gordon, & Tarter, 1994) functioning than nondrinkers. Executive functioning deficits have been found in female substance-using teens (Granholm, Sowell, & Mezzich, 2001; Moss et al., 1994). Longitudinal studies found deteriorations in visuospatial functioning and attention in treated teens who continued heavy drinking and reported hangover or withdrawal (Tapert & Brown, 1999; Tapert, Granholm, Leedy, & Brown, 2002).

The authors thank Valerie Bartel, Venture Bioregistry, Lisa Caldwell, Sonia Ekstrom, Jesse Feng, Sonia Lenz, Andrea Nomma, Dr. Carmen Pulido, Dr. Sarah Merson, Dr. Sandra A. Brown, and the participating families and schools.

Portions of this study were presented at the 2008 meeting of the Research Society on Alcoholism (Washington, DC, June 2008). This work represents the master's thesis of the first author.

Correspondence concerning this article should be addressed to S. F. Tapert, 3350 La Jolla Village Drive (151B), San Diego, CA 92161. E-mail: splupert@ucsd.edu

715

716

BRIEF REPORTS

effects of alcohol withdrawal on adolescent cognition may be more detrimental than the actual quantity of alcohol consumed, or may more accurately mark the extent of a heavy drinking episode than recollections of alcohol quantity. While severe withdrawal is uncommon in adolescents (Martin, Chung, Kirsch, & Langenhueber, 2006), hangover symptoms may index post-drinking effects that could influence neurocognition. Hangovers have been described along a continuum of post-drinking effects that range from withdrawal to mild symptoms (Swift & Davidson, 1998; Wise, Shihab, & Browner, 2000). Males tend to report hangover symptoms more commonly than females (Deshmukh et al., 2003), but occurrence in females is more strongly related to heavy drinking (Piassek, Sher, Slutske, & Jackson, 2005). The long-term effects associated with this milder form of withdrawal have not been examined longitudinally in adolescents first assessed prior to the initiation of substance use.

This study prospectively examined neurocognition in adolescents first assessed prior to the onset of any heavy drinking, some of who transitioned into moderately heavy alcohol use during the follow-up. Based on prior work (Brown et al., 2000; Tapert & Brown, 1999, 2000; Tapert et al., 2002), greater alcohol use and hangover over the follow-up were hypothesized to predict worsening scores on tests requiring visuospatial processing, sustained attention, learning and memory, working memory, and planning. Because of the differential influence of alcohol on cognition by gender (Nixon, 1994; Pfefferbaum, Adalsteinsson, & Sullivan, 2006; Sullivan, Fama, Rosenbloom, & Pfefferbaum, 2002), girls and boys were evaluated separately. It was hypothesized that female drinkers would show worsened visuospatial performance (Tapert et al., 2001) and working memory (Fleming et al., 2007; Sullivan et al., 2002), whereas male drinkers would show relative decline on sustained attention and planning tasks (Fama, Pfefferbaum, & Sullivan, 2004).

Method

Participants

Participants were recruited as part of an ongoing longitudinal neuroimaging study. Flyers were mailed to households of local middle schools describing the project, major inclusion criteria, and compensation. Exclusionary criteria were parental alcohol (>2 drinks in a week) or any tobacco or illicit drug use; history of chronic medical illness; any neurological or diagnostic and Statistical Manual of Mental Disorders–Fourth Edition (DSM-IV; American Psychiatric Association, 1994) Axis I disorder other than conduct disorder; loss of consciousness (>2 min), or learning disabilities; parental history of bipolar, psychotic, or antisocial personalities; perceptual, sensory problems; and left-handiness. In all, 135 of respondents met eligibility criteria. Extensive screening and background data were obtained from each participant, one biological parent, and one other parent or close relative. At baseline, this study included 76 participants, ages 12 to 14 years, who had minimal substance use (≤6 total lifetime drinks with ≤3 drinks on any occasion, ≤3 lifetime uses of marijuana (>0 for $n = 5$) and none in the past 3 months, ≤10 lifetime cigarette uses (>0 for $n = 5$); and no history of other intoxicant use). The current study included adolescents who transitioned into heavy ($n = 25$; 11 girls) or moderate ($n = 11$; 2 girls) drinking, and those who remained

nonusers through follow-up ($n = 40$; 16 girls; see Table 1). Because this study is ongoing different follow-up time points were examined, ranging from 1 to 5 years ($M = 3.6$).

Measures

Substance use. The Customary Drinking and Drug Use Record (CDDR; Brown et al., 1998) was administered at baseline for self-reported lifetime alcohol, tobacco, and other drug use, and withdrawal/hangover symptoms. The version at annual follow-ups assessed past year and past 3-month use. Bitchulizer and urine screens and parent reports on youth use verified self-report data. The Hangover Symptoms Scale (HSS; Slutske, Piassek, & Ham-Carter, 2003) given at each follow-up provided past-year severity ratings on 13 hangover symptoms. HSS scores ranged from 13 to 36, from a possible range of 13 to 65, and were internally consistent (Cronbach's $\alpha = .90$). Alcohol-related blackouts were not examined because of low endorsement (8%).

Neuropsychological (NP) battery. The baseline NP battery lasted ~3 hr and included domains found compromised in prior studies of adolescent alcohol use (Brown et al., 2000; Tapert & Brown, 1999, 2000; Tapert et al., 2002). Measures of visuospatial processing were Complex Figure copy and 30-min delay accuracy (Rey & Osterich, 1993), and Wechsler Abbreviated Scale of Intelligence (WASI) Block Design (Wechsler, 1999). Measures of sustained attention, speeded information processing, and working memory included the Digit Vigilance Test (DVT; Lewis, 1993); Delis Kaplan Executive Function System (D-KEFS) Trail Making (Delis, Kaplan, & Kramer, 2001); and Wechsler Intelligence Scale for Children-II (WISC-II) Digit Span and Coding (Wechsler, 1997). Learning and memory scores were obtained from the California Verbal Learning Test—Children's Version (CVLT-C; Delis, Kramer, Kaplan, & Ober, 1994); and executive functioning/planning were D-KEFS Color-Word Interference and Towers of Hanoi (Towers et al., 2001). Premotor functioning and intellectual capacity were estimated from WASI Vocabulary and Similarities and Wide Range Achievement Test-3 Reading scores (WRAT-3; Wilkinson, 1993). The Taylor scoring system (Taylor, 1998) was used for Complex Figures, each independently scored by two trained, reliable raters (intraclass correlation coefficient = .94), then reviewed in consensus meetings. At each follow-up, the DVT target number was alternated, and the Rey-Osterich Complex Figure was replaced by a novel figure (Loring & Menden, 2003; Menden et al., 1993; Taylor, 1998) to minimize practice effects. At the 4-year follow-up, WISC-III subtests were replaced with corresponding Wechsler Adult Intelligence Scale-III (Wechsler, 1997) subtests, and the CVLT-II (Delis, Kramer, Kaplan, & Ober, 2000) replaced the CVLT-C.

Correlates. The Family History Assessment Module (FHAM; Rice et al., 1995), administered to youth and parent, ascertained familial density of AUD by adding 0.5 per biological parent and 0.25 per biological grandparent (Zucker, Ellis, & Fitzgerald, 1994) endorsed by either youth or parent. This measure has been shown to be valid and more sensitive than classifications (Stoltenberg, Mudd, Blow, & Hill, 1998). The Conduct Disorder Questionnaire (CDQ; Brown, Gidycz, Schuck, Myers, & Mott, 1996), administered to the youth and parent, provided a continuous measure of CD behaviors based on DSM-IV criteria (American Psychiatric Association, 1994), with 1 point added for each item endorsed by either youth or parent

Table 1
Descriptive Characteristics of Adolescents Who Transitioned Into Moderate or Heavy Drinking Versus Those Who Did Not, at Baseline and Follow-Up

	M (SD)			
	Girls (n = 29)	Drinkers (n = 13)	Controls (n = 24)	Drinkers (n = 23)
Baseline				
Age at baseline (range = 12-14)	13.44 (0.66)	13.88 (0.76)	13.52 (0.82)	13.76 (0.76)
Caucasian (%) ^a	75	85	58	91
Hollingshead socioeconomic status	20.38 (11.70)	22.15 (9.66)	25.96 (15.75)	21.83 (11.98)
Wide Range Achievement Test-3 Reading standard score	108.75 (9.50)	108.85 (9.92)	108.99 (11.61)	108.09 (8.56)
Family history density of alcohol use disorder (range 0-1.5) ^{a,c}	0.11 (0.22)	0.46 (0.51)	0.18 (0.31)	0.33 (0.35)
Conduct Disorder Questionnaire total score ^{a,c,d,e}	0.56 (0.89)	2.15 (2.30)	1.88 (1.60)	3.35 (2.35)
Conduct disorder diagnosis (%) ^{a,d}	0	15	0	39
Lifetime drinking days ^{a,c,e}	0.00 (0.00)	1.15 (2.12)	0.00 (0.00)	0.83 (1.47)
Lifetime marijuana use days ^{a,c}	0.00 (0.00)	0.08 (0.25)	0.00 (0.00)	0.29 (0.54)
Lifetime marijuana use days ^{a,c}	2.69 (1.85)	3.58 (1.27)	2.52 (1.35)	3.57 (1.88)
Years until follow-up	1.59 (0.97)	2.31 (1.16)	1.54 (0.93)	1.96 (0.86)
Number of follow-up assessments ^a				
Follow-up				
Lifetime drinking days ^{a,c,e}	0.00 (0.00)	87.92 (87.68)	1.42 (3.36)	50.57 (52.22)
Average drinks per month, past 3 months ^{a,c,e}	0.00 (0.00)	9.85 (10.16)	0.54 (1.91)	6.09 (10.38)
Past month total drinks ^{a,c,e}	0.00 (0.00)	4.46 (7.66)	0.00 (0.00)	11.57 (16.92)
Lifetime marijuana use days ^{a,c}	0.00 (0.00)	77.69 (184.51)	1.00 (2.72)	65.26 (134.42)
Lifetime other drug use days ^a	0.00 (0.00)	12.92 (45.40)	0.00 (0.00)	2.09 (4.66)
Past month cigarette use ^a	0.00 (0.00)	3.31 (7.15)	0.08 (0.41)	3.39 (8.63)

Note. Among drinkers, moderate to heavy drinking was initiated 2.3 years (SD = 1.3) after baseline, on average. Drinkers had consumed alcohol at moderate or heavy levels for an average of 2.8 years since initiation (SD = 1.3).

^aDrinkers ≠ Controls, $p < .05$. ^bBoys ≠ Girls, $p < .05$. ^cBoy controls ≠ Girl controls, $p < .05$. ^dBoy drinkers ≠ Girl drinkers, $p < .05$. ^eGirl drinkers ≠ Girl controls, $p < .05$. For the full sample, ethnicity was 15% Hispanic or Latino and 85% Not Hispanic or Latino; race was 75% Caucasian, 15% multiracial, 5% Asian, and 7% other.

(possible range = 0-27; Myers, Stewart, & Brown, 1998). Family socioeconomic status (SES) considered the educational attainment and occupation of each parent (Hollingshead, 1965).

Procedures

At baseline, screening interviews were administered to youth and parents by trained lab assistants to assess eligibility. Eligible youth and parents independently completed interviews, and participants were administered the standardized NP battery by a trained psychologist. Participants were followed annually using rigorous follow-up procedures (Twitcheell, Herzog, Klein, &

Schuckit, 1992), and contacted by phone to complete questionnaires on current substance use. Those who fit criteria at follow-up (see Figure 1) for heavy or moderate drinking were invited to return and complete assessments, then were matched on gender, familial AUD category (negative, mild, positive), baseline age, and age at follow-up to continuous nonusers. Adolescents who were nondrinkers but initiated other drug use were excluded from analyses. Follow-up rates are >95% at each time point. Consent and assent were obtained each year. Study protocol was executed in accordance with standards approved by the University of California, San Diego Human Research Protections Program.

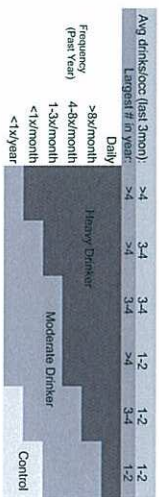


Figure 1. Outcome drinking classification, based on Cahalan et al. (1969), and modified based on the distribution of drinking characteristics of adolescent boys and girls observed in the first 2 years of this project (Schwensberg et al., 2005; Tapert et al., 2004).

Data Analyses

All substance involvement variables were positively skewed, so logarithmic transformations were applied (Titchelbeck & Field, 2007). All NP measures were normally distributed and free from outliers. The z-scores for each NP measure at each time point were computed based on scores (raw, unless otherwise noted) of all participants tested at that time point. Change scores were created by subtracting each subject's baseline z-score from their most recent follow-up z-score for the corresponding NP measure. To reduce the number of dependent variables, composite scores were computed by using established cognitive domain groupings, based on tasks' putative underlying brain systems (Lezak, Howieson, Loring, Hannay, & Fischer, 2004; Medina et al., 2007): (1) Visuospatial Functioning, (2) Attention and Working Memory, (3) Learning and Memory, and (4) Executive Functioning/Planning. Composite scores were computed by averaging change scores across tests within a domain (see Table 2). Age, SES, and familial AUD density, CDDQ scores (range = 0-29), and practice effects (Bates, Verbal, Backman, Labovitz, & Barry, 2005; Malvarado & Herman, 1984; White, Campbell, Deveney, Knox, & Janulewicz, 2009) were used as covariates if they correlated ($p < .05$) with NP composite change scores. For girls, none of these variables correlated with NP measures. For boys, SES correlated with Learning and Memory. For girls and boys, baseline NP scores correlated with their corresponding change scores, to mitigate regression to the mean, baseline scores for each corresponding measure.

Table 2
Neuropsychological Change (Outcome - Baseline) z-Scores of Adolescents Who Transitioned Into Moderate or Heavy Drinking Versus Those Who Did Not

	M (SD)			
	Girls (n = 16)	Drinkers (n = 13)	Controls (n = 24)	Drinkers (n = 23)
Visuospatial functioning				
Complex figure copy accuracy ^a	0.01 (1.43)	-1.00 (1.61)	0.12 (0.99)	0.18 (1.45)
Complex figure delay accuracy ^{a,b}	0.36 (1.26)	-0.84 (1.42)	0.29 (1.01)	-0.10 (0.96)
WASI block design ^a	0.02 (0.61)	-0.31 (0.45)	0.22 (0.72)	0.01 (0.67)
Attention and working memory				
Digit vigilance test time ^a	-0.25 (0.83)	0.09 (0.70)	-0.21 (0.71)	0.00 (0.96)
D-KERS trails condition 4 time ^a	-0.25 (0.92)	0.14 (0.72)	-0.12 (0.82)	-0.04 (0.92)
Digits forward ^a	0.27 (1.01)	-0.14 (1.47)	0.20 (0.81)	-0.13 (0.93)
Digits backward ^a	-0.49 (0.75)	0.10 (0.94)	-0.10 (0.71)	0.09 (1.39)
Coding ^a	-0.12 (0.88)	-0.07 (1.27)	0.13 (0.84)	-0.09 (0.61)
Learning and memory				
CVLT list 1-5 total ^a	0.08 (0.99)	0.22 (1.38)	0.09 (0.90)	0.20 (1.03)
CVLT long delay free recall ^a	0.40 (0.96)	0.17 (1.22)	-0.13 (0.89)	0.11 (0.96)
Executive functioning/planning				
D-KERS color-word interference inhibitions/switching (completing uninterleaved naming and reading contrast) ^a	-0.07 (0.83)	0.14 (0.83)	-0.03 (1.29)	0.21 (1.13)
D-KERS towers (total achievement score) ^a	-0.08 (1.01)	0.09 (0.82)	0.12 (1.17)	-0.03 (1.52)
WASI verbal reasoning: raw scores at baseline	53.06 (4.72)	50.69 (6.21)	51.63 (8.48)	52.30 (5.46)
WASI verbal reasoning: raw scores at follow-up	34.31 (5.53)	34.08 (3.50)	33.07 (5.83)	33.22 (5.27)
WASI verbal reasoning: raw scores at follow-up	43.63 (4.57)	44.08 (3.77)	44.04 (4.71)	43.78 (3.88)

Note. WASI = Wechsler Abbreviated Scale of Intelligence; D-KERS = Delis-Kaplan Executive Function System; CVLT = California Verbal Learning Test; WASI-3 = Wide Range Achievement Test, third edition. Range of correlations among measures within each neuropsychological category are as follows: visuospatial functioning (.26-.43); attention and working memory (.01-.31); learning and memory (.50); executive functioning (.05). Composite scores were based on established cognitive domain groupings (Lezak et al., 2004; Medina et al., 2007).

^aDrinkers ≠ Controls, $p < .05$. ^bGirl drinkers ≠ Girl controls, $p < .05$. Higher scores indicate worsened performance. * Higher scores indicate improved performance.

Table 3
Standardized Brain Showing Extent to Which Adolescent Drinking Days in the Past Year Predicted Change in Neuropsychological Performances

Dependent variable	Girls	Boys
Visuospatial functioning	-.33*	.00
Attention and memory	.00	.00
Learning and memory	.00	.00
Executive functioning/planning	.00	.00

Note. $n = 109$ (female). All analyses controlled for baseline neuropsychological functioning.
* $p < .05$.

functioning measures in Table 2), the corresponding baseline NP score and any covariates on Block 1, and substance involvement variables on Block 2. Variables that correlated ($p < .05$) with outcome change scores were used as covariates in analyses. For girls, age was used as a covariate for Coding, Block Design, and CVLT Long Delay Free Recall change scores. For boys, age was a covariate for Coding and Color Word Interference, Inhibition/Switching, CDQ total for Complex Figure copy, family history density for Coding and Block Design, and SES for CVLT Long Delay Free Recall change scores. For girls, past year drinking days predicted Complex Figure change scores, similar as above, $F(2, 20) = 19.04, p < .001$; $R^2 \Delta = .85, p < .05$; $\beta = -.32$. For boys, higher follow-up HSS scores predicted slowed DYT completion times from baseline to follow-up above and beyond baseline DYT time, $F(3, 39) = 8.65, p < .001$; $R^2 \Delta = .78, p < .05$; $\beta = .27$. DYT omission and commission errors were not significantly related to HSS scores, suggesting that the decrements in time completion were attributable to processing speed rather than accuracy.

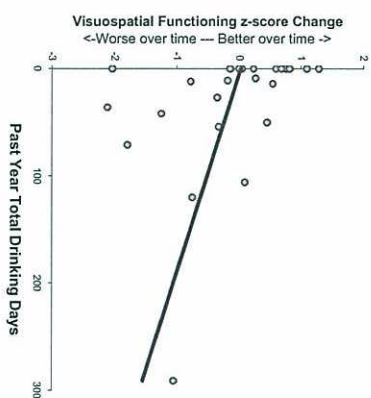


Figure 2. For female adolescents, more past year drinking days predicted a greater reduction in performance on the Visuospatial Functioning composite score ($R^2 \Delta = .10\%$, $\beta = -.33, p < .05$).

Follow-up regressions using lifetime drinking, average past 3-month drinking, and HSS scores were used to predict individual NP test change scores within the Visuospatial Functioning domain for girls. More past 3-month drinking predicted greater reduction in Complex Figure delay performance from baseline to follow-up, above and beyond baseline Complex Figure delay scores, $F(2, 20) = 19.17, p < .001$; $R^2 \Delta = .86, p < .05$; $\beta = -.32$ (see Figure 3). Lifetime drinking days and HSS scores did not predict reductions on Block Design or Complex Figure copy.

Results remained unchanged when using non-transformed alcohol involvement variables. After controlling for alcohol consumption, lifetime and past month tobacco and marijuana use reported at follow-up did not significantly predict any follow-up NP change score. Recency of drinking did not predict follow-up NP change measures, and results above remained unchanged when controlling for days since last alcohol use.

Discussion

This study prospectively examined the effects of alcohol use on neurocognition in adolescent girls and boys. For girls, more drinking days in the year before the follow-up NP assessment predicted a relative worsening in visuospatial functioning. For boys, greater hangover symptoms in the year before the follow-up was linked to relative worsening in sustained attention. This is consistent with past research reporting visuospatial (Brown et al., 2000; Sher et al., 1997; Tapert et al., 2001; Tapert & Brown, 1999) and attentional (Tapert & Brown, 2001; Tapert et al., 1995) decrements in adolescent substance users. Contrary to hypotheses, planning scores did not relate to drinking. Our findings are part of a longitudinal study in which subjects had little to no substance exposure at baseline, reducing the likelihood that decrements are attributable to pretest effects.

As girls and boys drank at similar rates in this sample, the different manifestations of cognitive decrements could relate to divergent neurodevelopmental trajectories, physiological responses to alcohol, and social factors influencing drinking onset.

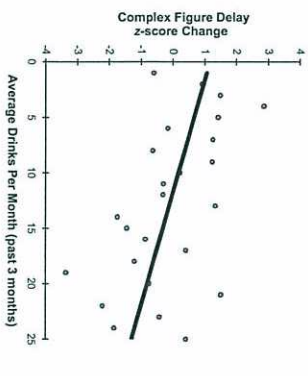


Figure 3. For female adolescents, more drinks per month predicted a greater reduction in performance on complex figure delay ($R^2 \Delta = .86\%$, $\beta = -.32, p < .05$).

Generally, females outperform males on tests of psychomotor speed and accuracy, whereas males perform better on visuospatial tests (Lizak et al., 2004). Areas of relative weakness may be vulnerable to effects of alcohol and hangover. For girls, decrements seen in complex nonverbal productive memory, but not visual reproduction or verbal memory, are consistent with findings in adult female alcoholics (Sullivan et al., 2002), and may suggest affected frontoparietal circuitry (Seltman & Goldman-Rakic, 1988; Tapert et al., 2001). Girls consuming ≥ 12 drinks per month at follow-up showed a relative decline in visuospatial memory (see Figure 3), whereas girls consuming < 12 drinks per month did not. For boys, decrements were found on DYT completion time but not other tasks of processing speed (i.e., Trails or Digit Symbol), suggesting reduced maturation in sustained attention and not simply processing speed, consistent with findings in adult alcoholics (Tiekeme & Coyle, 2004). These results are concerning, as the severity of alcohol use is relatively low (mean drinks per month = 7.4) and most drinking is subclinical (only 4 of the 76 subjects met criteria for an AUD at follow-up).

Although only some behavioral disadvantages may be apparent yet, it is possible that underlying neural structures may be compromised. While matter coherence may drive the spatial decrements found in girls, as subclinical adolescent drinking has been linked to reduced white matter integrity (McQueeny et al., 2009), and coherence positively relates to visuospatial skills (Fryer et al., 2008). Functional magnetic resonance imaging (fMRI) studies have detected abnormalities in brain response to spatial working memory tasks despite intact performance in youth with short drinking histories (Tapert et al., 2004), but young adult females with longer drinking courses showed decreased frontal and parietal activation and attenuated performance (Tapert et al., 2001).

Limitations of this study include the relatively low drinking level and sample size. We used different follow-up durations across participants; ideally, each individual would be examined after the same follow-up duration. Because the z-scores represent a ranking of scores at each time point, the results are relative to those assessed at a given assessment period. However, with the nature of longitudinal pediatric cognitive data, raw scores cannot be used because of differences between child and adult versions and alternate forms of tests at follow-ups. Future studies are needed to replicate the above findings, given the exploratory nature of some analyses.

The current findings present important clinical and public health implications. Visuospatial deficits could negatively impact girls' capacity to recall previously encoded spatial information, which could potentially have consequences for success in driving and figural reasoning. Deficits in boys' sustained attention adversely influence academic achievement and behavioral functioning. While the effects sizes reported in this study are relatively modest, negative NP consequences from drinking could affect large numbers of youth who engage in moderate to heavy levels of alcohol consumption.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders, 4th edition (DSM-IV)*. Washington, DC: Author.
- Bates, M. E., Voelbel, G. T., Buckman, J. P., Labovitz, E. W., & Barry, D. (2005). Short-term neuropsychological recovery in clients with sub-

stance use disorders. *Alcoholism: Clinical and Experimental Research*, 29, 367-377.

- Brown, S. A., Gieddema, A., Schuck, M. A., Myers, M. G., & Met, M. A. (1999). Conduct disorder among adolescent alcohol and drug abusers. *Journal of Studies on Alcohol*, 57, 314-323.
- Brown, S. A., McGue, M., Maes, J., Schuck, J., Hingson, R., Sorenson, S., et al. (2008). A developmental perspective on alcohol and youth 16 to 20 years of age. *Pediatrics*, 121(Suppl. 4), S290-S310.
- Brown, S. A., Myers, M. G., Lippke, L., Tapert, S. F., Stewart, D. G., & Volk, P. W. (1998). Psychometric evaluation of the Cystometry Drinking and Drug Use Record (CDDUR): A measure of adolescent alcohol and drug involvement. *Journal of Studies on Alcohol*, 59, 427-438.
- Brown, S. A., Tapert, S. F., Grantham, E., & Delis, D. C. (2000). Neurocognitive functioning of adolescents: Effects of prolonged alcohol use. *Alcoholism: Clinical and Experimental Research*, 24, 164-171.
- Cahalan, D., Cisin, J., & Crossley, H. (1969). *American drinking practices*. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Charney, S., Mennell, C., Delain, F., Koozian, N., Donald, G., Ashin, H. J., et al. (2007). Brain morphology and cognitive performance in detoxified alcohol-dependent with preserved psychosocial functioning. *Neuropsychopharmacology*, 32, 429-438.
- Clark, D. B., & Tapert, S. F. (2008). Introduction to alcohol and adolescent brain development. *Alcoholism: Clinical and Experimental Research*, 32, 373-374.
- Crews, L., He, J., & Hodge, C. (2007). Adolescent cortical development: A critical period of vulnerability for addiction. *Pharmacology Biochemistry and Behavior*, 86, 189-199.
- Dahl, R. E. (2004). Adolescent brain development: A period of vulnerability and opportunities. *Annals of the New York Academy of Sciences*, 1021, 1-22.
- Delis, D. C., Kaplan, E., & Kramer, J. H. (2001). The Delis-Kaplan executive function system: Examiner's manual. San Antonio, TX: The Psychological Corporation.
- Delis, D. C., Kramer, J. H., Kaplan, E., & Ober, B. A. (1994). *Manual for the California Verbal Learning Test-Children's version*. San Antonio, TX: The Psychological Corporation.
- Delis, D. C., Kramer, J. H., Kaplan, E., & Ober, B. A. (2000). *The California Verbal Learning Test-Second edition*. San Antonio, TX: The Psychological Corporation.
- Deshmukh, A., Rosenblum, M. J., Sassoon, S., O'Reilly, A., Pfefferbaum, A., & Sullivan, E. V. (2003). Alcoholism men endorse more DSM-IV withdrawal symptoms than alcoholic women matched in drinking history. *Journal of Studies on Alcohol*, 64, 375-379.
- Fenn, K., Pfefferbaum, A., & Sullivan, E. V. (2004). Perceptual learning in detoxified alcoholic men: Contributions from explicit memory, executive function, and age. *Alcoholism: Clinical and Experimental Research*, 28, 1657-1665.
- Finnney, B., Fishbein, D., Knapik, E., Langevin, D., Verbitskaya, E., Blund, C., et al. (2007). Gender differences in neurocognitive functioning among alcohol-dependent Russian patients. *Alcoholism: Clinical and Experimental Research*, 31, 745-754.
- Fryer, S. E., Frank, L. R., Spadoni, A. D., Theilmann, R. J., Nagel, B. J., Schweinhart, B. J., et al. (2008). Microstructural integrity of the corpus callosum linked with neuropsychological performance in adolescents. *Brain and Cognition*, 67, 225-233.
- Giancola, P. R., Stool, G. D., & Metzger, A. C. (2001). Constructive thinking, executive functioning, antisocial behavior, and drug use in the adolescent: Females with a substance use disorder. *Experimental and Clinical Psychopharmacology*, 9, 215-227.
- Gieddema, J. R. (2004). Structural magnetic resonance imaging of the adolescent brain. *Annals of the New York Academy of Sciences*, 1021, 77-85.
- Gieddema, J. N., Chasen, L. S., Lennox, R., Greenstein, D., Wallace, G. L., Olin, S., et al. (2006). Puberty-related influences on brain development. *Molecular and Cellular Endocrinology*, 254-255, 154-162.

- Glenn, S., Parsons, O., Sirbu, R., & Stevens, L. (1988). The effects of repeated withdrawals from alcohol on the memory of male and female alcoholics. *Alcohol & Alcoholism*, 23, 337-342.
- Holmgren, A. B. (1995). *Two-factor index of social position*. New Haven, CT: Yale University Press.
- Johnson, L. D., O'Malley, P. M., Bachman, J. G., & Schellenberg, J. E. (2008). *Monitoring the future national results on adolescent drug use: Overview of key findings, 2007* (NIH Publication No. 08-6418). Bethesda, MD: National Institute on Drug Abuse.
- Levin, R. F. (1995). *Digit vigilance test*. Odessa, FL: Psychological Assessment Resources.
- Lezak, M. D., Howieson, D. B., Loring, D. W., Hannay, H. J., & Fischer, J. S. (2000). *Neuropsychological assessment* (4th ed.). New York: Oxford University Press.
- Loring, D. W., & Mendler, K. J. (2003). The Medical College of Georgia (MCG) complex figures: Four forms for follow-up. In J. Knight & E. Kaplan (Eds.), *Key-Oserich handbook*. Odessa, FL: Psychological Assessment Resources.
- Martin, C. S., Chang, T., Kirisci, L., & Lungenhecher, J. W. (2006). Item response theory analysis of diagnostic criteria for alcohol and cannabis use disorders in adolescents: Implications for DSM-V. *Journal of Abnormal Psychology*, 115, 807-814.
- Natuvaraj, J. D., & Herman, D. O. (1984). Base rate bias for the WAIS-R: Test-retest stability and VIQ-PIQ differences. *Journal of Clinical and Experimental Neuropsychology*, 6, 351-366.
- McQuerry, T., Schweinburg, B. C., Schweinburg, A. D., Jacobs, J., Bava, S., Frank, L. R., et al. (2009). Altered white matter integrity in adolescent binge drinkers. *Alcoholism: Clinical and Experimental Research*, 33, 1273-1285.
- Meador, K. J., Moore, E. E., Niebels, M. E., Ahmy, O. L., Taylor, H. S., Zanzetta, E. Y., et al. (1993). The role of cholinergic systems in visual spatial processing and memory. *Journal of Clinical and Experimental Neuropsychology*, 15, 872-882.
- McNair, K. L., Hansen, K., Schweinburg, A. D., Cohen-Zion, M., Nagel, B. J., & Tapert, S. F. (2007). Neuropsychological functioning in adolescent marijuana users: Stable deficits detectable after 30 days of abstinence. *Journal of International Neuropsychological Society*, 13, 207-220.
- Moss, H. B., Kirisci, L., Gordon, H. W., & Tarter, R. E. (1994). A neuropsychological profile of adolescent alcoholics. *Alcoholism: Clinical and Experimental Research*, 18, 159-163.
- Myers, M. G., Stewart, D. G., & Brown, S. A. (1998). Progression from conduct disorder to antisocial personality disorder following treatment for adolescent substance abuse. *American Journal of Psychiatry*, 155, 479-485.
- Nixon, S. J. (1994). Cognitive deficits in alcoholic women. *Alcohol Health & Research World*, 18, 223-232.
- Parsons, O. A., & Stevens, L. (1986). Previous alcohol intake and residual cognitive deficits in detoxified alcoholics and animals. *Alcohol & Alcoholism*, 21, 137-157.
- Pfeifferbaum, A., Adelsonstein, E., & Sullivan, E. V. (2006). Supranormal profile of white matter microstructural integrity in recovering alcoholic men and women. *Biological Psychiatry*, 59, 364-372.
- Piasecki, T. M., Sher, K. J., Slutske, W. S., & Jackson, K. M. (2005). Hangover frequency and risk for alcohol use disorders: Evidence from a longitudinal high-risk study. *Journal of Abnormal Psychology*, 114, 223-234.
- Rey, A., & Osterich, P. A. (1993). Translations of excerpts from Aarke Rey's "Psychological examination of traumatic encephalopathy" and P. A. Osterich's "The complex figure copy test" G. Cornish & F. W. Blyden (Trans.). *The Clinical Neuropsychologist*, 7, 3-21.
- Ree, J. P., Reck, T., Barch, K. K., Neuman, R. J., Fisman, R., Roebig, N., et al. (1995). Comparison of direct interview and family history diagnoses of alcohol dependence. *Alcoholism: Clinical and Experimental Research*, 19, 1018-1023.
- Schweinburg, A. D., Schweinburg, B. C., Chang, E. H., Brown, G. G., Brown, S. A., & Tapert, S. F. (2005). fMRI response to spatial working memory in adolescents with comorbid marijuana and alcohol use disorders. *Drug & Alcohol Dependence*, 79, 201-210.
- Sclerom, L. D., & Goldman-Rakic, P. S. (1988). Common cortical and subcortical targets of the dissociated prefrontal and posterior parietal cortices in the rhesus monkey: Evidence for a distributed neural network subserving spatially guided behavior. *Journal of Neuroscience*, 8, 4049-4068.
- Sher, K. J., Martin, E. D., Wood, P. K., & Rutledge, P. C. (1997). Alcohol use disorders and neuropsychological functioning in first-year undergraduates. *Experimental and Clinical Psychopharmacology*, 5, 304-315.
- Slutske, W. S., Piasecki, T. M., & Han-Carter, E. E. (2003). Development and initial validation of the Hangover Symptoms Scale: Prevalence and correlates of hangover symptoms in college students. *Alcoholism: Clinical and Experimental Research*, 27, 1442-1450.
- Sowell, E. R., Thompson, P. M., C. M. L., Welcome, S. E., Kan, E., & Toga, A. W. (2004). Longitudinal mapping of cortical thickness and brain growth in normal children. *Journal of Neuroscience*, 24, 8223-8231.
- Squire, L. M., Jacobs, J., & Tapert, S. F. (2009). The influence of substance use on adolescent brain development. *Journal of Clinical EEG & Neuroscience*, 40, 51-58.
- Sollenberg, S. F., Mudd, S. A., Bow, F. C., & Hill, E. M. (1998). Evaluating measures of family history of alcoholism: Density versus dichotomy. *Addiction*, 93, 1511-1520.
- Sullivan, E. V., Fama, R., Rosenbloom, M. J., & Pfeifferbaum, A. (2002). A profile of neuropsychological deficits in alcoholic women. *Neuropsychology*, 16, 74-83.
- Swift, R., & Davidson, D. (1998). Alcohol hangover: Mechanisms and mediators. *Alcohol Health & Research World*, 22, 54-60.
- Talbot, B. G., & Engel, L. S. (2007). *Using multivariate statistics*. Boston: Pearson.
- Tapert, S. F., Brown, G. G., Kienbaum, S. S., Chang, E. H., Frank, L. R., & Brown, S. A. (2001). fMRI measurement of brain dysfunction in alcohol-dependent young women. *Alcoholism: Clinical and Experimental Research*, 25, 236-245.
- Tapert, S. F., & Brown, S. A. (1999). Neuropsychological correlates of adolescent substance abuse: Four-year outcomes. *Journal of the International Neuropsychological Society*, 5, 481-493.
- Tapert, S. F., & Brown, S. A. (2000). Substance dependence, family history of alcohol dependence and neuropsychological functioning in adolescence. *Addiction*, 95, 1043-1053.
- Tapert, S. F., Granholm, E., Leedy, N. G., & Brown, S. A. (2002). Substance use and withdrawal: Neuropsychological functioning over 8 years in youth. *Journal of the International Neuropsychological Society*, 8, 872-883.
- Tapert, S. F., Schweinburg, A. D., Bartel, V. C., Brown, S. A., Frank, L. R., Brown, G. G., et al. (2004). Blood oxygen level dependent response and spatial working memory in adolescents with alcohol use disorders. *Alcoholism: Clinical and Experimental Research*, 28, 1572-1586.
- Tarter, R. E., Mezzich, A. C., Hsieh, Y.-C., & Parks, S. M. (1999). Cognitive capacity in female adolescent substance abusers. *Drug and Alcohol Dependence*, 59, 15-21.
- Taylor, L. B. (1986). Localization of cerebral lesions by psychological testing. *Clinical Neurology*, 16, 269-287.
- Taylor, L. B. (1998). Scoring criteria for the Rey-Osterich Complex Figure Test. In O. Spreen & E. Strauss (Eds.), *A compendium of neuropsychological tests: Administration, norms, and commentary* (pp. 350-351). New York: Oxford University Press.
- Tedesco, D., & Coyle, K. (2004). Cognitive performance in sober alcoholics: Performance on selected and divided attention tasks. *Drug and Alcohol Dependence*, 75, 277-286.
- Tienari, G., Henze, C., Kien, J., & Schuck, M. (1992). The anatomy of a follow-up. *Addiction*, 87, 1327-1335.
- Wechsler, D. (1991). *Wechsler Intelligence Scale for Children* (3rd ed.). New York: The Psychological Corporation.
- Wechsler, D. (1997). *Wechsler Adult Intelligence Scale* (3rd ed.). San Antonio, TX: The Psychological Corporation.
- Wechsler, D. (1999). *Wechsler Abbreviated Scale of Intelligence*. San Antonio, TX: The Psychological Corporation.
- White, R. F., Campbell, R., Echeverria, D., Kono, S. S., & Janiewicz, P. (2009). Assessment of neuropsychological trajectories in longitudinal population-based studies of children. *Journal of Epidemiology and Community Health*, 63(Suppl. 1), i15-i26.

- Wise, J., Shiffrin, M., & Browner, W. (2000). The alcohol hangover. *Annals of Internal Medicine*, 132, 897-902.
- Wilkinson, G. S. (1993). *WISC-III: Wide Range Achievement Test administration manual* (3rd ed.). Wilmington, DE: Western Psychological Services.
- Zuckerman, R. A., Ellis, D. A., & Fitzgerald, H. E. (1994). Developmental evidence for at least two alcoholisms: I. Biopsychosocial variation among pathways and symptomatology. In T. F. Barron, V. Hestrich, R. E. Meyer, & S. W. (Eds.), *Types of alcoholism: Evidence from clinical, experimental and genetic research* (pp. 134-146). New York: The New York Academy of Sciences.
- Received January 14, 2009
Revision received May 7, 2009
Accepted May 11, 2009 ■

Call for Nominations: *Journal of Neuroscience, Psychology, and Economics*

The Publications and Communications (P&C) Board of the American Psychological Association has opened nominations for the editorship of the *Journal of Neuroscience, Psychology, and Economics* for the years 2011-2016. The editor search committee is chaired by Peter Onyiah, PhD.

The *Journal of Neuroscience, Psychology, and Economics* (JNPE), first published by Educational Publishing Foundation of the APA in 2009, publishes original research dealing with the application of psychological theories and/or neuroscientific methods to business and economics. Therefore, it is the first peer-reviewed scholarly journal that publishes research on neuroeconomics, decision neuroscience, consumer neuroscience, and neuroscience, besides more classical topics from economics and business research.

As an interdisciplinary journal, JNPE serves academicians in the fields of neuroscience, psychology, business, and economics and is an appropriate outlet for articles designed to be of interest, concern, and value to its audience of scholars and professionals.

Editorial candidates should be available to start receiving manuscripts in July 2010 to prepare for issues published in 2011. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees. Self-nominations are also encouraged.

Candidates should be nominated by accessing APA's EditorQuest site on the Web. Using your Web browser, go to <http://editorquest.apa.org>. On the Home menu on the left, find "Guests." Next, click on the link "Submit a Nomination," enter your nominee's information, and click "Submit."

Prepared statements of one page or less in support of a nominee can also be submitted by e-mail to Molly Douglas-Fujimoto, Managing Director, Educational Publishing Foundation, at mldouglas-fujimoto@epf.org.

The deadline for accepting nominations is January 31, 2010, when reviews will begin.

The New Zealand Herald

How cannabis blunts teenage brains

By [Andrew Stone](#)

5:30 AM Saturday Sep 1, 2012

By the time they are 21, eight out of 10 young New Zealanders have used cannabis. Ten per cent use it often enough to be dependent.

What is emerging from groundbreaking research published this week is that despite a growing teenage belief that dope delivers a harmless high, young regular tokers may be dulling their brains permanently – and paying a price in adult life by performing poorly at school and limiting their options in the job market. Moreover teens who frequently use cannabis have increased risks of mental health problems, getting injured in car accidents and using other illicit drugs.



Persistent teenage beliefs that cannabis delivers little more than a harmless high have been challenged by NZ research.
Photo / Getty Images

The study of more than 1000 New Zealanders found that those who took up cannabis in adolescence and kept using it more than once a week had an average decline in IQ of eight points when measured at age 13 and again at 38. Those who began using cannabis as adults and stayed the course did not suffer the same decline.

In other words, the brain of a teenage cannabis user appears more susceptible to the effects of the drug than the adult brain, which suggests the bulletproof bravado of the regular teenager smoker is misplaced – and raises, say researchers with interests in the latest study, broader questions about current drug policy.

So just why is the teenage brain vulnerable to a chemical assault from cannabis?

Basically, say scientists, because the youthful brain is still being organised and reshaped to become an efficient adult brain.

Neuroscientist Michelle Glass says that around puberty, the brain goes through a growth spurt, especially the pre-frontal part of the organ which makes high-level decisions.

Associate Professor Glass, head of Auckland University's pharmacology department, said the brain underwent remodelling during these crucial years, so that some connections were strengthened, and others eliminated in a process called synaptic pruning.

Complex brain chemicals control the process of turning the teenage brain into the smarter, better organised adult version. The process has been likened to leaving behind the "noise" of childhood

experience to produce the more efficient, streamlined and better-functioning adult brain. New pathways form, and unnecessary ones are discarded as the brain develops in an optimal fashion.

"Simply put," remarked Professor Glass, "if you mess with your brain chemicals then you are going to change the growing and pruning that takes place."

The pull on a joint delivers a cloud of cannabis smoke into the lungs. Carried to the brain in the bloodstream, its active ingredient THC and other chemical components get to work by binding with sites called cannabinoid receptors, a bit like a boat docks at a mooring.

Scientists have established that these receptors react to the body's natural endocannabinoid system, which in turn is associated with memory, appetite, mood and pain-sensation.

From the perspective of the teenage brain, the endocannabinoid system – the chemicals and the receptors – is involved in the refinement of the neurons or cells which process information as the brain passes through the teenage years.

"Taking cannabis during this time can disrupt the natural processes," says Professor Glass. "Once you are an adult the same processes are no longer occurring, so you are particularly vulnerable in puberty."

So can cannabis actually alter the brain structure? Simon Adamson, senior lecturer at Otago University's psychological medicine department in Christchurch, says heavy use can have subtle effects.

Unlike alcohol or solvent abuse, which can lead to severe brain damage, Dr Adamson suggests the findings from the Dunedin study demonstrate that prolonged cannabis use can affect memory, attention span, verbal skills and reasoning.

Put together, Dr Adamson argues that the results suggest concern about heavy cannabis use "should be directed at adolescents".

Ideally, not smoking cannabis at all would be the goal, but short of that, public health policy could be aimed at delaying the start of dope smoking.

Social psychologist Joseph Boden, a researcher with a Christchurch project similar to the Dunedin study, said the evidence suggested the present approach to reducing the risks of drug use was not succeeding.

Cannabis was so widely used that it was seen as normal behaviour, and not deviant or criminal, Dr Boden said.

Though many tried the drug, treatment needed to focus on heavy dope users while evaluating drug education policies.

The Dunedin researchers suggest putting more effort into "delaying the onset of cannabis use by young people", with the implication that if you're going to indulge, then wait until you're an adult.

The Dunedin study findings

The authors followed 1037 children born in Dunedin in 1972 and 1973.

Their report, published in the Proceedings of the National Academy of Sciences, showed that teens who started smoking marijuana before the age of 18 and were diagnosed as being addicted to cannabis by 38 experienced an IQ drop in early adulthood.

But users who began smoking after age 18 – even if they used heavily – did not show a significant decline.

In looking at the relationship between marijuana use and IQ, the researchers took into account controlled factors such as years of education, schizophrenia and use of alcohol or other drugs that might also have an effect on IQ.

By [Andrew Stone](#)

Copyright ©2012, APN Holdings NZ Limited

The New Zealand Herald

High heel horror – even with shoes off

By [Elizabeth Binning](#)

5:30 AM Friday Jan 27, 2012

It's long been known that wearing killer heels may look good but is bad for your health, but new research shows switching back into flats at the weekend could be just as dangerous.

Australian scientists recruited two groups of young women – the first had worn heels at least 5cm high for 40 hours a week for at least two years. The second nearly always wore flat shoes.

The heel-wearers walked differently, even when they went barefoot and when they switched back to flats.

The findings, in the Journal of Applied Physiology this month, show heel-wearers move with shorter, more forceful strides and their feet are perpetually in a flexed, toes-pointed position, even barefoot.

Researcher Dr Neil Cronin said this shortened the fibres in the calf muscles and put greater mechanical strain on the muscles, meaning heel-wearers needed more energy than those in flats.

Dr Cronin said the large muscle strains that occurred when walking in heels could increase the likelihood of strain injuries, including when the woman changed to flat shoes or exercised in running shoes.

It's bad news for anyone with weekend fashion sense inspired by Hollywood, where stars such as Gwyneth Paltrow are regularly seen tottering on spikes as high as seven inches.

Paltrow's passion for heels reached new heights in 2008, when she flaunted a pair of \$900 Giuseppe Zanotti stilettos dubbed "limo shoes" because only those with chauffeurs to drive them around can wear them.

Podiatry New Zealand president Bruce Baxter said it was no secret that women who wore heels could suffer problems.

"We've always known it but to have this evidence is great," he said. "There's no doubt that the high heel shoe wearer who chooses to run is at far more risk of Achilles problems and other secondary issues."

Mr Baxter said of lot of the patients he saw were middle-aged corporate women who exercised at the weekend.



Shoe sales assistant Hannah McQueen, 22, loves wearing high heels despite the associated health risks. Photo / Natalie Slade

"It's a hard job at the best of times to tell a well-dressed women that she's putting herself at risk – I've even had women say to me, 'Well look, I'll cut my running down,' rather than compromise their fashion ideals."

He advises women wanting to put fashion first to opt for heels that have platforms at the front, to reduce the extreme height between the front of the foot and heel, and stretch well before they train in flat shoes.

ACC figures show 503 high heel-related injuries in the 2010/11 year, and 521 the previous year.

Confidence and poise come with height of fashion

Hannah McQueen says the risks of heels aren't enough to make her give them up.

"I love them, I think they make you stand a lot better, they give you really good posture."

Ms McQueen, who works in an upmarket Auckland shoe shop, says she wears heels most working days – partly because of her job but mostly because of the way they make her look and feel.

"They just make you feel a lot better, more confident ... They make you look taller, they just make the whole outfit look better."

The 22-year-old owns about 20 pairs of shoes and tends to buy about five or six new pairs every six months.

Her stilettos are usually reserved for "going out to town, weddings or parties", while wedges and thicker heels are common at work.

Her tallest heels are orange and 15cm high – but she claims they are not as uncomfortable as they might sound.

"I wore them all day at work and by the end of the day they were a bit sore, but probably no more than wearing flats because we have got a concrete floor.

"It doesn't particularly worry me because I feel I'm still young and I alternate the shoes I wear. I don't wear them every single day of the week."

You decide:

So are high heels good, bad or who cares, they're glamorous?

They're bad, check these out.

* [High Heels cause flat feet, say scientists](#)

* [500 women injured wearing high heels in the last 12 months](#)

But, actually, maybe they're not so bad. [Scientists say running shoes are worse for you than high heels.](#)

* [And even jandals cause more injuries.](#)

* Or, to hell with it, they just look great don't they? The Herald's Viva magazine [asked women around town](#) what they prefer; flats or heels?

* And then because we love shoes [we surveyed women on their favourite pair.](#)

And if it's all too much, reporter Susan Edmunds [looks at ways to find a comfortable pair of high heels anyway.](#)

By [Elizabeth Binning](#)

Copyright ©2012, APN Holdings NZ Limited

Obs.

Stem cells help paraplegics regain feeling

New hope was raised yesterday for people left paralysed by injury, after doctors said they had succeeded in using stem cells to restore feeling in two patients.

Knut Olstad, left, 20 minutes before his accident and, right, with his girlfriend Sandra Gloffka

By Stephen Adams, Medical Correspondent

7:00AM BST 04 Sep 2012

In a world first, doctors at Zurich University said two out of three men who had agreed to take part in an early trial, had regained some sensation below the level of their injuries.

It is the first time anyone has reported a positive outcome from stem cell therapy for severe spinal cord injury - and holds out the possibility of greater things in years to come.

The ultimate aim is to help those paralysed by injury to walk again.

Stem cells are special cells that can turn themselves into almost any kind of cell in the body. Those from human embryos have that absolute ability, while 'adult' stem cells have already specialised to a degree. For instance, neural stem cells can specialise into different type of nerve cells, but not something else like muscle or blood cells.

The trial worked on the theory that injected adult stem cells would transform themselves into spinal cord nerves, reconnecting brain and lower body.

Professor Armin Curt, leading the study, described the result as "fundamental".

He said: "To find something that can repair the spinal cord is a huge breakthrough. If we can show that something has changed for the better [as a result of stem cell therapy] that's fundamental."

He presented the findings at the annual conference of the International Spinal Cord Society in London on Monday.

Prof Curt was working in partnership with StemCells Inc., a Californian company which also has a base in Cambridge.

Dr Stephen Huhn, from the firm, said: "We think these stem cells are one of the first tools we have for actually repairing the central nervous system.

"To see this kind of change in patients who truly have the worst-of-the-worst type of injury to the spinal cord is very exciting."

The three patients, who all had complete spinal injury where they could feel nothing below the break, were each given a dose of 20 million 'adult' neural stem cells about six months ago.

This was primarily a safety trial, and Prof Curt said monitoring had shown "a very good safety profile".

But detailed questioning and objective tests also showed signals were passing up the injured spine to the brain, when they had not before.

One of the patients, Knut Ølstad, a 46-year-old Norwegian financial consultant, said: "I've noticed changes. When somebody touches my stomach, I can feel something. I can't be specific, but I can sense it."

Mr Ølstad was paralysed from the mid-chest down last summer during a cycling holiday in the Alps.

On his last descent, having cycled over 500 miles and climbed the equivalent of two Everests, he was flipped over the handlebars after braking to avoid a car.

The recent improvement was modest, but he said: "It provides me with hope for the future."

He believed stem cells could one day help him and others like him walk again.

Prof Curt was cautious about that possibility, but Dr Huhn said: "I think it's in the realm of possibility."

Stem cell research for spinal injury "requires an incremental approach where we build the therapy one brick at a time", he added.

Walking was not the only aim: people paralysed through injury also wanted to regain sensation, bowel and sexual function, he said.

The results come almost a year after another US firm, Geron, pulled out of a similar trial using embryonic stem cells, citing cost concerns.

Obs. S.

Marijuana use may raise risk of testicular cancer

Marijuana may double the risk of testicular cancer among young men, particularly tumors that are more severe, according to a new study published in the American Cancer Society's journal, Cancer.

"This is a very consistent finding now that marijuana seems to be associated with the worst kind of testis cancer that occurs in young men ... (it) may well be causal," said study author Victoria Cortessis, an assistant professor of preventive medicine at the University of Southern California's Keck School of Medicine in Los Angeles.

Two previous studies in 2009 and 2010 found similar associations.

According to the National Cancer Institute, testicular cancer occurs most commonly in young or middle-aged men. Of the 8,590 new cases estimated in the United States this year, about 360 men will die. The cause of most cases is unknown, according to the American Cancer Society.

The rates of testicular cancer in men are increasing— as much as doubling every 20 to 30 years, Cortessis said. At the same time, marijuana use has increased, often in young males.

"It may be that marijuana use is actually interfering with hormonal signaling in a way that disturbs function of the testis," she said. "That's a possibility - that's something that we can now formulate specific hypotheses about and try to understand."

In the study, researchers examined the self-reported history of recreational drug use among 163 men who had testicular cancer. All were between the ages of 18 and 35 when diagnosed in Los Angeles County between 1986 and 1991.

Researchers asked questions about their family history of cancer and their own use of various drugs, including if they had ever used them and, if so, the years they did so and the average number of times per week of use.

They compared these histories to that of 292 healthy men of the same age, race and ethnicity.

"We saw a pattern of dose response that we didn't expect," Cortessis said. Men who reported long-term usage of marijuana did not face greater risk, she said. The findings suggest "early experimental use," which would be short-term, may trigger increased cancer risk.

"But that is speculation, and something we're going to look into with data in the future," she said.

"... That certainly seems plausible because we know that hormonal signaling governs a great deal of the sexual development of the testis," she added. "It may be that guys who, when they're still pretty young, going through puberty, if they are experimenting with marijuana, it may be that that is the most harmful period when this could happen, but that's only one possible interpretation of those data."

The findings suggest that the possible effects be taken into consideration both in personal decisions regarding recreational drug use, in addition to times when marijuana and its derivatives are being considered as medicinal treatment for young males.

Post by: [Georgiann Caruso - CNN Medical Associate Producer](#)
Filed under: [Adolescent Health](#) • [Cancer](#) • [Conditions](#) • [Marijuana](#)

We recommend

[Why look like a slob while traveling?](#)

[Obama to young Hawaiian: 'You have a birth certificate?'](#)

['Bionic blonde' uses triathlon to take control - The Chart - CNN.com Blogs](#)

[Chemists create chocolate with half the fat - The Chart - CNN.com Blogs](#)

[Does your son have a hernia -- or worse?](#)

[Official: No deal yet between Chicago teachers and school system](#)

From around the web

[Walking Style Can Be Early Alzheimer's Sign](#) redOrbit

[Raging hormone disruptors: Common chemicals cause trouble even in small amounts](#) Grist Magazine

[The Boppy Vs. My Breast Friend](#) Everyday Family

[8 alarmingly unhealthy snacks to avoid](#) Mother Nature Network

[Symptoms & Stages of Lung Cancer](#) Healthline

[7 Ways to Stop Eating Out](#) Moneying.com

It might have sounded like Romney was embracing parts of Obama
Updated: 10:16 pm UTC, September 10 2012

Romney said today he wants to keep parts of Obamacare - mentions
Updated: 7:09 pm UTC, September 9 2012

Study shows organic produce isn't necessarily any healthier than con
Updated: 5:50 pm UTC, September 4 2012

Pres Romney would get rid of subsidies to help middle class buy ins
Updated: 5:31 pm UTC, August 31 2012

[Twitter](#) | [Empowered Patient](#)

About this blog

Get a behind-the-scenes look at the latest stories from CNN Chief Medical trends - info that will help you take better care of yourself a

Recent Posts

- [Stand Up 2 Cancer: A glitzy way to fight](#)
- [FDA unveils new device that detects counterfeit drugs](#)
- [Triathlon isn't easy, but the work is worth it](#)
- [Overheard: Surrogacy is not the same as incest](#)
- [Risks outweigh benefits for ovarian cancer screening](#)
- [Feds create new strategy to fight suicide](#)
- [Marijuana use may raise risk of testicular cancer](#)
- [Getting children ready for flu season](#)
- ['Bionic blonde' uses triathlon to take control](#)
- [Smoke-free for seven months... and counting](#)

Recent Comments



Susan on [Weight loss 'sleeve'...](#)

Winker on [Resisting temptation while on ...](#)

на нашем сайте можно... on [Teens aren't logging on f...](#)

Doungmanee on [Questions linger about long-te...](#)

AmanDa on [High IQ linked to drug use](#)

Archive

September 2012

M T W T F S S

1 2

3 4 5 6 7 8 9

10 11 12 13 14 15 16

17 18 19 20 21 22 23

24 25 26 27 28 29 30

« Aug

[Health Resources from Healthgrades](#)

- [When painkiller use becomes abuse](#)
- [Take a migraine health test](#)
- [Tips for working out with rosacea](#)
- [What works for psoriatic arthritis](#)
- [7 health conditions linked to restless legs](#)

Next entry » [Feds create new strategy to fight suicide](#)
« Previous entry [Getting children ready for flu season](#)

soundoff (360 Responses)

1. **Brian**

So let me get this straight...acute usage of marijuana causes testicular cancer, but as long as you keep smoking it you're fine??

I call bull...

September 11, 2012 at 09:16 | [Report abuse](#) | [Reply](#)
 ° *speculation*

No, they are saying that the chance of getting testicular cancer does not increase with continued usage, only that marijuana usage at a young age is what may be the trigger. However, this insinuates that if you wait to partake in this particular drug until after your testes have completed developing, then there should be no risk associated with testicular cancer. This article seems very premature and it sounds like there is much more research to do to substantiate a link between the two.

September 11, 2012 at 09:30 | [Report abuse](#) |
 ° *bannister*

Let's put it this way- women don't smoke when they're pregnant because their babies are still developing.

Likewise, a young man shouldn't smoke while his balls are developing. After that, go for it....

September 11, 2012 at 10:17 | [Report abuse](#) |
 ° *Guest*

In so many words, yeah, Bannister, that's what they're suggesting.

If this stuff is ever going to be legal, we're going to have to set a minimum age, just like tobacco and alcohol and studies like this could play an important role in striking the right balance.

September 11, 2012 at 10:20 | [Report abuse](#) |
 ° *Hugh Jass*

All they are actually saying is that it might be worthwhile to commission a larger and longer study to search for a causal link. This is like saying you found a message in a bottle and it might be worth getting a boat and looking for the castaway who sent it.

September 11, 2012 at 12:58 | [Report abuse](#) |
 2. *Lev*

Um... yeah, right. Tell me another one.

September 11, 2012 at 09:22 | [Report abuse](#) | [Reply](#)
 3. *SteveDS*

And this "scientific study" was peer reviewed and substantiated by whom? NO ONE.
 Wow, that's great science...

There are other studies that show people that smoke pot are even more less likely to get, say, lung cancer than even people that DO NOT SMOKE ANYTHING.

Explain that....

September 11, 2012 at 09:23 | [Report abuse](#) | [Reply](#)
 ° *Guest*

Wrong. The study was published in the American Cancer Society's peer reviewed journal. It's not anti-pot, it just found a correlation between using a substance, and a medical condition. It did not claim to have discovered causation. Relax.

September 11, 2012 at 09:47 | [Report abuse](#) |
 ° *Alex*

Publishing studies that can't determine causation are junk studies. If you cannot determine what CAUSED the issue you are studying then you are merely speculating, and a bad speculation at that when you use such a small number of cases.

September 11, 2012 at 12:21 | [Report abuse](#) |
 ° *Guest2*

"We saw a pattern of dose response that we didn't expect," Cortessis said. Men who reported long-term usage of marijuana did not face greater risk, she said. The findings suggest "early experimental use," which would be short-term, may trigger increased cancer risk."

"But that is speculation, and something we're going to look into with data in the future," she said.

Or maybe there was no correlation at all and it was just coincidental given the small sample size they used- numbers were not provided in the article or even the study that show marijuana as the specific factor in the cause of their cancer. They ONLY noticed that a higher population among the control group had a experimented with marijuana at a young age than those that were healthy. That is the extent of what the study say and the researchers actually say this. CNN is running with it to grab headlines- go figure.

Also, 360 deaths per year nationally from testicular cancer, even if SOME of those are attributed to early marijuana use is marginal, compared to the literally millions of people using it. 162 million people have used cannabis (as of 2004) and 360 have died from testicular cancer (if 100% of those deaths from testicular cancer were due to marijuana use) then that would be 1 in 450,000. Odds of getting stuck by lightning are 576,000 to 1, so not too far off from that.

September 11, 2012 at 12:32 | [Report abuse](#) |
 4. *Steve*

i agree. Just another scare tactic.

September 11, 2012 at 09:26 | [Report abuse](#) | [Reply](#)

5. *Chris*

Ughhh ok.

September 11, 2012 at 09:27 | [Report abuse](#) | [Reply](#)

6. *Melissa*

This is absolutely ridiculous.
Keeps everybodys eye off the ball, tho...

September 11, 2012 at 09:27 | [Report abuse](#) | [Reply](#)

7. *Curmudgeon*

A crock—I know four young men who were diagnosed with testicular cancer and none of them smoked anything, much less marijuana.

September 11, 2012 at 09:28 | [Report abuse](#) | [Reply](#)

◦ *bannister*

So what? Did you do a random study that involved thousands of people? No, it's just a few people you know, not a big enough sample to determine anything.

September 11, 2012 at 10:19 | [Report abuse](#) |

◦ *Alex*

So this study is junk too because they used less than 300 cases. Even the author admits its a speculation.

September 11, 2012 at 12:23 | [Report abuse](#) |

◦ *Hugh Jass*

"Did you do a random study that involved thousands of people?" Neither did the doctors in the story. They are trying to get a grant from someone to do a real study, though.

September 11, 2012 at 13:00 | [Report abuse](#) |

◦ *taker*

Great – your anecdotal evidence should be very influential to lawmakers. Seriously get an education

September 11, 2012 at 16:50 | [Report abuse](#) |

8. *Larry Mullins*

Also likly, you will grow hair in the palms of your hands, sprout a second head. Ever seen that 1930;s movie Wreafer Maddness, this would fit right in.

September 11, 2012 at 09:29 | [Report abuse](#) | [Reply](#)

◦ *ser*

listen idiot....the pot of 2012 is not the same pot of the 1960s or 70s...this stuff is laced with more chemicals then ever before..if you think you are smoking straight marijuana...then you are definately smoking something...so it could be that there is an increased risk now as the drug has become less pure and more diluted with other drugs and chemicals.

September 11, 2012 at 12:20 | [Report abuse](#) |

9. *Hollycow*

Another ridiculous study that should never have made the papers. 8500 cases out of 175 million males in America. That's 0.0005% of the population. Tying the increase in testicular cancer to increase in pot uses is like saying viewing TV, which has increased over the last 20 years, causes testicular cancer or riding a bike.

September 11, 2012 at 09:32 | [Report abuse](#) | [Reply](#)

◦ *taker*

It's called controlling for confounders, which they did. Read the study next time

September 11, 2012 at 16:52 | [Report abuse](#) |

10. *igotoneball*

Why does CNN keep publishing fluff pieces about marijuana studies that are not peer reviewed and have no concrete findings? This is the second in a month or so. The study had a tiny pool and no solid conclusion. This is irresponsible "journalism."

September 11, 2012 at 09:33 | [Report abuse](#) | [Reply](#)

◦ *Guest*

The study is published in the American Cancer Society's peer reviewed journal.

September 11, 2012 at 09:46 | [Report abuse](#) |

◦ *peridot2*

The American Cancer Society's journal, CANCER, does not publish fluff pieces.

September 11, 2012 at 11:01 | [Report abuse](#) |

11. *Tylor*

I'm calling B.S. on this article! Dr. Manuel Guzman won the 2005 Nobel Prize in Physiology and Medicine for his work with cannabis to block endothelial growth factors that provide blood to cancer cells. Cannabis does not cause cancer – it cures it!

September 11, 2012 at 09:34 | [Report abuse](#) | [Reply](#)
 ◦ *Guest*

Well, Tylor called BS so I guess we're done here. Forget that it's peer reviewed science.

You do know that it's possible for a substance to have a positive effect in one area and a negative one in another right? That's called a side-effect.

September 11, 2012 at 09:49 | [Report abuse](#) |
 12. *Melissa*

Ummm...Who actually wrote this "scientific" article, exactly?

September 11, 2012 at 09:35 | [Report abuse](#) | [Reply](#)
 ◦ *Hugh Jass*

It's legit, for what it is, which is a pilot program being used as a lure for larger grants to study the same thing. It's just too small to mean anything.

September 11, 2012 at 13:02 | [Report abuse](#) |
 13. *aginghippy*

Cigarette smoking definitely increases cancer risk and the risk of chronic lung disease in people of all ages, yet tobacco is legal. Alcohol increases the risk of liver and heart disease, destroys brain cells, contributes to acts of violence and car accidents and destroys careers and marriages, yet alcohol is legal.

It doesn't matter how many bogus studies condemn marijuana, for the sake of consistency and reason, it's time to end the costly and unjustified criminalization of marijuana.

September 11, 2012 at 09:37 | [Report abuse](#) | [Reply](#)
 14. *joe d*

no wonder cnn's rating continue to tank...

September 11, 2012 at 09:39 | [Report abuse](#) | [Reply](#)
 15. *Chris*

Tabloid science == "it MAY raise the risk". Another piece of pure propaganda. Here's the truth. They found no solid evidence of any kind that is actually does raise the risk, so the abandon their scientific standards go straight for the propaganda.

September 11, 2012 at 09:41 | [Report abuse](#) | [Reply](#)
 ◦ *Guest*

It's not tabloid science. Tabloid science would be claiming a causal relationship where they only found a correlation. This is pretty par for the course for a medical study.

September 11, 2012 at 09:45 | [Report abuse](#) |
 16. *Steve*

another propaganda BS story

September 11, 2012 at 09:50 | [Report abuse](#) | [Reply](#)
 ◦ *kuski19*

My thoughts exactly. I bet caring a cell phone in your pocket increases the risk for testicular cancer way way more.

September 11, 2012 at 10:48 | [Report abuse](#) |
 17. *Dave*

Wonder if any Pharmaceutical Co. was involved with this assumption????
 Just another ploy to try and stop the overwhelming increase in the demand to legalize medicinal usage ??
 I thought that the common scare tactic was that Marijuana made mens boobs grow larger? If so I'd be 'double D's' by now..

September 11, 2012 at 09:52 | [Report abuse](#) | [Reply](#)
 ◦ *Guest*

If you want to see if any corporations were involved GO READ THE STUDY. It's linked right in the article, and everything is there, open and public for all to see. That's sorta the point of peer-reviewed scientific journals.

September 11, 2012 at 09:54 | [Report abuse](#) |
 18. *Kelly51*

If you play with yourself you will go blind, if you smoke you'll get cancer, if you don't do anything wrong your whole life, you still die.

September 11, 2012 at 09:52 | [Report abuse](#) | [Reply](#)
 ◦ *Guest*

Irrelevant to the conclusions of the study, but nice attempt at a straw man.

September 11, 2012 at 09:54 | [Report abuse](#) |
 ◦ *Kelly51*

@ Guest. Why waste money on something like this? Don't they have more important diseases to study and find cures for? How about fetal alcohol syndrome for one? Oh and getting the word out to teens.

September 11, 2012 at 10:02 | [Report abuse](#) |

◦ *Guest*

Trotting out the old "alcohol is bad" argument again? And money spent on trying to find things that are related to cancer treatment is a waste?

Did you read the whole article or did you just look at the headline, see "Pot is Bad Mmmmmmkay" and scroll straight on down to the comment section?

The authors found that long term pot use by adults did not correlate with increased cancer risk, but that experimentation by younger males who are still developing may possibly have negative effects. That seems to me like something worth learning. I happen to be pro-legalization, but information like this is going to be important when deciding what the minimum age for use is going to be, don't you think?

September 11, 2012 at 10:15 | [Report abuse](#) |

◦ *peridot2*

@Guest: Agreed. Unfortunately some of CNN's readers are too stoned for reading comprehension. It's unfortunate but true.

September 11, 2012 at 11:05 | [Report abuse](#) |

◦ *Hugh Jass*

Kelly, the lead doctor has done studies looking at other factors too. She's more anti-cancer than anything else, but it's a tiny study that means nothing so far.

September 11, 2012 at 13:04 | [Report abuse](#) |

19. *jefftebowski*

Complete bull. THC has shown in many studies to actually slow the growth of tumors, exhibiting anti cancer properties. Our beloved government at the moment has no such interest in such things however. It is no coincidence you see stories like this get going around election time.

September 11, 2012 at 09:56 | [Report abuse](#) | [Reply](#)

◦ *Guest*

So..why is your study good science but this one's peer reviewed conclusions are bad science? This study has nothing to do with government agendas. It's all open and public for anyone to read, including methodology and sources.

The study's authors are not making a statement about political policy, simply reporting a correlation that their data suggest.

September 11, 2012 at 10:01 | [Report abuse](#) |

◦ *peridot2*

This study will be of significant interest when the use of marijuana is decriminalised or made legal and an age limit is required for legal purposes.

September 11, 2012 at 11:10 | [Report abuse](#) |

20. *WhatNow*

Who funded the study?

September 11, 2012 at 10:06 | [Report abuse](#) | [Reply](#)

◦ *Guest*

Click the link and read for yourself. The study's linked right in the article.

September 11, 2012 at 10:08 | [Report abuse](#) |

21. *Oudeis*

Guest, you are awesome!!!!!! In the middle of the plethora of emotional comments against an article published in a peer reviewed Journal of the American Cancer Society, you restored the voice of Reason!!!!

September 11, 2012 at 10:14 | [Report abuse](#) | [Reply](#)

◦ *Guest*

I wish. They just keep waving their pitchforks at me.

I happen to think the prohibition of pot does more harm than good by a wide margin, but trying to shout down anything that may be negative just makes the argument weaker.

September 11, 2012 at 10:18 | [Report abuse](#) |

◦ *peridot2*

A news item yesterday reported the US has a higher percentage of its population incarcerated than any other industrialized nation. This is a ridiculous waste of human potential, not to mention tax dollars.

September 11, 2012 at 11:20 | [Report abuse](#) |

◦ *Hugh Jass*

Er, pointing out that the sample is too small and there's no way to weed out other carcinogens is not emotional. Sorry if you can't take criticism.

September 11, 2012 at 14:21 | [Report abuse](#) |

22. *mikrik13*

Wasn't this idea professed in "Reefer Madness". If not, it should have been.

September 11, 2012 at 10:19 | [Report abuse](#) | [Reply](#)
 ° *Guest*

Your answer to a peer reviewed scientific article is some 60 year old movie that was so misguided it's a joke to this day?

The study actually found that smoking pot as an adult, even over long periods of time, does not correlate to increased cancer risk, it did, however, suggest a possible danger in allowing children to smoke it. That seems like a sensible conclusion to me.

September 11, 2012 at 10:23 | [Report abuse](#) |
 ° *peridot2*

No.

September 11, 2012 at 11:21 | [Report abuse](#) |
 23. *Gregory Faith*

I'm neither confirming or denying that I partook in the use of grass as a young man, but I will keep you posted if I develop cancer of the nuts.

September 11, 2012 at 10:20 | [Report abuse](#) | [Reply](#)
 ° *peridot2*

TMI

September 11, 2012 at 11:22 | [Report abuse](#) |
 24. *MaD Farmer*

This is such a crock of BS~ Can anyone say "Reefer Madness part II"? This is a blatant attempt by the media and Government-funded research to spark a new hysteria against the oldest and most used medicine known to mankind. I am tired of seeing this kind of story. The speculation here is sickening, and it is portrayed in the headline as fact. Irresponsible. Period. Shame on CNN for running this story.

September 11, 2012 at 10:30 | [Report abuse](#) | [Reply](#)
 ° *Guest*

See comment below. You're pretty much exactly what I'm talking about.

September 11, 2012 at 10:31 | [Report abuse](#) |
 25. *Guest*

Guys, take a deep breath, relax, and read what was written in the article more closely. Even better, check out the study itself. It's not anti-pot. It found that smoking pot as an adult did not correlate with increased risk of this type of cancer, even with prolonged use.

The study did highlight a potential danger with allowing young males who are still developing to access the drug too early. This is consistent with lots of substances found in our daily lives. It's not a radical idea.

When the internet collectively freaks out at the mere suggestion that someone dare think a negative thought about pot, you play directly into the stereotype that middle America has about you, and they're the ones who get politicians who make laws elected. They read you howling on these forums and see a cartoon character in their minds. You'll help your cause far more in the long run by being thoughtful and deliberate in your conversations.

September 11, 2012 at 10:30 | [Report abuse](#) | [Reply](#)
 ° *tacc2*

The problem is the way it's reported.

September 11, 2012 at 10:51 | [Report abuse](#) |
 ° *Guest*

I read it carefully, and checked the study that's linked. I didn't find it too hard to figure it out. The problem isn't the way it's reported, it's the way a lot of folks on the internet reflexively react to the mere notion that there might be a risk associated with pot use. If you doubt the impartiality of the article, as I did, you should check the study.

September 11, 2012 at 11:00 | [Report abuse](#) |
 ° *peridot2*

Reading comprehension isn't a strength in the US these days, at least not on internet boards. Worrying, isn't it?

September 11, 2012 at 11:26 | [Report abuse](#) |
 ° *Oudeis*

tacc2, you are right about the meaning of "beg the question" but Guest is still right about the right interpretation of the article!

September 11, 2012 at 12:49 | [Report abuse](#) |
 26. *jack*

They sure are ramping up the anti-pot propaganda lately! Apparently this magical plant causes everything from ball cancer to cannibalism!

September 11, 2012 at 10:32 | [Report abuse](#) | [Reply](#)
 27. *Keel Hauler*

It already causes dain bramage..

September 11, 2012 at 10:36 | [Report abuse](#) | [Reply](#)

• *tacc2*

I hear it causes white women to seek sexual relations with black entertainers and others!

September 11, 2012 at 10:46 | [Report abuse](#) |
28. *tacc2*

More BS "science". "Studies" like this one don't mean anything. This is garbage. This is not real science.

"In the study, researchers examined the self-reported history of recreational drug use among 163 men who had testicular cancer. All were between the ages of 18 and 35 when diagnosed in Los Angeles County between 1986 and 1991.

Researchers asked questions about their family history of cancer and their own use of various drugs, including if they had ever used them and, if so, the years they did so and the average number of times per week of use.

They compared these histories to that of 292 healthy men of the same age, race and ethnicity."

Looks like they used an extremely small study group and also relied on self reporting. With such a small self reporting group of people, I could show just about any correlation you can imagine. DO DOUBLE BLIND EXPERIMENTS (NOT SURVEYS) WITH A CONTROL GROUP OR STFU AND GO HOME!

September 11, 2012 at 10:45 | [Report abuse](#) | [Reply](#)
• *Guest*

While it's possible to get government permission to use pot in clinical studies, you obviously have no idea what a herculean task it is. They have nothing else to rely on besides self-reporting. In fact, in sociological studies, self-reporting is an acceptable methodology as long as you make suitable attempts to remove responders who don't seem to be telling the truth. It's not perfect which is why, if you read the study carefully, you'll find they didn't claim to have proved anything.

But if it's just junk science then I guess you don't think the conclusion that adults smoking had no correlation with increased cancer rates, even given decades of prolonged use was any good either.

September 11, 2012 at 10:57 | [Report abuse](#) |
• *tacc2*

Guest: As a matter of fact, I DO find the conclusion that adults smoking had no correlation with increased cancer rate to be no good either. And I do know how hard it is to get government pot for studies. It's nearly impossible. And have you seen the grass clippings the government passes off as cannabis? It's barely more than hemp. THAT is part of the problem. The government is purposely obstructing real research on cannabis.

September 11, 2012 at 11:19 | [Report abuse](#) |
29. *wcb2009*

This kind of garbage science conclusion begs the question... Who funded this?

September 11, 2012 at 10:52 | [Report abuse](#) | [Reply](#)
• *Guest*

This kind of garbage comment begs the question... Did you read the article? Click the link that takes you to the actual study and take a look for yourself.

September 11, 2012 at 10:58 | [Report abuse](#) |
• *tacc2*

The use of the phrase, "begs the question", raises the question; Do any of you actually know what it means to "beg the question"?

Oh, and as far as I can see the study does not show who funded it. Only who did it and where it was done.

September 11, 2012 at 11:02 | [Report abuse](#) |
30. *Quixoticelixer*

Why all the negativity towards this article? This is EXACTLY how Science works, by using the scientific method in order to deduce a possible correlation between two different variables using experimentation. There is no hidden political undertones here, this is simply a study performed to test the hypothesis that cannabis can have a negative impact on the developing testes of a young male. If you don't like how the wording of the CNN article, click the link and read the actual study. It is peer reviewed and has the methodology and findings printed in the paper. And if you don't like the study, do your own random double blind study to see if the paper is incorrect.

September 11, 2012 at 12:26 | [Report abuse](#) | [Reply](#)
31. *Sara*

This article in no way supports marijuana prohibition. Alcohol and cigarettes increase incidence of many cancers, heart disease, stroke, etc. etc. and its till legal. Nobody said marijuana was 100% without harm, but the minimal harmful effects in no way make a logical argument for its prohibition. If that were considered logic, then alcohol, cigs, junk food, fried food, and sugar would all be illegal. Just making a point here in case anyone thinks this is a valid argument for keeping it illegal, its not.

September 11, 2012 at 12:30 | [Report abuse](#) | [Reply](#)
32. *Alex*

According to this study, if I snort cocaine I'm LESS likely to get testicular cancer. I think that gives me enough information to determine how reliable the information is.

September 11, 2012 at 12:36 | [Report abuse](#) | [Reply](#)
33. **DLoc**

So even if this is true, it could just be from the blunts and tobacco because cigs might be able to cause testicular cancer... so use a pipe. And, if it has a risk of causing this kind of cancer just legalize it because we already legalize tobacco and alcohol which could cause cancer as well.

September 11, 2012 at 14:37 | [Report abuse](#) | [Reply](#)

[« Previous](#) | [1](#) | [2](#) | [3](#) | [4](#)

Post a comment

Name: (required)	E-mail: (required, but will not be displayed)
<p>CNN welcomes a lively and courteous discussion as long as you follow the Rules of Conduct set forth in our Terms of Service. Comments are not pre-screened before they post. You agree that anything you post may be used, along with your name and profile picture, in accordance with our Privacy Policy and the license you have granted pursuant to our Terms of Service.</p>	

Next entry » [Feds create new strategy to fight suicide](#)
« Previous entry [Getting children ready for flu season](#)



[Weather forecast](#)

SEARCH

[Home](#) | [Videos](#) | [NewsPulse](#) | [U.S.](#) | [World](#) | [Politics](#) | [Crime](#) | [Entertainment](#) | [Tech](#) | [Health](#) | [Living](#) | [Travel](#) | [Opinion](#) | [iReport](#) | [Money](#) | [Sports](#)
[Tools & Widgets](#) | [Podcasts](#) | [Blogs](#) | [CNN Mobile](#) | [My Profile](#) | [E-mail Alerts](#) | [CNN Radio](#) | [CNN Shop](#) | [Site map](#)
[CNN en ESPAÑOL](#) | [CNN México](#) | [CNN Chile](#) | [CNN Expansion](#) | [العربية](#) | [한국어](#) | [日本語](#) | [繁體中文](#)
[CNN TV](#) | [HLN](#) | [Transcripts](#)

© 2012 Cable News Network. Turner Broadcasting System, Inc. All Rights Reserved.
[Terms of service](#) | [Privacy guidelines](#) | [Ad choices](#) | [Advertise with us](#) | [About us](#) | [Contact us](#) | [Help](#) | [Advertising Practices](#)

Powered by [WordPress.com](#) VIP