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1st this hour we look at some of the week leading science breakthroughs including it is provoking safer than smoking quite keen are assuming you've heard of it is the food of the future on her brain scientists are hoping deaf people to make more sense of speech plus the brain implant which am envisaging is it about the size of a drawing pin will lighting up the field of October jetted ex how scientists are using light to control the brain the latest sign that this confined live 1st the number of people using electronic or e-cigarettes has doubled in the last 5 years and now stands at about 15 per cent of adults because e-cigarettes work by VAT rating nicotine rich liquid to produce the vapour rather than by burning tobacco some people regard them as a safer alternative to conventional smoking but are they safer might the perception of safety potentially encourage non smokers to embrace the habit this week to papers been published examining

these possibilities one of them by Richard me check from the Restive Michigan and the other from Leon Shihab from University College London Leon 1st an arson event said to do have a look at the relative risk of using e-cigarettes compared with standard conventional cigarettes be looked at long-term users of these products to these people have been using e-cigarettes bodies one of years and compared to their exposure to various cancer causing chemicals that people call smoke cigarettes the also another control group richer people although using nicotine replacement therapy also stopped making so nicotine replacement therapy are things such as nicotine patches and nicotine gum compared to a cigarette smokers those who are all completely smashed over to e-cigarettes dramatically reduce their exposure to the country causing chemicals to between 50 to 97 % reduction off levelled off cigarettes smokers and level to raise similar to those who use conventional forms of nicotine replacement therapy

and therefore on the basis of what you have seen your study what conclusion to draw think the main conclusion to draw from the studies that some of the little child they're on the risks and dangers of e-cigarettes public overstates the harm they can cause certainly compared to Earth the use of conventional cigarettes as those who rule didn't switch over to using e-cigarettes dramatically reduced exposure to cancer causing chemicals meaning that it is likely that it reduces their risk off subsequent diseases and cunts great game some very encouraging but on the other hand Richard Mia you're coming at this from a different direction what is your perspective world we look at a slightly different research question so as you pointed out in the introduction of the day right now what are whether e-cigarettes use among teens is leading them to become smokers or whether Alternatively kids er aping said smoking so we did is we interviewed a group of

17 year olds and we followed them up you're later so long kid to never smoked the baseline those who were beeping as compared to those who were beeping were about 4 times more likely to have smoked a cigarette in the following year then to among kids to had smoked in the past but were current smokers to the baseline we find that those who were dating also more likely to come back to smoking about twice as likely to smoke a cigarette in the past here suppose you can't really tell whether those individuals who vote and then smoked or carry on they think we're just gonna become smokers anyway so we have to look at that we had a question the baseline hard dangerous to think smoking us and we had a sizeable group said that smoking was most dangerous thing you could do and so with just those kids who would seem to be likely to go on to smoking and even among them we found that those who they are likely to smoke we also found that among the kids really keeping those without a cigarette was

highly dangerous the baseline were more likely to move away from that they're likely to reduce the perceived risks of smoking as if it what reasons did they give for taking up the habit the 1st place the dollar reason for the gaping among those surveyed said they want to experiment to see what it was like and also that they like the flavour speakers big incomes a wide right a favourite song which will appeal to teens like chocolate or cherry year public Leon it seems as good attention here on the one hand we have this tool the you're saying appears to really help on the basis of your data on the other hand we got rich tiers saying well actually it is pretty attractive to teams well Yes erm I've to say that I'm not entirely convinced that it's possible to prove forget they have offices be looked at this and the UK which has quite a relaxed attitude talks e-cigarettes we have seen an increase in the use of e-cigarettes among use as well although the use of e-cigarettes among

nonsmoking kids is very very low indeed and we can compare this Said the country that he said it does not really widely available such as new Zealand what you see when you compare the trajectory that the decline is very comparable so the pool was putting in the sense that if there is an endeared her to get effect from using e-cigarettes tool using cigarettes then you would expect in the long term that the decrease in consumption and singer prevalence and use should stop but this is not the case now that is the case Yes where think the latest data show that as cigarette consumption level to cigarette consumption this Lewis for them since and recalling her started a picture Yes that is true in fact that there's a historical low and low of cigarette smoking among teens in the US are study as one that actually was the 1st to report that but Ashley that long decline that started more than two decades ago

and other to point up the climb started well before is it worth it existed do you think then project that actually that these are an evil thing we should news on the basis of of issue only seeing a negative It's encouraging more people who have previously been extremely diligent giving up or not take up smoking the 1st place to embrace this habit my main message would be that many teams believe that taping is completely innocuous and it has no negative consequences are but I think if word got out that kid to they are significantly more likely to start smoking think many teams would think twice before picking maybe steer steer clear of devices do not think that is a risk beyond that it's not just kids it could be some of the adults was saying you're not smokers that might be tempted to toy with the idea of AP because it does taste nice perhaps or or it is not regarded as so bad here and Yes ladies it is a theoretical risk back to the date and UK

just do not bear this out there's no evidence that I concede currently that and non smokers partaking up they've been so you're view it's a good thing it will help people to minimize the harms that cigarettes do Yeah just reiterated the vast majority will use e-cigarettes are higher than current smokers and ex smokers and it is sad truth is that only about 50 % off its makers ever mention stops making their lifetime which means that in the UK once and still nearly 100000 die because of smoking and e-cigarettes are potentially a real for been something that has failed to stop making of other conventional forms of support to stop smoking and they appear to be significantly safer than continue to make rigid last word commute here are point out that among 13 and 15 year olds taping is more than twice as prevalent as cigarette smoking among teens BP has really taken off to the extent that it is a Bridge to smoking no I think that's a message that teens need to hear Richard me check and his paper was

in the journal tobacco control before Richard was Leon shot had who published his study in the annals of internal medicine the nerve cells or neurons that send messages from one end of the body to the other has fascinated anatomist for over a century and an outstanding question is how do these cells which can sometimes be meters in length keep all of the remote parts of the cells supply of energy and raw materials which normally made only in just one central region of to sell one popular idea is that you're owns contained microscopic equivalent of a conveyor belt system this transport materials to the need to go inside the cell the by building a mathematical model of how this might happen one scientist has found that anyone waiting for their dinner to be delivered by such a system would end up very hungry indeed so something else must be going on and Dr Timothy O'Leary this at the University of Cambridge and I'm a lecture